Case records and commentaries

In

Obstetrics and gynaecology

Submitted by

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In part fulfillment for the degree of Master of

Medicine

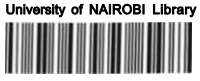
In

Obstetrics and gynaecology

Of the

University of Nairobi

February 2007



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Dedication

To my parents, Mr Gideon Mutinda Wambua and Mrs Beth Muthina Wambua for their inspiration and support throughout my studies.

To my wife, Fridah Chebet and son Mark Mutinda, for their unconditional love, patience and understanding.

Acknowledgements

The preparation of this book would not have been possible without the support of many individuals and institutions.

I would like to thank the Ministry of Health for granting me the scholarship to undertake postgraduate training at the University of Nairobi.

I feel greatly indebted to my teachers; the consultants, lecturers, and senior registrars of the Department of Obstetrics and Gynaecology both at the University of Nairobi and Kenyatta National Hospital for their dedication and patience in ensuring that I acquired all the necessary skills and knowledge during my training at the University.

I would like to acknowledge and express my deep gratitude to my supervisors Dr Njoroge Waithaka and Dr Sammy Kyalo for all their guidance, assistance, critique and comments on my commentaries and without whom my work would have been impossible.

To staff at the records department of the Kenyatta National Hospital who assisted in file retrieval for my long commentary in gynaecology.

To all members of staff of the KESHO BORA HAART study for their assistance and encouragement as I conducted my research for the long commentary in obstetrics.

To all the mothers at the KESHO BORA HAART study who volunteered to participate in my study.

To the members of staff in the Medical Microbiology Department who ensured the quick transportation, preservation, analysis and accurate results of all specimens collected.

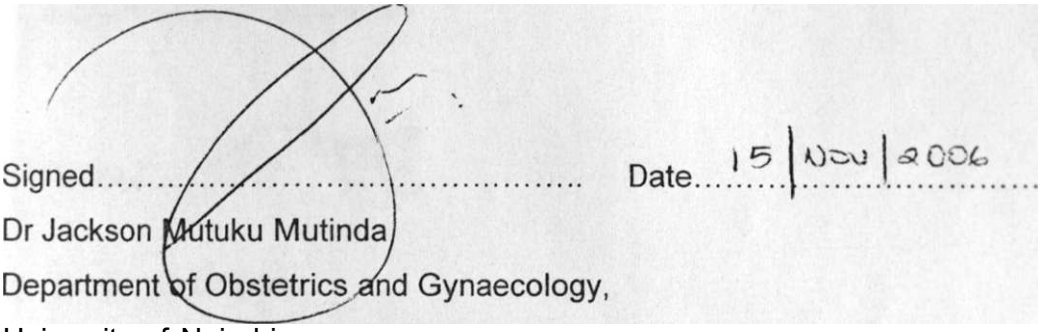
To the Principal investigator, KESHO BORA HAART study, Prof Ruth Nduati for giving me chance to participate in the study, for her invaluable assistance, guidance and supervision as I prepared my long commentaries.

To Raymond Musyoka [Statistician] for his invaluable assistance in data entry and analysis.

To all many unmentioned people who in their various ways made this course and work a pleasure.

DECLARATION

This is to certify that the case records and commentaries presented in this book are my original work and haye not been presented for a degree course in any other university. I further certify that all cases were managed by me under the supervision of the senior members of the Department of Obstetrics and Gynaecology, University of Nairobi.



Signed..... Date.....15 | NOV | 2006.....

Dr Jackson Mutuku Mutinda

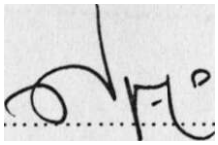
Department of Obstetrics and Gynaecology,

University of Nairobi.

CERTIFICATE OF SUPERVISION

This is to certify that the long commentaries in this book by Dr Jackson Mutuku Mutinda were researched upon under our guidance and supervision and that this book is submitted with our approval.

1. Dr Njoroge Waithaka
   Lecturer and Consultant Obstetrician and Gynaecologist
   Kenyatta National Hospital

   Signed 

2. Dr Sammy Kyalo
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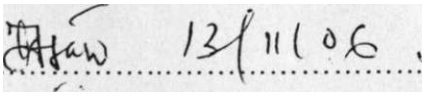
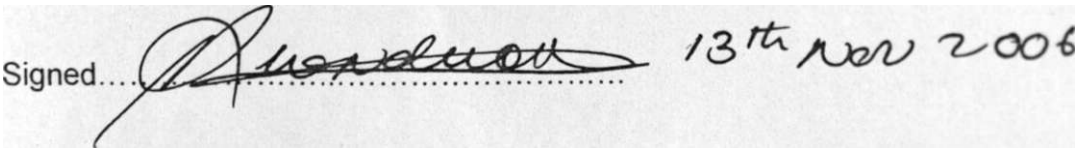
   Signed 

This is to certify that the long commentary in Obstetrics by Dr Jackson Mutuku Mutinda was researched upon under my guidance and co-supervision and that this book is submitted with my approval.

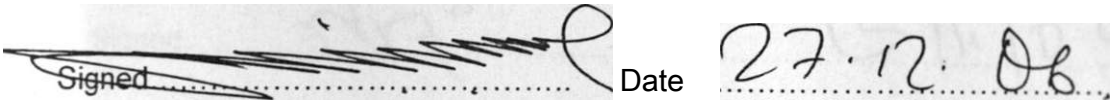
3. Prof Ruth Nduati
   Associate Professor of Paediatrics and Child Health,
   University of Nairobi

CERTIFICATION

This is to certify that the obstetric cases 5,13 and gynaecology cases 2,4,5,6,12 and 15 were managed by Dr, Jackson Mutuku Mutinda under my guidance and supervision at Kenyatta National Hospital.

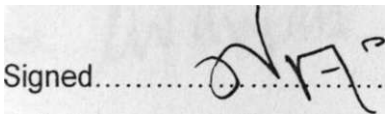
Prof Bill Oyieke



Signed ..... Date 27.12.06

This is to certify that the obstetric cases 2, 6,10,11,12,14,15 and gynaecology cases 8 and10 were managed by Dr Jackson Mutuku Mutinda under my guidance and supervisions Kenyatta National Hospital.

Dr Njoroge Waithaka



Date

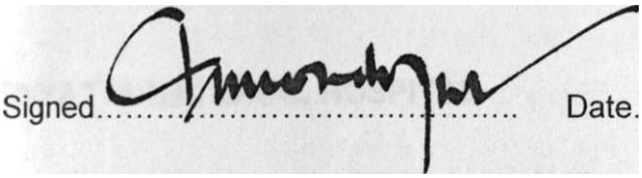
This is to certify that the obstetric cases 1,3,7,9 and gynaecology cases 1,3,9 andl 1, were managed by Dr Jackson Mutuku Mutinda under my guidance and supervision at Kenyatta National Hospital.

Dr Samson Wanjala

Signed. . . . . l i N . . (M M \ l \ . . . . . .Date. 29

This is to certify that the obstetric cases 4, 8 and gynaecology cases 7, 13 and 14 were managed by Dr Jackson Mutuku Mutinda under my guidance and supervision at the Nairobi Womens Hospital.

Dr Omondi Ogutu



INTRODUCTION

The short cases presented here were managed in the Department of obstetrics and Gynaecology - Kenyatta National Hospital and The Nairobi Women's Hospital. The Gynaecology long commentary was carried out at the Kenyatta National Hospital while the Obstetrics long commentary was carried out at the KESHO BORA Study clinic situated in clinic 23 within the hospital.

KENYATTA NATIONAL HOSPITAL

Kenyatta National Hospital (KNH) is the National referral Hospital of the Republic of Kenya and is situated approximately 3km from the Nairobi city centre. It also serves as a teaching hospital for the college of Health Sciences of the University of Nairobi for training of both undergraduate and postgraduate medical students as well as nursing and paramedical courses.

The hospital has a 1,400 bed capacity and is comprised of various departments including the obstetric and gynaecology department.

OBSTETRIC AND GYNAECOLOGY SERVICES

The obstetric and gynaecology outpatient services are provided at the antenatal and gynaecology clinics, casualty department and Family Welfare clinic. The inpatient sen/ices are provided in labour ward, acute gynaecology ward and the lying-in ward (Antenatal and Postnatal wards) and the elective gynaecology ward.

In addition to the hospital laboratory services, the Department of Obstetrics and Gynaecology offers the following laboratory services for the hospital: semen analysis, hormonal radio-immunoassay, cytology, chromosomal analysis, spectrophotometry surfactant test and glucose tolerance test. Ultrasonic foetal monitoring and radiological

examinations are provided in the radiology department of KNH and also at the Department of Radiology, University of Nairobi.

CASUALTY DEPARTMENT

From April 2002, the gynaecologic casualty has been shifted to ward ID admission area Previously, gynaecologic and obstetric emergencies were screened at the main casualty within the hospital on a 24 hour basis, but as from April 2002, the gynaecologic ones are examined by a senior house officer in the acute gynaecology ward admission area, while a special room has been reserved in labour ward for the same house officer to review the pregnant women whose pregnancies have reached viability stage or those with certain medical complications such as eclampsia. Most of the patients are treated and allowed home while the ones with more severe illnesses are admitted to labour ward or acute gynaecology ward.

ANTENATAL CARE CLINIC (ANC)

This is meant to be a high-risk antenatal clinic, but currently all patients are accepted regardless of whether high risk or not. The booking is done every Monday in the morning hours. Those considered to belong to the high-risk group are the patients who are primigravida, grand multiparous, have had previous operative deliveries, have medical conditions complicating pregnancy, have bad obstetric history or have had delicate or difficult gynaecological operations like for urinary fistula or myomectomy.

For those that are booked, a detailed history of patient's past obstetrical and gynaecological, medical, social history is taken. The patients are then sent to the laboratory for antenatal profiles which include: blood group (Rhesus factor), serologic test for syphilis (VDRL), full Haemogram (especially haemoglobin level), Urinalysis (protein/sugar) and voluntary counselling and testing for HIV. For first pregnancies or previous pregnancies more than 3 year intervals, two tetanus toxoid doses are given 4

weeks apart, otherwise only booster is given during the second trimester. Proteinuria, glycosuria, blood pressure and weight gain are checked on every clinic visit.

The teenage mothers have their own antenatal clinic on Monday in the afternoons This was started when adolescent pregnancies were found to be a major public health problem in the country. The important considerations are that teenage pregnancy is associated with more complications such as hypertensive disease of pregnancy, psychological problems, low birth weight and sometimes anemia, and sexually transmitted infections.

During the antenatal period, any antenatal morbidity is managed accordingly either as outpatient or inpatient. At 36 weeks, clinical pelvic assessment is done on all primigravida Amniocentesis for surfactant test is done at 38 weeks in those mothers who are planned for elective delivery. Also during this period of antenatal care, the appropriate medical cadres also provide health education on pregnancy and its related problems in all clinical sessions. Emphasis is laid on better nutrition, regular clinic attendance, preparation for labour and delivery, post-partum care, breastfeeding and family planning.

VOLUNTARY COUNSELLING AND TESTING FOR HIV

This is offered to all willing pregnant mothers: those who are negative are encouraged to avoid getting infected. Those who are positive are counselled on the various available methods of preventing mother-to-child transmissions of HIV. They are offered treatment with Nevirapine 200mg at the onset of labour and their infants are given Nevirapine syrup 2m/kg Bwt within 72 hours after delivery if they present in late pregnancy or early labor. They are also encouraged not to breastfeed. There are other regimens of antiretrovirals therapy to prevent Mother-to-child HIV transmission such as the use of Zidovudine long course or short course. However, due to the constraints of cost, patient compliance and gestation at diagnosis, use of Nevirapine is still feasible. Those in stage 4 disease or with CD4 counts < 200cells/mm^3 can be started on HAART as early as 16 weeks of gestation

Cotrimoxazole prophylaxis, hematinics and multivitamin supplementation is instituted. Currently, consideration is also made to those with CD4 cell count < 350cells/mm^3.

HOSPITAL ADMISSIONS

These fall into three categories namely: Booked patients from our antenatal clinic: Referrals from other hospitals or health centres: those without prior antenatal care. The last two categories constitute the majority of admissions. Booked patient report directly to labour ward admission area when they are in labour or they develop a problem when the clinics are closed e.g. after hours or weekends. Unbooked patients are seen first in casualty before being sent to labour ward admission area. The patients are seen by a house officer in conjunction with a senior house officer (registrar).

Other members of staff may be called if the need arises. Those in labour are admitted to the labour ward while those not in labour are admitted to the lying-in wards if so required or discharged home. Patients who are very ill are admitted to the acute room in labour ward and managed accordingly.

MANAGEMENT «F LABOUR

Active management of labour is advocated. The components of active management of labour included: strict diagnostic criteria of labour, early amniotomy, early use of oxytocin and continuous professional support. These measures are known to reduce the rates of caesarean sections and operative vaginal deliveries as well as prolonged labour and its attendant complications. Early amniotomy is now not routinely practiced since it has been shown not to have much effect on the duration of labour. In our set-up with high HIV infection rate, routine amniotomy is discouraged as a measure to reduce vertical transmission of HIV since it has been shown that if membranes have been ruptured for four hours and above the rate of transmission of HIV of the foetus rises markedly.

THE FIRST STAGE OF LABOUR

Those patients who come from the lying in wards for induction of labour are given a soap enema and a warm bath. Patients who come from home in labour are assessed and if they are in early labour with intact membranes a soap-enema is given. Progress of labour is recorded graphically on a partogram where uterine contractions, foetal heart rate and maternal pulse rate are recorded every half hour: blood pressure and temperature every hour: and abdominal and vaginal examination every four hours. During vaginal examinations the cervical dilatation in centimetres is recorded. In addition, the descent of the presenting part, presence and degree of moulding and the colour of the draining liquor is also recorded. Artificial rupture of membranes may be performed for some patients in active phase of labour. Urine analysis by dipstick is performed each time the patient passes urine to assess for proteinuria and gyscosuria. An intramuscular injection of pethidine is given routinely for analgesia in the early phase of labour. Other alternatives include use of Tramadol hydrochloride and hyosine-4N-butylbromide (buscopan).

The partogram has proved to be an indispensable tool in monitoring the progress of labour and predicting complications of labour to enable timely intervention. Descent of the head is determined by the fifths of the palpable head above the pelvis brim. Cervical dilation of at least 1 cm per hour is expected and short of this rate in absence of any contraindication labour is augmented with oxytocin.

SURGICAL SCRUB

In order to minimize the risk of transmission of microorganisms from the clinical attendant or surgeon to the patient, it is imperative that a surgical scrub be performed on the forearm and hands before donning of sterile gloves. The said parts of the upper limbs are cleaned with soaps or antiseptic and preferably running tap water and rinsing is done at least three times. Only the region under the nails between the digits and palm of the hands may be cleaned by use of soft brush for fear of inflicting injury to the skin or exposing deeper bacteria which would increase the risk of infection to the wound or whichever region being

examined like the birth canal. If the brush is used, it is discarded first, then the soap before rinsing the limbs with water and drying them. A sterile gown is then put on before the gloves.

PELVIC EXAMINATION

The necessity of the examination is explained to the patient who is the requested to empty the urinary bladder and lie comfortably on the bed with her legs flexed and abducted. A vulvo-vaginal toilet is done with swabs dipped in antiseptic solution. The vulva is cleaned in the antero-posterior direction away from the introitus. The vulval folds are then carefully cleansed and a swab passed over the anal region it is discarded. The examiner's scrubbed gloved left thumb and index finger are used to separate the labia widely to expose the introitus while the inde&I finger and the middle fingers of the right hand are introduced into the vagina-first one, the both. Note is taken of the following.

Cervix: Consistency, length (effacement), dilatation, position and relation to the presenting part.

Membranes: whether intact or ruptured.
Umbilical cord: Presentation or prolapse.
Presenting part: Nature, position, station, presence of caput and/or moulding.
Clinical pelvimetry: Adequacy of the pelvis based on diagonal conjugate by defining the sacral promontory, estimation of the depth of the sacral curve assessment of the prominence of the ischial spines and pelvic walls, estimation of the sub pubic angle and inter tuberous diameter.

SPECULUM EXAMINATION

This is also done aseptically in patients with conditions such as antepartum haemorrhage and PPROM. The patient is placed in lithotomy position on a delivery couch, the vulva

cleansed with antiseptic solution and draped with sterile towels. The examiner having performed a surgical scrub and wearing sterile gloves, then separates the labia majora by the thumb and index finger. Cusco's speculum is gently inserted into the vagina with the blades horizontal and valves slowly opened. Using a good light source the cervix is visualised and inspected for dilatation, bleeding, drainage of liquor, any local lesions and presence of discharge. The vaginal walls are also inspected as the speculum is gently withdrawn.

THE SECOND STAGE OF LABOUR

When the patient is confirmed to be in second stage by both the vagina and abdominal examination and also has the urge to bear down, she is transferred to the delivery room and placed on a delivery bed,

Normal deliveries are usually conducted by a midwife, a student midwife or a medical student under instruction, High-risk cases like multiple pregnancy, premature deliveries, all-operative vaginal deliveries and breech presentations are delivered by registrar in attendance. Clean delivery area and strict aseptic technique is adhered to during each delivery. The person conducting the delivery should always be gowned and wear a mask The perineum is cleaned with antiseptic solution and sterile towels applied. She is encouraged to bear down with each contraction and take deep breaths between contractions. Foetal heart rate is monitored every five minutes.

If the perineum is tight it is infiltrated with 10 mis of 1% lignocaine hydrochloride and a mediolateral episiotomy performed when the head is about to crown. The person conducting the delivery inserts the index and finger of the left hand into the vagina to protect the foetal head. Using a blunt-tipped Mayo's scissors an incision is made in the perineum starting in the midline and directed laterally and downwards.

When the foetal head distends the perineum the latter is supported by the right hand with a sterile pad while the hand keeps the head flexed and prevents sudden expulsion.

This prevents trauma to the perineum and foetal head in preterm babies. Once delivery of the head has occurred the mouiUfcnose are wiped with gauze to prevent aspiration of blood or amniotic fluid. A finger is passed around the neck to rule out presence of the cord. When found and is loose it is slipped over the head. If it is tight is double clamped and divided. The anterior shoulder is delivered followed by the posterior shoulder, trunk and legs. If the umbilical cord was no clamped, this is done and the baby shown to the mother before handing over to another midwife who carries out oropharyngeal suction as required In high-risk cases, a senior house officer in paediatrics is usually in attendance.

THE THIRD STAGE LABOUR

At delivery of the anterior shoulder 0.5 mg ergometrine is given intramuscularly to effect contraction of the uterus. For patients with history of post partum haemorrhage and for grandmultiparity it is given intravenously for a more rapid action. For cardiac and hypertensive patients 5 units of intravenous oxytocin infusion is given if uterine contractions do not occur spontaneously.

The placenta and membranes are delivered by controlled cord traction after signs of separation (rise in uterine fundus, lengthening of umbilical cord and gush of blood) have occurred. The birth canal is inspected for any tears and the episiotomy is repaired The patient is encouraged to empty the bladder. Post delivery blood pressure, pulse rate, uterine contraction and lochia loss are observed and clearly recorded. The patient is further observed for one hour (4^{th} stage) and then transferred to the lying in ward for subsequent observation. "Rooming in" is encouraged and early initiation of breastfeeding within 30 minutes is advocated as long as there is no contraindication. The mothers are nursed together with their babies to establish good lactation and bonding. Patients with normal delivery are discharged once they are stable and their babies well, usually within twenty hours due to pressure of bed space. The patients advised on perineal hygiene and frequent sitz baths until the episiotomy heals. The patients are also advised on neonatal

and infant care and breastfeeding as well as taught the symptoms of infection in the infant and themselves.

REPAIR OF EPISIOTOMY

The patient is placed in lithotomy position. The episiotomy wound is exposed by packing sterile gauze high up in the vagina and retracting the posterior vaginal wall towards the perineum with the index and middle fingers. The repair is carried out in layers using chromic catgut number 2/0.

The repair begins with the vaginal mucosa that is repaired in a continuous suture starting from the apex of incision. The muscle is then approximated with interrupted sutures and finally the skin is closed with interrupted stitches burying the knots to reduced post delivery pain. The vaginal pack is removed and the uterus is massaged to encourage contraction and expulsion of clots. A sterile sanitary pad is then placed on the vulva.

Episiotmy breakdown may result from infection, haematoma formation or faulty repair. The commonest cause however is infection. When a patient pr3esent with a broken down episiotomy that is infected, she is given broadspecturm antibiotics and advised to clean the wound by daily saline sitz baths. When the wound is free of exudate and covered with healthy granulation tissue, secondary repair is preformed. The repair involves debridement and tissue mobilisation after which the wound is sutured as described above.

OPERATIVE VAGINAL DELIVERY - VACUUM EXTRACTION

Vacuum extraction is used to assist delivery in the second stage. It is indicated in delayed second stage and to expedite delivery is patients with cardiac disease, hypertension and chronic pulmonary disease.

The patient is placed in lithotomy position except for cardiac patients who remain in a semi-recumbent position. The vulva is cleaned with antiseptic solution and the patient is then draped with sterile towels. Aseptic catheterization is performed and repeat vaginal examination is performed to rule out any contraindications to vacuum delivery such as CPD and malpresentations. About 20 mis f 1% lignocaine is infiltrated into the perineum and mediolateral episiotomy is made. The largest vacuum cap that will slip into the vagina and through the cervix which must be over 8cm dilated is then applied onto the foetal head as near the occiput as possible. A finger is then swept around the cap to ascertain that maternal soft tissue is not included in the cup. The vacuum pressure is then built5 up slowly at the rate of about 0.1 kg/cm^2 per minute up to a maximum of 0.8kg/cm2, allowing an artificial chignon to form. Traction is then applied with each contraction in the direction of the axis of the pelvis. During traction, one hand steadies the vacuum cup on the foetal head at right angles to the line of traction. Traction is applied until the head is delivered, the vacuum pressure is released and the cup removed from the foetal head. The rest of the delivery proceeds as for any normal delivery.

CAESAREAN SECTION

The commonest abdominal delivery performed is the lower uterine segment caesarean section. Classical caesarean section is rarely done except for cases of transverse lie with ruptured membranes.

Pre-operative care

For elective caesarean section the patient is starved for at least six hours before operation Blood is taken for grouping and cross matching and two units of blood are reserved Informed consent for general anaesthesia and operation is taken. The abdominal wall, vulva and perineum are shaved clean in the morning before the patient is wheeled to theatre. Premedication with atrophine 0.6 mg is given intramuscularly half hour before going to theatre.

Surgical procedure

In theatre the patient is placed in supine position with the legs separated, the vulva and perineum are cleaned with antiseptic solution such as chlorhexidine. Catheterization is done and the catheter is left in situ after draining all the urine.

The anterior abdominal wall is cleaned with antiseptic lotion and iodine or spirit, then draped, general anaesthesia is induced with intravenous thiopental sodium at a dosage which is effective in sedating the patient, but it varies between 250-500 mg. Succinyl choline 50-80 mg is also given intravenously for temporary muscle relation to enable endotracheal intubation. Anaesthesia is then maintained with nitrous oxide, oxygen and halothane. The abdomen is the opened in layers through a sub-umbilical midline incision, which extends an inch below the umbilicus and above the pubic hairline. After opening the skin, the rectus sheath is opened with curved Mayo's scissors. Pfannenstiel incision is also commonly made by some surgeons.

One side of the divided rectus sheath is elevated with two artery forceps and the muscle separated from their attachment to it, using a surgical blade, and then drawn to one side to expose the peritoneum. The latter is held in two long artery forceps and opened. The incision is extended up and down to the incision limits taking care not to injure the bladder.

Wet warm abdominal packs are place don either side of the uterus to prevent blood and liquor from running into the general peritoneal cavity. A Doyen's retractor is applied to reflect the bladder away as well as expose the uterovesical fold of peritoneum.

The peritoneal fold is picked with a non-toothed dissecting forceps and opened at the middle using a curved Mayo's scissors. The incision is then extended on either side and the peritoneum stripped off the lower uterine segment with mounted swab. The Doyen s retractor is shifted to include the lower part of the peritoneal fold in retraction of the bladder away form the lower uterine segment.

A small incision of about 2 cm is made in the lower segment about 2 cm below the uterine attachment of the uterovesical peritoneal fold. Once the membranes are reached the incision is extended laterally on either side using curved scissors directed by two fingers of the left hand. The opening is in an upward directed semilunar incision to avoid uterine arteries at the angles. The incision is enlarged enough to allow the delivery of the head and trunk. The membranes are then ruptured.

If the placenta is encountered in the line of incision it is either deflected on incised but in the latter case severe feto maternal haemorrhage may occur and therefore the cord has to be clamped quickly. The retractor is then removed. If the presentation is vertex, a hand is lipped into the uterus between the foetal head and symphysis pubis and lifted gently with fingers and palm through the incision while a modest transabdominal pressure is applied. After delivery of the head, the nostrils and mouth are sucked. The shoulders are then delivered using gentle traction and still with some fundal pressure. The trunk delivery follows readily.

Intravenous ergometrine (0.5 mg) is given as shoulders are delivered. After the infant is born the cord is clamped and divided then the baby handed over to an assistant for resuscitation. In case of need, a senior house officer in paediatrics is on standby.

The placenta is delivered manually unless it separates spontaneously. The cut edges of the uterus are held with Green Armitage uterine clamps to control any bleeding that might be occurring as the inside of uterus is wiped of blood and other placental tissue such as membranes. The placenta is also inspected for completeness. The uterus is lifted out of incision and covered with a wet abdominal pack. This is an optional step.

The uterus is then closed in 2 layers with No. 2 chromic catgut as a continuous stitch for both layers. The second layer is stitched such that it buries the first one and extended beyond the lateral edges of the stitch. The visceral perineum is then closed with No 1 chromic catgut.

The abdomen is mopped and the abdominal packs are removed. The pelvic viscera are the inspected for any abnormalities. Instruments and swabs are counted and if they tally with the initial count, then the abdomen is closed in 3 layers. The peritoneum is closed with continuous No. 1 chromic catgut stitch; rectus sheath is similarly closed with No. 2 chromic catgut and skin with interrupted silk or nylon. The wound is cleaned and the dressed. The catheter is removed and vulvo-vaginal toilet done. A pad is then placed in the perineum to absorb the lochia. General anaesthesia is reversed with 1.2 mg of atropine and 2.5 mg of neostigmine intravenously. Extubation is done and oropharyngeal suctioning done.

Blood loss is estimated from what is in the suction pump container and amount in wet swab and mops. The patient is then transferred from the theatre to labour ward.

Post caesarean section care

The patient is observed quarter-hourly for one hour, the half hourly for 2 hours, and the 4 hourly thereafter, noting the blood pressure, temperature, pulse rate and respiratory rate on a chart until she fully awakes, the four hourly. Intramuscular pethidine (50-100 mg 6 hourly) is given 48 hours to relieve pain. Intravenous 5% dextrose and normal saline are given alternately as 500 mis four hourly until bowel sounds are re-established. Prophylactic antibiotics are given to those at high risk of getting sepsis. On the third post operative day often haemoglobin level is checked and also urine culture is done. The stitches are removed after seven days of operation, after which the patient is discharged home with a case summary and having been informed about the nature and findings of operation. The mother is seen in the post-natal clinic after two weeks and the baby is also seen in the child welfare clinic in two weeks.

Post-natal follow up

The clinic is held every Friday morning. Patients with normal deliveries are followed up in the nearest health facility.

The blood pressure and weights of the patients are taken. Urinalysis is performed. History is taken of the puerperium, lactation and immunisation of the baby. The patient is then examined and any problem managed. Family planning advice is given and the patient referred to the family planning clinic for the various methods available.

CARE OF THE NEWBORN

All the newborn babies who are normal join their mothers after delivery unless the mother is mother is moribund. The babies with problems or where complications are anticipated together with babies delivered by operative vaginal delivery or by caesarean section are all reviewed by a paediatric registrar. Those having problems or who may develop some problems are transferred to nursery until their weight is about 2000 grams when they are discharged. All mothers with babies in nursery are lodged in the mothers' hostel.

THE GYNAECOLOGY UNIT

This consists of the out patient wing at clinic No 18 and two gynaecological wards 1B and 1D on the first floor of the tower block.

Ward ID is the acute gynaecology ward whereas 1B is the elective gynaecology ward. The unit is run by the three firms in the department.

A; THE GYNAECOLOGY OUTPATIENT SERVICES

These are mostly conducted in the clinics, which are three per week. Firm I on Tuesday. Firm III on Wednesday and Firm II on Thursday. The clinics are run by consultants, senior registrars and registrars. Medical students are usually in attendance. There is also an

oncology clinic, which is on Fridays in the mornings for follow-up of patients discharged from the ward. A colposcopy clinic is held every Friday morning. The majority of patients attending the gynaecology clinic are referred from casualty and emergency consultation and treatment.

Post-operative patients also attend this clinic. Some patients are referred from other specialist clinics in Kenyatta National Hospital, other hospitals in and around Nairobi and from district and provincial hospitals.

Infertility cases constitute about two thirds of the gynaecology consultation followed by uterine fibroids, abnormal uterine bleeding and adnexal masses. In the clinic, history is taken, a thorough physical examination is conducted and most of the investigations are done on outpatient basis to eventually reduce the hospital stay. These include haemogram, urea and electrolytes semen analysis, pap smear, pregnancy test among others.

FAMILY WELFARE CLINIC

This offers family planning services. Oral and injectable hormonal contraceptive devices and barrier methods are offered. Patients requiring sterilization are counselled for the procedure done by minilaparotomy or laparoscopy as a day case. Laparoscopy services are also offered in the family welfare clinic and this is usually done on an outpatient basis both for sterilization and diagnostic purposes. Most of the diagnostic laparoscopy is done on cases of infertility that are later admitted to ward 1B if tubal surgery is recommended.

B ; GYNAECOLOGICAL IN-PATIENT SERVICES

Elective gynaecology admissions - ward 1B

This is the elective ward to which patients are usually admitted from the clinic or are transferred from the acute gynaecology ward for further management. The ward has 36 beds. The patients are commonly admitted here have uterine fibroids, gynaecological malignancies and infertility among others.

Acute gynaecological admission - ward 1D

This is the emergency gynaecology ward having 32 beds but at times patients are forced to share beds due to their high population.

All the patients are clerked by the houseman and reviewed by the registrar who undertakes the management in consultation with senior members of the department. Apart from incomplete abortion, pelvic inflammatory disease and ectopic pregnancies are the next common cases admitted into this ward.

Uncomplicated cases of incomplete abortion have uterine evacuation done in the procedure room in ward 1D using Karman's Cannula and syringe. They are discharged home immediately. Patients who have undergone emergency laparotomies for pelvic abscises, ectopic pregnancy or pelvic masses have a minimum stay of four days post operatively. All patients with incomplete abortion and have uterine evacuation are counselled about contraception before discharge.

Patients with suspected carcinoma of the cervix are admitted at the first instance to ward 1D, where they receive emergency care i.e. blood transfusion, antibiotic, etc. Routine clerking and investigations are started. Examination under anaesthesia: staging and biopsy is done. When histology report becomes available they are either transferred to ward 1B or radiotherapy unit for definitive management. The patients also receive continuous care form the patient support centre and the Hospice.

GYNAECOLOGICAL OPERATIONS

A theatre is reserved in main theatre for emergency gynaecological operations Laparotomies for ectopic pregnancies (ruptured and non-ruptured) pelvic abscesses, ovarian cyst and other tubo-ovarian masses are done here. Smaller procedures like diagnostic dilatation and curettage of the uterus, removal of misplaced contraceptive devices and suction curettage are also performed.

Elective operations are done on Firm basis. Firm II on Mondays and Firms III and I on Thursdays. The operations are done form 8.00 a.m. to 5.00 p.m. The operations are performed under general anaesthesia as outline below:

Intravenous sodium thipentone and succinlylochline are used for induction of anaesthesia.
Nitrous oxide, oxygen and halothane proved maintenance anaesthesia.
Curare is given intermittently for muscle relaxation.
Atropine and neostigmine are used for reversal.
Some operations such as vesico-vaginal fistulae may be are carried out under spinal anaesthesia.

i) PRE-OPERATIVE PREPARATION

Patients for emergency laparotomies are prepared for theatre straight away in ward 1D. The abdomen is cleaned and shaved, stomach contents are aspirated if the patient has fed just before admission. Pre-medication is provided by 0.6 mg of intramuscular atropine half an hour before theatre. Blood is urgently cross-matched and an intravenous infusion of dextrose solution or dextrosaline started.

For elective operations, basic and special investigations are done and the date of surgery fixed. The nature and purpose of the operation is explained to the patient after which she gives an informed consent. Blood is requested and reserved for the day of the operation. The patient starves from midnight to the morning of the day of operation. The skin over the area of operation is cleaned and shaved. Pre-medication is provided by atropine at a dosage of 0.6 mg and pethidine at 50-100 mg both intra-muscularly half an hour before wheeling the patient to theatre.

ii) POST OPERATIVE MANAGEMENT

After the operation general anaesthesia is reversed and the patient wheeled to the recovery room where quarter hourly observation of blood pressure, pulse-rate, respiratory rate and temperature are taken. She is then transferred to the ward where observations are done four hourly.

Most laparotomy patients are kept in the ward for seven days. For the first 24 hours the patients are maintained on intravenous fluids. Oral fluids are given when bowel sounds are established. Blood transfusion is given when indicated. Prophylactic antibiotics are given routinely. A check of the haemoglobin level is determined on the ihird post operative day.

Before discharge the patient are kept in the ward for seven days. For the first 24 hours the patients are maintained on intravenous fluids. Oral fluids are given when bowel sounds are established. Blood transfusion is given when indicated. Prophylactic antibiotics are given routinely. A check of the haemoglobin level is determined on the third post-operative day.

Before discharge the patient is informed about the findings at operations and a discharge summary is issued. Patients are reviewed in the gynaecology clinic after six weeks or earlier when there is an indication. Total abdominal hysterectomy is the commonest cold gynaecological operation. It is described below.

TOTAL ABDOMINAL HYSTERECTOMY

This is a frequently performed surgical procedure in our unit. The procedure is usually clearly explained to the patient and occasionally to the spouse as well. A written consent is obtained form the patient. Preoperative treatment is given as described above.

The procedure is performed with the patient under general anaesthesia that is induced as earlier described. In theatre, vulvo-vaginal toilet is done with antiseptic lotion and under aseptic conditions the patient is catheterised and the catheter left in situ to maintain continuous bladder drainage during the operation. Pelvic examination under anaesthesia is performed and findings noted. The vagina is painted with methylene blue dye.

The abdomen is cleaned with antiseptic lotion and then draped with sterile towels. The abdomen is opened in layers through a pfenesteil, midline sub-umbilical or right paramedian incision. Abdominal and pelvic organs are inspected and the intestines are packed away with wet gauze packs. The uterus is held and the round ligaments are identified. Beginning on either side, the round ligaments are divided between clamps. The lateral stump is transfixed using chromic catgut no. 2. The anterior leaf of the broad ligament is opened. If the ovaries are to be left, the tube and ovarian ligament are double clamped enmasse and cut between clamps. The distal clamp holds the ovarian vessels as they approach the anastomosis with the uterine vessels. This stump is ligated using transfixed chromic catgut No. 2. The same is done on the opposite side. If the ovaries are to be removed with the uterus, the infundibulo-pelvic portion of the broad ligament. The ligament together with the ovarian vessels are divided between clamps and ligated with chromic catgut no. 2. The same is done on the opposite side.

The reflection of the bladder peritoneum tot he uterus is then freed by extending the incision to the anterior leaf of the broad ligament towards the midline. The bladder is then separated from the lower uterine segment, the cervix and the vagina by careful blunt and sharp dissection. Usually the bladder can be displaced into the lower pelvis quite easily. This procedure also displaced the ureters downward into the pelvis. The loose areolar tissue over the lateral aspect of the uterus is trimmed off and then the uterine vessels are clamped using two strong Kocher's forceps and then divided in between them. The distal portion is ligated with No. 2 chromic catgut. The same procedure is repeated on the contra-lateral side. The cardinal ligaments are clamped, cut and ligated with a similar suture. The uterosacral ligaments are then identified, cut and dissected off the cervix uteri

is palpated and two little wood clamps are applied to hold the upper end of the vagina just beneath the cervix. A stab incision is made between the two clamps using a blade, thus opening into the vagina. Using a pair of scissors, the incision is extended laterally, thus circumcising the vagina. The uterus is delivered and submitted for histology. The vaginal vault is held with long artery forceps and suing chromic catgut No. 2. It is then closed starting from the lateral corners. The lateral stitches are left long enough to be incorporated in the reperitonization stitch. The rest of the vaginal vault is then closed with interrupted mattress sutures and hemosstasis is achieved. Reperitonizatin is then done. The reflected peritoneum is stitched together incorporating the round, ovarian infundibulo-pelvic and utero sacral ligaments using catgut No.1. The abdominal packs are removed and after correct swab and instrument count, the abdomen is closed in layers.

THEATRE FACILITIES

Each firm has one specific day for elective operations that are done on Mondays and Thursdays.

In addition there is a laparoscopy theatre each Thursday used mainly for laparoscopic tubal surgery. A theatre is available everyday for emergency gynaecology operations.

CAESIUM THEATRE

This is situated within the radiotherapy department. Every Friday morning, examination under anesthesia, staging and biopsy of malignancies especially cancer is done by the registrar.

In this theatre, the radiotherapist does intracavitory insertion of caesium for patients with cervical carcinoma.

COUNSELLING CLINICS

There are four such clinics in the hospital, which offer counselling to obstetrics and gynaecology patients. These are the patient support centre, GOPC, high risk clinic, and the Nairobi Hospice.

i) THE PATIENT SUPPORT CENTRE

This is situated in the old hospital buildings where patients regularly attend from all the departments of the hospital. Sometimes the counsellors are called to the wards to counsel those patients who cannot go there. The counsellors consist of psychiatrists, sociologists, psychologists and trained nurses. Mostly, they deal with HIV counselling, puerperal psychosis patients and those patients who are poor and neglected by relatives. They counsel, treat and even assist patients find their way home.

ii) THE HIGH RISK CLINIC (HRC)

This clinic is situated on the ground floor next to the maternity wards. It deals with young single mothers who have had an abortion, those who have delivered babies and even those who do not want to rear their children. They counsel their clients, treat them for illness they may have with assistance from the obstetric and gynaecology wards, and also provide them with family planning and STD management services. The patients come from other institutions or from the obstetrics and gynaecology wards.

iii) THE NAIROBI HOSPICE

Workers here also offer counselling care in addition to management of terminal disease. The also offer narcotic analgesia and encourage home based care for such patients instead of hospital care. Most of their patients have cancer of the cervix.

iv) COUNSELING AT THE GOPC

Apart from the activities already alluded to, patients are also counselled at this clinic concerning their ailments and the need for certain investigations such as HIV test. This may, for instance, be necessary in patients who are under investigation for infertility before they are referred for laparoscopy.

THE HOSPITAL CHAPEL

This provides spiritual nourishment to those patients who are in need. It is situated on level 2 of the tower block.

THE MOTHER'S HOSTEL

This accommodates mothers with babies in nursery. When they get sick, they are treated in the wards where they were initially admitted.

OBSTETRIC SHORT CASES

Obstetric short case 1

HIV in pregnancy- elective c/s at 38 weeks

NAME A.W

I P. No; 1021032

AGE 23

DOA 14/4/05

DOD 19/4/05

Patient was admitted on 14/4/05 for elective caesarean section via labour ward.

History of index pregnancy

She was a Para 1+ O, with no living child. Her LMP was on 16/7/04; EDD was 23/4/05 and currently was at 38 weeks gestation. ANC was attended at KNH - Kesho Bora Clinic. ANP done:

- Hb 11.8g/dl
- Blood group A Rhesus D positive
- HIV 1/11 positive
- VDRL negative

She had initially started her antenatal care at a Nairobi city council health facility in Dagoretti. During the first visit she received pre-test counselling and subsequent HIV testing. The test turned out reactive and she underwent further counselling prior to her referral to KNH. She attended 7 visits at the clinic, and at 30 weeks gestation, CD 4 count was found to be 875cells/mm^3. Her WHO clinical stage then was stage 1. She was started on zidovudine 300mg twice daily from 34 weeks gestation, which she is still on to date. During the antenatal visits, she also received counselling on mode of delivery and infant feeding options. She opted for elective c/s and replacement feeding with formula milk.

Past medical history

Nil significant

Family social history

She was single and stayed in Dagorreti with her sister. She was unemployed and was educated up to Std 8. She was the fourth born in a family of 7 siblings, all were alive and well. Her mother was alive and well and her father had died. One of her sisters was asthmatic. She neither smoked nor drunk alcohol. Her partner was a married man, whose HIV status was unknown to her.

Obstetric and gynaecological history

She was Para 1+0. Her menarche was at 13 years of age. Flow lasted 3 to 4 days and the cycle was 29 days. She had not used any method of contraception in the past. Her first delivery was at KNH. It was a term delivery of a live female infant, who weighed 3.2kg the baby however died of pneumonia at the same hospital at 18months. No HIV serology was done on the baby.

At admission **examination** findings were: she was in good general condition, BP 110/60mmHg, pulse rate 82/min and respiratory rate of 20/min she was not pale and had no edema or lymphadenopathy.

The respiratory and cardiovascular systems were normal. The fundal height was term longitudinal lie, cephalic presentation, not engaged, the fetal heart was heard and regular at 138/min. vaginal examination was not performed.

Diagnosis Para 1+0 at 38 + weeks gestation for elective c/s due to PMTCT.

Investigations done:

- Hb 11.8g/dl
- Na 138 mmol/l
- K^+ 3.9 mmol/l
- Urea 4.1 mmol/l
- Creatinine 84.3 pmol/l

She was therefore transferred to the antenatal wards. On the morning of the surgery, she received a loading dose of nevirapine 200mg stat and zidovudine 600mg stat.
From the caesarean section, the outcome was a live female infant, birth weight 2900g who scored 9 in Ijpinute and 10 in five minutes. The mother was put on bromocryptine to suppress lactation and infant milk supplementation instituted.
She did well post operatively and she was discharged home.
She continues on follow up at the Kesho Bora Clinic and the baby's serostatus was negative at six months.

DISCUSSION

The patient presented was a 23 year old Para 1+0 at 38 weeks gestation with HIV disease clinically stage one, in pregnancy. She was delivered by caesarean section to a healthy female baby weighing 2900g. She was on Zidovudine prophylaxis since 34 weeks gestation.

Acquired Immunodeficiency Syndrome (AIDS) was first described in 1981, and a viral etiologic agent demonstrated in 1985. The HIV viruses 1 and 2 have since been known to be the cause of AIDS. HIV infection continues to increase rapidly in the developing world, especially in Africa and Asia[3], and is now the leading cause of death among urban women aged 20-40 years[2]. In East Africa, the sero prevalence of HIV infection in screened pregnant women is reported to be as high as 20-32%[1]. A higher value of up to 41% has been reported in South Africa [2].

Antenatal screening for HIV is presently being advocated for all pregnant women after informed consent, as this provides the opportunity to reduce risk of transmission and offer prophylactic treatment [4]. Our patient benefited from antenatal screening, and was put on prophylaxis. At KNH overall acceptability of screening was reported to be 99.4%[4]. ELISA test is the commonly used method of screening for HIV and this was used in our patient Other diagnostic tests include Western Blot, viral cultures and PCR test. These are important in assessing the severity of the disease and the viral load quantification, both

important factors in transmission of the disease to the fetus. CD4 counts and viral loads are used for surveillance. Our patient had her CD4 counts estimated antenatally.

Pregnancy may increase the progression to symptomatic infection by accelerating the depletion of helper T lymphocytes and the resulting immunodeficiency [15]. Increased rates of abortion and prematurity have been reported in infected women [17]. No increase in the congenital abnormalities has been noted in the HIV infected women in the general population [1]. Our patient progressed to term pregnancy and the baby had no gross anomalies.

WHO staging system of this infection is based on clinical features together with CD4 count and viral load forms the basis for starting treatment. These stages are I to IV as shown below:

WHO staging:

Stage I; Asymptomatic, Persistent generalized lymphadenopathy (PGL). Performance scale 1; asymptomatic with normal activity

Stage II; Weight loss of less Jhan_10%_ body, weight. Minor muco-cutaneous manifestations, Herpes zoster within the last years, Recurrent upper respiratory tract infections And/or performance scale 2; symptomatic with normal activity

Stage III; Weight loss more_IharLj0⁰/o, Unexplained prolonged diarrhea or prolongedjever, Oral candidcisis or hairy leukoplakia, Pulmonary tuberculosis within the past year and or severe infections such as pneumonias and pyomyositis. Performance scale 3; Bed-ridden but for less than 50% of the day during the last month.

Stage IV; HIV wasting syndrome (weight loss of more than 10% with either unexplained chronic diarrhea of more than one month, chronic weakness or chronic unexplained fever for more than one month), Opportunistic infections, Opportunistic malignancies And/or performance scale 4; Bedridden for more than 50% of the day in the last one month

People infected with the virus can be divided into three categories depending on how rapidly the disease evolves in them. Rapid progressors, evolve from infection to full blown disease in less than 5years, moderate progressors in 5-10years while slow progressors take more than 10 years to develop the AIDS symptoms. Some people have been found not to develop HIV infection despite persistent exposure to the virus. Such people are thought to have mutation in their genes responsible for the co-receptor CCR5. Our patient was in stage 1 disease.

The most significant sequelae of maternal HIV infection in pregnancy are mother to child transmission (MTCT) of HIV. Without intervention, rates of MTCT range from 15-30% without breastfeeding^ and rise to 30-40% with prolonged breastfeeding[8]. MTCT is responsible for 90% of HIV infection in children worldwide[9]. It is estimated that 5J0% of MTCT of HIV results from intrauterine transmissions, 10-2.0% takes place during delivery, while post-delivery transmission accounts for 5-20%[10]. In Africa, duration of breastfeeding, elevated breast milk sodium levels, mastitis, maternal viral load, and non-exclusive breastfeeding are all risk factors for HIV transmission via breast milk[11]. The risk of MTCT of HIV in the breastfed population is estimated to range from 25% to 48%[12].

Transmission depends on many factors![1,3,14]:

- Women with high viraMoad are more likely to transmit HIV to their infants.
- Women with severeImmunosuppression [CD4 counts < 200 cells/mm].
- Matemahiiicroruitne^^ increase the risk of MTCT of HIV significantly.
- Prolonged rupture of amniotic membranes, chMoaimionilis, andJSTJs significantly increase the risk of MTCT.
- During breastfeeding, cracked nipples and breast abscesses also increase risk significantly.
- HIV-1 is more readily transmitted from an HIV-infected woman to her infant than is HIV-2. Subtype C has been associated with increased risk of MTCT.

Infant risk factors for MTCT include:

- Prematurity
- Breastfeeding
- Oraljhiush ancLoral ulcers

- Invasive fetal monitoring during delivery
- Birth order [first twin]jr^twin pregnancies •

Vertical transmission can occur in utero, during labor or delivery and from breastfeeding. It is thought that probably about 70% of transmission occurs in late pregnancy and labor [14]. Breastfeeding carries an additional risk of transmission, with rates of 15-20% in Europe, 15-30% in USA and 25-35% in Africa [13,8].

Reduction of: vertical transmission is of primary concern in infected women and is inclusive [9,11,12,14,15]

I) Treatment of other STD's ^

II) Anti^cetroviraLlherapy (e.g AZT) for the mother during pregnancy/delivery and for the infant after birth

III) Reduction in peri-partum exposure e.g deliveiy by C/S for HIV positive women. The European Collaborative study suggested a 50% reduction with this policy.

IV) Avoidance of intra-partum invasive procedures e.g fetal scalp electrode or blood sampling

V) Vaginal cleansing with 0.25%_thlorhexidijie_d^uring labor, and repeated 4 hourly with infant washing after birth

VI) Avoidance of breastfeeding wherever possible- in developing countries, the risk of not breastfeeding may be the greater

VII) Passive immunotherapy for the baby and/or mother is being evaluated, and active immunization is undergoing preliminary studies in the USA.

Our client was given nevirapine prior to elective caesarian section, and the baby was also given the same as well after birth. All these combined; significantly reduce the chances of MTCT. Studies have shown that C/S delivery combined with the three-part AZT prophylaxis reduces transmission rates by about 85% compared with other modes of delivery [11,12],

Prevention and treatment of HIV in women and infants is priority public health concern. Policies to strengthen access to prenatal care, voluntary counselling and testing for HIV infection and provision of anti-retroviral therapy for HIV infected pregnant women should be emphasized.

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Obstetric short case 2

MULTIPLE GESTATION - Live outcomes

Name	W.A		
Ip No	1085658		
DoA	05/04/06	LMP	10/7/05
DoD	10/04/06	EDD	17/4/05
Age	26/F	GBD	39+
Para	1+0		

Presenting complaints

The patient was seen at the labor ward with complaints of lower abdominal pains for 3 days.

History of presenting complaints

The patient was well till 3 days prior to admission when she developed lower abdominal pains. The pain was increasing in frequency and intensity over the last 3 days. It was radiating to the back. There was no associated dysuria or frequency of urination. She also reported history of drainage of liquor, which was clear, and not foul smelling. It had flowed over the previous 3 days. There was no fever or chills.

Obstetric and gynaecological history

She was a Para 1+0. Her first delivery was in 2003 at term, to a live female infant who weighed 3 kg. It was SUD and the child was alive and well. Menarche was at 14 years of age. Her menses lasted 3 days and the cycle was 28 days. It was regular and there was no history of dysmenorrhoea. She had used oral contraceptive pills (Femiplan) in the past.

History of index pregnancy

She had attended antenatal care at Ushirika clinic. She went for a total of 3 visits. Her antenatal profile was:

- Hb 10.2g/dl

- HIV I/II Negative
- VDRL Negative
- Blood group O Rhesus D Positive

She received one tetanus toxoid

Family social history

She was a married woman who lived in Waithaka. She was educated upto form 4. She worked in sales promotion. Her husband was a sales and marketing executive. There was no history of major illness in the family. She did not take alcohol or smoke.

Past medical history

Nil contributory. No known drug or food allergies.

On **examination** she was in fair general condition, she was not pale, no cyanosis, no edema or lymphadenopathy.

Bp was 132/76 mmHg PR 74/min RR 29/min. the chest and cardiovascular system were essentially normal.

The fundal height was term. Multiple parts were palpable. The first was noted to be in longitudinal lie, cephalic presentation and the fetal heart was heard and regular. The presenting part was 1/5 above the pelvic brim. The vaginal exam revealed normal external genitalia the cervix was filly dilated anterior and fully effaced. SUD was anticipated.

A **diagnosis** of multiple pregnancy at full dilation was made.

She progressed well and the 1st baby was delivered SUD, outcome a LMI wt 2500g score 7/1 and 9/5.

The mother was commenced on syntocinon. Despite regular strong contractions no progress was noted of the 2nd twin. Subsequently a diagnosis of a retained twin was made and the patient was prepared for theater. Pre medication was given and blood drawn for grouping and cross match. Consent was also obtained.

Intraoperatively a live male infant whose weight was 2500g and who scored 7/1, 9/5 and 9/10 was delivered. The fetus was in left transverse position. The placenta was one but with two separate sacs. The uterus contracted poorly intra-operatively. Uterine manage and syntocinon infusion was commenced. Contraction improved and the uterus was then repaired in layers. The estimated blood loss was 800ml. She left theater in stable condition.

She did well post operatively and was allowed home on the fourth post operative day. Both twins were in stable condition.

She was scheduled for post natal clinic after 2 weeks, but she did not honor her appointment.

DISCUSSION

W.A. was a 26year old Para 1+0 who was admitted in labour with twin gestation at 39weeks with the first twin in cephalic presentation but the second twin was retained. She underwent caesarian section with good outcome.

Multiple or multifoetal pregnancy is defined as a pregnancy with simultaneous development of more than one fetus in the uterus. When there is more than one foetus but the second is outside the uterus the pregnancy is said to be heterotopic. The most common number of fetuses is two, but higher numbers are becoming frequent due to assisted fertility[1,2].

Twins can be divided into two groups, monozygotic and dizygotic. Dizygotic twins results from fertilization of two ova released in the same ovulatory cycle, while monozygotic

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(identical twins), arise from a single ovum that divides into two or more similar parts Monozygotic twinning is relatively constant throughout the world at rate of 1:250 births and is independent of race, age, parity and heredity. Dizygotic twins on the other hand occur in approximately 1 in 80 in general population but show variation depending on race, age, parity, heredity, nutritional status and recent usage of combined oral contraceptive Ovulation induction and in vitro fertilization affects both mono- and di-zygotic twinning[1]

There was a 50% increase in twin gestation and 40% in triplets and higher order pregnancy in America between 1980 and 1997 due to infertility treatment[4]. In Kenya, the incidence of twin pregnancy is 2.2% of all deliveries at KNH and Pumwani Maternity Hospital[5]. Our patient had no family history of twins and had not used fertility drugs or techniques but had used combined oral contraceptives prior to the index pregnancy.

Multiple pregnancies are associated with increased maternal and perinatal morbidity and mortality. Long-term physical and intellectual outcome is also compromised[6,7].

Dizygotic twins develop within two separate sacs and have two separate placentae. If the implantation is proximal to each other, the placentae may fuse but vascular anastomosis rarely occurs[2]. The degree of separation in monozygotic twins depends on the time of cleavage of the fertilized ovum. Division within 72 hours, before the inner cell mass is formed and outer bastomeres are committed to become chorion results in dichorionic diamniotic with two separate or fused placentas. Division between 3 and 8 days when the inner cell mass is already formed and outer blastomeres committed to form the chorion, but before the amnion is formed results in monochorionic and diamniotic gestation. Monoamniotic monochorionic twins develop when division occurs between 8-12days. By this time the chorion and amnion are already formed. Any division later than this, after the embryonic disc is formed, results in incomplete cleavage giving rise to conjoined twins[1,2].

Zygosity can be determined by examining the placenta for chorion and amnion, sex of the babies, blood group and genetic studies. DNA finger printing can assist in fetuses of the same sex. Ultrasound in the first trimester is useful and may show separate placental sites, the sex and the inter-twin membrane. Visualizing the inter-twin membrane becomes progressively difficult with advancing gestation[1,2,3]. Our patient's twins were thought to be monozygotic.

The diagnosis of multiple pregnancy may be made by clinical, radiological and laboratory findings. Important features in history include family history of twins, patient's previous twin deliveries, ovulation induction, recent use of combined oral contraceptives or invitro

fertilization. On physical examination, the uterus is larger than dates, usually by about four weeks; there is excessive maternal weight gain, and polyhydramnios. Palpation of more than one fetus; multiple fetal parts, simultaneous recording of different heart rates each asynchronous with the maternal pulse and with each other also assists in diagnosis. A different of at least 8 beats per minute with a silent area separating the foetal heart sounds are needed for certainty of originating from different fetuses. Palpation of one or more foetus after delivery of the first twin is diagnostic. Clinical examination is able to pick 75% of multiple gestations[1,2].

The presented patient had not been diagnosed to have multiple pregnancy because she went to the clinic late, had not had an ultrasonographic examination and the person who examined her antenatally did not did not suspect it and if he/she did, he/she did not document or confirm it by investigation.

The most commonly used investigation in diagnosis of multiple pregnancy is ultrasonography. This is a safe method and is accurate from the 4th week of gestation using a vaginal approach in both diagnosis and determination of zygosity. Ultrasound is also used for followup as well as antenatal diagnosis of malformations[1,2I 8I 9] . Beta HCG and alphafoetal proteins are usually higher than in singleton pregnancy. Their application is however mainly not for diagnosis of multiple gestation but for screening for CNS malformation and trisomic chromosomal disorders which are common by virtue of advanced age and the twinning event. The differential diagnosis of multiple gestation includes wrong dates, polyhydramnios, hydatidiform mole and pelvic tumours like fibroids in pregnancy[1,2].

The foetal presentation is variable. Internationally, presentation at term is estimated to be cephalic-cepalic in 42%, cephalic-breech in 27%, cephalic-transverse in 18% breech-breech in 5% while other presentations form 8%[10] . In Kenya, it has been found to be cephalic-cephalic in 45%, cephalic-breech in 26.4%, and breech-breech in 18.9%, breech-cephalic 6.3% and other presentation at 2.5%[5'11].

Multiple pregnancy has a higher incidence of maternal and perinatal complications. The increase in blood volume is higher leading to increased demand of iron and folate. There is an increase in red cell mass but not in the same proportion as increase in volume. This leads to higher incidence of dilutional anemia. The large uterus also compresses the renal system leading to obstructive uropathy and frequent urinary tract infections beside fixing the diaphragm and causing respiratory difficulties. Aortocaval shock occurs sooner than in singleton pregnancy. Pre-eclampsia and eclampsia are much more common[1]. The patient presented had only suffered exaggeration of emesis gravidarum and also not markedly different from singleton pregnancy.

Pregnancy outcome is poor in multiple pregnancy than singleton pregnancy. Abortions are more likely and malformations are higher as fetuses increase. There is increased incidence of preterm delivery that is associated with low birth weight and increased risk of neonatal morbidity and mortality. The average time of delivery is 36weeks in twins 33.5 in triplets and 31 in quadruplets and higher order pregnancies[1, 2' 11]. There are some complications that are unique to multiple gestation. These include cord entanglement for monoamniotic twins and diamniotic twins whose dividing membrane rupture. Cord entanglement occurs early in gestation and is rare after 36weeks. Vascular communications between twins may lead to twin-twin transfusion syndrome[13]. In this syndrome, the donor fetus becomes anaemic and growth restricted with oligohydramnios, while the recipient becomes polycythaemic, with polyhydramnios and has risks of circulatory overload and hydrops foetalis[1]. Weight discordance of 20% and haemoglobin difference of 5g/dl are needed for diagnosis[1]. Serial amnioreduction and bed-rest are used to pacify moderate cases near viability but for severe cases remote from term, foetoscopic laser occlusion of the offending vessels or selective foetocide are the only way to save the pregnancy[12, 13, 14]. Acardiac twin and conjoined twin are other serious malformations unique to multiple gestation. Without antenatal intervention in acardiac foetus, there is a 50-75% mortality of the normal twin[1,15].

Discordant twins may be a sign of pathological growth restriction in one foetus. The earlier discordant growth arises and the greater the discordance the more serious the sequel

Death of one twin in utero may occur as pregnancy progresses. Death before 12weeks may result in complete absorption of the foetal material resulting in what is referred to as Vanishing twin'. Incomplete absorption may leave foetal tissue, which may be found at delivery of the surviving twin. The tissue may be compressed to the uterine wall when it is called foetus compressus or it may flattened by absorption of tissue leaving remnants referred to as foetus papyraceous. Death later in pregnancy may be associated with brain damage of the surviving twin. This is thought to be caused by hypovolaemic shock as a result of placental haemorrhage soon after death of one twin or by thromboembolism associated with retention of dead foetus . Thromboplastin released by the dead foetus also may cause consumptive coagulopathy (DIC) if retained in the uterus for more than four weeks. This is however transient and must not need termination of the pregnancy[1] [16] [17, 18]

Delivery of multiple pregnancy should be in a centre that has qualified and experienced staff[1, 2' 3]. The mode of delivery depends on the foetal presentation and gestation. Patients who have cephalic-cephalic or cephalic-breech presentation can be allowed vaginal delivery if there is no obstetrical contraindications. In the cephalic-breech presentation, if the estimated weight of the breech is less that 2000 gram, it is referable to deliver by caesarian section[1,2]. The presented patient was diagnosed to have twins while in labor and she was already fully dilated.

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OBSTETRIC SHORT CASE 3

Severe dimorphic anaemia in pregnancy- Treatment with whole blood transfusion and haematinics

ijr trpi^MYV[10]

Name:	GA	**DOA:**	12/04/2006
Age:	19years	**DOD:**	30/04/2006
Parity:	0+0 ^	**IP/NO.**	1085272
LMP:	21/11/2005		
MBD:	21 weeks		

Presenting complaint

Dizziness, general malaise, palpitations and easy fatigability for a period of 2 weeks prior to admission

History of presenting complaint

G A was admitted with a two week history of above complains and points out that this started about a months after traveling to western Kenya. She however did not experience hotness of body, headache or nausea and vomiting. She was easily fatigued upon doing her normal house hold chores. She had one episode of fainting due to dizziness on the day of admission. There was no history of leg swelling or yellowing of eyes and there was positive history of neither bone pains nor bleeding tendencies. She did not have blackening of stools and wasn't a known peptic ulcer disease patient. Her diet consisted mainly of maize meal and green vegetables and occasionally, meat and milk.

Gynaecological and obstetric history

She attained menarche at 13 years and her menstrual cycle duration is 30 days with a flow of 3 days. The flow is moderate in amount (uses 2-3 pads per day that do not soak completely) and has no dysmenorrhea.

History of current pregnancy

She is a primigravidae who had not started attending antenatal clinic. The pregnancy had been uneventful. Quickening had been a week before hospitalization.

Family and social history

She is married to a security man whereas she is a housewife. There is no family history of bleeding tendencies or someone with anaemia requiring blood transfusion. There is no family history of any other chronic diseases.

Physical examination

She had not started antenatal clinic but reported that the pregnancy was uneventful before the onset of the presenting complains. Quickening was a week earlier before admission and this corresponded to the dates.

Past medical history

This was her first admission. She has had no previous blood transfusions and surgery.

Family and social history

She is married to a security man where as she is a housewife. There is no family history of bleeding tendencies or someone with anaemia requiring blood transfusion. She lives in Kawangware.

Physical Examination

She had moderate palor but there was no koilonychia, jaundice or cyanosis. There was mild pitting bipedal edema. Blood pressure was 120/60mmhg, pulse rate of 90/min and respiratory rate of 20/min her temperature was 37.2°c.

Cardiovascular examination: The pulse was regular and of normal character and volume. The jugular venous pressure was not elevated. The precordium was not active and there was no thrill or leave. The first and second heart sounds were heard with an injection systolic murmur.

The fundal height corresponded with the dates i.e. 22 weeks size and foetal heart tone was heard and was 138/min and regular. There was a non tender hepatomegaly of 2cm below the subcostal margin and a splenomegaly of 10cm below the subcostal margin. The CNS and respiratory systems were essentially normal.

Investigations

- Full haemogram (pre-transfusion)-WBC $8.03x10^9$/L, N-67.9% L-25.5%, M-0.5%. RBC $1.19X10^{12}$/L, Hb-3.12g/dl, MCV 106 fl, MCH 26.2pg, MCHC-24.8g/dl, platelets-$199X10^9$/L. The reticulocyte count was not done. PBF-dimophic picture with hypochromasia.
- Full haemogram (After transfusion)-WBC $6.4x10^9$/L, N-67.2%, L-24.5%, B-1.2%. Hb 5.7g/dl, MCV-97fl, MCH 33.2pg, MCHC 34.3g/dl, platelets-$208x10^9$/L
- Blood slide for malaria parasites- No malarial parasites seen.
- Antenatal profile: Blood group O positive, VDRL- negative, Serology for HIV-Non reactive.
- Hb electrophoresis-Hb AA
- Stool for ova/cyst - formed stool with normal colour, No ova or larvae were seen. There were cysts of blastocystis hominis seen.
- LFTs: T/protein 57(66-87g/l), Albumin 30(35-52g/l) Total bilirubin 13.2(3-23Umol/L), D/bilirubin 4.2(up to 6.8 Umol/L, AST and ALT were not done. ALP 98(64-306U/L).
- Urea 3.2mmol/L, creatinine 70 Umol/L
- Urine microscopy and stool for occult blood were done but the results were misplaced.

Diagnosis

Severe anaemia in pregnancy at 21 weeks gestation

Plan of Management

The patient was urgently transfused 2units of whole blood because of the symptomatic anaemia (uncompensated severe anaemia). Subsequently the dizziness lessened and she was able to do her day to day activities. Haematinic (Ranferon) syrup was prescribed to boost the hemoglobin concentration. Empirical anti-helminthic, mebendazole was give too. She was then allowed to go home after spending 2 weeks in the ward through the hematology clinic. A bone marrow biopsy was to be done in the clinic as an outpatient but the patient was lost to follow-up.

Discussion

Presented is a 19-year-old primigravidae, who presented with severe anaemia (Hb 3.12g/dl) at 21 weeks gestation.

Anaemia as defined by WHO(1965) and CDC(1999) as hemoglobin (Hb) concentration of less than 10 g/dl in pregnancy and puerperium and hemoglobin concentration, less than 12 g/dl in non pregnant state[1,2]. Severe anaemia in pregnancy is when haemoglobin concentration is less than 8 g/dl. Moderate anaemia is when Hb concentration is 8-9 g/dl[3]. The patient presented had a Hb concentration of 3.12 g/dl at admission.

Sifakis and Pharmakides[2], describe anaemia as a decrease in the oxygen carrying capacity of the blood and is characterized by reduction of haemoglobin concentration that may be either relative or absolute. "Physiologic anaemia" of pregnancy is due to a larger increase in plasma volume (50%) relative to RBC mass (30%) [2l 4' 5] This is of a great importance for normal fetal growth (enhanced placental perfusion) [5] Plasma volume expansion precedes RBC mass increase thus Hb values start to decline during early part of 1st trimester and reach a nadir near the end of second and early part of 3rd trimester. Plasma volume expansion then reaches a plateau but the RBC mass continues to rise resulting in a constant increase in the Hb level and by term, the Hb level may reach normal levels [3'4]. Outpatient presented at 21 weeks gestation, a time when physiologic anaemia is expected to be maximal and therefore consistent with haemodynamic changes of pregnancy. Failure of hemodilution to occur in pregnancy is associated with adverse fetal outcome (intrauterine growth restriction - IUGR and perinatal distress). Other complications include low birth weight, pjetemL-hirth, pregnancy induced hypertension (PIH) and intrauterine death of unknown cause.

As opposed to physiologic anaemia of pregnancy, true anaemia of pregnancy represents a real reduction in RBC mass and not a dilution in RBC mass[5]. Pregnancy with its increased demands on the mother often unmasks a borderline nutritional state resulting in new anaemia or worsening of antecedent anaemia. In such circumstances, Hb concentration falls to very low levels like our case.

Sinei[6] found that the incidence of anaemia in rural Kenya is 7.4%. The frequency of anaemia in pregnancy is quite variable depending on socioeconomic factors and whether or not supplemental haematinics are prescribed[7'8] It is estimated that half of all women in the world experiences anaemia during pregnancy[3]. In developing countries, the reported, the reported rates are 30-75%[7]

Maternal effects of anaemia depend on severity. Major maternal complications are not common with Hb concentration greater than 6g/dl. Severe anaemia may lead to pre-eclampsia and cpngeslive cardiac failure. Other complications include placenta praevia or abruption placentae, post partum haemorrhage and maternal death[2,4]. Our patient was in impending heart failure. Fetal effects of anaemia include spontaneous abortions, IUGR, prematurity, low birth weight and fetal -death[2"4]. The fundal height of our patient corresponded to dates. Moderate and severe anaemia have been associated with adverse perinatal outcome . Contrary to this association, Xiong and colleagues in a retrospective cohort study in China found that anaemia, in pregnancy does not increase the risk of poor birth outcomes[3]. This could probably be because the fetus is a remarkable successful "parasite" of the mother being able to get iron as well as compensatory placental hypertrophy that accompanies anaemia[5].

The commonest cause £Lartaemia in pregnancy-is Jj^eljfeficjency (MCV <80fl) anaemia accounting for 50% of ^a 11 anaemia cases followed by folic acid deficiency (MCV >95fl)[2 5 7]. Our patient had the later (MCV 106fl) and hypochromasia. Causes of iron deficiency anaemia include inadequate Jritake (nutritional), increased demands both fetal and maternal and to a lesser extent inadequate absorption and/or inadequate utilization[2]. Characteristic peripheral findings for iron deficiency anaemia, is hypochromia and microcytes. A peripheral blood smear for our patient showed a dimorphic picture. Other causes of hypochromia[2] should however be considered. These include haemoglobinopathies (Hb electrophoresis was HbAA) and chronic blood loss (stool examination for ova and cysts was negative for hookworm, though stool for occult blood was not done).

Folate deficiency (megaloblastic anaemia) is usually due to increased demand in pregnancy especially in multifetal pregnancies. It may also be because of nutritional deficiency or impaired absorption. High levels of estrogen and progesterone during pregnancy seem to have an inhibitory effect on folate absorption[2].

Other causes of anaemia include hemolysis from infections like malaria (Bs for MPS was negative), autoimmune hemolytic anaemia (coombs test was not done) and hypersplenism. Our patient did not have jaundice but had an enlarged spleen. Protein deficiency associated with kwashiorkor may lead to anaemia too. Our patient did not have stigmata for this. Aplastic anaemia is another cause of anaemia. This could result from bone marrow insult from infection, drugs or toxins and infiltration by hematological or other malignancies [2'3-]

Clinical presentation of anemia is variable depending on severity of anaemia and the primary cause. In general, patients present withjatigue, headache, dizziness, lethargy, palpitations and edema. Signs include palor, tachycardia, tachypnea and features of congestive heart failure[2]. Our patient had all the above features except tachycardia and tachypnea. Additionally, patients with iron deficiency may have cause-specific signs e.g. Koilonychia, glossitis and cheilitis.

The general approach to an anemic patient requires one to answer the following questions: Is the patient_anaemic?, what type of anaemia, is it (morphologically)? and what is the cause? These questions are best wjanswered by having a comprehensive clinical evaluation the followed by the following sequence[5].

- Confirmation of anaemia.(Hb concentration estimation)
- Peripheral blood smear or MCV
- Elucidating the cause of anaemia depending on RBC morphology

Normocytic normochromic picture is a feature of acute blood loss, anaemia of chronic disease or dimorphic picture of both iron deficiency and megaloblastic anaemia.

Hypochromic, microcytic picture is a feature of iron deficiency, anaemia of chronic blood loss and haemoglobinopathies. Megaloblastic anaemia is due to folate or vitamin Eh_2 deficiency. Further tests depend on the suspected specific cause.

Bone marrow biopsy is done in cases where the ca&e of anemia is not apparent or bone marrow infiltration is suspected. This is however, not recommended in pregnancy.

Management of anaemia depends on_ severity, gestational age and the cause of the anaemia. Our patient came in impending cardiac failure at 21 weeks gestation and therefore she was transfused two units of blood followed by oral haematinics. The need to avoid blood transfusion to treat severe anaemia makes prevention of mild-to-moderate anaemia of utmost importance. Blood transfusion is associated with risk of transmission of parasites,and viruses such as malaria, HIV and hepatitis. Cochrane review on routine supplementation in pregnancy concludes that available data from RCTs provide clear evidence of an improvement in hematological indices in women receiving preventive iron supplementation[7]. However, the effect of routine iron and folate supplementation in well-nourished communities is still unclear[8]. Oral haematinics containing 60 mg of elemental iron (of which 10% is absorbed) should be given 3 times a day[10]. Side effects include nausea, vomiting, diarrhea, and constipation. Syrups may reduce some of the intolerance and improve compliance[2].

Parenteral iron therapy is indicated when there is intolerance of refractoriness to oral iron. Total amount given should be enough to restore the haemoglobin concentration to normal plus 50% of that amount to replenish the iron stores[10]. This is given at weekly (IV or IM) intervals (at a dose of 250 mg) until the total dosage has been given. Intravenous iron administration is associated wit higher risk of venous thrombosis while IM iron results in pain at injection site, skin colouration especially with iron dextra (inferno) as compared to IM iron sorbitol. Anecdotal evidence suggest that IV and IM iron administration is associated with anaphylactic reactions[7].

In the presence of megaloblastic anaemia, folate at a dosage of 1-5 mg/d continued into puerperium suffices. Diet consisting of green leafy vegetables, legumes and animal protein should be part of the protocol [4*10]

Routine iron and folate supplementation during the latter half of pregnancy helps maintain serum ferritin and folate levels thereby reduce the proportion of women with anaemia in late pregnancy. This may however be only helpful in women who are anaemic (Hb levels <10 g/dl)[9]. WHO has adopted this approach as part of focused antenatal care.

Prenatal folate supplementation has been associated with reduction in babies with neural tube defects[11]. Prenatal iron supplementation is not beneficial.

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OBSTETRIC SHORT CASE 4

ECLAMPSIA AT 32 WEEKS GESTATION - DELIVERY BY EMERGENCY CAESARIAN SECTION

Name: A.D.

Age: 23 years

ID No: 4803

D.O.A: 19/05/04

D.O.D: 30/05/04

LMP: 05/10/03

E.D.D: 12/07/04 ^

Parity: Para 0+0

Presenting complaints

Patient noted to be convulsing by neighbors the previous four hours before admission. She had convulsed five times both at home and on her way to hospital.

History of presenting complaint:

The patient had been well prior to the onset of complaints according to the husband since patient could not remember any detail just prior to the convulsions. She suddenly developed grandmal convulsions which were lasting about one minute and occurred at intervals of^O minutes prioMo admission. She convulsed five times without gaining full consciousness post ictal. There was no history of fever, or history ofJxavel. There was no history ofli^urnajo the head, no history of epilepsy. She had not experienced such an episode before. She had not been on medication for hypertension and neither was she known hypertensive. [1]

Obstetric and Gynecological History

She was Para 0+0. Her menarche was at 15 years and she was getting regular menses every 28 to 30 days lasting 3 to 4 days. There was no dysmenorrhea!. She was not on any contraceptive method prior to conception. Her last menstrual period was on 05/10/03 and her expected day of confinement was 12/07/04. She was at 32 weeks gestation by dates.

She had attended antenatal clinic only once. Her blood was O positive and VDRL negative. No other results were available.

Past Medical and Surgical History

She had no history of chronic illness. She had no known food or drug allergies.

Family and Social History

She was married and was staying at Ayany. She was a second hand clothes vendor at a boutique in town. She did not take alcohol or smoke. There was no family history of diabetes mellitus, hypertension or bronchial asthma. There was family history of twining.

Physical Examination

She was sick looking, restless and semi conscious. She was not pale, not jaundiced, no oral thrush, no lymphadenopathy, no thyroidomegally. She was bruised on the lower lip of the mouth and tongue.

Her vital signs were as follows:-

BP was 170/110mmHg, temperature 37°c. Pulse rate was 92 per minute, respiration was 28j)er minute. Urinalysis showed proteinuria 4+.

Central Nervous System

She was semjconscious, restless, disoriented in_time, space and person. The pupils were bilaterally equal-and-reacting_ ta light. The fundoscopy was normal. There were no lateralizing signs. She had a Glasgow coma scale of 10 out of 15.

Respiratory and Cardiovascular systems

These were essentially normal.

Abdominal Examination

The abdomen was distended and moving uniformly with respiration. The fundal height was at 30 weeks, the fetus was in transverse lie. The fetal heart rate was 138 per minute and regular. No contractions were noted in ten minutes. She had no organomegaly.

Pelvic Examination

The external genitalia was normal and the cervix closed, firm and posterior. There was no discharge or blood on the examining finger. A diagnosis otedampsia_-at32 weeks in a primigravida was made.

Management

A decision to stabilize the patient and deliver the patient by emergency caeserian section was made. She was started on the following treatment:

Magnesium sulphate intravenously at a loading dose of 4 grammes was given slowly over 15 minutes followed by intravenous infusion of magnesium sulphate 5 gram in 500 mis of dextrose at 1 gram per hour.

Intravenous hydralazine 40 mgJnSQQmls of normal saline infusion titrated against the blood pressure.

Oxygen by oropharyoqeaLairway at 6-8 liters per minute.

She was suctioned by a nasal-pharyngeal tube when necessary.

An indwelling foleys jcatheter was inserted aseptically and charting of urine output against inpuHnstituted. The Anaesthetist was called to review the patient and agreed to perform the caeserian section when patient was more stable on one hours time.Blood was taken for grouping and cross match, urea, & creatinine and total blood count and malaria parasites and blood sugar.

After one hour, she had no secretions from the mouth, she was breathing more easily and the blood pressure was 140/100mmHg.

Patient was wheeled to theatre and placed in supine position. Abdomen was cleaned and draped. Geneal anaesthesia was induced and maintained. Abdomen was opened via Pfannestiel incision. Uterus was encountered and fetus palpated before the uterine incision made. Fetus found to be in breech presentation. Fetus delivered through a low segment elliptical incision. The outcome was a male infant weighing 1200 grammes who had an apgar score of 5 at 1 minute, 6 at 5 minutes and 7 at 10 minutes. The infant was examined by a paeditrician and admitted to the nursery. Placenta was delivered by controlled cord traction. Uterus was repaired in layers and hemostasis achieved

Abdomen closed in layers. The patient had poor reversal of general anaesthesia and was admitted to high dependency unit for observation where she stayed for two days. Baby succumbed after two days in nursery.

Post Operative Management

Patient had poor urine output in the first 24 hours while in high dependency unit diuretic challenge with frusemide 80mg intravenously improved the output. The blood pressure medication was stopped after 48 hours. She was continued on Magnesium sulphate for 24 hours after deliverly. The blood pressure remained normal from 24 hours after delivery.

Investigations done:

At admission,

Blood slide for malaria was negative.

Random blood sugar was 6mmo!/L

Urea and Electrolytes - Sodium- 137 mmol/l, Potassium -3.01 mmol/l, Urea- 4 mmol/L, Creatinine 86 umol/L

24 Hours Post Operative

Urea and Electrolytes - Sodium-140 mmol/L, Potassium - 3.45 mmol/L, Urea - 4.7 mmol/L, Creatinine - 91 umol/L

48 Hours Post Operative

Urea and Electrolytes- Sodium - 139 mmol/L, Potassium - 2.60 mmol/L, Urea - 4.4 mmol/L, Creatinine - 76umol/L

She developed a puerperal infection and post partum blues while in the ward. An endocervical swab for culture and sensitivity grew Escherichia coli sensitive to Cefuroxime, Augmentin, Cephalexin and Ceftazidine. She was put on Augmentin with resolution of the infection as evidenced by normalization of temperature, and lochia was not foul smelling with attendant involution of the uterus. Psychiatry review revealed minor depression due to the loss of the baby and was counselled and put on mild anxiolytics. Patient did well after this and was discharged for follow up in post natal clinic. She was seen severally as an outpatient and she was discharged from care.

Discussion

The patient presented was a 23 year old primigravida admitted with eclampsia at 32 weeks and delivered by emergency caesarian section due to transverse lie to a live female infant weighing 1200 grams. Baby succumbed in nursery.

Eclampsia is defined as the occurrence of convulsions or coma unrelated to other cerebral conditions with signs and symptoms of pre-eclampsia. Eclampsia may occur antepartum, intrapartum or post partum. 50% of all cases occur before onset of labour, 25%intrapartum and 25% post partum. About 50% of post partum eclamptic seizures occur in the first 48 hours after delivery but may occur as late as six weeks(l) Atypical eclampsia may occur before 20 weeks of gestation and more than 48 hours after delivery (2,3).Our patient had eclampsia antenatally at 32 weeks gestation.

Eclampsia occurs in 0.2-0.5% of all deliveries with occurrence being influenced by the same factors as in pre-eclampsia. The incidence of pre-eclampsia varies from place to place. In Europe, its reported at 6-8%, USA its 7-10% and in Africa its 18% of all pregnancies (4). At Kenyatta National Hospital, its 7.1 % of all pregnancies'5' Inspite of great advances being made in managing eclampsia, the patho-physiologic events leading to convulsions remain unknown. Women with eclampsia exhibit a wide spectrum of signs and symptoms ranging from extremely high blood pressure, proteinuria, generalised edema and hypereflexia to minimal blood pressure elevation, no proteinuria, no edema and normal reflexes. Eclampsia usually begins as a gradual starting with rapid weight gain and ending with onset of generalized convulsions or coma. Excessive weight gain over 1000 grammes per week in the third trimester with or without clinical edema may be the first warning sign6' Hypertension is the hallmark of eclampsia and excess weight gain or edema are not necessary for diagnosis6. In about 16% of cases, hypertension may be relative 130-140 systolic to 80-90 diastolic6 Eclampsia is usually associated with significant proteinuria over 2+ dipstick. In eclampsia, there's usually no aura proceeding seizures but the affected women may complain of headaches, visual disturbances and

right upper quadrant pain. Our patient had severe hypertension, proteinuria of 4+ and in post ictal phase.

The pathogenesis of eclampsia seizures is poorly understood. The mechanisms leading to development of convulsions or coma in eclamptic patients may include cerebral edema, ischemia hemorrhage or transient vasospasm. None of these mechanisms have been conclusively proven. The pathological changes seen in hypertensive encephalopathy such as hemorrhages, exudates and papilloedema are rare in eclampsia and fundoscopic changes are minimal.

Eclampsia causes functional derangement of multiple organs in the body [4] These include central nervous system, haematological,hepatic ,renal and cardiovascular systems. In central nervous system, there's cerebral edema and hemorrhage At the hepatic level, there's periportal necrosis, hepatocellular damage and subcapsular hematoma. At the renal level, there's decreased glomemlar filtration rate, decreased renal plasma flow and decreased uric acid clearance. Hematologic changes include decreased plasma volume, increased blood viscosity, hemoconcetration and coagulopathy. Cardiovascular changes include generalized vasospasm, increased peripheral vascular resistance, increased left ventricular stroke work index, decreased central venous pressure and decreased pulmonary wedge pressure. Investigations in a patient with eclampsia should be geared towards assessing the level of multiorgan damage. These include liver function tests, complete blood count, coagulation profile, renal function test such as serum creatinine and uric acid[8-] Cerebral such as use of computerized axial tomography, magnetic resonance imaging, cerebral angiography, ultrasonographic doppler flow studies of cerebral flow have been found not to be necessary in women with uncomplicated eclampsia. Renal function tests in our patient were deranged with attendant reduced urine output.
Common causes of convulsions in our setup were ruled out in our patient such as malaria and hyperglycemia.

Management of eclampsia^conslsls-ot^elzumxontrol, control nf hypertension and delivery. Eclamptic cpjmdsiQDS_are-aJife t h re ate n i n g-emergency^and require proper care in order to

minimize morbidity and mortality. The convulsion lasts for 60-75-seconds and can be divided into two phases. The first phase lasts 15-20 seconds and begins with facial twitching proceeding to rigidity of the body with generalized muscular contractions. The second phase lasts approximately 60 seconds and consists of the muscles of the body alternately contracting and relating in rapid ion. Coma follows the convulsion and the woman remembers nothing of there recent events Respiration is absent through out the convulsion and rapid deep respirations begin as soon as the convulsions end due to the ensuing respiratory and lactic acidosis, In managing the convulsion, attempts should be made to shorten or abolish convulsion, The mother should be protected from injury during the convulsion by preventing falls, use of a paddedjongue bladejto..prevent tongue biting[10] serious maternal injuries such as dislocated shoulder, fracture of humerus, and airway obstruction. Contusions have been known to occur following falls and adequate oxygenation should be maintained after a convulsion. Oxygenation after a convulsion is rarely a problem as the patient is able to breathe again unless she has had repetitive convulsions or use of drugs to abolish convulsions. A chest radiograph is then mandatory to rule out aspiration pneumonia. Our patient was able to breathe effortlessly after her airway was suctioned and hence a chest radiograph was not necessary since further convulsions were not observed. Therefore she was put on oxygen by mask and nursed in the left lateral position. Aspiration should be a rare occurrence with eclamptic convulsions. It occurs especially when the padded blade to prevent tongue biting is pushed deep in the throat stimulating the gag reflex. The lungs should always be auscultated after a convulsion.

Magnesium sulfate popularised by Pritchard and Zuapain[11] the drug of choice in control of convulsions. The mechanism of convulsant action of Magnesium sulfate is not yet clear. As soon as the convulsion has ended large secure intravenous line should be inserted and a loading dose of magnesium sulfate is given. In our unit, we use 4 grammes of intravenous loading dose Slowed by intravenous infusion at 1 gramme every hour usually 5 grammes of Magnesium sulfate in 1/2 litre 5% dextrose solution. This is the regime we used in controlling the convulsions in our patient. However elsewhere[1] an initial 6 gramme loading dose has been found to offer a sustained therapeutic range of MgS04 levels for a

longer time than the 4 gramme loading dose. Patients may have seizures while receiving Magnesium sulfate, If a seizure occurs within 20 minutes after the loading dose, the convulsion is usually short and no treatment is indicated[1]' If the seizure occurs more than 20 minutes after the loading dose, an additional 2-4 grammes of Magnesium sulfate may be given. Magnesium levels should be done every hour and levels ideally maintained at 4.8 to 8.4mg/dl[1], Maternal dose related effects at various serum levels are 10mg/dl with loss of deep tendon reflexes, 15mg/dl causing respiratory paralysis and 25mg/dl causing cardiac arrest. The patient is followed clinically by use of patellar reflexes, respiratory and pulse rates. Our patient was followed up by monitoring her respiratory and pulse rates. The antidote of Magnesium sulfate is 10mls of 10%Calcium Chloride or Calcium Gluconate intravenously. The remedial effect occurs within seconds. The maternal academia should also be corrected and blood gas analysis taken on every patient who has had an eclamptic convulsion. Sodium bicarbonate should only be given if the blood pH is less than 7.10. Control of blood pressure is important especially if the diastolic blood pressure exceeds 110mmHg. The goal is to bring the diastolic blood pressure into the 90- lOOmmHg range. Hydralazine is the drug of choice. Its a direct arteriolar vasodilator that causes a secondary baroreceptor mediated sympathetic discharge resulting in tachycardia and increased cardiac output[1]. This latter effect is important since it increases uterine blood flow and blunts the hypotensive response making it difficult to give an overdose. The dose is given 5 milligrammes intravenously every 15-20 minutes. Our patient's blood pressure was controlled by an infusion of 40 milligrammes of hydralazine titrated against the blood pressure which was taken every 10 minutes. Other blood pressure control drugs include labetalol, nifedipine, sodium nitroprusside, trimethaphan and nitroglycerine. Delivery of the mother is the ultimate treatment of eclampsia This should be done after the convulsions have been controlled and the woman stabilized. Women with an unfavourable cervix are electively delivered by caesarian section. If the cervix is favourable, labour is induced and/or augmented with oxytocin if the fetal heart rate is reassuring with no representations[12]. Our patient was stabilized first prior to delivery. Her delivery was by caesarian section due to the transverse lie and an unripe cervix.

Post partum management of eclampsia includes use of magnesium sulfate for at least 24 hours. This is because 25% of convulsions occur post partum with half of them occurring first 48 hours[1]. Hypertension may not resolve till 6 weeks post partum. If the diastolic blood pressure remains consistently above lOOrnmHg for 24 hours post partum, any antihypertensive agent may be used. At follow up after one week, the need for continuing antihypertensive therapy maybe evaluated. Maternal morbidity and mortality in women eclampsia is influenced by different factors including, accessibility to a tertiary care, and eclampsia at an earlier gestation, maternal age, underling disease and multiple gestation[6]. Primigravidas have a lower incidence of serious complications than multigravidas. This is probably due to the higher incidence of chronic hypertension and underlying renal disease in the militaries. Fetal morbidity and mortality in eclamptic mothers is mainly due to abruptio placentae, prematurity, intrauterine growth restriction and hypoxic episodes in utero.

Our mother delivered a low birth weight premature infant 1200 grammes who succumbed in new born unit due to prematurely.

Prevention of eclampsia is by universal prenatal care'[3] Our patient had only attended antenatal care only once. Bryan[14] in a long term follow up study of women who had eclampsia found no increase in hypertension in these patients above that expected in the general female population. He concluded that pre-eclampsia/eclampsia did not cause hypertensive disease and was not a manifestation of subsequent essential hypertension in pregnant women[14]. The sisters and daughters of eclamptic women are at increased risk for development of pre-eclampsia and eclampsia[15] and hence should be closely followed during pregnancy. Also the risk of pre-eclampsia is higher in future pregnancies in women who have had eclampsia remote from term[16,17,18]'

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Obstetric short case 5

NORMAL LABOR - OUTCOME LIVE INFANT

Name:	E.M		
Dofr	25/10/06		
DoD	26/10/06	LMP	22/1/06
Ip No	1125531	EDD	29/10/06
Parity	1+0	GBD	39+

Presenting complaints

She presented with lower abdominal pains for the last 8 hours.

History of presenting complaints

She was previously well. She noted lower abdominal pains that started spontaneously. They were intermittent and were increasing in frequency and intensity. There was no dysuria or frequency. There was no history of drainage of liquor or any per vaginal bleeding.

Obstetric and gynaecological history

She was a para 1+0. She had an IUFD at 33 weeks in 2005. The fetus was noted to have had a cord round the neck post delivery. Menarche was at 17 years of age. Her flow lasted 4 days and her cycle was 29 days. She had not used any contraceptive to date.

History of index pregnancy

Antenatal care was attended at NCC, Riruta Health Centre. She attended a total of 6 visits. She started at 16 weeks gestation. Antenatal profile done:

- Hb 11,8g/dl
- VDRL negative
- HIV 1/11 non reactive
- Blood group B Rhesus D positive
- Urinalysis NAD

She had 2 tetanus toxoid injections. The pregnancy was uneventful.

Family social history

She was a first born in a family of 6 siblings. She was a married housewife. The husband was an electrician. She did not smoke or drink alcohol. They stayed in Kawangware. "Fbefe smoking.

Past medial history

Nil contributory

On **examination,** she was in good general condition, not pale and no edema. The BP was 126/74mmHg, PR 91/min and RR 24/min.

The chest and the cardiovascular systems were normal. The fundal height was 36 weeks gestation, longitudinal lie, cephalic presentation; the presenting past was 3/5 above the pelvic brim. The fetal heart rate was 136/minute and regular. Contractions lasting 20-40 seconds 3 every 10 minutes were palpated.

Vaginal examination revealed normal external genitalia, the cervix was anterior, soft and fully effaced. It was 4cm dilated. Artificial rapture of membranes was performed, clear liquor was obtained and no cord was palpated. The pelvis was adjudged clinically adequate.

A diagnosis of active labor was made.

She was started on partogram ½ hourly and analgesia with tramal 100mg was administered. The next review, the contractions were 40-60 seconds about 4 in 10minutes. The fetal heart remained regular and the presenting past was 2/5 above the pelvic brim.

The cervix was at 8 cm dilatation.

She progressed well and 2 hours after the last review she delivered a live female infant, who weighed 3.1kg score 8/1, 9/5 and 10/10. They were transferred to the post natal ward in good condition.

On 26/10/06, the mother reported no complaints. She was in good condition, the breasts were active. The uterus was well contracted and the lochia was rubra and minimal. The calves were non tender and she was breastfeeding well. She was allowed home on analgesics and advised to be seen after 2 weeks in the postnatal clinic.

DISCUSSION

This patient presented at term with the spontaneous onset of normal labour and went on to have an uncomplicated vaginal delivery.

Labour is defined as a process characterized by painful, rhythmic and co-ordinated involuntary uterine contractions that effect progressive cervical effacement and dilatation and descent of presenting part of the foetus through the birth canal leading to expulsion through the birth canal[1]. Labour is commonly divided into four stages[1,2]. The first stage begins with the onset of labour and ends when full dilatation of the cervix (10cm) is complete. This is usually the longest phase of labour and lasts 8-12 hours in a primigravida and 6-8 hours in a multipara. It is divided into a latent phase from onset of labour to 4cm cervical dilatation, and an active phase from 4cm to 10cm cervical dilatation. The second stage of labour extends from full dilatation of the cervix to delivery of the placenta. The fourth stage of labour is the hour immediately after the placenta is delivered. This patient presented to the labour ward at term in early phase of the first stage of labour.

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During the latent phase of labour, little cervical dilatation takes place though considerable changes take place in the connective tissue of the cervix making it softer and stretchable . This phase of labour is sensitive to sedation and conduction analgesia. The latent phase of labour can be prolonged, define as lasting more than 20 hours in a primigravida or 14 hour in a parous mother[2].

This patient was admitted at 4cm and was having moderate contractions. She was given analgesia during this period. She was to be reviewed in 4 hours for progress. She had increased frequency of uterine contractions that were more painful. During this phase of

labour, cervical dilatation proceeds at its most rapid rate. Sedation and conduction analgesia do not affect progress in this stage of labour[2]. Monitoring of labour progress was commenced at this stage using a partograph noting cervical dilatation, descent of the presenting part, colour of liquor amni when membranes are ruptured, foetal head moulding and caput formation, drugs administered, foetal cardiac activity and maternal vital signs. Normal active phase of labour measured by cervical dilatation has been shown to progress at a minimum of 1.2cm/hour is parous mothers[2]. However, there is considerable variation in these times. This patient dilated on average at about 0.8cm/hour during the active phase of labour. She was not restricted to the bed and was able to walk around, sit or stand in her room during labour. She was given tramadol for pain, hyoscine butyl-bromide and an antiemetic. Foetal membranes were ruptured at 4cm dilatation. Despite the relatively slow progress to second stage, this patient remained on the alert line and crossed it slightly but did not reach the action line of the partograph. She had good contractions with progressive descent of the presenting part, clear liquor on rupture membranes has been shown to hasten the progress of active labour and had been routine in managing active labour[3]. However, rupture of membranes has been shown to increase the risk of mother to child transmission of the human immunodeficiency virus (HIV) by 2% for every hour that membranes are ruptured[4]. It is therefore prudent to keep membranes intact for as long as possible in HIV positive patients and those whose HIV status is unknown. This patient had antenatal HIV testing which was negative.

Vaginal examinations during the first stage of labour were restricted to 4-hour intervals and the perineum and vulva prepared with 2% chlorhexidine solution before each examination. The practice of vulval and vaginal toilet with chlorhexidine and minimizing vaginal examinations has been shown to be beneficial in minimizing the risk of intrapartum transmission of HIV. The practice is encouraged in obstetric units in areas of high HIV prevalence.

The second stage of labour in this primigravida lasted 25 minutes. The foetus was in vertex presentation. Spontaneous delivery of the foetus presenting by the vertex is divided into 3 phases. These are delivery of the head, delivery of the shoulders and delivery of the body and legs[1,2]. The perineum was supported while the head crowned and the foetal

head maintained in the flexed position (Ritgen Manoeuvre) in order to avoid rapid expulsion and perineal tears. This patient did not require an episiotomy. The shoulders were then delivered gently also to avoid perineal injury; the anterior shoulder first then the posterior before the rest of the body was expelled. The median duration of the second stage of labour is 50 minutes forjDrimigravidae and 20 minutes for parous mothers with wide variations in times[2]. The second stage is considered prolonged if it lasts 2 hours or more in primigravida or 1 hour in parous mothers and requires immediate intervention.

The third stage was actively managed in this patient in order to pre-empt post partum haemorrhage [5]. 1ml of syntometrine (5iu oxytocin and 0.5mg ergometrine) was given intramuscular when the foetal shoulders were delivered. After delivery of the infant, the placenta was actively delivered by controlled cord traction while supporting the uterus abdominally (modified Brandt-Andrews technique). The third stage lasted 3 minutes and the placenta and cord examined for completeness and abnormalities. The cervix, vaginal vault and perineum were then systematically examined for tears. The patient was then cleaned and taken back to her room with her infant for observation.

Observation during the hour after delivery of the placenta (fourth stage of labour) is for post partum haemorrhoge as this is the time it commonly happens. Initiation of breastfeeding during this time encourages uterine contractions and also early maternal-foetal bonding.

Immediate infant care included immediate cord clamping, wiping down of the infant and placemnt under a radiant warmer. The Apgar score at 1 minute was recorded and the infant examined thoroughly. The eyes were instilled with 1% tetracycline ointment to prevent ophthalmia neonatorum. The baby was weighed and labeled and wrapped before being handed over to the mother.

In conclusion, most women with spontaneous labour, regardless of parity even left unaided, will deliver within 10 hours of admission for spontaneous labour [2]. This patient delivered in 10 hours.

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Obstetric short case 6
FETAL DISTRESS in early labor- delivery by emergency *CIS*

Name E.W

IP No 1098596

Age 18 years

DoA 16/6/2006

DoD 20/6/2006

Presenting complaints

She presented with lower abdominal pains for one day.

History of presenting complaints

She was well till one day prior to admission when she developed lower abdominal pains. The pains were intermittent increasing in intensity and frequency, radiating to the back. She had no history of dysuria, frequency or urgency. Then was no drainage of liquor or per vaginal bleeding. She however reported normal fetal movements.

Obstetric and gynaecology history

She was Para O+O, gravida 1. Her last menstrual period was on 3/9/05, EDD 10/6/06, GBD was 40+ weeks.

Antenatal care was attended at Wabazo Medical clinic. Antenatal profile was

- Hb 12.5g/dl
- Blood group AB positive
- HIV 1/11 negative
- VDRL negative
- Urinalysis NAD

She had attended three visits and received one tetanus toxoid.

Menarche was at 13 years old, cycle was 28 days and the flow lasted 3 days. There was no history of dysmenorrhoea. She had not yet used any contraceptive method.

Family social history

She was married and lived with husband at Githurai. She was a housewife and the husband was a carpenter. She was a first born amongst four siblings. She did not smoke or take alcohol. There was no history of any allergies to food or drugs.

On **examination** she was in fair general condition, not pale, no edema. BP was 126/60 mmHg and the pulse rate was 78/min.

Respiratory and cardiovascular examination was normal.

The fundal height was term, longitudinal lie, cephalic presentation, 4/5|, fetal heart was heard and regular.

Vaginal exam revealed normal external genitalia the cervix was anterior, soft, well effaced and 4 cm dilated. The membranes were ruptured and grade III meconium stained liquor was obtained.

A diagnosis of fetal distress in early labor was made.

The patient was started on iV fluids, 0_2 **PRN** and nursed in left lateral position. She was advised on caesarian delivery. Consent was obtained and blood for grouping and cross matching was taken.

In theatre, a live female infant was delivered, who weighed 3100g and scored 9/11 and 10/5. The cord was grossly normal. No cord enlargement was noted and the placenta was noted to have multiple calcifications.

Post operatively the patient did well and was allowed home on 20/6/06. Both her and the baby were seen at the post natal clinic at 6 weeks and were doing well. She was advised on contraception.

DISCUSSION

The patient presented was an 18year old primigravida with clinical features of fetal distress. She had caesarean section done with good outcome.

Fetal distress is an ill-defined term intended to imply a critical response of the foetus to metabolic derangements, notably hypoxia and acidosis in response to stress. These affect the functions of vital organs of the foetus to the point of temporary or permanent injury or death. Two types of foetal compromise have been classified as chronic and acute. Chronic foetal distress is due to longstanding partial compromise of uteroplacental circulation like in severe pre-eclampsia while acute type is due to sudden severe compromise as in abruption of the placenta or complicated labour. The traditional signs of foetal distress are foetal heart rate irregularities and meconium passage. Due to unreliability of these signs as indicator of foetal distress, some authors have coined in the terms unreasuring foetal status and compromised foetus to imply the uncertainty of the foetal status[1,2]. Our patient had foetal distress of which only multiple calcifications intra-operatively were notable.

There are various types of foetal heart irregularities all of which can be associated with foetal distress. These include tachycardia (>180bpm), bradycardia (<100bpm), loss of beat-to-beat variability, sinusoidal pattern and various deceleration of the foetal heart rate following uterine contraction. Loss of beat-to-beat variability in combination with foetal bradycardia, late or prolonged deceleration or sinusoidal pattern, portend the worst foetal outcome. However even these patterns are associated with only 24-40%% adverse foetal outcome. Other causes of foetal heart irregularities include; foetal breathing, foetal movements, advanced gestation, maternal fever, hypothermia or acidaemia, drug administration and intramniotic infections [1 3 A 5].

Meconium passage when pathological is a sign of foetal hypoxia resulting in peristaltic motion as a result of vagal stimulation. In severe cases of foetal hypoxia, acidosis may occur, and result in relaxation of foetal anal sphincter and meconium passage. However

meconium passage may also be a sign of foetal gastrointestinal maturation or transient harmless hypoxia from a transient accident like cord compression. Meconium passage alone has been identified as a sign of foetal distress in only 18% [5,6,7,8].

Although meconium staining may not necessarily indicate foetal distress, its presence ported the risk of meconium aspiration and development of meconium aspiration syndrome. Development of meconium aspiration syndrome occurs if the meconium is thick and associated with foetal acidosis. Hypoxia is hypothesized to cause the foetus to attempt to breath resulting in aspiration while alveolar damage has been noted occur in presence of acidosis. The mechanism through which acidosis facilitates alveolar damage after meconium aspiration is not clear. This syndrome occurs in 5% of the case with meconium in liquor [9]. The presented patient had meconium stained liquor in very early labor.

The most reliable method of determination of foetal distress is through scalp PH determination. This can be done through amnioscopy in at risk patient who is not in labour, or speculum examination when in labour and cervix already dilated. PH below 7.2 indicates foetal distress and need for immediate delivery. PH between 7.2 and 7.25 indicate probable foetal distress and repeat is recommended in 30minutes and above 7.25, foetal distress is unlikely and labour observation should continue[10]. Foetal scalp oximetry is a new technique, which employs a sensor applied to the face of the foetus to estimate foetal blood oxygen saturation. It has shown good prospect but is limited by the fact that it can only be used in active labour with ruptured membranes[11].

Once fetal distress is diagnosed, the following actions should be taken and documented as recommended by American college of Obstetricians and Gynecologists [12]:

1. Put the patient in the left lateral position.
2. Discontinue uterine stimulant and correct uterine hyperstimulation where applicable.
3. Do vaginal examination to rule cord prolapse and establish dilation and position of the presenting part.
4. Correct maternal hypertension if present.

5. Correct dehydration.
6. Notify anaesthetist and nurses of need for immediate delivery.
7. Monitor foetal heart rate in the operating room preferably by continuous electronic foetal heart monitor though a Pinard foetoscope is acceptable alternative[14].
8. Request qualified personnel to be in attendance for newborn resuscitation and care.
9. Administer oxygen to the mother awaiting delivery.

Our patient was put in her left lateral position, was put on intravenous fluid to increase her volume and improve uteroplacental circulation, oxygen was administered by mask, anaesthetist, labour ward and theatre nurses were informed to prepare for immediate delivery and a paediatrician was called to prepare for newborn resuscitation. Foetal heart was monitored every 15minutes with a pinard foetoscope. Amniscopy, foetal scalp blood sampling and pulse oxymetry are not available in our unit hence were not used for our patient.

Mode of delivery is determined by presumed foetal status, presentation, station, position and cervical dilatation. If foetal distress is confirmed or unreasuring foetal status persist for half an hour despite resuscitation in presence of fully dilated cervix with the foetal head being no more than a fifth above the symphysis pubis or the leading bony edge of the head at station 0, vacuum or forceps can be used to expedite delivery. Forceps delivery is not used in our institution. When the cervix is not fully dilated, or more than a fifth of the foetal head is above the symphysis pubis, or the leading bony edge of the foetal head is above station 0, then an immediate ceasarian section should be undertaken[1,14]. Our patient was only 4cm dilated.

Good labour monitoring is important to reduce foetal morbidity and mortality associated foetal distress. Continuous electronic foetal heart monitoring has been associated with excess ceasarian section and simple pinard foetoscope is acceptable for uncomplicated labour. Whatever method of foetal monitoring is used, foetal scalp sampling for PH establishment is important in differentiating true foetal distress from foetal heart irregularities caused by other harmless condition that would result in un-necessary ceasarian delivery.

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OBSTETRIC SHORT CASE 7

Deep Venous Thrombosis (DVT) in pregnancy at 10 weeks gestation -Treatment with Heparin and Warfarin

Name:	P.K.	DOA:	21/04/2006
Age:	26years	DOD:	29/05/2006
Parity:	2+0 Gravida 3	IP number:	1089627
LMP:	05/02/2006		
MBD:	10 weeks		

Presenting complain

Swelling and pain of left lower limb for two weeks prior to admission

History of presenting complain

The patient was admitted through the acute gynaecology ward with the above symptoms that started suddenly then progressively worsened over days to the point that walking had become a problem. The pain and swelling started in the left calf region then progressed to involve the thigh. There was no history of trauma to the limb and she had not experienced any cough or difficulty in breathing.

Gynaecological and obstetric history

Her last delivery was in 2004 at term by SVD to a live female infant whose birth weight was 3600g. The first delivery was in 1999 at term again by SVD to a live male infant who weighed 3100g. Both children are alive and well. She did not have DVT in both the pregnancies. She attained menarche at 17 years and the menstrual history is not significant. She used depomedroxygesterone (DMPA) for family planning for a period of 5 months in 2005 but stopped to conceive. She has never used oral contraceptive pills.

Family and social history

She is a shop keeper and sits most of the day while on duty. Her husband works in Mombasa as a clerical officer. She does not drink alcohol or smoke cigarettes. There is no family history of thrombophilias or other chronic diseases.

Past medical history is not significant.

Physical examination

At the time of admission, she was in good general condition with no palor or fever. The vital signs were within normal limits. Local examination of the lower limb revealed; a swollen and shiny limb with tenderness of the calf and the thigh muscles. The range of motion at the knee joint was limited in both flexion and extension. The circumference at 10cm below the tibial tuberosity was 40cm on the left and 33cm on the right while at the mid thigh 40cm below the anterior superior iliac spine was 52.5cm on the left and 47cm on the right. Respiratory system: There was good air entry with bilateral vesicular breath sounds. Abdominal examination revealed a fundal height of about 12 weeks. The cardiovascular and the central nervous systems were essentially normal.

Investigations

- Doppler ultrasound of the left lower limb showed partial occlusion of the left femoral vein. The thrombus extended into the left external iliac vein and up to but not into the common iliac vein.
- Obstetric ultrasound showed a single intra-uterine pregnancy with demonstrable feto-cardiac activity of 150bpm. CRL was 4.5cm corresponding to 11 weeks gestation. The uterus was retroverted.
- Coagulation profile:
    - > 27/04/2006: Prothrombin time test-13 seconds, Prothrombin time control-13 seconds, PTI-100%, INR-1.00, APTT test-33 seconds, APTT control-36 seconds, APTT ratio-0.91
    - > 05/05/2006: Prothrombin time test-14 seconds, Prothrombin time control-13 seconds, PTI-108%, INR-1.08, APTT test-32 seconds, APTT control-35 seconds, APTT ratio-0.914
    - > 25/05/2006: Prothrombin time test-15 seconds, Prothrombin time control-13 seconds, PTI-115.4%, INR-1.15

- Antenatal profile: HIV and VDRL serology were both non reactive; Hb 12.8g/dl; Blood group-A positive.
- Full haemogram: WBC 8.9x10^9/L, N 64%, L 25%, Hb 12.8g/dl, MCV 87%, MCH 28.2%, MCHC 32.3g/dl, platelets 232x10^9/L

Diagnosis

Deep- venous thrombosis in pregnancy at 10 weeks gestation

Plan of management

Our patient was admitted in the antenatal wards and IV heparin infusion 10,000IU 8 hourly was commenced together with paracetamol 1g 8 hourly. Initial coagulation profile showed an APTT ratio of 0.91. The heparin infusion was maintained and by the end of the first week of hospitalization, the acute symptoms had subsided and the limb measurements were equal by the end of the second week. Subcutaneous IV heparin was commenced as from the second week till the 16th week of gestation a time when warfarin 5mg OD was introduced. This was so because she could not afford enoxaparin (clexane) as an out patient. After 3 days of both warfarin and heparin, the later was withdrawn at the time when the INR was 1.15. She was allowed to go home at gestation of 16 weeks 3 days on 5mg of warfarin OD. She was advised to come again at 36 weeks gestation for conversion back to heparin and meanwhile to continue attending routine ANC.

Discussion

P.K. was a para 2+0 gravida 3 who presented with deep venous thrombosis (DVT) at 10 weeks gestation and was managed with heparin till 16 weeks gestation then converted to Warfarin.

Thrombosis is the process by which liquid blood flowing through the vascular system turns into a solid mass of platelets, cells and fibrin[1]. The most serious sequelae of venous

thrombosis is pulmonary embolism occurring in 50% of patients with documented DVT. It carries a mortality rate of 15%[2]. Since majority of patients with pulmonary embolism (PE) die within 1 hour, its of vital importance to accurately diagnose venous thrombosis and PE promptly.

Current data indicates that the frequency of venous thromboembolism (VTE) in pregnancy and puerperium in Western populations is about one per 1000 deliveries with 75% of these being VTE and 25% as PE[3].

Virchow's (1860) formulation of the three causes of thrombosis was and is still accepted as a predisposition to thrombosis[1,2]. These are:

1. Alterations in the vessel wall
2. Slowing of blood flow (stasis) and
3. Changes in blood components

Our patient was pregnant and this is a major predisposing factor inasmuch as, in pregnancy, blood flow from the legs and pelvic veins is slowed by pressure from the gravid uterus and there is change in blood components of the natural anticoagulants, coagulation factors and fibrinolytic systems[3] as indicated below:

- Increased - Fibrinogen, factor VIII, factor X, FDPs, D-Dimer and plasminogen activator inhibitor
- Reduced - factor XI, protein S, platelets (at term) and tissue plasminogen activator

Individual predisposition to VTE could be congenital (thrombophilias) or acquired. Patients with thrombophilias are considered to be at high risk for thrombosis during pregnancy and are therefore potential candidates for prophylactic anticoagulation. In our patient efforts were not made to screen her for thrombophilia. Principal thrombophilias arise from mutations that cause quantitative or qualitative deficiencies of antithrombin II]_(AT III), protein S and proteinjC (natural anticoagulants) hyperhomq^tinemia and factors VIII, IX and XI[3]. Deficiencies of prothrombin and homozygosity for an abnormal methylenetetrahydrofolate (MTHFR) reductase gene are other thrombophilias[4]. According to Greer, the most common inherited thrombophilia known, is due to factor V Leiden mutation that causes resistance to activated protein C[5].

In one cohort study, McColl et al demonstrated that prothrombin and factor V Leiden were the most common mutations (OR 4.4 and 4.5 respectively) as compared to general population whereas women homozygous for C677T mutation in the MTHFR were not[6]. It is therefore, recommended that women with a strong personal or family history of VTE should be screened for prothrombin mutation either before or early in pregnancy.

Acquired predisposition includes acquisition of antiphospholipid antibodies. These were not checked in our patient. Other predisposing factors include oj^eslty, smoking, anaemia, previoiis-VTE-, heart disease, use of oral contraceptives, hypertensive disorder, immobility and caesarian section[1"4]. The patient presented was a nonsmoker and did not have any of the above predisposing factors. Her weight was however, not recorded. She worked as a shopkeeper and this could have contributed to immobility.

P.K. presented with swelling and pain of the left lower limb. It was warm and tender on palpation. The characteristic symptoms of DVT include pain, swelling, tenderness and warmth that occur in the leg especially the left of the pregnant woman[3]. Our patient had DVT of the left lower limb. Waweru Mathu, found that almost 75% patients with DVT in pregnancy (at Kenyatta national Hospital), involved the left lower limb[7]. Pain in the calf muscles with dorsi-flexion of the affected foot (Achilles tendon) [Homan's sign], has limited diagnostic value and could dislodge a thrombus, leading to pulmonary embolism . Clinically, a circumference of more that 2 cm at identical sites on the affected side as compared to the normal limb is significant (i.e. either at the calf or thigh regions)[1]. This is consistent with the presentation in our patient.

However, clinical diagnosis of DVT is neither specific nor sensitive, with false positive rate as high as 30-50%[7]. Venography or phlebography is the standard method for confirmation of DVT. Its use is, is however limited because it is invasive, can cause thromboembolism, and poses a risk of fetal exposure to ionizing radiation[1,3]. Real-time ultrasonography used along with duplex and color Doppler ultrasound, is currently the procedure of choice (ACOG, 2000). Our patient was evaluated with this method. Sensitivity and specificity is

X

>97%[8]. Limb Impedence Plethysmography is a non-invasive technique that measures volume changes within the leg veins but it cannot differentiate between thrombotic and nonthrombotic venous obstructions[1,2]. Magnetic resonance imaging is reserved for specific cases in which ultrasound findings are equivocal. It is however expensive and out of reach of many patients in developing countries. CT scan may also be used but it is expensive and requires contrast agents and ionizing radiation[4]. Radioactive-labeled fibrinogen [^{152}I (iodine)] is contraindicated in pregnancy despite evidence that it does not cross placenta[1]. The plasma concentration of D-dimer, a degradation product of cross-linked fibrin is almost always raised in DVT and PE; therefore a normal D-dimer(<500ug/L) concentration measured by ELISA almost rules out acute venous thromboembolism. D-dime tests have a negative productive value of 99.3%[8]. Pulmonary embolism is best evaluated with ventilation-perfusion scintigraphy[9]. A spiral Computed tomography (CT) is a non-invasive technique that is an alternative to CT.

The management of DVT involves supportive and specific treatment measures. The aim of treatment is to stop growth of existing thrombus in those with thrombosis and inhibit development of new thrombus in those treated prophylactically. Supportive measures include bed rest, elevation of the affected limb to aid in venous return and reduce edema and analgesics to control pain (caution should be exercised when using NSAIDs as it may cause premature closure of ductus arteriosus in the fetus if used after 34 weeks of pregnancy)[1,4]. Our patient was put on paracetamol for pain.

Anticoagulation is the mainstay treatment modality for DVT. Heparin is the drug of choice on pregnancy while Warfarin is for postpartum venous thrombosis[4]. Therapy with heparin is initiated at a loading dose of 80-100 IU/kg (minimum 5000 IU) followed by a continuous infusion of 24,000 IU-30,000 IU/24 hours. In our case, heparin 30,000u/24hrs was instituted. Heparin should be adjusted to keep the activated partial thromboplastin time (aPTT) at 1.5-2 times the control[10]. Heparin acts by inhibition of activated factor XIIa, XIa IXa, Xa and thrombin through completing with anti-thrombin III[1]. Complications of heparin anticoagulation include bleeding, hypersensitivity reactions, thrombocytopenia (occurring

2-3 weeks of initial therapy) and osteoporosis that develops with long-term anticoagulation (>6 months)[4]

Once the acute symptoms subside, heparin can be administered subcutaneously eight hourly. Alternatively low-molecular weight heparin (LMWH) - 4000-5000 Daltons, is as safe and effective as regular or unfractionated heparin for use in pregnancy. The major advantage of LMWH is its simplified regimen of administration (once or twice a day), despite the cost[11]. These groups of drugs do not have to be monitored (ACOG 1998). They include enoxaparin (clexane), dalteparin, nadroparin, logipram, tinzaparin and reviparin[3,4-]

Heparin should be stopped during labour and delivery to prevent risk of serious haemorrhage. It can be restarted 6 hours following vaginal delivery or after 24 hours following caesarian section. Alternatively, warfarin may be started concurrently then heparin stopped after 3-5 days.

Patients requiring continuous anticoagulation like in our case, warfarin can be used after the period of greatest risk for congenital anomalies (after first trimester) to be continued until 36 weeks then a switch back to heparin to reduce risk of bleeding at delivery because heparin can be conveniently reduced in dose or witheld[3]. It also has a specific antidote, protamine sulfate. Our patient was booked to come for conversion. The mode of action of warfarin is by inhibition of vitamin K dependent coagulation factors. Warfarin is associated with teratogenicity especially when used in the first trimester. It is for this reason that it is contraindicated in antepartum patients. It's however still being used in our set-up because of affordability and convenience of administration. Warfarin embryopathy is because of the drug crossing the placenta especially between 6th and 9th week of embryonic period to cause characteristic features that include nasal hypoplasia and stippled vertebral and femoral epiphyses. These effects are because of defective bone calcification. When used in second trimester and beyond, Warfarin may cause CNS abnormalities e.g. corpus callosum agenesis, cerebral atrophy, blindness, developmental and mental retardation Our patient was never counseled about the likelihood of these side effects.

The optimum duration of anticoagulation therapy for DVT and PE is not clear. The research committee of the British thoracic Society recommends that if venous thromboembolism arises after surgery, 4 weeks of anticoagulation should be adequate whereas patients with new DVT, PE or both who do not have persisting underlying cause or risk factor should receive anticoagulants for 3 months[13]. For obstetric patients, it is recommended that treatment be continued for 6-8 weeks postpartum[3].

In subsequent pregnancy, our patient requires prophylaxis preferably with subcutaneous heparin in doses of 5000-10,000 IU two times daily throughout pregnancy (ACOG 2000)[14]. Use of clexane 40 IU SC is as efficacious for prophylaxis is high-risk pregnancy[4]. The subsequent risk of DVT is 5-12%[10]. Contraception after delivery was not discussed but combined oral contraception is contraindicated in this case.

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OBSTETRIC SHORT CASE 8

MALARIA IN PREGNANCY- LIVE BIRTH

Name: MM	L.M.P: 23/11/03
Age: 27 years	E.D.D: 30/08/04
File No: 3512	G.B.D: 23+weeks
Parity: 1+0 gravida 2	D.O.A: 6/5/04
	D.O.D: 12/5/04

Chief Complaint

The patient was admitted through casualty with a 4 day history of headache, hotness of the body, generalized body weakness and loss of appetite.

History of presenting complaints

She had been well until 4 days prior to admission when she developed a headache. It was global, continuous and was relieved by analgesics (panadol). A few hours later, she started experiencing hotness of the body, which was preceded by chills and rigors. It was associated with intermittent profuse sweating. At the same time, she developed body weakness which was associated with joint and muscle pains. Three weeks prior to the onset of the above symptoms, she had traveled to Kisumu in Western Kenya and had not taken any chemoprophylaxis for malaria. She gave no history of diarrhea or vomiting though she was nauseated. Her appetite was also poor. She was not coughing and had no symptoms of painful swallowing. She had not yet commenced antenatal care clinic. Quickening had occurred about four weeks earlier.

Past obstetric and gynaecology history

She was a Para 1+0 having delivered in 1999 through a caesarian section due to prolonged labour at term. The outcome was a live female infant with a weight of 2600g. The child is alive and well, she attained menarche at 15 years. Prior to the current pregnancy, her menses were regular coming every 24 - 28 days and lasting 3 days. It was of average flow with no associated dysmenorrhoea. She had not used any contraceptive method

Past medical history

She had suffered from a similar illness (outside pregnancy) in the past and was treated as an outpatient with antimalarials and she recovered. She had never been admitted before for any medical or surgical illness. She had no history of allergy to any drugs or foods.

Family and social history

She was married and was a salesperson. Her husband was a businessman. She lived in Kibera with her family. She was born and brought up in Nairobi. She did not smoke cigarettes or take alcohol. She gave no history of chronic illness or twinning in the family.

General examination

She was sick looking and febrile with a temperature of 38.5 degrees Celsius. She had no pallor, jaundice, oedema, cyanosis, dehydration or lymphadenopathy. The blood pressure was 110/60 mmHg, pulse rate 103/min and respiratory rate 24/min.

Respiratory and cardiovascular system

Lungs fields were clear and the heart sounds were normal (S1 & S2 heard, normal). There were no murmurs.

Abdominal examination

The abdomen was uniformly distended at the suprapubic region and moved with respiration. The fundal height was 24 weeks which corresponded with dates. The rest of the abdomen was soft and non-tender. The liver, spleen and kidneys were not palpable. She did not have tenderness at the costo-vertebral angles

Pelvic examination

There was no indication for this and it was therefore not done.

Impression

An impression of malaria at 24 weeks of pregnancy was made.

Investigation results

- Blood slide for malaria positive [+++]
- Haemogram - Hb 10.8g/dl

  WBC: 4.9 x 10^9/L -Neutrophils - 82%*

  -Lymphocytes - 13% ^

  -Monocytes - 5% ^ *

  PLT: 206 x 10^9/1

Management

The patient was admitted to the ward with the results from casualty. She was commenced on Intramuscular Paluther ((B-arthemether) 160mgs immediately then 80mgs 12 hourly for 3 days, intramuscular pacimol (paracetamol) 300mgs immediately and to continue with oral panadol 1gm 8 hourly.

While in the ward, further investigations were carried out and the results were as follows:-

Antenatal profile:

- Hb - 10.8g%
- Blood group - O positive
- VDRL - negative
- HIVI/II-negative
- Urinalysis: Appearance - Amber WBC - 4 -7/hpf Albumin - nil RBC - NIL

  Blood - nil Epithelial cells: 5 - 6/hpf

  Sugar-nil Casts-nil

  Ketones - negative Bacteria - +

  Nitrites - negative
- Widal test: S. typhi' O': negative H' : negative

Repeat blood slide for malaria 2 days after admission was negative.

- Ultrasound: Showed a single viable foetus in variable lie, foetal heart rate was 120/min, gestational age of 23weeks 4 days. The foetus was grossly normal. The placenta was posterior and not low lying. Amniotic fluid was adequate.

The patient did well while in the ward. After 48 hours of admission, the fever had subsided, settling at 36.2°C. After the blood slide read negative, she was allowed home on hematinics (saferon 10 mis 12 hourly) and malaria prophylaxis (Fansidar 3 stat and then to repeat at 28 weeks) she was booked for antenatal clinic follow-up.

Antenatal follow-up

She was seen after one week and she had no complaints. The general examination was normal. The fundal height was found to correspond with dates. Foetal movements were consistent. The foetus was in cephalic presentation and longitudinal lie. The foetal heart tones remained regular. Blood pressure ranged from 90 - 110mmHg (systolic) over 60 - 70mmHg (diastolic). Weight gain was from 90.8kgs at 25 weeks gestation to 97.6kgs at 38 weeks she was put on prophylactic dose of fansidar 3 stat. Erect Lateral Pelvimetry done at 36 weeks showed a true conjugate of 9.8cm. In view of the contracted pelvis and previous prolonged labor she was counseled for elective caesarian section.

Re-admission for delivery

She was readmitted to maternity ward via the ANC at 38+ weeks. On admission, she was in good general condition, not pale or jaundiced, was febrile and had no edema. Her blood pressure was 110/70mmHg and the pulse rate was 80/min.

Abdominal examination showed that the fundal height was term with a single foetus in cephalic presentation and in longitudinal lie. Foetal heart rate was regular at a rate of 136/min. Estimated fetal weight was 3450 grams.

Pre-operative laboratory results revealed Hb - 10.9g%, urea 2.8mmol/L, creatinine 69 umol/L, Sodium 139mmol/L and Potassium-3.7mmol/L. She was counseled about the operation and the consent obtained. Blood was grouped and cross-matched and one unit was made available. Atropine 0.6mg intramuscular was given ¼ hour before theatre. She delivered by elective caesarian section to a live male infant 3400grammes whose Apgar

score was 8 at 1 minute and 10 in the 5th minute. She did well post operatively and was discharged home on the forth day. Check Hb on day 3 was 10.6g/dl.

Follow-up

She was seen after 2 weeks and had no complaints. Exclusive breastfeeding was maintained. The wound was well healed. She was advised on contraception and she opted for Jadelle after six weeks.

DISCUSSION

The patient was a 27-year-old Para 1 +0 admitted at 24 weeks gestation with malaria. She had previously traveled to Western Kenya without taking any chemoprophylaxis for malaria. She was treated with (B-artemether and recovered. She was thereafter given two doses of intermittent prophylaxis treatment of Fansidar (sulfadoxine-pyrimethamine) during the subsequent antenatal follow-up. She was delivered at 38+ weeks via an elective caesarian section due to CPD. The outcome was a live male infant with a good Apgar score and weighed 3400gms. The mother was given one more dose of chemoprophylaxis of fansidar during postpartum follow-up.

Malaria is caused by protozoa of the Plasmodium species parasitizing the red blood cells and the liver after finding their way into the blood circulation through the bite of an infective female Anopheles mosquito. There are four species of Plasmodium that can infect man, namely *P.falciparum*, P. *ovale, P. malariae* and P. *vivax.* Of the four, *P.falciparum* is associated with the most severe form of malaria and the worst disease outcome. *P.falciparum* is also the predominant species that causes malaria in most parts of Kenya as well as in the rest of Eastern and Southern Africa being responsible for 98% of cases. The other species cause the remaining cases although P. *vivax* is very rare. Our patient had *P.falciparum* malaria.

An estimate of over 300 million acute illness and 1 million deaths per year are caused by malaria. Malaria infection during pregnancy is a major public health problem in tropical and subtropical regions throughout the world. Africa, south of the Sahara bears 90% of this global malaria burden.[4] Each year, more than 30 million African women become pregnant

in malaria endemic areas and are at risk of *P fdlcipBrurn* malaria infection during pregnancy, yet less than 5% of these pregnant women have access to effective intervention. In Kenya, malaria in pregnancy is common. Reports of its prevalence have varied from region to region. Rukaria[6] reported a prevalence of 21.2% in Kilifi while Nyamogo[7] reported a prevalence of 42% in Kisumu. The Kenyan Coastal and lake regions are hyperholoendemic areas, where there is a constant repeated infection. The population in these areas have high immunity and epidemics do not occur here (stable malaria).[1] In the regions like Aberdare ranges and Mount Kenya areas, transmission is intermittent as there is poor community immunity and epidemics do occur (unstable malaria).' Our patient lived and was brought up in Nairobi (unstable transmission) and had travelled to Nyanza where she contracted malaria. Pregnant women resident in areas of unstable malaria are at 2-3 fold risk of developing severe disease as a result of malaria infection than are non-pregnant adults living in the same region.[4]

Immunity against malaria involves both cellular and humoral factors. Immunity is maintained by intermittent parasitaemia. Cellular immunity is in the form of phagocytes and macrophages while humoral factors involve the production of specific antibodies. Individuals living in endemic areas are therefore usually less susceptible to infection except during periods when their immunity is impaired. Pregnancy impairs immunity against malaria so that even in the hyper-endemic regions where tolerance to the parasites has previously been acquired, infection readily occurs. The increased propensity to malaria may be as a result of high cortical levels found in pregnancy as well as the decreased cellular immunity especially seen in the third trimester. The glycoproteins of pregnancy have also been implicated by their inhibition of the transformation of monocytes into macrophages. Additionally, sequestration of the parasites in the placenta shields them from destruction by maternal effector cells[-9]

Multiparity appears to counter some protection against this increased susceptibility during pregnancy such that the breakdown in immunity is most marked during the first pregnancy. However, this only holds true for those who have developed immunity.'[2]

Our patient was para I +0. She was not exposed to persistent malaria challenge necessary for her to mount the semi-immunity found in those living in endemic areas. The clinical features of malaria include fever,, joint pains, myalgia, nausea, vomiting, headache, generalized body weakness and other systemic symptoms depending on severity. The clinical signs include pallor, pyrexia and splenomegally. Hepatomegaly and jaundice may occur. Our patient presented with headache, fever, generalized body weakness, joint pains and myalgia. Her sclera was however not icteric and she was not anaemic.

Diagnosis of malaria is usually confirmed through laboratory investigations. A peripheral blood slide helps in identifying the malaria trophozoites and their quantification. The patient had moderate parasitemia (Blood slide for malaria was indicated as +++). Other features in the peripheral blood picture may include anisocytosis, macrocytosis and polychromasia with or without nucleated red cells. There may also be reticulocytosis. The bone marrow shows megaloblastic changes which may be gross. Malaria pigment is present in the macrophages. Iron stores tend to be increased unless there is concurrent iron deficiency.[10] The mean hemoglobin level in pregnant women with malaria parasites has been found to be lower than in parasite negative women.[1,6,7] Our patient had a Hb of 10.8g/dl. Other investigations that should be done to rule out other causes of pyrexia in pregnancy like urinary tract infection, typhoid and meningitis should be ruled out. Our patient had a negative widal test, urine for microscopy was normal and culture did not grow any bacteria. White blood cell count and differentials were normal.

Complications of malaria in pregnancy could either be maternal or foetal/infant. For the pregnant mother, malaria is associated with increased severity of the infection. This acute severe infection may be complicated by severe anaemia (Hb<5g/dl), cerebral malaria acute renaL-failure, hypoglycemia, disseminated intravascular coagulation, acute pulmonary oedema, increased susceptibility to pneumococal infections and postpartum sepsis[8] The mortality from cerebral malaria in pregnancy is about 50% compared to 20% in non-pregnant adults.[10]. Our patient had none of these complications of severe malaria. Anaemia results from rupture of parasitized erythrocytes, opsonization of these cells by reticuloendothelial system, hypersplenism, folic acid deficiency, hyperferritinaemia,

depression of bone marrow leading to reduced red cell synthesis and probably by production of auto antibodies which result in intravascular haemolysis.[10] Hypoglycemia may result from release of insulin triggered by stimulation of pancreatic islet cells by products of malaria parasites or macrophages activation. Increased glucose consumption due to fever, malaria parasite and foetus also contribute to hypoglycaemia.[11] In the foetus, Plasmodium falciparum malaria during pregnancy increases chances of abortion, prematurity, intra-uterine-growth restriction and infant low birth weight, which is the single most risk factor for death in the first month of life.[12] Malaria has been estimated to cause 8% to 14% of all low birth weight babies and 3% to 8% of all infant deaths in areas of Africa with stable malaria transmission. Impaired foetal growth results from reduced placenta! blood circulation in the intervillous space that develops from placental parasitization. Fortunately, in our patient, the foetus was appropriately grown for its gestational age.

The foetus is usually protected from acquiring malaria in the uterus by the placental barrier circulating maternal antibodies and the fact that the foetal haemoglobin (HbF) is more resistant to the parasite. However, congenital malaria may occasionally develop: especially in non-immune women, [13] and the incidence of congenital malaria in endemic areas is estimated to be <1 %. [10] A study in Malawi detected parasites in 35% of cord blood of infants whose mothers were infected with malaria[14]. However, neonates in Africa rarely present with clinical disease.

Treatment of malaria is dependent on the geographical area and the local pattern of drug resistance. Chloroquine is the drug of choice in chloroquine-sensitive areas. The aim of the treatment in malaria is to reduce pyrexia and stop the attack as quickly as possible. Patients with severe malaria are hospitalized and given parenteral quinine treatment. Those with milder forms of malaria are given 4-aminoquinolones, chloroquine and amodiaquine as other drugs of choice. The Quinhosa derivatives such as artemesinin or artemether may also be used after first trimester. [1,6,7,1°] The patient presented was treated with parenteral P-artemether.

Anemia responds rapidly in most patients following anti-malarial therapy and folic acid, but the haemotocrit does not rise in patients with hyperactive malarious splenomegaly. [10] Blood transfusion is indicated only if the patient is in incipient or established cardiac failure or if the patient is approaching delivery with an Hb<7 g/dl.

During labour and delivery, in severe attacks of malaria, the poor state of the mother may be an indication for shortening of the second stage of labour by vacuum delivery. Care is taken to avoid postpartum hemorrhage or cardiac failure that may occur in moderately or severely anaemic mothers after delivery. Active management of third stage is recommended [1,10] This was not done in our patient as she was delivered by caesarian section due to CPD.

After successful treatment, malaria chemoprophylaxis is necessary throughout the remaining period of pregnancy including peurperium. This clears and prevents placental parasitization. Our patient was given 2 doses of Fansidar during the remaining antenatal period and one more dose after delivery. She was also advised on the use of treated mosquito nets.

Prevention of malaria during pregnancy requires a package consisting of intermittent preventive treatment (IPT) and insecticide treated bed-nets (ITNs), particularly in areas of stable malaria transmission. ROLL BACK MALARIA is a global partnership founded in 1998 by the World Health Organization (WHO), the United Nations Development Programme (UNDP), the United National Children Fund (UNICEF) and World Bank with the goal of halving the world's malaria burden by 2010. One of the foci of this partnership is to strengthen care management of malaria for all pregnant women and to prevent malaria during pregnancy using cost effective preventive approaches (IPT and ITNs) delivered through ANCs and programmes that provide service to the community.

Intermittent preventive treatment involves providing all pregnant women with at least two preventive treatments of an effective anti-malaria drug. This approach has been shown to be safe, inexpensive and effective. One study in Malawi evaluating IPT showed a decline

in placental infection (32% to 23%) and in the number of low birth weight babies (23% to 10%). It also found that 75% of all pregnant women took advantage of IPT when offered. Insecticide-Treated Nets (ITN's) decrease both the number of malaria cases and malaria death rates in pregnant women and their children. A study in an area of high malaria transmission in Kenya has shown that women protected by ITNs every night during their first four pregnancies produce 25% fewer underweight or premature babies. Is In addition, ITN use also benefits the infant who sleeps under the net with the mother by decreasing exposure to malaria infection. WHO recommends that the following drugs should not be used in pregnancy: Halofantrine, Primaquine, Tetracycline and Doxvcvcline.y[15]

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OBSTETRIC SHORT CASE 9

Cardiac disease in pregnancy - Live birth

Name:	HM	DOA:	13/03/2006
Age:	19years	DOD:	07/06/2006
Parity:	0+0	IP number:	1059695
LMP:	01/11/2005		
EDD:	08/08/2006		
MBD:	19 weeks		

Presenting complaint

Coughing, difficulty in breathing and chest pains for 7 days prior to admission

History of presenting complaint

She is a known cardiac disease patient, diagnosed 6 months prior to admission as a rheumatic heart disease. She had earlier on presented in the medical wards (8B) in November 2005 with hemoptysis and chest pains for 2 days. An echocardiograph done showed pure mitral stenosis, with moderate pulmonary hypertension. She is on follow up in the cardiology clinic and uses monthly benzathine penicillin, atenolol 50mgod and furosemide 40mg od. She had a productive cough, sputum being whitish frothy with two episodes of hemoptysis. This was associated with chest pains that were sharp in character and radiating to the back. She gave a positive history of paroxysmal nocturnal dyspnea as well as orthopnea .There was no history of weight loss or night sweats though she had been exposed to a person with open pulmonary tuberculosis. There was history of mild bilateral leg swelling and occasional palpitations that were accompanied by mild to moderate exertion.

Past Medical History

Her childhood had been uneventful except for occasional attacks of malaria. She had been on treatment severally, for pharyngitis in her childhood. In 2001 she was admitted in

Machakos district hospital with chest pains and dyspnea but heart disease was not detected.

Gynaecological and Obstetrics History

She attained menarche at 15 years. The menstrual cycle length is 28 days and regular with duration of flow of 4 to 5 days. The LMP was 01/11/05 and gestation by dates 19+ weeks. She has never used any family planning methods.

History of Current Pregnancy

She had not started attending ante-natal clinic. At the time of admission, she reported that quickening had been 2 weeks prior to admission and this corresponded to 22 weeks gestation i.e. 3 weeks more than the dates.

Family and Social History

She is a single unemployed and expectant mother living with her parents. There is no positive history of heart disease in family. She attended school up to class 8.She does not take alcohol and cigarettes.

Physical Examination

At the time of admission she was in fair general condition with no palor, jaundice or cyanosis. There was mild bipedal[pitting edema. There was no finger clubbing or splinter hemorrhages. The blood pressure was 120/70mmHg, pulse of 80/min with good volume and normal character and rhythm. Respiratory rate was 22/min (tachypnea) and temperature of 37.1° C.

The JVP was slightly elevated and the precordium was not active. There was a gallop rhythm and a diastolic murmur (best heard at apex) with a systolic component.

Examination of respiratory system revealed a tachypneic patient with no signs of respiratory distress (e.g. Intercostal and subcostal in drawing). Chest expansion was equal bilaterally with good air entry and the breath sounds were vesicular. There were no crepitations. Per abdominal examination revealed a fundal height of 30weeks, with a longitudinal lie, cephalic presentation and normal regular fetal heart rate of 138bpm. (It

was noted that fundal height 7 weeks more than gestation by dates). There was no organomegly. The central nervous system was essentially normal.

Investigations

- Shielded chest X-ray: - showed cardiomegaly with bilateral reticulonodular opacities and normal costophrenic angles. This features suggested congestive cardiac failure (CCF)
- Obstetrics ultrasound: - showed a single intrauterine fetus in cephalic presentation with demonstrable cardiac activity, of 140bpm. The placenta was fundo-anterior and liquor was adequate in volume. The composite gestational age was 30weeks and there were no gross fetal abnormalities.
- Serial haemogram:

Date	Haemogram parameters								
	WBC x10^9/L	N %	L %	M %	Hb g/di	MCV Fl	MCH pg	MCHC g/di	Platelets X10^9/L
14/03/2006	7.72	77	13	0.6	10.8	79	24.6	31.2	232
05/04/2006	4.53	66	23	7.9	11.9	79	24.6	31.2	187
28/04/2006:	5.05	68	22	7.6	10.7	81	24	29.9	228
09/05/2006	4.7	72	40	8.0	12.0	86	27.2	31.5	165

- Urinalysis: PH 6.0, protein/glucose-nil, ketones-nil, blood-nil, S.G. 1010, leucocytes ++, nitrites-negative. Subsequent serial urinalysis was within normal limits.
- Antenatal profile: VDRL-negative, HIV serology-non reactive, Blood group-0 positive.
- ECG: This showed a normal sinus rhythm, right axis deviation and right ventricular hypertrophy.

Diagnosis

Cardiac disease NYHA grade IV (functionally grade II) in pregnancy with probable wrong dates.

Plan of management

The patient was admitted and propped up in bed. Atenolol was discontinued, but furosemide 40mg od was continued. Digoxin 0.125mg od was started as well as haematinics (Ranferon) for the entire hospitalization period. Daily pulse rate and palor was monitored as well as weekly urinalysis. She was reviewed by the cardiologist at 28 weeks gestation who noted that she was haemodynamically stable and that a fair pregnancy was expected but extreme caution needed to be observed during delivery because the mitral stenosis was quite tight (<2cm) and this posed a risk of pulmonary edema. Our patient did well during the 10 weeks she was hospitalized and by the 39th week she went into spontaneous labour and was successfully delivered by assisted vacuum delivery. Labour was augmented with 10IU of concentrated oxytocin in 250mls of normal saline. The outcome was a live male infant who weighed 2900g and scored 7/1 and 9/5. An episiotomy was given and stitched in two layers. IV furosemide 80mg stat was given in second stage. Postnatally, she remained under close observation in labour ward for 24 hours while on IV augumentin 600mg twice a day as well as oral furosemide and digoxin. After 24 hours elapsed, she was transferred to the regular postnatal wards where she remained in stable condition for 2 weeks. The post natal period was uneventful and she was subsequently allowed to go home through the cardiac clinic on oral furosemide and digoxin. Contraception was discussed and she showed preference for the progesterone only pill (microlut). A booking was made for her to come to the post natal clinic in 2 weeks and at 6 weeks. She however did not come to the clinic as expected.

Discussion

H.M. was admitted with cardiac disease grade IV in pregnancy secondary to rheumatic heart disease with mitral valve regurgitation and mitral stenosis. She had assisted vaginal delivery to a live male infant weighing 2.9 kilogrammes at 39 weeks gestation.

Cardiovascular adaptations to pregnancy are well tolerated by a healthy young woman. These adaptations are of such magnitude as to significantly compromise women with abnormal or damaged hearts. These adaptations primarily are increased cardiac output, increased heart rate and reduced peripheral vascular resistance. Cardiovascular disease complicates less than 1 % of pregnancies but is the most important non obstetric cause of disability and death in women, occurring in 0-4% of pregnancies[2]' The reported mortality rate ranges from 0.4% in patients with New York Heart Association class; I and II to 6.8% or higher among patients with class III and IV severity [2] At Kenyatta National Hospital, the incidence of cardiac disease in pregnancy was found to be 1.0% 1969[3] and 0.6% in 1982[4]i Most are patients of young reproductive age. Ngotho and Spence [5] found the majority of patients in our set up to be in the group 20-24 years. Our patient was 32 years. During pregnancy, several hemodynamic changes occur and these should be taken in consideration in evaluating mothers with cardiac disease in the antepartum, intrapartum and post partum periods. The blood volume by 32 weeks increases by 40% with total plasma increasing up to .50% and the red cell mass by 20% resulting in dilutional anemia. The cardiac output by 20-24 weeks has increased by 30-50% principally due to increase of stroke volume. The systemic vascular resistance_decreases during the first trimester reaching a nadir in the second trimester and then slowly, returns to the pre-pregnancy levels at term. The renal and uterine blood flow increases markedly [1'2,] Cardiac disease can be classified as congenital (operated or unoperated), or acquired. Acquired disease can be infectious, autoimmune, degenerative, malignant or idiopathic. Rheumatic^heart disease has historically been the roost common type of heart disease in pregnant women. However in developed countries where rates of infection have declined, congenjta[heart disease represents a larger percentage of diseases encountered. In contrast, the developing countries continue to experience rheumatic heart disease as the major disease burden in women with cardiac disease. At Kenya National Hospital rheumatic heart disease was responsible for 86.4% of cardiac disease in pregnancy [4] Mitral stenosis has been reported to beJhe most common rheumatic disease in pregnancy [1] In a study at Kenyatta National Hospital[6]l in 1978, the majority of the patients with cardiac disease in pregnancy were found to have mitral regurgitation and stenosis while another study found

mitral regurgitation to be the commonest lesion[7] Our patient had mitral stenosis and regurgitation due to rheumatic heart disease and had presented in congestive cardiac failure.

Diagnosis of cardiac disease in pregnancy may be difficult to distinguish from the common complaints and findings in pregnancy [1'2]. These symptoms include fatigue, shortness of breath, orthopnea, palpitations, severe or progressive dyspnea at rest, nocturnal dyspnea, effort syncope or chest pain, chronic cough, hemoptysis and edema. The signs include clubbing, increased jugular venous pressure, accentuated or barely audible first heart sound, fixed or paradoxic splitting of S_{2l} Single S_2' ejection click, opening snap, friction rub, systolic murmur grade III or IV, pajpable thrill, any diastolic murmur, cardiomegally, arrythmias on EKG.

The degree of functional disability is graded according to the New York Heart Association.

Class I	:	No symptoms limiting ordinary physical activity.
Class II	:	Slight limitation with mild moderate activity but no Symptoms at rest.
Class III		Marked limitation with less than ordinary activity; dyspnea or chest pain on minimal activity.
Class IV	:	Symptoms at rest or with minimal activity, pure mitral stenosis, previous congestive cardiac failure or history of cardiac surgery.

Our patient was classified grade IV as she had presented with congestive cardiac failure. In addition to routine laboratory tests, patients with suspected cardiac disease may need the following non invasive diagnostic procedures. These include the electrocardiogram, the transthoracic echocardiogram, doppler echocardiography, exercise tolerance test especially in early pregnancy or pre-pregnancy evaluation, chest x-ray especially when

congestive cardiac failure is suspected, throat cultures, urine cultures, blood cultures, creative protein and streptolysin ' 0' titres.

Management of cardiac disease in pregnancy is best done by a combined team of obstetrician, cardiologist and anaesthesiologist. In the ante-partum period, continuity of care facilitates early intervention to avoid cardiac decompensation. Our patient presented with cardiac decompensation during pregnancy and had obviously missed pregnancy preconceptional counselling before the index pregnancy. Regular visits should include particular attention to heart rate, weight gain and oxygen saturation. The physiologic changes of pregnancy are usually continuous and therefore offer adequate time for maternal compensation in spite of the cardiac disease. Acute decompensation occurs due to inter current events superimposed on pregnancy and in the ante-partum period. These include infections and anemia. An immediate cause to account for decompensation in our patient could not be immediately identified. Therefore infections should be aggressively treated_andjprgj3hy^ with iron andiolate_giyen. Patients with grade I and II cardiac disease are seen weekly in the antenatal clinic and assessed by the obstetrician and cardiologist at every visit. She should be admitted at 35 weeks Jo await spontaneous onset of labour. In our unit these patients are admitted at 37 weeks to await onset of labour. Those with grade III and IV are ideally hospitalised through out the duration of the pregnancy. During labour, the standard of care is similar for most cardiac diagnoses. Physiologically, the ideal labour for a woman with heart disease is short and pain free. Delivery by caesarean section is due to_obstetric indications and vaginaJ delivery should be the aim. While in labour, the patient is put in a propped up position. The pulse rate and respiratory rate should be taken every 1/4 hourly during the first stage. The temperature should be recorded every 2 hourly and the urine output.JiK^nitoredJiQurly [1,2]- Pain is controlled by use of regional anaesthesia for example epidural analgesia, use of narcotics for instance morphine or pethidine. Since bacteremia is common at the time of vaginal delivery and caesarean section[8,9]- antibiotic prophylaxis is advocated and artificial rupture of membranes delayed till labour is fully established. Oxygen is giyeD-hy mask or nasal catheteL_when_necessary. An emergency tray containing aminophyllic. frusemide and bicarbonate is advocated in our unit. The second: stage should be as short as possible

and pain free. Vacuum extraction or forceps delivery is advocated. Our patient delivered vaginally with the help of a vacuum. The aim of third stage is to reduce maternal blood loss, and early post partum volume management. The placenta and membranes are delivered by controlled cord traction and the uterus massaged to prevent post partum hemorrhage. Oxytocin infusion may be given to augment the uteripe contraction. Ergometrine should be avoided in cardiac patients. Intravenous frumeside is given for volume management by promoting diuresis. Our patient was given 80 milligrammes of frusemide intravenously during third stage of labourJn our unit, post partum patients with cardiac disease are observed for 24 hours in the delivery unit and if no complication arises, they are transferred to the ward for observation and antibiotic prophylaxis. These observations in the ward take 10 to 14 days. The patient should be encouraged to be ambulant and to initiate and maintain breast feeding ([1,2])

Sterilization is the most convenient method of family planning and if acceptable should be done in the first 72 hours if the mother is stable or 6 weeks post partum. The couple should be counselled on vasectomy which has lesser risks. Other available methods of contraception include progesterone only methods and barrier methods. IUD may be offered to a mutually monogamous coupe([l,2]) Cardiac disease in pregnancy has an overall mortality range of 0.4-4%. This is higher with some cardiac disease especially Eisenmenger syndrome, pulmonary hypertension with right ventricular dysfunction and marfan syndrome with significant aortic dilation. Other complications include, increased risk of fetal cardiac disease from 1 % to 4-6% in mothers with maternal congenital heart disease,([12,13]) premature labour and delivery, low birth weight babies.

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Obstetric short case 10

POSTDATISM - successful labor induction with dinoprostone pessaries

Name: S.W

Age: 27 years

IP No: 1115336

DOA: 11/9/06

DOD: 14/09/06

Presenting Complaints

Patient was referred to KNH from St.Francis Hospital due to postdatism for induction of labor. She did not have abdominal pains. She reported normal fetal movements. There was no per vaginal bleeding or discharge of liquor.

Past medical History

Nil contributory

Obstetric and Gynecological history

Her last normal menstrual period was on 20/11/2005 EDD was at 27/08/2006. At admission she was at 41+ weeks. Quickening was reported in March 2006 which corresponded well with her dates. Just prior to that, she was not on a contraceptive method. She was Para 1+1.

Menarche was achieved at 14 years.

Her cycle was 28 days, flow lasted 4 days, and was moderate. Her first pregnancy was in 2001, had a spontaneous abortion at 2 months. No evacuation was carried out. In 2004, she had a term delivery to a live male infant who weighed 3.5 kg. She had used oral contraception in the past. However she had not had a pap smear to date.

Family social history

She lived in Kasarani and was married. She was a businesswoman and the husband also was a businessman. She never took alcohol nor smoked. There was no familial history of chronic disease.

Antenatal care

ANC was attended at St.Francis Hospital. She started at 20 weeks gestation, and attended 6 visits. She received one tetanus toxoid. Antenatal profile results were;

- Blood group was B rhesus D positive,
- HIV 1/11 negative
- VDRC negative
- Hb 12.6g/dl

On examination

She was a young lady in fair general condition, not pale no jaundice, no edema, no lymphadenopathy, temperature was 36.5C, Bp 120/80 mmHg, pulse rate 80/minute and RR of 20/minute.

Chest and cardiovascular examination was normal.

Obstetric exam

The fundal height was term, longitudinal lie and cephalic presentation. The head was 4fifths above the pelvic brim. The fetal heart rate was 144 beats/min and regular.

Vaginal examination

She had normal external genitalia, normal vaginal walls, the cervix was posterior, firm, closed about 2cm long, not effaced.

Cervical dilatation (cm)	-	closed	-	0
Position of cervix	-	posterior	-	0
Consistency of cervix	-	soft	-	2
Station of presenting part	-	not engaged	-	0
Cervical effacement	-	not effaced	-	0

An impression of **postdatism** with poor bishop score was made.

She was admitted and transferred to the floors. A prescription of prostaglandin E2 pessary was given.

The first PGE2 was inserted at 5:30 pm on 12/9/06. On 13/09/2006, she was reviewed at 7:30 am. She complained of lower abdominal pain, which was intermittent.
The fetal heart rate was noted at 136 beats/min was regular and contraction lasting 10- 20 seconds, the cervix was mid position, partly effaced 3cm dilated, the membranes were flat. She was transferred to labor ward.

At **12:55pm**
The contractions had increased to about 4 every 10 minutes, lasting 40- 60 seconds. The fetal heart rate was regular 140 beats/minute. Cervical dilation was 7cm. She proceeded well and at 2pm she had a spontaneous vertex delivery of a live female infant, who scored 9 in 1 minute and 10 in 5 minutes, and weighed 2800 grams. No gross features of post-maturity well noted on the baby. The placenta and cord were all examined and were grossly normal. She was not pale, no edema was noted. Breasts were active and the uterus was well contracted at 20 weeks. Lochia was rubra and moderate, no calf tenderness elicited.

She was allowed home to be seen in the postnatal clinic after 6 weeks.

DISCUSSION

The patient presented was a 27 year old Para 1+1, who was admitted with prolonged pregnancy. She was induced with prostaglandin pessaries and had a successful vaginal delivery.

A post term pregnancy is one that persists for 42 weeks or more from the onset of a menstrual period that was followed by ovulation two weeks later. This is not always easy to determine due to varied duration from the onset of menstrual period to ovulation. Therefore, those who ovulate more than two weeks after onset of menstrual flow may be labeled prolonged pregnancy when they are actually not [1]. Thus, most pregnancies reliably 42 completed weeks beyond the last menses probably are not biologically prolonged, and a few not yet 42 weeks might be post term. These variations in menstrual cycle likely explain at least partially, why approximately 10% of pregnancies reach 42

completed weeks, yet a relatively small proportion of fetuses have evidence of post maturity.

Post term pregnancy varies greatly depending on the criteria used for diagnosis and reported frequency range from 4% to 14% with an average of 10 [2]. With the introduction of ultrasound in early pregnancy, this incidence has been reduced to 6.5% [3]. Elfenesh 1998 in her study at KNH and Pumwani Maternity Hospital found the prevalence of post term pregnancy to be 4.9% [4].

The cause of most post term pregnancies remains unknown but conditions associated with it include anencephaly. fetal adrenal hypoplasia, absence of fetal pituitary gland, placenta sulphatase deficiency and extra uterine pregnancy. All these conditions are associated with low oestrogen levels as opposed to the high levels that characterise normal pregnancy [1'3]. The low oestrogen levels results in inadequate production of membrane phospholipids from which arachidonic acid is cleaved for the synthesis of prostaglandin F_2 and E_2; these are responsible for the rhythmic uterine contractions and effacement of the cervix that occur in normal labour.

Other etiological factors include improved living standards and hereditary factors. Prolonged pregnancy tends to recur in successive pregnancies in the same woman. The condition tends to run in families [5].

%

The diagnosis of post term pregnancy is difficult to make especially in cases where the patient has not been seen early in pregnancy. The history of the woman's last menstrual period is the best clinical predictor of the date of confinement[6]. Information on menstrual patterns, use of ovulation inducing agents and recent discontinuation of hormonal contraceptives may also be beneficial.[3]. Our patient was sure of her LMP, was not on any method of contraceptive, had had regular menses and her quickening dates all pointed to post- dates.

Ultrasound sonography in the first half of pregnancy may give a reliable estimation of the age of the pregnancy. In this patient presented, ultrasound had not been done in early pregnancy.

Management of prolonged pregnancy depends on the certainity of dates. For those not in labour, vaginal delivery is aimed at in all cases unless otherwise contraindicated. Post term pregnancy is one of the commonest indications for induction of labour in many centres [3]. In our setup, induction of labour is practiced at 42 weeks. Surfactant test is done to assess fetal lung maturity. Labour induction is done by use of prostaglandin pessaries followed by amniotomy and oxytocin infusion. For patients with unfavourable cervix, prostaglandins are necessary to ripen the cervix. In women with Bishop score of 7 points and above amniotomy is done followed by syntocinon infusion.

Other mechanical techniques of ripening the cervix include cervical dilatation with a ballooned foleys catheter with or without extra-amniotic saline infusion and laminaria tents inserted to the cervix these are outdated in many centres today.

This patient had cervical ripening done with prostaglandin pessaries and had subsequent amniotomy done.

The rate of maternal and fetal complications increase with gestational age. The maternal risks usually relate to large fetal size. Fetal macrosomia leads to dystocia or cephalo-pelvic disproportion. The rate of caesarean section delivery doubles when the gestation passes 42 weeks compared to gestation at 38 - 40 weeks [7'8]. Other indications for caesarean section will result from failed induction and fetal distress. The infant did not have features of post-maturity.

Fetal complications are related to placental insufficiency and oligohydramnios. Placental insufficiency is due to placental ageing. Amniotic fluid volume decreases from 37 weeks gestation on-wards. In prolonged pregnancy there is 33% decline in amniotic fluid each

week [3,5]. Oligohydramnios may lead to cord compression, which may lead to fetal distress with meconium production and aspiration.

Neonatal complications include birth trauma from macrosomia and meconium aspiration syndrome. The incidence of macrosomia is 3-7 times more frequent in prolonged pregnancy than in term deliveries [10]. These babies are at greater risk of perinatal morbidity especially neurological sequele.

Careful intrapartum management is important to guarantee continued fetal well being. On delivery of the head, effective suctioning of the pharynx before the delivery of the thorax is required if meconium is identified.

Studies are being done to find ways of reducing the risk of prolonged pregnancies. Fetal fibronectin found in the choriodecidual interface is usually found in cervical vaginal secretions 1 - 2 weeks before delivery. The combination of a negative fibronectin test and unfavourable cervix at 39 weeks gestation may be additive in increasing risk of patient remaining undelivered at 41 weeks. One study found that serial membrane sweeping in these patients resulted in earlier delivery compared to controls [11].

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Obstetric short case 11

Unsensitized rhesus negative - induced at term - live outcome

Name	R.W		
Age	29/female		
Ip No	1115269		
DoA	8/9/06	LMP	**3/12/05**
DoA	10/9/06	EDD	10/9/06
Parity	1+0	GBD	39 + 5 days

Presenting complaints

The mother was admitted for induction from our antenatal clinic due to rhesus negativity at term.

History of index pregnancy

The mother was initially seen in our antenatal clinic at 28 weeks. She had previously attended two visits of care at a city council clinic. Her antenatal profile done was;

- Hb 12.7g/dl
- HIV1/11 negative
- VDRL negative
- Blood group B rhesus D^negative

Her spouse's blood group was O rhesus D positive. ICT was then carried out and was negative. She had no prior knowledge of her rhesus negativity and had not received anti-D in her previous pregnancy. She attended 6 visits at our clinic.

Obstetric and gynaecological history

She was a Para 1+0. Her first delivery was in 2001 at a hospital, at term; out come was a live male infant who weighed 3.6kg. The child was alive and well. Her LMP was on 3/12/05 EDD 10/9/06 and GBD was 39+ weeks. Menarche was at 12 years of age; her cycle was 26-28 days, duration of flow was 4-5 days. There was no history of dysmenorrhoea and had used Depo-Provera in the past for contraception.

Family social history

She was the first in a family of two siblings. She was a housewife and the husband was an electrician. She lived in Ruaraka and she did not take alcohol or smoke.

Past medical history

Nil contributory

On **examination** she was in fair general condition, not pale, no edema, no iymphadenopathy. Bp 120/80mmHg, pulse rate 80 beats/min, RR 18/min and temperature 36.4°C. The respiratory and cardiovascular system was normal.

The fundal height was at term, the lie longitudinal, cephalic presentation, the presenting part was 4 fifths above the pelvic prim. The fetal heart was heard and regular at 140 beats/min.

Vaginal examination revealed normal external genitalia; the cervix was central, soft and parous.

A **diagnosis** of rhesus negative mother at term was made.

Counseling was done on the need for induction of labor. PGE2 pessaries were availed and the first one was introduced into the posterior frnix aseptically. Six hours later she was reviewed. The fetal status was satisfactory and the cervical exam showed a dilatation of 2cm, central and soft. The second pessary was introduced. Review after a further 6 hours noted the patient to be having contractions that lasted 20-40 seconds two every 10 minutes. The fetal heart rate was satisfactory and the cervix now was anterior, partly effaced and 4cm dilated. She was transferred to the labour ward where an ARM was done, revealing a clear liquor and no cord. Labor was augmented with syntocinon drip at **5IU.**

She progressed well in labor and she delivered a LMI who weighed 3300g and scored 9/1 and 10**/5.** Cord blood was obtained for the baby's blood group, DCT, Hb and bilirubin levels.

The pediatrician reviewed the baby and the baby was found stable.

Investigation results

- Total bilirubin 34.1umol/l
- Direct bilirubin 8.2umol/l
- Blood group B rhesus positive

DCT and FBC results were not available.

The mother was subsequently given anti D 300i(g. They were both discharged home on 10/9/06 in stable condition. She was booked for postnatal clinic after two weeks but she did not honor her appointment.

DISCUSSION

R.W. was a 29year old Para 1+0 who had not been sensitized despite lack of prophylaxis in the previous pregnancy and was delivered of a normal live infant who did not develop haemolytic disease.

Haemolytic disease of the newborn (HDN) is a disorder that occurs in response to maternal antibodies coating of fetal red cells. Over 400 types of red cells antigens have been identified. Most of these are however too rare to be of clinical significance. The ABO and CDE antigens especially the former are the commonest causes of haemolytic disease of the newborn. However ABO cause mild disease characterized by jaundice only without anemia. The others include Kidd, Kell, Duffy, Lutheran and MN's[1].

The CDE complex genes are carried on the short arm of chromosome 1 and are inherited independent of other red cell antigens. Rhesus antigens are found on the red blood cell membrane and their antigenic Loci are C.D,E,c and e. C, E, c, and e are less antigenic and it is the presence or absence of the D antigen that is used to categorize an individual as Rh positive or negative[2].

There are considerable variations in the distribution of rhesus blood group. The Basque population has the highest incidence of 30-35% followed by Caucasians at 15-16%, African Americans at 7-8%, African Blacks at 4% and Native Americans, Chinese, and other Asiatic people at 1% while Mongoloids are practically free of rhesus negativity[1,3]. In Nairobi area, the incidence is about 5% while in KNH, it is about 4.1%[4,5]. The presented was among the 4% of Black Africans who are rhesus negative.

Rhesus Isoimmunization occurs when a rhesus negative person is transfused with rhesus positive_blood. This can occur in a reproductive woman either through therapeutic or foeto-maternal transfusion. Isoimmunization can also occur in the reverse. That is materno-foetal transfusion occur between a rhesus positive mother and her rhesus negative femal^ foetus. The sensitized child will cause haemolytic disease in all her rhesus positive fetuses. This is called the "grandmother theory" [1]. This did not happen in our patient as the first and second born babies were not affected.

Foeto-maternal transfusion has been found to occur in 6.7% in the 1st trimester, 15.9% in the 2nd and 28.9% in the 3rd. Factors that increase foeto-maternal transfusion include; trauma, placenta praevia, afcuuptio placenta, intrauterine foetal death, multiple pregnancy, manual removal of the placenta and ceasarian section. However only 2% of rhesus negative women are sensitized by 6months postpartum. The reasons for the low isoimmunization rate include[1,2,3]:

- Maternal inherent inability to respond to rhesus antigen. About 30% of rhesus negative mother are in this category of the so-called non-responders.
- ABO incompaltibilitv provides protection by destroying the red cells as soon as the^ cross into the maternal circulation,
- Inadequate volume of blood crossing the placenta into the maternal circulation. It is estimated that only 50% of rhesus negative mothers even following delivery receive 0.1ml of foetal blood, which is the minimum needed for sensitization. Amount of feto-maternal transfusion determines the risk of sensitization. The larger the volume the higher the risk of sensitization. 200mls will give ,80%^ chance of sensitization. There is no given volume which causes 100% chance of sensitization

- Failure of antibodies to cross the placenta in adequate amounts to cause sensitization. IgM unlike IgG don't cross the placenta easily. IgM are the ones formed in ABO incompatibility while IgG are formed in rhesus isoimmunization.

Our patient was not isoimmunised despite failure to get prophylaxis in the first pregnancy. The blood group of the first-born child was not known hence difficult to determine why she was not isoimmunised. The possibilities however are; inadequate foeto-maternal transfusion, rhesus_negative_iafant, AB(D incompatibility and the patient being a .non-responder.

In a sensitized woman with a rhesus positive foetus, antigen antibody complexes form on foetal red cells. These are recognized by the fetal reticuloendothelial System (RES) which haemolyses them. As a result there is fetal anaemia, hypoxia and acidosis, impaired liver function, skin edema, ascites and pericardial effusion and possibly death. Bilirubin does not normally increase very much in utero because of the effective clearance by the placenta. Death in utero is usually from cardiac failure due to severe anaemia. This is preceded by hydrops foetalis characterized by subcutaneous oedema, fluid accumulation in the serous cavities, hepatosplenomegally, cardiomegally and pulmonary haemorrhage. However after birth because of under development of the liver, the infant may experience severe hyperbilirubinaemia leading to kernicterysjQJLcLeath[1,2,6]. This did not happen to our patient because she was not sensitized.

Prevention of isoimmunization is the most effective method of managing immune haemolytic disease. ABO and rhesus typing are recommended for all women attending ANC. Indirect Coombs Test (ICT) should be done at 28weeks for those found negative and repeated at 34weeks. In ICT negative patients, anti-D prophylaxis is recommended at 28we^ks and repeated within 72hours$_t$of delivery if the foetal red cells are rhesus positive. Studies however indicate that anti-D prophylaxis is effective when given up to 28days after delivery. No action is taken if ICT remains negative at 34weeks[3,7,8]. Our patient was not given anti-rhesus prophylaxis at 28weeks due to her financial limitation and its

unavailability in the hospital. However she got the postpartum prophylaxis on the 2nd postnatal day.

Adequate amount of anti-D immunoglobulins are needed if prophylaxis is to be successful. The dose of anti-D immunoglobulins depends on the amount of transfused foetal blood. A Kleihaur-Belke test is used to quantify the volume of fetal blood in maternal circulation, when massive transfusion is suspected as in cases of placenta praevia, placenta abruption and manual removal of the placenta. Up to 30mls of fetal blood can be managed by a dose of 300pg of globulins. Similar amounts will be needed for every extra 25mls of fetal blood present in the maternal circulation. Up to 1200ug may be given depending on the amount of transfusion[9]. Kleihaur-Betke test was not done for our patient due to unavailability in our institution. We were however consoled by the fact that pregnancy and labour complication likely to predispose to massive foeto-maternal transfusion did not occur.

When I£T is positive, the antibodies should be quantitatively analysed. Titres of 1 in 16 and above carry a high risk of developing haemolytic disease of the newborn and .require amniocentesis^ancLi^aibi^ ICT was done and found negative at 28weeks but anti-D immunoglobulins was not given due to financial constraints. The patient was better prepared however and managed to buy anti-D immunoglobulins after birth. Amniocentesis was not necessary because she had not been sensitized.

ICT with antibody titre less than 1:16 suggest foetal safety but when above requires further foetal evaluation. Amniocentesis is done to obtain fluid for bilirubin level determination by spectrophotometric assessment. Cordocentesis to assess fetal haemoglobin may also be done. Serial ultrasounds are also necessary to diagnose foetal hydrops and imminent foetal death when severe disease is present. Severity of isoimmunization, as based on amniotic fluid bilirubin level is determined using the liley graph with the level in zone3 being most severe. Foetuses with bilirubin level in this zone have haemoglobin below 8g/dl and death likely within 7-10days without intervention[11]. The patient presented was not immunized and did not need this kind of evaluation.

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OBSTETRIC SHORT CASE 12

BAD OBSTETRIC HISTORY -MACDONALD STITCH INSERTED - spontaneous rapture of membranes- preterm delivery- live outcome

NAME	M.W.	para 4+5 no living child
IP/No.	0999893	LMP 1/2/06
AGE	27 YEARS	EDD 8/11/06
SEX	F	GBD 34+
DoA	26/09/06	
DoD	3/10/06	

Presenting complaints

She presented with a four-hour history of drainage of liquor.

History of presenting complaints

She had been well till about 4 hours prior to admission. She noted a sudden gash of liquor that flowed to her legs. She also noted a slight mucoid blood stained discharge. She experienced no lower abdominal pains. There was no history of dysuria, frequency or urgency. There was no history of fever or any febrile illness prior to this episode.

Obstetric and History of index pregnancy

She was a Para 4+5 with no living child. Her last menstrual period was on 1/2/2006, EDD 8/11/2006. She was presently at 34+ weeks. Previous pregnancies;

1998 March had a spontaneous abortion at 6 months.

1998 November had a spontaneous abortion at 5 months

1998 had a spontaneous abortion at 6 months.

2000 had a spontaneous abortion at 6 months

2001 had a spontaneous abortion at 3 months

All were preceded by spontaneous drainage of liquor, uterine contractions and then expulsion of products of conception. She went to hospital but no evacuation was carried out.

In 2002 she had a delivery at 8 months but the outcome was a female fresh stillbirth. In 2003 she had a delivery of a live female infant who weighed 1,8kg but succumbed with in 2 hours of delivery.
In 2004 she had a caesarean delivery of a live female infant who also weighed 1.8kg but the baby died at 2 months. The c/s was done due to antepartum hemorrhage. In December 2004 she conceived but she had a spontaneous abortion at 6 months again.
In this current pregnancy she was first seen at 20 weeks gestation. At the visit a pelvic exam revealed a short cervix, which was 2cm, dilated with a small defect at the 4 o'clock position. She was then scheduled for a MacDonald stitch insertion.

In theatre, under general anaesthesia she was placed in lithotomy position and vulvo-vaginal toilet done. The urinary bladder was catheterised and clear urine drained. Draping of the vulva area with sterile drapes was then done. Examination under anaesthesia was done; the fundal height was 20 weeks gestation, the cervix was open about 2cm and had an anatomical defect at the 4 O'clock position. She had no drainage of liquor and no cervicitis. An Auvard speculum was then inserted to expose the cervix and both the anterior and posterior lips of the cervix held with sponge holding forceps. With gentle traction on the cervix, No.2 silk suture on a round body needle was used to insert a purse string at the level of the internal os that was identified as the point where the smooth cervical mucosa meets the rugged vaginal wall mucosa. Four bites were taken at 4o'clock coming out at 2 o'clock, 1 o'clock through 11 o'clock, 10 o'clock through 8 o'clock and 7 o'clock through 5 o'clock avoiding the vascular and nerve bundles at 3 and 9 o'clock. The knot was tied at 6 o'clock leaving about 2cm of the suture with the knot. The knot was tied tight to just allow space for the little finger. There was minimal bleeding and she was reversed from anaesthesia.
She did well post operatively and was discharged home.

Subsequently she continued with antenatal visits at the clinic till this admission. In total she was seen for 7 visits. Her random sugar at 4.6mmol was normal. Menarche was achieved at 16 years of age. Her cycle was 28 days with menstrual flow for 6 days. She had used oral contraceptive pills in the past.

Antenatal profile

- Hb 11.9g/dl
- VDRL - negative
- HIV 1/11 -negative
- Blood group -O positive

Toxoplasmosis screening done was positive for 1g G but negative for 1gm.

Family social history

She was married and stayed with spouse in Kangemi. She was unemployed and the husband was a casual laborer. Her mother was a known hypertensive. No other familial chronic or endocrine disorder was noted.

On **examination** she was in fair general condition, no pallor, no edema **BP** 103/67mmHg, pulse 86/min, respiratory rate 20/min and temp 36° C.

Respiratory and cardiovascular systems were normal. Fundal height was at 34 weeks, longitudinal lie, cephalic presentation and 3/5 high. The fetal heart rate was 124 beats per min and regular, contractions lasting 20seconds were palpated 3 in every 10 minutes. Sterile speculum examination revealed normal vaginal walls, the cervix was already dilated at 4 centimeters. The stitch was removed. The mother was counseled that a preterm delivery was inevitable.

Meanwhile a stat dose of dexamethasone was given and analgesia. Labor progressed and within 4 hours she delivered a live male infant who scored 8/1 and 10 in 5 min. The birth weight was 2.1kg.

The following morning she was examined in the ward. She was in fair general condition not pale, no edema. The chest was clear and breasts were soft and active. The uterus was at 16 weeks and well contracted. Lochia was rubra and minimal. She was put on analgesics and advised to start breastfeeding.

DISCUSSION

The patient presented was a para 4+5 who had had 5 previous spontaneous early second trimester abortions. Subsequently she also had a successful pregnancy after insertion of McDonald stitch. During the index pregnancy a McDonald stitch was inserted and she went into spontaneous labor at 34 weeks gestation. The outcome was a live baby who scored well and both mother and baby went home in good condition.

Our patient presented with cervical incompetence at her first admission. Cervical incompetence is a clinical condition characterized by repeated second trimester or early third trimester pregnancy losses due to weakness and inability of the cervix to maintain the pregnancy until term gestation. It is a discrete obstetrical entity also accompanied by cervical effacement and dilation in mid trimester without uterine contractions and uterine body anomalies [12,3]. Palmar and Laconne first described the condition in 1948, and again by Lash and Lash in 1950 and by Shirodkar in 1983.

Cervical incompetence is characterized by relatively painless dilation of the cervix in the second and early third trimester with prolapse and ballooning of membranes into the vagina followed by rupture of membranes and rapid expulsion of an immature foetus. The cervix dilates and effaces which can be a result of weakness in the muscle of the cervix that cannot be voluntarily controlled This patient had presented similar history in her previous pregnancies. Unless effective treatment is given this sequence of events tend to repeat in each pregnancy.

The incidence of cervical incompetence globally ranges from 0.05 to 2% of all pregnancies and it accounts for about 16% of all mid trimester abortions[1,2]. However it is the cause of 20-25% of miscarriages in the second as well as 10% of preterm deliveries [4]. Locally Njage [5] found an incidence of 1.1% at KNH. The actual cause of cervical incompetence is still obscure and only circumstantial evidence has been used to establish the aetiology. Previous cervical trauma sustained during previous delivery, from dilation and curettage, conisation, cauterization and cervical amputation has been found to be a major aetiological

factor. The occurrence of cervical incompetence in primigravida suggests congenital weakness and investigations have pointed at collagen distribution in the cervix with abundance of muscle tissue and sparse connective tissue, the opposite of distribution found in the normal cervix. In this congenital type, physical examination reveals normal cervix but sudden pregnancy loss occurs at 18-20 weeks gestation. A physiological dysfunctional disorder has also been demonstrated in some cases. Prenatal exposure to diethylstilbestrol has been associated with increased incidence of cervical incompetence in the daughters[1,2,3,8].

The patient presented had five mid trimester abortions in the classical way with drainage then uterine contraction and expulsion and were of decreasing gestation. The classical presentation is history of recurrent mid trimester pregnancy losses that starts with painless drainage of liquor, then uterine contraction and finally expulsion of the products of conception. The gestational ages decrease with subsequent pregnancies. Previous history of abortion especially if managed by dilation and curettage forms a significant aetiological association as in Kagia's series where a third of the cases of cervical incompetence had prior abortion [5]. History of previous preterm births, cervical tears and repair, dilation and curettage, cone biopsies is collaborative. On examination cervical defects suggesting previous cervical trauma may be found. A very short cervix less than 2.5cm in length with dilation or bulging membranes may be observed. However in practice, some patients present with symptoms ranging from urinary frequency, lower abdominal pressure, a sensation of bearing down and bloody show or a watery discharge. Additionally menstrual like cramps and a pattern of uterine irritability or small amplitude contractions may occur as the membranes protrude, distend the cervix and activate the Ferguson's reflex . In our patient, a short cervix was found but there were no bulging membranes. She did not have any vaginal discharge.

In the patient presented, the diagnosis of cervical incompetence was made from her clinical presentation and she had not had any tests previously to make this diagnosis. History and physical examination may be obscure such that confirmation of the diagnosis cannot be reliably made. Several diagnostic techniques have been employed in effort to

make a diagnosis. Outside pregnancy, an incompetent cervix will easily allow passage of size 8 Hegar's dilator. Traction test of Bergman and Sverrund may be performed where a balloon catheter placed in the uterine cavity with an external traction of 600g is positive indicating incompetence if the balloon falls out. A hysterosalpingogram at antero-posterior view with the cervix pulled down may demonstrate funneling and a shortened endocervical canal [1> 2'3,5,8]. In pregnancy, transvaginal ultrasound done at 14-30 weeks may demonstrate a short cervix with funneling of the internal os and protrusion of chorioamniotic membranes into the endocervical canal. Our patient had not had any of these tests.

Baden and Baden in 1960 suggested a grading system in which the severity of cervical incompetence can be shown [6].These were;
Grade I (mildest form)-premature delivery occurs at 30-36 weeks gestation
Grade II (moderate) Delivery occurs between 24 and 30 weeks gestation
Grade III (Severe)- abortion occurs between 18-24 weeks.
Grade IV (Very severe)-abortion occurs before 18 weeks.

They found 100% term pregnancy rates outcomes with cerclage of grade I and II compared to 25% for grade III and IV. Our patient had losses at gestation of up to five months thus could be placed in grade III. She attained term pregnancy after cerclage.

Treatment of cervical incompetence in pregnancy involves strengthening of the weak uterocervical junction achieved by various cerclage techniques. They all involve passing some kind of purse string suture around the internal cervical os. The commonest cerclage method is the McDonald stitch technique, which involves application of non-absorbable purse string submucosally at the level of the internal cervical os. It is technically simple and less traumatic than both the conventional and modified Shirodkar methods in application and removal. It does not require mucosal dissection unlike the Shirodkar. Howevere both have similar success rates of 85-90% foetal survival[1J]. The placement of Shirodkar suture may be done using a strip of fascia lata or mersilene tape tied submuscularly around the isthmus of the cervix after vaginal mucosa and bladder have been reflected. The suture is

difficult to remove often leading to caesarean section as mode of delivery, which may be complicated by lochia outflow obstruction if the suture is left in situ. The conventional Shirodkar technique requires laparotomy for insertion while the modified one uses the transvaginal route with double needle ligature instead of mersilene tape allowing it to be performed even during pregnancy [1,3,?].

Other methods used to strengthen the cervix include

- The Lash procedure; requires laparotomy to perform and often requires caesarean section delivery like the conventional Shirodkar technique.
- Trachelorrhaphy
- Tracheoplasty

Both trachelorraphy and tracheoplasty have been associated with increased incidence of complications including cervical scarring and stenosis, which interfere with sperm transport to cause infertility. These three methods have fallen out of favour in preference to McDonald stitch and the modified Shirodkar that is used for cases where the McDonald stitch has failed. [1'3'7].

Cervical cerclage is best performed between 14th to 19th weeks of gestation by dates and before a dilation of 3cm is reached. After 19 weeks cerclage is technically difficult due to effacement of the cervix and is associated with increased complication rates especially preterm labour, rupture of membranes and chorioamnionitis. Cerclage is not done in the first trimester due to several reasons, namely

a) Ultrasound can be done to confirm viability and rule out major congenital anomalies in the foetus

b) First trimester causes of abortions (especially due to chromosomal abnormalities) are avoided

c) It has also been noted that before 15 weeks gestation, the amniotic fluid pressure and the weight of the products of conception exerted on the cervix are not able to cause abortion by mechanical means [1'3].

Our patient had McDonald stitch insertion at 20 weeks after she first presented for antenatal care. Results of cervical cerclage are difficult to assess because diagnosis of incompetence of the cervix may not be certain in every case. Worldwide rates of success are 85-90% with respect to foetal survival. MacDonald himself reported term pregnancy rates of 85.5% while Shirodkar reported 70-85% success. Locally Njagi reported 64% foetal survival rates and 53% term pregnancy rate in 1978. Ruminjo [10] reported 69.5% term pregnancy rates and 78.1 foetal survival rates in 1991. Block and Rahhal (1976)[9] proposed a scoring system, which was based on clinical and historical data of the patient to ascertain the diagnosis and the likely prognosis. Each of the five parameters considered scores one point if present and thus giving a maximum of five points and minimum of zero. The parameters considered include:

1. Previous premature delivery and mid trimester abortion without obvious cause.
2. History of painless premature labour and delivery.
3. Visual evidence of previous surgical or obstetric trauma to the cervix
4. Progressive dilatation greater than 2cm on initial examination during second trimester
5. Previous diagnosis of cervical incompetence with previous cerclage

A score of 3 or more points has statistically more successful outcome with cerclage. Our patient had a score of 3 and had a successful outcome after cerclage.

The patient presented did not have any contraindications to the insertion of the stitch. Contraindications to cerclage include uterine bleeding, uterine contractions, ruptured membranes, polyhydramnios, intra uterine foetal death, cervicitis and obvious foetal malformations such as hydrocephalous, anencephaly [13,7]. Before cerclage, foetal viability should be confirmed by ultrasound as was doen for the patient presented, which also rules out congenital malformations, multiple pregnancy and polyhydramnios. Other causes of abortion should be ruled out thus tests performed for diabetes mellitus, rhesus incompatibility, thyroid disease, uterine fibroids, syphilis, brucellosis, toxoplasmosis and HIV. Where possible a Pap smear and investigations to rule out autoimmune disease should be done [13,7]. In our patient, tests were done for HIV and syphilis, which were negative.

In our patient the stitch was removed at 34 complete weeks as she had drainage of liqor.The McDonald stitch is removed after 37 completed week's gestation or at any time the patient presents in labour, has ruptured membranes, has uterine bleeding or intrauterine foetal death or she develops chorioamnionitis. Removal of the stitch would permit vaginal delivery. It can be left in situ if delivery will be by caesarean section.Complications of cerclage include haemorrhage, rupture of membranes, chorioamnionitis, abscess formation, formation of haematomas and disseminated infection including septicaemia. Fibrosis of the cervix after cerclage may cause cervical dystocia during labour. If labour starts with the stitch in situ, cervical tears and amputation, vesicovaginal fistula and uterine rupture can occur. The inflammatory process in the cervix following cerclage may induce preterm labour.

This patient had one previous caesarean section scar in addition to cervical incompetence. Successful vaginal birth after caesarean section would have advantages including less operative and postoperative complications, shorter hospital stay and lower postpartum morbidity. The success rate of VBAC is approximately 25% though actual rates vary from centre to centre. Success also depends on other factors such as reason for primary caesarean section, history of previous vaginal births and the number of previous caesarean section scars.[11]. Her labor proceeded spontaneously and was uneventful.

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Obstetric short case 13

CORD PROLAPSE-Emergency C/S-outcome live birth

NAME:	S.N	Para 3+0
DOA:	25/9/06	LMP 23/12/05
DOD:	28/9/06	EDD 1/10/06
IP NO:	1085299	GBD 39+
AGE:	31 YEARS	

Presenting complaints

She gave history of lower abdominal; pains and drainage of liquor for 2 hours.

History of presenting complaints

The patient was well till she noticed lower abdominal pains 2 hours prior to admission. She also noted drainage of liquor that was clear and flowing down her thighs. The pain was intermittent and radiating to the back. There was no history of per vaginal vaginal bleeding.

Obstetric and gynaecology history

She was a par 3+0, gravida 4. Her last menstrual period was on 23/12/05 EDD of 1/10/06, she was at 39+ weeks gestation. Her first delivery was SVD at Pumwani in 1991 at term, outcome a LFI, weight 3.5 kg. However the baby died at 16 months due to poisoning.

Her second delivery was SVD at Mama Mumbi, at term; out come a LFI, weight 3.5kg was alive and well. Her last delivery was in 1996 outcome a LFI weight 3.0kg was alive and well.

Her menarche was at 16 years, the cycle was 26-30 days and the flow 4-7 days, was irregular. She had used Depo Provera for the past 6 years. She had not had a pap smear to date.

History of index pregnancy

She started antenatal care at KNH at 17 weeks but only attended 3 visits. Antenatal profile

- Hb 13.1 g/dl
- HIV 1/11 negative
- VDRL -negative

- Blood group B positive
- Urinalysis -NAD

She received one tetanus toxoid. She was admitted for one day in ward 1D at 16 weeks gestation after being involved in an RTA. She sustained only soft tissue injuries and was discharged home in stable condition.

Family social history

She was married and stayed with her husband and children in Kawangware. She was a hairdresser while the husband was a driver. She was educated to standard 8. No familial history of chronic illness was noted.

Past medical history

Apart from the history of RTA at 16 weeks no other significant history was noted.

On **examination,** she was not pale, no edema.

Bp 120/70mmHg, pulse rate 91/min and temp 36.6

Respiratory, cardiovascular and neurological examination were normal.

Obstetric exam

Fundal height was at 36 weeks, gestation, longitudinal lie and cephalic presentation. The head was three fifths above the pelvic brim and the fetal heart was heard and regular at 136 beats /min. contractions lasting 10-20 seconds were palpable.

Vaginal examination

It revealed normal external genitalia, vaginal walls were normal cervix was at 5 cm dilated, anterior and soft. However a pulsatile cord was noted prolapsed and a hand was also palpated.

A **diagnosis** of cord prolapse with compound presentation was made.

The patient was informed of the need for urgent ceaserian delivery. She was positioned in the knee chest position to reduce pressure on the cord and started on IV fluids. O2 was started, blood for grouping and cross match drawn and consent obtained.

In **theatre**

Patient was in extended lithotomy position. WT was done and catheterized aseptically. The cervix was 6 cm dilated, with a hand noted on its side, with a pulsatile cord and with slight changes in color, meconium stained liquor grade II also noted. She was a positioned supine and the abdomen was cleaned and draped. She was put under general anesthesia and the abdomen opened via a midline sub umbilical incision. The uterus was opened via an elliptical lower segment incision. A live male infant, whose weight was 2950g with a score of 6 in 1, 6/5 and 8/10 was delivered. The fetus was noted to have been in oblique lie, liquor was meconium stained and the cord was extremely long approx 1m in length. The placenta was delivered via CCT. Uterus was repaired in layers, hemostasis achieved and abdomen also closed. Wound was dressed and WT done.

She did well and was discharged on 28/9/06.

DISCUSSION

S.N. was a 31 year old Para 3+0 with cord prolapse and a live foetus at term. She underwent emergency caesarian section with good outcome.

Umbilical cord prolapse is the descent of the umbilical cord into the lower uterine segment with associated ruptured membranes. The cord may lie adjacent to the presenting part (occult cord prolapse) or below the presenting part (overt cord prolapse). Umbilical cord descent below the level of the presenting part before rupture of the membranes occurs is called funic cord presentation[1]. Our patient had overt cord prolapse in labour.

Prolapse of the umbilical cord exposes it to compression between the presenting part and the pelvic inlet, cervix, or vaginal canal. Compression of umbilical cord compromises fetal circulation and, depending on the duration and intensity of compression, may lead to fetal

hypoxia, brain damage or death. In overt cord prolapse, exposure of the umbilical cord to air causes irritation and cooling of the cord, resulting in vasospasm of the cord vessels and further circulatory compromise[1]. There was minimal if any cord compression in our patient because a viable foetus with good Apgar score was delivered.

The incidence of cord prolapse is reported to be 0.14 - 0.62%, with a perinatal mortality between 8.6 - 49%. In the Nairobi Birth survey, a rate of 1 in 125 was reported while at Kenyatta National Hospital a rate of 0.57% was reported which was responsible for 19.8% of perinatal mortality[2,3,4,5,6']

Improper filling of the lower uterine segment by the presenting part facilitate cord prolapse. These factors include: Low gestational age, low birth weight, abnormal presentation, multiple pregnancy, high parity, high head at membrane rupture, low lying placenta, polyhydramnios and cephalopelvic disproportion. Breech presentation alone accounts for 40-50% of cord prolapse. Footling breech poses the highest risk of 15%, complete breech 5% while frank breech has a risk close to that of cephalic presentation of 0.5%. A study at K.N.H reported that 96% of cord prolapse cases were associated with longitudinal lie of which 86 % were cephalic and 14% were breech presentations. This was associated with artificial rupture of membrane. This is in keeping with the fact that the commonest cause of cord prolapse has been iatrogenic, causing more than 50% of the problem. The interventions cited include: amniotomy, internal electrode application, intra-uterine pressure monitoring catheter insertion and conservative management of premature rupture of membranes [6l 7]. The patient presented had cord prolapse probably due to a malpresentation [oblique lie] and a long cord.

Diagnosis of cord presentation should be anticipated if one or more of the above predisposing conditions are present during labour. Diagnosis of cord prolapse is influenced by the type of prolapse, level of cord compression and the skill of the clinician. Overt cord prolapse may be visualized if it has prolapsed beyond the introitus or otherwise palpated in the vagina. In funic presentation the cord will be palpated through the membranes. Palpation is easier and more certain if the foetus is alive in which case the cord may be

pulsating. In occult cord prolapse, fetal heart rate may show variable deceleration due to intermittent cord compression and the foetus may exhibit violent movements. If compression is more severe the foetal heart will initially show acceleration but slow down to bradycardia and if intervention is not forthcoming, the fetus will succumb to acidosis [1]. Meconium stained liquor is common in a mature fetus [1'9]. In our patient, diagnosis was made through pelvic examination with ruptured membranes. The foetal heart remained regular though there was meconium in liquor at caesarian section possibly meaning that there was some element of cord compression.

During the follow up in antennal clinic, those patients with obvious predisposing factors to cord prolapse should be advised on admission to hospital before they go into labour, as the outcome of the delivery depends on the speed of delivery. Some of them like persistent transverse lie should have elective caesarian section at 38weeks. Controlled artificial rupture of membranes should be done for those who present in labour with high presenting part. After spontaneous rupture of membrane, immediate vaginal examination should be done in to rule out cord prolapse [1]. In-patient management in our set-up for all patients with risk factors for cord prolapse is impossible due to bed capacity and cost of health services. The best option is counselling for arrangements to be made beforehand to come to hospital at the earliest sign of labour.

The management of cord accidents is influenced by several factors and among them the state of the membrane, extent of cervical effacement and dilatation, station of the presenting part and the viability of the foetus. In a viable foetus, prompt delivery is necessary and depends on the level of cervical dilatation and descent of the presenting part. If cord prolapse occurs at full dilation, forceps or vacuum delivery can facilitate delivery in cephalic presentation if the head is at or below station 0 and there is no contraindication to vaginal delivery. Forceps delivery is not practiced in our institution but vacuum assisted delivery is.

Opinion varies in patients who are fully dilated with breech presentation and transverse lie. Some authors recommend internal poadalic version and breech extraction while others

argue that it's more dangerous to both the mother and the foetus [1,B]. In well selected case of breech presentation and transverse lie, the former may be right, but in situations where the criteria for breech delivery has not been fulfilled or have not been examined, it would be safer to do caesarian section. If not fully dilated or the presenting part is high, expeditious caesarian section is the best option. In previable or dead foetus, vaginal delivery should be the goal [1i 8]. In our patient's case, the foetus was viable, the presentation was cephalic though oblique, but in early labour hence ceasarian section offered the best chance to the foetus.

Whatever mode of deliver is chosen, some management should be instituted immediately to prevent further injury to the foetus pending delivery. These include placing the patient in Sims, Trendelenburg or knee-chest position to reduce pressure on the cord, replacing cord in the vaginal and keeping it there with warm wet packs, placing two finger in the vagina and maintaining an upward pressure on the presenting part, discontinue oxytocin and administration of oxygen. Filling of the bladder with 400-700ml of saline is also thought to further elevate the head and reduce uterine contraction and reduce cord compression [11]. In our patient's case, she was put in knee-chest position and this worked well.

Speed of expediting delivery is very important. Perinatal mortality increases by a factor of four or more if more than 30 minutes pass before delivery. When delivery is effected within the first 10 minutes of diagnosis, the corrected fetal mortality is 5.5%. The documented perinatal mortality in various centres is 0.7- 16.8%. In KNH, the mortality is 19.8%.

Some interventions could go a long way in reducing the rate of cord prolapse. These include: antenatal diagnosis and elective delivery of patients with contraindication to vaginal deliveries, such as breech presentation with inadequate pelvis, correction of the amenable ones e.g. external cephalic version for breech presentation where no contraindication to vaginal delivery exist and Caution during obstetric intervention that predispose to cord prolapse like amniotomy.

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Obstetric short case 14

BREECH PRESENTATION -EMERGENCY *CIS*- live outcome

NAME	G.W	**Para 1+0**
IP No.	1108880	LMP 1/1/06
AGE	21	EDD 8/10/06
DOA	14/9/06	GBD 37+
DOD	20/9/06	

Presenting complaints

The patient presented with history of lower abdominal pains for one day.

History of presenting complaints

Patient was seen in the labor ward with a one-day history of lower abdominal pains. They were intermittent radiating to the back. She did not have dysuria, frequency or other urinary symptoms. There was no history of per vaginal bleeding or drainage of liquor; she however reported normal fetal movements.

Past medical history

Not contributory.

Obstetric and gynaecological history

She attained her menarche at 13 years. Her menses lasted for 3 days and the cycle was 26 days. She had used oral contraceptive pills in the past. She was Para 1+ O, had delivered SVD to a live female infant in the year 2002 birth weight was 3.1kg. The child was alive and well.

History of index pregnancy

Her last menstrual period was on 1/1/2006, the EDD was 8/10/2006 and currently she was at 37 + weeks gestation. She attended ANC at St. Francis nursing home a total of 4 visits. She had 2 tetanus toxoid injections. Her antenatal profile was:

- Hb 12.4g/dl
- Blood group B Rhesus D positive
- VDRL -negative
- HIV 1/11 -non-reactive

She also received SP as IPT once during the pregnancy. In all visits attended, breech presentation was not diagnosed.

Family social history

She was married and lived in Nyeri with her spouse. She neither drunk nor smoked. There was no history of diabetes, hypertension or twinning in the family.

On examination she was in fair general condition, not pale, no edema, no lymphadenopathy, BP 110/70mmHg, pulse 80/min, respiratory rate 20/min and temperature 36°C.
Chest and cardiovascular systems were normal. The fundal height corresponded to 36 weeks gestation, longitudinal lie, breech presentation, descent 5/5 no contractions were palpable. Fetal heart was 144/min. the vaginal exam had normal external genitalia; cervix was posterior, firm and closed. There was no show on the examining finger, but a thick white curdy discharge was noted.

She was put on clotrimazole pessaries and transferred to the wards. While in the ward, the pain persisted and mild contractions lasting 10-20 seconds 3 every ten minutes were palpated. Fetal heart remained regular and vaginal examination showed that she was now at 2cm dilation. She was therefore transferred to labour ward and prepared for emergency caesarean section.
In theatre, caesarean section was carried out, and the outcome was a live male infant, who scored 8/1, 9/5, and 9/10 with a birth weight of 2500grammes. She did well post operatively and was discharged home on 20/9/06.

DISCUSSION

The patient presented was a 21 year old Para 1+0 who presented in our hospital in latent labor with breech presentation. She had emergency caesarean section with good outcome.

Breech presentation refers to a situation where the podalic pole of the fetus presents at the maternal pelvic inlet and three types of breech presentations have been recognized:

1. Frank (extended) breech, in which the hips are flexed on the abdomen and both legs are extended at the knee.

2. Complete (full or flexed) breech, in which the hips are flexed on the abdomen and both legs are flexed at the knee.
3. Footling breech, in which one (single-footling breech) or both (double footling breech) legs are extended below the level of the buttocks The patient presented had single footling breech presentation.

The incidence of breech presentation varies with the gestational age of the fetus. The overall incidence is reported to be 3-4% of all deliveries but it is more common remote from term [1,2,3A] Locally the incidence of breech presentation was found to be 2.7% of all deliveries in the Nairobi Birth Survey [5,6] while at Kenyatta National Hospital the reported incidence of breech presentation was 3.5% [5].

In singleton breech presentation in which the infant weighs less than 2500gms, 40% are frank breech 10% complete breech and 15% footling breech. With birth weights of more than 2500gms, 65% are frank breech, 10% complete breech and 25% footling breech [1]. In the case of our patient, the infant weighed 2500gm and was in single footling breech presentation.

Breech presentation occurs when spontaneous version fails to occur. Under normal circumstances, the fetal buttocks and lower limbs require more room than the head and

consequently try to occupy the fundal area with more relative space. A flexed fetal attitude aids version while extension leads to breech presentation. Conditions which are associated with breech presentation include fetal anomalies (for example, hydrocephalus, anencephaly) uterine_ anomalies (for example, fibroids, septum), multiple pregnancy; prematurity, placenta praevia, polyhydramnios and fetal tumors [2]. The patient discussed had none of these risk factors.

The diagnosis of breech presentation is usually made by palpation in the antenatal period. If the presentation persists, ultrasound to exclude fetal abnormality and demonstrate the placentalsite is recommended. Occasionally, vaginal examination in labor reveals a previously unsuspected case [1l 2'5]. The use of X-rays and CT scan to determining the presentation, multiple gestation and fetal skeletal defects is limited due to the increase risks of radiation exposure to the foetus [1i 5]. The patient was diagnosed clinically.

There are fundamental differences between labor and delivery in cephalic and breech presentations. With a cephalic presentation, once the head is delivered, typically the rest of the body follows without difficulties but with breech presentation, successively larger and less compressible head is born last. Both the mother and the fetus are at greater risk with breech presentation compared with cephalic presentation. Due to the higher frequency of operative delivery, there is a higher maternal morbidity and slightly higher mortality for pregnancies complicated by persistent breech presentation [2]. This risk is likely to be more increased if an emergency operation instead of an elective one is performed.

It is possible that breech presentation is not coincidental but a consequence of poor fetal quality in which case medical intervention is unlikely to reduce the peri-natal mortality associated with breech presentation to the level associated with vertex presentation [1]. The risk of cerebral palsy among term breech presentation does not seem to be related to the mode of delivery but is more likely linked to a higher rate of being small for gestational age in breech infants [8i 9]. Umbilical cord compression and prolapse may be associated with breech delivery particularly in complete breech presentation and footling presentation. This is due to the inability of the presenting part to fill the maternal pelvis either due to

prematurity or poor application of the presenting part to the cervix. In frank breech, the incidence of cord prolapse is only 0.5%, which is the same as for cephalic presentation [2| 9]- The patient presented did not develop cord prolapse and the infant was grossly normal with a good apgar score.

Cord compression due to prolapse may occur during uterine contractions causing moderate to severe variable deceleration in the fetal heart. This may lead to fetal anoxia or death. Continuous electronic monitoring is advocated though in its absence American College of Obstetricians and Gynaecologists say a Pinard fetoscope is good enough if used properly [10]. In the patient presented the fetal heart rate was regular on auscultation with a Pinard fetoscope.

The incidence of birth trauma during vaginal delivery is 6.7%, 13 times that of cephalic presentation. The injuries reported in breech delivery include, tears in the tentorium cerebri, disruption of the spjjiaLcord, brachiaLpaisy and fracture of the long bones. Vaginal breech is also the main cause of injuries to the fetal adrenal glands, liver, anus, genitalia, spjne, hip joint and sciatic nerve [11]. The patient was delivered via the abdomen and did not experience any of these complications.

Overall mortality rate for all breech presentations had been observed to be 25% compared with a 2.6% for cephalic presentations [11]. For infants with a birth weight of 2000-3500gm the neonatal mortality rates approach zero regardless of the route of delivery. The premature breech fetus (25.-34 weeks with a birth weight of 700-2000g) and large term breech fetus (birth weight >3500gms have significantly better neonatal outcomes when delivered by Caesarean section. In KNH a mortality rate of 439.1 per 1000 live births for those weighing <2500gms and 72.9 per 1000 live births for those weighing >2500g has been reported [12].

Vaginal delivery of breech can be allowed in frank breech presentation, gestational age of 34 weeks or more, estimated Jetal weight of 2000ı3500gn!5 and flexed head, adequate mateinaLpelvis as determined by x-ray pelvimetry, no maternal and or fetal indication for

caesarean section, pre-viable fetus, documented lethal fetal congenital anomalies, mother presentingJn ^advanced labor and some carefully selected cases of complete breech presentation. At Kenyatta National Hospital one of the institutional prerequisites for vaginal delivery is an erect lateral pelvimetry with a true conjugate of 10.5cm or more [1,2,3].

Caesarean delivery for mothers presenting with breech is indicated in the following; estimated fetal weight of more than 3500gms, contracted or borderline maternal pelvic measurements, extended fetaljhead, prolonged rupture jsiLmembranes, non engaged presenting part, dysfunctional labor, eWerlyj^imjgravida, mpther with infertility problems or poor obstetric history, premature fetus (25-34weeks), foot|incL breech and fetal distress [1]. The discussed patient presented with footling breech and the attitude of the foetal head was unknown.

At present evidence is not adequate to recommend systematic elective caesarean section or vaginal delivery for breech delivery at term. The best mode of delivery will remain uncertain until large randomized trials with well-documented short and long-term infant and maternal outcomes are done [12].

Where breech presentation is diagnosed antenatally, the mother must be closely followed up to see if spontaneous version to cephalic occurs. If breech presentation persists beyond 36j/veeks, external cephalic version (ECV) should be considered. The mother should be informed of the presentation and of management options. X-rays pelvimetry should be done to preclude women with contraindication to vaginal delivery. The indications for ECV include patients with non-engaged singleton breech at 37- 42 weeks. The contraindications for ECV include engagement of the presenting part into the pelvis, macked_oligohydramnips, placenta praevia, pre-labor rupture of membranes, previous uterine sjjrgery, congenital malformations and intrauterine growth retardation. Additional contraindications include maternal cardiac disease, diabetes mellitus, thyroid disorders, all of which preclude use of tocolytics [1-2'4-12'13]. Our patient attended antenatal care in a private clinic and had not been diagnosed to have abnormal presentation.

Epidural anesthesia has been found to increase the success rate of ECV in those that have failed. More than 90% of the fetuses that are successfully converted into a cephalic presentation have a cephalic presentation during labor [14]. The presented patient had come in active labor with the presenting part already with engaged, ruptured membranes, and without an erect lateral pelvimetry, hence ECV was not advisable. Had the same been diagnosed however to have abnormal presentation earlier, it wound not have made a difference because our unit does not practice cephalic version.

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Obstetric short case 15

ANTEPARTUM HEMORRHAGE - emergency *CIS* - outcome live birth

Name:	M.G	parity	1+0
IP No:	1113265	LMP	18/12/05
Age:	29 years	EDD	25/09/06
DOA:	30/09/2006	GBD	40+
DOD:	4/10/2006		

Presenting Complaints

She presented with a history of painless per vaginal bleeding for the last 12 hours.

History of presenting complaints

She was previously well. She started noticing per vaginal bleeding spontaneously about 12 hours prior to presentation. There was no associated lower abdominal pains or backache and no history of trauma. No obvious aggravating factor was present.

Obstetric and gynaecological history

She was a Para 1+0, last delivery was 2003 at Pumwani Hospital, outcome a live male infant, birth weight 3.6kgs, is alive and well

Menarche was at 15 years of age

Cycle was irregular, flow was 3-4 days and the duration was 24-28 days. She had used oral contraception in the past.

History of index pregnancy

Her last menstrual period 18/12/05, EDD 25/09/06, she was at 40+ weeks. She attended antenatal care from Wangige Health centre. She attended 3 visits.

She received one tetanus toxoid

Antenatal profile was done thus;

- Blood group O+ve
- HIVI/II Negative
- VDRL Negative

- HB 12.5g/dl

Family and Social history

She was married and stayed with her family in Wangige. She was a teacher and the husband was also a teacher. There was no history of alcohol intake or smoking.
No familiar chronic illness was noted.

On examination

Her general condition was fair. She was mildly pale, afebrile, had no jaundice. Her blood pressure was 118/80mmHg, pulse 92 beats/min, respiratory rate 20/minute and a temperature of 36°C. She was not cyanosed and had no pedal edema.
The cardiovascular, respiratory and nervous systems were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended. The fundal height was term, with longitudinal lie and cephalic presentation. The foetal heart rate was heard at 126 beats/minute and was regular. The head was five-fifths above the pelvic brim. She had no uterine contractions and had no uterine tenderness or hardness. There were no other palpable masses.

SPECULUM EXAMINATION

The external genitalia were normal, vaginal walls were healthy with no discharge or lacerations. There was active bleeding from the cervix that was 4cm dilated. A digital examination was contraindicated in this patient.

A **diagnosis** of Antepartum Hemorrhage at term was made.

Intravenous access was obtained and IV fluids commenced. Blood for grouping and cross match was obtained. Consent for theatre was also obtained.

In theatre, abdomen was opened via a lower midline incision and uterus via a lower uterine segment incision. A live male infant whose weight was 3200gms, the score was 6/1, 7/5 and 9/10 was extracted. Had 2 loops of cord round the neck but with no knots. Placenta previa type IV mainly embedded to the posterior aspect of cervix and lower uterine segment was encountered. It was delivered by controlled cord traction and syntocinon infusion commenced. Uterus and abdomen was then closed in layers.

The following day she was reviewed. On examination she was slightly pale, no edema was noted. The chest was clear and the breasts active. The uterus was at 20 weeks gestation and well contracted. Bowel sounds were ascultated. Lochia was rubra and moderate. She was commenced on oral sips, hematinics and advised to ambulate. On the fourth post operative day she was allowed home.

DISCUSSION

M.G. was a 29year old Para 1 + 0 who was admitted with active ante partum hemorrhage due to placenta praevia at term. She underwent caesarian section with good outcome.

Hemorrhage is among the leading causes of maternal death. It accounts for 25% of maternal deaths, most of which occur in the developing world. The other causes of maternal death include infections, pregnancy hypertensive disorders, abortions and obstructed labor[1]. Ante partum hemorrhage, is defined as bleeding from the genital tract after 22 weeks pregnancy[2].

Causes of ante partum hemorrhage are divided into obstetric and non-obstetric. Obstetric causes include; placenta praevia, placenta abruption, bloody show, marginal sinus bleeding, vasa praevia and uterine rupture[3]. Our patient had placenta praevia.

Placenta praevia refers to implantation of the placenta wholly or partially in the lower uterine segment, within the zone of effacement and dilation [3]. Placenta praevia is classified as [3>4'and5]:

1. Type I (low-lying placenta); the placenta is in the lower segment but does not reach the internal cervical os.
2. Type II (marginal); the placenta reaches the internal cervical os but does not cover it.
3. Type III (partial); the placenta covers the internal cervical os partially
4. Type IV (complete or total); the placenta covers the internal cervical os completely.

Our patient had type IV placenta praevia.

Placenta praevia occurs in 0.5-5% of all pregnancies [3' 4' and 5]. At Kenyatta National Hospital it is reported in 0.3-0.9% [6].

Risk factors for placenta praevia include [3]:

- Advancing age.
- Multiparity
- Scarred uterus or poor vascularization of the placental bed
- Large placenta
- Abnormal placentation such as succenturiate lobe
- smoking

None of these risk factors were apparent in our patient.

The patient usually presents with painless vaginal bleeding. The first episode is usually minor but can be torrential and live threatening but this is sorer in subsequent episodes. The bleeding too may be associated with placental some degree of placental separation hence not painless. When associated with separation, labor may also follow soon after[4].

Management is influenced by:

- Haemodynamic condition of the patient
- Presence or absence of labor
- Maturity of the foetus
- Presence or absence of foetal compromise.

Management a patient with antepartum hemorrhage requires team work as several things need to happen simultaneously. Among them is to secure a large bore intravenous access line, administer resuscitation with fluids or blood depending on individual situation, and evaluate the amount of bleeding and cause as well as the foetal maturity hence determine the best mode management[2-3-4'5].

When the patient is haemodynamically stable, not in labor and the foetus is not mature, conservative management is practiced to allow maturation. During this time, the patient should have bed and pelvic _rest preferably in hospital where emergency caesarian hysterectomy can be done if need be, have an intravenous access line and blood products are available on short notice. Ultrasonography is used to localize the placenta where available and this is confirmed by examination under anaesthesia at 37 completed weeks. Patients with dangerous placenta praevia namely placenta praevia type II posterior and above are delivered by caesarian section while those with type I and type II anterior, induction of labor with amniotomy and oxytocin is started [2'3'4|5-]

Patients with heavy active bleeding need immediate intervention to save their lives even if at the expense of the pregnancy[2]. Our patient though was not in shock, she was having significant active bleeding, was at term with a live foetus and was in early labor, caesarian section offered the best chance for mother and baby.

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The long commentary in obstetrics

TITLE **The effectiveness of the syndromic management in the treatment of STIs among pregnant HIV infected women.**

ABSTRACT

This study aimed to determine the prevalence of the main curable STI's (gonorrhea, chlamydia, syphilis, and trichomoniasis) bacterial vaginosis and also vaginal candidosis in HIV infected mothers attending antenatal care at the KESHO BORA CLINIC KNH. It also sought to determine the utility of clinical versus laboratory based assessment in the management of STI's. The women were interviewed, underwent a pelvic examination, blood screening and collection of genital samples for purposes of laboratory examination. Treatment at the time of presentation was based on the clinical symptomatology and physical findings [the syndromic approach]. Further to that, laboratory analysis was conducted on the samples and any additional treatment needed offered to the patients. Data analysis was to offer an insight into the utility of the syndromic approach in the treatment of STI's among this cohort of women.

We conducted a cross- sectional study of 105 pregnant HIV infected women. The median age was 27 years, with a range of 18 to 42 years. Majority of the clients were married (>79%) and the median parity was one. Current condom use was low (26.7%). The number of their lifetime sexual partners ranged from 1 to 13, with a median of 4 partners. Majority of their current sexual partners were circumcised (69.5%). Only 19% gave a positive history of an STI in the past. The median gestation at enrolment was 32 weeks, with a median CD4 count of 404 cells/ mm^3. The CD4 count ranged from 12 to 1083 cells/mm^3. Thirty [28.6%] of the clients complained of p v discharge, 12.4% of pruritus and 4.8% had dysuria. Majority (49.3%) of the clients did not have complaints.

On pelvic exam, 50 (47.5%) were noted to have an abnormal vaginal discharge, 20 (19%) had a cervical discharge while 2 (1.9%) had cervical ulceration. Thirty-three (31.6%) had no abnormality.

The prevalence of the infections was syphilis 1.9%, bacterial vaginosis 23.8%, trichomoniasis 3.8%, chlamydia 3.8%, gonorrhea 2.8% and candidosis 39%. The sensitivity of the syndromic diagnosis of candidosis was 66%, with a specificity of 85%, a positive predictive value [PPV] of 80% and a negative predictive value of 20%.The sensitivity of diagnosing trichomoniasis from a vaginal discharge was extremely low at 6%, but the specificity was 98%, a PPV of 75% and NPV of 75%. Therefore using this algorithm in diagnosing a vaginal discharge, there was low sensitivity (6-

66%), but a high specificity (85-98%). The sensitivity of diagnosing chlamydia from a cervical discharge was 15%, with a specificity of 99%, a PPV of 75% and NPV of 89%. On the other hand, the sensitivity of diagnosing gonorrhea was 15%, with a specificity of 100% a PPV of 100%.

In conclusion, whereas there is evidence that vaginal infections may have adverse birth outcomes; over-reliance on the syndromic management is unlikely to offer effective treatment. Alternative treatment strategies should be considered if we are to ensure that effective treatment is delivered to all affected women.

INTRODUCTION

STI's are transmitted by infectious agents, bacteria, viruses, parasites, fungi and single celled organisms such as protozoa that thrive in moist environments such as the genital area, mouth and throat. Most STI's are spread during sexual intercourse (vaginal or anal) but other forms of sexual contact, such as oral sex, can also spread disease.

Some STI's are transmitted in ways other than by sexual contact. Certain viral STIS such an HIV and some types of hepatitis may be transmitted by contact with infected blood[1]. This may result from sharing infected needles or blood transfusion. Some STIS also may pass from an infected mother to her unborn child. Infection may occur before birth, when the infectious agent crosses the placenta and enters the baby's' blood stream. Infection may also occur at child birth or after birth as the baby consumes breast milk[1]. However, STIS are not transmissible via shaking hands or other casual contact or through contact with inanimate objects such as clothing or toilet seats.

Diagnosis of a presumed sexually transmitted infection has traditionally been based on either clinical diagnosis, which is often inaccurate and incomplete, or laboratory diagnosis which is complex, very expensive and may delay treatment[1]. As early as the 1970's, public health physicians, particularly those working in Africa, became interested in putting simple clinical tools for controlling and treating STIs[2]. This resulted in the design and promotion of "syndromic management" guidelines for STIs by the World Health Organization in 1991[3]. The syndromic approach does not require identification of the underlying etiology. Instead, it is based on the identification of a syndrome that is, a group of symptoms and easily recognized signs associated with a number of well known etiologies. Treatment is thus offered for the majority of the organisms locally responsible for the syndrome.

The WHO estimates that approximately 340million new cases of the four main curable STIs (gonorrhea, chlamydia, syphilis and trichomoniasis) occur every year -75-80% of them in developing countries[4]. STI's impose an enormous burden of morbidity and mortality in developing countries, both directly through their impact on reproductive and child health, and indirectly through their role in facilitating the sexual transmission of HIV

infection. The high prevalence of STI's has contributed to the disproportionately high HIV incidence and prevalence in Africa. Conversely, HIV may have contributed to some extent to STI increase especially of viral agents such as herpes simplex viruses and human pappiloma viruses. The greatest impact is on women and infants. The World Bank has estimated that STIs, excluding HIV, are the second commonest cause of healthy life years lost by women in the 15-44 age-group in Africa, responsible for some 17% of the total burden of disease[5].

LITERATURE REVIEW

Sexually transmitted infections (STIs) have been associated with a number of adverse pregnancy outcome including spontaneous abortion, stillbirth, prematurity, low birth weight (LBW), postpartum endometritis, and various sequelae in surviving neonates[6]. Preterm birth and low birth weight are major determinants of infant morbidity and mortality, especially in developing countries where neonatal intensive care is not often available. In one cross sectional study in Nairobi, Kenya, the incidence of LBW (<2500g) was 7.5%, and the prenatal mortality in LBW children was 222 per 1000 live births[4].

STIs, including HIV, are believed to be of particular importance in determining pregnancy outcome in the developing world because the prevalence of infection is so high[4]. Cross sectional, randomized trials and retrospective cohort studies of antenatal clinic attenders in Africa have found that up to 40% of pregnant women have trichomoniasis and bacterial vaginosis ,2.5-17% have serological evidence of syphilis , while the prevalence of gonorrhea and chlamydia ranges from 2-7 and 3-29%, respectively[7"10].

Syphilis

Syphilis has long been known to be an important risk factor for pregnancy outcome[11"13]. The natural history of syphilis acquired in pregnancy is believed to follow the sequential stages of primary, secondary, and latent syphilis that have been observed in untreated, non-pregnant adult cases.

Left untreated, syphilis has a dramatic impact on pregnancy outcome. The consequences of untreated, maternal infection include stillbirth, LBW, preterm birth and also congenital infection in a proportion of surviving infants. Historically, one third of pregnancies are believed to result in mid-trimester spontaneous abortion or prenatal death, one third in a congenitally infected infant, and one third in an uninfected infant[12]. Data from developing countries confirm that maternal syphilis still remains an extremely important cause of perinatal morbidity and mortality[10,14]. The most significant consequence of untreated syphilis in resources poor settings is stillbirth but the infection has also been associated

with LBW, preterm birth, and intrauterine growth retardation (IUGR) in Africa[10,15]. As in developing countries, mothers with high non-treponemal test titres, as seen in earlier stages of infection, are most at risk of having an adverse pregnancy outcome[10,16].

Chlamydia Trachomatis

Chlamdyia trachomatis infection in pregnancy leads to cervicitis and cervical discharge but high proportions of women are asymptomatic. Information on the impact of untreated chlamydial infection on pregnancy outcome has mainly come from non-developing countries. The infection has been associated with stillbirth, premature delivery, premature rupture of the membranes, and LBW. Three large prospective studies of the impact of C *trachomatis* on pregnancy outcome have been reported from the United States. A study of 801 women enrolled between 22 weeks and 30 weeks gestation found that C. *trachomatis* infection was associated with both intrauterine growth retardation and preterm delivery[17]. A study of 534 women found that C. *trachomatis* infection was associated with low birth weight, premature rupture of membranes and preterm labor (<34 weeks) [18]. However, a third study involving 1365 women found no association between cervical C. *trachomatis* infection and adverse pregnancy outcome[19]. In Nairobi, C. *trachomatis* infection was found to be associated with postpartum endometritis[20].

Maternal C. *trachomatis* infection can also affect the neonate, leading to infant pneumonia and ophthalmia neonatorum (ON) [21], 30-50% of infants born to infected women will develop chlamydial ON, which is usually less severe that gonoccoccal ON. Cross sectional and prospective studies in Nairobi and the Gambia found the incidence of chlamydial ON to be 8.1 and 2.7 per 100 live births, respectively[22,23].

Neisseria Gonorrhoeae

The clinical pattern of gonorrhea in pregnant women is similar to non-pregnant women, with up to 45% of cases being asymptomatic[24]. In an antenatal clinic in Tanzania, symptoms of vagina discharge, itching and lower abdominal pain were no more common in women with, than in women without cervical infection with *Neisseria gonorrhoeae* or C. *trachomatis*[25]. Documented sequelae of untreated N. *gonorrhoeae* infection in pregnancy

noted in case reports include preterm delivery, premature rupture of the membrane, LBW, postpartum endometritis, and gonococcal ON[26].

A case-control study of women delivering in hospital in Nairobi, Kenya, enrolled 166 women who delivered infants weighing <2500g, and 175 control women. *N. gonorrhoeae* was isolated from 11% of cases and 4% of controls[27]. The authors concluded that gonorrhoeae was responsible for 14% of cases of LBW in this population. A prospective study in South Africa looked at the relation between gonorrhoeae diagnosed at the first antenatal clinic attendance and pregnancy outcome in 167 women. Five of nine women with gonorrhoeae delivered a preterm infant compared with 24 of 158 uninfected women. Women with gonorrhoeae delivered significantly smaller babies (mean weight 2252g v 2970g, $p<0.005$)[17]. Gonorrhoeae has also been associated with upper genital tract infection in postpartum women in a prospective study in Kenya[20].

Gonococcal ON occurs in 30-50% of infants born to infected mothers. The incidence of gonococcal ON was 3.6per 100 live births in Nairobi and 2.1% in the Gambia[22,23]. Gonococcal ON is a severe disease that may lead to corneal ulceration or perforation, and hence to blindness. A large controlled clinical trial in Nairobi found that ON could be prevented by instilling 1% tetracycline ointment into the eye of infant at the time of delivery[28] .However, since that study was conducted, the prevalence of tetracycline resistant strains of *N gonorrhea* has increased dramatically and povidone-iodine solution appears to be an effective alternative[29].

Bacterial Vaginosis

Bacterial vaginosis (BV) is a condition in which the normal vaginal flora changes from a predominance of hydrogen peroxide - producing lactobacillus species to high concentrations of a variety of anaerobic organisms, *Gardenerella vaginalis,* and *Mycoplasma hominis*[30]*.* In research settings, the analysis of Gram - stained vaginal fluid according to the scoring system of Nugent et al[31] is used commonly to diagnose BV. BV is the most prevalent cause of vaginal discharge in developing countries, but a substantial fraction of women with the condition are asymptomatic[32].

Up to 50% of pregnant women have been found to have BV in sub-Saharan Africa[9,25,33]. In developed countries it has been implicated as a cause of preterm birth, LBW, premature rupture of the membranes (PROM), postpartum sepsis, and spontaneous miscarriage. Treatment with oral metronidazole or clindamycin has been shown to reduce the incidence of preterm delivery in women with Bv in case-control, prospective, and controlled clinical trials[34]. In the clinical trial in Rakai, treatment with single dose metronidazole, combined with azithromycin 1g and cefixime 400g, reduced the incidence of LBW and neonatal death[9]. In a multicentre randomized placebo controlled trial in Indonesia, 2% clindamycin vaginal cream administered to women with BV at 14-26 weeks gestation, the results showed that this was effective for treating BV but did not reduce the incidence of preterm delivery or LBW as it did not eradicate upper genital tract infection[35].

There have been few studies of the impact of BV outcome in developing countries. BV was associated with premature delivery in a prospective study in Indonesia especially when diagnosed early in the second trimester between 16-20 weeks gestation[36]. No effect of BV was seen later in pregnancy when combined with another potential risk factor such as previous preterm or LBW delivery or when there is co-infection with *trichomonas vaginalis*[37].

Trichomoniasis

Trichomonas vaginalis infection is prevalent in antenatal clinic (ANC) attenders in many developing countries. The WHO estimates that *T vaginalis* accounts for approximately half of all curable sexually transmitted diseases worldwide[4]. The primary symptom of trichomoniasis in women is vaginal discharge but approximately half of all women will be asymptomatic[38].

T vaginalis has been associated with preterm delivery and LBW in prospective cross sectional and cohort studies[39]. Similar finding from a case -control study have been observed in Africa where *T vaginalis* in pregnant Congolese women was associated with delivery of a LBW infant[40]. It has been estimated that *T vaginalis* may be responsible for

20-25% of cases of premature delivery in Africa[41]. However, treatment of asymptomatic T *vaginalis* infection with metronidazole in a randomized controlled trial failed to reduce the incidence of preterm delivery in the United States[42].

Human Immunodeficiency Virus

In many African settings, HIV is now the most prevalent STI in pregnant women. Overall, 15-30% of women attending prenatal care clinics are infected with HIV[43]. UNAIDS reports prevalences between 18-39% in southern Africa. In east Africa prevalence seems to be declining from 30% in Uganda in 1990 to 9% in2002. In much of west and central Africa, HIV prevalence remains lower than other parts of the continent[44].

As well as sequelae in the mother, maternal HIV infection, examined in prospective cohort and cross sectional studies, has an independent effect on birth outcome, especially where there is also choriamnionitis[45]. HIV has been associated in case-control and prospective studies with both LBW and stillbirth[46] and with spontaneous abortion[17]. An increased risk of preterm delivery in HIV positive mothers compared to HIV negative mothers has also been observed[47]. The impact of HIV on pregnancy outcome is therefore likely to be significant in high prevalence settings. With an HIV seroprevalence of 16%, 19% of adverse pregnancy outcome in a large prospective study in Nairobi were attributable to HIV[48].

The most significant sequelae of maternal HIV infection in pregnancy is mother to child transmission (MTCT) of HIV. Without intervention, rates of MTCT range from 15-30% without breastfeeding and rise to 30-40% with prolonged breastfeeding[49].

MTCT is responsible for 90% of HIV infection in children worldwide[50]. It is estimated that 5-10% of MTCT of HIV results from intrauterine transmissions, 10-20% takes place during delivery, while post-delivery transmission accounts for 5-20%[51]. In Africa, duration of breastfeeding, elevated breast milk sodium levels, mastitis, maternal viral load, and non-

exclusive breastfeeding are all risk factors for HIV transmission via breast milk[52]. The risk of MTCT of HIV in the breastfed population is estimated to range from 25% to 48%[53].

The Syndromic Approach

In order to improve STI services, many African countries have adopted the syndromic approach endorsed by WHO. This approach was used in a landmark study in Mwanza, Tanzania, in which community-based syndromic management of STIs cut the number of new HIV infections by 42%[54]. It is also part of a project in Kenya that has reduced the prevalence of various STIs by 50 to 79% among target populations and has contributed to a 30% decrease in HIV prevalence among youth[55].

Syndromic management involves recognizing a group of clinical signs and patient symptoms, or syndrome, and prescribing treatment for the major causes of that syndrome. It enables health care workers without specialized skills or access to sophisticated laboratory tests to effectively treat most symptomatic STIs during a patient's first visit to a local clinic.

To facilitate use of the syndromic approach, the World Health Organization [WHO] developed flow charts or clinical algorithms for each of the commonly presenting STI syndromes, these being; vaginal discharge, urethral discharge, lower abdominal pain, genital ulcer disease and opthalmia neonatorum. Each country adapts specific clinical algorithms or flow charts depending on the local epidemiological pattern of STI and antimicrobial sensitivity pattern while utilizing those developed by WHO to standardize STI management[56]. The flow charts use when possible single dose, inexpensive regimens based on known patterns of drug resistances and the organisms known to cause the disease peculiar to the syndrome for which they are targeted. Thus, the flow charts represent a combination of practical and scientific information necessary for decision making[57]. Assessments of the STI care provided by clinicians trained in this approach have found marked increases in the percentages of clients receiving effective treatment.

RATIONALE

Antenatal screening for, and prompt management of sexually transmitted infections can prevent adverse maternal, fetal and perinatal outcomes. This is particularly important in areas of high STI endemicity. Pregnant women have had unprotected sexual intercourse and are therefore at a greater risk of having an STI[58]. In many countries, including Kenya, screening for syphilis and HIV is now a routine part of antenatal care.

Much of the studies done on STIs however, are in non-pregnant females and without HIV co-infection. HIV infected people are at a higher risk of acquiring STIs. It is also known that there is a higher risk of mother to child transmission of HIV in the presence of STIs. The risk is higher with placental infection and with the presence of genital ulceration[53]. Due to cost, routine screening for all STIs is in most circumstances prohibitive. This study therefore sought to determine the prevalence of the various STIs, describe the clinical correlates and evaluated the utility of the syndromic approach in the management of STIs among pregnant HIV infected women.

Hypothesis

The syndromic approach is as effective as laboratory based assessment in the management of STI's among pregnant HIV infected women.

MAIN OBJECTIVE

The main objective of this study was to determine the effectiveness of the syndromic management in the treatment of STIs among HIV infected pregnant women.

SPECIFIC OBJECTIVES

i. To determine the socio-demographic data of the patients attending antenatal care at the KESHO BORA study clinic.
ii. To determine the prevalence of the various STI's i.e. syphilis, gonorrhea, bacterial vaginosis, trichomoniasis, Chlamydia and candidaisis among pregnant HIV infected women.
iii. To describe the clinical correlates of STI's in HIV infected women.

MATERIALS AND METHODS

METHODOLOGY

All eligible patients were interviewed using a standard questionnaire and details of all symptoms noted. A physical examination was then conducted and genital samples obtained. Treatment was offered based on the syndromic approach. All samples taken were analyzed in the laboratory and results availed to the patients and clinician. Any further treatment was based on the results. The utility of clinical versus laboratory based assessment would then be determined.

STUDY DESIGN

This was a cross-sectional analytical study.

STUDY AREA

The study was conducted at the Kenyatta National Hospital. KNH is a national referral hospital that also serves as a teaching hospital for the University of Nairobi. The patients were attending antenatal care at the KESHO BORA clinic situated at clinic 23 within the hospital.

The Kesho Bora Study

The KESHO BORA Study is a multi-center prospective cohort study to assess the impact of Highly Active Anti Retroviral Therapy (HAART) during pregnancy and breastfeeding to Mother-To-Child-Transmission on HIV and the mother's health. Nairobi, the Kenyan capital city is one of the sites in which the study is being carried out. Participants who are expectant and seropositive for HIV and who meet the criteria set forth for eligibility are referred from selected Nairobi City Council antenatal clinics. They are seen on several preparatory visits before they are screened for eligibility then enrolled into the study. It is on those who are enrolled that data was collected from as they had undergone all the stages necessary for the questionnaire to be complete. Participants thus met the criterion for preparatory visits, screening and for enrollment into the overall study. Women presenting to the clinic were offered one or more preparation sessions. Following these

sessions a study screening visit was offered. At the screening visit assessment of comprehension was done. This covered areas such as why the study was being done, what were the benefits of being in the study, disadvantages such as side effects of the drugs and so on. Consent for screening was obtained. During this visit blood samples for CD4 counts and other blood parameters were also taken. Finally, an enrolment visit was scheduled. Assessment of comprehension was repeated before informed consent for being in the study was finally obtained. Thereafter personal data was collected, locator information obtained and a physical examination carried out. It is at this point that genital samples for STI evaluation were collected. The clients were expected to have the capacity and willingness to participate in all follow-up visits including clinical examinations and blood tests.

Other Considerations

The principal investigator in this study was on his elective year in the department of Obstetrics and Gynecology. During this period, he was involved in the KESHO BORA study as a senior house officer. Among other duties, he was been involved in offering routine antenatal care to the mothers attending the study clinic under the supervision of two senior Obstetricians in the department. He carried out the STI screening for the study participants. He also underwent training on the protocols of the study which had been approved by Hospitals' ethical review committee. In addition he received training in Ethics during the conduct of human research. Further to that, he underwent Good Clinical Practice certification from the John Hopkins Bloomberg School of Public Health.

The KESHO BORA study thus provided an opportunity to do a sub-study that would evaluate the utilization of the syndromic management [of STIs] in pregnant HIV infected women.

STUDY POPULATION

All pregnant HIV infected mothers attending the KESHO BORA clinic were eligible for this study. This was a sub-study within the main KESHO BORA HAART study.

STUDY PERIOD

The study was conducted from 3rd January 2005 through to 30th June 2006.

SAMPLE SIZE

Sample size was calculated using the formula:

$$N=\frac{Z^2 1\text{-}5MP(1-P)1}{D^2}$$

With 95% confidence

Where: z= number of standard error away from the mean

P= true but unknown proportion in the population

D=precision (% of the true proportion)

N=sample size

Assuming a prevalence level of 10%[7"10], the sample required was 71 patients.

SAMPLING METHOD

The non-probability sampling method was used where every consecutive enrolled mother who met the inclusion criteria was recruited in the study.

PROCEDURE FOR SAMPLE COLLECTION

At the visit preceding the collection of the specimens, the subject was advised to refrain from any kind of sexual activity, douching and inserting any intra vaginal products for at least 48hours prior to the collection of the vaginal/cervical specimens. During the enrolment visit, informed consent was taken prior to the collection of the samples. The necessary tubes were then labeled. The patient was asked to undress and lie on the couch.

The examiner then put on gloves. A sterile vaginal speculum was inserted. The speculum would be lubricated with warm water. The speculum would be opened to allow a clear view of the cervix. Specimens were then collected in the following order:-

Using the 1st swab, the cervix was swept gently and this was smeared on a slide for bacterial vaginosis.The second swab would be rotated on the cervix to ensure collection of intracellular elements. The swab was dipped in a cryo vial supplied from the lab and the

remaining bit of the swab broken. This second specimen was sent for *gonococcus* and *Chlamydia trachomatis.* Using a pipette dropper, a drop of KOH would then be inserted in a small plain tube. Using the third swab the cervix would be swept once more and the swab dipped in the prepared tube containing a drop of KOH. This was sent to the lab for *Candida spp.* Using a fourth swab, another specimen was collected from the cervix and inserted into a TV pouch. This was sent for *Trichomonas vaginalis.* Blood specimens were collected for RPR (rapid plasma regain) testing. All specimens were transported to the laboratory within 4hours of their collection.

STD screen

Syphilis screening was carried out with RPR using a rapid plasma reagin test (RPR, Becton Dickinson and Company, Cockeysville, MD) and confirmed with the Treponema pallidum hemagglutination assay (TPHA, Randox Laboratories LTD, Crumlin Co., Antrim, United Kingdom).

Gonorrhoea

Cervical secretions were evaluated for *Neisseria gonorrhoeae* by culture. The laboratory requirements were Dacron swabs and chocolate agar plates for culture and sensitivity.

Chlamydia

Chlamydia trachomatis was detected using antigen testing (Clearview, Chlamydia, Unipath, Nepean, Canada or Microtrak, Syva, San Jose, CA).

Direct examination

Vaginal secretions were examined for yeast and trichomonas using direct microscopy and bacterial vaginosis using standardized Gram stain criteria. Lab requirements were microscopic slides, swabs, KOH, and gram stain.

ELIGIBILITY CRITERIA

This was a sub-study within the main KESHO BORA study. Therefore the volunteer had to be eligible for the main study. The participants were thus pregnant with a gestation less than 32weeks from the last menstrual period or confirmed by a pelvic scan/obstetric scan at an earlier gestation. HIV infection was confirmed even if it was done earlier at any other medical institution. For this study, informed written consent was obtained from all participants.

STUDY INSTRUMENTS

A coded questionnaire which had sections on socio-demographic characteristics of the clients, symptomatology, physical findings and the laboratory results was used for this study.

DATA COLLECTION, EDITING I MANAGEMENT

The questionnaire was structured using EPIDATA version 2.1. All the information was subsequently entered to the computer and analyzed via SPSS version 12. An assistant was recruited to assist in filling-in the questionnaires. Analyses were conducted using SPSS Version 12.0 (SPSS). STIs of interest were compared between infected and uninfected patients, using Mann-Whitney *U* tests for continuous variables and student t test for means. Chi -square test of independence was used to test if there were any associations with infection of concern. Logistic regression was also used to test for possible factors associated with being infected based on the likelihood ratio test. The 95% confidence intervals were reported.

ETHICAL CONSIDERATIONS

Permission to carry out the study was sought from the ethical and research committee of the Kenyatta National Hospital. Permission was also sought from the Principal investigator of the KESHO BORA Study. The patients' names were not documented on any of the research tools to ensure confidentiality. Results of the study will be used for purposes of academia and for improvement of the standard of care. Results will be availed to the Kenyatta National Hospital.

RESULTS

A total of 105 pregnant HIV infected mothers nested in a PMTCT cohort trial at the KESHO BORA study clinic were interviewed and examined.

Table 1: Characteristics of the study population

Variable	N= 105
Socio-demographic data and obstetrics characteristics	
Median age, years	27 [18-42]
Marital status	
Married monogamous	60 [57.1%]
Married polygamous	23 [21.9%]
Single	11 [10.5%]
Divorced	6 [5.7%]
Widowed	5 [4.8%]
Median parity	1 [0-4]
Median gestation at enrolment in weeks	32 [26-34]

Social demographic profiles and obstetric characteristics

The median age of the study participants was 27 with a range of 18 to 42 years. A majority of the clients were married; 60 (57.1%) in a monogamous relationship, 23 (21.9%) in a polygamous marriage, 11 (10.5%) were single and never previously married, 6 (5.7%) were divorced, while 5 (4.8%) were widowed as shown in table 1. Twenty-four (22.9%) of 105 women enrolled into the study were nulliparous, 42 (40%) were Para one, 23 (21.9%) were Para two, 11 (10.5%) were Para three and 5 (4.8%) were Para four. The gestation age of the pregnancy from the last menstrual period or from ultrasound dating from an

early pregnancy scan ranged from 26 to 34 weeks. The median gestation at enrolment was 32 weeks.

Table 2 Sexual behavior and HIV Disease status

Sexual behavior	
History of condom use	
Currently	28 [26.7%]
Occasional	24 [22.9%]
In the past	8 [7.6%]
Never	45 [42.9%]
Median Lifetime sexual partners	4 [1-13]
Circumcision status of current partner	
Circumcised	73 [69.5%]
Non circumcised	32 [30.5%]
Positive history of STI in the past	20 [19%]
HIV Disease status	
WHO clinical stage 1 and 2	95 [90.4%]
WHO clinical stage 3 and 4	10 [9.6%]
Median CD4 counts, cells/mm^3	404 [12-1083]
CD4 counts £ 200	22 [21%]
CD4 counts 201-499	42 [40%]
CD4 counts > 500	41 [39%]

Sexual behavior

There was very low condom usage with only 28 (26.7%) of the women reporting current usage, a further 24 (22.9%) used them sometimes, while 8 (7.6%) had used them in the past as shown in table 2. At least 45 (42.9%) women reported that they had never used condoms in their life. The number of lifetime sexual partners ranged from 1 to 13, with a median of 4 partners and a mean of 3.91. The majority of women reported that their partners were circumcised, 73 (69.5%) as compared to 32 (30.5%) who were reported to be uncircumcised. Twenty women (19%) reported that they had experienced a sexually transmitted disease infection in the past, 62 (59%) were sure that had not had an STD, while 23 (21.9%) did not know.

HIV disease status

The majority [90.4%] of the clients were in WHO stages 1 and 2 while the minority [9.6%] had advanced disease i.e. WHO stages 3 and 4 on clinical staging. The CD4 cell count at enrolment ranged from 12 cells/ mm^3 to 1083 cells/mm^3. The mean was 408 cells/ mm^3 with a median of 404 cells/ mm^3. Twenty-two clients (21%) had an absolute cd4 cell count <200 cells/mm^3, 42 (40%) had counts between 201 and 499, while 41 (39%) had counts >500 cells/mm^3.

Presenting STD related symptoms and signs

Table 3: STD symptoms and signs

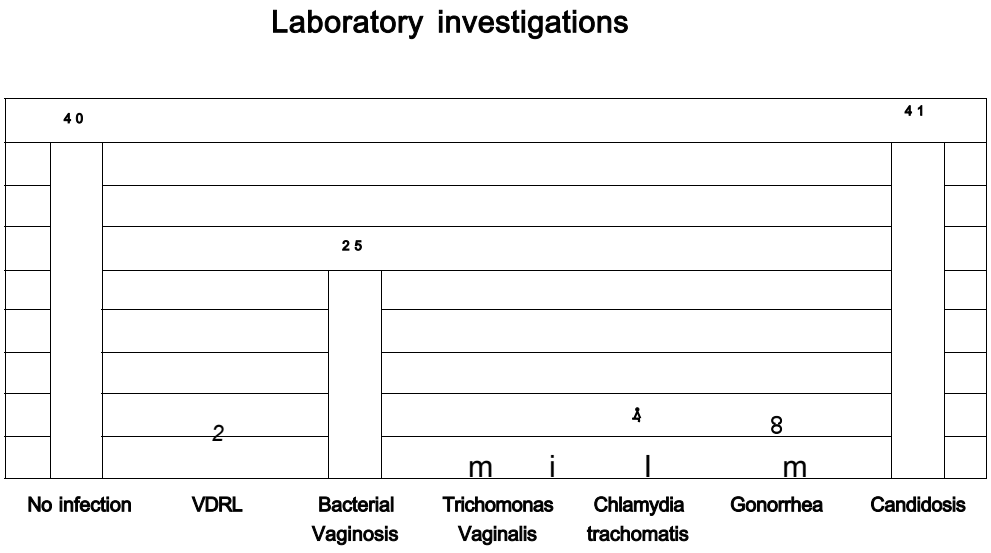
Presenting complaints	N = 105
Vaginal discharge	30 [28.6%]
Per vaginal pruritus	13 [12.4%]
Dysuria	5 [4.8%]
Lower abdominal pains	3 [2.9%]
Genital ulceration	1 [1.0%]
Per vaginal rash	1 [1.0%]
No complaints	51 [49%]
Physical findings	
Abnormal vaginal discharge	50 [47.5%]
Cervical discharge	20 [19%]
Cervical ulceration	2 [1.9%]
No abnormality detected	33 [31.6%]

Fifty-one (49%) of 105 study participants did not report any symptoms of STD's. The commonest symptom reported by the women was a vaginal discharge by 30 (28.6%) of the women, followed by pruritus in 13 (12.4%) and dysuria in 4 (4.8%) of the women as shown in table 3. Only a few women reported symptoms of lower abdominal pain, genital ulceration of vaginal rash.

Only 33 (31.6%) women had no visually detectable evidence of a sexually transmitted disease as shown in table 3. On pelvic exam, 50 (47.5%) were noted to have an abnormal vaginal discharge, 20 (19%) had a cervical discharge while 2 (1.9%) had cervical ulceration. Thus physical examination increased detection of vaginal discharge by 160% and enabled detection of cervical discharge and cervical erosion, the latter being conditions that are invisible to the women if they are not associated with significant discharge.

Laboratory findings

Figure 1: Distribution of laboratory confirmed RTI among the study participants



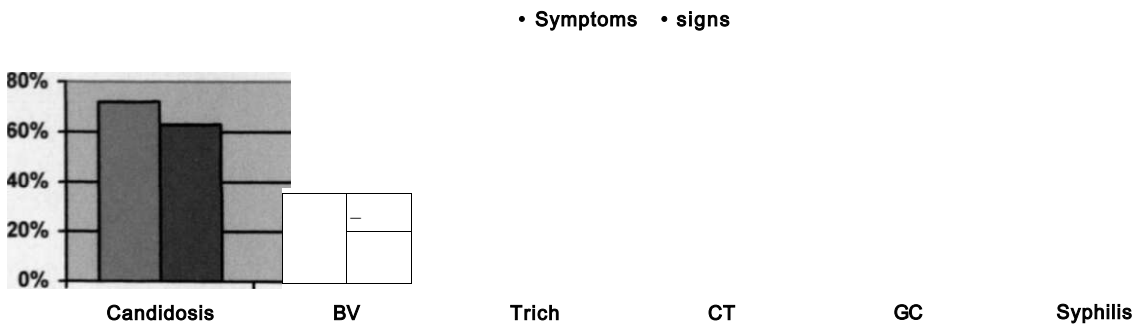
Overall 65 (61.9%) of the 105 women had a laboratory confirmed STI. Two of the study participants had a positive VDRL test and confirmed with TPHA. The prevalence of syphilis was 1.9%. Twenty-five (23.8%) of the women were diagnosed with bacterial vaginosis based on the gram stain techniques. A further 3.8% of the women were diagnosed with trichomoniasis 3.8%, chlamydia 3.8%,

gonorrhea 2.8% and candidosis 39% as shown in figure 1. Forty-nine (76%) of the 65 with a confirmed laboratory evidence of RTI had only one infection but 15(24%) had multiple infections.

Correlation of symptoms and signs with laboratory diagnosis of an STD

I. Abnormal vaginal discharge

Fig: 2 correlation of symptoms and signs of vaginal discharge with laboratory diagnosis of STD



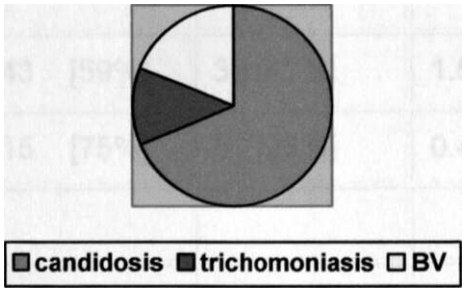
Of the 30 patients who had symptoms of an abnormal vaginal discharge, 21 had candidosis, 9 had bacterial vaginosis, 4 had trichomoniasis, and 2 had chlamydia; while one had gonorrhea. None had syphilis. Ten [33%] had more than one infection.

Fifty women had signs of an abnormal vaginal discharge. Of these, 29 (58%) had candidosis, 16 (32%) had bacterial vaginosis, 3 (6%) had trichomoniasis, 2 (4%) had chlamydia, one (2%) had gonorrhea, none had syphilis and 5 [10%] had no infection after laboratory analysis.

II. Pruritus

Of the 16 patients who had complained of vaginal pruritus, 11 (68.75%) had candidosis, 2 (12.5%) had trichomoniasis and 3 (18.75%) had bacterial vaginosis. None of them had chlamydia, gonorrhea, or syphilis.

Fig 3: Prevalence of laboratory confirmed STD's among women reporting vaginal pruritus



III. Asymptomatic

The two patients with RPR positive tests did not have genital ulcers. It is also notable that 5 (20%) of the 25 patients with bacterial vaginosis were asymptomatic. Eight (19.5%) of the 41 women diagnosed with vaginal candidosis did not report presence of any symptoms. Of those with cervical infections, 2 out of 4 women with chlamydia were asymptomatic as were 2 out of 3 with gonorrhea. All patients with laboratory evidence of trichomoniasis on the other hand, had clinically abnormal vaginal discharge.

Table 4 Correlates of presence of an infection.

Correlate	Any STI (*n* =65)	No STI (*n*-= 40)	Odds ratio (95% CI)	*P*
Socio-demographic and clinical variables				
Age, years	27	28		0.057¥
Gestation at enrolment in weeks -	31	32		0.817¥
Lifetime sexual partners (median)	4	4		0.392 t
Partner circumcised	43 [59%]	30 [41%]	1.5 (0.6-3.7)	0.339
History of STI	15 [75%]	5 [25%]	0.43 (0.12-1.49)	0.224
History of condom use				
Current use of condom	15 [54%]	13 [46%]	0.521 (0.197-1.381)	0.379
In the past	5 [62%]	3 [38%]	0.753 (0.157-3.597)	
Sometimes	14 [58%]	10 [42%]	0.632 (0.22-1.768)	0.596
Never	31 [69%]	14 [31%]	1.0	
Circumcision status of the partner				
Circumcised partner	43 [59%]	30 [41%]	1.0	0.339
Uncircumcised partner	22 [68%]	10 [32%]	0.652 (0.270-1.572)	

Presenting complaint				
Vaginal discharge	25 [38%]	5 [12%]	1.42 (1.14-1.78)	0.004
Vaginal pruritus	12 [18%]	1 [2.5%]	1.196 (1.05-1.36)	0.016
Asymptomatic	34 [52%]	33 [83%]	0.617(0.0461-0.827	0.004
Physical finding				
Vaginal discharge	46 [72%]	4 [10%]	3.079 (2.08-4.56)	0.002
cervical discharge	18 [28%]	2 [5%]	1.314 (2.08-4.56)	0.004
HIV status of the client				
Median WHO disease stage				
Stage 1 and 2	59 [63%]	35 [37%]		0.670 t
Stage 3 and 4	6 [55%]	5 [44%]		
Median CD 4 cells/mm^3	442	404		0.362 t
Mean CD4 cells/mm^3	387	442		0.222¥
Mean CD4 < 200	108	72		0.155
Mean CD4 > 200	478	507		0.455

t Mann Whitney U test for medians

¥ Student t test for comparing means

Women with any significant laboratory confirmed STI that included candidosii trichomoniasis, chlamydia, gonorrhea; bacterial vaginosis and syphilis were compared t those who did not have any infection. This data is presented on table 3. Age, mean CD counts, gestation at enrolment, lifetime sexual partners, current partner circumcisio

status, past history of STIs, and history of current condom use were all not associated with presence of laboratory confirmed STD (P > 0.05) as shown in table 3 above.

The presence of symptoms of abnormal vaginal discharge was significantly associated with presence of laboratory confirmed STI, [odds ratio 1.42(1.14-1.78), p value 0.004], as was vaginal pruritus [odds ratio 1.196(1.05-1.36), p value 0.016].

On pelvic examination, the presence of an abnormal vaginal discharge was associated with a 3-fold increased likelihood of having a laboratory confirmed STI [odds ratio 3.079(2.08-4.56), p value 0.002]. The presence of a cervical discharge was also significantly associated with a laboratory confirmed STI, odds ratio [1.314(2.08-4.56), p value 0.004].

SYNDROMIC ANALYSIS

Based on symptoms

A vaginal discharge is a common manifestation of different vaginal infections. The sensitivity of the syndromic diagnosis of candidosis was 66%, with a specificity of 85%, a positive predictive value of 80% and a negative predictive value of 20% as table 4 shows.

The sensitivity of diagnosing trichomoniasis from a vaginal discharge was extremely low at 6%, but the specificity was 98% a PPV of 75% and a NPV of 75%.

Therefore using this algorithm in diagnosing a vaginal discharge, there was low sensitivity (6-66%), but a high specificity (85-98%). Though bacterial vaginosis is not considered by

the algorithm, it is notable that the sensitivity of diagnosing it from a discharge was 43%, the specificity was 90% with a PPV of 80% and a NPV of 38%.

Analysis based on pelvic examination

The sensitivity of diagnosing vaginal candidosis after pelvic exam was 90.2%, with a specificity of 68.7%, PPV of 65% and NPV of 91.6%. The sensitivity of diagnosing trichomoniasis was 100%, with a specificity of 47%, a PPV of 7% and a NPV of 100%. On the other hand the sensitivity for bacterial vaginosis was 84%, a specificity of 55%, PPV of 36% and NPV of 91.7%. Pelvic examination therefore increased sensitivity modestly compared to symptomatology.

Cervical discharge

The sensitivity of diagnosing chlamydia from a cervical discharge was 15%, with a specificity of 99%, a PPV of 75% and a NPV of 89%. On the other hand, the sensitivity of diagnosing gonorrhea was 15%, with a specificity of 100% and a PPV of 100%.

Table 4 showing comparative analysis of diagnosing various infections based on the syndromic approach

Variable	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Vaginal discharge based on symptoms				
Candidiasis	66	85	80	20
Trichomoniasis	6	98	75	75
Bacterial vaginosis	43	90	80	38
Vaginal discharge based on pelvic examination				
Candidiasis	90.2	68.7	65	91.6
Trichomoniasis	100	47	7	100
Bacterial vaginosis	84	55	36	91.7
Cervical discharge				
Chlamydia	15	99	75	89
Gonorrhoea	15	100	100	89.2
Any STI				
Symptoms of vaginal discharge	38.5	87.5	83.3	46.7
Pelvic exam finding of vaginal/cervical discharge	70.8	90	92	34.5

DISCUSSION

In low and middle-income countries, the World Health Organization recommends syndromic (symptoms and sign based) management of individuals with probable sexually transmitted infections. The clinical effectiveness of this strategy in different settings has been investigated by a number of authors[59]. Our study focused on pregnant HIV infected mothers. It sought to determine the prevalence of the various STIs, their clinical correlates and the utility of the syndromic approach in their management.

Consistent with other studies among HIV infected women, this group of women had a high overall prevalence of STIs. Sixty five [61.9%] of the 105 women, had at least one STI.

Physical examination by clinician significantly increased detection of women with abnormal vaginal discharge 25/105 vs. 45/105 ($p = 0.004$). In univariate analysis, symptoms and signs of STD were significantly associated with presence of a significant STD. Conversely asymptomatic patients were significantly less likely to have a lab confirmed STD. Physical findings rather than symptomatology were better predictors of significant STD. Patients with signs of vaginal discharge had a 3-fold increased likelihood of having a lab confirmed STD.

Consistent with other published work on non-pregnant HIV infected and uninfected women, symptoms of STD have had extremely low sensitivity in diagnosis of STD[60]. Signs increased sensitivity modestly.

The high prevalence of vaginal infections, seen among antenatal attenders in Africa suggests that they could have a significant impact on the incidence of adverse pregnancy

outcomes[9]. As a result of high rates of asymptomatic infection, many vaginal infections remain untreated.

Alternative interventions, such as presumptive treatment, should be considered to target vaginal infections during pregnancy in areas where these infections are highly prevalent. Studies are required to evaluate the effectiveness of such interventions also.

The high prevalence of vaginal infections seen in our study is likely to reflect the situation in similar communities across sub-Saharan Africa and suggests they may be having a significant impact on the incidence of adverse pregnancy outcomes. While there is some evidence that effective treatment of vaginal infections during pregnancy may prevent adverse birth outcomes, reliance on syndromic management is unlikely to achieve this goal. Alternative and innovative solutions, including presumptive treatment strategies should be considered if we are to ensure that effective treatment is delivered to all affected women.

The syndromic approach of vaginal discharge should focus on vaginal infections in recognition of the fact that this is their primary manifestation. A patient presenting with a vaginal discharge is likely to have an infection. The sensitivity of the approach was low [6-66%] for the identification of the vaginal infections, though the specificity and PPV were both high [85-95% and 75-80% respectively]. The prevalence of cervical infections such as gonorrhea and chlamydia is low [2.8-3.8%]. The sensitivity of their diagnosis using the algorithm is also particularly low [15%]. The approach therefore is not an efficient tool for their detection.

These results are a reminder that the syndromic management of vaginal discharge is not an efficient approach for identifying women with STIs. The algorithm had low sensitivity, variable specificities and similarly variable PPV. These results are consistent with those of other validation studies, which have found that socio-demographic and behavioral risk assessment and clinical assessment are rarely sufficient for identifying infections (case finding) in most settings, though they may be helpful in selecting women for further diagnostic tests in settings where these are available (selective screening)[59]. In most instances, the syndromic management of vaginal discharge should focus on vaginal infections, especially bacterial vaginosis and trichomoniasis, in recognition of the fact that vaginal discharge is primarily a manifestation of these conditions.

The low sensitivity of the algorithm may be related to the fact that overgrowth of *C albicans* in the vagina is not always associated with discharge, and that other symptoms, such as pruritus, may be more appropriate entry points for an algorithm seeking to address vaginal candidiasis. Their value was not so much in increasing sensitivity, but in improving specificity and PPV, so that the use of microscopy for the specific diagnosis of candidiasis and trichomoniasis would ensure that no woman is inappropriately treated for these conditions. The additional costs involved may be offset by the savings on treatment costs associated with more precise diagnoses, and reduced wastage of drugs. In antenatal care, a broader concern about RTIs is preferable to a more narrow focus on STIs, because it reflects a more comprehensive and less stigmatising vision of women's need for reproductive health services. In such settings, algorithms can be constructed that adequately manage most common vaginal infections such as bacterial vaginosis or trichomoniasis, through empirical treatment with metronidazole (100% sensitivity) or the

use of specific tests to increase specificity and PPV and make more precise diagnoses. The principal benefits of treating vaginal infections are the relief of symptoms of these conditions, thereby meeting a major expectation of clients of reproductive health services, as well as the prevention of gynaecological, and obstetric complications (and possibly HIV transmission), associated with bacterial vaginosis.

The control of STIs in resource-poor settings remains a major challenge. The development of simple and affordable diagnostic tests that can be used for case finding is of highest priority. However, an overly narrow focus on the case management of vaginal discharge in reproductive healthcare settings is clearly inadequate as a public health strategy for reducing the prevalence of STIs among women. Other approaches, such as more aggressive treatment of these infections in men, with effective partner management, are required.

Strengths of the study

- Ability to do a comprehensive laboratory STD screen on all clients examined.
- Patients were evaluated at the same gestational age

Weaknesses of the study

- Small sample size

Conclusions

- It is prudent that all clinicians examine clients for the presence of significant abnormal vaginal discharge.
- The prevalence of laboratory confirmed infections in this cohort were particularly high at 61.9%.
- The sensitivity of the syndromic approach for a vaginal discharge based on symptoms is low [6-66%], but improved modestly [84-100%] after pelvic examination.

Recommendations

- Whereas there is evidence that vaginal infections may have adverse birth outcomes, over-reliance on the syndromic management is unlikely to offer effective treatment.
- Alternative treatment strategies should be considered if we are to ensure that effective treatment is delivered to all affected women.
- Presumptive treatment with drugs that cover for candidosis, bacterial vaginosis and trichomoniasis, can still be advocated for in areas without access to laboratories because of their significant prevalence.

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GYNAECOLOGICAL SHORT CASES

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Acute gynaecological short case 1

Ruptured ectopic pregnancy- laparatomy and partial salpingectomy carried out

Name D.K

Ip. No 1076099

Age 23 years

DoA 6/3/06

DoD 9/3/06

LMP 30/1/06

Amenorrhea 6+weeks

Presenting complaints

She had presented with lower abdominal pains for 4 days and history of per vaginal bleeding for one month.

History of presenting complaints

She was well till about one month prior to this. She noted that she was spotting on and off. The blood was slight and sometimes did not require a pad. It was fresh and sometimes slightly dark and altered. However she did not seek medical advice. Four days prior to presentation she started getting lower abdominal pains. The pains were sharp and were not relieved by analgesics. The bleeding still persisted. She did not report of palpitations, easy fatigability or any edema.

Obstetric and gynaecological history

She was a Para O+O. menarche was at 15 years of age. Her cycle was 27 days and flow was 3 days. It was regular though she had dysmenorrhoea on the first day of the cycle. She had used Depo Provera for contraception for one year and stopped.

Family social history

She was married and stayed in Kibera with the husband. The husband was a businessman. She was a housewife. She was educated up to standard 8. There was no history of chronic illness in the family. She did not take alcohol or smoke.

Past medical history

She had no history of prior admission or surgery. She had history of peptic ulcer disease which was controlled on medication. She however had no known drug or food allergies.

On **examination** she was in fair general condition, not pale, and had no pedal edema. The Bp was 110/70mmHg, PR 86/min, RR 22/min and temperature 36.0 ^{0} C. the chest and cardiovascular systems were normal.

The abdomen was scaphoid, moving with respiration and no obvious distension no masses were palpable but she had localized tenderness on the left iliac fossae. Vaginal examination revealed normal external genitalia, the vaginal walls were grossly normal, the cervix was posterior, firm and closed. Cervical motion and adnaxae tenderness was elicited. The uterus felt bulky and the POD was empty. There was blood on the examining finger.

Investigations done:

- PDT positive
- PCV 30%
- Pelvic ultrasound: The uterus is normal sized. There is minimal fluid within the endometrial cavity. There is a complex adnexial mass measuring 5.5 and 4.3cm in size. There is free fluid in the POD, right adnexial and Morrison pouch. There is a small left ovarian cyst measuring 2.6 X 1.7cm in size.

Conclusion: features are suggestive of a slow leaking ectopic pregnancy.

A diagnosis of an ectopic pregnancy was made.

Intravenous access was gained and in fluids commenced.

The patient was counseled on the need for immediate surgery. Consent was obtained, blood for grouping and cross match drawn.

Intra-operatively a ruptured left fimbrial ectopic pregnancy was encountered with hemoperitoneum of approximately 200ml of blood. Left salpingectomy was done and sterile washing of the peritoneum with normal saline. The tube was damaged and could not be conserved. The right tube and both ovaries were grossly normal. Other intra abdominal structures were also grossly normal.

She did well post operatively and was allowed home on the third day on hematinics and antibiotics.

On 28/3/06 she was reviewed in the gynaecological outpatient clinic and was noted to be doing well. She was discharged from the clinic.

DISCUSSION

This is a patient who had left ruptured fimbrial ectopic pregnancy for which an emergency laparotomy and left partial salpingectomy was done.

Ectopic pregnancy is defined as implantation of the blast cyst anywhere other than in the endometrial cavity. Approximately 2% of pregnancies are ectopic and ectopic pregnancies account for 10% maternal mortalities worldwide' Incidence of ectopic pregnancy varies form place to place and worldwide incidence is 1: 100 pregnancies. The incidence of ectopic pregnancies has quadrupled between 1970 to 1987.In Kenyatta National Hospital, various workers have found the incidence of ectopic pregnancies at various times to be as follows; Muathe (1984)[2] noted 2-5 cases every week and Okumu[3] 1987 reported 2 cases every week. The incidence of ectopic pregnancy is found to be highest in women 25-34 years of age worldwide' In Kenyatta National Hospital the authors[2,3] found the highest incidence to be between 20-29 years of age. Our patient was 23 years of age.

The increase in incidence of ectopic pregnancies has been correlated with improved treatment of pelvic inflammatory disease (PID), increased in incidence of PID, use of intrauterine devices, especially those containing Progesterone, increase in surgical procedures for treatment of fallopian tube disease, greater number of elective sterlization, improved diagnostic techniques, diethylstilbestrol exposure, endometriosis and use of fertility drugs[1]' In Kenyatta National Hospital, Webala (1979) noted ;histologic evidence of

salpingitis in 69% of ectopic pregnancies[4]. Our patient had no obvious risk factor. Majority of ectopic pregnancies are tubal accounting for as high as 99%. The ampulla is the commonest site of implantation accounting for 78%), (12%) are in the isthmus, (5%) fimbrial ,2% are cornual. Our patient had a left fimbrial which is uncommon.

Ectopic pregnancies may represent a surgical emergency and therefore timely diagnosis is essential The classic triad of signs and symptoms include amenorrhea followed by abnormal vaginal bleeding, abdominal or pelvic pain and a tender adnexae mass. This triad is seen in less than half of the patients. The most frequently experienced symptoms of ectopic pregnancy include pelvic and abdominal pain (95%), amenorrhea with vaginal spotting or bleeding (60-80%)Mwathe 1984, and Sinei and Okumu 1987 in their series noted (100%) and 97.8%) respectively for abdominal pain, (49.8) and (52%) respectively had vaginal bleeding and (70.2%) and (67.3%) respectively had amenorrhea. Other symptoms of ectopic pregnancy include syncope, shoulder or neck pains, passage of decidual casts and pregnancy symptoms. Our patient had all the classic triad of symptoms and signs such as scanty vaginal bleeding, amenorrhea inspite of her irregular menses, and a tender adnexial mass.

A tubal pregnancy may terminate by abortion or missed abortion, extratubal rupture into the broad ligament or intratubal rupture leading to tubal abortion or formation of hamatosalpinx or pelvic hematosis.Isthmic rupture often occurs early at 6-8weeks, ampullary rupture at 8-12weeks and interstitial rupture at 4 months. Spontaneous resorption of tubal pregnancy may occur especially when the embryo dies very early. It often goes undiagnosed and doesn't require surgery.

Fernadez 1988[5] reported spontaneous regression in (64%) of 14 cases with ampullary. Diagnosis of ectopic pregnancy is dependent on whether it has ruptured or not .In a raptured ectopic pregnancy, paracentesis or culdocentesis are useful diagnostic procedures and hemoperitoneum is detected in (50-85%) of cases[6,7] In the unruptured state a high index of suspicion and various diagnostic tools are employed. Laparascopy may diagnose about 75% of cases [7]' Ultra sound techniques allows the clinician to rule out

an intrauterine pregnancy when an ectopic pregnancy is suspected. Therefore an intrauterine

pregnancy or fetus seen on ultrasound usually excludes the presence of an ectopic pregnancy. Vaginal ultrasound is more sensitive and specific than the pelvic ultra sound though (10%) of ectopic pregnancies are still missed. Beta HCG titres are useful and pregnancies near 6 weeks demonstrating a less than 66% rise in 'Beta HCG levels over a 48 hour period are either ectopic pregnancies or non viable intrauterine pregnancies .Ultrasound combined with BHCG titres and laparoscopy can diagonise (98% pregnancies[8]

The initial management decision is based on the patients stability. Patients in shock should be taken to the operation room as soon as possible, and resuscitated with intravenous fluids using two large bore intravenous cannulas and a foley catheter in place (maintaining urine output at more than 33mls per hour). Blood should be taken for typing and cross match. The operative procedure is selected on the rate of bleeding, whether rupture has occurred, extent of damage to the fallopian tube and the desire for future fertility. The two primary approaches are laparoscopy and laparotomy. Laproscopy is now the gold standard for managing either ruptured or unruptured ectopic pregnancies. Laparotomy should be used as a last resort especially in patients with hemodynamic compromise.

Conservative surgical approaches are preferred whenever possible unless the patient doesn't wish to preserve her child bearing potential. Salpingectomy which is complete or partial is not conservative and is done when the damage to the tube is such to an extent that it cannot be salvaged. Conservative methods include salpingostomy, salpingotomy, segmental resection (partial salpingectomy) and anastomosis especially in unruptured ectopic in isthmus [(9,10)] Our patient had partial salpinectiomy since her tube was damaged beyond repair as a result of the rupture. Others include fimbrial evacuation where the ectopic mass is digitally milked out. It's not recommended because of doubling of reccurrence rates of ectopic pregnancies over those treated with salpingotomy and recurrent bleeding due to persistent trophoblastic tissue [11,12]

Conservative surgery should be followed with weekly BHCG levels till they reach non pregnant levels. Chronic ectopic pregnancies are difficult to diagnose and often found incidentally during exploratory laparotomy. Approximately 3-20% of ectopic pregnancies are chronic. Dense adhesions and luminal abscess formations are surgical features characterizing chronic ectopic pregnancies.

Unraptured ectopic pregnancies can also be managed medically by use of methotrexate. Stovall 1993[13] outlined the criteria for single dose methotrexate chemotherapy (50mgr^2)includes among others an unruptured ectopic pregnancy of less than 3.5cm widest in diameter with a desire for future fertility. Majority of the patients have an increase in pelvic pain from ruptured ectopic hence the need for follow up by both ultrasonography and BHCG levels. Our patient had partial salpingectomy due to extensive damage of the distal fimbrial end of the tube.

The greatest complication of ectopic pregnancy is death accounting for 10% of all maternal mortality worldwide. Rakwach 1987 [14] reported that ectopic pregnancy accounted 4.7% of all maternal deaths in the acute gynecology ward in Kenyatta National Hospital.. Therefore to avoid this complication and reduce maternal mortality arising as a result of ectopic pregnancy, early diagnosis and management is essential.

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Gynaecology short case 2

Incomplete Abortion

Name L.R.

Age 34 years

Op No 2199/06

Date seen 2/4/06

Presenting complaints

The patient presented with per vaginal bleeding for one day.

History of presenting complaints

The patient was well till that morning when she noted spontaneous per vaginal bleeding. Later on she started having intermittent lower abdominal pains. She had changed pads 3 times prior to presentation. The blood was fresh, sometimes in clots and was not foul smelling. There was no history of fever or chills prior to that. There was no history of dysuria or other urinary symptoms.

Obstetric and gynaecological history

She was a Para 3+0. Her last menstrual period was on 14/1/06. Her length of amenorrhea was 11 weeks + 1 days. She had not yet started antenatal care.

Menarche was at 14 years of age. Her flow lasted 3 days every 28 days and was regular. She gave no history of dysmenorrhoea and had not used any contraceptive method.

1st delivery was in 1994 to a female, SVD, 3.7kg at Pumwani. Her second delivery was in 1997 to a male who weighed 3.4kg in Kibera. Her last delivery in 2001 was at home to a live female infant who was not weighed. All the three children were alive and well.

Family social history

She was married and stayed in Kibera with her husband. She was a housewife while the husband was a casual worker. She gave no history of a chronic or endocrine disorder in the family.

Past medical history

She was involved in an RTA in 1997. She suffered minor injuries and was discharged home. There was no history of blood transfusion or drug allergies.

On examination

She was in fair general condition, not pale, no edema. Bp 124/74mmHG, PR 92/min, RR 24/min. temperature was 36.2° C.

Respiratory and cardiovascular systems were normal. Abdomen was soft, moving with respiration, no masses or areas of tenderness were palpable.

Vaginal examination

She had normal external genitalia, the cervix was posterior, 2cm dilated. Products of conception were noted at the cervical os and the examining finger. The uterus was bulky and the POD was empty.

A diagnosis of incomplete abortion was made. She was counseled on the need for a manual vacuum aspiration.

Procedure

The patient was placed in lithotomy position and WT done. She was catheterized aseptically after sterile draping.

A speculum was introduced which exposed the vaginal walls and the cervix. It was noted to be 2cm dilated with slight active oozing of blood. It was stabilized using a tenaculum and using the vacuum aspirator, about 50-60ml of POCs, were evacuated. Hemostasis was achieved and ergometrine 0.5mg was administered. She was observed for hour and allowed home on antibiotics and analgesics.

DISCUSSION

Spontaneous abortion is the most common complication of pregnancy. Its defined as delivery occurring before the 20th complete week of gestation. It implies delivery of all or any part of the products of conception with or without a fetus weighing less than 500gms [1*]

It's an important cause of morbidity and mortality [2] Incomplete abortion is a form of spontaneous abortion where there is expulsion of some but not all products of conception. Other forms of spontaneous abortion include threatened abortion complete abortion, inevitable abortion, missed abortion, septic abortion, blighted ovum, Threatened abortion is bleeding of intra-uterine origin occurring before the 20th complete week or without uterine contractions, without cervical dilation and without expulsion of products of conception. Complete abortion is the expulsion of all products of conception before the 20th week of gestation. Inevitable abortion refers to bleeding of intrauterine origin before the 20th completed week with dilation of the cervix without expulsion of the products of conception. Cervical dilation may accompany rupture of membranes. Missed abortion refers to fetal or embryo death but the products of conception are retained in uterus. In septic abortion, infection of the uterus and products of conception occur. Blighted ovum represents a failed development of the embryo so that only a gestational sac (empty gestational sac) with or without a yolk sac is represented. Our patient presented at eleven weeks of gestation with a dilated cervix of the products of conception had been expelled with no evidence of local or systemic sepsis, therefore she had incomplete abortion.

The true incidence of spontaneous abortion is unknown. Approximately 15% of clinically recognized pregnancies are lost, and in the USA, of all the married women, 4% have experienced two fetal losses and 3% have experienced more[3]. Its also noted that 60% of chemically evident pregnancies end in spontaneous abortion[4-] 80% of spontaneous abortions occur before 12 weeks of gestation'[3 4-] Locally, there is no data on the incidence of losses of clinically or chemically evident pregnancies in the country.

Our patient lost her pregnancy at eleven weeks of gestation. In several centres, spontaneous abortion is a major gynaecological problem with majority of the

gynaecological 'admissions being abortion related [56,7]' In our set-up, most of the patients are young, single, low socio economic status and of low parity[7]. Nevertheless, our patient was 34 years old, Para 3+0 but married.

The etiology of spontaneous abortion in a significant number is unknown in approximately 50% of spontaneous abortion [5] In the first trimester, there's an abnormal karyotype[1]. This incidence decreases to 20-30% in second trimester and 5-10% in third trimester. These losses are typically autosomal trisomies or monosomy X. Other suspected causes of spontaneous abortion account for a smaller percentage of losses and include infection, anatomic defects endocrine disorders, immunological factors, maternal systemic disease, drugs and trauma.

Risk factors include increasing maternal age and previously affected pregnancy[8]. In our patient there were no recognizable association or risk factor.

The presentation of spontaneous abortion is typically early pregnancy bleeding with or without low abdominal pain due to uterine contractions. Over 50% of pregnancies associated with bleeding before 20 weeks of gestation are never

carried to term. In incomplete abortion, the products of conception have partially passed from the uterine cavity. In gestations of less than 10 weeks duration, the fetus and the placenta are usually passed together. After 10 weeks, they may be passed separately with a portion of the products retained in the uterine cavity. Cramps are usually present with persistent vaginal bleeding which is often severe. In our patient most of the products of conception including the placenta were still retained.

Diagnosis of spontaneous abortion can be made clinically and through use of imaging techniques especially ultrasound. A complete blood count is necessary especially if significant bleeding has occurred as the patient maybe anaemic. Both the white cell count and sedimentation rate maybe elevated even in the absence of infection. BHCG levels are falling or abnormal are predictive of an abnormal pregnancy such as a blightened ovum, spontaneous abortion or ectopic pregnancy. Ultra sound is useful in distinguishing between the different types of spontaneous abortions Transvaginal Ultrasound is helpful

in documenting intrauterine pregnancies as early as 4-5 weeks gestation. Our patient was diagnosed clinically as having incomplete abortion.

Management of incomplete abortion is by uterine evacuation. Uterine -evacuation can be done by use of vacuum aspiration for instance Kannan's syringe and cannula or by sharp curettage Karman's syringe and cannula have the advantage of not requiring anaesthesia or sedation,reduced hospital stay and is more cost effective[10,11.] In Malawi, 97.4% of patients had MVA for treatment of incomplete abortion during the study period. Only 10.7 % of patients required pain relief. The mean hospital stay was reduced from 3 days to 2 days with 52% staying for less than 24hours. There were no major complications associated with the procedure. Manual vacuum aspiration was found to be safe, reliable, effective and acceptable method of managing incomplete abortion and can conserve hospital resources [12-] One study comparing the efficacy of MVA and dilation and curettage(D and C) found MVA to be equally efficacious as D and C but easier to perform and quite advantageous in the evacuation of molar pregnancy[13] Our patient had MVA and was discharged within one hour after the procedures on antibiotics and analgesics.

'Complications of abortion include hemorrhage, sepsis, intrauterine synechiae. Infertility, rhesus immunization and perforation of the uterine wall may occur especially during dilation and curretage and may lead to hemorrhage, infection, bowel and bladder injury and fistula formation. Spontaneous abortion and induced abortions contribute significantly to maternal morbidity and mortality. In our set up, abortion constitutes to 24.4 % of all maternal deaths[14-] Our patient had hemorrhage as a complication and her blood group was O positive and hence was not at risk of immunization.

Prevention of spontaneous abortions is not wholly possible though adequate treatment of maternal disorder such as diabetes, hypertension, protection of women from environmental hazards exposure to infectious diseases helps.

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Gynaecology short case 3

Surgical contraception with Jadelle

Name: H.N

Age: 28

Date seen: 17/02/06

Client No: 00180/06

Presenting Complaint

The client was seen at the outpatient female welfare clinic in the company of the husband. She was at 6 weeks post partum and had come for contraceptive advice. She had not used any method in the past. Counseling was done and she opted for the Jadelle® implant method.

Obstetric and Gynecological history

She was a Para 1+0, with two living children. She had delivered through a caesarian section due to multiple pregnancies with first twin breech on 31/12/2005.

The outcome was two live infants; the first was male 2.8 kg and the second a female birth weight 2.5kg. Both were alive and well and currently breast-feeding. Her menses had not yet resumed.

Menarche was at 13 years of age; the flow lasted four to five days and was of moderate amount. She reported occasional dysmenorhoea. She had not used any hormonal method in the past.

Family social history

She was a married housewife and they lived with her family in Donholm. The husband was a social worker at KNH. She neither drunk alcohol nor smoked. There was no family history of any chronic or endocrine illness.

Past Medical history

Nil significant

On **examination** she was in good general condition, not pale, no edema, no lymphadenopathy, and no jaundice. The Bp was 100/60 mmHg, the pulse rate was 82 beats/minute and respiratory rate was 22/minute. Systematic examination was normal.

Procedure

The patient was asked to lie down on the examination table with her non-dominant arm extended at right angles to her body. The patient's upper arm was cleaned with antiseptic solution and draped aseptically. The optimal insertion area is the medial aspect of the upper arm about 6-8cm above the fold of the elbow. The two implants were opened aseptically and placed on a sterile cloth. A local anesthetic was infiltrated under the skin where the trocar was to be introduced. An incision of about 2mm was made using a scalpel. The trocar was introduced subdermally in two sequences after loading and releasing the implants. After insertion, the edges of the skin were pressed together and a sterile skin closure placed. Gauze was placed around the arm to ensure hemostasis. The patient was advised to keep the insertion area dry for three days. Review was scheduled after a week.

She was seen on 24/02/06. The insertion site had healed well. Routine follow-up was advised.

DISCUSSION

The patient was a 28 years old Para 1+0 who desired to have Jadelle as a contraceptive method, was counseled and insertion done without complication.

Jadelle and its predecessor Norplant are highly effective long active contraceptive methods for women[1]. Norplant became available in Kenya in 1986 and the service is available in many health units in the country[2]. This method takes advantage of the tissue compatibility of non-biodegradable silicon rubber capsules. The system consists of six capsules each containing 36mgs of levonorgesterel and having a diameter of 2.4mm and a length of 3.4cm. The six capsules appear to release levonorgesterel at a rate approximately 80mg per 24 hours during the first 6 months of use. This rate declines over

the next few months of use to reach 50mg per 24hrs at 9 months. By 2 year, a steadily rate of 30 mg per 24hrs is reached and maintained up to 5years[3,4]. Studies have showed that immediately after insertion of the devices, there is a rapid rise in serum levonorgesterel level to 3-4.5mmol/L after 24 hours. During the subsequent 6-18 months the mean plasma levels gradually decline to 1-1.5mmol/L the mean values in individual subjects appear to be constant thereafter for a further 5 years[4].

Jadelle implants have 2 silicon rods instead of the usual six in Norplant. The 2-silastic rods 4.4 cm in length by 2.4 mm diameter contains levonorgesterel 70mg each with total of 140 mg I the two rods. The 2 rods are also designed to release approximately 30-35 mg of hormone levonorgesterel into the blood stream at a steady rate but for a shorter period of time 3 years. The capsules are inserted subdermally usually in the womans medial aspect of non-dominant upper arm as an outpatient or office procedure, which takes five to six minutes under local anaethesia.

Jadelle, like other progestins only contraceptives seems to prevent pregnancy by several mechanisms. By thickening and decreasing the amount of cervical mucus they make it more difficult for sperms to penetrate. They also inhibit ovulation in about half the cycles and create a thin atrophic Endometrium, unsuitable for implantation. Progestins-only contraceptives are also thought to cause premature luteolysis[3 4].

Jadelle provides almost complete protection against pregnancy. In the first years of use, the chances of pregnancy are less than 1 per 100 women per year. This rate is lower than for intrauterine devices, oral contraceptives and barrier methods. Effectiveness decreases after 5 years and the 6th year 2.5 -3% of users conceive. A slight gradual decrease in the daily release of levonorgesterel over time probably accounts for the increase in pregnancies after 5 years. Users with regular cycles appear to have greater risk of method failure. The five years cumulative pregnancy rate for clients with regular cycles was found to be 17.4%; rate significantly higher than the 5years cumulative pregnancy rate of 4.4% in users with irregular cycles and 0% rate in users with amenorrhoea[5]. This was observed even through the serum levels of levonorgesterel in users who become pregnant was not

different from levels in other users. These may be explained by the fact that those with regular cycles have more ovulatory cycles than those with irregular cycles. Jadelle is recommended to be replaced after 5 years of use[6].

In general, most women can use jadelle safely and effectively and these include[1,3]:

- Women of reproductive age
- Women of any parity including nulliparous with established menses
- Women who want highly effective long term protection against pregnancy
- Breastfeeding mothers after 6 weeks postpartum of immediate postpartum if not breastfeeding. Our client fell into this group of women.
- Women who have achieved desired family size but do not want a permanent method.
- Women who should not use contracetive that contain oestrogens or have developed oestrogen related complications while taking combined contraceptive.
- Post abortal clients.

Care must be taken in women with migraine, depression, heavy smokers, epilepsy and TB. Such women should be evaluated prior to provision and followed up keenly.

Contraindications in the use of Jadelle include:

a) Women who are pregnant or suspected of being pregnant. Although no birth defect have been attributed to exposure of foetus to levonorgesterel, it's recommended that removal is done if one conceives with Jadelle since irregular spotting may mask a serious problem.
b) Women with undiagnosed suspicious vaginal bleeding.
c) Women with breast lumps (should be diagnosed before insertion)
d) Women who cannot tolerate menstrual changes
e) Women with breast cancer or a history of the same.
f) Clients on antiepileptics drugs or rifampicin
g) Patients with active thrombophlebitis or pulmonary emboli.

Our client was fully evaluated and did not have any contraindication for jadelle use. Contraceptive protection begins within hours of insertion. Blood levels of levonorgesterel rise to a level significant to prevent conception with 24hrs of insertion.

Contraceptive benefits include; highly effective; immediate return to fertility after discontinuation, continous long term protection. After removal, plasma levels of lenorgesterel drop rapidly and full fertility follows. The user may attempt a pregnancy immediately after the next menstrual cycle. In one study of women who had removed implants in order to conceive, 50% conceive within 3 months after removal, 86% within 1 year and 93% at 2 years.

Other benefits of Jadelle include, reduction in menstrual flow, protection against endometrial cancer, protection against ectopic pregnancy and no effect on breastfeeding. It also protects against pelvic inflammatory disease because of its production of thick cervical mucus.

There are limitations of Jadelle use which include:

- Must only be inserted and removed by trained personnel i.e they are service provider dependent and not user dependent
- Requires mini surgical procedure with appropriate infection prevention practices for insertion and removal.
- May cause menstrual changes.
- Removal services must be available where insertion services are done.
- Does not protect one from sexually transmitted diseases including HIV/AIDS.

Irregular menstrual bleeding is the most common side effects of Jadelle insertion. Most women have an increase in the number of bleeding and or spotting per cycle and a decrease in the length of the menstrual cycle. For majority of the users this irregular bleeding decreases over time[6].

Amenorrhea is less common than prolonged bleeding for at least 90 days during the first year of use. These menstrual changes have no apparent harmful effects and although many women bleed more often the volume of blood lost does not change[6]. In fact in some

studies it has been shown that the hemoglobin level increased significantly after the Jadelle insertion.

Jadelle users (10% of them) are also associated with transient ovarian cysts. Surgery to remove them or removal of implants is not necessary. Higher than expected rates of ectopic pregnancies have been reported in women using progestin-only contraceptives. The rate of ectopic pregnancies in women using Jadelle is about 1.5 per 1800 women years. This rate is similar to that among women using copper and unmedicated intrauterine devices and probably does not represent an increased risk among women using Jadelle.

Other minor side effects occurring during the first year of use include headaches (16-18%), dizziness (5.6-8.1%); breast tenderness (6.2-6.8%) nervousness (6.2-6.8%), nausea (5.1-7.7%), acne (4.5-7.2%) dermatitis (3.2-8.2%) breast discharge (3.5-5.1) and weight gain (3.3-6.2%).

Several studies indicate that Jadelle users may have increased predisposition to thrombosis as evidenced by significant increase in platelet count and aggregability. They may also have an enhanced potential of hypercoagulation with significant shortening of their prothrobin time; activated partial thromboplatine time (KCCT) and increase in Factors V and X. however there is no single laboratory test or combination of test that will reliably predict a patient who will develop a thrombotic event.

The commonest reason for method discontinuation before the stipulated duration of 5years is menstrual disturbances. Continuation rates have been put at 76-96% at one year, 33-78% at five years. Menstrual disturbances like prolonged or heavy bleeding, spotting, irregular cycles, amenorrhoea and medical conditions like headache, slight weight gain contributes to discontinuation and accounts for 24-48% discontinuation. Locally Ruminjo[9] reported menstrual alteration to be responsible for 28.6% of discontinuation.

Jadelle has the disadvantage of rods requiring time and experience for the insertion and removal. Not all women wish five years of continuous contraception and removal is

associated with some discomfort. Capsules biodegradable after the required contraceptive period would eliminate the need for surgical removal, as it is the case for jadelle. The progress so far achieved by jadelle implants has set the stage for the development of other implants that involve fewer capsules and some that are biodegradable. Examples of single capsules implant in Implanon® developed by organon international, which is a single 30mm silastic rod that releases the progestrine. 3 ketodesogestrel at the rate of 30 mg per day. Capronot ® is an example of biodegradable implant with 18mg of levonorgesterel inside a polymer caprolactone that has given encouraging results on volunteers. The capsule is biodegrable gradually into E-Hydroxycaproic then carbon dioxide and water, which is easily handled by the body.

Another contraceptive consists of three or four pellets of the hormone norethindrone combined with small amounts of cholesterol. Injectable microspheres and microcapsules suspended in solution have been available in some countries since early 1990's. The tiny particles of different sizes consist of hormone in a polymer carrier. They dissolve and release hormone at various rates. They prevent pregnancy for one to six months. Newer less invasive implants are being developed. The vaginal rings now at various stages of trial are impregnated with progesterone or combination of progesterone and estrogen.

At Kenyatta National Hospital female welfare clinic, clients are counseled continually on their choice of contraception. This face-to-face communication helps the client to make informed decisions and to act on them. It also helps in combating rumors and misinformation. Pharmacists and others who sell contraceptives need more training on counseling techniques and more information and training about family planning to improve coverage.

Follow up is required until it is time for the implants to be removed. The client should be clearly invited to return however at any time she wants help, information or to have the implants removed for any reason whether or not she wants another method. This was the policy with our client.

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Gynaecology short case 4

High-risk choriocarcinoma- remission after treatment with chemotherapy

Name A.K.

IP 1089693

Age 24yrs

DOA 3/5/06

DOD 4/10/06

Parity 0+1

Presenting complaints

The patient was referred from Kibera Community Health Center for a suspected incomplete septic abortion.

History of the presenting complaints

She had presented at the center with complaints of per vaginal bleeding for two weeks. The bleeding was fresh, sometimes heavy and in clots. She changed around 4pads on each day. It started spontaneously and was associated with lower abdominal pains. The pains were intermittent and cramp like in nature.

She gave history of hotness of body and general body weakness for duration of two weeks. She had occasional chills but had no urinary symptoms. Her last menstrual period was on 15/3/06 and therefore had a period of amenorrhea of 6+ weeks. A pregnancy test done before referral was positive. She also reported history of cough for the same duration. She had occasional chest pains which were not pleuritic in nature. During this time she reported occasional hemoptysis and a positive contact with a close relative on tuberculosis treatment. At the time of admission she was on treatment for URTI with amoxil and cough syrup.

Obstetric and gynaecological history

She was a para 0+0. Her LMP was on 15/3/06. The period of amenorrhoea was thus 6+ weeks. Her menarche was at 14 years of age. Her flow normally lasted for four days every 30 days and she experienced dysmenorrhoea. The cycle was however regular. She had not used any form contraception in the past.

Past medical and surgical history

She had no history of previous admissions or any known drug or food allergies.

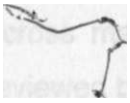
Family and social history

She was single, and lived in upper hill area of Nairobi. She was a business lady, selling charcoal. She lived with her sister who was currently on the maintenance phase of PTB treatment. She did not take alcohol, or smoke cigarettes. There was no family history of diabetes, hypertension or any other chronic illness in the family.

Examination

She was in fair general condition, not pale, not jaundiced, no lymphadenopathy, and clinically afebrile. Vital signs were;

BP 152/88mmHg, T 37°C



PR 75/min

RR28/min

Respiratory system

She had slight flaring of the alae. She had no costal or inter costal recession. Her breath sounds were reduced bilaterally and she had coarse crepitations on the basal region on both lung fields.

Abdominal examination

The abdomen was not distended and moved with respiration. She had mild lower abdominal tenderness. There was a palpable suprapubic mass that was firm in consistency and mildly tender and corresponded to 16 weeks gestation.

Vaginal examination

She had normal external genitalia. The cervix was closed, the Pouch of Douglas was free, there was tenderness on both adnexae and the uterus was bulky. There was blood on examination finger.

The impression made was Threatened abortion R/o PTB.

Plan of management

She was admitted to the acute gynaecological ward. She was started on iv crystalline penicillin, iv gentamycin and analgesics. A chest X ray and an urgent pelvic scan were requested.

Investigations done

- Pelvic scan- features are suggestive of Molar pregnancy
- Urea 3.4mmol/l, Creatinine 90|jmol/l
- Liver function tests; Total proteins 53g/l, Alb 28g/l, ALP 96 U/l, total bilirubin 19.7 pmol/l Direct bilirubin 15.6 pmol/l
- HEMOGRAM Hb 7.57g/dJ. WBC 7.27 x 10^9/l NEU 64% LYM 16%MONO 13% ESR i4mnaZbr EOS 5% PLT 239 x 10^9/l.

Two units of blood were grouped and cross matched as the patient was prepared for theatre. Pre operatively the patient was reviewed by the anesthetist.

Theater list

The evacuation was scheduled.

THEATRE ON 8/5/06

Diagnosis H Mole

Operation evacuation

The patient was put under GA in lithotomy position, WT was carried out aseptically, and the patient draped. The Cervical os was dilated, curettage was done, and approximately 1000ml of vesicular products were evacuated. Hemostasis was achieved and syntocinon infusion commenced. The specimen was taken for histology. She was wheeled to the recovery room and later to the ward.Post operatively she was started on Augmentin 1.2g IV eight hourly and she continued on analgesics. She was also monitored for per vaginal bleeding.

One unit of blood was transfused in the ward. The post op Hb was 6.84g/dl.

She was discharged home on 13th May.

At discharge she was put on hematinics and cough syrup. She was instructed to attend the out patient clinic in two weeks with (3HCG results.

On 25/5/06 she was reviewed at the GOPC. She complained of abdominal pain and continued per vaginal bleeding. The pHCG was 5J6IU/L. the results of the histology were to be expedited. However she was readmitted on 1/6/06 with complaints of torrential PV bleeding and vomiting. She also reported hemoptysis for one day. On examination this time she was pale and dehydrated and the BP was110/70mmHg. Pulse was 96/min. abdominal exam revealed an enlarged uterus corresponding to 20 weeks gestation. It was non tender. Vaginal exam revealed clots and the cervix was 1cm dilated.

An Impression of GTD R/o Choriocarcinoma was made.

A PCV done at admission was 21%. She was commenced on iv fluids and blood drawn for typing and croossmatch. Transenamic acid 500mg was administered intramuscularly.

Histology report was obtained.

HISTOLOGY REPORT 5/6/06

Endometrial curretings

24yr old female with ? H mole received moderate curretings aggregating to 20mm, grossly vesicles were noted,Microscopy Sections show a vascular edematous chorionic villi and areas of trophoblastic proliferations **Diagnosis** Hydatidiform mole (complete)

She was therefore to be transferred to the cold gynaecology ward.

Investigations

- HB 4.93 WBC 7.44 N 59% L 28%PLT 306
- PHCG 150,000 miu/ml.
- Abdominal scan - diffuse renal parenchymal disease
- Pelvic U/s features consistent with H mole with bilateral theca lutein ovarian cysts
- Chest Ray no metastatic lesion, globular heart
- Blood group 0+

She was transfused 3 units, and the PCV was18%.

The WHO prognostic scoring was carried out

- Age [24years] 0
- Antecedent pregnancy [molar] 0
- Duration [less than 4 months] 0
- PHCG [150,000] 4
- Metastasis 0

- Size of metastasis 0
- Number 0
- Antecedent chemotherapy[none] 0

The total score was thus 4 and a decision to start chemotherapy with a single agent was made. She was to start on Methotrexate 1mg/kg day 1,3,5,7 and Folinic acid 0.1mg/kg day 2, 4, 6, 8. Regime was to be given on alternate weeks.

She tolerated the first course well and was allowed home thereafter. She remained in the ward due to financial reasons but in the supervening period developed further bleeding. The PHCG done was reported as over 2million.

It was recommended that the best way forward is to start the patient on EMA CO. She was started therefore on;

Etoposide 100mg IV day 1&2

Methotrexate 300MG iv day 1

Actinomycin D 0.5mg day 1&2

Vincristine 1mg iv day 8

Cyclophosphamide 600mg day 8

Leucovorine 15mg BD for 3 days (after methotrexate)

Her second course of EMACO was due while in the ward and this time her (3HCG levels were 318mlu/ml. Her haemogram, liver function tests and urea and electrolytes were within normal and she was given the second course of EMACO. She continued with chemotherapy until (3HCG levels were negative and then she received three courses after 3 negative pHCG levels, she was finally discharged on 4/10/06.

A summary of serial p-HCG levels before each course of chemotherapy was as shown below (reference range for normal 0-10 miu/ml);

25/05/06 - 516

06/06/06 - 150,000

29/06/06 - >2million

22/07/06 - 318

07/08/06 - 47.2

28/08/06	Less than 2
12/09/06	Less than 2.
28/09/06	Less than 2.

DISCUSSION

The patient presented was a 24 years old para 0+1 who had choriocarcinoma following molar pregnancy. She was commenced on single agent and later to multiple agent chemotherapy and responded well to treatment.

Choriocarcinoma is part of a spectrum of gestational trophoblastic diseases (GTD) or tumours derived from the trophoblast following pregnancy. Others in the spectrum include hydatidiform mole, invasive mole and placental site trophoblastic tumour[1]. GTD'S are one of the few cancers that can be cured even in the presence of widespread metastasis. They have varying propensities for local invasion and metastasis. They also have properties of the placenta like invasion and elaboration of human chorionic gonadotrophin (HCG). Hydatidiform mole presents the benign end while choriocarinoma represents the malignant end of the spectrum of GTD's [1"4].

Our patient had hydatidiform mole preceding choriocarcinoma. In about half the cases of choriocarcinoma the antecedent gestational event is hydatidiform mole, one fourth follow term pregnancy and the remainder follows other forms of gestation (abortion, ectopic pregnancy)[1'2]. The incidence of trophoblastic disease is reported to be highest in S.E Asia with Taiwan reporting an incidence of 1:82 pregnancies. In Europe and North America, the reported incidence is between 1:1500 and 1:2500 pregnancies[1,2]. The actual incidence in Kenya is not known. In a study at the Kenyatta National Hospital an incidence of 1:1118 deliveries was found[5,6].

The patient presented was 24 years old, her blood group was O positive, she was from a low socio-economic background and her disease followed a molar pregnancy. The exact

aetiology of trophoblastic disease is unknown. Several theories have been proposed about possible aetiologic factors but none of these have been proven. The incidence is higher in women under 20 and over 40 years. The incidence is also higher with nulliparity, multiparity, low socio-economic status, Blood group A or AB women married to a husband of blood group O, those whose diet is deficient in proteins, folic acid and carotene and women who have previously had molar pregnancy[1,2,7].

This patient had only local disease with no metastasis but karyotyping of the mole was not done. GTD arises from foetal tissue and is associated with 46 XX karyotypes, trisomic and triploid chromosomes that are paternal in origin. Histologically choriocarcinoma is composed entirely of chorionic epithelium, which is avillous, necrotic and haemorrhagic. It is characterized by sheets of anaplastic syncytiotrophoblast and cytotrophoblast without any chorionic villi. In choriocarcinoma, the predisposition of normal trophoblast to invasive growth and erosion of blood vessels is greatly exaggerated. The tumour is dark red or purple and rugged or friable[2,8]. The tumour invades the myometrium and metastasizes easily. The common sites are the lungs (80%), vagina (30%), pelvis (20%), liver (10%) and the brain (10%). The high incidence of lung metastases may be due to pulmonary deportation of the normal trophoblasts that undergo neoplastic changes in situ. Metastasis to the lungs has the best prognosis among the distant metastatic sites.

The leading symptom in GTD's is irregular uterine bleeding after expulsion of the foetus, mole or normal pregnancy. Later, there may be an offensive discharge, pyrexia and cachexia [9]. Theca lutein cysts are identified in over one third of the cases. Some present with features of metastasis. Physical signs are evident according to the organ involved. Most patients may look ill, because vaginal bleeding may be considerable and prolonged. Many of the patients may have anaemia[2,9]. The definitive diagnosis of choriocarcinoma is based on the histological examination of the tissue involved. While uterine curettage may be useful in the diagnosis, a negative curettage does not exclude its presence, as the tumour is often myometrial[6]. Diagnosis is also based on clinical presentation and the demonstration of elevated levels of HCG. Other useful diagnostic tests include pelvic ultrasound.

After diagnosis of GTD, various investigations will help in determining further management. These include p-HCG, blood group and rhesus factor, full blood count, renal function, radiographic evaluation including chest x-ray, CT scan of the pelvis, abdominal ultrasound, brain CT scan or MRI [12,9]. In our patient, CT and MRI scans were not done due to being costly for the patient.

Trophoblastic disease may be divided into metastatic and non-metastatic disease, which may further be divided into poor or good prognosis disease. The International Federation of Gynaecology and Obstetrics (FIGO) has adopted an anatomic staging system for GTD as below [2]:

Our patient had stage IC disease (her disease was confined to the uterus and had two risk factors- beta HCG above 100,000 and prior use of a single agent cheotherapy). The staging is as follows:

Stage I: Disease confined to the uterus

IA Disease confined to the uterus with no risk factors

IB Disease confined to the uterus with one risk factor

IC Disease confined to the uterus with two risk factors

Stage II: Disease extending outside the uterus but limited to genital structures (adnexa, vagina, broad ligament)

IIA Disease involving genital structures without risk factors

IIB Disease extending outside uterus but limited to genital structures with one risk factor

IIC Disease extending outside uterus but limited to genital structures with 2 risk factors

Stage III: Disease extending to the lungs with/without known genital tract involvement

IIIA Disease extending to the lungs with/without known genital tract involvement and no risk factor.

NIB Disease extends to the lungs with /without known genital tract involvement and with one risk factor

NIC Disease extends to the lungs with/without known genital tract involvement and with 2 risk factors.

Stage IV: All other metastasis sites

IVA All other metastasis sites without risk factors

IVB All other metastasis sites with one risk factor

IVC All other metastasis sites with two risk factors

The risk factors affecting the staging include;

-Serum P-HCG above 40,000miu/ml

- Duration of the disease longer than four months from termination of antecedent pregnancy.

In addition to the anatomic staging, it is important to consider other variables to predict the likelihood of drug resistance and to assist in selecting appropriate chemotherapy. A prognostic scoring system has been proposed by the World Health Organisation and reliably predicts the potential for resistance to chemotherapy[2]. It takes into account the following factors;

Factor/score	0	1	2	4
Age (years)	Less than 39	Above 39		
Antecedent pregnancy	Hydatidiform mole	Abortion	Term	
Interval between antecedent pregnancy and start of chemotherapy	Less than 4	4-6	7-12	Above 12
p-HCG (Miu/l)- Pre-treatment levels	Less than 10^3	10^3-10^4	10^4-$10^{\&}$	Above 10^b
ABO group (female x male)		Ox A, Ax 0	B or AB	
Largest tumour including uterine (cm)	Less than 3	3-5	More than 5	

Sites of metastasis		Spleen/Kidney	GIT/Liver	Brain
Number of metastasis		1-3	4-8	More than 8
Prior chemotherapy			Single drug	More than or 2

Interpretation: total score - less than or 4=low risk,
- 5-7 =middle risk
- more than 8= high risk.

Our patient score increased after the initial use of chemotherapy. Chemotherapy remains the mainstay of treatment for choriocarcinoma. Patients for chemotherapy need evaluation and investigations with emphasis on possible metastasis. In addition, lumbar puncture with CSF: Blood p-HCG ratio less than 1:60 is significant and indicates brain metastasis. Evaluation should also identify high risk factors as outlined in the prognostic scoring system above. CSF puncture was not done in our patient as she was having local disease in the uterus.

A protocol for the management of choriocarcinoma is presented here[2]:

Stage I

Initial: single agent chemotherapy or hysterectomy with adjunctive chemotherapy

Resistant: combination chemotherapy or hysterectomy with adjunctive chemotherapy

Stage II and III

Low risk: Initial -single agent chemotherapy

Resistant- combination chemotherapy

High risk: Initial-combination chemotherapy

Resistant- second line combination therapy.

Stage IV

Initial: combination chemotherapy

Brain: whole head irradiation (300cGy), craniotomy to manage complications

Liver: resection to manage complications

Resistant: Second line combination chemotherapy, hepatic arterial infusion.

Single agent chemotherapy with either actinomycin D (0.5mg daily for 5 days) or methotrexate (0.4mg.kg daily for 5 days) achieves comparable and excellent remission rates in low risk disease. The administration of folinic acid limits toxicity of methotrexate, which is mainly bone marrow suppression and erosion of the mucous membranes[10]. Cyclophosphamide causes marrow depression, alopecia and haemorrhagic cystitis. Treatment is given every 7-10 days till remission occurs as tumour relapse and re-growth is significant if there is treatment lapse of more than 2 weeks [2,9'1°]. Remission is said to have occurred if 3 consecutive p-HCG levels are negative. On average, 3-4 courses are required for remission and a further 2-4 courses are given to avoid relapse (at least 1 course for low risk and 3 courses for high risk disease) [2,1°]. In his study at KNH Fongoh reported that most patients had negative tests after the third course and that those with disease following molar pregnancy had remission rates of 92.9%. Patients on treatment require monitoring with weekly (3-HCG until remission and weekly full blood counts (Hb above 10g/dl, white cell count above 2000/ul and platelets above 150/ul), urea and electrolytes, liver function tests before every treatment course. Treatment is withheld if toxicity is noted. Treatment is changed if HCG titres rise or plateau at high levels or if metastases appear.

Following remission, patients are put on a surveillance programme. HCG is assayed monthly for one year, then every 2 months for another year and six monthly indefinitely [8,1°]. During the period of surveillance, effective contraceptive use is mandatory for a minimum period of one year. The combined oral contraceptive pill is recommended. It causes regular and predictable vaginal bleeding for which disease relapse cannot be confused. It also suppresses the LH surge so that only the pituitary levels of LH are detectable and thus no interference with (3-HCG assays. The pill should be started after HCG titres are negative because trophoblast is destroyed more slowly in patients on steroids [2 9'10]. The patient must avoid pregnancy for at least 12 months following completion of treatment. This period allows full metabolism and excretion of mature ova affected by chemotherapy as cytotoxic drugs are teratogenic. It also allows monitoring for relapse following remission.

Following this, many women treated with chemotherapy are able to have pregnancy with outcomes similar to that of the normal population [8,10,1].

Patients with high-risk disease require use of more than one cytotoxic. Methotrexate-0.4mg/kg, actinomycin D-0.5mg, and cyclophosphamide-3mg/kg (MAC) all daily for 5 days is the most commonly used regime in our unit. Monitoring and follow up is the same as that of patients with low risk disease. Our patient was on single agent chemotherapy as she had low risk disease. The EMACO (etoposide, methotrexate, actinomycin-D, cyclophosphamide and vincristine) regimen is now preferred as primary treatment of in-patients with metastasis and high-risk prognostic score. If the patient does not wish to preserve fertility, hysterectomy with adjuvant chemotherapy may be performed as primary treatment[2,9,10,12].

The role of surgery is limited in the management of choriocarcinoma. Surgical excision of an isolated metastatic lesion in the abdomen, lungs or brain may be considered in a patient with resistant disease. Indications for hysterectomy include;

- Drug resistance or toxicity especially in cases where the disease is confined to the uterus.
- Complications such as vaginal haemorrhage, uterine perforation with intraperitoneal bleeding.
- In patients with extensive disease to reduce tumour burden and thereby limit the need for multiple courses of chemotherapy [1].

Radiation therapy may be useful in cerebral metastasis where whole brain irradiation is done. Intrathecal injection of methotrexate has also been tried for those with nervous system metastases. Our patient did not develop any metastasis.

Prognosis is good with 100% remission for non-metastatic tumour. Metastatic low risk tumours have 87-100% remission rates while metastatic high-risk tumours have 70-80% remission rates[9,10]. Cure is said to have occurred after a period of 5 years in remission.

Monitoring in subsequent pregnancies is necessary as there is a small risk of recurrent GTD of 1-2%[1].

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Gynaecology short case 5

Carcinoma in situ in a grand multipara - extended hysterectomy carried out

Name: L.N.K.

Age: 54

Ip No: 1113401

DoA: 23/10/06

DoD: 30/10/06

Parity 7+0

Presenting complaints:

This patient had presented to our out patient gynaecological clinic with per vaginal bleeding for 2 years.

History of presenting complaints

She had attained menopause 2 years prior to the on set of bleeding. The bleeding was scanty and on and off. It had no particular aggravating or precipitating factor. It was fresh and sometimes altered. It was little in amount and she could change only one pad a day. There was no post coital bleeding because she was currently not sexually active. She reported also history of back pains but no dysuria.

Obstetric and gynaecological history

She was a Para 7 + 0 with 8 living children. Her first delivery was in 1969. All deliveries were vaginal except the last one which she underwent caesarian section. It was in 1984 and she had twins, the first twin was breech. All the children were alive and well. She subsequently had a BTL. She attained menarche at 16 years. Her cycle was 28 days and regular, with a flow of 3 days. She had no dysmenorrhoea. She had never had a pap smear prior to this time. She had used the Injectable depo provera for 4 years in the past and stopped out of choice.

Sexual history

She gave history of 3 sexual partners in her life time. The first was prior to marriage; the next was her husband and one after their separation. Sexual debut was at 18 years of age. She gave no history of post coital bleeding or any sexually transmitted disease.

Past medical history

She had never been hospitalized except for the deliveries. There were no known drug or food allergies. There was no history of blood transfusion.

Family and social history

She was separated from her husband since 1983. She lived in Kahawa west with some of her children. She worked in Kenyatta University as an office messenger. She occasionally took beer but did not smoke. No history of a chronic illness in the family was reported.

On **examination** she was in good general condition, not pale and had no edema. Bp 114/72 mm/hg, pulse rate 86/min and RR 22/min. The chest and cardiovascular system were essentially normal.

The abdomen was noted not distended, moving with respiration. A sub umbilical midline scar from previous surgery was noted. On palpation no masses were palpated and there were no areas of tenderness.

Vaginal examination revealed normal external genitalia. The vaginal walls were normal; the cervix was closed and felt bulky but not friable. The uterus corresponded to14 weeks gestation, felt soft and bulky. The POD was empty and the adnexial non tender. There was no blood in the examining finger.

Investigations done

- Pelvic ultrasound: the uterus is enlarged with an endometrial fluid collection. The collection has dilated the cervix and appears septated in the region of the cervix. There is a small sub mucosal fibroid on the posterior wall. No adnexial lesion is seen. Conclusion: hydro/hematometra, ? Obstructing cervical mass.
- Fractional curettage report: sections from the cervix shows a wide field change exhibiting mild to severe dysplasia. HPV changes are present. The endometrium appears essentially normal. Diagnosis: CIS. Comment micro invasion cannot be ruled out.
- FBC Hb 15.4g/dl, wbc 7.36 m/mm^3, Pet 188 m/mm^3
- Urea and electrolytes
    - Na+ 133 mmol/l
    - K+ 3.8 mmol/l
    - Chloride 92 mmol/l
    - Urea 3.5 mmol/l
    - Creatinine 72.4 umoi/l

A diagnosis of carcinoma is situ (of the cervix) was made.
She was admitted to the ward. Consent was obtained for the operation and blood for grouping and cross match drawn. She underwent an extended hysterectomy on 26/10/06. She did well post operatively and was allowed home on 30/10/06 in stable condition.

DISCUSSION

A case is presented of a 54 years old lady who was diagnosed to have carcinoma in situ of the cervix and was managed by extended hysterectomy.

Carcinoma in situ (CIS) of the cervix occurs when the full thickness of the cervical epithelium is encompassed by disordered growth and development of the lining. It is the most extreme form of cervical intraepithelial neoplasia. Left untreated, a certain number of patients with carcinoma in situ, especially those with high grade lesions progress to invasive cancer of the cervix[1]. The patient presented had carcinoma in situ.

Cervical cancer is the second most common malignancy in women worldwide and remains a leading cause of cancer related deaths and a major public health problem especially in developing countries. At present, there are nearly 1 million women each year getting cervical cancer globally. Three quarters of all women with cervical cancer are in the developing countries. The incidence in developed countries has been on the decline largely due to implementation of population based screening programmes and treatment of preinvasive disease in these countries[1,2]. The true incidence of preinvasive disease and cancer in Kenya is not known although it is the most common gynaecologic malignancy encountered in clinical practice. Studies in Kenya show that the mean age of onset is for cancer of the cervix 42 years with peaks in incidence at 25, 30 and 35 years. The mean age at onset is 10 years earlier than what is seen in the developed countries where 2 peaks of incidence for cancer are described at 35 and 50-55 years [3"5]. The peak age worldwide is 48-55 years. The peak incidence of carcinoma in situ worldwide is in women 25-35 years[1]. Our patient was 54 years old. She was found to have human papilloma infection effects on the cervical epithelium.

The exact cause of carcinoma in situ and cervical cancer is not known but various aetiologic risk factors have been implicated. These include:

- Human papilloma virus infection. This has been identified as the most important factor responsible for the association of CIS and cervical cancer with sexual activity. HPV DNA is found in 95% of all squamous cell carcinoma and in over 90% of all adenocarcinomas. HPV types 16,18,45 and 56 are the most oncogenic types accounting for approximately 80% of HPV types in cervical cancer. Other high-risk types include types 31, 39,58,59 and 68. Other factors that have previously been associated with increased risk of cervical intraepithelial neoplasia such as increased lifetime number of sexual partners, high risk sexual partners (history of multiple partners, HPV infection, lower genital tract neoplasia or prior sexual exposure to partner with cervical neoplasia), a history of sexually transmitted infection, early age at first intercourse, lower level of education and lower socio-economic status have actually been shown to be a result of HPV infection[6"8]. HPV infection was noted in the patient presented and could have contributed to her condition.

- Smoking. Cigarette smoking is associated with a two to fourfold increase in the relative risk for developing cervical cancer. Cigarette smoke carcinogens (nicotine and cotinine) accumulate locally in the cervical mucus and the cumulative exposure is related to the risk of developing carcinoma. Men also concentrate these chemicals in their genital secretions and can bathe the cervix with these chemicals during intercourse. Male partners of women with cervical dysplasia should thus be adviced against smoking[9].
- Nutritional deficiencies are also thought to be involved in occurrence of cervical dysplasia and cancer. The national cancer institute recommends that women should consume five servings of fresh vegetables or fruits every day[9]. If this is not possible, then they should consider taking a multivitamin everyday with antioxidants such as vitamin E or beta-carotene.
- Immunodeficiency. The incidence of cervical neoplasia and cancer is increased in HIV-infected women. HIV infection allows neoplastic proliferation due to deficient host regulatory mechanisms. Since 1993, invasive cervical cancer has been included as an AIDS-defining illness. Women with HIV have been noted to have more advanced disease at presentation, poorer response to therapy and higher recurrence and death rates. The presented patient was HIV-negative.
- Other associated factors include multiparity and long-term oral contraceptive pill use, protein antigen in the sperm head, smegma in uncircumcised males, herpes simplex typeJI.

The patient presented started sexual activity at 18 years of age, HPV was noted on Pap smear, and had had 3 sexual partners.

On cytologic examination, the cells in CIS are dysplastic characterized by anaplasia, an increased nuclear: cytoplastic ratio, hyperchromatism, multinucleation and abnormalities in differentiation[1,2].

Grossly, the ectocervix is the common site of the cancer lesion occurring in 80% of cases while in 20% the lesion is in the endocervix. The lesion may be exophytic (a proliferative lesion forming a friable mass almost filling up the upper vagina in late cases), ulcerative where it excavates the cervix and often involves the vaginal fornices, and the infiltrative or

endophytic type that expands the lower uterine segment giving rise to the barrel shaped cervix.

Commonly cervical cancer arises from either the squamous epithelium of the ectocervix or the columnar epithelium of the endocervical canal. About 85-90% of invasive cervical cancer is squamous cell carcinoma. The sources of the squamous epithelium that turn into malignancy are- squamocolumnar junction, healing erosion, squamous metaplasia of the columnar epithelium and the squamous cell rests in the ectocervix. Squamous cell carcinoma is further divided into three groups histologically namely large cell keratinising, large cell non-keratinising and the small cell type. Those with small cell type have poorer prognosis. Adenocarcinoma accounts for 10-15% of cervical cancer and develops from the endocervix either from the lining epithelium or from the glands. Currently there is increase in the number of cervical adenocarcinomas especially in the younger age-group below 35 years reported to be 25%. Other types of cervical cancer include endometrioid, clear cell, adenosquamous and mixed types. Others are sarcoma, malignant melanoma metastatic cancer and small cell (neuroendocrine) type [17"9].

Carcinoma of the cervix spreads principally by direct local extension followed by lymphatic spread. The growth spreads directly to the adjacent structures-bladder and rectum, the vagina and to the body of the uterus. Extension laterally is to the parametrium, paracervical and paravaginal tissues where the ureter may be compressed. The primary lymphatic groups involved in spread are parametrial nodes, internal iliac nodes, obturator, external iliac and sacral nodes. Nodes involved secondarily are the common iliac, the inguinal and para-aortic nodes. Haematogenous spread accounts for less than 5%, occurs late and is usually by veins rather than arteries. Lungs, liver or bone are usually involved. Direct implantation of the cancer cells at operation on the vaginal vault or abdominal wound is very rare.

There are usually no symptoms or signs of CIS, and diagnosis is often based on biopsy findings following an abnormal routine cervical cytology smear. She was found to have a high grade lesion on Pap smear. Vaginal bleeding or discharge are the most common presenting symptoms in women with invasive cervical cancer. The duration of symptoms

may not be proportionate to the stage of the disease. In the early stages of the disease, carcinoma of the cervix is asymptomatic. Menstrual abnormalities in the form of contact bleeding, bleeding on straining, intermenstrual bleeding are very much suspicious especially in women over the age of 35. Excessive discharge that may be at times offensive may be present. Other symptoms include pejvic pain, referred palp. Speculum examination may reveal erosion, nodular growth or an ulcer. The lesion bleeds on friction. Bimanual examination reveals the lesion that bleeds to touch. Rectal examination reveals the state of the parametrium and rectal wall.

It is important to estimate the disease extent not only as an aid to prognosis but also to plan treatment. The staging of carcinoma of the cervix is principally clinical. The staging process involves speculum, pelvic_ and bimanual examination, and-rectal examination, which are done undeL_£jeneral anaesthesia. Confirmation of diagnosis is by biopsy. Ancillary aids for confirmation of staging include cystoscopy, intravenous pyelography, proctoscopy and chest radiography. Routine h^ematological, liver and renaLfunctionJests aid in planning treatment. The fallacies in clinical staging include difficulty to assess lymph node involvement on clinical examination which adversely affects prognosis and the difficulty in differentiation of inflammatory and malignant induration of the parametrium. The classification adopted by the International Federation of Gynaecology and Obstetrics (FIGO- 1998) for staging of cervical cancer is as follows [1,s]:

Stage 0: Carcinoma in situ, intraepithelial carcinoma

Stage I: Carcinoma strictly confined to the cervix (extension to the corpus to be disregarded).

Stage IA: Microscopic disease confined to the cervix. Further divided into;

IAi: minimal microscopically evident stromal invasion not exceeding 3mm in depth and not more than 7mm in width (horizontal spread).

IA2: Microscopically measured invasion greater than 3mm but less than 5mm and no wider than 7mm in horizontal spread.

Stage IB: Lesions greater dimension than stage Ia_2 whether seen clinically or not and macroscopic disease confined to the cervix. Further divided into;

IBi: Lesion not exceeding 4cm in size.

IB_2: Lesion exceeds 4cm in size.

Stage II: The carcinoma extends beyond the cervix but has not extended to the pelvic wall. The carcinoma involves the vagina, but not the lower third.

IIA: Vaginal involvement without parametrial involvement

IIB: Parametrial involvement.

Stage III: Tumour extends to pelvic sidewall and/or causes hydronephrosis and/or extends to lower third of vagina.

IIIA: Involvement of the lower third of vagina with no extension to the side

IIIB: Extension to pelvic sidewall and/or hydronephrosis.

Stage IV: Extension beyond the true pelvis or into mucosa of rectum or bladder.

IVA: Extension into adjacent organs.

IVB: Distant metastasis.

The patient presented was in class 0 of the FIGO staging system.

Pelvic node metastasis in different stages of cervical cancer are; 0.5% in stage IA_{1t} 8% in stage IA_2, 16% stage IB, 30% stage II, 44% for stage III and 55% in stage IV.

Prognosis depends on the following factors[1,8]

- Type of tumour. Endocervical tumour is diagnosed late and grows faster
- Stage of the disease. Early disease has better prognosis.
- Tumour size more than 4cm is associated with more lymph node metastasis.
- Lymph node involvement especially pelvic and para-aortic reduces survival rate.
- Depth of tumour invasion when <1cm associated with improved survival.
- Age. Young age is usually associated with poorly differentiated squamous cell carcinoma or adenocarcinoma and is prognostically poor.

Management of CIS depends on the degree of dysplasia, natural history of various degrees of CIS, the patients immune competence, smoking habits and other factors such as the inciting HPV type. HPV typing was not done in our patient as the facility is not readily available. She had been reported to have severe dysplasia. The most common techniques used for the treatment of CIS include ablative techniques (cryotherapy or laser ablation), and three excisional techniques-cold knife conisation, laser cone excision and Loop electrosurgical excision procedure (LEEP). Cure depends on the size of the lesion, endocervical gland involvement, and margin status of any excisional specimen[1,2] Our patient had eight children and was menopausal, and opted for a more definitive approach; surgery.

Management of invasive cancer of the cervix depends on stage of the disease, patients' age and fertility desires among other factors. Surgery and radiotherapy are the main modalities of treatment. A combination of the two modalities may also be employed in some cases. Other modalities include chemotherapy, neoadjuvant approach where cytoreduction via cytotoxic chemotherapy is used prior to definitive therapy with radiation or radical surgery. Surgery is used only for early disease stage I and IIA. Our patient was treated with surgery as she was considered to have early stage disease. Advantages of surgery as a primary procedure includes more thorough assessment of the spread and extent of the disease, preservation of ovarian function if desired, retention of more pliable and functional vagina especially in the young woman and psychologic benefit to the patient that her cancer bearing organ has been removed. Types of surgery done depending on stage of disease are cervical conisation, simple hysterectomy and radical types such as Wertheim's hysterectomy. Complications of surgery include fistula formation, bleeding at time of surgery, lymphocyst formation, venous thrombosis and bladder dysfunction. Pelvic exenteration is an ultraradical type of surgery done in cases of recurrent carcinoma where radiation had been done. This patient did not develop any complications.

Radiotherapy may be used to treat all stages of the disease if there are no contraindications. Advantages of radiotherapy as primary treatment include wider applicability in all stages of disease, comparable result with that of surgery in early stages,

less primary mortality and morbidity, individualization of dose distributions and requirement is possible. Braohytherapy technique is employed. Radiation sources include radium, cesium or cobalt. Contraindications of radiotherapy include younger patients, presence of pelvic inflammatory disease, uterine fibroids, ovarian tumour and vaginal stenosis [1,7,8,10]. Complications of radiotherapy include bowel perforation, fistula formation, vaginal stenosis and uterine perforation during introduction of the uterine tandem. Chemotherapeutic agents used include cisplatin, bleomycin, methotrexate and vincristine. Chemotherapeutic agents may additionally be employed as radiation sensitisers to enhance response in patients with advanced disease. The results of therapy is expressed in terms of 5-year survival rate. This is given for the various stages as 85% stage I, 55% for stage II, 38% for stage III and 15% for stage IV disease [12,8,13].

Prevention of CIS and cancer of the cervix involves proper health-educationon risk factors and screening, especially among the poor socio-economic group, removal of the cervix during routine hysterectomy to prevent stump carcinoma. Information about the association of HIV infection and smoking with development of cervical cancers is crucial and should be provided to all women. Universal cytologic screening of all post-pubertal women on a regular basis should be encouraged. Cervical cytology screening by means of Papanicolaou smear offers great hope for early diagnosis and treatment of premalignant conditions of the cervix. There are four main reasons for this: the ability of cervical cells to exfoliate from pre cancerous lesions, accessibility of the uterine cervix, existence of a spectrum of change from atypia to pre malignant to frankly malignant state and the prolonged natural history of cancer of the cervix.

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Gynaecology short case 6
POLYCYSTIC OVARIAN SYNDROME

Name: A.N.

IP No. 1109503

Age 27years

DoA: 1/08/06

DoD: 4/8/06

Presenting complaints

A Para O+O admitted via GOPC where she was being followed up for primary infertility. She was being admitted for laparoscopic ovarian drilling due to PCOS. She had presented with history of inability to conceive for 7 years. Had been married for the same duration, had been having regular unprotected sexual intercourse with the same partner. She had history of irregular menses; the periods were sometimes prolonged for about 1 month this would alternate with periods of amenorrhea lasting for 3-5 months. On an average day, she would use about 4-6 pads. Blood was fresh, not in clots, not altered; there was no history of dysmenorrhoea. Her current last menstrual period had started on 24/6/06. She had no history of blurring of vision, no neck swelling, no history of galactorrhoea, and she had not noticed any acne or excessive body hair.

Past medical history

She was investigated for infertility in Embu and Buruburu before transfer to the clinic KNH. Briefly in 2003 she was put on ovulation induction drugs (clomiphene) for around 6 months with no resultant pregnancy. There was no history of surgery or blood transfusion. She was on hematinics due to anemia.

Obstetrics and gynaecological history

She was Para O+O. menarche was at 16 years, sexual debut at 19 years and a pap smear done was reported as CIN0.

There was no history of contraceptive use her menses were irregular as earlier alluded she had not been treated for an abnormal vaginal discharge or any sexually transmitted disease to her knowledge.

Family and social history

She had been married for 7 years and she was a house wife. The husband was a tea farmer, they lived with their mother in law at their home compound. There was no family history of any endocrine disorder, hypertension, or diabetes mellitus neither her nor the husband drunk alcohol nor smoked.

Systemic enquiry was nil contributory.

On examination, she was in fair general condition. BP was 110/70 mm/hg, temperature 36.5°C, PR 78/minute and respiratory rate 22 breaths/minute. She was not pale, had no jaundice or lymphadenopathy. She had normal female habitus, no hirsutes, no acne, normal female hair distribution, and there was no thyroid enlargement. She had bilateral tanner stage IV breast development, no obvious color change, no masses or discharge was noted. The chest was moving with respiration, normal vesicular breath sounds were heard. Both heart sounds were heard and no murmurs were elicited. The abdomen was scaphoid moving with respiration, no masses or organomegaly was noted. No areas of tenderness were elicited. Vaginal exam- had normal external genitalia, vaginal length approximately 8-10cm, cervix was posterior, firm and closed, there was slight adnexial fullness, POD was empty, no tenderness was elicited.

A diagnosis of primary infertility was made.

Investigations

- Semenalysis

  Duration of abstinence 7days

  Volume 3.2ml (normal 2-7 ml)

  Consistency - droplets.

  Motility rapid progressive 15%

Slow progressive 35%

Non progressive 0%

Immotile 50%

Agglutination type -mixed

Concentration (million/ml) 70 (normal 20million/ml)

Total sperm count (million) 65.4x10^6/ml (normal >40million/ml)

Wbc count (million/ml) 0.7x10^6/ml (normal <1.0x10^6/ml)

Morphology %	strict criteria
Normal 13%	> 14% fertile
Abnormal 87%	5-14% fertile /sub fertile
	0-4% sub fertile

Comment - normozoospermia

- Urea 4.1 mmol/l
- Creatinine 53 p/ml/l
- Na+ 135mmol/l
- K+4.4

- Full blood count ;H b 7.7g/d ,Wbc 5.7x10^9/l, PLt 344x10^9/l
- Hormonal profile on 26/11/05

  LH 11.79mlu/ml

  FSH4.43 mlu/ml

  E2 72.95

  Prolactin 20.25 ng/ml (normal 1.39 - 24.20ng/ml)
- Pap smear-CINO
- HSG - normal uterine cavity outlined both tubes visualized and bilateral dye spill demonstrated.
- Pelvic ultra sound - Uterus is anteverted and normal sized, Endometrium is normal. Right ovary is enlarged (49x23x22) mm (13cc), Left ovary is (54x23x22) mm (14cc) with typical features of PCOD. The cervix and the cul-de-sac all normal. Conclusion - sonographic features of PCOD.

She was admitted for laparoscopic drilling. Informed Consent was obtained and blood drawn for grouping and matching. She received an enema at 6.30am on the morning of the operation, and atropine 0.6mg ¼ hour pre- operatively.

In theatre

Patient was placed supine and general anesthesia induced and the patient intubated. She was then placed in modified lithotomy position. The abdomen was cleaned and draped. WT was done and she was catheterized aseptically to obtain 50ml of clear urine. A sterile speculum was inserted and the anterior lip of the cervix was stabilized with a tenaculum. A uterine elevator was then inserted through the cervical os. The abdomen was opened via a stab incision via the umbilicus, $C0_2$ was insufflated maintaining at between 2 and 3litres and pressures of 16-18 mmhg 2 other incisions were placed approximated 1cm above the anterior superior iliac spines.

Under light guidance inspection was done, both ovaries were noted enlarged and polycystic; the uterus was normal sized and appeared grossly normal. Both fallopian tubes were also visualized and appeared grossly normal.

The POD was empty and no adhesions or collection of fluid was noted.

Using the unipolar electrocautery probe, laparoscopic drilling was done at multiple points on the ovaries bilaterally. Normal saline lavage was then done. Inspection of the gut and other intra -abdominal structures was noted normal. Hydrocortisone and heparin instillation was subsequently performed. All equipment was withdrawn under light guidance and the stab wound closed in 2 layers. General anesthesia was then reversed uneventfully. Post operative observations were normal while in the recovery ward and the patient was transferred back to the wards.

The patient did will postoperatively while in the ward and she was discharged on 4/8/06 on antibiotics and analgesics. She was scheduled to attend GOPC in two weeks time.

DISCUSSION

The patient presented was a 27-year-old Para 0+0 who was admitted with polycystic ovarian syndrome. She also had a 7-year history of primary infertility. She was managed by ovarian drilling through laparoscopy.

Polycystic ovarian syndrome (PCOS) is a condition comprising of enlarged ovaries with multiple small cysts (2-8mm) and a hyperyascularized, androgen-secreting stroma that are associated with signs of androgen excess (hirsutism, alopecia, acne), obesity and menstrual cycle disturbance (oligomenorrhoea or amenorrhoea).[1] It was first described by Stein and Leventhal in 1935 as a syndrome consisting of amenorrhoea, hirsutism and obesity in association with enlarged ovaries. It is now realized that this syndrome is in fact a hormonal disorder and most clinicians prefer referring to it as a 'syndrome of hyperandrogenic chronic anovulation'.

The PCOS is the commonest endocrine disturbance affecting women yet it is only in the last decade that work has began to piece together a clearer idea of its pathogenesis.[2] Using high resolution ultrasound scan, the prevalence of polycystic ovaries in 'normal adult' woman is estimated to be 25%.[3] However, the incidence of PCOS is about 3% in both adolescents and adults. It is the most common cause of hyperandrogenic of prepubertal onset.

The PCOS is familial and various aspects of the syndrome may be differentially inherited. Polycystic ovaries can exist without clinical signs of the syndrome, which may then become expressed over time. PCOS appears to have its origin during adolescence and is thought to be associated with increased weight gain during puberty. Obesity leads to hyperinsulinism, this in turn causes both hyperandrogenaemia and raised insulin-like grow factor 1 (IGF-1) levels, which augment the ovarian response to gonadotropins[2].This implies that obesity may be important to the pathogenesis of polycystic ovaries. Our patient was not obese with a body mass index of 23.5kg/m^2.

In PCOS, the rgain hormonal disturbance is elevated Lh^ (leutinizing hormone) with an abnormal LH: FSH ratio, which results in, increased androgen secretion from the ovary. This in turn results in wasting of the ovarian follicles by interfering with production of the dormant follicle. This also leads to the absence of the normal mid-cycle LH surge, which results in anovulation. Our patient had an LH: FSH ratio of >3:1 on the 2nd day of the menstrual cycle. Several hypotheses have been suggested to explain this over-secretion of LH. These include; 1 increased pulse frequency of gonadotropin-releasing hormone (GnRH), increased pituitary sensitivity to GnRH, hyperinsulinemic stimulation of pituitary gland and disturbance of the ovarian steroid-pituitary feedback mechanism. However, none of these fully explains hyper-secretion of LH and it has been suggested that Jeptin (a peptide that is secreted by fat cells in response to insulin and glycocorticoids) also has a role to play here. Obesity, on the other hand, is associated with high circulating concentration of leptin and this in turn might be a mechanism for hyper-secretion of LH in women with PCOS.

Almost all patients with polycystic ovaries will have at least one symptom of PCOS. Approximately 40% of them will be over weight (BMI > 25kg/m2). 50% will have oligomenorrhoea and 20% amenorrhoea. The obesity is the android type resulting from fat deposition in the abdominal wall and visceral mesenteric locations.[2] Twenty-six percent of the patients will have primary, infertility and 14% secondary infertility. She had oligomenorrhoea and primary infertility. Signs will include; hirsutism, ac.oe.and acanthosis njsnans.

Diagnosis is based on the signs and symptoms mentioned above. In addition, ovarian morphology appears to be the most sensitive marker for PCOS. Ovarian morphology using ultrasound criteria is 10 or more cyst, 2-8mm diameter, arranged around an echo-dense stroma.[5] Trans-vaginal scan has about 100% detection rate compared to trans-abdominal scan with a detection rate of 70%.[6] Others are classic endocrine features of raised-seoiriLLH and testosterone that is found in 40.% and 30% of patients' respectively.[6]. FHS may be normal or low; progesterone levels in luteal phase may show anovulation levels. 20% of patients with PCOS have elevated prolactin. Histopathological examination of the ovary will show features of hyperthecosis. This refers to patches of leutenized

theca-like cells scattered throughout the ovarian stroma. Our patients had multiple ovarian cysts on trans-abdominal ultrasound. She also had raised LH: FSH ratio. Low progesterone during luteal phase and ovarian biopsy showed ovarian hyperthecosis.

Management of the polycystic ovarian syndrome is aimed at correcting obesity, menstrual irregularity, infertility, hyperandrogenism and hirsutism and at altering insulin sensitivity[1]. Obesity worsens both symptomatology and the endocrine profile and so obese women (BMI > 30kg/m^2) should therefore be encouraged to lose weight. Weight lose decreases insulin levels, improves the endocrine profile, the likelihood of ovulation and promotes a health pregnancy.[7] Menstrual regularity may be achieved by. use of low-dose combined oral contraceptive preparation. This will result in artificial cycle and regular shedding of the endometrim. An alternative is progesterone such as medroxy progesterone acetate (provera) or dydrogesteron (duphaston) for 12 days, every 1-3 months to induce a withdrawal bleeding. In women with anovulatory cycles, an ultrasound assessment of endometrial thickness should be done. If the endometrium is thicker than 15mm, a withdrawal bleed should be induced and if the endometrium fails to shed, then endometrium sampling is required to exclude endometrial hyperplasia or malignancy. Ultrasound endometrial assessment was 11.9mm.

Ovulation can be induced with the anti-oestrogen plomiphene citrate (50-1 OOmg) or tamoxifen 920-40mg), days 2-6 of a natural or artificially induced bleed. Whilst clomiphene is successful in inducing ovulation in 80% of women, pregnancy occurs in about 40 % within 6 months. A daily dose of more than 100mg rarely confers any benefit and can cause thickening of the cervical mucus, which can impede passage of sperm through the cervix. Another therapeutic option for patients with anovulatory infertility who are resistant to anti-oestrogen is parenteral gonadotropin therapy, with a success rate of 54% after 6 months and 62% after 12 cycles.[2]. Women with POOS on ovulation induction are at an increased risks of developing ovarian hyper-stimulation syndrome (OHSS). This occurs if too many follicles (>10mm) are stimulated and results in abdominal distention, discomfort, nausea, vomiting and sometimes difficulty in breathing. The mechanism of OHSS is thought to be secondary to activation of the ovarian rennin-angiotensin pathway and

excessive secretion of vascular epidermal growth factor (VEGF). Haemoconcentration can result leading to thrombo-embolism. Intravenous fluids and heparin should be given to prevent dehydration and thrombo-embolism.

Laparoscopic ovarian diathermy^ or drilling as an alternative to ovarian stimulation has taken place of wedge resection of the overies (which resulted in extensive peri-overian and tubal adhesions). Exact mechanisms of its action is unknown but it results in pregnancy rate of 60-80% after 12 months.[8] It is free of the risks of multiple pregnancy (10% with clomiphene) and ovarian hyper-stimulation syndrome and does not require intensive ultrasound monitoring. Our patient underwent a successful laparoscopic ovarian drilling.

A number of pharmacological agents have been used to alter insulin sensitivity and amplify the physiological effect of weight loss, notablyjrietformin. This biguanide inhibits the production of hepatic glucose and enhances the sensitivity of peripheral tissue to insulin, thereby decreasing insulin secretion. It has also been shown that metformin ameoiorates hyperandrogenism and abnormalities of gonadotropin secretion in women with PCOS.[8]

Hyperandrogenism is brought about by low level of sex-hormone binding globulin (SHBG). High levels of insulin lower the production of SHBG and so increase the free fraction of androgen. Symptoms of hyperandrogenism can be treated by a combination of an oestrogen (such as ethinyl oestradiol or a combined contraceptive pill) and the antiandrogen crypoterone acetate (50-1 OOmg) which acts as a competitive inhibitor at the androgen receptor. Oestrogen lower circulating androgens by a combination of a slight inhibition of gonadotropin secretion and gonadotropin-sensitive ovarian steroid production and an increase in hepatic production of SHBG[1]. The cryptoterone is taken for first 10 days of a cycle and oestrogen for the first 21 days. After a break of exactly 7 days, during which menstruation usually occurs, the regime is repeated. The most distressing condition in hyperandorgenism is hirsutism. Hirsutism is characterized by terminal hair growth in a male pattern of distribution including chin, upper lip, chest, upper and lower back, upper and lower abdomen, upper arm, thigh and buttocks. Treatment options include cosmetic and medical therapies. Medical regimens stop further progression of hirsutism and

decrease rate of hair growth. However, drug therapies may take 6-9 months or longer before any benefit is perceived and so physical treatment including electrolysis, waxing and bleaching may be helpful whilst waiting for medical treatment to work.[1]

Long-term consequences of PCOS include;[1]

Insulin rg^tance, impaired glucose tolerance and diabetes

Hypgrtfinsinp- Prevalence of treatment hypertension has been found to be three times higher in women with PCOS between 40 and 59 years compared to controls.

Dyslipidaemia: women with PCOS have twice as high concentration of serum triglycerides and 26% lower HDL compared to controls.

Endometrialhyperplasia and endometrial carcinoma. This is due to unopposed oestrogen.

Breast carcinoma: obesity, hyperandrogenism and infertility are features known to be associated with development of breast cancer.

Long-term follow-up in PCOS includes exercise and weight loss which has so far been the most physiological way to improve insulin sensitivity and improve insulin sensitivity and improve the metabolic abnormalities associated with syndrome. In symptoms of amenorrhoea or oligomenorrhoea, the induction of artificial withdrawal bleeds to prevent endometrial hyperplasia is prudent. Close monitoring of blood pressures and breast examinations plus routine monitoring of blood sugars and serum lipid profiles is essential. Any abnormalities should be corrected.

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Gynaecology short case 7

SEXUAL ASSAULT

NAME: DM.

AGE: 22 YEARS

IP NO: 33153

Date seen; 2/5/2005

PARITY: 0+0

Presenting complaint

She was a nulliparous single lady seen via the casualty department with a history of rape by two unknown male assailants 10 hours prior to presentation. She had slight bleeding per vaginum.

History of presenting complaints

D.M was walking home at around 7.30 pm. She was on her way to Ruai from Kayole when a traffic jam occurred. The vehicle they were in changed direction to avoid it so she alighted, deciding to go on foot. She met 3 thugs who accosted her, took her to a deserted area, stole her valuables and undressed her. She tried to resist but they slapped her. They brandished knives threatening to slit her throat open if she screamed. She was overpowered; two of the men forced themselves on her and left after forceful penetration and ejaculation. The ordeal took about twenty minutes. The assailants left her bleeding and writhing in pain. She thereafter walked home informed her brother who brought her to hospital. She had never had any sexual experience before (virgin), and had never had a boyfriend.

Obstetric and gynaecologic history

She was para 0+0; L.M.P was on 6/4/05. Her menarche was at the age of 15 years. Her menstrual cycles were 30 days regular, lasting four days, normal flow. She had never used any family planning methods.

Past medical history

Nil significant.

Family and social history

She was a single lady, who was unemployed. She stayed with her elder brother. Educated up to standard 8, but dropped out of school due to lack of fees. She was the fifth born in a family of 8 siblings, all alive and well. She didn't drink nor smoke cigarettes. There was no family history of major illnesses.

On examination, she was in fair general condition, had soiled clothes, dusty with blood stains, a light blue dress, and a red under-pant. She had bruises on her forearms, thighs and right foot. She was not pale, not cyanosed and had no oedema. BP - 120/60 mmHg.PR - 72 b/min,T° - 37.1 °c. R - 20/Min and weight 51.5kg

The abdomen was moving with respiration, had no organomegaly, but had suprapubic tenderness and no guarding.

Cardiovascular, central nervous and respiratory systems

These were examined and found to be normal.

Vaginal examination

She had normal external genitalia, but blood stained. Hymen was torn all round rugged, had brisk active bleeding and was friable. The vaginal walls were erythematous with multiple lacerations but not actively bleeding. The cervix was visualised posterior and closed. A blood stained discharge was noted in the fornices and a high vaginal swab was collected from the posterior fornix.

Impression:

An impression of sexual assault was made.

Investigation done (Baseline);

- P.D.T. - negative
- HIV 1+2 - negative

- Haemogram - normal,
- urinalysis — normal,
- U/E/C normal,
- LFTs normal,

- H.V.S. Non - motile spermatozoa seen, with pus Cells. Numerous erythrocytes noted.
  - No growth obtained on culture.

MANAGEMENT

She was immediately started on prophylactic antiretroviral therapy; combivir I tablet BD for 28 days, prophylactic antibiotics; doxycycline 100mg BD, norfloxacin 400mg BD and flagyl 400mg tablets TDS, all these for one week, and analgesics; diclofenac 50mg tablets TDS. She was given postinor I tablet BD for one day. She also received hepatitis B vaccine 1ml stat.

FOLLOW-UP

She was counselled, and discharged home on the above treatment. She was counselled on the need to comply with the treatment, the window period, and the need to repeat the tests at 6 weeks, three months and 6 months.

At six weeks the HIV test was still negative and was seen at 3 months and 6 months. Her test results remained negative.

DISCUSSION

D.M. presented above, was a nulliparous single virgin lady, who came with complaints of sexual assault. She was put on emergency contraception, antibiotic and antiretroviral prophylaxis.

Legal definitions of sexual assault vary from state to state but most definitions include:-

1. Use of physical force, deception, intimidation or the threat of actual bodily harm.

2. Lack of consent or inability to give consent because the survivor is very young or old, impaired by alcohol or drug use, unconsciousness or mentally or physically impaired.
3. Oral, Vaginal or rectal penetration with a penis, finger or object[1].

Sexual assault of children and adult women has reached epidemic levels but the incidence is unknown as many cases go unreported[1].

Childhood sexual abuse has profound and potential life-long effect on the survivor [2]. Women who are sexually assaulted tend to be more likely to experience depression, chronic anxiety, anger, substance abuse problems, personal disorders, low esteem and sleep disorders. They are also likely to develop post-traumatic stress disorders [1]. 20-25% of women are raped by a complete stranger. Most women are raped by a relative or an acquaintance; this could be a husband, ex-husband, father, step father, boyfriend, or ex-boyfriend [3].

Violence against women is present in every country.

The World Conference on Human Rights in Vienna (1993) accepted that women and girl rights are an inalienable, integral and indivisible part of universal human rights[2].

The laws of Kenya state that any person who unlawfully and carnally knows a girl below 14 years is guilty of felony and is liable to imprisonment for 14 years with hard labour together with corporal punishment [4]. It is argued that this is not enough punishment. Law on rape is that one is punished to life imprisonment[4]. With the pending sexual offences Bill, we only hope that a stronger and more stringent law is enacted.

Following rape, the victims normally have several concerns that include pregnancy, sexually transmitted infections (including HIV), being blamed for the assault, having their name made public and having friends and family find out about the assault. It is difficult to

know how an assaulted person will react. Some develop the Rape Trauma Syndrome, which consists of physical and psychological symptoms [1].

Examination and treatment should be done in a quiet environment and a thorough history obtained due to the legal implications. Risk of HIV transmission from consensual exposures is estimated at 0.1% to 3% per episode (varies widely). The risk of HIV transmission with a single exposure from a HIV infected source is greater than 0.5%. The risk factors for increased HIV/AIDS transmission following sexual assault include:

- Forceful vaginal/anal penetration: mucosal tears, abrasions and cuts, thus facilitating entry of the virus, when present through the vaginal mucosa
- Vaginal/cervical bleeding
- Disease status of the perpetrator (rapists should be assumed to be HIV positive unless proven otherwise)
- Presence of STDs and genital wounds
- Number of perpetrators
- Number of episodes of sexual penetrations
- Non use of condoms
- Lack of lubrication
- Post rape douching.

Rape is also associated with other reproductive tract infections apart from HIV infection. These include:

Sexually transmitted infection such as:

- Gonorrhoea
- Chlamydia
- Trichomoniasis
- Genital Ulcer Disease

Non-Sexually transmitted infections such as:

- Bacterial vaginosis
- Vaginal candidiasis
- Cervicitis

- Urethritis

Various specimens should be taken to the laboratory for analysis for use in verification of sexual assault and determination of conditions that may modify consequences of the exposure. For female survivors, HVS for microscopy, culture and sensitivity (MCS), urine analysis and VDRL should be done while anal and/or urethral swabs should be done in male survivors of sodomy.

The physician's responsibilities include:

1. Obtaining an accurate gynaecologic history, including recording of the sexual assault.
2. Assessing, documenting, and treating physical injury.
3. Obtaining appropriate cultures (including samples for forensic tests), treating any infection and providing prophylaxis for sexually transmitted diseases, including HIV.
4. Providing therapy to prevent unwanted pregnancy.
5. Providing counseling to the patient, her partner and/or family
6. Arranging for medical follow up and counseling
7. Reporting to legal authorities as required by state law.

At Kenyatta National Hospital we offer counseling, HIV prophylaxis, emergency contraception and treatment/prevention of sexually transmitted infection. This is what was offered to our patient.

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Gynaecology short case 8

Pelvic organ prolapse- Colposuspension/colporraphy done

Name: JG

Age: 39 years

Parity: 2+0

LMP: 28/5/06.

DOA: 13/6/06

DOD: 22/6/06

IP number: 1099582

Presenting Complaint

Feeling of fullness in the vagina for 2 years

History of presenting complaint

Out patient was admitted through the GOPC as a referral from PGH Nakuru, with uterine prolapse. She complained of feeling of fullness (like a mass) in the vagina. There were no complain of frequency of urination or urgency but she had incomplete voiding of urine at the onset of her problem. Her bowel habits were normal. Her problems started soon after here last delivery (i.e. one week after delivery) in 2004. Labour was induced due to severe preeclampsia. The outcome was a spontaneous vertex delivery to a fresh stillbirth weighing 1200gm. No vacuum delivery was performed. There is no history of chronic cough or constipation. She complained of dyspareunia in the last 3 months prior to admission

Obstetric and gynaecology history

She is para 2+0 with one living child. First delivery was 1996 at term and in hospital by SVD. The outcome was live male infant with birth weight of 3900gm. Menarche was at 13 years and the menstrual cycle length is 29-35 days and the flow last 5 days. The amount of flow is normal and there is no dysmenorrhea. She used DMPA for family planning for 5 years until 1997 when she stopped to conceive.

Past medical history

This was not significant

Family and social history

She is married and works at Blue shield insurance company, Nakuru. She does not take alcohol or smoke cigarettes.

Physical examination

She was in good general condition on admission, and vital signs were within normal limits.

Abdominal examination: There were no scars or therapeutic marks and abdominal control was normal. The abdomen was soft and there was no organomegaly. Pelvic examination: The external genitalia were normal. In supine position, the cervix was in normal position. The descent on valsava manoeuvre was not documented in erect position; the cervix prolapsed upto the hymenal ring (POPQ II) on valsava manoeuvre. There was no cystocele or rectocele. Cervix was noted to be elongated. Cardiovascular and respiratory system were essentially normally.

Diagnosis

Genital prolapse with cervical elongation

Differential diagnosis

Uterine prolapse

Investigations

- Hb 14.3/dl
- Urea 2.4 mmol/L
- Electrolytes: Na+ 139mmol/L, K + 3.5 mmol/L , creatimine 90 micromol /l
- Abdominal /pelvic ultrasound was not done
- Pap smear was normal

Plan of management

The patient was prepared for elective operation i.e. Manchester operation. She signed an informed consent and was taken to theatre after premedication in with IM atropine 0.6mg was given V2 hour prior to going theatre. A drip of dextrose 5% was started. General anaesthesia was induced and maintained and the patient was put in lithotormy position. Findings and procedure: Examination under anaesthesia was performed and she was found to have uterine prolapse (degree not assigned) with no cystocele or rectocele . The cervix was elongated measuring about 5 cm long and looked grossly normal. The uterus was clinically normal in size. Anterior colporrhaphy and colpo-suspension was performed with satisfactory attainment of uterine position. Postoperatively, she was put on IM pethidine 75mg pm and oral metronidazole 400mg tid and amoxicillin clavulinate 625mg BD for 5days. Advice was given to practice kegels exercise and abstain from sexual intercourse for 2 months. A vaginal pack was left in situ and then removed after 48hours. An in dwelling catheter was retained for 14 days. On the 4th postoperative day she developed a mucoid vaginal discharge and subsequently a high vaginal swab was taken for microscopy, culture and sensitivity. The repair area was intact. Culture results showed no organisms on gram stain an culture yielded mixed flora of E.coli, enterocci, coagulase negative staphyloccus sensitive to augmentin and ciprofloxacin. In view of this report she continued with augmentin for a total of 10days and subsequently allowed home on the 7th postoperative day to be reviewed in 2 weeks in the GOPC.

Follow up

The catheter was removed at PGH Nakuru, on the 14th postoperative day and she remained continent. She was reviewed on the 20th post operative day in the GOPC. She revealed that she felt like all is well and did not have the same feeling of vaginal fullness even on valsava manoeuvre. She did not have any vaginal discharge and was passing urine normally; except for mild lower abdominal pains on exertion. She was discharged from the clinic on mefenamic acid capsules for pain to be followed up by her gynaecologist in PGH Nakuru.

DISCUSSION

A case is presented of a 39 year old lady admitted with pelvic organ prolapse [POPQ II] and who underwent anterior colporrhaphy and colpo-suspension. She recovered well after the surgery and had no symptoms at the follow up visit.

Pelvic organ prolapse refers to protrusions of the pelvic organs into or out of the vaginal canal. The word 'prolapse' is derived from the Latin word prolapsus, a slipping forth and refers to the falling out of place of a part of viscus. Prolapse is descent of the pelvic organs into the vagina, often accompanied by urinary, bowel, and sexual or local pelvic symptoms[1]. Prolapse is a common and disabling condition. The organs of the urinary, genital and intestinal systems share common anatomic supports which are[2];

- The bony pelvis-this provides little support by surrounding and protecting its contents

- Muscles of the pelvic floor-the levator ani muscles have the ability to contract and offset increases in intra-abdominal pressure that would otherwise force the pelvic contents downwards.

- Pelvic ligaments-these serve to keep structures in positions where they can be supported by muscular activity rather than weight bearing structures themselves.

- Connective tissue-this is binding substance in the body and is affected by factors such as stress, hormonal changes, exercise and nutrition. Connective tissue abnormalities have been shown to be a significant factor contributing to prolapse and related conditions.

The patient presented was 39 years old and had delivered two times. Genital prolapse is thought to be rare in the African population compared to the Asian and western population. The incidence of genital prolapse is difficult to determine, as many women do not seek medical help. It has been estimated that half of parous women lose pelvic floor support,

resulting in some degree of prolapse, and that of these women only 10-20% seek medical care[3]. In the United Kingdom genital prolapse accounts for 20% of women on the waiting list for major gynaecological surgery[4]. The chance of a woman having a prolapse increases with age. Thus the incidence of prolapse will rise as life expectancy increases. Local incidence is not known but admission rates to KNH show a probable rate of about 1 in 100 or more. Mwalali[5] reported an incidence of 0.1% at KNH with most patients being above 40 years.

Our patient had anterior compartment prolapse and presented with lower abdominal pain, with associated feeling of heaviness in the vagina. Prolapse can occur in the anterior, middle or posterior compartments and depending on the location, the presenting symptoms will vary. It may also be asymptomatic and be an incidental finding and clinical examination may not necessarily correlate with symptoms. The causes of genital prolapse are thought to be multiple but certain conditions predispose to prolapse. These may be divided into:

- Congenital-such as bladder extrophy and collagen defects.
- Race-the whites have a higher risk compared to other races.
- Anatomical defects such as congenitally short vagina may play a role
- Childbirth trauma and denervation may predispose to prolapse. Injury sustained during delivery inevitably stretches and sometimes tears the supports of the pelvic viscera.
- Raised intra-abdominal pressure as in patients with chronic obstructive airway disease, ascites, tumour such as large cervical polyp causing traction on the uterus and those who strain as in constipation and weight lifting
- Menopause may predispose to prolapse due to oestrogen deficiency
- Pelvic surgery such as hysterectomy, colposuspension may predispose to prolapse.
- Sacral neural disorders especially injury to S1-4 as in spina bifida, diabetic neuropathy, caudal anaesthesia accidents, and presacral tumour.

Our patient probably had inherent weakness.
Anatomically, prolapse can be divided into the following;

- Anterior compartment prolapse-prolapse into the vagina or the urethra (urethrocoele) or bladder (cystocoele) or both (cystourethrocoele)
- Middle compartment prolapse- uterine or vault descent and enterocoele (herniation of the pouch of Douglas).
- Posterior compartment prolapse-prolapse of the rectum into the vagina (rectocoele)

Our patient had anterior and middle compartment prolapse. Enterocoeles may contain small bowel and omentum. Cystourethrocoele is the commonest type of prolapse, followed by uterine descent and then rectocoele. Urethrocoeles are rare \ Traditionally uterine descent is graded as:

- 1st degree- descent is within the vagina and does not reach the level of the introitus.

- 2nd degree- descent to the level of the introitus. The cervix protrudes through the vulva when the woman strains.

- 3rd degree- descent outside the introitus. Also known as procidentia. The entire uterus prolapses outside the vulva. The whole vagina or at least the whole of its anterior wall is inverted. Our patient had 1st degree prolapse of the uterus.

Currently the pelvic organ prolapse quantitative exam (POP-Q) is being used to provide clinical grading of prolapse. It uses the hymen as the fixed point of reference. It includes the following stages;

Stage 0 No prolapse

Stage 1 Most distal portion of prolapse is more than 1cm above the level of the hymen.

Stage 2 The most distal portion of prolapse is less than 1cm proximal to or distal to the plane of the hymen.

Stage 3 Most distal portion of prolapse is more than 1cm below the plane of the hymen but protrudes no further than 2cm less than the totah/aginal length in centimeters.

Stage 4 Complete eversion.

Our patient had stage 2 prolapse.

She presented with a feeling of mass protruding and chronic backache, urinary urgency and incomplete bladder emptying. The presenting symptoms will depend on the extent and site of the prolapse. Symptoms common to all types are a feeling of dragging, or a lump in the vagina, or something coming down, heaviness in the pelvis, low backache and lower abdominal and inguinal pulling discomfort. Some of the specific symptoms are;

- Urinary- stress incontinence, frequency, urgency and urge incontinence. Hesitancy, poor or prolonged urinary stream and a feeling of incomplete emptying. Manual reduction to start or complete emptying or positional changes may be required in patients with cystourethrocoele. Accumulation of residual urine can lead to urinary tract infection. Obstructive uropathy can result in severe cases of prolapse.
- Bowel symptoms- may be difficulty in defecation, incontinence of flatus, liquid stool. There may also be urgency of defecation or digitations or splinting of vagina, perineum, or anus to complete defecation. A feeling of incomplete evacuation or rectal protrusion during or after defecation due to rectal prolapse may be noted.
- Sexual symptoms- inability to have or infrequent coitus and dyspareunia or lack of satisfaction or orgasm may be experienced. There may also be incontinence during sexual activity.
- Other local symptoms- feeling of pressure in the vagina, low back pain relieved by lying down is due to traction on the uterosacral and cardinal ligaments. In complete procidentia bleeding from ulceration of the exposed cervix may occur.

The patient with genital prolapse should be examined in the left lateral or standing position with a Sim's speculum, inserting it along the posterior vaginal wall to assess the anterior wall and vault and vice versa.

Investigations done in patients with genital prolapse include;

- Urinalysis to exclude urinary tract infections
- Urodynamic studies such as cystometry and uroflowmetry are also recommended.

- Imaging studies such as pelvic fluoroscopy with barium contrast in the vagina, small bowel and rectum may help. Intravenous urography may help to exclude obstructive uropathy[8]. This test was not done in our patient.

Since our patient was symptomatic, she was treated by anterior colporrhaphy and colposuspension. The treatment of patients with genital prolapse can be either conservative or surgical. Prophylactic measures for preventing prolapse include diagnosis and treatment of chronic respiratory disease and metabolic disorders, correction of constipation and intraabdominal disorders that may cause chronic increases in intra abdominal pressure. Administration of oestrogen to postmenopausal women who have no contraindication to its use may also help. Weight control, proper nutrition, smoking cessation and avoidance of strenuous occupational and recreational stresses that could damage the pelvic support system should be encouraged. Pelvic muscle exercises as a method of strengthening the pelvic diaphragm and as prophylaxis against development of pelvic organ prolapse should be encouraged in all women. Exercise may limit progression of mild prolapse and alleviate symptoms such as low back pain and pelvic pressure[9].
Symptomatic pelvic organ prolapse can be managed by nonsurgical and surgical methods. Treatment is determined by;

- Age of the patient
- The desire for future fertility
- The desire for coital function
- The severity of symptoms and degree of disability
- The presence of medical complications.

Nonsurgical treatment involves the use of pessaries. Pessaries are used in

- Patients unfit, waiting for, or who have declined surgery.
- Women who may want to bear children
- In the management of prolapse in neonates, which can occur together with neural defects such as spina bifida.

Pessaries are available in a variety of sizes and shapes to suit different patients and are of two main types

- Support pessaries- these rest under the symphysis and sacrum and elevate the vagina. They include the Ring pessary, Gehrung pessary and the Hodge pessary.
- Space occupying pessaries including the Cube pessary, Doughnut pessary and the Gellhorn pessary

Pessaries press against the walls of the vagina and are retained within the vagina by tissues of the vaginal outlet. They may cause vaginal irritation and ulceration. They are well tolerated when the vaginal epithelium is well oestrogenised. When adequate follow up is not assured they should not be used as they can become impacted within the vagina and, rarely ulcerate into the bladder or bowel[1]. Periodically, vaginal pessaries should be removed, cleaned and reinserted failure of which can result in fistula formation.

Indications for surgery include;

- Desire for definitive surgical correction
- Failure of pessary or recurrent vaginal ulcerations with a pessary
- Genuine stress incontinence that the patient finds unacceptable

The goals of surgical correction for prolapse are to relieve symptoms, restore normal anatomic relationships, restore normal visceral function, and allow satisfactory coital function. Operations can be classified by compartment and by approach. It is important to enquire whether the woman is sexually active before considering vaginal surgery, as this may alter the choice of surgery. Other factors that may influence choice of surgery are the patients' fitness, and the surgeon's experience. There is lack of data on pregnancy outcomes and childbirth after surgery for prolapse. If the prolapse remains corrected and the patient conceives, delivery by elective caesarean section is advisable. Generally women should avoid lifting heavy weights and avoid sexual intercourse for 6-8 weeks[1].

- Operations in the anterior compartment- Anterior colporrhaphy. This operation rectifies a cystourethrocoele. It is no longer the first treatment of choice for major urethral sphincter incompetence; instead tension free vaginal tape (TVT) may be inserted with

an anterior repair. Colposuspension is indicated for urethral sphincter incontinence associated with a 2nd or 3rd degree cystourethrocoele. Our patient was treated with anterior colporrhaphy.

- Operations in the middle compartment - Vaginal hysterectomy is now the treatment of choice rather than the Manchester repair. Vaginal hysterectomy can be combined with an anterior or posterior repair if a cystocoele is present. The Manchester repair involves anterior and posterior colporrhaphy combined with cervical amputation[2]. This operation is done in patients who are poor surgical risks. A sacrohysteropexy can be performed on women who wish to retain the uterus. It involves attaching the uterus to the anterior longitudinal ligament over the sacrum with a Y shaped graft[11]. Vault prolapse and enterocoele may be repaired using either sacrospinous fixation, ileococcygeal hitch or pubocervical rectovaginal repair. Abdominal or laparoscopic sacrocolpopexy are other alternative procedures.
- Operations in the posterior compartment - A rectocoele can be repaired by levator ani plication or by repair of discrete fascial defects. Posterior colporrhaphy may be combined with perineorrhaphy or perineoplasty if the perineal body is noted to be deficient and the patient has a good introitus[2].

Abdominal approach involving total abdominal hysterectomy and obliteration of any associated enterocoele can also be used to treat prolapse. However this method can be more morbid and time consuming and is optimal when combined with transvaginal repair of cystocoele and rectocoele. Vaginal obliterative operations (Le Fort's operation or vaginectomy) are rarely indicated in elderly women who are poor surgical candidates and who no longer desire coital function [2]. Complications of surgery include haemorrhage, sepsis and injury of contiguous organs, vessels and nerves. Possible long-term complications include postoperative urinary incontinence/retention and recurrent prolapse

Complications of untreated genital prolapse include[12]

- Decubitus ulceration of the vaginal epithelium or exposed cervix
- Leucorrhoea, abnormal uterine bleeding
- Hypertrophy of the cervix

- Keratinisation of the vagina
- Urinary tract infection
- Obstructive lesions of the urinary tract with hydronephrosis in procidentia
- Haemorrhoids result from straining to overcome constipation
- Small bowel obstruction from a deep enterocoele is rare.

The patient presented had an anterior colporrhaphy and colposuspension, the procedure was chosen since the patient was relatively young and in the childbearing age.

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Cold gynaecology short case 9

Symptomatic uterine fibroids - TAH carried out

Name	H.M
Ip No	1072985
Age	45
DoA	13/3/06
DoD	20/3/06
Parity	1+0

Presenting complaints

The patient presented to our gynaecological outpatient clinic with history of per vaginal bleeding for 2 years and occasional lower abdominal pains.

History of presenting complaints

The patient started noting prolonged menses from about 2 years prior to presentation. The duration of the menses increased to 6-7 days was fresh and sometimes in clots. She had history of dizziness on occasions but there were no palpitations, easy fatigability or leg edema. She was seen in several clinics prior to being sent to KNH to attend the clinic.

Obstetric and gynaecological history

She was a Para 1+0 the last delivery 1987. LMP was on 7/2/06. Her delivery was at a hospital, a male, who weighed 3.1kg at term and was alive and well. Menarche was at 14 years of age. Her periods lasted 4 days and were heavy and the length of the cycle was 27 days. She had history of dysmenorrhoea. She had Pap smear only once. She also had used oral contraceptive only briefly for a year in the past.

Past medical history

She had no history of prior hospitalization or surgery. She had no known drug or food allergies.

Family social history

She was married and stayed with her husband. She was a housewife and lived in Kasarani. The husband was a surveyor. No history of alcohol consumption or smoking. There was no history of a chronic illness in the family.

On **examination,** she was in fair general condition, not pale, no lymphadenopathy. Bp was 130/90mmHg, PR 82/min, RR 22/min and temperature 36.2° C. the chest was clear with good air entry bilaterally. The cardiovascular system was essentially normal.

The abdomen was moving with respiration with obvious distension. A firm irregular mass which was non tender, arising from the pelvis was palpated. It corresponded to 24 weeks gestation. There was no hepatomegaly on splenomegaly.

Vaginal examination revealed normal external genitalia, vaginal walls were normal, the cervix was posterior, firm and closed. The uterus was bulky, the PoD was empty and the adnexial non tender.

Investigations done:

- Pelvic ultrasound -the uterus is anteverted, non gravid but grossly enlarged with multiple low echo/calcific myometrial masses suggestive of uterine fibroids. Both ovaries were not visualized due to obscuring uterine fibroids. There is no free fluid in the pouch of Douglas. The liver spleen and both kidneys are normal. Conclusion -large calcific uterine fibroids.
- Pap smear -satisfactory for evaluation, endocervical cells are present, occasional groups of atypical squamous cells of undermined significance are seen.
- Urinalysis -NAD
- Hb 9.6g/dl, wbc 5.21X10 9/l, thrombocytes 237X10^{9}/!
- Urea 4.3mmol/l
- Creatinine 87 umol/l

A diagnosis of symptomatic uterine fibroids was made. Despite her low parity the patient did not wish to have conservative surgery and therefore consented for total abdominal hysterectomy.

Consent was obtained and blood drawn for grouping and cross matching.

The operation was carried out on 16/3/06. The uterus was noted to be grossly enlarged with multiple fibroids >10cm in diameter and also a few pelvic adhesions were encountered. The left ovary was also grossly enlarged and cystic. Right ovary was cystic but grossly normal sized. A total abdominal hysterectomy was carried out as explained in the introduction with also left oophorectomy.

She did well post-operatively and was allowed home on the 4th post operative day. She was reviewed on 4/4/06. The wound had healed well and apposed. She was on hematinics.

Histopathology report showed uterine leiomyomata.

DISCUSSION

The patient presented was a 45 year old Para (1+0) admitted with lower abdominal pain and menorrhagia due to uterine fibroids. A total abdominal hysterectomy was performed with good results.

Various terms have been used to describe this benign uterine tumor including fibromyoma.myofibromajeiomyomajeiomyofibroma.fibroleiomyoma.myoma.fibroma and fibroid, the last designation being the most commonly used but the least accurate[1]. Uterine leiomyoma is a benign neoplasm composed primarily of fibrous connective tissue especially in larger and older tumours It's a well circumscribed tumor surrounded by a false capsule (pseudocapsule) which is made of compressed normal uterine muscle. Leiomyomas are present in 20-25% of reproductive age women and found 3-9 times more frequently in black than white women. It's estimated that as many as 50% of black women will have this tumour by the fifth decade of life. Leiomyomas may be intramural, subserous, submucous, intraligamentary or parasitic[2]

The cause of Leiomyomata is unknown but hormonal factors especially estrogen, growth hormone and progesterone may influence their rate of growth [2 3 4]- Estrogen has been implicated especially due to the increasing size of myomas in pregnancy and the

regression pattern during menopause[4,5]. They are also not detected before puberty[2]. Use of antiestrogens or progesterone over a period of time limits the growth of Leiomyomas [6 7]Estrogen receptors have been found in higher concentration in the myomas than in the surrounding myometrium[1,9] Leiomyomas are usually multiple, discreet and superficial or irregularly lobulated. The largest tumour was reported in 1888 [18] weighing 65kg but tumors of 4-5kg are not rare, but most are smaller. They develop more commonly in the uterine corpus and less commonly (1-2%) in the supravaginal portion of the cervix [3,4]. Our patient had multiple intramural and submocous fibroids when the uterus was opened after operation. Majority of leiomyomas are a symptomatic with only 35-50% presenting with symptoms [2] .These symptoms depend on the location, state of their preservation and whether the patient is pregnant[2] Abnormal uterine bleeding is the most common clinical manifestation occurring in up to 30 % of symptomatic patients [2], Wanjala [10]1980 found that 54.6% of the patients seen in Kenyatta National Hospital presented with menorrhagia and dysmenorrhoea. The menstrual flow may be heavy, or prolonged or both or intermenstrual. Submucous, intramural and subserous tumors may cause abnormal bleeding but the bleeding is more common and severe in the presence of submucous tumours [1] It is important to note however that the mere presence of leiomyomata in a woman who has abnormal uterine bleeding is not a proof that the leiomyomata are the cause especially if she has inter menstrual bleeding[1] .The pedunculated submucous tumour leads to intermenstrual bleeding [1]. Other causes should be ruled out. Our patient had a pelvic examination, ultrasound scanning and pap smear which all revealed normal adnexial and cervix. The abnormal uterine bleeding frequently leads to iron deficiency and our patient had a slight low haemoglobin level of 9.6g%. Pain is a less common symptom in leiomyomas and occurs when vascular compromise is present[2] Therefore, this occurs from degeneration associated with vascular occlusion, infection, torsion of a pedenculated tumour or myometrial contractions to expel a submucous myoma, or acute carneous or red degeneration. Dysmenorrhoea acquired in the 4th or 5th decade of life may be the outstanding symptom and usually associated with heavy menstrual flow [1'] These patients will commonly have associated pelvic disease for instance ovarian pathology, pelvic inflammatory disease. Our patient was 45 years old, had dysmenorrhea with menorrhagia and at operation had mild to moderate adhesions due to possibly pelvic inflammatory

disease. Pressure symptoms may result from the Leiomyoma and these include bladder symptoms (which is more commonly affected) giving rise to frequency of micturition urine retention or overflow in incontinence [1] The ureters may be compressed at the pelvic brim resulting in hydroureters Constipation may also be seen. Infertility is a frequently presenting symptom but the association between myomas and infertility is still unclear. Whenever myomas are discovered during infertility workups, other causes of infertility should be further evaluated [12] However Leiomyomas are the sole cause of infertility in 2-10% of patients [2] Wanjala[(10)]1980 found evidence of PID in 73.7% of patients at operation in Kenyatta National Hospital and also found out that over 75% of patients in Kenyatta National Hospital with uterine fibroids were Para 2 or less than 85% had not delivered in the past 6 or more years. Our patient was Para (1+0) with last delivery being 19 years previously. Spontaneous abortion is also known to occur more commonly, possibly two times more the incidence in pregnant women. For instance the incidence of spontaneous abortion before myomectomy at 41 % is halved to 19% after myomectomy [3] Myomas are easily discovered by routine bimanual examination of the uterus or sometimes by palpation of the lower abdomen. Imaging techniques are commonly used to confirm the presence of the myomas. These include pelvic,_ultrasound examination which is affordable and very useful. Plain abdominal X rays, may be used where calcifications of the tumour may be noted. Hysterosalpingography maybe useful in detailing submucous leiomyomata. Intravenous pyelography is very useful as it reveals ureteric deviations, compressions and identifies urinary track anomalies. Magnetic resonance imaging is highly accurate in depicting the number, size and location of myomas, but is rarely necessary. It's also expensive. Complication of myomas include degenerative changes such as hyaline, cystic, fatty, red degenerative changes, calcification, infection, and sometimes .torsion in pedunculated tomours and parasitic attachment to other intra abdominal structures. Malignant transformation is rare and occurs in 0.2-0.5% of cases[4]. Management of Leiomyomata depends on the patients ^ge, parity, pregnancy status, desire for future fertility, general health severity of symptoms, as well as the size, location and state of preservation of the leiomyomas. Depending on above consideration, management of leiomyomas may be expectant, conservative, medical or surgical. General measures of initial management include correction of the anaemia, a pap smear to rule cervical

malignancy and diagnostic dilation and curettage for the patients with irregular uterine bleeding to rule out associated endometrial carcinoma. Our patient had mild anemia and her pap smear was normal and did not undergo diagnostic dilatation and curettage treatment as she had regular but heavy menses. Tumours which are symptom less, less than 10-12 weeks size and are slow growing do not generally need treatment but need timed careful observation [3,5] Tumours greater than] 0-12weeks size or rapidly growing or symptomatic should be managed either surgically or medically [3i 5] Surgery is the definitive treatment of uterine leiomyomata especially when they are symptomatic, rapidly growing or greater than 10-12 weeks size [1] Surgery maybe tailored to the needs of the patient and can include myomectomy, total abdominal hysterectomy and total vaginal hysterectomy. Myomectomy should be planned for the symptomatic premenopausal patient who wishes to preserve fertility. However over 1/3 of the patients when followed for more than five years develop recurrent leiomyomas and over 20% need hysterectomy [1112]

In Wanjala[10] series at Kenyatta National Hospital, 15.5% of the patients underwent myomectomy and of these 6.3% later required hysterectomy. Hysterectomy is the most definitive treatment especially for women with symptomatic tomours and who have no desire for future fertility. The ovaries are preserved if the woman is less than 45 years [12] Uteri with small myomas are removed by a total vaginal hysterectomy especially if vagina relaxation demands repair of cystocoele, rectocoele or enterocoele. Our patient was 45 year old with Leiomyoma corresponding to 24 weeks size and had no desire for future fertility. Hence a total abdominal hysterectomy was performed with preservation one ovary.

Medical alternatives- are evolving and the readily available ones create artificial menopause or induction of hypoestrogenemic state. These include progestins, danazol and gonadotrophin release hormone (GnRH) analogues. The latter have proven to be the most promising [1] They shrink the tumor and make it less vascular and hence amenable to surgery for example myomectomy or total vaginal hysterectomy. The drugs may be used to control bleeding pre-operatively due to the bleeding leiomyomas. Other non surgical alternatives include embolization of the uterine arteries which has proved to be effective in shrinking these tumours. Laparoscopy/hysteroscopy are now increasingly being used for

myomectomies or hysterectomies. Hysterescopy can be used for removal of submucous myomas while laparoscopy can be used in laparoscopic assisted vaginal hysterectomies or myomectomy of subserous fibroids.

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Gynaecology short case 10

TWISTED OVARIAN CYST

NAME M.M.

OP NO 1112002

AGE 26 YEARS

DOA 06/08/06

DOD 10/08/06

Para 0+0

Presenting complaints

Left iliac fossae pain for 2 days

History of presenting complaint

She had been well till 2 months prior to presentation. She started having sharp pains in the left iliac fossae first noticed during an episode of running two months before. This subsided gradually, it was not throbbing in nature, not radiating. Two days prior to presentation the pain recurred. This time it was severe and was associated with vomiting, which was non projectile, there were no urinary symptoms, and she did not notice any abdominal distension or change in bowel movements. It was slightly relieved by analgesics.

Obstetric and gynaecological history

She was nulliparous, her last menstrual period was on14/7/06, menarche was at 13 years of age. Her flow lasted 3 to 4 days, was moderate, with associated mild dysmenorrhoea. She was not currently on contraception.

Past medical history

There was no history of prior surgery, no history of admission, no known drug allergies or prior blood transfusion.

Family social history

She was married and resided with husband in Huruma. She was a sales lady and her husband self employed in business.

On **examination** she was sick looking, and in pain. Vital signs; **BP** 110/60mmhg, pulse rate 84 b/min, respiratory rate 20 breaths /min and temp 37.4 , she was not pale, no jaundice, no lymphadenopathy and no edema. Chest examination was normal cardiovascular system both heart sounds were heard and normal, no murmurs were noted. Abdominal examination: she had a scaphoid abdomen moving with respiration. There was slight distension in the left iliac fossae. A mass was palpated which was smooth, regular surfaced, tender and approximately 10cm in length. It arose from the pelvis and as such could not go below it. Vaginal examination showed normal external genitalia, vaginal walls were normal, cervix was posterior, firm and closed, adnexial was tender and full, with cervical motion eliciting tenderness. No discharge was noted on the examining fingers.

A diagnosis of ? twisted ovarian cyst was made.

Investigation done:

- Pelvic ultra sound -there all two simple cysts, well defined with thin walls and distal echo enhancement in the LIF, apparently arising from the left ovary. They measure approximately 110mm and 50mm. The uterus is normal size and is anteverted, the cul-de-sac is clear, no other pelvic or abdominal pathology is seen. Conclusion left ovarian cyst, no sonographic evidence of an abscess.

- FBC Hb 14.9g/dl, wbc 13.1 x 10^9/l, had a neutrophilia of 83.3%, platelet count was 352x10^9/l.
- Urinalysis - amber, slightly turbid, ph 6.0, protein nil, no glucose, no leukocytes.

- Na 127 mmol/l, K 3.3 mmol/l, urea 4.6 mmol/l, Creatinine 89 pmol/l.

Consent was obtained for laparatomy and blood taken for grouping and cross match. Atropine premedication was given 0.6mg Yi hour prior to operation.

In theatre

Patient was placed supine and general anesthesia induced. She was intubated. WT was done in lithotomy position and catheterized aseptically. The abdomen was then cleaned and draped. It was open via a pfannelsteil incision. The bladder was retracted. Intra-operatively a large twisted ovarian cyst was encountered approximately 12cm in diameter, it had already turned black in color, but the capsule was intact. A simple cystectomy was carried out and the stump ligated with No. O vicryl suture. The left tube and part of the ovarian tissue was left intact. The right tube and ovary were grossly normal. Other intra abdominal structures were grossly normal. Peritoneal lavage was carried out using saline. The instruments and swabs were counted correct and the abdomen was then closed in layers. The rectus via vicrly no. 1 and the skin via subcuticular no. 3/O.The wound was then dressed. Patient was reversed from anesthesia uneventfully. She was started on in fluids, iv antibiotics and analgesics. When fully awake she was transferred back to the acute gynaecology ward.

Review on 7/8/06. She was in good general condition, not pale, temperature was 36.5, BP 100/60mmhg and respiratory rate 20/ min. She complained of abdominal pain. Chest exam was normal. Abdomen was soft slightly tender and bowel sounds were noted. The wound dressing was not soiled. Bowel sounds were heard. She was started on oral sips to be graduated to light diet later in the day. Subsequent reviews, the patient remained stable and she was discharged home 10/8/06 on antibiotics and analgesics. She was scheduled for review in the gynaecology out patient clinic in two weeks time.

DISCUSSION

M.M. was a 26 year old Para 0+0 who presented with acute torsion of an ovarian cyst and underwent a laparatomy at which time a simple cystectomy was carried out.

An ovarian cyst is a sac filled with liquid or semi-liquid material arising in an ovary. The finding of an ovarian cyst causes considerable anxiety for women because of the fear of malignancy, but the vast majority of ovarian cysts are benign[1].

Each month, normally functioning ovaries develop small cysts called Graafian follicles. At mid cycle, a single dominant follicle up to 2.8 cm in diameter releases a mature oocyte. The ruptured follicle becomes the corpus luteum, which, at maturity, is a 1.5- to 2-cm structure with a cystic center. In the absence of fertilization of the oocyte, it undergoes progressive fibrosis and shrinkage. If fertilization occurs, the corpus luteum initially enlarges and then gradually decreases in size during pregnancy. Ovarian cysts arising in the normal process of ovulation are called functional cysts and are always benign. They may be follicular and luteal, sometimes called theca-lutein cysts. These cysts can be stimulated by gonadotropins, including follicle-stimulating hormone (FSH) and human chorionic gonadotropin (hCG)[2].

Multiple functional cysts can occur as a result of excessive gonadotropin stimulation or sensitivity. In gestational trophoblastic neoplasia (hydatidiform mole and choriocarcinoma) and rarely in multiple and diabetic pregnancy, hCG causes a condition called hyperreactio luteinalis. In patients being treated for infertility, ovulation induction with gonadotropins (FSH and luteinizing hormone [LH]), and rarely clomiphene citrate, may lead to ovarian hyperstimulation syndrome, especially if accompanied by hCG administration[1,3].

Neoplastic cysts arise by inappropriate overgrowth of cells within the ovary and may be malignant or benign. Malignant neoplasms may arise from all ovarian cell types and tissues. By far, the most frequent are those arising from the surface epithelium (mesothelium), and most of these are partially cystic lesions. The benign counterparts of these cancers are serous and mucinous cystadenomas. Other malignant ovarian tumors may contain cystic areas, and these include granulosa cell tumors from sex cord stromal cells and germ cell tumors from primordial germ cells. Teratomas are a form of germ cell tumor containing elements from all 3 embryonic germ layers, i.e., ectoderm, endoderm, and mesoderm[2,4].

Benign cysts can cause pain and discomfort related to pressure on adjacent structures, torsion, rupture, hemorrhage (both within and outside of the cyst), and abnormal uterine bleeding[1,2,3,]. Our patient presented with pain as a result of torsion.

Functional ovarian cysts occur at any age (including in utero), but are much more common in reproductive-aged women[1]. They are rare after menopause. Luteal cysts occur after ovulation in reproductive-aged women. Most benign neoplastic cysts occur during the reproductive years, but the age range is wide and they may occur in persons of any age[5].

The incidence of epithelial ovarian cystadenocarcinomas, sex cord stromal tumors, and mesenchymal tumors rises exponentially with age until the sixth decade of life, at which point the incidence plateaus. Tumors of low malignant potential occur at a mean age of 44 years, with a span from adolescence to senescence. The average age is more than a decade less than that for invasive cystadenocarcinoma. Germ cell tumors are most common in adolescence and rarely occur in those older than 30 years[6].

The majority of ovarian cysts are asymptomatic. Even malignant ovarian cysts commonly do not cause symptoms until they reach an advanced stage. Pain or discomfort may occur in the lower abdomen. Torsion (twisting) or rupture may lead to more severe pain. Patients may experience discomfort with intercourse, particularly deep penetration. Having bowel movements may be difficult, or pressure may develop, leading to a desire to defecate. Micturition may occur frequently and is due to pressure on the bladder. Irregularity of the menstrual cycle and abnormal vaginal bleeding may occur. Young children may present with precocious puberty and early onset of menarche. Patients may experience abdominal fullness and bloating. Patients may experience indigestion, heartburn, or early satiety. Endometriomas are associated with endometriosis, which causes a classic triad of painful and heavy periods and dyspareunia. Polycystic ovaries may be part of the polycystic ovary syndrome, which includes hirsutism, infertility, oligomenorrhea, obesity, and acne[5].

Ultrasonography is the primary imaging tool for a patient considered to have an ovarian cyst[1,2,7]. Findings can help define morphologic characteristics of ovarian cysts. Simple cysts are unilocular and have a uniformly thin wall surrounding a single cavity that contains

no internal echoes. These cysts are unlikely to be cancerous. Most commonly, they are functional follicular or luteal cysts or, less commonly, serous cystadenomas or inclusion cysts. Complex cysts may have more than one compartment (multilocular), thickening of the wall, projections (papulations) sticking into the lumen or on the surface, or abnormalities within the cyst contents. Malignant cysts usually fall within this category, as do many benign neoplastic cysts. Hemorrhagic cysts, endometriomas, and dermoids tend to have characteristic features on sonograms that may help to differentiate them from malignant complex cysts. Sonograms may not be helpful for differentiating hydrosalpinx, paraovarian, and tubal cysts from ovarian cysts. Endovaginal ultrasonography can help in a detailed morphologic examination of pelvic structures. This requires a handheld probe to be inserted into the vagina. It is relatively noninvasive and is well tolerated in reproductive-aged women and post-reproductive-aged women who are still engaging in intercourse. It does not require a full bladder. Transabdominal ultrasonography is better than endovaginal ultrasonography for evaluating large masses and allows assessment of other intra-abdominal structures such as the kidneys, liver, and ascites. It requires a full bladder.

Management is guided by several factors. Persistent simple ovarian cysts larger than 5-10 cm and complex ovarian cysts should be removed surgically[7,8]. Reserve a laparoscopic approach for patients who have undergone a thorough workup and are thought not to have malignant disease. Such patients include those considered to have a dermoid or endometrioma, those with functional or simple cysts that are causing symptoms and have not resolved with conservative management, and those presenting with acute symptoms. In all cases, one should be able to remove the cyst intact. A laparotomy should be performed on patients thought to have a significant risk for malignant disease and on patients with benign-appearing cysts that cannot be removed intact laparoscopically[1, 8]. Our patient underwent laparatomy.

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Gynaecology short case 11

Vesico-vaginal Fistulae

Name:M.N

D.O.A: 23/06/ 2006

D.O.D: 03/07/ 2006

Age: 18 years

IP. No: 1099412

Para: 1 + 0

Presenting Complaint

Continuous leakage of urine since last delivery by caesarian section (3 months prior to admission)

History of presenting complaints

M.N. was admitted through the WF clinic as referral from Murang'a district hospital with above complains. She delivered on 3rd March 2006 by caeserian section due to cephalipelvic disproportion (CPD). She was in labour for over 24 hours at a peripheral health facility. The outcome was a fresh stillbirth and birth weight was not documented. She started experiencing continuous leakage of urine as from the first post-operative day soon after removal of the indwelling catheter but this re-inserted upon noticing incontinence. Details of intra-operative bladder findings were not available. She stayed with the catheter for 2 weeks then it was removed but she continued having incontinence without worsening or relieving factors. At no point did she ever feel that the bladder is full. There was no weakness of her lower limbs or footjdrop.

Gynaecological and Obstetric History

Menarche was at 15 years of age. Her menstrual cycle length is 30 days with duration of flow of 3 days. The cycles are regular. The last menstrual period was on 3rd June 2006. She has never used any family planning. She never attended the antenatal clinic.

Family and social history

She is a standard 8 leaver staying with her parents in Murang'a. She is not married and is unemployed. There is no family history for chronic illness. She does not take alcohol or smoke cigarettes.

Past Medical History: This was not significant

Physical examination

She is a young girl of height 147 cms. There were no remarkable findings on general examination. The vital signs were within normal limits.

Abdominal examination: There was a lower midline incision and there were no palpable masses. The cardiopulmonary systems were essentially normal, as was the central nervous system. She had an indwelling catheter in situ and a dye test revealed a fistulae midway between the external urethral orifice and the cervix, in the left lateral fornix. The muscle power of the left and right foot (at the ankle joint) was grade 5.

Investigations

- Dye test
- Hb 12.3 g/dl
- Urea - 3.4 mmol/l, creatinine - 64 umol/l

Diagnosis

Vesico-vaginal fistulae

Plan of Management

The patient was admitted and an informed consent obtained for repair of the WF. She was starved overnight and pubic hair shaved. IV atropine 0.6 mg stat was given half an hour prior to going to theatre.

In theatre, she was put in lithotomy position, then cleaned and draped. After administration of epidural anaesthesia with marcaine. EUA was done and the findings were circumferential fistula that was about 1.5cms in diameter and 2cms from the external urethral orifice-(Type IIAb). Circumferential dissection of the fistula was done to releases the bladder from the anterior attachment (on the pubis symphysis). These was followed by mobilization of the bladder. The bladder was advanced to the urethra with vicryl 2/0 suture (vesico-urethrostomy) and the fistula closed with vicryl 3/0 suture in two layers making it watertight. The bladder was elevated by two non absorbable stay sutures on either side. Dye test was done and there was no leakage noticeable. The bladder was elevated with PDS II No 1 suture and then an indwelling catheter left in situ. A vaginal pack was also left in situ to be removed after 48 hours.

Postoperative Management

Our patient was put on IM pethidine 100 mg BD for 2 days, gentamycin 160 IV stat and plenty of fluids i.e. 6 litres per day. The vaginal pack was removed after 48 hours and the elevation sutures were trimmed on the seventh post-operative day and then discharged from the ward on the same day to come to the WF clinic on the 14th postoperative day for review. At the time of discharge, there was no urine leakage. She was advised not to have sexual intercourse for 3 months and mandatory delivery by caesarian section for subsequent deliveries.

Follow up

She came to the clinic on the 14th postoperative day and a dye test performed after establishing that the repair site was healed. Leakage was noticed around the catheter. The catheter was removed and she was sent to Murang'a district hospital to have pelvic (KegeTs)_exejcis.es.

She returned to the WF clinic after 2 weeks and reported that she experienced leakage of urine while standing I walking but no leakage while seated. A repeat dye test showed leakage around the catheter. The conclusion was stress incontinence. Further pelvic exercises were recommended then she was booked for review again after 4 weeks.

DISCUSSION

The patient IiLyear old Para 1+0 whose height was 147cm.She had sustained Vesico-vaginal fistula following obstructed labour and began to leak urine. Examination under anesthesia and repair was done in the same setting. No leakage of urine noted after repair.

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The actual incidence of fistula is impossible to calculate but Harrison has suggested an incidence 95 per 100,000 worldwide [1] There are several causes of vesicovaginal fistulae but the leading cause of vesico vaginal fistula (WF) in Africa is obstetric trauma reported that 87.8% of the cases of urinary fistula were labour related in .while Orwenyo[3] reported a rate of 90.7%. This is in contrast to developed countries where fistula [2] due to obstetric trauma is a rare occurrence. In Africa, there's an annual incidence of 100,000 to 150,000 fistula patients[4] with an estimate prevalence of 1-2 patients per 1,000 deliveries [2 3 5] Kees[4] has estimated a minimum of 1.5 million fistula patients awaiting surgery. Other causes of genital fistula, less than 10%, in Africa include^radiolherapy, genital tract malignancies and iatrogenic causes during jielvic surgery. The cause of obstetric fistula is pressure necrosis due to obstructed labour resulting in compression of the vesicovaginal septum. This leads to devitalization of tissue by ischemia leading to sloughing off between day 2 and 14 post partum [(6)]The area affected is usually the anterior vaginal wall and the bladder neck and base occasionally, there maybe involvement of the upper vagina and sometimes the anterior lip of the cervix. Undiagnosed cephalopelvic disproportion or neglected cephalopelvic disproportion commonly leading to obstructed labour are quite common, in Africa[(2,3,6)] A study done in Nairobi[(7)] showed that the average true conjugate among women sustaining fistula was less than 9 centimeters. A contracted pelvis due to protein energy malnutrition or disease like polio contributes to incidence of cephalo pelvic disproportion or obstructed labour. Therefore improvement in childhood nutrition may alleviate ipjeduction of contracted pelvis and its attendant sequelae. The anterior vaginal wall, the bladder and urethra are at more risk than the posterior vaginal wall and rectum. Our patient had an isolated vesical vaginal fistula. This was due to pressure necrosis at the bladder neck due to prolonged and neglected labour due to cephalopelvic disproportion. The lateral vaginal walls, with the levator and perineal muscles with their nerves are at

risk[4]. Isolated WFJs the commonest at (85%) of the patients with combined WF and recto-vaginal fistula at_(10-15%) of the patients. Isolated recto-vaginal fistula is very rare except for the 4th degree tears. In the majority of cases, the baby is still born or dies shortly after birth. The still birth rate has been reported to range between 64.79% and those born alive, 50% die in the neonatal period[2]. A perinatal mortality rate of 80.4% has been reported[3]. Kees reports 95% of the infants die and the mothers' survival is at risk[4]. Our patient delivered a fresh stillbirth.

Complications of obstetric fistula can be divided into intravaginal and extravaginal lesions include tissue loss of posterior urethra, bladder base and neck anterior rectum, pubocervical fascia, prerectal fascia, anterior and posterior vaginal walls.Others include vaginal stricture, stenosis, shortening, atresia and partial loss of cervix or uterus. The pubococcygeus musculature may also be lost resulting in bare pubic bones[4] Extravaginal lesions include loss of Jabia_ minora, foot drop due to perineal nerve palsy, secondary amenorrhea due to endometrial trauma and blood loss and vulva_ammonia dermatitis. Systemic effects include decubitus ulcers, Sheehans syndrome, general ill health and cachexia. Any woman who leaks urine_lollowing child birth should have an indwelling bladder catheter, whatever the cause, for instance, fistula, stress overflow incontinence[4]' By inserting a catheter for a minimum of 4 to 6 weeks, at least 15 to 20% of fistulas heal as well as the stress or overflow incontinence Smaller fistulaeless than 2cm may heal spontaneously in up to 60% of the patients[4] .OraLfluid intake should be promoted where :he woman takes 6 to 8 litres of fluids and keep a urine output 4 to 6 litres per day to keep the catheter open and prevent ascending infection. Antibiotics are not necessary and should only be given after a specific[4] indication. The patients general condition should be improved by good nutrition and control of the aneamia .Debridement of the slough as soon as possible should be undertaken[4] Our patient had an indwelling bladder catheter immediately she started leaking urine.

Classification of vesicovaginal fistulas according to anatomic or physiologic location[4]

Type 1 Do not involve the closing mechanism and are at least 5 centimeters away from the external urethral meatus.

Type II Involve the closing mechanism or are within 5 centimeters from the external urethra meatus.

A Without total urethral involvement

a Without circumferential defect,

b With circumferential defect

B With total urethral involvement.

a Without circumferential defect,

b With circumferential defect.

Type III Miscellaneous; for instance ureteric fistulae.

Further classification can be made according to size.

Small Less than 2 centimeters.

Medium 2 - 3 centimeters

Large 4 - 5 centimeters

Extensive Over 6 centi meters

Our patient at EUA had type IIAb vesicovaginal fistula and medium size.

Currently early closure of the fistula is advocated, as soon as the slough falls off[4] The operation becomes more difficult as one progresses from type I through type 2Bb, whilst the prognosis to closure and continence worsens progressively. The same applies to the sizes of fistula with extensive fistulas having a worse prognosis. The aim of the operation is to close the fistula with water tight closure of bladder and or the urethra and only adaptation or half open closure of the anterior vaginal wall[4], The following is done in each grades of the fistula.

Type I Only closure

Type IIAa Closure and maintenance of continence.

Type IIAb Circumferential repair by end to end vesicourethrostomy.

TypeIIBa Closure with urethral reconstruction with urethral tissue

Type IIBb. Urethral reconstruction with other tissues for instance bladder

Type III Ureter re-implantation.

Since patient had type IIAb fistula, closure and maintenance of continence was done. Post operative care is extremely important. An indwelling catheter is inserted and maintained

for minimum of two weeks with foleys catheter size 18[4].Fluid intake should be high at least 6-8 litres per day with a urine flow of 4 to 6 litres per 24 hours. Antibiotics are not necessary and should only be used as indicated for instance in other infections The site and extent of the fistula may affect operative success but an experienced surgeon with a competent nursing staff should achieve 75% success at first attempt and a further 15% at a second attempt[6] In our patient there was successful repair and she was highly motivated as she took plenty of fluids.

Post operative complications include stress and urge incontinence which are by far the commonest, failure of successful repair with attendant leakage, urethral --vesical junction stricture overflow incontinence [4] Post operative stress incontinence is managed by urethralization and anterior fasciocolpo suspension. Post operative urge incontinence is managed by strict bladder drill and urethral vesico stricture is managed by daily gentle dilation for two weeks; eventually combined with urethrotomy[4] Our patient remained continent after repair. If in doubt about continence, whether fistula is completely repaired the dye test with 20Jo 200 millilitres of gentian violet or methylene blue will confirm the diagnosis after instillation into the bladder. Follow-up of the patients is important. They should avoid coitus for at least three months after repair and subsequent deliveries should beJjyjaesarian section with adequate antenatal follow up [4] Prevention of obstetric fistula is by adequate antenatal and intrapartum care through provision of adequate maternity services with well trained personnel.

Cephalopevic disproportion should be detected early and obstructed labour relieved within three hours by caesarian section, Essential Obstetric Care as part of safe motherhood programmes is the key reducing maternal morbidity such as obstetric fistulae, Obstetric fistulae are wholly preventable. Factors responsible for this include lack of accessibility, lack of utilization of health care services and lack of facilities. Our patient had not attended any antenatal care and had stayed in labour for 2 days.

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Gynaecological short case 12

Cancer of the ovary- surgery and chemotherapy

Name M.M.K

IP No 1102151

Age 4S/F

DoA 26/6/06

DoD 8/10/06

Parity 3+0

Presenting complaints

She was admitted via the GOPC with complaints of abdominal distension, abdominal discomfort and abdominal pain for 3 months.

History of presenting complaints

She was well prior; she developed gradual abdominal distension associated with pain. She reported that the pain was colicky and worsened during passage of stool. The distension progressively increased and the pain worsened 2 weeks prior to admission. There was no blood in stool and she did not report any constipation. She also reported lack of appetite and los£_of weight of approximately 5kg in the last 3 months. There was however no change in menstrual flow, in amount or pattern.

Obstetric and gynaecological history

She was Para 3+0, and the last delivery was in 1997. Her last menstrual period was 2 weeks prior to admission. Menarche was attained at 16 years. She had a flow of 4 to 5 days and a cycle of 30 days. Her first delivery was in 1990 to a live male infant. She subsequently had 2 other deliveries to live male infants in 1993 and 1997. All these children were alive and well. She however could not recall their birth weights. She did report use of any other form of contraception. A pap smear was done in 2005, which she reported as normal.

Family social history

She was married and was a teacher by profession. They resided in Meru with her husband who was also a teacher. There was no family history of a chronic illness in the family. She did not smoke or take alcohol.

Past medical history

There was no significant past history. She had no known drug or food allergies.

On **examination** she was in fair general condition, not pale, no lymphadenopathy or edema. Vital signs were within normal. The chest and the cardiovascular systems were normal. On abdominal examination the abdomen was grossly distended. The flanks were full. Fluid thrill and dullness was positive on percussion. Mild tenderness was also elicited. She had a mass arising from the pelvis corresponding to 20 weeks gestation. It was relatively immobile. Vaginal examination revealed normal external genitalia, the cervix and vaginal walls were grossly normal. A mass that was continous with the uterus and felt nodular was palpable. There was also nodular extension to the PoD and adnexial and was firm in consistency.

A diagnosis of a pelvic mass, to rule out cancer of the oyary or uterine fibroids, was made.

Investigations done

- Abdominal/pelvic ultrasound; the uterus is anteverted and bulky and measures 12.3X9.2X8.0 cm. there are multiple hypoechoic myometrial lesions noted suggestive of fibroids. Two of the larger fibroids measures 3.6 X 4.4 and 3.3 X 3.5 cm. there is some little ascites present in the pelvis and in the abdomen. Both kidneys are normal in size and echo pattern. There is a complex mass in the left iliac fossa which has an echodjenic centre. Conclusion; features are suggestive of uterine fibroids with ascites with a possible left colonic mass, barium enema is recommended.
- Barium enema -features are suggestive of a short stricture in the sigmoid colon. Sigmoidoscopy and biopsy are recommended.

- UEC -Na 139 mmol/l, K+ 4.0 mmol/l, Urea 2.7 mml/l and creatinie 69 umol/l
- Hb 10.5g/dl, wbc 4.2 x 109/1, platelets adequate, ESR 44mm/hr
- HIV 1/11 -negative

She was counseled on the need for a laparotomy. She gave consent and blood for grouping and cross-matching was drawn.

Intra operatively the findings were. She had ascites, bilateral ovarian tumors with capsular rapture. The fallopian tubes were matted to the ovaries. Tumor was noted on the omentum, spleen and the liver surface, the peritoneal surfaces of the diaphragm, the colon, the uteroversical pouch of the colon were fixed to the abdominal wall and the small gut was matted to it.

The following was then done. Debulking of the tumor, omentectomy, subtotal hysterectomy and bilateral oophorectomy. A hemostat was left in situ due to slight oozing of blood. She was staged as ca ovary stage IV. She did well postoperatively.

Histology slowed malignant surface epithelial stromal tumor consistent with serious cystadenocarrinoma of the ovary.

She received further counseling and she was started on cytotoxics on 17/7/06 after ascertaining stable renal and liver function. She was put on cisplatin and cyclophosphamide. She was discharged home and asked to return after 3 weeks with results of a full hemogram, liver, renal function and CA 125. On 4/08/06 the CA 125 was 389.43 u/ml (normal 0-35). The CA125 were done erratically due to financial constraints and the next were 31 u/ml on 20/9/06. On 13/10/06 the CA125 was 30.59 u/m. she received her last course on 7/11/06 and at this time the CA125 was 12.23 u/ml. The blood level, the renal and liver function remained stable. She received a total of six courses at 3 weeks intervals. She was finally discharged home in stable condition on 8/11/06. She continues on follow-up at our oncology clinic.

DISCUSSION

This is a case of a 46 years old Para 3+0 lady who presented with carcinoma of the ovary and had sub-total abdominal hysterectomy and bilateral salpingo-oophorectomy and omentectomy followed by chemotherapy.

Cancer of the ovary comprises 25% of all malignancies of the genital tract. It is the fourth leading cause of death due to cancer in the United States of America. It has low incidence

in Japan, Spain and India. It is commonest in U.S.A and Western Europe[1]. At Kenyatta National Hospital, Njuki found that cancer of the ovary comprises 8% of all female genital malignancies. It ranked third in KNH as a cause of gynaecological malignant disease after cancer of the cervix and choriocarcinoma[2,4].

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Our patient was 46 years and had not used oral contraceptives previously. Worldwide the prevalence is age related with increased risk after 45 years and peak between 60 and 75 years with the majority of cases between 40 and 60 years. No definite etiological factors have been established for ovarian cancer, but it is known that the risk increases with age. Women of lQw_paiily, decreased fertility and delayed child bearing are at a greater-risk. There also seems to be^a familial predisposition in some women. Our patient did not have family history of ovarian or other cancers. Other studies have shown that early age at first

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pregnancy confe/S-grealeL protection against cancer than high parity. Breastfeeding has also been shown to be protective and an early menarche and late menopause are associated withjncreased risk. Use of oral contraceptives also is thought to decrease the risk of ovarian cancer in patients aged 40-59 years. This protection appears to persist as long as 10 years after discontinuing use of oral contraceptives. Tubal ligation is associated with a reduction in risk of developing ovarian cancer. Chronic anovulation, mujtiparity are also protective, pregnancy decreases the risk of ovarian cancer by 30-60%, oral contraceptives by 3Q-6Q%*depending on the duration of use. Other factors thought to be associated with ovarian cancer include; use of asbestos containing talc powder, previous pelvic irradiation and excessive dietary vitamin A, high fat diet and fertility drugs. Genetic factors also appear to play an important role in the development and progression of ovarian cancer. Although most cases of epithelial ovarian cancer are sporadic and exhibit no heritable tendencies, approximately 7% occur in women with suggestive family history. The most common pedigrees are sister/sister and mother/daughter patterns. Three heritable syndromes have been described; site specific ovarian cancer, familial cases of breast and ovarian cancer, cancer family syndrome characterized by the occurrence of colon cancer and adenocarcinoma of the ovary, breast or uterus or a combination also known as Lynch II syndrome (hereditary non-polyposis colon cancer syndrome). Molecular biologic studies suggest the presence of one or more tumour suppressor genes on

chromosome 17 may play a role in the aetiology of ovarian cancer[3'5]. Our patient did not have any of these risk factors.

Our patient had serous cystadenocarcinoma. Ovarian cancer may be divided into three major categories based on the cell type of origin. The ovary may also be the site of metastatic disease by primary cancer from another organ site. Unlike cancers of the cervix and endometrium, precursor lesions of ovarian carcinoma have not been defined. The major histopathologic categories of ovarian cancer are:

- Epil.he.liaL ovarian cancer; includes serous, mucinous, endometrioid, clear cell, transitional cell and undifferentiated cell types. Epithelial tumours account for over(60^ of all ovarian neoplasms and more than 90^a of malignant ovarian tumours. Ovarian serous cystadenocarcinoma is the most common malignant tumour of the ovary.
- Germ cell malignancies. These include dysgerminoma, endodermal sinus tumour, immature teratoma, embryonal carcinoma, choriocarcinoma, gonadoblastoma and mixed germ cell tumours.
- Sex cord stromal tumors including granulosa cell tumour, fibroma, thecoma and Sertoli leydig tumours.
- Neoplasms metastatic to the ovary. Usually from the breast, colon, stomach and endometrium.

The degree of cellular differentiation of the epithelial ovarian neoplasms is used to further grade the tumour. Grade 0 tumours are also known as borderline malignancies or tumours of low grade potential. Carcinoma of the ovary can be staged at surgery as follows (International Federation of Gynaecologic and Obstetric-FIGO staging); Our patient had at least stage NIC disease as she had peritoneal deposits. The stages are:

Stage I; Growth limited to the ovaries

IA; Growth limited to one ovary, no ascites containing malignant cells. No tumour on the external surfaces.

IB; Growth limited to both ovaries, no ascites containing malignant cells. No tumour on the external surfaces.

C Tumours either stage IA or IB but with tumour on the surface of one or both ovaries or with capsule ruptured, or with ascites present containing malignant cells or positive peritoneal washings.

Stage II: Growth involving one or both ovaries with pelvic extension.

IIA: Extension and/or metastasis to the uterus and/or tubes.

MB: Extension to other pelvic tissues.

110: Tumour either stage IIA or MB but with tumour on the surface of one or both ovaries, or with capsule(s) ruptured or with ascites present containing malignant cells or with positive peritoneal washings.

Stage III: Disease extension to the abdominal cavity.

IIIA: Abdominal peritoneal surfaces with microscopic metastases

1MB: Tumour metastases less than 2cm in size.

1110: Tumour metastases more than 2cm in size or metastatic disease in the pelvic, para-aortic, or inguinal lymph nodes.

Stage IV: Distant metastatic disease

Malignant pleural effusion, metastases to the supraclavicular nodes or skin. Pulmonary parenchymal metastases, liver or splenic parenchymal disease (not surface implants).

The patient presented was admitted with abdominal swelling and abdominal discomfort. A pelvic scan done showed a mass arising in the pelvis. Diagnosis of ovarian cancer is usually done late due to lack of appropriate screening tests and early symptoms or signs. Patients ignorance due to lack of education and non-availability of health services in remote areas of the country also contribute to late diagnosis. Ovarian cancer typically develops as an insidious disease, with few warning signs or symptoms. Most neoplastic ovarian tumours produce few symptoms until the disease is widely disseminated throughout the abdominal cavity. Most presenting symptoms are those associated with increasing tumour mass, spread of tumour along the serosal surface of the bowel and ascites. Abdominal discomfort, upper abdominal fullness and early satiety are associated with cancer of the ovary. Other signs and symptoms include fatigue, increasing abdominal girth, urinary frequency and shortness of breadth caused by pleural effusion or massive ascites. Elevated oestrogen production in certain stromal tumours may cause abnormal

uterine bleeding. On physical examination a pelvic mass that is bilateral, irregular, solid or fixed is suggestive. Other findings include thrombophlebitis and hypercalcaemia [1]. Constipation, sensation of pelvic weight or pressure and pain may be present. Androgen producing tumours e.g. sertoli-leydig cell tumours may cause virilisation or hirsutism. Granulosa cell tumours are clinically oestrogen-producing tumours that present with abnormal vaginal bleeding or precocious puberty in young girls. There were no features to suggest an oestrogen producing tumour in our patient.

No tumour marker tests were done for our patient before laparotomy. Diagnosis of ovarian cancer poses a great challenge to the oncologist. A concise history and physical examination is paramount. The prognosis of ovarian cancer is significantly improved when the disease is detected while still confined to the ovary. Unfortunately routine pelvic examination is a notoriously poor screening method with limited sensitivity and specificity. Aids to diagnosis include ultrasonography and laparoscopy. Computed tomography scans can also be done. Tumour markers are proving useful in diagnosis and management of several types of ovarian tumours. These include CArI25, NB 70K, LASAP for epithelial tumours), (B-HCG for trophoblastic disease, LDH for dysgerminomas, alpha-fetoprotein for endodermal sinus tumour, testosterone for sertoli-leydig tumour. However tumour markers have largely been disappointing except for the rare germ cell tumours because they may also be elevated in numerous benign conditions including pregnancy, pelvic infection and other conditions such as liver disease, breast and lung tumours. All said, they are useful in monitoring effectiveness of chemotherapy[2,5,6,7]. In patients above 45 years of age, colonoscopy or barium enema and proctoscopy should be performed to rule out the presence of colonic involvement, colonic cancer or inflammatory disease of the bowel[3]. Intravenous urography may be done to define the course of the ureters and to exclude the rare pelvic kidney. Cystoscopy is indicated where involvement of the anterior pelvis is suspected to rule out bladder involvement. Chest X-ray should be done prior to surgery to detect pleural effusion or metastatic disease. Chest x-ray in our patient revealed no metastasis.

Our patient had surgery at which staging was done, and subtotal hysterectomy with bilateral oophorectomy plus omentectomy were done. The management of suspected ovarian malignancy includes investigations as mentioned above followed by surgery at which definitive treatment is commenced after confirmation of the disease. Surgery is the cornerstone of therapy for ovarian cancer, regardless of cell type or stage of disease. A gynaecologic oncologist should be consulted whenever this is planned. Surgical preparation and procedures for ovarian neoplasm include surgical staging, debulking of advanced disease, and secondary debulking of recurrent or progressive disease and palliative surgery for ovarian cancer induced intestinal obstruction. Surgical procedures may include hysterectomy and bilateral salpingo-oophorectomy, resection of fixed ovarian tumours, pelvic lymphadenectomy, omentectomy, splenectomy, small bowel resection or by-pass, ureteral resection. Our patient underwent a subtotal hysterectomy and bilateral salpingo-oophorectomy. During laparotomy, there are 9 steps to be followed in managing surgical stage I and II ovarian cancer;

Step I

A vertical midline incision is made on the abdominal wall. Cautery is normally used on the subcutaneous tissue, fascia and peritoneum to ensure that no blood contaminates the peritoneal cavity and thus the peritoneal washings.

Step 2

Peritoneal washings are obtained from the pelvis and both the right and left paracolic gutters by instilling about 100mls saline into each area.

Step 3

Because of the large volume of the diaphragm, random biopsies of normal-appearing diaphragm are discouraged. Thorough cytologic sampling of the undersurface of the diaphragm can be obtained by cytobrush as used for endocervical Papanicolaou smears.

Step 4

The entire pelvis and abdomen are carefully explored and biopsy of any suspicious nodules is taken.

Step 5

Ovarian tumour is resected and frozen section is taken.

Step 6

If malignancy is confirmed, total abdominal hysterectomy and bilateral salpingo-oophorectomy are performed.

Step 7

Omentectomy is performed.

Step 8

Pelvic lymphadenectomy is performed on the side of the tumour. Sampling of enlarged pelvic lymph nodes is discouraged since metastases are frequently microscopic and unrecognized. Therefore, lymph nodes should be removed from the common iliac artery and obturator fossa.

Step 9

Para-aortic lymphadenectomy is performed by removing the lymph nodes from the aorta and vena cava from the bifurcation of the aorta to just below the renal vessels.

At laparotomy, the incision used should provide maximum exposure of the pelvis and allow thorough evaluation of the abdomen. The operation aims at resecting as much tumour as is safely possible. The site of the mass is noted and whether it is cystic or solid. The surface is checked; it may be smooth and irregular. The size of the mass is noted, as is its adherence to surrounding structures. The presence of ascites is also noted. If present, it should be aspirated and taken for histology. If ascites is absent peritoneal washings with saline are obtained from the paracolic gutters, subhepatic space and the pelvis. The mass is cut and the inside noted whether it is solid or fluid filled. The fluid can either be mucinous, serous, gelatinous or haemorrhagic. The inside may be a single cyst or multiloculated. Optimal preparation for surgery including mechanical and antibiotic preparation of the bowel in the event that colon resection will be done is necessary.

Prophylaxis against infection and venous thromboembolism may be beneficial. Nutritional support is also necessary.

Post operatively, our patient had chemotherapy with a combination of cisplatin and cyclophosphamide. Adjunctive chemotherapy or intraperitoneal chromium phosphate (32p) are used following surgery for epithelial tumours. Chemotherapy is indicated in all patients with ovarian cancer except in those with surgical-pathological stage I disease with low risk characteristics. Cisplatin based combination chemotherapy is administered. One common regimen includes cisplatin 50-100mg/m2 and cyclophosphamide 750-1000mg/m2 given every 3 weeks for 6-8 cycles. The potential toxicities for this regimen include alopecia, nephrotoxicity, ototoxicity and myelosuppression. Carboplatin is an analog of cisplatin that can be used on out patient basis. It is also minimally nephrotoxic. Currently most centers recommend combination therapy with platinum and paclitaxel (taxol) [8]. Results from randomized clinical trials suggest that in patients with optimally debulked disease, intraperitoneal administration of chemotherapy (cisplatin) is superior to intravenous administration [9]. Assessment of response to combination chemotherapy is based on physical examination, changes in size of the palpable mass or radiographically measurable lesions and changes in the CA-125 levels. Although the preoperative CA-125 level does not correlate with the tumour burden, changes in response to chemotherapy appears to be of some prognostic benefit. During therapy, patients are seen at least once a month. A full haemogram, hepatorenal profile and chest X-ray are obtained every month. A pelvic examination to assess disease status is done on a monthly basis. Patients who have completed therapy and who are free of disease are evaluated every 2-3 months for 2 years. Thereafter they are evaluated every six months. Our patient is on follow up.

Most patients with ovarian cancer will have a recurrence. Based on the disease-free interval after completing chemotherapy, patients can be classified into two categories

(i) Platinum sensitive patients in whom relapse occurs more than 6 months after initial chemotherapy and

(ii) Platinum resistant patients

Patients with platinum-sensitive disease may exhibit a good response if rechallenged with a platinum agent. The probability of response increases with the duration of the disease-free interval. The several chemotherapy agents that elicit a response in platinum-resistant patients include liposomal doxorubicin, topotecan, oral etoposide, gemcitabine, docetaxel and vinorelbine. Other agents include ifosfamide, 5-fluorouracil with leucovorin, hexalen. Tamoxifen, an oral antioestrogen also exhibits modest activity but has a very favourable toxicity profile[8].

The patient presented did not have a second look operation as this is not routinely done in our unit. Following the prescribed course of chemotherapy, "the second look" operation is useful to make judgement regarding the continuation of chemotherapy. Second look laparotomy is defined as re-exploration in patients with advanced stage III or IV ovarian cancer, in whom after standard course of chemotherapy, have no clinical, biochemical (CA-125), or radiological evidence of disease. The value of second look therefore is:

- To discontinue all chemotherapy if there is no evidence of disease.
- To determine the actual surgical and pathologic response to cisplatin based chemotherapy if cisplatin is to be used as part of second line chemotherapy
- If possible to deal with any residual disease to minimal or microscopic disease to achieve the same theoretic benefits described for primary debulking surgery.

Second look laparotomy is performed after 6-12 courses of chemotherapy. Our patient was started on combination chemotherapy. Conservative therapy may be recommended for epithelial tumours of low malignant potential. Patients who desire preservation of fertility may be managed conservatively with unilateral salpingo-oophorectomy [13]. The uterus and contra lateral ovary may be preserved in women with stage IA, grade I disease who desire to preserve fertility. Prophylactic oophorectomy has been advocated in patients with family history of ovarian cancer or at the time of hysterectomy for non-ovarian indications. However, this remains controversial.

The prognosis for patients with ovarian cancer is primarily related to the stage of the disease at diagnosis. The five year survival rate for patients with stage I epithelial disease is approximately 80%, stage II 40-50%, stage III 30% and stage IV less than 10% [3,8].

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Gynaecology short case 13

Secondary infertility - tuboplasty done

Name: A. W.

Age: 35 years

IPNO 6977

DOA: 25/08/05

DOD: 26/08/05

Presenting Complaints

She presented with inability to conceive for 4 years.

History of presenting complaints

Her problems started 4 years prior to admission when she failed to conceive despite unprotected, regular sex with her husband. She had dyspareunia occasionally. She developed chronic lower abdominal pains accompanied by per vaginal discharge on and off which was treated without improvement. She gave history of being treated for pelvic inflammatory disease (PID). She had no history of blurring of vision or nipple discharge.

Obstetric and gynaecological history

Her last menstrual period was on 20/08/05. She was a para 0+1, her first pregnancy had resulted in a spontaneous abortion at three months in 2001. Her menarche was at 12 years, her cycles were regular, occurring after every 25 days and her menses lasted 3 to 4 days. She had secondary dysmenorrhoea. Her last sexual exposure was in 1995. She had no history of sexually transmitted infections and she had never used any method of contraception.

Family and social history

She was married, a tailor and stayed at Kikuyu. She did not smoke cigarette nor take alcohol. There was no family history of chronic illness.

Past medical and surgical history

She was admitted in the past and treated for malaria. She was allergic to penicillin, sulphur drugs and paracetamol. She was not allergic to any food.

System inquiry

Non contributory.

General examination

She was in good general condition was not pale and was afebrile. There were no neck masses palpated. Her vital signs were as follows: BP 120/70mmHg, temperature 36.5°C, pulse 78/minute, R/R 16 minute.

Her breasts were well developed (Tanners class IV), no masses were felt and there was no nipple discharge. The abdomen was not distended and there was no organomegaly nor areas of tenderness.

She had a normal external genitalia. The cervix was closed and long, her uterus was of normal size and mobile. The adnexae were free and non tender. There was no abnormal discharge on examination fingers.

Investigations

The following investigations were done in preparation for tuboplasty.

- Hysterosalpingography(HSG) - bilateral tubal blockage
- ELISA for HIV - negative
- Pap smear - normal
- Pelvic ultrasound - the uterus was of normal size, adnexae were normal and pouch of Douglas was empty.
- Haemogram Hb 13.5g/dl
  WBC $4.4x10^9/L$
  Platelets $256x10^9/l$_
- Urea and electrolytes
  - K+ 4.2
  - Na+ 138.0 ^ mmol/L
  - Urea 3.4
  - Creatinine 66 pmol/L

- Semen analysis - it was reported as normal.

She gave informed consent for the operation and had fasted for the operation.

Procedure for laparoscopic tuboplasty

On the operation table patient was given general anaesthesia then in lithotomy position, vulvo-vaginal toilet was done and she was draped. She was catheterized and clear urine was drained. A uterine elevator and canular were inserted. The abdomen was cleaned and draped. The trocar and canular were inserted via an incision just below the umbilicus and gas was introduced and after sufficient pneumoperitonium was created, the pneumoperitonium needle was removed. The second and third ports were introduced under vision at both iliac fossae. The laparoscopic findings were as follows: there were gross adhesions to both tubes, the gut was attached to the left fallopian tube and the uterus was normal. Adhesionlysis was done and gut was separated from the left fallopian tube. Right tube adhesionlysis was done with free spill of dye. Left tube linear tuboplasty was done with free spill. The operation site was irrigated with normal saline and there was no active bleeding from the operation site. The ports were repaired and general anaesthesia was reversed.

Post operative care and follow up

She did well post operatively and was discharged home on the fourth post operative day when the ports were clean and dry. She was seen in GOPC after 6 weeks and adviced on the fertile days.

DISCUSSION

Infertility is defined as failure to conceive after one year of regular coitus without contraception. It is classified as primary and secondary. Primary infertility is when someone has never achieved a pregnancy and secondary infertility designates those who have conceived at some time in the past[1]. Our patient had secondary infertility. Sterility implies an intrinsic inability to achieve a pregnancy. Worldwide the prevalence of infertility is estimated to be 15-60%[2,3]. In Kenya, infertility is a health problem of considerable

importance despite the fact that Kenyan population growth rate is considered to be highest in the world[4]. Prevalence of infertility in the United States is approximately 13-14%[5]. In Kenya, the actual magnitude of the problem is unknown but in clinical practice, it is estimated that about 2/3 of the gynaecologists' time is spent on problems related to infertility[6].

It is a problem of both partners. A probable cause of infertility will be found in 80-90% of couples. In 15-20% of couples diagnosed to be infertile, pregnancy will occur without treatment[1]. A primary diagnosis of male factor is made in about 30% of infertile couples and the woman is responsible for the remaining 40-50% of cases[1,5,7]. Oyieke and company found that the female factor was responsible for 61%, male factor alone for 12.4% of the couples and both partners were implicated in 18.1% of infertile couples and in 7.6% of all couples there was no demonstrable cause for the infertility[8].

The factors in male infertility include; disorders of spermatogenesis, disorders of the efferent duct, disorders of sperm motility and sexual dysfunction[9]. Factors which raise the scrotal temperature can adversely influence spermatogenesis e.g. the occupation of men who work in blast furnaces and are subjected to excessive heat, wearing of tight scrotal support and the presence of a varicocele[1,9,10,11]. Oyieke found that infection of the genital tract caused male infertility in 38.4% of the couples, varicocele contributes 33.3%, idiopathic (primary) testicular failure 15.4% and sexual dysfunction 7.4% [8].

The causes of female infertility include: ovulatory failure, tubal factors and uterine abnormnalities[1,11,12]. In most developed countries the major preventable causes of infertility are sexually transmitted diseases, post partum (puerperal) infections and post-abortal sepsis. Our patient had a recurrent discharge. Tubal occlusion and pelvic adhesions resulting form sexually transmitted infections and complications of pregnancy cause about 75% of all female infertility in Africa[13]. ixLKenya, Oyieke and company found that pelvic adhesions and bilateral tubal blockage were leading causes of infertility (£1.3%), followed by an ovulatory problems (15.9%) and hyperprolactinaemia 9.9%[8]. Our patient had tubal blockage.

Evaluation of an infertile couple requires history and physical examination. Diagnostic tests for the male factors starts with semen analysis. A normal semen will exclude a significant male factor. Optimum parameters are usually observed after 3-5 days of abstinence and the specimen should be received in the laboratory within 30-60 minutes of production[1,5]. World Health Organisation (WHO) recommends the following for normal values[5].

Volume - at least 2mls or more
Sperm count - > 20 million/ml
Morphology - > 30% of normal forms
Motility - at least > 50% of with forward progression
WBC - fewer than one million/ml
Lique faction - 30 minutes
pH - 7.2-7.8

STRICT criteria recommends the following normal values for morphology

Normal - > 14% of fertile
Abnormal - >5-14% of subfertile/fertile
0-4% of subfertile

Further evaluation of the male will depend on semen parameters and physical examination and they include testicular biopsy and assessment of the vas deferens. More detailed assessment of male function may include antibody studies and a sperm penetration assay[1].

For the female factor, the investigations include testing for ovulation function and tubal patency. The tests for ovulation function includes: (a) basal body temperature which increases significantly two days after luteinizing hormone (LH) peak which occurs after one day of ovulation. Detection of LH peak will help determine the day of ovulation which is one day before the peak, (b) presence of secretory endometrium for endometrial biopsy takes 1-2 days prior to menses is evidence of luteinizing of the endometrium due to progesterone from post ovulatory corpus luteum. (c) serum progesterone levels greater than 4ng/ml indicates ovulation[5].

Testing for tubal patency can be through laparoscopic evaluation or hysterosalpingogram (HSG). HSG can be both diagnostic and therapeutic especially when an oil based dye is used. Laparoscopy is superior to HSG in detecting tubal patency. In a comparative evaluation of tubal patency using HSG and laparoscopy, tubal patency was demonstrated in only 27.8% of the patient by HSG while laparoscopy demonstrated patency in 50% of the patient[14]. Our patient had HSG done.

Management of infertility depends on the cause of the infertility. In the male, azoospermia due to hypothalamic insufficiency or pituitary insufficiency may be managed by hormone replacement therapy. Azoospermia due to congenital absence of vas deferens, successful aspiration of sperms from the epididymus with invitro fertilization offers potential paternity. Azoospermia secondary to vasectomy is managed by microsurgical re-anastomosis which successfully restores patency. When no remedy is available, such as in chromosomal anomalies, donor insemination may be offered[1,5,13].

In the female, cervical mucous problem impairing conception may be treated with insemination or uterine instillation of a small amount of specially prepared semen. Ovulation disorders can be treated with ovulation induction drugs such as clomiphene citrate. In those women whose ovulation is suppressed by hyperprolactinaemia, ovulation may be induced with bromocriptine. Uterine or tubal anomalies may be corrected by surgical procedures such as tuboplasty. Types of tubal surgery include; salpingolysis, fimbryolysis, salpingostomy, re-implantation and end to end anastomosis. Our patient had both adhesionlysis and salpingostomy. Pregnancy rates after tubal surgery vary in the range of 50-80% depending on the extent of pelvic adhesions and degree of tubal damage. During followup, if a patient has not conceived after 6 months, then HSG may be done to assess patency of the tubes[3]. In badly damaged tubes, in vitro fertilization may be the only way out.

In orderjojjeal with infertility from the grassroots, pelYi^flammatoryjjiseases should, be prevented.^

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Gynaecology short case 14

IMPERFORATE HYMEN: CRUCIATE INCISION

NAME: M.N.

IP.NO: 4990

AGE: 15 YEARS

PARITY: 0+0

DOA: 31/10/05—

D.OD: 1/11/05

Presenting complaint

The patent presented with history of low abdominal pain and swelling for 1week.

History of presenting illness

The low abdominal pain was colicky in nature, often so intense that she could not stand upright. The pain was reduced by iboprufen and hyocine butylbromide (buscopan) and aggravated by passing urine or stool. She experienced urgency and frequency but no dysuria or difficulties in passing urine. She had had the pain twice previously but the previous episodes were not as severe. She had noted a low abdominal swelling which she thought was progressively increasing.

Past medical history

She had neither been diagnosed with any chronic illness nor been hospitalized before. She did not seek medical help during the first episode of pain and in the second episode. Her mother bought brufen and buscopan for her from a chemist shop on advice from a friend. This last episode however, iboprufen and buscopan were ineffective in relieving her pain.

Obstetric and gynaecologic history

She was para 0+0 with no history of sexual intercourse or contraceptive use. She had not started menstruation.

Family and social history

She was a form 2 student at Kianda School and lived with her parents. She was the second bom in a family of three 1 boy and 1 girl. The other siblings were alive and well. There was no history of chronic or similar illness in 1st and 2nd degree relatives.

On examination she was in fair general condition, not pale or jaundiced and was afebrile but was in pain. Her blood pressure was 100/60mmHg, pulse rate 94/minute, respiratory rate 20/minute and temperature 37.1°C. She had Tanner stage four breasts and pubic hair and coarse axillary hair.

Respiratory, cardiovascular and central nervous systems were essentially normal.

Abdomen was slightly distended, with a tender suprapubic mass measuring up to 16 weeks. It was mobile with a smooth surface and firm with no fluctuance. There was no renal angle tenderness or swelling.

On vaginal exam the labia, mons pubis and perineum were normal. There was a bluish mildly tender fluctuant swelling bulging at the vestibule. Vaginal canal was obliterated by a smooth membrane. Rectal examination revealed a boggy mass that filled the vagina.

Investigations

- Pelvic ultrasound showed a large fluid collection with floating debris in the vagina and the endometrial cavity. The uterus was enlarged with no intrinsic lesions. The adnexae were normal and there was no fluid in the Pouch of Douglas.

- Haemoglobin level was 11.7g/dl, WBC 5.2 x 10^9/l and platelets 250 x 10^9/l
- Urea and Electrolytes were as follows: Na^+ was 136 mmol/l, K^+ 4.5 mmol/l, Urea 5.2 mmol/l and creatinine 52mmol/l.

A **diagnosis** of imperforate hymen with haematocolpos and haematometra was made.

Management

The patient and the mother were informed of the diagnosis and the intended management. An informed consent was obtained from the mother and the patient was admitted for surgery.

She was starved from midnight on the day before surgery. During the day of surgery, pubic hair was shaven and premedication with atropine given before she was wheeled to theatre.

In theatre she was put under General anaesthesia. She was put in lithotomy position before vulval scrubbing and draping was done. The urinary bladder was catheterized and about 150ml of clear urine obtained. A cruciate incision was made on the bulging hymen from 2 to 8o'clock and from 4 to 10 o'clock. About 700mls of chocolate brown - coloured haematocolpos and haematometra was drained. The hymenal tissue was trimmed leaving a ring of tissue near the vaginal wall. There was no bleeding noted and stitching was not done. General anaesthesia was then reversed successfully and the patient was taken to the recovery room.

Post-Operative Care

The patient was observed continuously in the recovery room till fully awake then transferred back to the gynaecology ward. She was put on doxycycline and brufen. She did well post-operative and was found in good condition with the uterus about 12 weeks, non-tender and with minimal vaginal drainage of menstrual flow. She was discharged home the following day on the same drugs for review in the gynaecology outpatient clinic. She was advised to use sitz baths and dilate the vagina with the small finger painted with vaseline daily.

Follow Up

She was seen in the Clinic after four weeks and was found to have healed well. The incision edges had healed well, vaginal canal was patent and menstrual flow, which had started the previous day, was occurring freely. Menstruation was also painless. Digital examination revealed a normal vaginal canal and uterus with no adnexal tenderness.

DISCUSSION

This is a patient who presented with cryptomenorrhoea secondary to imperforate hymen. Cruciate incision was made with good outcome.

The hymen is a thin often cribriform mucous membrane that forms the sinovaginal bulbs and the urogenital sinus. The hymen perforates by degeneration of the centrally placed cell in embryonic life to establish a connection between the vaginal canal and the vestibule. When this does not occur imperforate hymen is said to exist[1,2].

Imperforate hymen is often associated with urological anomalies. Usta reported minor anomalies including urethral membrane, imperforate anus, bifid clitoris, hypoplastic kidneys with ectopic ureters and vascular anomalies in 20% of the patients who also had familial history of imperforate hymen[3]. The patient presented had imperforate hymen without any other external anomalies and normal renal function.

Imperforate hymen is rarely diagnosed before puberty. Most patients present with symptoms of cryptomenorrhoea. Blood accumulates in the vagina and the uterus resulting in what is referred to haematocolpos and haematometra respectively. Other causes of cryptomenorrhoea are transverse vaginal septum and vagina agenesis or atresia[1,2,4].

The symptoms include low abdominal pain and distension. The pain may radiate to the back and is aggravated by urge to pass stool or urine. Failure to start menstruation in presence of normal secondary sexual characteristics is universal. Urinary pressure symptoms like frequency and urgency or obstruction may be present. A tender suprapubic mass is usually palpable at presentation as is protrusion of the hymen. Per rectal examination usually reveals distention of the vagina by a cystic mass[1,2]. The patient presented had low abdominal pain and swelling as well as urgency and frequency but no urinary obstruction. She also had distention of the vagina on rectal examination.

Treatment of imperforate hymen involves making a cruciate incision between 2 and 8oclock and between 4 and 10oclock. The hymenal tissue is then excised but not too close to the vaginal wall to reduce the risk of scarring and stenosis, with subsequent dyspareunia. Haematocolpos and haematometra then drains spontaneously. Vacuum aspiration is only done when drainage is incomplete. Instrumentation should otherwise be

avoided due to risk of perforating the fragile wall of the uterus. Prophylactic antibiotics are administered for a week and unnecessary vaginal examination avoided to avoid infection[5].

Late complications of imperforate hymen and the surgery are rare but may include dyspereunia due to stenosis and endometriosis. Chronic pelvic pain and infertility may result from endometriosis[2,4].

Our patient underwent cruciate incision with complete spontaneous drainage of the haematolcolpos and haematometra and subsequently healed without apparent stenosis. Menstrual flow preceding her review in the clinic had been painless suggesting absence of endometriosis.

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Gynaecology short case 15

Pelvic abscess- surgical drainage carried out

Name	S N
IP No.	1129548
Age	36
DoA	6/11/06
DoD	14/11/06
Para	1+0

Presenting complaints

She had been admitted with history of lower abdominal pains for 2 days.

History presenting complaints

The patient complained of lower abdominal pains. Initially pain was slight but increased in intensity in the previous 2 days. It was associated with abdominal distension, and vomiting. The vomiting was bilious. She was however passing stool well. She also gave history of a foul per vaginal discharge but no history of urinary symptoms. She had taken antiacids but only with slight relief.

Obstetric and gynaecological history

She was a para 1+0. She delivered in 1990 SVD, 2.5kg, to a male who is currently is alive and well. Her LMP was on 28/10/06. Menarche was at 16 years of age. Her flow is 4 days and the cycle is 30 days. There is no history of dysmenorrhoea. She used depo provera for 6 years in the past. She had also used Norplant but currently was on no method. She had no history of an STI in the past and had no pap smear taken previously.

Past medical history

The patient was diagnosed with HIV in 2003. She had been admitted with pneumonia at the time. At the time of ARV initiation, her CD4 count was 3 cells/mm^3. Currently she was on HAART and the latest CD4 count was 310 cells/mm^3.

Family social history

She was a clerk at a flower farm in Athi River. She also resided in Athi River with her family. She was single and did not have a stable partner. She took alcohol but did not smoke. No family history of a chronic illness was elicited.

On **examination** she was in pain and she was noted to be groaning. While being examined she vomited bilious like material. She was not pale and had no edema. There was no significant lymphadenothy and no thrush. Her BP was 130/80mmHg pulse of 80/min, respiratory rate 22/min and temperature of 36.4° C. The chest and cardiovascular systems had no significant findings.

The abdomen was diffusely distended and very tender. There was a tympanic note on percussion and guarding was noted. No bowel sounds were ascultated.

A vaginal exam revealed normal external genitalia, the cervix was closed, posterior and there was cervical motion tenderness. The adnaxae was tender.

A diagnosis of an acute abdomen with peritonitis to rule out a pelvic abscess.

Investigations done:

- Supine abdominal xray - no air/fluid levels
- Lateral decibutus xray - no free air in the peritoneum noted.
- Blood gas analysis - ph 7.484, $SP0_2$ 91.9%, Na 139, K 2.97
- RBS -5.0 mmol/l

She was started on IV fluids with addition of KCL to correct the hypokalemia. A nasal gastric tube for decompression was inserted and blood for hematocrit estimation and grouping/cross-matching taken. She was scheduled for emergency laparatomy once she was resuscitated.

Intraoperatively no visceral perforation was noted. The pelvic organs were inflamed both tubes were markedly inflamed too. The left tube was adherent to the broad ligament with multiple pockets, of hydropyosalphinx. The pus was drained and the abdomen was cleaned with betadine and warm saline. A drain was left in situ. She was started on intravenous flagyl and augmentine and analgesics. She did well post-operatively.

DISCUSSION

A case is presented of SN, a 36 year old para 1+0 who had a pelvic abscess managed by laparotomy and drainage with subsequent good recovery. Our patient may have had a pelvic infection before developing the abscess.

Pelvic abscess is a collection of pus in the pouch of Douglas [1'2]. It may occur as a sequel to acute pelvic infection, chronic or recurrent pelvic infection, abortion, puerperal sepsis, gynaecological surgery or gynaecological cancer. Abscess may also follow introduction of foreign material into the uterus such as with use of the intrauterine contraceptive device (IUCD), after hysterosalpingography or dilation and curettage. A perforated appendix or salpingitis may also lead to a pelvic infection and abscess. It appears the tail of the IUCD may enhance entrance of organisms into the upper genital tract [1'2]. This patient had not used any IUCD and had not undergone any pelvic procedures previously.

The causative organisms include Neisseria gonorrhoea, chlamydia trachomatis, Mycobacteria tuberculosis and gram-negative bacilli, various anaerobic organisms including anaerobic positive cocci and bacteroides species. Most of these organisms are sexually transmitted. Carty found that in 75% of all cases of PID, gonococcus was isolated while Fomulu found anaerobes and aerobes with E. coli occurring in 50% of all cases at the KNH. [3'4]. Actinomyces have been found in tubo-ovarian abscesses associated with IUCD [4 6]

Our patient was para 1+0 and 36 years old. Patients who develop pelvic abscess are usually in their 20's to 30's (most commonly 15-25) and a large percentage (20-59) of these women are nulliparous while it is rare in those with a parity of four and above [2"4]. Our patient fitted into the above criteria. Pelvic abscess is also more likely in those with multiple sexual partners. Spermatozoa may carry organisms including gonococcus and other bacteria. In postmenopausal women a pelvic abscess is usually secondary to pathology in the intestinal tract.

Pelvic abscess is a major cause of morbidity and mortality among women in the reproductive age group. The incidence varies worldwide. In Kenya, pelvic abscess accounts for 40% of all acute gynaecological admissions to the KNH and Aga Khan hospitals[3].

Our patient presented with low abdominal pain with an abnormal vaginal discharge. The usual presentation may involve symptoms of acute or chronic pelvic inflammatory disease including abdominal pain, fever, rigors, nausea, vomiting, diarrhoea, dysuria and/or frequency of micturition. There may also be vaginal discharge that is foul smelling or blood stained. Examination usually reveals a patient who is sick looking and may have fever, the abdomen is tender, fluctuant mass filling the cul-de-sac and dissecting into the rectovaginal septum is felt. Pelvic examination elicits severe pain even on slight cervical excitation. Paracentesis may be positive of pus. Jaundice and anaemia may also be present. Anaemia is especially common in those patients who have had an abscess for several weeks [3'6,7,8]. Laboratory findings include a raised erythrocyte sedimentation rate, leucocytosis, raised C-reactive protein and these add little to the information got from the history and physical examination. Urinalysis may demonstrate pyuria without bacteria. Ultrasound is an invaluable tool for confirming diagnosis. Laparoscopy is most accurate in diagnosis and can also be used for drainage. Our patient was quite sick at admission.

The patient presented had drainage of the abscess through laparotomy. This was done after adequate hydration was ensured and antibiotics were started.

The initial management of a patient with pelvic abscess consists of supportive measures such as rehydration with intravenous fluids, nasogastric tube suction, blood transfusion and parenteral antibiotics. Those with IUCD should have the device removed after initiation of treatment[3,e]. Response is judged by absence of fever, decrease in white cell count by at least 3,000/mm3 and decrease in size of the mass as well as improvement in symptomatology. In case there is no adequate response or a ruptured abscess is suspected then surgical intervention is needed [3,e]. Where the diagnosis is certain, a posterior colpotomy and drainage can be done but with extensive abscesses or uncertain diagnosis, drainage by laparotomy is preferred [6].At laparotomy, pelvic adhesions should

be released by gentle blunt dissection and the pockets of pus drained. In case the abscess followed an induced abortion, the possibility of undiagnosed or improperly managed uterine perforation should be considered, looked for and repaired appropriately. Salpingo-oophorectomy may be necessary where a tubo-ovarian abscess is encountered with extensive damage to both the ovary and the tube [8]. Antibiotic regimes should cover for gram positive, gram negative and anaerobes. This was done in the patient presented. For women past reproductive age, the practice to perform total hysterectomy and bilateral salpingo-oophorectomy has been recommended [6]. Radical surgery may also be preferred in those patients who have had several exacerbations of tubo-ovarian abscess who remain sicker, yet the pelvic organ damage is already too extensive for future fertility considerations.

Other methods used for drainage include percutaneous drainage of intra-abdominal abscess guided by computed tomography or real time scanners, which may be successful in 75-85% of cases [9]. Transvaginal sonography guided drainage (culdotomy) of a tubo-ovarian abscess has also been shown to be successful[10]. These were not done for our patient due to limitation of availability of the radiological machines.

Our patient did not develop any complications after surgery.

Complications of untreated pelvic abscess include recurrence or persistence of abscess associated with significant morbidity, septicaemia, chronic ill-health, chronic pelvic pain, dyspareunia, dysmenorrhoea, bowel obstruction, infertility, ectopic pregnancy and septic shock. Acute renal failure and septic thromboembolism are early complications, which have a high incidence of morbidity and mortality [6,s]. All these complications may be prevented by adequate health education, adequate health programmes to control and prevent sexually transmitted infections and provision of comprehensive family planning services. Barrier contraceptives and avoiding IUCD use in those at high risk should be recommended.

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The long commentary in gynaecology

A REVIEW OF HYSTERECTOMY AT THE KENYATTA NATIONAL HOSPITAL, NAIROBI

ABSTRACT

Hysterectomy is one of the commonest major surgical procedures carried out by gynaecologists. This was a retrospective descriptive study carried out at the Kenyatta National Hospital covering the period between 1st July 2003 and 30th June 2005. It sought to identify the socio-demographic profiles of the patients undergoing the procedure, the baseline pre-operative evaluation carried out, the types of hysterectomies performed and any peri-operative or postoperative morbidity and /or mortality associated with the procedure. Common indications for hysterectomies were also identified.

Data was collected from 390 patient files. Of these, 41 (10.5%) had hysterectomy as an emergency while 349 (89.5%) had elective surgery. The mean patient age was 43.98 years with the highest rate in women aged between 40-44 years. 70.8% of the women were married, 17.9% were single, 8.5% widowed while 2.8% were either separated or divorced. 35 (9.0%) were nulliparous while 355 (90.9%) where parous. The commonest presenting symptom was recurrent uterine bleeding (66.4%). Chronic pelvic pain was noted in 28.7% and abdominal swelling in 24.9%. Pregnancy complications such as postpartum hemorrhage, ruptured uterus or post abortal uterine perforation contributed 10%. On physical findings, 40.8% had an abnormally enlarged uterus, pelvic mass was palpable in 27.9% and pallor was present in 26.4%.

Baseline hematological examinations were carried out in the majority of the patients (>95%). Only 6.2% had HIV serological testing done and even fewer (1.3%) had tumor markers (CA125) evaluated. The majority of the patients (82.6%) had ultra sound examination prior to surgery while only 0.6% had CT scan. Pap smear cytology was available in 69% of the patients, colposcopy in 7.2% and cervical punch biopsy in 2.3%. In the peri operative period, 41.8% of the patients received hematinics, 19.5% required blood transfusion while a further 8.5% received hormones to control symptomatology.

Total abdominal hysterectomy was the commonest hysterectomy performed 77%, while there were 9% subtotal, 5% Wertheim's and 4% extended hysterectomies. A total 17 (5%) of the procedures were carried out vaginally and of these only 3 (1%) were done with laparoscopic assistance. The most common indication for hysterectomy was uterine fibroids 60.3%. Pregnancy complications such as PPH, ruptured uterus and post abortal uterine perforation contributed 10%, suspected ovarian neoplasm 8.5% while invasive disease of the cervix a further 8.2%. A total of 127 patients (32.4%) suffered a morbid event post operatively.

Bleeding was the common complication (46.4%); wound complications contributed 22.0% and 10.2% had fever 8 patients (2.1%) died soon after surgery.

The mean duration of hospital stay was 11.03 days. 42% of the patients stayed for between 5-7 days.329 (84.4%) of the specimens were submitted for histopathological examination following hysterectomy. Of these, 71.4% confirmed presence of leiomyoma, 8.2% showed presence of invasive disease of the cervix while 6.9% confirmed ovarian malignancy. Adenomyosis was noted in 18 (5.4%) and 10 (3.0%) had endometrial hyperplasia.

In conclusion, hysterectomy is a procedure routinely carried out at the Kenyatta National Hospital. The associated morbidity and mortality is low. However, despite being a national referral and a tertiary institution of learning training gynaecologists and many other surgical disciplines, it remains behind in embracing modern diagnostic and surgical methods/alternatives. Newer imaging methods such as CT scan and MRI are seldom utilized. Furthermore despite the availability of laparoscopic equipment, laparoscopic assisted vaginal hysterectomies are rarely performed. There is generally a need to increase the whole profile of surgical training in terms of providing the opportunities to make trainee gynaecologists confident and competent in this fast growing sub speciality (laparoscopy) and in the process keep at per with other institutions of similar reputation.

INTRODUCTION

Hysterectomy is the surgical removal of the uterus .The term is derived from the Greek roots *hystera,* meaning uterus and *ektome* meaning excision.

In November 1843, Charles Clay performed the first hysterectomy in Manchester, England. In 1929, Richardson EH, MD, performed the first total abdominal hysterectomy[1].

There are several types of hysterectomies;

- A total hysterectomy-the uterus as well as the cervix is removed. This is the most common type of hysterectomy
- A sub total hysterectomy-also called a supra cervical hysterectomy -removes the upper part of the uterus and leaves the cervix in place.
- Extended hysterectomy- removes the uterus, the cervix and the upper part of the vagina.
- A radical or Wertheim's hysterectomy- removes the uterus, the cervix, the upper part of the vagina and pelvic lymph nodes; this is done in cases of cancer.

Often one or both ovaries and fallopian tubes are removed at the same time a hysterectomy is performed. When both ovaries and tubes are removed it is termed a bilateral salpingo-oophorectomy.

If the ovaries are removed before menopause the sudden loss of the main source of estrogen will cause one to suddenly enter menopause (surgical menopause). This can cause more severe symptoms than a natural menopause[1].

Hysterectomies are done through the abdominal route (Abdominal Hysterectomy) or the vagina (Vaginal Hysterectomy). Vaginal hysterectomy can also be done with the aid of a laparoscope to assist visualization of abdominal contents in a procedure called laparoscopic assisted vaginal hysterectomy (LAVH). The entire procedure can also be performed under laparoscopic guidance in Total Laparoscopic Hysterectomy (TLH).

Hysterectomy is a success in curing the disease of concern. However, it is a surgical alternative and therefore carries the risks, morbidity and mortality that an operative procedure carries. The patient is usually hospitalized for several days and subsequently

may require weeks of convalescence. Complications such as excessive bleeding, infection and injury to adjacent organs also may occur.

This was a retrospective descriptive study carried out at the Kenyatta National Hospital covering the period between 1st July 2003 and 30th June 2005. It sought to identify the socio-demographic profiles of the patients undergoing the procedure, the baseline pre-operative evaluation carried out, the types of hysterectomies performed and any peri-operative or postoperative morbidity and /or mortality associated with the procedure. Common indications for hysterectomies were also identified.

LITERATURE REVIEW

Hysterectomy is the most commonly performed major gynecological surgery in the United States (US) and the United Kingdom (UK) [1]. Approximately 600,000 hysterectomies are performed annually in the United States. The US Centers for Disease Control and prevention (CDC) estimated 8.6 million US women had a hysterectomy from 1980-1993. During this span the CDC studied how the rate of hysterectomy differed by age, geographic region and conditions associated with hysterectomy. Annually, the rate was highest among the women aged 40-44 years and lowest among the women aged 15-24 years[2].

Locally, no data is available on how many procedures are carried out each year.
In 2001, a total of 273 hysterectomies were carried out at the Kenyatta National Hospital. 93% of these were total abdominal hysterectomies, 2.9% sub total and 2.9% were vaginal[3]. Two years later in 2003, the total number was 213 procedures[4] In a two year review of hysterectomies at Kenyatta National Hospital, in 1977, 191 cases were identified from 1974-1975. 96% were carried out abdominally, while 4% were vaginal hysterectomies. 2 cases were noted to have been Wertheim's and 7 were subtotal. The main indications for the hysterectomies were fibroids 60.5%, abnormal uterine bleeding 13%, infection 6.5% and ovarian tumors 6%. Other causes were malignant disease 5.5%, prolapse 3.5%, traumatic 2.5% and unspecified 2.5%[5]

Omollo (1999), reviewed 176 cases at Nazareth Mission Hospital, 14.9%, had subtotal abdominal hysterectomy while 76.5% had total abdominal hysterectomy. Fibroids accounted for 81.8% of the cases, recurrent uterine bleeding 8.5%, gynecological premalignant and malignant diseases 5.6%. In this series, 94%of the women had baseline hematological evaluation and pelvic ultra sound, but only 1.7% had pap smears[6].

Hysterectomy is a well-established and extremely safe operation, with an overall visceral damage rate being 0.5 to 2 percent and an overall mortality rate of 0.5 to 2 per 1000[1]. Hysterectomy has developed over the years from a procedure involving an extensive

abdominal incision and prolonged convalescence, such as total abdominal hysterectomy TAH) and subtotal abdominal hysterectomy (STAH), to minimally invasive procedures, including vaginal hysterectomy, laparoscopically-assisted vaginal hysterectomy and laparoscopic hysterectomy.

The indications for hysterectomy are numerous, but there are several particularly common causes. Uterine leiomyomas or fibroids are a major cause of menorrhagia and intermenstrual bleeding and not uncommonly, pelvic pain and secondary dysmenorrhoea. They are present in up to 25 percent of all women but may be entirely asymptomatic[7]. Another common indication for hysterectomy is dysfunctional uterine bleeding, a diagnosis of exclusion which has no identifiable pathological cause but which results in unacceptable menstrual blood loss for the patient. Other indications include uterine prolapse, endometriosis and neoplasia of the cervix, endometrium and ovary.

The procedure is not purely confined to the realms of gynecology, but also has a number of obstetrical indications, such as massive post-partum haemorrhage secondary to uterine atony or uterine rupture, septic endometritis with pyometra or the very rare complication of inversion of the uterus after delivery of the placenta.

A hotly debated topic in gynecological surgery has been the comparison of risks and benefits of risks and benefits of TAH and STAH. A publication from a Finnish research group in 1980 claiming women who underwent STAH had better urinary and sexual function than those undergoing TAH caused further controversy[8]. This research suggested that disturbance of the pelvic plexus, which is essential in the coordinated contraction of bladder and bowel and is intimately related to the bladder, cervix and vagina, was at risk of damage during TAH. The interruption of autonomic innervation of the pelvic viscera may cause constipation and urinary problems after a TAH. By extension, disturbance in innervation of the cervix and vagina was thought to interfere with lubrication and orgasm, thus decreasing post-hysterectomy sexual function. This may have been strong evidence in favor of subtotal procedures, but further research from the same group was unable to collaborate the initial findings. Further trials, such as that published in 2003 by Learman *et*

a were also unable to demonstrate a benefit of STAH when compared to TAH, despite numerous factors that seemed to suggest that STAH might be superior to TAH[9]. The risk of developing a cervical cancer in the remaining cervical stump became much less relevant due to the advent of screening and the reduction of cervical cancer incidence by up to two-thirds in countries with a screening programme[10]. In practical terms, STAH is a simpler procedure, requiring little or no mobilization of the bladder and minimal risk to the ureters as compared to TAH. The belief fostered by the Finnish research that sexual function was increasingly spared by STAH was a popular notion and one that was promoted by the press. However, without conclusive research it was impossible to determine which procedure was superior. Clearly, further rigorous randomized controlled trials were needed to clarify the issue.

An alternative to the abdominal route is vaginal hysterectomy, in which there is no abdominal Pfannenstiel incision, and the procedure is performed entirely *per vaginam.* It was initially thought that it would cause less patient morbidity than the abdominal procedure. This has been shown by various studies, most notably the CREST study which reviewed 1851 hysterectomies performed between 1978 and 1981 in nine hospitals in the US. This study showed that the overall incidence of post -operative complications after antibiotics was 24.5 percent after vaginal hysterectomy, compared with 42.7 percent after abdominal hysterectomy. It was concluded that the average woman of reproductive age with no significant past medical or surgical history (in particular, previous abdominal surgery) who received antibiotics prophylaxis would benefit more from a vaginal hysterectomy than an abdominal one[11]. The vaginal procedure, though taking slightly longer to perform, is the more cost-effective of the two procedures in terms of patient recovery and convalescence and monetary cost. Ottosen *et al* demonstrated this in their randomized controlled trial published in 2000, which found that patients undergoing abdominal hysterectomy required on an average one day more in hospital and one week more convalescence than the vaginal cohort[12].

Though there are a significant number of abdominal hysterectomies performed, it has been shown that women with relative contraindications to the vaginal procedure should not be

required to undergo the more invasive abdominal procedure. This was demonstrated conclusively by Varma et al in their five-year study in which all hysterectomies were carried out by the vaginal route if technically possible, excluding those women with uterovaginal prolapse, very large leiomyomas (over 16 week size) and malignancy[13]. The rate of abdominal versus vaginal hysterectomies in the study center at the outset was almost identical to that of the national average, 68 percent and 32 percent respectively. By the end of the study, 95 percent of procedures were performed via the vaginal route with most associated oophorectomies also being performed vaginally by the fifth year. There had been no change in case mix over the years of the study and there was no increase in the rate of complications or patients morbidity. The authors concluded that the major determining factor in the choice of route of hysterectomy was not the clinical scenario, but the attitude or preference of the surgeon. However impressive these results may seem, the clinical implications cannot be implemented unless the appropriate expertise is possessed by the operator. Current training practices do not afford trainee hysterectomists the opportunity to become equally comfortable with the various methods and to become proficient in vaginal hysterectomy, simply due to the continuing high rate of abdominal hysterectomy and a lack of opportunity to watch and participate in a sufficient number of vaginal procedures[14].

One of the most significant advances in surgical procedures in recent years has been the advent of laparoscopy. This technique has been applied in almost every surgical specialty to great effect and offers a considerably less invasive procedure for the patient with the promise of a more uneventful recovery than if there had been an abdominal wound. As with other forms of major abdominal surgery, hysterectomy has been adapted to allow a laparoscopic approach to the operation. In a total laparoscopic hysterectomy (TLH), the entire procedure is performed under laparoscopic guidance and the uterus is removed through the vagina (either whole or morcellated) with no vaginal incision. In a laparoscopic-assisted vaginal hysterectomy is performed after laparoscopic adhesiolysis or oophorectomy and ligation of uterine blood supply. As is the case in vaginal hysterectomy, laparoscopic hysterectomy has a number of relative contraindications including nulliparity, obesity and need for oophorectomy. Research shows that TLH is safe, feasible and results

in minimal hospital stay for women irrespective of body mass index, with minimal complication rates in all groups. TLH may extend the possibility of minimally invasive hysterectomy to the very obese, for whom abdominal surgery poses a much greater risk[15].

Reported mortality rates after hysterectomy range from 6-11 per 10000 for indications not involving pregnancy or cancer, from 29 to 38 per 10,000 when indication is associated with pregnancy, and from 70 to 200 per 10,000 when the indication is associated with cancer[16,17] .The rates of peri-operative complications reported in the largest published series (from the early 1980s) ranged from 24 percent for vaginal hysterectomy to 43 percent for abdominal hysterectomy[11].Postoperative fever and infections accounted for the majority of complications; the serious complications included hemorrhage requiring transfusion, unintended major surgical procedures and life threatening cardiopulmonary events. Current surgical practices may be associated with lower complication rate; major complications occur in approximately 3 percent of hysterectomies for benign conditions. Postoperative rates of morbidity and complications are considerably lower with vaginal than with abdominal hysterectomy[11].

Rationale

The Kenyatta National Hospital serves a vast area in terms of patients attending its various clinics and inpatient wards. Referrals are also an important part of clientele. As a teaching hospital it also serves as an institution for learning for medical students, clinical officers and post graduate residents.

The last review in hysterectomy done at this hospital was 30 years ago[5]. At the time, only abdominal and vaginal hysterectomies were being carried out. However advances in the surgical field have seen the introduction of laparoscopy. This has changed many open procedures with a shift towards minimally invasive surgery and with hysterectomy being not an exception. On the other hand, many modern diagnostic methods have been developed in the recent past. This has consequently changed the pre-operative evaluation that patients undergo. This study therefore was conducted at a time when we needed to

evaluate our current status in this very important procedure. It served to compare where we have come from, where we are, and possibly offer an insight onto where we should be setting our eyes to.

In so doing, it was expected that various aspects of the procedure itself, preparation of the patients, morbidity and /or mortality would be addressed.

HYPOTHESIS

The trends in hysterectomy at the Kenyatta National Hospital have not changed over time.

BROAD OBJECTIVE

To review case notes of hysterectomies carried out at the Kenyatta National Hospital between 1st July 2003 and 30th June 2005, identify good practices as well as recommend areas for improvement.

SPECIFIC OBJECTIVES

1. To establish the socio-demographic profiles of patients undergoing hysterectomy at Kenyatta National Hospital.
2. To determine the pre-operative evaluation of the patients undergoing hysterectomy.
3. To determine the indications of hysterectomies performed.
4. To determine the types of hysterectomies done.
5. To determine morbidity or mortality related to the procedure.

STUDY DESIGN

A retrospective descriptive study

STUDY AREA

The study was carried out at the Kenyatta National Hospital, in Nairobi Kenya. It serves the population within and around the city and receives patients from other countries in East and Central Africa for specialized care. It has a bed capacity of 1500. It also serves as the

university teaching hospital for the college of health sciences of the University of Nairobi. Several medical specialities and the sub-specialities are catered by the hospital and the department of obstetrics and gynecology is one of them.

The department is divided into 3 firms headed by consultants. A theatre is reserved for emergency gynecological operations. These are carried out on daily basis. Elective operations are done on Firm basis. Firm II on Mondays and Firms III and I on Thursdays. The operations are done form 8.00 a.m. to 5.00 p.m.They are performed under general anesthesia.

Study population I Study period

All patients who underwent hysterectomy at the Kenyatta National Hospital from 1st July 2003 - 30th June 2005 were included in this study.

Sample size and sampling frame

The sample size included all patients who underwent the procedure during the specified period of study. The sample size was calculated using the following formula (Woolson, 1987)[18].

$$n = \frac{Z^2 m}{d^2}$$

Where n=Desired sample size

Z=Reliability coefficient at 5 (0.05) level of significance = 1.96 at 6 of 0.05

P=Prevalence = True but unknown proportion in the population. A prevalence level of 50% was assumed.

d=Degree of precision (5%)

q=1.0-p

Therefore $n = \frac{(1.96)^2 x 0.5 x (0.5)}{(0.05)^2}$

n=384.

METHODOLOGY

Data collection and study instruments

The principal investigator reviewed medical records of all the hysterectomies performed between 1st July 2003 and 30th June 2005 respectively. A structured questionnaire and patient record files were used. The questionnaire was structured to collect details on socio-demographic data, clinical presentation, findings and investigations done. The details of the indication and type of hysterectomy were also collected. Further post-operative morbidity/mortality was evaluated and histopathological findings where available. A sample questionnaire is attached as appendix IV.

Medical records were retrieved through the records department. In addition, registers in the maternity theatre and main theatre were reviewed to ensure completeness of data collection. The indication quoted by the surgeon based upon the pre-operative evaluation was noted. The intra-operative diagnosis was also noted for validation. The principal investigator collected and reviewed copies of the surgical notes for each patient.

Inclusion criteria

All hysterectomies carried out at the Kenyatta National Hospital during the study period both emergency and elective irrespective of the procedure i.e. total, subtotal, vaginal, extended etc. It also included hysterectomies that follow a scheduled myomectomy.

Exclusion criteria

All patients record files without complete clinical and/or surgical notes.

Data editing I management

File retrieval was carried out with assistance from the records department of the hospital. The questionnaire had been structured using the EPIDATA version 2.1. After data collection, all the information was subsequently entered to the computer and analyzed via SPSS version 12. An assistant was recruited to assist in filling-in the questionnaires.

Study limitations

> One may not be able to retrieve all files.

> Being a referral institution, the cases may not be a true representation of the situation on the ground.

Ethical consideration

- Permission to carry out the study was sought from the ethical and research committee of the Kenyatta National Hospital and granted.
- Permission was sought from the Chief Medical Records Officer to review the medical records of the patients who underwent hysterectomy during the specified period.
- The patients' names were not documented on any of the research tools to ensure confidentiality.
- Results of the study will be used for purposes of academia and for improvement of the standard of care.
- Results will be availed to the Kenyatta National Hospital.

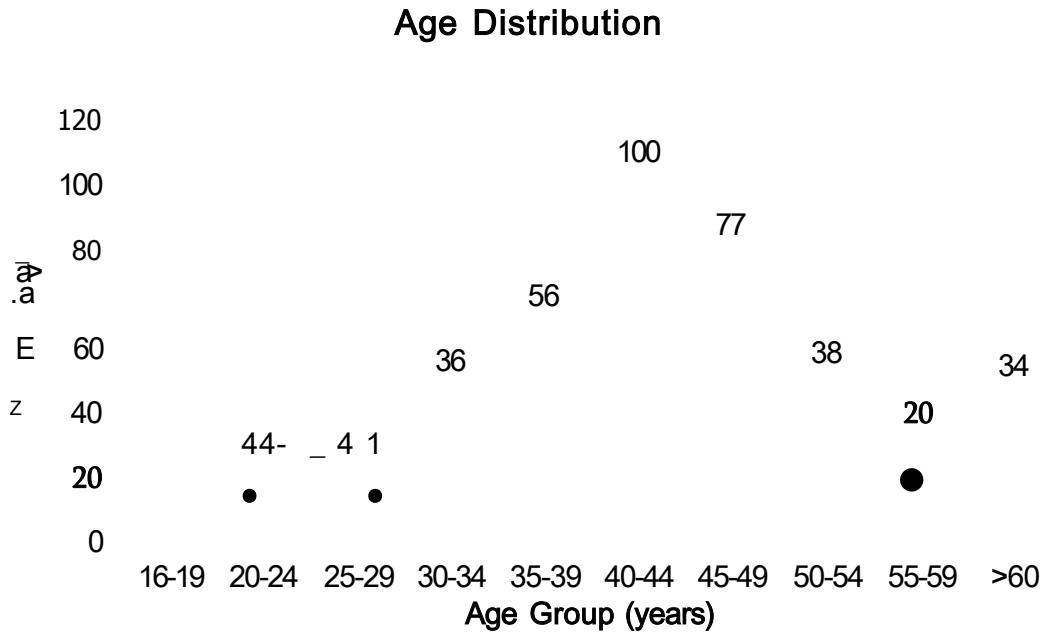
RESULTS

A total of 397 hysterectomies were carried out during the study period. The medical records of 390 patient files were retrieved and subsequently analyzed. Five files could not be retrieved while 2 had incomplete notes and were therefore excluded.

Social demographic profiles

Age

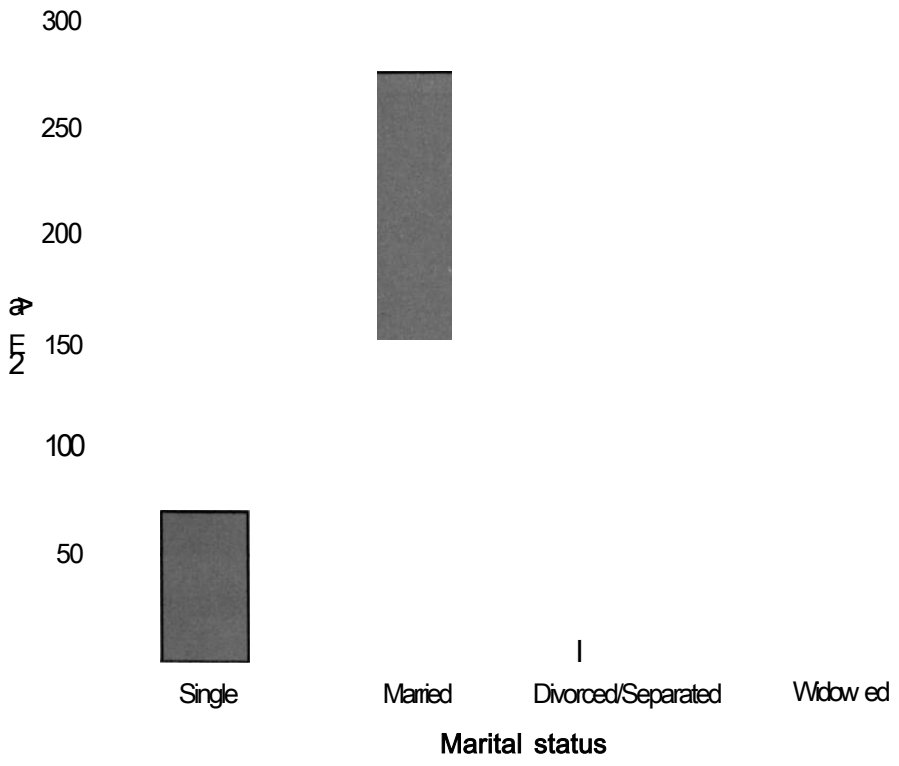
Figure 1 (n = 390)



The mean age was 43.98 years, with a range of 17 to 80 years. 24 of the women (6.3%) were less than 30 years of age while 34 (8.8%) were above 60 years (figure 1). The highest rate was among women aged between 40-44 years.

Marital status

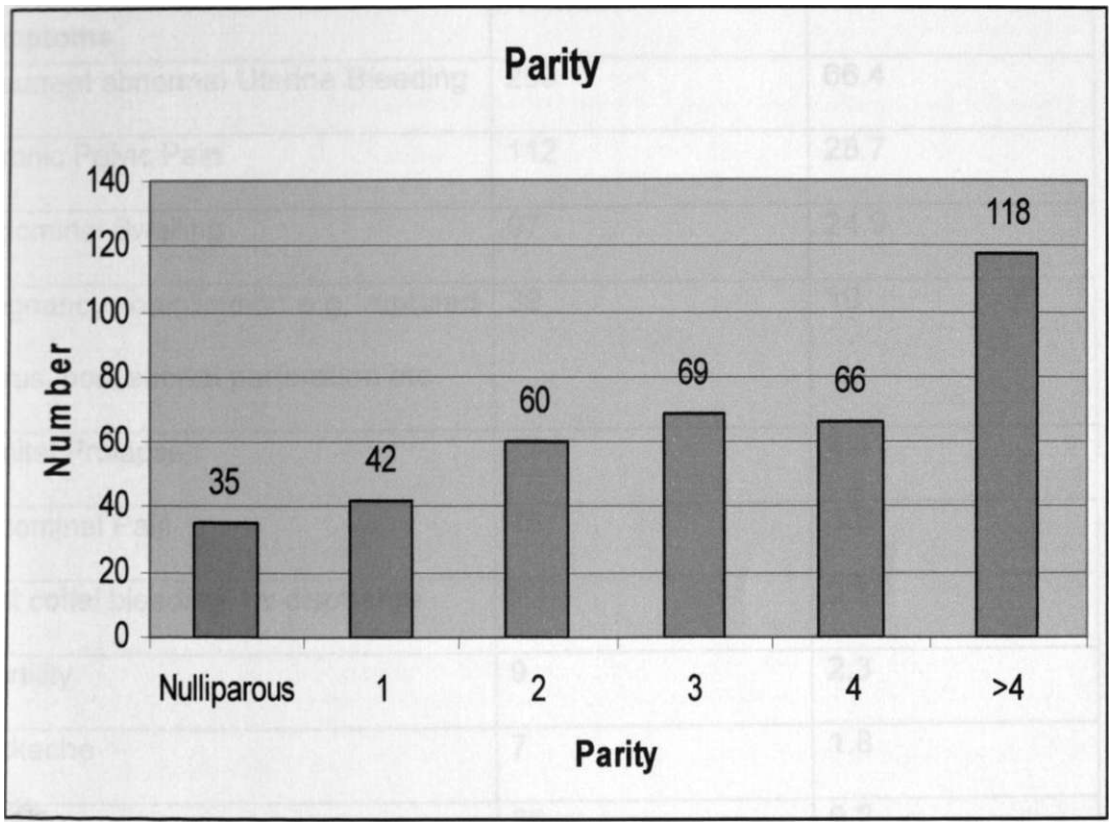
Figure 2 (n=390)



276 (70.8%) of the women were married, 70 (17.9%) were single, 33 (8.5%) were widowed, while 11 (2.8%) were divorced or separated (figure 2).

PARITY

Figure 3 (n=390)



35 (9.0%) of the patients were nulliparous while 355 (90.9%) were parous (figure 3).

Clinical symptoms

Table 1 (n=390)

Symptoms	Number	Percent
Recurrent abnormal Uterine Bleeding	259	66.4
Chronic Pelvic Pain	112	28.7
Abdominal Swelling	97	24.9
Pregnancy complication e.g, ruptured uterus, post abortal perforation etc	39	10
Genital Prolapse	17	4.4
Abdominal Pain	15	3.8
Post coital bleeding, pv discharge	13	3.3
Infertility	9	2.3
Backache	7	1.8
Others	36	9.2

Symptoms were noted down from major complaints in the history of the patient. Most of the patients had more than one symptom. Recurrent abnormal uterine bleeding was the commonest presenting complaint (66.4%). Chronic pelvic pain was noted in 28.7% and abdominal swelling in 24.9%. Pregnancy complications were noted in 39 (10%) patients (table 1).

Physical findings

Table 2 (n=390)

Physical Findings	Number	Percent
Abnormal enlarged uterus	159	40.8
Pelvic mass	109	27.9
Pallor	103	26.4
Cervical dysplasia from pap cytology	17	4.4
Genital prolapse	17	4.4
Pregnancy complication e.g bleeding, atonic uterus, rupture, perforation etc	39	10
Abdominal mass/tenderness	8	2.1
Normal findings	17	4.4

An abnormally enlarged uterus was noted in the majority of the patients (40.8%) while pelvic mass was palpated in 27.9% and pallor in 26.4%. Genital prolapse was found 4.4% and a further 4.4% had severe cervical dysplasia from pap cytology (table 2).

Pre- operative evaluation

Hematological examinations

Table 3 (n=390)

Hematological examinations	*Number*	Percent
Full blood count	371	95.1
Urea/Electrolytes/Creatinine	372	95.4
HIV test	24	6.2
Grouping and rhesus factor	5	1.3
Coagulation Profile	1	.3
PCV	13	3.3

Majority of the patients (>95%) had baseline hematological examinations. However a small number 24 (6.2%) had HIV testing and even fewer 5 (1.3%) had CA125 markers tested. This is of particular importance in the diagnosis and monitoring of the patients with the ovarian malignancy (table 3).

Radiological investigations

Table 4 (n=390)

Radiological investigation	Number	Percent
Ultra sound (Pelvic, Abdominal)	322	82.6
Hysterosalphingography	5	1.3
Intravenous urography	5	1.3
CT scan	2	.6
CXRAY	5	1.3
None	76	19.5

82.6% of the patients had ultrasound examination prior to surgery (table 4). However computerized tomographic scan (CT scan) was rarely utilized (0.6%).

Histopathological examinations

Table 5 (n=390)

Histopathological exams	Number	Percent
Pap smear	269	69.0
Cervical punch biopsy	9	2.3
Diagnostic D/C	10	2.6
Colposcopy	28	7.2
Ascitic Fluid cytology	7	1.8
Fractional Curettage	3	.8
None	99	25.4

Pap smear cytology was carried out for a significant number of patients 69%. Colposcopy (7.2%) and cervical punch biopsy (2.3%) are also carried out for those with abnormal pap cytological findings (table 5). Pre operative diagnostic dilatation and curettage was carried out in 10 (2.6%). This was done in the diagnosis of abdominal uterine bleeding.

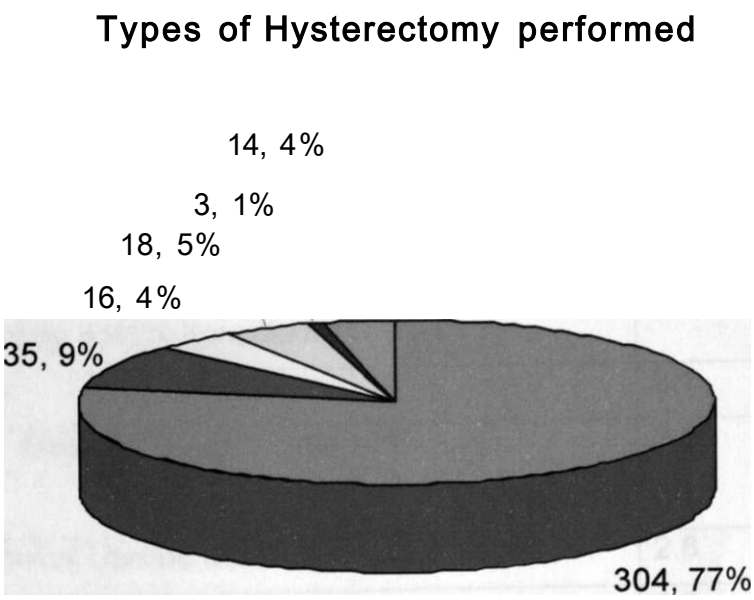
Peri operative treatment

Table 6 (n=390)

Peri operative treatment	Number	Percent
Hematinics	163	41.8
Hormones	33	8.5
Blood Transfusion	76	19.5
Diagnostic D/C	7	1.8
Antibiotics	10	2.6
Anticoagulants	1	.3
Insulin	1	.3
None	156	40.0

One hundred and sixty three patients (41.8%) received hematinics, 76 (19.5%) required blood transfusion in the peri operative period while a further 33 (8.5%) received hormones mostly in the form of progestins to control their symptomatology (table 6).

Types of Hysterectomy
Figure 4 (n=390)



Total abdominal hysterectomy was the commonest hysterectomy performed 77%, subtotal 9%, Wertheim's 5% and extended hysterectomy 4%. A total of 17 (5%) procedures were carried out vaginally and of these only 3 (1%) were done with laparoscopic assistance (figure 4).

Indication for hysterectomy

Table 7 (n=390).

Indications	Number	Percent
Leiomyoma	235	60.3
Pregnancy catastrophe e.g. PPH, ruptured uterus	39	10.0
Adnexial mass (e.g. ovarian neoplasm)	33	8.5
Operative complication e.g. uterine perforation, bleeding post myomectomy	13	3.3
Pelvic relaxation	12	3.1
Pre-Invasive Disease of the Uterus/Cervix	11	2.8
Recurrent Abdominal Uterine Bleeding	9	2.8
Adenomyosis	6	1.5
Chronic Pelvic Pain	3	.8
Endometriosis	2	.5

The most common indication for hysterectomy was uterine fibroids 60.3%. Pregnancy related complications such as post partum hemorrhage and ruptured uterus contributed 39 (10%) of the cases. Suspected ovarian neoplasm contributed 8.5% while invasive diseases of the cervix e.g early stage carcinoma of the cervix contributed 8.2% (table 7).

Duration of hospital stay

The mean duration of hospital stay was 11.03 days. It ranged from 0 for some patients who died to 136 in a patient who had a malignancy. 42% of the patients stayed for 5-7 days.

Histopathological diagnosis

Table 8 (n=329)

Pathological diagnosis	Number	Percent
Leiomyoma	235	71.4
Invasive Disease of the cervix	27	8.2
Ovarian malignancy	23	6.9
Adenomyosis	18	5.4
Endometrial Hyperplasia	10	3.0
Pre Invasive of the uterus/cervix	8	2.4
Endometrial Cancer	7	2.1
Endometriosis	2	.6
Genital Prolapse	2	.6
Placenta Accreta	2	.6
Tuberculosis	2	.6
Atrophic Endometrium	1	.3
Leiomyosarcoma	1	.3
Necrotic Uterus	1	.3
Placenta Inccreta	1	.3
Polycystic Ovarian Disease	1	.3
Refractive Uterus Secondary to Induced Abortion	1	.3
Uterine Choriocarcarcinoma	1	.3
Uterine Perforation with Abscess	1	.3

Pathological examination

329 (84.4%) of the specimens were submitted for histopathological examination following hysterectomy. Of these, 71.4% confirmed presence of leiomyoma, 8.2% showed presence of invasive disease of the cervix while 6.9% confirmed ovarian malignancy. Adenomyosis was noted in 18 (5.4%) and 10 (3.0%) had endometrial hyperplasia as shown in table 8.

Peri operative morbidity

Table 9 (n=127)

Peri operative Morbidity	Number	Percent
Bleeding	59	46.4
Wound complications eg sepsis, dehiscence	28	22.0
Fever	13	10.2
Chest or Respiratory Tract Infection	7	5.5
Ureteric and bladder injury	5	3.9
Constipation	5	3.9
UTI	5	3.9
DVT	4	3.1
Abscess/sepsis	2	1.5
Gastritis	2	1.5
Abdominal Pain	1	.8
Stress Incontinence	1	.8
Drug reaction	1	.8
Episiotomy Breakage	1	.8
Gut Perforation	1	.8
Incisional Hernia	1	.8

In the immediate peri operative period 127 (32.4%) of the patients suffered a morbid event. Bleeding was the most common complication 59 (15.1%), while wound complications 7.2% and fever 3.3% were also noted (table 9). Bleeding was considered significant if blood transfusion was necessary. 8 (2.1%) patients died (table 10).

Characteristics of patients who had mortality

Table 10 (n=8)

Patient	Age /years	Type of hysterectomy	Duration after operation/days	Indication for hysterectomy	Likely cause of death
1	26	STH	2	Septic abortion with perforation	Peritonitis
2	50	TAH	9	Ovarian neoplasm	Developed bronchospasm post operatively
3	38	TAH	0	Perforated uterus and sigmoid colon	Peritonitis
4	38	TAH	2	?ovarian neoplasm, histology showed TB, pt seropositive	Tuberculous peritonitis
5	31	STH	1	Ruptured uterus	hemorrhage
6	23	STH	0	IUFD, Ruptured uterus	sepsis
7	23	STH	0	Septic abortion with perforation	peritonitis
8	65	TAH	1	Ovarian neoplasm intraop had small bowel injury	unknown

From our series, 8 (2.1%) patients died either immediately or within a short duration post-operatively. 5 of those who died (62.5%) underwent the procedure for an acute indication, while 3 (37.5%) had surgery on elective basis.

DISCUSSION

Over the two years of study, over 390 hysterectomies were performed in Kenyatta National Hospital. 10.5% of these were done as emergencies for obstetrical indications while the rest (89.5%) were elective. The mean age of the patients was 43.98 years, with a range of 17 to 80 years. Khan found a comparable mean of 43.9 years in a similar study at the Aga Khan Hospital. 19 (6.3%) of the patients were less than 30 years of age. The highest rate occurred among women in the 40-44 years age group, which is similar to the CDC studying the US between 1980 and 1993[2].

In our study, 70.8% of the patients were married, 17.9% single, 8.5% widowed and 2.8% were either divorced or separated. Also noted was that 9.0% of the patients were nulliparous. Khan reported 4.7% while Omollo recorded 17.4% in a similar study at the Nazareth mission hospital[6].

Symptomatology was noted from the major presenting complaints of the patients. Recurrent abnormal uterine bleeding was the commonest presenting complaints (66.4%). Chronic pelvic pain was present in 28.7% while abdominal swelling was reported by 24.9%. Patients who were admitted with a pregnancy complication such post partum hemorrhage, ruptured uterus or post abortal uterine perforation were 10%. On physical examination, 40.8% of the patients were noted to have an abnormally enlarged uterus (>-14 weeks gestation), whereas 27.9% had a pelvic mass palpated and a further 26.4% had anemia.

Ultrasonography was the commonest radiological investigation carried out in the pre operative evaluation (82.6%). Computerized tomographic scan (CT scan) was only utilized in 2 patients. This is dismal considering that the service is readily available in the hospital even if the cost is prohibitive to most low-income patients. It is particularly important in malignancy where most details are availed to the surgeon as surgery is planned. Hysteroscopy as a diagnostic and/or interventional method was not observed in any of the patients who eventually underwent the procedure. Similarly no patient had magnetic resonance imaging (MRI).

Pap smear cytology was utilized in 69% of the patients. This is important in the evaluation of patients since abnormal cytological results may warrant further colposcopic examination and biopsy. Since most of the patients undergo the procedure for elective reasons, it is important that most if not all have the examination done as a routine. Pre-operative diagnostic dilatation and curettage is also rarely carried out (2.6%). In the evaluation of abnormal uterine bleeding it may be both diagnostic and therapeutic.

A majority of the patients had baseline hematological evaluation (>95%). However, it was noted that serology for HIV was not routinely done (6.2%). Tumor markers such as CA125 were also rarely done (1.3%). The importance of these in the monitoring of ovarian malignancy should be emphasized. In the peri-operative period, 163 patients (41.8%) received hematinics, 76 (19.5%) required blood transfusion while a further 33 (8.5%) received hormones mostly in the form of progestins to control their symptomatology.

Total abdominal hysterectomy was the commonest hysterectomy performed 77%, subtotal 9%, Wertheim's 5% and extended hysterectomy 4%. A total of 17 (5%) procedures were carried out vaginally and of these only 3 (1%) were done with laparoscopic assistance. In the US in 1990 some 134 497 (24.4%) of American women having hysterectomy had a vaginal procedure, while in 1997 the number was 139 629 (23.3%). During this time frame, the proportion of laparoscopic hysterectomies had increased from 0.3% to 9.9% [20]. Similarly, in Australia the proportion of vaginal hysterectomies in 1993 was 37%and in 1998 it was it was 37%, during which interval the proportion of laparoscopic hysterectomies had increased from 2.8% to 13.8% [21].

Uterine leiomyomas accounted for 60.3 percent of hysterectomies in our series. The main symptoms attributable to leiomyomas are excessive bleeding, pelvic pain, and symptoms related to pressure on adjacent organs (including back pain and urinary symptoms). Anemia and silent ureteral obstruction may also occur. The natural history of untreated leiomyomas has not been studied, although it is known that they generally stabilize or regress after menopause. One concern has been that of increased operative morbidity if

hysterectomy is deferred and leiomyomas enlarge. One study however, found that peri operative complications and bleeding were not increased in women with a uterus larger than would be expected at 12 weeks of gestation (i.e. an extension of the uterus beyond the pelvic brim), as compared with women with a smaller uterus[22]. Another rationale for the removal of an asymptomatic fibroid uterus is the avoidance of future symptoms. Predicting which patients will have symptoms is difficult, however, and there is no evidence to support this rationale for hysterectomy.

Massive postpartum hemorrhage, which is most frequently due to uterine atony, may require hysterectomy if it does not respond to other medical/surgical measures[23]. Emergency hysterectomy may also be required for uncontrollable hemorrhage associated with uterine rupture or the laceration of a major blood vessel[23, 24]. Hysterectomy is indicated for septic endometritis with pyometra that occurs after an abortion, particularly in the presence of a life-threatening infection such as clostridial infection. Hysterectomy is also sometimes indicated to treat inversion of the postpartum uterus, cervical or corneal-angle pregnancy, or bilateral or unilateral ectopic pregnancy when the patient desires no further pregnancies[24]. In our series obstetrical causes accounted for 10 per cent of the hysterectomies performed.

Invasive disease of the cervix accounted for 8.2% while pre-invasive disease accounted for 2.8%. The treatment of cervical intraepithelial neoplasia is guided by the severity, extent, and location of the lesion, as well as by the patient's ability to comply with follow-up. Cervical intraepithelial neoplasia class I, II, or III is best treated conservatively, with laser vaporization or excision, cone biopsy, loop electrosurgical excision procedures, or cryotherapy where available[25, 26]. In rare cases, hysterectomy may be necessary for cervical intraepithelial neoplasia class III that cannot be completely removed with conization[24]. Hysterectomy is the definitive treatment for early invasive cervical carcinoma.

Dysfunctional uterine bleeding accounted for approximately 2.3 percent of hysterectomies. It is a diagnosis of exclusion, referring to excessive bleeding not attributable to uterine

leiomyomas, polyps, endometrial or cervical neoplasia, pregnancy, pelvic infection, or endometriosis. In the evaluation of excessive bleeding, the underling causes are sought by endometrial sampling, dilatation and curettage, or hysteroscopy as indicated by the history and physical examination[24]. Coagulopathies should be excluded.

Dysfunctional uterine bleeding that repeatedly limits the patient's daily activities or is associated with anemia should first be treated medically. Available medical treatments include non-steroidal anti-inflammatory drugs, progestins with or without estrogen, danazol, and GnRH agonists[27]. These treatments usually require a trial of more than one month before efficacy can be determined.

If medical therapy is ineffective in reducing symptoms to a tolerable point or side effects are limiting, endometrial ablation may be considered. Hysteroscopic resection of the endometrium, using laser or electrocautery techniques, has been effective in abolishing or reducing bleeding in 70 to 90 percent of cases[28]. Most of these methods are unavailable at our centre. Hysterectomy is indicated for severe chronic dysfunctional bleeding only when there has been no response to an adequate trial of medical therapy.

Genital prolapse was the reason for 3.1 percent of hysterectomies. The term includes uterine prolapse, cystourethrocele, enterocele, and rectocele. Symptoms attribute to prolapse include pelvic pressure, urinary incontinence, rectal discomfort, and discomfort related to the irritation or ulceration of externalized mucosal tissues. The primary objectives of surgical treatment for symptomatic genital prolapse are the relief of symptoms, the repair and reconstruction of weakened pelvic support, and the restoration of normal anatomy and function. Symptomatic prolapse of the uterus beyond the introitus is a clear indication for hysterectomy[24].

Two hysterectomies were performed because of endometriosis. When it is symptomatic, endometriosis is associated with pelvic pain, dysmenorrhoea, dyspareunia, and irregular bleeding. A range of medical and surgical treatments for symptomatic endometriosis are available. Because the progression of this condition appears to be estrogen-dependent,

medical therapy centers on hormonal suppression with GnRH agonists or danazol. Conservative surgical techniques based on ablation and excision of lesions is indicated when large endometriomas are present or when short-term medical management fails to control symptoms or is not well tolerated. Major surgery is indicated only when the conservative approaches fail or when there is concern about the side effects of long-term hormonal suppression, such as osteoporosis[24]. Bilateral salpingooopjorectomy for endometriosis may be accompanied by hysterectomy when it has been determined that the uterus (as well as the adnexae) is a source of symptoms[24].

Though only 6 patients had a pre-operative diagnosis of adenomyosis, 18 uteri had adenomyosis on histopathological examination. Adenomyosis (endometriosis located within the myometriuim) may cause uterine enlargement, menorrhagia, and dysmenorrhea!. Its presence may be suggested by ultrasound or magnetic resonance imaging. Although GnRH agonists are sometimes used clinically to treat symptomatic adenomyosis, there are no data on the efficacy of hormone-suppression therapy for this condition. Hysterectomy is thus currently indicated[24].

Chronic pelvic pain was the indication for approximately .8 percent of hysterectomies. The underlying cause of the pain should be carefully investigated before hysterectomy is considered. The gynecologic evaluation includes a pelvic examination, laparoscopy, and ultrasonography or magnetic resonance imaging to rule out the presence of leiomyoma, endometriosis, ovarian and tubal disorders, and pelvic inflammatory disease. An evaluation for gastrointestinal, urinary, and musculoskeletal causes of pain should be undertaken on the basis of the history and physical examination. Medical therapy should always be undertaken before hysterectomy is considered for idiopathic chronic pelvic pain. Non-steroidal anti-inflammatory agents and oral contraceptives, which are highly effective for dysmenorrhea!, are widely used for the treatment of chronic pelvic pain as well [29]. GnRH agonists have been used in clinical practice, although there are no data on their effectiveness for chronic pelvic pain.

Endometrial hyperplasia accounted for approximately 2.1 percent of hysterectomies. The majority of such hyperplasias, those without atypia, have a very low risk of progression to endometrial carcinoma (1 percent for simple and 3 percent for complex hyperplasia without atypia)[30]. Hysterectomy is not indicated in such cases.

The presence of atypical endometrial hyperplasia is an indicator for hysterectomy only in specific circumstances[31]. When the preservation of fertility is desired and endometrial carcinoma has been ruled out by fractional dilatation and curettage, progestin therapy with careful monitoring is the preferred treatment; hysterectomy is indicated if subsequent endometrial sampling demonstrates persistent atypia. In the peri-menopausal patient, progestin therapy with close follow-up is an alternative to hysterectomy. Initial hysterectomy is indicated for atypical hyperplasia when the patient desires a definitive procedure or is postmenopausal.

Hysterectomy is indicated in rare cases for gestational trophoblastic disease that persists after chemotherapy or causes uncontrollable bleeding in patients who do not desire a future pregnancy. One specimen showed uterine choriocarcinoma.

In the immediate peri operative period 127 (32.4%) of the patients suffered a morbid event. These rates of peri operative complications are comparable to 24% for vaginal hysterectomy to 43% for abdominal hysterectomy reported in large published series in the US[17]. Bleeding was the most common complication (15.1%), while wound complications 7.2% and fever 3.3% were also noted. Bleeding was considered significant if blood transfusion was necessary. Ureteric and/or bladder injury occurred in a total of 5 patients in this series.

The mortality rate in this series was 2.1%. Of the 8 patients who died 5 had severe infection as a possible cause of death. 3 of these had peritonitis secondary to septic abortion with attendant gut perforation. One other patient had a ruptured uterus with intra-uterine fetal death while one with suspected ovarian neoplasm had a pathological report showing disseminated tuberculous peritonitis.

The mean duration of hospital stay was 11.03 days. It ranged from 0 for the patients who died within the peri-operative period to 136 days in a patient who had a malignancy. 42% of the patients stayed for 5-7 days. This duration is comparable to local data from Omollo at Nazareth hospital who recorded a mean duration of 9 days[6].

329 (84.4%) of the specimens were submitted for histopathological examination following hysterectomy. Of these, 71.4% confirmed presence of leiomyoma, 8.2% showed presence of invasive disease of the cervix while 6.9% confirmed ovarian malignancy. Adenomyosis was noted in 5.4% and 3.0% had endometrial hyperplasia.

Conclusions

- Hysterectomy is a common surgical procedure at the Kenyatta National Hospital.
- The associated morbidity was 32.4% and a mortality 2.1% during the study period.
- The use of other radiological methods apart from ultrasonography is low. Computerized Tomographic Scan is rarely utilized whereas MRI is seldom used in investigating the patients.
- The use of tumor markers such as CA125 is also particulary low.
- The proportion of hysterectomies carried out vaginally is low. This therefore, has led to an even lower proportion of laparoscopic assisted vaginal hysterectomies.
- The number of specimens submitted for histopathological examination is commendable. However, since the hospital enjoys the services of many well trained pathologists, it should endeavor to have all specimens availed for examination.

Recommendations

- CT scan and MRI should be utilized more in the pre-operative evaluation of patients prior to undergoing surgery.

Since laparoscopy is available, it should be utilized more in the diagnosis of various gynaecological disorders prior to surgery. The use to hysteroscopy as a diagnostic and/or interventional method needs to be embraced.

The proportion of hysterectomies carried out vaginally needs to be increased. In doing so, it is expected that the resultant number will lead to an increase in the number of laparoscopic assisted vaginal hysterectomies (LAVHs).

There is need to increase the time and the opportunities in laparoscopic surgery, in order to provide trainee gynaecologists with what they need to become surgically confident and competent in this fast growing sub speciality.

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APPENDIX 1; OBSTETRIC WRITTEN CONSENT FORM

Study written consent form

TITLE: To determine the utility of clinical versus laboratory based assessment of STIs among pregnant HIV infected women attending antenatal care at the KESHO BORA study clinic KENYATTA NATIONAL HOSPITAL.

Study Investigator Jackson Mutinda MBch B, M Med student in the Department of Obstetrics and Gynecology, University of Nairobi, Tel no. 0722677432.

Ethical review committee chairperson; Professor K.M. Bhatt, 0202726300.

Researcher's Statement

You are being asked to participate in a research study. This consent form is meant to give you information that will help you to decide whether to participate or not. Thereafter, you may ask questions regarding the purpose of the study, the possible risks and benefits, your rights as a volunteer, and anything else that you do not understand. When all your questions are answered, then you may decide to be in the study or not. If you so wish, a copy of this form will be availed to you by the researcher.

Purpose and benefits

The purpose of this study is to determine the utility of clinical versus laboratory based assessment of sexually transmitted diseases among pregnant HIV infected women. You shall be examined and thereafter blood and genital samples obtained from you. Laboratory evaluation will determine the presence or absence of the various STIs. Treatment will be offered to those who are infected. Your participation may help other pregnant women affected by the same infections.

Risk or discomforts

Some of the questions asked may be embarrassing. You may also find the examination uncomfortable. Feel free to inform the examiner.

Volunteer's statement

I confirm that the purposes and procedures of the above study have been communicated to me and that I have had the opportunity to ask questions and have received answers to my satisfaction.

I understand that my participation is voluntary and that am free to withdraw at any time, without giving reason. My medical rights will not be affected by this action.

I agree to take part in the above study on my own free will.

Signature of volunteer:_____Name:

Date:

APPENDIX II; OBSTETRIC QUESTIONNAIRE

Study {number}

1 {Age} in years ## / {year} of birth ####

2 {Marital} status #
1-Single
2-Married Monogamous
3-Married Polygamous
4-Divorced
5-Widowed
6-Others

3 {parity} #
1. Nulliparous
2. 1
3. 2
4. 3
5.4
6. >4

4 {Condom} use #
1. Currently
2. In the past
3. Sometimes
4. Never

5 {Partners} in the past 12 months #
1. one
2. two
3. three
4. >three

6 Partner {Characteristics} #
1. circumcised
2. Non circumcised

7 {History} of STIs in the past #
1. yes
2. No
3. Unknown

8 Clinical symptoms (please tick where appropriate-might have multiple response)
{8a} Per vaginal discharge #
{8b} Low abdominal pain #
{8c} Genital ulceration #
{8d} Per vaginal prutitus #
{8e} Dysuria #
{8f} Others

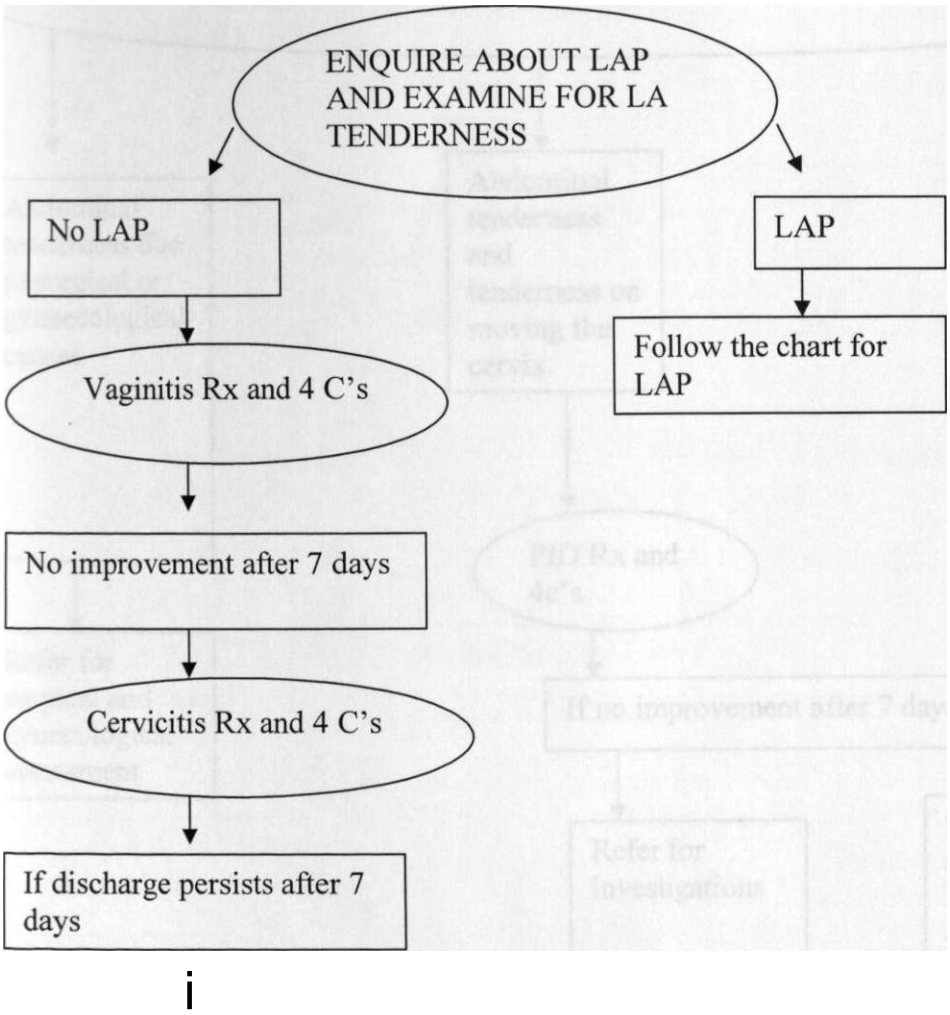
9 Physical findings of patients (please tick where appropriate-might have multiple response)
{9a} vaginal discharge #
{9b} vaginal ulceration #
{9c} Cervical discharge #
{9d} Cervical ulceration #

{9e> Supra pubic tenderness #
{9f> Others

{10} Laboratory investigations (please tick where appropriate)
{10a} VDRL # 1-Yes 2-No
{10b} Bacterial Vaginosis # 1-Yes 2-No
{10c} Trichomonas vaginalis # 1-Yes 2-No
{10d} Chlamydia trachomatis # 1-Yes 2-No
{10e} Gonorrhea # 1-Yes 2-No
{10f} Candidosis # 1-Yes 2-No

APPENDIX III; SYNDROMIC MANAGEMENT FLOW CHARTS

VAGINAL DISCHARGE OR PRURITUS

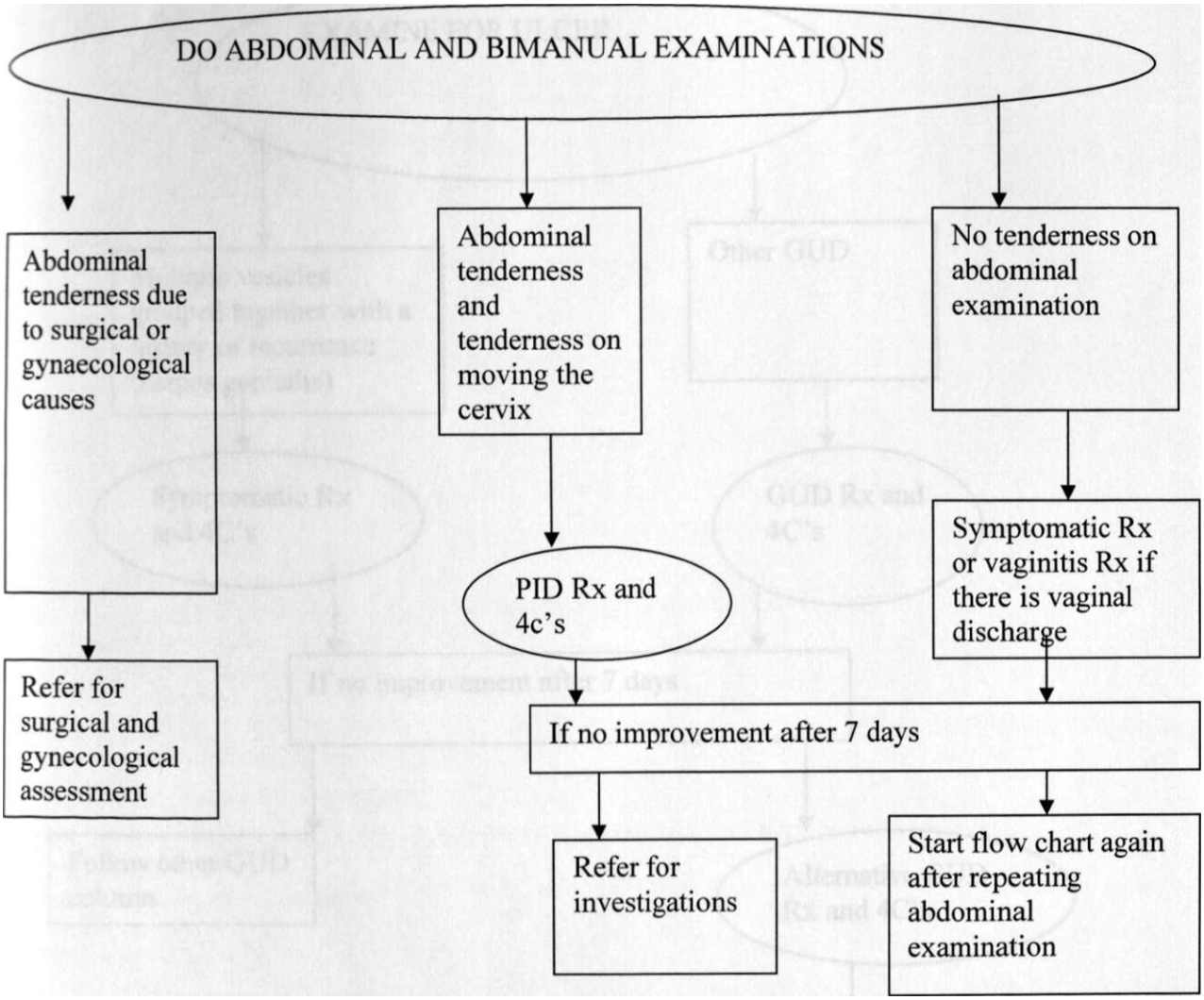


Refer for investigations

Vaginitis: Usually caused by Candida and trichomona. Cervicitis usually caused by gonorrhoea and Chlamydia

Vaginitis Rx: Clotrimazole 1 pessary intravaginally daily x 6 days AND Metronidazole 2g stat, if pregnant: Clotrimazole 1 pessary intravaginally daily x 6 days.

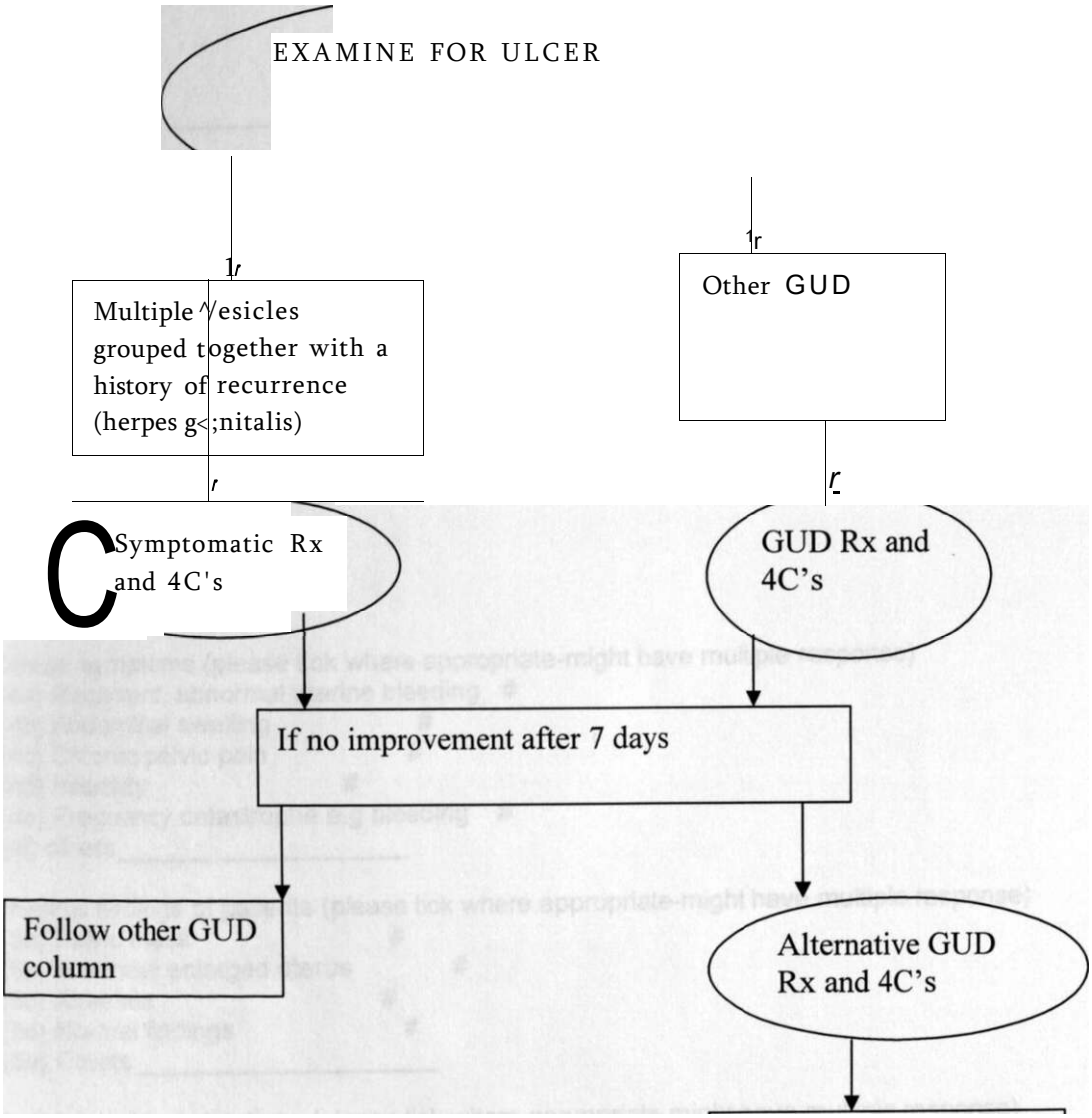
Cervicitis Rx: Norfloxacin 800mg stat AND Doxycycline lOOmg bid x 7 days.
If pregnant: IM Spectinomycin 2g stat AND Erythromycin 500mg qid x 7 days.



PID: Caused by gonorrhoea, chlamydia and mixed anaerobes.
It could also be surgical or obstetrical.

PID Rx: Norfloxacin 800mg stat AND Doxycycline lOOmg bid x 7 days AND Metronidazole 400mg bid x 10 days.
If pregnant: refer for obstetric evaluation if PID is suspected.

GENITAL ULCER DISEASE



GUD Rx: Erythromycin 500mg tid x 7 days AND Benzathine penicillin 2.4 MU IM stat.
If penicillin allergy use Erythromycin 500mg qid x 14 days

Alternative Rx: Ceftriaxone 250mg IM stat.

APPENDIX IV; GYNAECOLOGY QUESTIONNAIRE

Questionnaire

{Name} Initials_____File {number}

1 {Age} in years ## / {year} of birth ####

2 {Marital} status #
1-Single
2-Married
3-Divorced
4-Others

3 {parity} #
1. nulliparous
2. 1
3.2
4. 3
5.4
6. >4

4 Clinical symptoms (please tick where appropriate-might have multiple response)
{4a} Recurrent abnormal uterine bleeding #
{4b} Abdominal swelling #
{4c} Chronic pelvic pain #
{4d} Infertility #
{4e} Pregnancy catastrophe e.g bleeding #
{4f} others_

5 Physical findings of patients (please tick where appropriate-might have multiple response)
{5a} Pelvic mass #
{5b} abnormal enlarged uterus #
{5c} Anaemia #
{5d} Normal findings #
{5e} Others_

6 Radiological investigations (please tick where appropriate-might have multiple response)
{6a} Pelvic u/scan #
{6b} Hysterosalphingography #
{6c} Intravenous urography? #
{6d} CTScan #

7 Histopathological exams (please tick where appropriate-might have multiple response)
{7a} Pap smear #
{7b} Cervical punch biopsy #
{7C} Diagnostic D/C #
{7d} None #

8 Hematological (please tick where appropriate-might have multiple response)
{8a} Full blood count #
{8b} Urea/Electrolytes/Creatinine #
{8c} HIV test #
{8d} Grouping and rhesus factor #

9 Preoperative treatment (please tick where appropriate-might have multiple response)
{9a} Hematinics #
{9b} Hormones #
{9c} Blood transfusion #
{9d} Diagnostic D/C #

10 {Duration} of hospital stays / in days ###

11 Peri-operative morbidity (please tick where appropriate-might have multiple response)
{11 a} Wound complication #
{11b} UTI #
{11c} Fever #
{11 d> Chest or respiratory tract infection #
{11e} Bleeding #
{11f} Others

12 Type of hysterectomy #
{12a} TAH
{12b} Subtotal
{12c} Extended
{12d} Wertheim's
{12e} LAVH
{12f> Vaginal Hysterectomy

13 Indications ##
A1-Preqnancy catastrophe
A2-Operative complication
B1-Leiomyoma
B2-recurrent abnormal uterine bleeding
B3-Endometriosis
B4-Adenomyosis
B5-Adnexeal mass(eg ovarian neoplasm)
C1-gynaecologic malignant diseases/invasive diseases
C2-Pre-invasive disease of the uterus /cervix
D1-Chronic pelvic pain
D2-Pelvic relaxation
D3-Stress urinary incontinence

{14} Pathological confirmation of diagnosis #
1-available
2-not available

15 If available, what is the diagnosis #
1-Leiomyoma
2-Endometriosis
3-Adenomyosis
4-Ovarian neoplasm
5-Invasive disease
6-Pre invasive of the uterus/cervix
7-Endometrial cancer
8-Others
9-Normal

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C S f f I

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Ref: KNH-ERC/ 01/ 3243

Date: 1st February 2006

Dr. Jackson Mutuku Mutinda
Dept of Obs/Gynae
Faculty of Medicine
University of Nairobi

Dear Dr. Mutinda

RESEARCH PROPOSAL: "A REVIEW OF HYSTERECTOMY AT THE KENYATTA NATIONAL HOSPITAL" (P206/12/2005)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** revised version of your above cited research proposal for the period 1st February 2006 - 31st January 2007. You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given.

On behalf of the Committee, I wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study. ..

This information will form part of database that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF A N GUANTAI
SECRETARY, KNH-ERC

c.c. Prof. K.M.Bhatt, Chairperson, KNH-ERC
The Deputy Director CS, KNH
The Dean,Faculty of Medicine, UON
The Chairman, Obs/Gynae UON
The Head, Medical Records, KNH
Supervisors: Dr. Njoroge Waithaka, Obs/Gynae, KNH
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Ref: KNH-ERC/ 01/ 3359

Date: 10th March 2006

Dr. Jackson Mutuku Mutinda
Dept. of Obs/Gynae
Faculty of Medicine
University of Nairobi

Dear Dr. Mutinda

RESEARCH PROPOSAL: "TO DETERMINE THE UTILITY OF THE SYNDROMIC MANAGEMENT IN THE TREATMENT OF STIs AMONG PREGNANT HIV INFECTED WOMEN ATTENDING ANTENATAL CARE AT THE KESHO BORA STUDY CLINIC, K.N.H." ^44/2/2006)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** your above cited research proposal for the period 10th March 2006 - 9th March 2007.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given.

On behalf of the Committee, I wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF A N GUANTAI
SECRETARY, KNH-ERC

c.c. Prof. K.M.Bhatt, Chairperson, KNH-ERC
The Deputy Director CS, KNH
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The Chairman, Obs/Gynae, UON
The HOD, Medical Records, KNH
Supervisors: Dr. Sammy Kyalo, Obs/Gynae, UON
Dr. Njoroge Waithaka, Obs/Gynae, KNH
Prof. Ruth Nduati, Dept. of Paediatrics., UON