CASE RECORDS AND LONG COMMENTARIES

IN OBSTETRICS AND GYNAECOLOGY

SUBMITTED BY

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FOR

PART FULFILMENT OF THE

DEGREE OF MASTER OF MEDICINE

IN

OBSTETRICS AND GYNAECOLOGY

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DEDICATION

To my husband Dr. Masoud, and our children Aziza and Hamoud for their love, patience, support and understanding.

To my brothers and sisters - Dr Mkoko, Said, Dr Maua and Sharifa for in inspiring me to take a career in medicine. To my mother Aziza Salum and my father Suleiman S. Said for their support and encouragement.

With this course, hopefully, I have fulfilled a small bit of each one of your dreams.

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I wish to express my most sincere gratitude to my main supervisor Dr. M. Ndavi and Dr. G. Ndirangu for their efforts to see that my proposals and long commentaries were properly written by offering expert advice and guidance and also making very meaningful critique of the long commentaries. I would also like to thank Dr. J. B. Oyieke, Prof. Karanja, Dr. Wasike, Dr. J. Wasiche, Dr. Wanyoike, Dr. Mwanda, and Dr. F. Abdallah for their invaluable assistance in the write-up and guidance and advice throughout my training.

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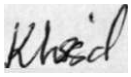
Finally, I wish to thank all the special people in my private life especially Mr. Abdullah Kassim and his wife Shumi, Mr Hassan and Wafa for their kind support and love without whom this work would perhaps would not have seen the light of the day. May God bless you all abundantly.

DECLARATION

I hereby declare that the short cases presented in this book were managed by me under the supervision and guidance of senior members of staff at the department of obstetrics and gynaecology at Kenyatta National Hospital and Kakamega Provincial General Hospital.

I further declare that the two long commentaries in this book are my original work and have not been presented for a degree in any other University.

Signed 

Date *f£ • I 2 • 2oo£*

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CERTIFICATE OF SUPERVISION

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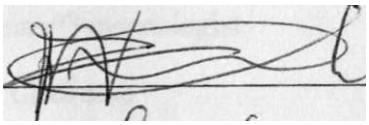
Signature: 

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CERTIFICATION

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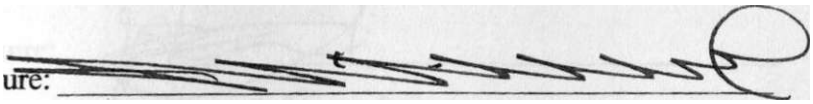
Signature: 

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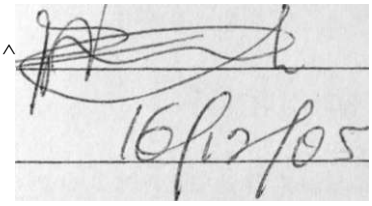
Date: 

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GOPC Gynaecology Outpatient Clinic

GTN Gestational Trophoblastic Neoplasm

HAART Highly Active Antiretroviral Therapy

Hb Haemoglobin

HCG Human Chorionic Gonadotrophin

HCT Haematocrit

HIV Human Immunodeficiency Virus

hMG Human Menopausal Gonadotrophin

HPV Human Papillomavirus

HSG Hysterosalpingogram

HSIL High Grade Squamous intraepithelial Lesion

ICSI Intracytoplasmic Sperm Injection

ICT Indirect Coomb's Test

IDMS Infants of Diabetic Mothers

INR International Normalizing Ratio

IPT Intermittent Preventive Treatment

ITN Insecticide Treated Nets

IUCD Intrauterine Contraceptive Device

IUGR Intrauterine Growth Restriction

IVF In vitro Fertilization

JAMA Journal of American Medical Association

KNH Kenyatta National Hospital

LEEP Loop Electrosurgical Excision Procedure

LFT Liver Function Tests

LH Luteinizing Hormone

LSIL Low Grade Squamous Intraepithelial Lesion

MMed Master of Medicine

MSB Macerated Stillbirth

MTCT Mother to Child Transmission

MTX Methotraexate

MVA Manual Vacuum Aspiration

MCV Mean Corpuscular Volume

MCH Mean Corpuscular Haemoglobin

MCHC Mean Corpuscular Haemoglobin Concentration

NBU	Newborn Unit
NCI	National Cancer Institute
NDDG	National Diabetic Data Group
OGTT	Oral Glucose Tolerance Test
PCP	Pneumocystis Carinii Pneumonia
PGDM	Pregestational Diabetes Mellitus
PGE2	Prostaglandin E2
PID	Pelvic Inflammatory Disease
PMCT	Prevention of Mother to Child Transmission
POC	Products of Conception
PCV	Packed Cell Volume
PROM	Premature Rupture of Membranes
PTI	Prothrombin Time Index
RBC	Red Blood Cells
RHD	Rheumatic Heart Disease
RhlgG	Rhesus Immunoglobulin G
RNA	Ribonucleic Acid
RVF	Rectovaginal Fistula
SCJ	Squamocolumnar Junction
SP	Sulphadoxine Pyrimethamine
SPSS	Statistical Package for Social Sciences
TAH	Total Abdominal Hysterectomy
TOA	Tubo-Ovarian Abscess
TT	Tetanus Toxoid
TZ	Transformation Zone
UECr	Urea, Electrolytes and Creatinine
UNDP	United Nations Development Program
UNICEF	United Nations Emergency Children's Fund
VAS	Vibroacoustic Stimulation
VBAC	Vaginal Birth after Caesarean
VDRL	Venereal Disease Research Laboratory
VVF	Vesicovaginal Fistula
W.H.O	World Health Organization
WBC	White Blood Cells

INTRODUCTION

KENYATTA NATIONAL HOSPITAL

Kenyatta National Hospital (KNH) is situated about 4 km on the western side of the central business district of the City of Nairobi. It was started as a small hospital called the Native civil Hospital in 1901 when Kenya was a British colony. It was changed to King George V Hospital and later in 1970 to its present name Kenyatta National Hospital. It was made a parastatal body in 1987 and has continued to serve as National Referral Hospital in the country; referrals are mainly received from all public and private health institutions in the country as well as from neighbouring countries. The hospital provides preventive, curative, promotive, specialised and rehabilitative services.

This hospital has been offering teaching facilities for the College of Health Sciences since the inception of the Faculty of Medicine in 1967. This is at both undergraduate and postgraduate levels. Research facilities are also found within the hospital complex mainly under the University of Nairobi's faculties of Medicine, Pharmacy and Dentistry. It also acts as a teaching facility for nurses and paramedical staff.

OBSTETRIC SERVICES

The obstetric services in this hospital are provided in the antenatal clinic, maternity unit and the post-natal clinic.

The Antenatal Clinic (ANC)

The antenatal clinic at KNH caters for both patients in high-risk category and for general antenatal mothers. These patients are booked into the clinic every Monday morning alternately by each of the three firms. The patients are interviewed by the clinic midwives who record personal history, obstetric history, medical and surgical history. Blood pressure, weight, height measurements and urinalysis are done on all patients. Normally, about fifty patients and a few staff members are booked per session. A detailed medical, obstetric, gynaecological, family and social history are taken for the patients who are booked for follow up. An initial thorough physical examination is performed subsequently, follow-up examinations to include uterine size, fetal lie, presentation and fetal heart tones are done. Blood for antenatal profile

haemoglobin estimation, blood group and rhesus and serology for syphilis is taken. Voluntary confidential counselling is done to every client and testing test for HIV is encouraged and performed as part of antenatal profile test. Those who are found to be HIV infected are put on zidovudine from the 34th week of gestation to term. They are also advised on the options available of feeding the infant after delivery. Other tests relevant to individual patients e.g. random blood sugar, indirect Coomb's test (ICT), obstetric scan, etcetera, are requested as appropriate. The patients are then given appointments for subsequent visits; those for immediate admission are sent to the antenatal wards through the labour ward.

Follow up

The focused antenatal care method is being introduced where the clients visit the clinic for follow-up at least 4 times in there entire gestation. However, the traditional method is also used where clients are seen every four weeks up to 28 weeks gestation, two weekly up to 36 weeks gestation and then weekly thereafter until delivery. Patients may be seen more or less often depending on individual needs. During each visit, the following are recorded:

• Weight. • Blood pressure measurement. • Urinalysis for protein and sugar.

Complaints are also sought for form the client and management/treatment is provided as appropriate for individual cases. Abdominal examination is done during each visit and compared with previous findings and the calculated gestation. The fetal lie, presentationand heart tones are ascertained.

At 36 weeks gestation, a clinical pelvic assessment is done on all primigravida and at 37 weeks, radiological pelvimetry is done on patients with one previous Caesarean section of non-recurring indication. A clinical pelvic assessment may also be done instead of the radiological pelvimetry. For those planned for elective induction of labour or repeat Caesarean section, amniocentesis may done at 38 weeks gestation for assessment of fetal lung maturity.

During each visit, the clinic midwives provide health education sessions; patients are enlightened on regular clinic attendance, better nutrition and hygiene, preparation for labour and childbirth, postpartum care, family planning and STIs, HIV/AIDS.

The Maternity unit

The Maternity Unit is made up of the labour ward, three antenatal/postnatal wards, a maternity theatre, a private maternity wing, a mothers' hostel and the newborn unit. Over 6000 deliveries are conducted in the unit annually.

The Labour ward unit

The Labour Ward comprises of ten first stage cubicles each with two beds. There are two delivery suites each with two couches and a resuscitative. An acute room with capacity for three beds caters for very sick patients who need close observation; these include those with hypertensive disease in pregnancy, cardiac disease, severe infections, etcetera. There is an oxygen room where patients found to have fetal distress, or other conditions requiring oxygen administration by mask, are kept under observation.

Patients booked at antenatal clinic present directly to the labour ward admission desk while unbooked patients are admitted though casualty. The midwives receive the patients and records the vital signs. Clerking is done by the intern; and full physical examination by the registrar. Those patients who are not in labour and have no acute problems requiring very close monitoring are admitted to the antenatal ward. Those clients in labour or with an acute problem are admitted to the first stage area or the acute room. Major ward rounds are done twice a day; at 8 am and 8 pm. These are attended by the consultant, senior registrar, registrar, internists and all the nursing staff on duty.

First stage of labour

Here, the doctors and the primary nurses accurately keep a record of the progress of labour; for this purpose, a partogram is utilised. This partograph record consists of:

1. Patients identification, parity, and time of admission.
2. Date and time of rupture of membranes, whether artificially ruptured or spontaneous, and the colour of liquor.
3. Date and time of onset of labour.
4. Half hourly fetal heart rate monitoring.
5. Descent of the fetal head into the pelvis.

6. Cervical dilatation, recorded 4 hourly.
7. Uterine contractions each 10 minutes, their frequency and duration.
8. Use of oxytocin, its concentration and rate of infusion.
9. Other drugs and fluids used, dosage and time administered.
10. Maternal vital signs every 1/2 hour.
11. Urinary examinations done every 2 to 4 hourly.

All vaginal examinations are aseptically done after the bladder has been emptied. Such assessment is done every 4 hours or at shorter intervals where indicated. Artificial rupture of membranes (amniotomy) is done at a cervical dilatation of 4 cm or more if the **HIV** serostatus of the client is known. Active management of labour is then done aiming at delivery within 12 hours of onset of active labour. Analgesia is usually given early in the active phase of labour; intramuscular pethidine or tramadol is utilised.

Second stage of labour

This is reached at full cervical dilatation when the patient may experience an urge to bear down. The patient is then transferred to the delivery room and is placed in semilithotomy position, vulvoperineal toilet done and is draped. The midwife or doctor encourages the patient to bear down during uterine contractions. If the perineum is tight, 10 ml of 2% lignocaine hydrochloride is infiltrated locally or a pudendal block done and a mediolateral episiotomy is made during crowning of the fetal head. A sanitary pad is used to support the perineum as the head is delivered. The baby's mouth, nostrils and eyes are wiped with sterile gauze then a finger passed round the neck to ensure the umbilical cord is not around it. If it is, the cord is clamped at two points about 3 cm apart and cut in between. Restitution is then allowed to occur; by supporting the head between the palms of the hands. Gentle downwards traction is applied to deliver the anterior shoulder while upward traction will deliver the posterior shoulder. The rest of the body quickly follows.

The cord is clamped and cut. The baby is handed over to a receiving midwife or paediatrician for Apgar scoring, weighing and resuscitation (where necessary). Syntocinon 20 IU is given in a drip or intramuscularly at delivery of the anterior shoulder. This is for prophylaxis against postpartum haemorrhage. Ergometrine is not given routinely and its use is actually discouraged.

The third stage of labour

Separation of the placenta is awaited and is indicated by a sudden gush of blood from the introitus, lengthening of the umbilical cord, and contraction of the fundus with the uterus rising into the abdomen as the placenta passes down into the lower uterine segment and vagina. The placenta and membranes are then delivered gently by controlled cord traction. This process may also be expedited by active management of third stage of labour where the placenta is delivered by controlled cord traction prior to spontaneous separation. The cervix, vaginal walls and perineum are explored for lacerations or tears which are repaired if present. The episiotomy is then repaired using chromic catgut No.1, in three layers. The placenta is weighed and total blood loss recorded.

Post delivery care

The vital signs are recorded and observations continued half hourly for about 2 hours.The patient keeps her bladder empty and a vulval pad is monitored. If no complications are noted, she is transferred to the lying-in-ward to continue resting and observations. If no problems arise, and the baby is well, and has been immunised, they are discharged home after 24 hours to be followed up in a post-natal clinic after six weeks.

The new born unit (NBU, Nursery)

The neonatology team comprises consultants, senior house officers and trained neonatology nurses. The NBU comprises of four sections; Nurseries A, B, C, and D. Babies are placed in Nursery A on admission. As they stabilize and weight gain is satisfactory, they are sequentially transferred to other sections until D when they are able to room-in. There is one isolation room for babies with infective conditions. Neonates admitted here include those born at home, on the way to hospital or from other centres.

Mother's hostel

Mothers who are well after delivery and have their babies in NBU are accommodated in the mother's hostel. They visit the NBU every 3 hours for breast feeding.

The cold obstetric wards (antenatal and postnatal wards)

These consist of wards GFA, GFB and IA distributed between Firms II, I and III respectively. Each ward has 32 beds shared by antenatal, post-operative and other postnatal patients in the various cubicles. There are five cubicles of 6 beds each and two single bed isolation rooms. Ward procedures are done in a separate procedure room. Each ward is run by senior house officers who do daily ward rounds, with the assistance of the nursing staff. A major ward round is conducted once a week by the senior registrars and consultants. The major ward rounds are also teaching rounds.

The postnatal clinic

This clinic is held every Friday morning and is mainly for patients who had operative deliveries or other complications. Mothers who had normal deliveries attend the family planning and child immunisation clinic at their nearest health centres. In this clinic, vital signs are recorded, urinalysis done and patient weighed. Systemic examination is done with emphasis on breasts, abdomen and pelvic examination. Contraception is advised and patients referred to the Family Planning clinic for further counselling. Patients with medical or other conditions are referred to relevant clinics for follow up.

Perinatal mortality meetings

These are held monthly on every second Friday morning. Mortality and morbidity data and rates are presented. Discussions are aimed at gauging the quality of services offered and the easing of any problems encountered that may contribute to the observed mortality and morbidity.

Obstetric procedures

Digital pelvic examination

The patient is informed of the procedure and the reasons for performing it. She is then asked to empty the bladder or catheterisation is done. The operator puts on sterile gloves; with the patient in semi-lithotomy position, vulval toilet is done. The external genitalia is inspected. The labia are separated using the left hand thumb and index finger, and the index and middle fingers of the right hand are inserted into the vaginal cavity. Cervical dilation, length, consistency, position as well as uterine position is determined. The adnexa is palpated for tenderness and masses. The fornices are felt

for masses. Pelvic assessment is then done; the diagonal conjugate is estimated by attempting to reach the sacral promontory using the middle finger. The prominence of ischial spines and the width of the sacrospinous ligament is assessed. The sacral curve is palpated, mobility of coccyx tested and then the width of the subpubic angle is determined using the two examining fingers. The intertuberosity distance is assessed with four knuckles (Fist). On completion of internal examination, the gloved fingers are inspected for blood or abnormal vaginal discharge.

Speculum examination

The bivalve (Cusco's) speculum and the Sim's speculum are sometimes used. The Cusco's speculum is indicated in cases of suspected preterm premature rupture of membranes and in antepartum haemorrhage (APH). It is also done to assess vaginal discharge and for removal of McDonald stitch. The procedure is explained to the patient. She is then asked to empty the bladder and lie in semilithotomy position on an examination couch. Vulvo-perineal toilet is done. The speculum is gently introduced with the right hand while parting the labia minora with the index finger and thumb of the left hand. The blades of the speculum are (in closed position) are introduced in transverse position. Once inside, the blades are opened and vaginal walls inspected. The cervix is observed for dilatation, bleeding, drainage of liquor or any other abnormality. When the procedure is complete, the speculum is withdrawn in the same way it was introduced. The Sim's speculum is used for cevical and vaginal examination, for example when suspected cervical tears, vaginal tears or for genital fistulas. Two speculums are usually used. A complementary Auvard's (self-retainining) speculum may be used on the posterior wall of the vagina. The insertion procedure is as above.

Amniocentesis

The procedure is carried out for bilirubin spectrophotometry in a Rhesus iso-immunised

patient (when the indirect Coomb's test is positive). It may also be done for proposed elective delivery at 38 weeks gestation, for determination of fetal lung maturity. Amniocentesis is done in the clinic or in the ward. The procedure is explained to the patient and after having emptied her bladder, she lies in the supine position. The fetal heart is recorded. The lower abdomen is cleaned with hibitane then swabbed with

spirit. The surgeon displaces the fetal presenting part cranially; using a gauge 20 hypodermic needle attached to a 10 ml syringe, the needle is gently advanced into the amniotic cavity

and about 5-10 ml of fluid drawn. One may also use ultrasound guided amniocentesis. If the test is for surfactant, 4 ml of amniotic fluid is withdrawn and for bilirubin spectrophotometry, 6 ml is withdrawn and put in a dark bottle to avoid sunlight breakdown of the bilirubin. The colour of the amniotic fluid is noted as well as presence of lanugo hairs and fetal squames. The fetal heart rate is observed again using the fetoscope. After the procedure, the patient is advised to rest in the left lateral position and is monitored for 2 hours. During this time, the fetal heart rate is recorded 1/4 hourly and the presence or absence of vaginal bleeding or drainage of liquor is noted.

Surfactant (Bubble Shake) test

Two clean and dry test tubes are needed. One (1) ml of amniotic fluid and 1 ml of 95%

ethanol (1:1 dilution) are put into the first test tube. Half (0.5) ml of amniotic fluid, 1 ml of 95% ethanol and 0.5 ml of normal saline is put into the second one (1:2 dilution). All tubes are then vigorously shaken for 15 minutes and placed in a rack for a further 15 minutes. The presence of a persistent ring of bubbles at the air fluid interface is considered a positive

Operative vaginal delivery

The Malmstrom vacuum extractor is used in our unit when operative vaginal delivery is indicated. Obstetric forceps are not used. The main indications for vacuum delivery are vertex presentation with:

a) Cardiac disease in second stage of labour.

b) Prolonged second stage of labour with poor maternal effort.

At full cervical dilatation, the patient is placed in lithotomy position (unless she has cardiac disease) and vulvovaginal toilet done with antiseptic solution. Draping and aseptic catheterisation is done then vaginal examination repeated to confirm cervical dilatation, position, and station of the vertex. Cephalopelvic disproportion is also ruled out. Under local anaesthesia, mediolateral episiotomy is performed. The largest vacuum caps that can fit into the vagina and onto the fetal scalp is then applied. A

vacuum is built up increasing by 0.2 kg/cm2 at one minute intervals to 0.8kg/cm2 with the cup held onto the scalp. A finger is used to ascertain that no maternal soft tissues have been held. With the subsequent uterine contraction, traction is applied using the right hand while the left one continues to hold the cap firmly onto the scalp. Traction is applied at right angles to the vacuum cap and follows the curve of the birth canal. Once crowning occurs, the vacuum is released and delivery completed as described for spontaneous delivery.

Episiotomy

A midline or medio-lateral episiotomy is performed at crowning of the foetal head at the perineum in all cases where the perineum is tight and for some of operative vaginal deliveries and pre-term delivery. A medio-lateral episiotomy is commonly used in this unit because it has less risk of extension to the anal sphincter and rectum. During repair a gauze pack is inserted into the vagina. The apex at the vaginal mucosa is identified. From the apex, repair of the vaginal epithelium is carried on with continuous chronic catgut number 2/0. The perineal muscles are then approximated by deep interrupted sutures. The skin edge is then apposed using interrupted or continuous catgut number 2/0 burying the knots and starting from the lateral edge. The patient is advised on perineal and frequent saline sit baths until healing occurs.

CAESAREAN SECTION

The lower segment caeserean is the commonest major obstetric operation performed either electively or as an emergency. Classical caesarean section is rarely performed except for case of transverse lie with ruptured membranes.

Preoperative Management

The haemoglobin estimation and blood grouping plus cross matching are carried out. Those undergoing operation electively are starved for 6 hours prior to the operation. Informed consent for the operation and for general anaesthesia is obtained. Two units of compatible blood are obtained. The abdominal wall, vulva and perineum are shaved clean. Pre-medication is given in the form of Atropine Sulphate 0.6mg

intramuscularly half an hour before going to theatre. Cardiac patients 0.4mg of Hyoscine is used instead.

Surgical procedure

In theatre, the patient is placed in supine position and an intravenous infusion is started through a large bore needle. In semi-lithotomy position, the vulva and perineum are cleaned with 1% savlon solution.

Aseptic catheterisation is carried out and all the urine drained and the catheter is retained to provide conscious bladder drainage during operation. The patient is repositioned to supine position. The anterior abdominal wall is cleaned with antiseptic solution and iodine/spirit solution (Betadine). Then draping with sterile drapes is done exposing only an area bounded by the mons pubis below to about 4 centimetres above the umbilicus and 2 cm on each side of the midline if sub-umbilical midline incision is to be used. If Pfannasteil incision is to be used the upper draped border need not be placed above the umbilicus. 100% pre-oxygenation is given to the patient for five minutes then general anaesthesia is induced using intravenous Thiopentone sodium 250 to 500mg depending on the patients weight. A short neuromuscular blocking agent Suxamethoneum lOOmg is used to provide muscle relaxation. Anaesthesia is maintained with Nitrous oxide and Oxygen in the ratio of 1:1 before the baby is delivered then a ratio of 2:1 is given. A total of 6 to 8 litres per minute is used depending on the circuit used. Throughout the operation, Halothane 0.5% or Trilene 0.35% is used to maintain unawareness. When the effect of Suxamethoneum has worn off Pancuronium or d -Tubocurare a long acting muscle relaxant is used. The abdomen is opened in layers through either a Pfannesteil incision or a midline sub umbilical incision or rarely a Para median incision. With a clean knife the incision is deepened, the rectus sheath is divided and elevated with two long artery forceps and the muscles are separated from their attachment to it by blunt dissection, and then drawn to one side to expose the peritoneum. The later is held with two straight artery forceps and opened taking care not to injure the gut. The incision limits are extended with index and middle fingers of the left hand placed intraperitoneally guiding the scissors, avoiding injury to the bladder and bowels.

The uterus is then identified; wet sterile abdominal packs are placed on either side of the uterus to prevent spillage of blood and liquor into the peritoneal cavity and to

protect gut. A Doyen's retractor is then used to reflect the bladder downwards as well as to expose the uterovesical fold of peritoneum. Using a non-toothed dissecting forceps the loose peritoneum over the lower uterine segment is picked up and incised with curved scissors in an elliptical manner. The peritoneum is then stripped off the lower uterine segment with a mounted swab. The Doyen's retractor is shifted to include the lower part of the peritoneal fold in retracting the bladder away from the lower uterine segment. The lower uterine segment is then incised in the midline about two centimetres below the uterine attachment of the uterovesical peritoneal fold. Once the membranes are reached the incision is extended laterally on either side in an elliptical manner using curved scissors directed by two fingers of the left hand and the incision is enlarged enough to allow delivery of the head and trunk. The retractor is removed and the membranes are ruptured allowing some liquor to escape. The hand is slipped into the uterus between the foetal head and the symphysis pubis, and the head is lifted gently with the fingers and palm through the incision while a modest fundal pressure is applied. After delivery of the head, the nostrils and the mouth are wiped. The shoulders are then delivered using gentle traction. The trunk delivery follows readily. The anaesthetist at delivery of the shoulders gives intravenous Ergometrine 0.5mg. The cord is then clamped and divided and baby is handed over to a midwife or assistant for resuscitation.

The placenta and membranes are delivered manually or by controlled cord traction. Green Armytage uterine clamps are used to hold the cut edges of the uterus to control bleeding and the inside of the uterus is wiped of clots and membranes. If the cervix was not dilated in labour it is dilated at this juncture with a mounted swab to allow postpartum lochia drainage. The uterus is then repaired with or without lifting it out through the incision. The uterus is closed with a number 2 chronic catgut I two layers, as a continuous stitch for both layers, the second layer burying the first and extending beyond its lateral edges. The visceral peritoneum is then closed with number one chronic catgut continuous stitch.

The abdominal pucks are removed, the abdomen is mopped and the pelvic viscera are inspected for any abnormality. Instruments and swabs are counted, if reported correct with the initial count, the abdomen is closed in three or four layers. Number one chronic catgut is used on the peritoneum, while number two chromic catgut is used as

a continuous stitch on the rectus sheath. The skin is closed with interrupted nylon or silk suture or with subcutaneous vicryl 2/0. The wound is cleaned with Hibitane solution then painted with iodine solution if it is available and covered with gauze and light strapping applied to hold the dressing in place. The catheter is removed and colour of urine is noted. The uterus is massaged and any blood clots expelled and evacuated from the vagina. A clean vulval pad is applied.

General anaesthesia is reversed with 1.2mg Atropine Sulphate and 2.5mg of Neostigmine. Extubation is done and oro-pharyngeal suction carried out. Blood loss is estimated and recorded and the patient is transferred to recovery room, then later to labour ward as the anaesthesia wanes.

Post Caesarean Section Care

The pulse, blood pressure, temperature and respiratory rate are observed and recorded half hourly until the patient is fully awake then four hourly. Intramuscularly Pethidine 50 to lOOmg is given four to eight hourly for 48 hours for pain relief depending on the patient's weight. When the patient is allowed oral intake, further anaesthesia is given as oral Paracetamol lOOOmg 8 hourly. Prophylactic antibiotics are administered routinely to all patients. Initially the patient is observed in labour ward and if her general condition remains stable and satisfactory, she is transferred to the lying in wards. Early ambulation is encouraged. Haemoglobin and urine bacteriological examination are done on the third postoperative day. Two to three litres of intravenous fluids are given in the first 24 hours (with at least 500mls of normal saline).

Normal diet is gradually introduced after free fluids and light diet. All stitches are removed on 7th postoperative day and the patient is discharged home with a case summary. She is advised to attend the child welfare clinic and postnatal clinic in two and six weeks respectively.

Care of the Newborn

All the Newborn babies who are normal join their mothers after deliver unless the mother is moribund. A paediatric registrar reviews all the babies with problems or where complications are anticipated together with babies delivered by operative vaginal delivery or by caeserian section. Those having problems or who are expected

to develop some problems are transferred to nursery in a warm incubator. The premature babies are managed in nursery until their weight is about 2000 grams when they are discharged. All babies are immunized with BCG before discharge. The normal mothers who have babies in nursery are lodged in a mother's hostel.

Post Natal follow-up

The clinic is held on every Friday. Only those patients who had a complicated or operative delivery are seen. The rest are followed up in their nearest facility. In this clinic the blood pressure and weight are taken, urinalysis performed, history of puerperium, lactation and immunization of the baby is taken. The patient is then examined and any problems managed. Family planning advice is given and the patient is referred to the family planning clinic for appropriate method.

Family planning services

These are offered in the Family welfare Centre, located in clinic 18. It caters for many clients from Nairobi and its environs. A wide range of contraceptives are available here. The clinic is run by specially trained nursing staff; a senior house officer is posted there each week to manage any clinical conditions that the clients may have. Cervical smears are also routinely done on all clients. Clients seeking surgical sterilisation are referred toother institutions as these are not being done on a mini-lap basis.

THE GYNAECOLOGY UNIT

This is comprised of an outpatient consultant clinic and wards IB and ID on the first floor of the tower block. In ward 1D, emergency services are provided throughout the 24 hours and is manned by the Acute Gynaecology team.

The Gynaecology Clinics

There are three outpatient clinics per week; Firm I on Tuesday, Firm III on Wednesday and Firm II on Thursday. At any time, there are one or two consultants, several senior registrars, registrars, medical students and nurses. There is an additional oncology clinic on Friday mornings for oncology patients who are on follow-up.

A colposcopy clinic is held every Friday morning by a consultant and registrar. All patient with abnormal cervical smear are evaluated. Diagnostic procedures such as punch directed biopsies are done after application of either acetic acid or iodine to the cervix, vagina or vulva. Therepeutic procedures such as large loop electrosurgical excion of the transformation zone (LLETZ) are carried out under local anaesthesia.

V.V.F- This clinic is held on Tuesdays afternoon where all cases of V.V.F are reviewed and staged for possible interventinal surgery or follow-up after surgery.

A fertility clinic is held every Monday afternoons. The majority of patients attending the gynaecology clinic are referred from other specialist clinics of Kenyatta National Hospital, other hospitals in and around Nairobi as well as from district and provincial hospitals. Infertility cases constitute two thirds of the gynaecology consultation, followed by uterine fibroid, abnormal uterine bleeding and adnexal masses. In the clinic, history is taken, thorough physical examination is conducted and most of the investigations are carried out while the patient attends the clinic to reduce the hospital stay. These investigations include haemogram, semen analysis, Pap smear and pregnancy test among others.

Cold Gynaecology Admission (Ward IB)

This is the non-emergency ward to which patients are usually admitted from the clinic or are transferred from the acute Gynaecology ward for further management. The ward has 32 beds divided among the three Firms. Commonly, the patients admitted her have uterine fibroids, genito-urinary fistulae, gynaecological malignancies and infertility among others.

Acute Gynaecology - Ward ID

The emergency gynaecology ward is ward 1D on the first floor of the main block. It has 32 beds, with each room having 8 beds. On average 20 to 30 patients are admitted per day majority of who are cases of abortion admitted through casualty department. They are checked by the houseman and reviewed by the registrar who undertakes the management in consultation with senior members of the Firm. Other common cases include ectopic pregnancies, acute pelvic inflammatory disease (PID) and pelvic abscess.

Uncomplicated cases of incomplete abortion have uterine evacuation performed using Karman's canulla and syringe. They are discharged home on the same day stable, or the next day after overnight observation and treatment in the ward. These are also counselled for contraception and those willing are put on a method of contraception before discharge. Patients who have undergone emergency Laparatomy for ectopic pregnancy, pelvic mass, and abscess have a minimum stay of four days postoperative.

Patients with suspected carcinoma of the cervix who require admission are admitted to this ward. They receive emergency care; blood transfusion, antibiotic and analgesic treatment. Routine checking and laboratory investigations are carried out. Thereafter the patients are prepared for examination under anaesthesia (EUA) in Caesium theatre for staging and biopsy. They are then transferred to oncology ward for definitive management on receiving the histology report.

Laparoscopy and V.S.C. theatre

Previously located in the Family welfare Clinic No. 66, it is now located in the cold gynaecologic ward IB. Patients for diagnostic laparoscopy are referred from the gynaecology clinics mostly due to tubal factor infertility. Clients for tubal ligation may be from within the hospital or outside centres. All clients are reviewed by the consultants and senior registrars and those found suitable for the procedures are given an appointment. They are admitted, counselled and advised on preoperative preparations. Operations are done under general anaesthesia in main theatre on Thursdays. Those who had laparoscopy are sent back to the gynaecology clinic for follow-up to await open laparotomy tubal surgery.

GYNAECOLOGIC OPERATIONS

Theatre is always available for emergency gynaecologic operations. Laparatomy for ectopic pregnancies, ovarian cysts, tubo-ovarian masses, pelvic abscesses and other minor operations such as Marsupilaization, removal of misplaced intra-uterine devices, diagnostic and suction curettage of the uterus are performed.

Each of the Firms has a day for elective operations from 8 am to 5 am every week. The operations are done under general anaesthesia in which intravenous Sodium Thiopentone and Succinyl Choline are used for induction of anaesthesia. Nitrous oxide, Oxygen and Halothane are used for maintenance of anaesthesia. Curare is

given intermittently for muscle relaxation and Atropine plus Neostigmine are used for reversal.

Preoperative Management

Patients for emergency Laparotomy are prepared for theatre immediately. Pre-medication is given as Atropine 0.6 mg intramuscularly half an hour before operation. Blood is cross-matched and intravenous drip started. For elective operations, routine or baseline and specific relevant investigations are carried out and the date for surgery determined. The patient is ginen prophylaxis antibiotics flagyl lgm in the evening then starved from midnight on the evening prior to the operation. A soap enema is given in the morning and the abdomen plus pubic hair is shaved. Pre-medication is given in form of Atropin Sulphate 0.6mg and Pethidine 50mg intramuscularly half an hour before theatre.

Postoperative Management

Vital signs are observed half hourly until the patient fully recovers from anaesthesia and then 4 hourly thereafter. Antibiotics, usually Crystalline Penicillin 2 mega units six hourly and Gentamycin 80mg eight hourly for the first two days then oral Amoxycillin 500mg eight hourly for five days are given. The patient is maintained on intravenous fluids about 2.5- 3.5 per day until she is able to take orally. Pethidine 50 to lOOmg is given every 6 or 8 hours for analgesia during the first 48 hours then oral analgesics are given. Oral feeds are re-started after ascertaining the presence of good bowel sounds. Early ambulation is encouraged to decrease the incidence of deep venous thrombosis (DVT).

Postoperative haemoglobin level is checked on the third postoperative day. The wound is inspected on the fourth postoperative day and if healing well the patient is allowed home for the removal of non-absorbable sutures on the 7^{th} postoperative day at the nearest health facility. The patient is discharged home with a "discharge summary" and is booked in gynaecology outpatient clinic for review after six weeks.

COMMON GYNAECOLOGIC OPERATIONS

1. Uterine evacuation

This procedure is performed on emergency basis for incomplete abortion to empty the uterus of products of conception. A Karman's Canula and syringe is used often under no anaesthesia or sedation. The patient is placed in lithotomy position and the vulva and perineum cleaned with antiseptic solution. The patient is then draped with sterile linen. The bladder is catheterised to drain urine. A pelvic examination is carried out to determine the size of the uterus and cervical dilation. A speculum is introduced gently into the vaginal and cervix is grasped with a tenaculum forceps and the appropriate size of cannula gently inserted into the uterus. Negative pressure is applied to the syringe, which is then connected to the canulla and the valve opened. The contents of the uterus are sucked into the syringe as the canulla is moved up to the fundus of the uterus and rotated through the four quadrants of the uterine cavity.

The patient is discharged home on oral antibiotics and analgesics. If the products of conception are found to be septic the patient is started on parental broad-spectrum antibiotics.

2. Total Abdominal Hysterectomy

General anaesthesia is induced as described above. Vulvo-vaginal toilet is performed with Hibitane solution and the bladder catheterised aseptically. The catheter is left in situ to provide continuous bladder drainage during the operation. Pelvic examination under anaesthesia is performed and findings noted. The vagina is painted with Methylene blue. The abdomen is cleaned with Hibitane and painted with iodine solution followed by draping with sterile towels.

The abdomen is opened in layers as described for caesarean section. The bowels are packed away fromm the pelvis using warm moist packs after general inspection of the abdominal viscera. The round ligaments on either side are identified clamped using straight long artery forceps and divided between the two forceps. The lateral clumps are each ligated with number 2 chromic catgut.

The anterior leaf of the broad ligament is parched forwards and incised with scissors. The next step depends on whether the fallopian tubes and ovaries are to be conserved or removed. If they are conserved, the tube and the ovarian ligament are double clamped en-masse and cut using a scalpel. The distal clamp holds the ovarian vessels as they approach the anastomosis with the uterine vessels. This stump is ligated with a transfixing chronic catgut number 2 suture. The same is done on the opposite side. If the tube and ovaries are to be removed with the uterus, the infundibulopelvic portion of the broad ligament is doubly clamped with long curved artery forceps with the tips reaching the open window in the broad ligament. The ligament together with the ovarian vessels are divided between the clamps and ligated using chronic catgut number 2. The same is repeated on the opposite side.

The reflection of the bladder peritoneum onto the uterus is then freed by extending the incision in the anterior leaf of the broad ligament towards the midline. The bladder is thus separated from the lower uterine segment, the cervix and vaginal vault by careful dissection of the fascial fibres beneath the bladder wall. Usually the bladder can be displaced into the lower pelvis quite easily but if it is adherent, it is surgically released.

The posterior leaf of the broad ligament on either side is cut parallel with the side of uterus to better demonstrate and skeletonize the uterine vessels between the levels of the broad ligament for clamping. The uterine vessels are doubly clamped and cut using a scalpel and freed from the uterus by extending the incision around the tip of the distal clamp. This enables adequate ligation. Care should be taken to avoid freeing the tissue beyond the tip of the clamp, as this could permit bleeding from vessels that are not included in the clamp. Before clamping and cutting the uterine vessels it is always advisable to palpate the lower portion of the pelvic ureters as they cross beneath the uterine artery, lateral to the internal os, and pass medially through the base of the broad ligament to the Trigone of the bladder. The uterine vessels are ligated with chronic catgut number 2.

The uterus is retracted forwards and upward to demonstrate and stretch the uterosacral ligaments posteriorly. A transverse incision is made through the uterine reflection of the cul-de-sac peritoneum between the attachments of the two-uterosacral ligaments. The peritoneum is then incised with the scalpel and reflected mobilizing it past the

cervix to the posterior vaginal fornix. Each uterosacral ligament is double clamped, cut and ligated with number 2 chronic catgut sutures. Here, particular care is exercised to avoid the pelvic portion of the ureter as it courses along the base of the broad ligament. The cardinal ligaments of either side of the uterus are then clamped, cut and ligated.

The anterior vaginal fornix is opened and the vagina is circumcised by sharp knife or dissection by scissors round the cervix. The uterus together with its cervix is delivered as the anterior, posterior and lateral angles of the vaginal are secured with long straight artery forceps. The vaginal margins are then closed using a series of figure of 8 interrupted sutures. Particular care us taken when tying the lateral angles to ensure that the descending vaginal branches of uterine vessels are securely ligated. Haemostasis is ensured.

Suspension of the vaginal vault is done by tying the peritonization suture to the lateral and mid sutures of the vault. Peritonization is accomplished by means of a continuous number 1 chronic catgut sutures that first pierces the vaginal walls close near the midline and passes through the posterior leaf of the broad ligament, the free margin of the uterosacral ligament, then through the infundibulpelvic ligament, the free margin round ligament and the anterior bladder peritoneum. The suture is tied at the centre. The same is repeated on the opposite side with the suture being tied at the midline.

The abdominal viscera are inspected. If haemostasis has been achieved and instrument and swab counts are normal, the abdomen is closed in anatomical layers. General anaesthesia is reversed and patient is then managed as described in postoperative care above.

COUNSELLING CLINICS

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

THE PATIENT SUPPORT CENTRE

This is situated in the old hospital building 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.

THE ADOLESCENT COUNSELLING CLINIC

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 bring up their children. The counsellors are also trained nurses, sociologists and consultant obstetricians gynaecologists. They counsel their clients, treat them for any illness they may have with assistance from the obstetric and gynaecology wards and also provide them with family planning and STI management services. The patients come from other institutions or from the obstetrics and gynaecology wards.

THE NAIROBI HOSPICE

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

THE HOSPITAL CHAPEL

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

THE MOTHERS HOSTEL

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

OBSTETRIC CASE 1

HUMAN IMMUNODEFICIENCY VIRUS INFECTION IN PREGNANCY CAESERIAN SECTION DELIVERY

NAME:	D.M	D.O.A	13/09/05
IP NO.:	1047289	D.O.D	18/09/05
AGE :	27 YEARS	L.M.P	21/12/04
PARITY:	0+0	E.D.D	28/09/05
		MATURITY:	38 WEEKS

PRESENTING ILLNESS

She had no complaints and she was admitted through the antenatal clinic for elective caeserian section.

HISTORY OF PRESENTING ILLNESS

She had attended antennal clinic from the 18^{lh} week of her pregnancy at private clinic. In regular antenatal profile tests, she was found to be HIV Positive. She was counselled on diet, personal hygiene, and methods of prevention of mother to child transmission (PMCT). She was referred to Kenyatta National Hospital at 28 weeks. Here more counselling was done and was followed up until delivery. She was started on AZT at 34 weeks and was advised on elective caeserian section at 37 competed weeks.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was a primigravida. Her last menstrual period was 21.12.04 and her expected date of delivery was 28.09.05. Gestation by dates was 38 weeks. Her menarche was at 15 years. Her cycles were regular occurring every 30 days and menses lasted for 5 days. She has never used any contraception. She had attended ANC at KNH from 28 weeks.

ANC **INVESTIGATION AND RESULTS**

Hb : 14.4g%

Blood group : A Rhesus Positive

Urea and electrolytes

K^+ : 3.77 mmol/1

Na^4 136 mmol/1

Urea : 2.6 umol/1

VDRL : Negative

ELISA for HIV: POSITIVE

PAST MEDICAL HISTORY

She had never been admitted before. She had never suffered from any major illness before.

FAMILY AND SOCIAL HISTORY

She was a married housewife. Her husband was a truck driver. She neither took alcohol nor smoked cigarettes. She had no family history of chronic illness.

EXAMINATION

She was in good general condition i.e. not pale or jaundiced, was afebrile, neither had edema nor lymphadenopathy. Her temperature was 36.3°C and her blood pressure was 110/70mmHg. Her pulse was 80/minute.

CARDIOVASCULAR, CENTRAL NERVOUS AND PRESPIRATORY SYSTEMS

These were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended. The fundal height was term, lie was longitudinal, and presentation was cephalic. The fetal heart was heard and was regular at 140 beats per minute. No contraction palpable.

PLAN OF MANAGEMENT

The need for the operation was explained to her and she opted not to breastfeed the baby. She was informed on the implications and she gave a written consent. Then blood was taken for grouping and gross matching. As procedure required, in the morning of the operation she was premedicated with atropine 0.6mg 30 min before she was taken to the theatre and she also took her morning dose of 300mg of AZT.

In theatre, vulvovaginal toilet and aseptic catheterisation were done. The abdomen was cleaned and draped with sterile towels. Under general anaesthesia, the abdomen was opened through a Pfannenstiel incision. A lower uterine segment caesarean section was performed The outcome was a live female infant with an Apgar score of 8 in 1 minute and 9 in 5 minutes and weighed 2950g. The placenta was delivered and was complete and grossly normal. The uterus was closed and haemostasis achieved. The abdomen was closed in layers after ascertaining swabs and instruments count. Vulvovaginal toilet was done and the catheter removed. She had an estimated blood loss of 400ml.

POST OPERATIVE MANAGEMENT

The vital sign were observed half hourly until she was fully conscious, one hourly for 4 hours and then 4-hourly thereafter. She was put on intravenous fluids, 1 litre of dextrose alternating with normal saline 8-hourly for 24 hours. Analgesia was through intramuscular pethidine 100 mg 8-hourly for the first 24 hours then oral ibuprofen 400 mg 8-hourly. She was also put on intravenous benzyl-penicillin G 2 mega units six hourly and intravenous gentamicin 80 mg 8-hourly for 24 hours then oral amoxicillin. The paediatric resident saw the baby and nevirapine drops was prescribed and given to the infant. The infant was admitted to newborn unit for a day.

POST OPERATIVELY

She recovered well and was administered on oral sips on the first postoperative day. Next day she started light diet and oral medications. She also was counselled on baby feeding techniques using formula feeds. The wound was exposed in the third day and it was

found to be clean and dry. She was discharged on the 4th postoperative day. She was prescribed amoxicillin 500 mg three times daily and ibuprofen 400mg three times daily. She was instructed to take care of the breast.

FOLLOW UP

When she was seen in the post-natal clinic after one week, she had no complaints. The baby was not tested for PCR, but was followed up by paediatrician at high-risk clinic and was doing well. The mother was in good general condition, had no breast engorgement and the wound was well healed with good uterine involution. She was then given a 4 weeks return date. During the following review, she was doing well and was advised on contraception in which she opted for IUCD. She was referred to the family planning clinic and to the postnatal clinic in 6 months time.

DISCUSSION

D.M was 27 years old married with HIV positive, primigravida who had prophylactic antiretroviral therapy from 34 weeks gestation and elective caesarean section at 38 weeks gestation.

A novel acquired defect of the cellular immune system, the acquired immunodeficiency syndrome (AIDS) was first described in 1981 in USA when a cluster of patients was found to have defective cellular immunity and *Pneumocystis carinii* pneumonia (1). In Kenya, the first case was reported in 1984 (2).

The causative agents of AIDS are DNA retroviruses termed human immunodeficiency viruses, HIV-1 and HIV-2. Most cases worldwide are caused by HIV 1 infection. HIV-2 infection is endemic in West Africa. Retroviruses have genomes that encode reverse transcriptase, which allows DNA to be transcribed from RNA. The virus thus can make DNA copies of its own genome in host cells (1).

Globally, over 90% of sexual transmission is through heterosexual vaginal intercourse. Other modes of transmission are through blood, blood products and infected needles. The virus also crosses the placenta from the mother to her infant, peripartum transmission during labour and delivery, and postnatal through breast milk (1, 3).

In 2003, an estimated 700,000 children were newly infected with HIV, about 90% of these infections occurred in sub-Saharan Africa. In contrast, new HIV infections in children are becoming increasingly rare in many parts of the world. In 2003, less than 1000 children were estimated to have become infected with HIV in North America and Western Europe and less than 100 in Australia and New Zealand. Most HIV infected children acquire the infection through mother- to-child transmission (MTCT) of HIV, which can occur during pregnancy, labour and delivery, or during breastfeeding. In the absence of any intervention, the risk of MTCT of HIV is 15-30% in a non-breastfeeding

population. Breastfeeding by an infected mother increases the risk by 5-20% to a total of 20-45% (4). The patient presented will not breastfeed her baby.

The prevalence of HIV infection among pregnant women in 2002 was estimated at 13% (5). Results from the Kenya Demographic and Health Survey 2003 (KDHS 2003) indicate that 7% of Kenyan adults are infected with HIV. HIV prevalence in women 15-49 years is 9% while for men 15-54 years the prevalence is 5% (6).

The risk of MTCT can be reduced to below 2% by interventions that include antiretroviral (ARV) prophylaxis given to women during pregnancy and labour and to the infant in the first week of life, obstetrical interventions including elective caesarean section (prior to the onset of labour and membrane rupture) and completely avoiding breastfeeding (4). The case presented had ARV prophylaxis and elective caesarean section done.

Many factors are known or suspected to increase the risk of MTCT of HIV. These can be divided into viral, maternal, obstetrical, fetal and infant factors. These are summarized in the table below: (3,4).

Risk factors for MTCT of HIV

Category	Strong Evidence	Limited Evidence
Viral	High viral load Viral genotype and phenotype	Viral resistance (theoretical possibility)
Maternal	Immune deficiency (low CD4 count) HIV infection acquired during pregnancy or breastfeeding period	Vitamin A deficiency, anaemia, sexually transmitted diseases, chorioamnionitis, frequent unprotected sexual intercourse, multiple sexual partners, smoking, injection drug use
Obstetrical	Vaginal delivery (compared to elective caesarean section) Rupture of membranes for more than 4 hours	Invasive or traumatic procedures: instrumental deliveries, amniocentesis, episiotomy, intrapartum haemorrhage, external cephalic version (ECV) Invasive foetal monitoring
Fetal/Infant	Prematurity	Genetic, lesions of the skin/mucous membranes
Breastfeeding	Duration of breastfeeding Mixed feeding Brest disease (mastitis/cracked nipples)	Oral thrush

Pregnancy does not have any impact on the course of HIV infections nor does the viral infection adversely affect maternal health or the course of pregnancy, labour, puerperium or lactation (1,3).

Diagnosis of HIV infection is based on an initial screening test for specific antibodies using enzyme - linked immunosorbent assay (ELISA). Clinical progression of disease is monitored by evaluating CD4 cell count (7).

Counselling and testing for HIV should be offered routinely to all pregnant women as early in pregnancy as possible. For women who decline these services, health providers should continue to strongly encourage testing, during subsequent antenatal visits (5, 8).

A pregnant woman identified to be HIV positive should have a full physical examination. In particular, this should focus on HIV related symptoms and illnesses and signs of opportunistic infections. The obstetric care for the antenatal HIV-positive women is essentially the same as for HIV-negative women. Invasive procedures such as chorionic villus sampling, amniocentesis or cordocentesis are avoided. External cephalic version may carry a risk for HIV transmission. Prophylactic treatment in HIV positive women may include iron and folate, multivitamin supplementation, sulphadoxine-pyrimethamine for malaria and Pneumocystis carinii pneumonia (PCP) prophylaxis for women with CD4 counts below 200 per mm^J with cortrimoxazole one daily or every 3 days (5).

Women may receive ARV drugs during pregnancy as part of potent combination regimens used to treat their HIV infection or as prophylaxis to prevent HIV infection in infants. HIV-infected pregnant women who do not have indications for ARV treatment, or do not have access to treatment should be offered ARV prophylaxis to prevent MTCT using one of several ARV regimens known to be safe and effective (4). The antiretroviral protocol used at Kenyatta National Hospital is as follows: (9)

1. For women who receive their results before 36 weeks of gestation, Zidovudine (AZT) 300mg orally twice daily from 34-36 weeks. AZT 300mg orally 3 hourly

from onset of labour to delivery and Nevirapine 200mg orally at onset of labour and to the infant, one oral dose of 2mg/kg within 72 hrs of birth.

2. Women whose results are known after 36 weeks of gestation or are in early labour, Nevirapine 200mg orally at onset of labour and to the infant, one oral dose of 2mg/kg within 72 hrs of birth (HIVNET 012).

3. Postpartum prophylaxis for women tested late in labour or after delivering; infants to receive Nevirapine 2mg/kg single dose and one week of AZT 2mg/kg 12 hourly.

4. Women with CD4 count of less than 200 per cmm or AIDS defining illness (WHO stage IV disease) are put on highly active antiretroviral therapy (HAART) using zidovudine 300mg twice daily, lamivudine 150mg twice daily and Nevirapine 200mg once daily for 2 weeks and increased to twice daily if liver function tests remain normal (10).

Elective caesarean section reduces the risk of transmission by 50% compared to vaginal delivery, but it is not available in many settings (4, 5, 9). Physician should discuss the risks and benefits of the different delivery options with the patients to allow them make an informed decision regarding mode of delivery. Patient presented was given protocol number one above then delivered by elective caesarean section.

HIV positive mothers who opt for vaginal delivery or where elective caesarean section is not available, vaginal cleaning should be performed using chlorhexidine 0.25%. Routine episiotomies are avoided unless necessary, vaginal examinations are kept to a minimum, vigorous suction of the newborn should also be avoided (5, 9).

Breast milk increases the risk of neonatal transmission of HIV and in general is not recommended in HIV positive women (1). Counselling on infant feeding options according to W.H.O. and local guidelines should be done to all HIV positive women. Those opting to breastfeed should be encouraged to exclusively breastfeed for six months with rapid weaning (1). The patient presented opted not to breastfeed.

HIV infected women should initiate a reliable contraceptive method by 2-4 weeks postpartum. They can use all modern methods of contraception. Barrier methods (condoms) of contraception are recommended to reduce chances of infection with other STIs and HIV(l).

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OBSTETRIC CASE 2

RETAINED PLACENTA - MANUAL REMOVAL:

NAME:	A.H	D.O.A:	04/07/05
AGE	: 39 YEARS	D.O.D:	06/07/05
IP/NO.:	1034987	PARITY:	7+0

PRESENTING COMPLAINT:

She was admitted through casualty with retained placenta for eight hours.

HISTORY OF PRESENTING COMPLAINT:

She had delivered at home to a stillbirth eight hours earlier. A traditional birth attendant (midwife) assisted her. The labour had lasted about 9 hours. She had avoided delivering in hospital on financial grounds and wanted to avoid being sectioned again like in the previous delivery. She had lost a lot of blood and was feeling quite thirsty.

OBSTETRIC AND GYNAECOLOGIC HISTORY:

She was para 7 + 0 all children alive and well. She had five earlier deliveries by spontaneous vertex deliveries. The sixth pregnancy was delivered by caeserian section due to breech presentation.

She had her last menstrual period in September 2004 although she could not recall the date. Gathering from this the expected date of delivery was supposed to be July/August 2005. She had attended clinic only once at private clinic in Kayole. ANC profile was not done.

Her menarche was at 16 years old. She had regular cycles of 28 days and flow of four days. She had never used any contraceptives.

PAST MEDICAL HISTORY:

She had been admitted before for caesarean section in 2003 . She had no chronic disease.

FAMILY AND SOCIAL HISTORY:

She was a housewife. Her husband worked at wakulima market. She never took alcohol or smoked. There was no family history of chronic illness.

GENERAL EXAMINATION:

She was in fair general condition with no fever or jaundice. She was moderately pale. Her blood pressure was 100/60 mmHg, pulse rate 90/min and respiratory rate was 24/ minutes.

RESPIRATORY, CARDIOVASCULAR AND CENTRAL NERVOUS SYSTEMS:

These were essentially normal.

ABDOMINAL EXAMINATION:

She had sub umbilical midline scar the previous caeserian section. The uterus was firm; non-tender and the fundal height corresponded to 24 weeks gestation.

VAGINAL EXAMINATION:

The external genitalia were normal. There was a hanging umbilical cord, which had been tied by a string. The cervix was open and the cord was felt at the os. The placenta had not separated from the uterus and was firmly adherent. There was minimal bleeding.

DIAGNOSIS:

A diagnosis of retained placenta was made.

MANAGEMENT:

The patient was started on syntocinon 40iu in a drip of 500mls of 5% dextrose. Blood was taken for packed cell volume (PCV) estimation, grouping, and cross matching and 2 units of blood were availed. The PCV was 18%.

The diagnosis and mode of management were explained to the patient. She gave a written informed consent. She was also started on crystalline penicillin 2-mega units 6-hourly and gentamycin 80 mg 8-hourly. Intramuscular atropine 0.6 mg was administered and the patient was taken to theatre.

In theatre, general anaesthesia was given. She was then placed in lithotomy position, vulvo-vaginal toilet was done and the patient draped. The bladder was aseptically catheterized and about 100 millilitres of urine was obtained. Vaginal examination confirmed earlier findings. The left hand was used to steady the uterus abdominally. The right hand was introduced into the uterus and the fingertips used to make a plane of cleavage between placenta and uterus. The placenta was then systematically removed completely. The uterus was then messaged and syntocinon drip let to run faster. Haemostasis was achieved and the patient was reversed from general anaesthesia. She was transfused one unit of blood.

POST OPERATIVE MANAGEMENT:

She was transferred to the recovery room where vital signs were monitored half hourly until when she was fully awake. She was continued with another drip of syntocinon and the uterus remained contracted. She was transferred to the postnatal wards when she was fully awake. Intravenous crystalline penicillin gentamycin metronidazole was continued for one day. She remained steady and was released on the second day on amoxicillin, flagyl, ibobrufen and ranferon. She was given an appointment for follow up in the postnatal clinic in two weeks.

FOLLOW UP:

She never turned up for her appointments.

DISCUSSION

The patient presented was a 39-year-old para 7 + 0 was admitted with retained placenta for which removal was done.

A retained placenta means that all or part of the placenta or membranes is left behind in the uterus during the third stage of labour. This happens in about two per cent of births (1) The third stage is the time between the birth of the baby and delivery of the placenta and membranes. It takes anything from about 30 minutes to one hour if it is allowed to happen naturally (this is known as a physiological third stage) or it may be speeded up with an injection in the thigh, given just as the baby is being born (managed third stage). The injection used is an oxytocic drug to speed up the delivery of the placenta, as this reduces the risk of haemorrhage (2, 3, 4, 5). A managed third stage usually lasts between five and 10 minutes. The patient presented had delivered 8 hours earlier before presentation to hospital.

The incidence of retained placenta is 1 in 100 to 1 in 200 deliveries (6). The frequency of retained placenta is higher the lower the gestational age of the pregnancy. It is 20 times more below 20 weeks. It is three times more common for gestations below 37 weeks than at term (3).

The actual causes of failure of separation are unknown. Various causes have been postulated. Inadequate uterine contraction and retraction is the commonest cause. On occasions, the placenta may be unusually adherent to the implantation site with scanty or absent decidua. Placenta may also penetrate the myometrium or a defect of the uterine wall (5, 7, 8). Predisposing factors include prematurity, tightly adherent placenta, previous history of retained placenta, atonic uterus, repeated curettage, placenta praevia, uterine malformation, constricting ring secondary to oxytoxic drugs, high parity, precipitate labour, multiple pregnancy, delivery conducted under adjuvant inhalation analgesia or anaesthesia, massage and fiddling, and prolonged second stage (5, 7, 8) The patient presented probably laboured for long at home, she is a multipara and had a previous caeserian section scar.

Following delivery, the usual signs to look for to signify placental separation are the uterus becomes globular and firmer, there is often a gush of blood, the uterus rises in the abdomen as the separated placenta passes into the lower segment and vagina and finally the umbilical cord protrudes further out of the vagina indicating placenta descend (3).

A patient with retained placenta may present in shock: Having had postpartum haemorrhage. Adequate resuscitative measures must be commenced before attempting manual removal. These should include blood if the patient is bleeding and the administration of oxytocic drugs to encourage uterine contraction and placental separation (9).

Manual removal of placenta is best done under general anaesthesia. Halothane is known to cause muscle relaxation hence ease the introduction of the hand into the uterus. In cases of constricting ring secondary to oxytoxic drugs, induction of anaesthesia causes relaxation of the uterus and placenta falls in to the vagina (8).

Under general anaesthesia, the patient is cleaned and draped in lithotomy position. One hand stabilizes the uterine fundus over the abdomen while the other is introduced into the uterus. The fingers are then used to separate the placenta along a plane of cleavage from done upwards. Once separated, the placenta can be manually removed as the hand is withdrawn or by controlled cord traction (3, 4). The patient presented was put under general anaesthesia and placenta was manually removed.

Manual exploration of uterine cavity with gauze round the exploring fingers helps to remove the remaining Tissues. Most adherent tissues may require curetting. Some tightly adherent placenta may be difficult to remove. This may be associated with severe postpartum haemorrhage. This may be managed by uterine message, increasing oxytoxic drugs speed, intramyometrial prostaglandins, legation of the uterine arteries, or even hysterectomy. In situation, where it is impossible to remove the placenta, autolysis may be allowed with or without methotrexate, but must have good antibiotic cover (7).

Haemorrhage due to incomplete removal, shock, injury to the uterus, invarsion, thrombophlebitis, embolism, subinvulution and endometritis may occur as a complication of manual removal. The patient should have antibiotic cover (4). The patient A. H was put on crystalline penicillin and gentamycin and later flagyl, and amoxil.

Retained placenta may be reduced by use of active management of the third stage. Administration of prophylactic oxytoxics during or immediately after delivery of the baby (8).

At Kenyatta National Hospital, ergometrine is given immediately after delivery of the anterior shoulder. The other alternative is a drip of syntocinon given at 15-20 international units.

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OBSTETRIC CASE 3

RUPTURED UTERUS - SUBTOTAL HYSTERECTOMY DONE

Name : A.A.	**D. O.A :**	17/05/2005
Age : 35 years	**D. O. D:**	23/05/2005
I.P. No. : 1025220	**L.M.P :**	08/08/2004
Parity : 8 + 0 Gravida 9	**E. D. D**	17/05.2005
	MATURITY:	40 WEEKS.

PRESENTING COMPLAINT

She presented with a two days history of labour pains and a one day history of per vaginal bleeding.

HISTORY OF THE PRESENTING COMPLAINTS

She was admitted as a referral from Tigoni Hospital with failure to progress in labour. She had presented to the clinic with labour pains two days prior to admission. It was noted from the referral note that she had remained at 8cm cervical dilatation for about 6 hours. On the day of admission, she developed per vaginal bleeding and was referred to Kenyatta National Hospital.

OBSTETRIC AND GYNAECOLOGICAL HISTORY

She was para 8+0 with two living children. She had her first delivery in 1987 at home at term , which was alive and well. In 1990, she had another home delivery at term to an infant who was alive and well. Her third delivery was also a vaginal home delivery in 1994 and baby died at six months of pneumonia. Her forth delivery was a vaginal delivery at home in 1995 who died after two days. Her sixth delivery was in 1996 also at home and weighed 2.5 kg but died at 9 months of gastroenteritis. She had a caesarean section in 1999 due to a breech presentation baby died after 2 days. She had a vaginal delivery in hospital again in 1999 to a 2 kg baby who died in nursery after a week. Her

last menstrual period was on 08.08.04 and her expected date of delivery on 17.05.05, she was at 40 weeks gestation. She had antenatal care at Tigoni Medical clinic. She had a haemoglobin level of 10.2g/dl. Her blood group was O positive and VDRL and HIV test were negative. She attained Menarche at 14 years of age. Prior to conception, she had a regular menstrual cycle of 29 days lasting 4-5 days. She had not been on any contraceptive method.

PAST MEDICAL HISTORY

She had no significant medical or surgical history

FAMILY AND SOCIAL HISTORY

She was a married housewife. The husband was a driver. She did not smoke cigarettes or dink alcohol and had no history of chronic illnesses in the family.

PHYSICAL EXAMINATION

She was sick looking, moderately pale, afebrile, with no oedema or jaundice. She had a pulse rate of 104 beats per minute, a blood pressure of 90/50 mmHg, a respiratory rate of 22 breaths per minute and a temperature of 36.6°C.

SYSTEMIC EXAMINATION

The central nervous, respiratory and the cardiovascular systems were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended and moved with respirations. There was a lower midline surgical scar from the previous caesarean section. Foetal parts were easily palpated and there was moderate abdominal tenderness without guarding. Foetal heart tones were not heard.

PELVIC EXAMINATION

She had normal external genitalia, the cervix was 6 cm dilated, the presenting part could not be palpated vaginally and there was blood on the examining fingers although no active vaginal bleeding was noted.

DIAGNOSIS

A diagnosis of ruptured uterus was made.

MANAGEMENT

An intravenous line was secured using a gauge 16 intravenous canular. Blood was taken for grouping and cross-matching and 3 units of blood ordered. Intravenous infusion with normal saline was begun. She was informed of the diagnosis and the planned of management. She gave an informed written consent and was prepared for laparotomy. She was premedicated with Atropine 0.6mg and taken to theatre.

In theatre, she was put under general anaesthesia and aseptically catheterized where blood stained urine was obtained. The abdomen was cleaned and draped with sterile towels and was opened through a repeat lower midline incision. The finding was haemoperitoneum of about 500ml; the foetus and the placenta had already been expelled into the peritoneal cavity. The foetus was a male fresh stillbirth weighing 3700g. There was a uterine rupture involving a transverse lower uterine scar and extending inferiorly at both angles towards the cervix. The tissues around the tear were quite friable. The bladder was quite oedematous although it was not involved in the rupture.

The second on call was called in and a decision was made to perform a subtotal hysterectomy. The round ligaments were clamped, cut and ligated bilaterally, opening up the anterior leaf of the broad ligament. The incision was extended anteriorly to the vesicouterine reflection of the peritoneum. The bladder was reflected downwards. Next, the fallopian tubes and the ovarian ligament were clamped, cut and ligated bilaterally. The uterine vessels were then skeletonized and double clamped, cut and ligated. The corpus was amputated below the cervix internal os. Stitches were put across the cervical

stump and haemostasis achieved. Reperitonization was then done. The abdomen was cleaned with warm saline and rinsed with Rifocin. The estimated blood loss was 1600ml. Instruments and swabs counts were ascertained and the abdomen closed in layers. She was transfused 2 units of blood intraoperatively. Vulvovavaginal toilet was done and the patient successfully reversed from general anaesthesia. The catheter was still draining blood stained urine. It was left insitu.

POSTOPERATIVE MANAGEMENT

Vital signs were observed half hourly until she was fully conscious, one hourly for 4 hours and then 4-hourly thereafter. She was put on intravenous fluids, 1 litre of dextrose alternating with normal saline 8-hourly for 24 hours. Analgesia was through intramuscular pethidine 100 mg 8-hourly for the first 24 hours then oral ibuprofen 400 mg 8-hourly. She was also put on intravenous Augmentinl.2g 8 hourly and intravenous metronidazole 500mg 8 hourly for one week. After 24 hours, the urine cleared. She was advised to bind the breasts with well fitting bras and to avoid stimulation to suppress lactation. She was counselled on the findings and what was done and what it meant on her fertility.

The patient did well postoperatively. The stitches were removed on the seventh postoperative day and the catheter was removed on the tenth day. She was discharged through postnatal clinic in six weeks.

POST-NATAL FOLLOW-UP

When she was reviewed in the post-natal clinic after 6 weeks, she had no complaints and the wound had healed well. She was then discharged from follow-up.

DISCUSSION

The patient presented was a grand multiparous (para 8+0) with a previous uterine scar who presented with a ruptured uterus at term. Laparatomy and subtotal hysterectomy were done.

Rupture of the pregnant uterus is a potential obstetric catastrophe and a major cause of maternal death (1). It is defined as dissolution in the continuity of the uterine wall any time beyond 28 weeks of pregnancy. Injury to the wall of the uterus in the early months is called perforation either instrumental or perforating hydatidiform mole (2).

The incidence of uterine rupture is reported to be between 1:1148 and 1:2250 deliveries (1). In the Nairobi Birth Survey of 1983, the incidence of uterine rupture was 0.06% (3).

Rupture of the uterus may communicate directly with the peritoneal cavity (complete) or may be separated from it by the visceral peritoneum over the uterus or that of the broad ligament (incomplete). It is important to differentiate between rupture versus dehiscence of a caesarean section scar. Rupture refers to separation of the old uterine incision throughout most of its length, with rupture of the foetal membranes so that the uterine cavity and the peritoneal cavity communicate. In these circumstances, all or part of the fetus is usually extruded into the peritoneal cavity. In addition, there is usually significant bleeding from the edges of the scar or from an extension of the rent into previously uninvolved uterus. In contrast with dehiscence of a caesarean section scar, the foetal membranes are not ruptured and the fetus is not extruded into the peritoneal cavity. Typically, with dehiscence, the separation does not involve the entire previous uterine scar, the peritoneum overlying the defect is intact, and bleeding is absent or minimal (4). In the case presented, there was complete separation of the old caesarean section scar with extension of the tear. The fetus and the membranes had been extruded into the peritoneal cavity.

Risk factor for uterine rupture include history of prior hysterotomy (caesarean section, myomectomy, metroplasty, cornual resection), trauma (motor vehicle accident, rotational forceps, extension of a cervical laceration), uterine over-distension (hydramnios, multiple gestation, macrosomia), uterine anomalies, placenta percreta, and choriocarcinoma. The case presented was a grandmultiparous with a previous caesarean section scar.

The diagnosis, prevention and management of uterine rupture are greatly dependent on whether the rupture is spontaneous, iatrogenic or following a previous operation on the uterus (5).

Uterine rupture may develop as a result of pre-existing injury or anomaly, it may be associated with trauma, or it may complicate labour in a previously unscarred uterus. The most common cause of uterine rupture is separation of a previous caesarean section scar. This is increasing with the developing trend of allowing a trial of labour following prior transverse caesarean section (4). The patient presented had separation of a previous caesarean section scar.

Ruptures usually occur during the cause of labour. One notable exception is scars from classical caesarean section (or hysterotomy), one third of which rupture during the third trimester before term and before the onset of labour. Traumatic ruptures occur most commonly as a result of motor vehicle accidents, improper administration of an oxytocic agent, or an inept attempt at operative vaginal delivery. Breech delivery through an incompletely dilated cervix is the type of operative vaginal delivery most likely to produce uterine rupture. Other manoeuvres that impose risk of rupture are internal podalic version and extraction, difficult forceps, destructive operations and manoeuvres to relieve shoulder dystocia. Tumultuous labour, excessive fundal pressure or violet bearing down efforts, and neglected obstructed labour may also be responsible for rupture of the uterus (1). It is likely that the patient presented had neglected obstructed labour as she had been in labour for three days.

There are no universal clinical features applicable to all varieties of uterine rupture. Cases of spontaneous rupture during pregnancy are uncommon except in women of high parity. The patient presents with history of acute sharp pain in the abdomen associated with fainting attacks and collapse. There is marked abdominal tenderness, superficially palpable foetal parts, loss of uterine contour and absent foetal heart sounds. The case presented had abdominal tenderness, easily palpable foetal parts and no foetal heart tones.

During pregnancy, scar dehiscence is more common than scar rupture. In the former, there may be a complete absence of symptoms. In the latter, also symptoms are much less acute than rupture in the spontaneous variety. The patient complains of dull abdominal pain in the scar with or without vaginal bleeding. Scar tenderness is present. Later there may be a sense of something giving way accompanied by acute abdominal pain and collapse.

The patient with spontaneous rupture during labour often presents with premonitory signs. There is a history of prolonged labour, the patient is markedly exhausted and on abdominal explanation, there is usually a high receding palpable Bandl's ring. Per vaginal examination demonstrates the signs of obstructed labour. In the acute stage there is severe abdominal pain followed by a sensation of something giving away in the abdomen. This stage is followed by a cessation of all uterine contractions, comparative relief from pain, vaginal bleeding, loss of the presenting foetal part and finally all the signs of cardiovascular collapse. The warning signs of rupture of scar during labour are foetal heart rate abnormalities, maternal tachycardia, vague pain continuing even in between uterine contractions, suprapubic tenderness, and vaginal bleeding and bladder tenesmus. Later on the fetus may be expelled out from the uterus and the uterus may be felt to be contracted separately (5).

Depending upon the state of the clinical condition, either resuscitation is to be done followed by laparatomy or in acute conditions resuscitation and laparatomy are to be done simultaneously. Following laparatomy, three surgical options are available:

(1) Hysterectomy is the treatment of choice for uterine rupture unless there are compelling reasons to preserve the uterus. This is especially indicated in spontaneous obstructive rupture, so common in the developing countries. It is usually preferable to perform a quick and easy subtotal hysterectomy rather than total abdominal hysterectomy. This patient had subtotal hysterectomy done.

(2) Repair of the rupture is mostly applicable to a rupture where the margins are clean. Repair is done by excision of the fibrous tissue at the margins. One may have to repair a spontaneous obstructive rupture in odd circumstances (desirous of having a child), if possible. In such cases, however, there is chance of peritonitis and septicaemia. Elective caesarean section in subsequent pregnancy in mandatory because of the high risk of rupture.

(3) Repair and sterilization is mostly done in patients with a clean cut scar rupture having desired number of children.

The complications of ruptured uterus are haemorrhage, shock, (3, 5) Postoperative infection, ureteral damage, thrombophlebitis, amniotic fluid embolus, disseminated intravascular coagulation, pituitary failure, and death. If the patient survives, infertility or sterility may results (1).

Most of the causes of uterine rupture can be avoided by good obstetric assessment and technique.

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OBSTETRIC CASE 4

UNSENSITIZED RHESUS NEGATIVE MOTHER: SVD LIVE BABY

NAME	A.L.	D.O.A	21/01/05
AGE	32 YEARS	D.O.D:	23/01/05
IP NO.:	140/05	L.M.P:	22/04/04
PARITY	**2+0**	E.D.D	28/01/05
		MATURITY:	39WEEKS

PRESENTING COMPLAINT

She presented with intermittent lower abdominal pain accompanied with mucoid blood stained per vaginal discharge 6 hours prior admission.

HISTORY OF PRESENTING COMLAINT

She was admitted from home with 6 hours history of intermittent lower abdominal pains that were increasing in intensity and frequency. She had no drainage of liquor or vaginal bleeding. She had no frequency of micturition or dysuria.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 1+0. Her first delivery was in 1999 at term, at home and baby was alive and well. She never new her blood group during that time, so she did not received anti-D. Her last monthly period was on 22/04/04 with expected date of delivery being 28/01/05. Gestation by dates was therefore 39 weeks.

She had attended antenatal clinic at PGH Kakamega for ANC for the first time at 37 weeks. ANC done showed blood group B- Rhesus negative. Haemoglobin was 13.4g/dl VDRL and HIV was negative. Urine for protein was also negative.

She had attained menarche at 14 years. Her cycles were occurring every 28 days and regular flow lasted 4 days and was not having dysmenorrhea. She used combined oral contraceptives from 2001-2003.

PAST MEDICAL HISTORY

This was not significant..

FAMILY AND SOCIAL HISTORY

She was married and a housewife. Her husband was a casual worker. They lived in Shinyalu. She neither smoked nor took alcohol. There was no family history of any chronic illness.

PHYSICAL EXAMINATION

She was in good general condition. She was not pale, not jaundiced, and had no oedema. Her pulse rate was 80 beats per minute, blood pressure 100/70 mmllg, her respiratory rate 24 breaths per minute and her temperature 36.5°C.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended and moved with respiration. The fundal height was term, longitudinal lie with a single fetus in cephalic presentation. Decent was 2/5 up. Fetal heart tones were heard and regular at 144 beats per minute. She had 3 palpable contractions in 10 minutes lasted 40 seconds.

VAGINAL EXAMINATION

She had normal external genitalia, the was fully effaced and dilatation was 8 cm. The membrane were bulging ARM was done and clear liquor obtained. There was no caput, moulding or cord felt. The pelvis was adequate.

DIAGNOSIS

A diagnosis of a para 1+ 0 gravida 2, unsensitized Rhesus Negative mother at term in active labour was made.

MANAGEMENT

She was allowed to progress in labour and monitored by partograph. She was to be reviewed in 2 hours.

She progressed well, and at 9.45 am, had spontaneous vertex delivery to a live female infant of birth weight 3600 gms and apgar score of 9 in 1 minute and 10 in 5 minutes. At delivery, the cord was clamped immediately and cord blood was taken for blood group, Haemoglobin level, and direct coomb's test and bilirubin levels. The infant was taken to NBU for observation.

The mother was stable. The baby's blood group was O Rhesus positive. The baby was discharged from NBU after 24 hours with no complications. The mother was given anti-D 300 jig with in 72 hours.

Postnatally the mother and baby did well and they were discharged home on 23/01/2005. She was advanced to come after six weeks for postnatal check-up, but she did not honour her appointment.

DISCUSSION

The patient presented is of an unsensitised Rhesus D negative mother who delivered a live female baby by spontaneous vertex delivery (SVD). The baby's blood group was 0 Rhesus positive given anti D within 72 hours.

In the red blood cells, there are about 250 recognized antigenic factors of which the most common are ABO, Rhesus, Kell, Lutheran, Duffy, Kidd, P and MNs. Landsteiner and Weiner discovered the Rhesus factor in 1940 the presence of which makes an individual Rhesus positive and its absence Rhesus negative. The Rhesus antigens are inherited independently of all other blood group antigens. The Rhesus antigen status has five major antigenic loci namely C,D,E,c,e. The Rhesus antigens C,E, c and e are considerably less immunogenic than the D antigen, which is responsible for severe haemolytic disease of the newborn (1).

There are considerable racial variations in the distribution of rhesus blood groups. The Basque population have the highest incidence of Rhesus negativity (30-35%). Caucasians have an incidence of 15-16% and African Americans 7-8%. Asiatic groups and American Indians are all virtually Rhesus positive. The incidence among Mongoloid races is nil (2,3). The incidence in Nairobi is reported to be 5% of all mothers attending antenatal clinic (5). At Kenyatta National Hospital, the incidence has been reported to be 4.1% (6).

Rhesus isoimmunisation occurs not only when a rhesus-negative mother carries a rhesus positive pregnancy but also following a previous transfusion of rhesus positive blood (2,3). Under normal conditions, fetal cells do enter the maternal circulation but in small numbers which are destroyed by the maternal immune system before provoking an antibody reaction especially where the ABO blood group of the mother and fetus are incompatible (2).

Whether or not a rhesus-positive fetus immunizes an at-risk rhesus-negative woman, depends on a number of factors; first, it depends on her in-born ability to respond to the rhesus antigenic stimulus, about two-thirds of rhesus-negative women are responsive. Second, there is significant protection against immunization when there is

also ABO-incompatibility between the fetal red cells and the mother - this reduces the incidence of rhesus isoimmunization to about one-tenth of that when they are ABO-compatible. Third, there is some variation in the strength of the rhesus antigenic stimulus, depending on the rhesus genotype of the fetal blood, e.g. the Cde/cde genotype seems to be relatively 'strong'. Fourth, the volume of fetal blood entering the maternal circulation is very important, with 0.25ml representing a critical sensitizing volume and with the likelihood ad severity of sensitization increasing with greater volumes (4). The patient presented had 2 deliveries and was not sensitised.

The initial response of a rhesus-negative individual to rhesus positive cells is formation of 1 gM antibodies, which do not cross the placental barrier; subsequently, lgG antibodies are formed and these cross from mother to fetus and cause haemolysis, hydrops fetalis and kernicterus depending on the extent of haemolysis (1,2,3). The patient presented was blood group "B" Rhesus "D" negative.

Usually the initial isoimmunization reaction is minimal but subsequent reactions tend to be stronger and more severely affected (2,3,7). It is known that fetomaternal haemorrhage goes on throughout pregnancy, but the amount of blood involved may be so small for any clinically significant complications. Risk factors that predispose to fetomaternal haemorrhage include amniocentesis, abortion, abdominal trauma, abruptio placenta, caesarean section, ante partum haemorrhage and manual removal of placenta (1,3). The patient presented had none of these factors.

The overall risk of isoimmunisation for a Rhesus positive ABO-Compatible infant with a Rhesus negative mother is 16% (1,2,3). The risk of Rhesus isoimmunization seems to be less than 2% after infusion of relatively small volume (<30mls) of Rhesus incompatible cells as would occur in multiple deliveries. With infusion of a large volume (>200ml) the risk is slightly greater than 8%. However, at no volume, does there seem to be 100% immunization risk (1,2).

The introduction and widespread use of anti-D gamma globulin has made the frequency of sensitized pregnancy to decline. This immunoglobulin prevents Rhesus isoimmunisation by competitive inhibition. All the antigenic sites are covered or blocked from the lymphoid cells by the antibody. It may also interfere with the fetal

red cells antigen processing by maternal macrophages, thus preventing the initiation of immune response (1,7).

The routine administration of anti-D after delivery or abortion prevents up to 95% of Rhesus sensitisation. New cases continue to occur mainly due to sensitization during pregnancy, which renders prophylaxis after delivery useless. Giving anti-D antenatally will prevent these cases. Anti D given antenatally during the last trimester of the first pregnancy is highly protective not only for that pregnancy but for the next two pregnancies and possibly the third. There is 1-6% failure rate of prophylactic anti D when given after delivery compared to 0.1% when given antenatally (8,9). The standard recommendation is to give anti D within 72 hours postpartum, but women at risk who have not received this regimen within 72 hours would still be treated. Infarct some authors recommend treatment up to 28 days postpartum (3). The patient presented was given anti D within 72 hours.

The most important part of the management of pregnancies at risk of rhesus isoimmunisation is serial monitoring of maternal antibody levels throughout pregnancy (9). Indirect coomb's test (ICT) should be done once during the first and second trimester then weekly thereafter until delivery. A titre that is no higher than 1:16 almost always means that the fetus will not die in utero from haemolytic disease (3).

Any titre higher than this indicates the possibility of severe haemolytic disease requiring exchange transfusion for hyperbilirubinaemia (9). Abnormal heart rate patterns have been described in severe rhesus isoimmunization. Sinusoidal and deceleration patterns have been associated with very low cord haemoglobin concentration at delivery and high perinatal mortality rates (9). The only direct method of assessing the severity of the disease is measuring the fetal haematocrit. This procedure is invasive and may result in bradycardia, abortion or preterm labour (9).

The chances of a rhesus negative mother bearing a rhesus positive child is 75% (10) but even so, she has only 15-16% chance of being sensitized at the time of delivery of the first child (3,10). Of these, 1.5-2% of the isoimmunization will occur intrapartum,

7% within 6 months of delivery and the remaining 7% early in the next pregnancy most likely as a result of amnestic response (3).

Where the mother is already sensitized, the maternal antibodies should be quantified. The mother is followed up by serial antibody titres until a critical level is reached (2,3) after which serial amniocentesis and ultrasound evaluations to rule out signs of hydrops fetalis are performed. Fetal haemolysis as may be shown by amniocentesis may necessitate early delivery. Liley's charts are used to evaluate the severity of haemolysis and the intervention criteria for management are set up depending on the fetal condition.

Depending on the severity of the disease, amniocentesis is repeated at 1-3 weekly intervals. Zone I generally indicates an unaffected fetus or one who will have a mild disease but a D negative fetus is also a possibility.

In zone, II the fetus is at moderate to severe risk of haemolytic disease. A repeat amniocentesis or fetal blood sampling may be required to establish the actual condition of the fetus. In zone III the fetus is severely affected and death within one week to ten days may be expected unless intrauterine transfusion or delivery is effected (1,2). In our unit intrauterine transfusion is not done but wherever it is practiced direct intravascular transfusion into the circulation (umbilical vein, hepatic vein or intracardiac) is done under ultrasound guidance. This has improved the outcome of foetuses with severe anaemia and hydrops fetalis. Due to lack of these facilities perinatal mortality and morbidity remains high among the isoimmunised women in our set up. In Kenyatta National Hospital, a perinatal mortality of 600 per 1000 was reported (11).

Other modes of treatment, which have been tried unsuccessfully, include plasmapheresis, immunosuppression with high dose of steroids, promethazine and D-positive erythrocyte membranes in enteric coated capsules to induce T- suppressor cell formation (3,9). For the patient who has been sensitized and has had repeated pregnancy losses artificial insemination by Rhesus D negative donor sperm can be done.

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OBSTETRIC CASE 5

CARDIAC DISEASE GRADE IV IN PREGNANCY - SUCCESSFUL VAGINAL DELIVERY

NAME:	H.W	D.O.A	22/09/05
AGE :	24 YEARS	D.O.D	24/10/05
IPNO. :	0508966	L.M.P	18/01/05
PARITY:	0+0	E.D.D	26/10/05

MATURITY: 35WEEKS + 2 DAYS.

PRESENTING COMPLAINTS

The patient presented with complaints of cough, chest pain and shortness of breath.

HISTORY OF PRESENTING ILLNESS

This was a known cardiac disease patient since 1994. She had been followed up at cardiology clinic at KNH and was on lasix 1 tablet and digoxin 1 tablet daily for the last 12 years. She was admitted with cough, chest pain and increasing shortness of breath. She was now not able to walk around an ordinary room without posing for breath and had difficult in breathing when lying flat.

PAST MEDICAL HISTORY

She had been diagnosed with rheumatic heart disease in 1994. She had been admitted once before when the diagnosis was made. She was advised to avoid conception due to her condition.

OBSTETRIC AND GYNAECOLOGY HISTORY

She was a primigravida. Her last menstrual period was on 18.01.05 and her expected date of delivery was 26th 0ctober2005. By dates, she was 35+ weeks. Her menarche had been at 15 years and her cycles were regular occurring every 28 days and lasting 5 days. She has never used any contraceptives.

ANTENATAL CARE

She had attended antenatal clinic at KNH, from 8 weeks; she was asymptomatic until one-month before admission. The profile was as follows:

Haemogram

Hb	:	12.6g/dl
WBC	:	9.32 X 10^9/L
Platelets	:	471x10^{12}/l
VDRL	:	Negative
Blood group	:	A positive
HIV	:	Negative

Urine culture/sensitivity - no growth obtained.

FAMILY AND SOCIAL HISTORY

She was married, homemaker and stays with her husband at South B. Her husband was a businessman. She did not take alcohol or smoke cigarettes. She had no history of chronic illness in the family.

PHYSICAL, EXAMINATION

She was sick looking, afebrile, not pale, and had mild pitting pedal oedema. Her temperature was 36.8°C, Pulse Rate was 85/minute regular and of normal volume, and Respiratory Rate was 18/min, Blood Pressure was 130/60mmHg.

CARDIOVASCULAR SYSTEM

The peripheral pulses were normal with good volume. The Jugular Venous Pressure was not raised. The Precordium was hyperactive. The apex beat was in the 6th intercostals space along mid clavicular line. Both heart sounds were heard. She had a mid diastolic murmur best heard at the apex.

RESPIRATORY SYSTEM

The chest was symmetrical and moved with respiration. Air entry was good. There were basal crepitations and no rhonchi.

ABDOMEN

The abdomen was uniformly distended with a fimdal height corresponding to 34 weeks gestation. The fetus was in longitudinal lie and cephalic presentation. Fetal heart rate was 142/min and regular. The liver was enlarged at 4cm below the costal margin at the level of anterior axillary line. The spleen was not enlarged.

CENTRAL NEVUOUS SYSTEM

Was normal

DIAGNOSIS

A diagnosis of cardiac disease grade IV in pregnancy was made.

INVESTIGATIONS DONE

Haemogram

Hb	:	13.2g/dl,
WBC	:	$5.1x10^{,2}$/l
Platelets	:	$250x10^{9}$/L,
Urine	:	Normal

Urea and Electrolytes

Na^{+}	:	145mmol/l
K^{+}	:	3.7 mmol/1
Urea	:	5.4umol/l

ECHO - mitral valve disease. Mitral stenos is Aortic regurgitation and moderate to severe pulmonary hypertension.

.Electrocardiogram showed a left axis deviation

Chest radiograph showed cardiomegally with features of mitral valve disease.

Urine microscopy culture and sensitivity - no microscopic haematuria. *Staphylococcus epidermidis* was grown.

PLAN OF MANAGEMENT

She was propped up in bed and managed in consultation with cardiologists. She was continued on monthly intra-muscular benzathine penicillin 2.4 mega units, digoxin 0.25 mg once daily, dose of lasix was increased to 80 mg twice daily, atenolol 50 mg once daily, spironolactone 25 mg once daily and haematinics (Ranferon) 10 ml three times daily.

The patient remained stable. She had urine culture growth of Staphylococcus epidermidis, which was sensitive to Augmentin. She was successfully treated with Augmentin.

On 30.09.05 at 36 + weeks gestation, she developed preterm premature rupture of membranes and shortly thereafter went into spontaneous labour. She was transferred to the labour ward for delivery.

MANAGEMENT OF LABOUR

She was propped up and given oxygen by mask. She was given pethidine lOOmg intramuscularly for analgesia and started on prophylactic antibiotics, benzyl-penicillin G 2 mega unit's 6-hourly and Gentamicin 80mg 8-hourly intravenously.

On vaginal examination, the external genitalia were normal. The cervix was fully effaced, soft, and central and 4 cm dilated. There was no moulding or caput formation and the umbilical cord was not palpable. There was clear liquor draining.

An emergency tray containing aminophylline, digoxin, frusemide, sodium bicarbonate and calcium gluconate was prepared and kept ready. A vacuum extractor was also kept in readiness for use during the second stage of labour.

Vital signs, foetal heart rate and contractions were monitored half hourly and charted on a partograph. She progressed well in labour and 6 hours later was fully dilated and transferred to the delivery room. She was placed in semi fowler position with legs supported by stirrups. Vulvovaginal toilet and aseptic catheterization was done and clear urine obtained. Local anaesthesia (10 ml of lignocaine 2%) was infiltrated

into the left side of the vulva. A left mediolateral episiotomy was performed. The medium (50mm) ventouse cap was applied to the foetal vertex and gently, a vacuum created; by gentle traction with the first uterine contraction, the baby was easily delivered. A live female infant who scored 8/1, 9/5 and 10/10 and weighed 2050 g was delivered.

The placenta was delivered by controlled cord traction and weighed 420g and was normal and complete. The uterus was massaged until well contracted with minimal blood loss. There was no need for oxytocin. The episiotomy was repaired in layers after inspection revealed no cervical or vaginal tears. Estimated blood loss was 200mls. Post delivery, the patient was given 80mg of intravenous frusemide. Her respiratory rate was 24 per minute, pulse rate 82 per minute and blood pressure of 100/70mmhg. She was taken to labour ward acute room for observations.

POST PARTUM MANAGEMENT

The vital signs were observed half hourly for the next 24 hours. They remained within normal. After 24 hours she was transferred to the postnatal ward where 4 hourly observations were continued. She was put on intravenous Augmentin 1.2 grams 8 hourly for one week and continued on Digoxin 0.25mg daily and Lasix 40mg orally once daily.

She was reviewed by the cardiologists and found to be doing well with no complaints. She was advised to continue with Lasix and Digoxin. She was discharged home after 10 days through the cardiac and postnatal clinic in two weeks.

POSTNATAL REVIEW

She was seen in the postnatal clinic and found to have no complaints. She was in good general condition and not in cardiac failure and the uterus had involuted well. She was counselled on family planning and opted to abstain for the time being. She was discharged from the postnatal clinic through the cardiac clinic.

DISCUSSION

H.W was admitted with cardiac disease grave IV and had preterm deli vary with a good out come.

Cardiovascular disease is the most important non-obstetric cause of disability and death in pregnant women, occurring in 0.4 - 4% of pregnancies. The reported maternal mortality rate ranges from 0.4% in class II and I to 6.8% or higher among patients with class III and IV severity (1).

At Kenyatta National Hospital, the incidence is 0.6. Although rheumatic heart disease has declined over the years (2). it is still present in many parts of the world particularly in developing countries (3). In developed countries, rheumatic heart disease is now less common and congenital heart disease is seen more commonly (4). The patient presented had been diagnosed with rheumatic valvular heart disease earlier.

Ngotho (2). in his study found rheumatic heart disease in pregnancy responsible for 86.4% of cardiac disease in pregnancy. Other causes of heart disease in pregnancy include hypertension, thyroid, coronary, syphilitic, cardiomyopathy, pericarditis and other congenital heart diseases (2, 4). The majority of patients with cardiac disease in pregnancy were found to be young with the majority age group of 20-24 years (5). The patient presented, H.W, was 24 years, which is the commonest age of patients presenting with rheumatic heart disease.

By far the most common lesion in rheumatic heart disease is mitral stenosis either in isolation or as the predominant lesion (5). Cardiovascular changes in normal pregnancy tend to worsen or unmask cardiac disease. During pregnancy the cardiac output is increased by as much as 30 to 50 percent. It has been shown that almost half of the total increase has occurred by 8 weeks and it is maximized in mid pregnancy (7). During labour, cardiac output increases by 34% in 1st stage, with further increase in 2nd stage due to increase in stroke volume and heart rate (8). There is also a steady rise in blood pressure.

Signs and symptoms associated with heart disease are often present in normal pregnancy. These include fatigue, dyspnea, orthopnoea, oedema, and palpitations. Clinical indicators of heart disease include symptoms of progressive dyspnea, or aorthopnoea, nocturnal cough, haemoptysis, syncope and chest pain (7).

Clinical findings may include: cyanosis, finger clubbing, persistent neck vein distension, systolic murmur grade 3-6 or arrhythmia, persistent split 2nd heart sound and criteria for pulmonary hypertension (7). The patient presented had developed progressively worsening symptoms as the pregnancy progressed. This is because of the increasing blood volume and the extra workload as pregnancy progresses.

Cardiac disease can be graded according to the New York Heart association classification. This is based on past and present disability and is not influenced by physical signs (1,7).

Gradel : Uncompromised patients have signs of heart disease but no Symptoms limiting ordinary activity.

Grade II : Slightly compromised patient with cardiac disease and slight Limitation to physical activity. They have dyspnoea on strenuous activity.

Grade III : Markedly compromised patient with cardiac disease and marked limitation of physical activity. They have dyspnoea on mild physical activity.

Grade IV : Severely compromised. They have cardiac disease and inability to perform any activity without discomfort. They have orthopnoea or dyspnoea at rest.

The patient H.W was graded as grade IV cardiac disease as she was unable to do ordinary activity.

Patients can also be classified according to the risk of mortality associated with pregnancy into 3 classes (9).

(i) Low risk - Mortality less than 1%

This includes atrial septal defects, ventricular septal defects, patent ductus arteriosus, corrected tetralogy of Fallot, prosthetic valve, mild mitral valve stenosis and pulmonary/tricuspid disease.

(ii) Medium risk Mortality 5-15%

Congenital heart disease without pulmonary hypertension, hypertrophic obstructive cardiomyopathy, symptomatic mitral stenoisis, ebstein's anomaly, aortic stenosis, coarctation of aorta, uncorrected tetralogy of Fallot, artificial value and previous myocardial infarction.

(iii) High risk Mortality 25 - 50%

Includes severe aortic stenosis, pulmonary hypertension with reversed central shunt and Marfan syndrome with aortic involvement.

H.W had rheumatic heart disease with multivalvular involvement. ECHO had shown both mitral stenosis and aortic regurgitation.

Successful management of cardiac disease in pregnancy requires a close cooperation between the cardiologist and obstetrician. The prognosis is usually dependent on functional cardiac capacity, other complications that further increase cardiac load, and quality of medical care provided (7).

Every woman with a cardiac disease will benefit from pre- conception counselling. Women who conceive and are known to have a high risk rating should be advised on 1st trimester termination if possible, but not infrequently high desire for children may lead to dismissal of the advice. In that situation surgical correction can be offered. During antenatal follow up the full antenatal profile plus electrocardiogram, Echocardiogram and Ultrasound should be done. Careful monitoring to avoid heart failure should be done with special emphasis on risk factors, which include infections especially of urinary tract, hypertension, anaemia and multiple pregnancies (7).

Patients with grade II disease and I are seen weekly until term then admitted to await labour. Patients with grade III and IV are admitted throughout the pregnancy. H.W was not admitted earlier because she was asymptomatic. In the management of labour, spontaneous labour and vaginal delivery is preferred. Most patients have rapid uncomplicated labour especially if taking digoxin (7). Caeserian section is limited to obstetric indications. The patient is propped up and vital signs monitored half hourly.

An analgesic is important as it reduces cardiac output and anxiety. Epidural analgesia acts as a good analgesic and helps to reduce cardiac output by reducing preload and causing peripheral vasodilatation. Narcotic analgesics (morphine, pethidine) are also used. Oxygen is also given to ensure optimal saturation of the blood and to prevent decompensation. Intravenous fluids should be carefully monitored to avoid fluid overload and pulmonary oedema associated with injudicious fluid loading (7).
The patient H.W was given pethidine for analgesia. She was also given oxygen by mask. Second stage should also be shortened by elective vacuum assisted delivery as H.W had vacuum assisted delivery.

Close monitoring of 3rd stage will prevent hacmodynamic changes associated with post partum haemorrhage. Oxytocin is preferable to ergometrine as the later causes hypertension and peripheral vasospasms associated with sudden intravascular overload (7).
Use of antibiotics, as prophylaxis to prevent endocarditis is necessary as this complication often occurs without warning. Bacteraemia following normal delivery is rare but many obstetricians prefer to give antibiotics. H.W was put on antibiotics after delivery.

Cardiac disease patients are observed for 24 to 48 hours in acute room. L.N was transferred after 48 hours. Postpartum period is also critical and patient is monitored for infective endocarditis, congestive cardiac failure, and thrombo-embolic disease. The patient presented was put on prophylactic antibiotics. Early mobilization was emphasized.

Of the cardiac disease in pregnancy, grade III and IV account for 85% of the 0.5% mortality rate. Complications of cardiac disease in pregnancy include premature

labour and delivery, very low birth weight and higher incidence of congenital disease (7). H.W had premature labour at 36 weeks.

Contraception postpartum is important and surgical sterilization is the preferred method (9). Other methods that can be used are oral contraceptives and condoms. Use of oral combined pills is avoided in those with mitral valve disease and those with mechanical valves where risk of thromboembolism is high. Most of these patients require anti coagulation with warfarin (9). The patient H.W will have to choose between barrier methods and permanent contraception.

Intrauterine devices are not frequently used because of the associated high frequency of infection.

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OBSTETRICS CASE 6

ONE **PREVIOUS SCAR-SUCCESSFUL VAGINAL DELIVERY:**

NAME:	C.B.	D.O.A	21/10/04
AGE :	22 YEARS	D.O.D	23/10/04
IP/NO.:	0313/05	L.M.P	21/04/04
PARITY:	1+0	E.D.D	28/10/04

GESTATION IN WEEKS 39

PRESENTING COMPLAINT:

She was admitted with labour paints for 3 hours.

HISTORY OF PRESENTING COMPLAINT:

She developed progressively increasing, intermittent lower abdominal pains, radiating to the back. There was no drainage of liquor or bleeding. Fetal movements were perceived and were normal.

OBSTETRIC AND GYNAECOLOGIC HISTORY:

She was para 1 + 0 gravida 2. Her last menstrual period was 21/04/04 and the expected date of delivery was on 28/01/05. The gestation by dates was 39 weeks.

Her Menarche was at 16 years. Her cycles were regular occurring every 28 days and lasting 5 days. Her last delivery was in 2001 at Mukumu Hospital where she was delivered by caeserian section because of fetal distress and baby's weight was 3050gms and is alive/well.

She had been on microgynon from 2001 until November 2003 when she stopped to conceive.

ANTENATAL CARE:

She attended St. Pius dispensary at Musoli from 26 weeks, and she was reefed to PGH Kakamega due to previous uterine scar. The follow up was uneventful. ANC results

showed Hb was ll.Og/dl, blood group 0 Rhesus positive, VDRL and HIV was negative

PAST **MEDICAL HISTORY:**

Apart from these were no other admissions.

FAMILY AND SOCIAL HISTORY:

She was married and a housewife. She does not take alcohol or smoke cigarettes. There was no family history of chronic illness. Husband is primary school teacher at Msoli girl's primary school.

PHYSICAL EXAMINATION

She was in good general condition, was afebrile, not pale and had no jaundice or oedema. Her pulse rate was 82/minutes, Temperature was 36.2°C, blood pressure was 110/80 mmHg and respiratory rate was 24/minute.

ABDOMINAL EXAMINATION:

The abdomen was uniformly distended. She had an old subumblical midline scar. There were no areas of tenderness. Fundal height was term, lie was longitudinal, presentation was cephalic, the decent was 3/5 up, and fetal heart was heard and regular at 140 beats per minute and regular.

VAGINAL EXAMINATION:

There external genitalia was normal. The cervix was soft, anterior and fully effaced, and the cervical os was 6cm dilated. No cord was felt. Artificial rupture of membranes was done and the liquor was clear. There were no caput and no excessive moulding. The pelvis felt adequate.

DIAGNOSIS.

A diagnosis of active labour in a patient with one previous scar was made.

MANAGEMENT:

She was counselled on the plan of management and gave verbal consent to have trial of scar. An intravenous line was fixed and the patient started on intravenous 5% dextrose. A specimen of blood was taken for grouping and cross-matching and 2 units of blood prepared. She was advised not to take anything orally except clear fluids. She was started on a Partogram with half hourly monitoring of maternal vital signs and foetal heart tones.

Four hours later, she had an urge to push and a vaginal examination done confirmed her to be in second stage of labour. She was moved to the delivery room where she had a spontaneous vertex delivery to a live female infant who had an Apgar score of 9 in one minute and 10 in 5 minutes weighed 3500 grams. Ergometrine 0.5 mg intramuscularly was given. The placenta and the membranes were delivered by controlled cord traction and were found to be complete and weighed 450 grams. She had an estimated blood loss of 200 ml.

Post delivery the uterus was well contracted and she had no tenderness over the scar. She had minimal lochia loss and had no tears or lacerations. Since she was not bleeding the lower uterine segment was not explored. Her vital signs were monitored for one hour in the fourth stage room She was transferred to the postnatal ward with a blood pressure of 120/80 mmHg and a pulse rate of 78 per minute with instructions to monitor for bleeding.

The following day her condition was good. The uterus corresponded to 18 weeks gestation and she had minimal lochia loss. She was discharged from the postnatal ward on the second day of puerperium through the post-natal clinic.

Follow-up

She was seen in the postnatal clinic after 6 weeks and found to be in good general condition. The baby was well on exclusive breastfeeding. She was counselled on the various methods of contraception and chose to use the progesterone only pill. She was advised to pass through the family planning clinic the same day.

DISCUSSION:

C.B was 22 years old para 1+0 with one previous caeserian section scar who had successful trial of scar.

For many years, the scarred uterus was believed to contraindicate labour out of fear of uterine rupture. In 1916, Cragin made his famous and now seemingly excessive pronouncement, [4]once a caesarean, always a caesarean. Caesarean section rates continue to rise as new indications for the operation continue to be proposed and a method for safely decreasing the caesarean section rates is truly needed (1). A study in Kenyatta National Hospital in found a section rate of 17.8% of which 59.8% have repeat caeserian sections (2).

The reasons for increasing caesarean rates include reduced parity hence higher nulliparity, increasing avoidance of midforceps and vaginal breech deliveries, older women having children, increasing use of electronic fetal monitoring, concern for malpractice litigation, the mistaken belief that once a women has had one caeserian delivery all subsequent deliveries must be by caesarean section and socioeconomic and demographic factors (1,3).

In the past 15 years or so, there has been ample evidence for trial of labour after a lower transverse caeserian section. In 1978, only 2% of women with prior one caesarean scar were delivering vaginally but there was a 14-fold increase and by 1996, 28% of women with prior caeserian deliveries were delivering vaginally (1). Encouraging vaginal birth after caeserian section would reduce caeserian section rates and associated morbidity and mortality. The morbidity associated with caeserian section rates includes wound sepsis, wound dehiscence, postoperative pain, anesthetic risks and iathrogenic prematurity. Hospital stay and subsequent costs are also higher (4).

The maternal mortality rate associated with caeserian section varies in different series from 4 per 10,000 to 8 per 10,000. In one series, the risk of death from caeserian section was found to be 26 times greater than with vaginal delivery (3)

Beginning in 1989, multiple studies have given conflicting reports on the success of vaginal birth after caeserian section, especially in the West. This led to the American college of obstetricians and gynaecologists to issue an updated Practice Bulleting in 1998 and 1999 urging a more cautions approach to attempting a trial of labour (5).

The selection criteria recommended was one or two prior low transverse caeserian deliveries, clinically adequate pelvis, no other uterine scars or previous rupture. Physician should be immediately available throughout active labour capable of monitoring labour and performing an emergency caeserian delivery and availability of anaesthesia and personnel for emergency caesarean delivery (5).

In study by Walton in 1978 on trial of one previous scar, 74% had successful vaginal delivery, 20% had failed trial of labour due to arrest of dilatation, 5% had uterine rupture, and 9% developed fetal distress and had caeserian section (6). Flamm et al had a success rate of 69% in trying mothers who had 2 previous caeserian section deliveries (7).

For a successful trial of scar, proper selection of the mother should be done. Factors that influence include the indication for the primary caesarean section, history of previous vaginal delivery, number of previous caesarean sections, probability of uterine rupture and previous maternal and perinatal outcome (1). The patient presented here had 1 previous scar due to fetal distress. The pelvis was adequate and had a good progress to deliver vaginally.

At Kenyatta National Hospital, selection of patients for delivery is more less the same as above ones but the patients with 2 or more previous scars are routinely delivered by elective caeserian section (6). Walton gave 5 criteria to be used in selecting patients to be tried for trial of scar. These are caeserian section should have been done for a non-recurrent condition, only one scar should be tried and there should be no medical condition complicating the pregnancy. There should be no history of previous uterine rupture and the maternal pelvis should have a true conjugate of 10.5 cm. Or more (6).

Clinical pelvimetry is considered more superior to radiological pelvimetry, which is static and maternal focused. It does not assess changes that occur during labour. The

best method to successful trial of labour is intrapartum monitoring in a well-equipped centre (9).

Use of oxytocin to induce or augment labour has been implicated in uterine ruptures in women with prior caeserian deliveries. Turner (1997) observed that 13 of the 15 women with uterine ruptures encountered at the Coombe Hospital in Dublin between 1982 and 1991 occurred in women with prior caesareans and who had received an oxytoxic agent, usually for induction of labour (10).

In contrast, cautious use of intravenous oxytocin to augment labour in women with prior caeserian at other centres was rarely associated with uterine rupture. Zelop et al found that 2.3% of those induced had rupture compared with 0.4 to 1% in those whose labour was augmented or spontaneous (11).

Examining the old scar after successful delivery is no longer practiced, as this may be more harmful by extending any asymptomatic silent tears or ruptures (1,3). Less than 10% of women with scar dehiscence experience pain and bleeding. The most frequent signs of uterine rupture are fetal heart decelerations. Current studies cite a maternal mortality rate of about 1% and a perinatal mortality rate of about 50% in association with uterine rupture (1).

The patient presented delivered vaginally facing no risks of anesthesia, had a short hospital stay, saved money, and had an earlier smoother interaction between mother and her infant.

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OBSTETRIC CASE 7

BREECH PRESENTATION IN A PRIMIGRAVIDA -CAESERIAN SECTION

NAME :	G.A	D.O.A	18/12/04
AGE :	19 YEARS	D.O.D	22/12/04
IP NO. :	5779/04	L.M.P	19/03/04
PARITY :	0+0	E.D.D	24/12/04

GESTATION IN WEEKS: 39+ 2DAYS

PRESENTING COMPLAINT

The patient presented to labour ward with complaints of labour pain for 6 hours.

HISTORY OF PRESENTING COMPLAINT

She developed progressively increasing, intermittent lower abdominal pains, radiating to the back. There was no drainage of liquor or bleeding. Fetal movements were perceived to be normal. She also had noticed a discharge of blood stained mucous.

OBSTETRICS AND GYNAECOLOGY HISTORY

She was primigravida. Her L.M P was 19.03.04 and E.D.D to be 24.12.04 and gestation by dates was 39+2 days.

Her menarche was at 16 years. She had regular menses, which lasted 4 days within a 30-day cycle. She had not been on any contraception. She had attended Antenatal care at Malava health centre from 28 weeks. The antenatal profile was done. She had Hb of !2.5g/dl, bleed greup 0 Rhesus positive and VDRL and HIV was negative. Urine for protein and sugar was negative.

Hed been referred to PGH Kakamega because of the breech presentation but never turned up.

PAST MEDICAL HISTORY

This was not significant.

FAMILY/SOCIAL HISTORY

She was married and a homemaker. Her husband was businessmen. She did not smoke or drink alcohol. There was no history of chronic illness in the family.

PHYSICAL EXAMINATION

She was in fair general condition and was afebrile, note pale, not jaundiced and no oedema. Her blood pressure was 130/80mmHg, Pulse 80/minute, respiratory rate 20/minute and temperature of 36.6°C.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended, moving with respiration. Fundal height corresponding to term. The lie was longitudinal. The presentation was breech. The fetal heart was heard in the region of the umbilicus and was 140 beats/minute and regular. Had 3 contractions in 10 mins lasting 20-40 seconds were palpated.

VAGINAL EXAMINATION

The external genitalia were normal. Vagina was warm and moist, a cervix that was 4cm dilated, anterior and moderately effaced. The presenting part was breech. Membranes were intact and no cord felt. There was a show in examining finger.

DIAGNOSIS

A diagnosis of breech presentation in a primigravida in active phase of labour was made.

MANAGEMENT

The patient who was already aware of her fetal presentation she was given further counselling on the need of emergency caeserian section delivery. She consented for emergency caeserian section. An intravenous line was established and two units of blood were grouped and cross-matched. The cannula was maintained with a drip of 5% dextrose. She was shaved and premedicated with atropine 0.6mg half hour before theatre. In theatre

patient was put in semi lithotomy position. Vulvovaginal toilet was done. She was then catheterized aseptically and 150mls of clear urine was obtained. She was then repositioned in supine position, cleaned and draped. She was then put under general

anaesthesia. Abdomen was opened via sub umbilical midline incision. The paracolic gutters were then packed. Lower segment caesarean section was done. A life female infant in frank breech who had an apgar scored 8/1, 9/5 and 10/10 was delivered. The infant was weighed 3050 gms. The placenta was delivered by controlled cord traction and found to be normal. Uterus was closed in layers with good haemostasis. Tubes, ovaries were inspected bilaterally and found to be normal.

Swabs and instruments were counted and found to be correct. Abdomen was closed in layers. Vulvovaginal toilet was done. General anaesthesia was then reversed successfully. Estimated blood lose was 500 mis.

POST OPERATIVE MANAGEMENT.

Postoperatively she was observed Vi hourly until she was fully awake, was continued on intravenous fluids, intravenous crystalline penicillin, gentamycin, and intramuscular pethidine. On the first postoperative day, she was started on oral fluids and graduated to light diet on the second day. The rest of the postoperative stay in the ward was uneventful. She was discharged on the fourth day for removal of stitches in the nearest clinic on the seventh postoperative day. She was also to be seen in the postnatal clinic in 2 weeks.

POST NATAL VISIT

After 2 weeks, she was seen in the postnatal clinic. The wound was completely healed. The baby was fine. She was counselled on family planning and given another appointment of 4 weeks. At that visit, she had no complaints on examination there were no abnormal findings. She was counselled again for family planning and sent to the family welfare clinic to receive a method.

DISCUSSION

The patient presented was a 19 years old para 0+0 done emergency caeserian section due to breech in labour, with good out come.

Breech presentation occurs when the fetal pelvis or lower extremities engage in the maternal pelvic inlet. Three types of breech are distinguished, according to fetal attitude. In frank breech, the hips are flexed with extended knees bilaterally. In complete breech, both hips and knees are flexed. In footling breech, one (single footling breech) or both (double footling breech) legs are extended below the level of the buttocks (1,2).

The incidence of breech presentation varies with fetal maturity and fetal weight. In gestations below 28 weeks, the incidence is 25% but drops to 2-4% at term (1,2, 3). Locally, the incidence of breech presentation was found to be 2.7% of all deliveries in the Nairobi birth survey while at Kenyatta National Hospital, an incidence of 3.5% of all deliveries was found in 1979 (4, 5).

Various maternal, fetal and placental factors have been cited as aetiologies for breech presentation. Maternal factors include multiparity, hydramnios, oligohydramnios, previous breech delivery, contracted pelvis, uterine anomalies and pelvic neoplasms. Fetal factors include prematurity, gestational age, multiple gestation, hydrocephalus, anencephaly and other fetal anomalies, and intrauterine fetal death. A corneal-fiindal placenta and placenta previa have also been implicated (6).

Perinatal mortality is increased 2 to 4 fold with breech presentations regardless of the mode of delivery. Deaths most often are associated with malformations, prematurity, and intrauterine fetal demise (7).

The diagnosis of breech presentation can be made by abdominal examination, vaginal examination or by imaging techniques. During abdominal examination, performance of the Leopold's manoeuvre will identify the hard, round, and readily ballotable fetal head occupying the fundus. If engagement has not occurred, the breech is movable

above the pelvic brim. Fetal heart sounds are usually heard loudest slightly above the umbilicus (1, 2).

In vaginal examination with frank breech presentation ischial, the sacrum and the anus are usually palpable, and after further descend, the external genitalia may be distinguished. In complete breech presentation, the feet may be felt alongside the buttocks, and in footling breech presentation, one or both feet are inferior to the buttocks.

Ultrasound ideally should be used to confirm a clinically suspected breech presentation and to identify if possible any fetal anomalies. Plain abdominal X-rays will demonstrate the presentation and the type of breech, the presence or absence of a flexed fetal head and pelvic measurements (1,2).

Following confirmation of breech presentations, the mother must be closely followed to see if spontaneous version to cephalic presentation occurs. If breech presentation persists beyond 36 weeks, external cephalic version (ECV) should be considered (1). ECV is not advocated prior to 36 weeks since the chance of spontaneous version is high, as is the risk of preterm labour, and complications due to the procedure may necessitate urgent delivery (6). Contraindications to performance of ECV include bleeding in the third trimester, multiple gestation, uteroplacental insufficiency, oligohydramnios, nuchal cord, obvious cephalopelvic disproportion, presence of uterine anomalies, intrauterine fetal death, placenta previa, gross congenital fetal abnormalities a previous caesarean section (6). Risks of ECV include abruptio placentae, preterm labour, and premature rupture of membranes, fetomaternal haemorrhage and isoimmunization, fetal distress, uterine rupture, intrauterine fetal death. In our unit ECV is not routinely performed.

There are two modes of breech delivery; vaginal and caesarean. Multiple factors influence the mode of delivery. These include presence of aetiologic factors, mechanical considerations such as pelvic and fetal dimensions in relation to each other and the presence of other over-riding factors or influences such as intrauterine growth restriction, bad obstetric history, fetal distress or associated medical

complications of pregnancy (6). Criteria for vaginal or caesarean delivery include (1, 2,6).

Vaginal delivery

- Estimated fetal weight of 2000-3 500g
- Flexed fetal head
- Adequate maternal pelvis as determined by x-ray pelvimetry (pelvic inlet with transverse diameter of 11.5cm and anteroposterior diameter of 10.5cm; midpelvis with transverse diameter of 10cm and anteroposterior diameter of 11.5cm).
- No maternal or fetal indications for caesarean section
- Previable fetus (<25wks gestation or weight <700g)
- Documented lethal fetal congenital anomalies
- Presentation of mother in advanced labour with no fetal or maternal distress, even if caesarean delivery was originally planned.

Caesarean delivery:

- Estimated fetal weight of 3500g or more or <1500g.
- Contracted or borderline maternal pelvic measurements
- Deflexed or hyper-extended fetal head
- Prolonged rupture of membranes
- Unengaged presenting part
- Dysfunctional labour
- Elderly primigravida
- Mother with infertility problems or poor obstetric history
- Premature fetus (gestational age 25-34 wks)
- Most cases of complete or footling breech over 25 weeks gestation without detectable lethal congenital malformations.
- Fetal distress (variable heart rate decelerations)
- Footling breech presentation
- A request for sterilization

Zatuchni-Andros developed a breech scoring system to determine the mode of delivery in breech presentation:

Zatuchni - Andros Breech scoring

	Add 0 Points	Add 1 Point	Add 2 Points
Party	0	1	2
Gestational age (wks)	39+	38	<37
EFW (lb)	8	7-8	<7
Previous Breech	0	1	2
Dilatation	2	3	4
Station	-3	-2	-1

If the score is 0-4, caesarean delivery is recommended. Our patient was a primigravida at 42 weeks gestation, fetal weight was <8 lb, was at 2 cm dilatation and the presenting part was not engaged. She had a Zatuchni - Andros breech score of 2. She was delivered by caesarean section (7).

There are three general methods of vaginal breech delivery (2, 8).

1. In spontaneous breech delivery the infant is expelled entirely spontaneously without any traction or manipulation other than support of the infant.
2. In assisted breech delivery (partial breech extraction), the infant is allowed to spontaneously deliver up to the umbilicus, and then manoeuvres are initiated to assist in the delivery of the remainder of the body, arms, and head.
3. Total breech extraction - The entire body of the infant is extracted by the obstetrician. It should be used only for the non cephalic second twin.

In our unit, the tendency is to deliver all patients with viable breech presentation by caesarean section, as this is associated with better fetal outcomes unless they present in second stage of labour.

Risks of vaginal breech delivery include lower Apgar scones, especially at 1 minute, an entrapped head, nuchal arms, cervical spine injury and cord prolapse (1,2,6,8).

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OBSTETRIC CASE 8

DIABETES MELLITUS IN PREGNANCY- LIVE BIRTH

NAME	:	S.O.	DOA	:	27.07.2005
AGE	:	30 YEARS	DOD	:	30.07.2005
IPNO	:	1050151	GBD	:	36 WEEKS
LMP		17.11.2004			
EDD		24.08.2005			

PRESENTING COMPLAINTS

She was admitted with a 5-hour history of drainage of liquor and intermittent lower abdominal pains.

HISTORY OF THE PRESENTING COMPLAINTS

She was a known diabetic since June 2003 and was on Mixtard insulin (70% lente and 30% soluble) 20 units in the morning and 10 units in the evening. She was well until 5 hours prior to admission when she awoke from bed and found herself in pool of fluid. On waking up continued trickling down her legs to the floor. The fluid was clear in colour and not Faull smelling. She perceived normal fetal movement. There was no associated vaginal bleeding. Twenty minutes later, she started having intermittent lower abdominal pains that were radiating to the back and were increasing in frequency, intensity and duration. She did not take the dose of insulin that morning.

OBSTETRIC AND GYNAECOLOGY HISTORY

She was para 2+0. She had a vaginal delivery in 1999 to a male infant weighing 3050 g who was alive and well. Her second delivery was vaginally in 2001 to a live male infant weighing 3450g who was alive and well. Her last menstrual period was on 17.11.2004 and her expected date of delivery on 24.08.2005 she was at 36 weeks gestation. She had antenatal care at private clinic from 20 weeks gestation. She had made five antenatal visits. Her antenatal profile was Hb 1 l.Sg/dl, VDRL and HIV test both was negative. Her blood sugar remained within normal.

She attained menarche at 16 years; she had a regular menstrual cycle of 28 days with duration of flow of 4-5 days. She had used an intrauterine contraceptive device from 2001-2003

PAST MEDICAL HISTORY

She was diagnosed with diabetes mellitus in June 2003 when she was admitted with malaria at Kikuyu hospital.

FAMILY AND SOCIAL HISTORY

She was a married businesswoman. Her husband also doing business. There was no family history of diabetes or other chronic illnesses in the family. She neither smoked nor took alcohol.

PHYSICAL EXAMINATION

She was in good general condition. She was not pale, jaundiced or febrile. Pulse rate was 90 beats per minute, respiratory rate 22 breaths per minute, blood pressure 130/80 mmHg and temperature of 36.7°C.

SYSTEMIC EXAMINATION

The central nervous, respiratory and the cardiovascular systems were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended and moving with respirations. The liver and the spleen were not palpable and there was no area of tenderness. The fundal height corresponded to a term pregnancy, the foetus was in longitudinal lie and cephalic presentation with a descent of 3/5 and the foetal heart tone were heard and regular with a rate of 142 beats per minute. She was getting three strong contractions in 10 minutes each lasting 30-40 seconds.

VAGINAL EXAMINATION

She had normal external genitalia. The cervix was fully dilated, there was no caput or abnormal moulding and she was draining clear liquor.

DIAGNOSIS

A diagnosis of a diabetic in second stage of labour was made

MANAGEMENT

RBS was done and was 4.7 mmol/1. She was transferred to the delivery room where she had a spontaneous vertex delivery to a live female infant with an Apgar score of 9 and 10 at 1 and 5 minutes respectively and weighed 4050 grams. The placenta was delivered by controlled cord traction, weighed 450 grams, and appeared grossly normal.

The baby was admitted to the newborn unit for observation of hypoglycaemic episodes. The baby remains stable and was discharged from the newborn unit two days later.

Following delivery, the dose of insulin was reduced by half. Serial blood sugars done remained normal. She was discharged home on mixtard insulin 10 units in the morning and 5 units in the evening through the postnatal and diabetic clinics in two weeks.

POSTNATAL REVIEW

She was reviewed in the postnatal clinic two weeks later. She had no complaints and confirmed that blood sugar levels had remained normal. She was counselled on contraceptive methods in which she chose a permanent method and was referred through the family planning clinic. She was also to continue with follow-up at the diabetic clinic.

DISCUSSION

The patient was a 30-year-old para 2+0 with progestational diabetes. She had uneventful antenatal period and delivered SVD at 36 weeks to a live infant, body weight 4050 grams..

Diabetes mellitus is a metabolic disorder characterized by hyperglycaemia resulting from either relative deficiency of pancreatic insulin production, limited insulin release in response to a carbohydrate challenge, or impaired effect of insulin at the cellular level (1).

Diabetes is classified as type 1 (insulin dependent) or type 2 (non insulin dependent) according to whether the patient requires exogenous insulin to prevent ketoacidosis (2). Pregnant diabetics are now divided into two main categories; Pregestational diabetes (PGDM) when the disease exists prior to pregnancy and gestational diabetes (GDM) when the disease is diagnosed during pregnancy for the first time, or develops during pregnancy and resolves after delivery (3). The patient had pregestational diabetes mellitus.

Depending on the specific population, abnormal maternal glucose regulation occurs in 3-10% of pregnancies. Although 80% or more of this glucose intolerance occurs in patients with gestational diabetes mellitus (GDM), the associated foetal and newborn morbidity rates are disproportionate. Infants of diabetic mothers (IDMS) experience double the risk of serious injury at birth, triple the likelihood of caesarean delivery, and quadruple the incidence of newborn intensive care unit admission (4).

Maternal metabolism changes during pregnancy to provide adequate nutrition for both the mother and the fetus. Glucose is transported to the fetus by means of facilitated diffusion; active transport is needed for the transport of amino acids to the fetus. In the fasting state, maternal glucose levels are lower in pregnancy than in the non-pregnant state whereas the concentration of free fatty acids, triglycerides and plasma ketones increase. Therefore, a state of relative starvation exists in which glucose is spared for foetal consumption while alternative fuels are used by the mother. During the second half of pregnancy, insulin levels increase, in part as a result of anti-insulin

hormonal activity (human placental lactogen, oestrogen progesterone, Cortisol and prolactin). Degradation of insulin is also increased in pregnancy (5). Inadequate maternal pancreatic insulin response leads to maternal and then foetal hyperglycaemia. This typically manifests as recurrent postprandial hyperglycaemic episodes. Surging maternal and foetal glucose levels are accompanied by episodic foetal hyperinsulinaemia. Fetal hyperinsulinaemia promotes excess nutrient storage resulting in macrosomia (4).

The Whites classification classifies the patient based on the duration of her disease and the secondary vascular and other end-organ complications. Although it is somewhat descriptive of risk and health status, it does not differentiate by underlying pathophysiology. Cases are classified as follows: (1, 2, 5, 6)

Class A1	Diet controlled gestational diabetes
Class A2	Gestational diabetes requiring insulin
Class B	Diabetes onset at age 20 yrs or above or less than 10 yrs
Class C	Diabetes onset at age 10-19yrs or of 10-19yrs duration
Class D	Diabetes onset at age <10 yrs or duration > 20 yrs
Class F	Nephropathy
Class H	Heart Disease
Class R	Poliferative retinopathy
Class T	Rural Transplantation

The American Diabetes Association (ADA) Expert Committee has revised the alternative National Diabetes Data Group (NDDG) classification scheme, and this may also be used in pregnancy.

American Diabetes Association Classification (1,3)

- Type 1 diabetes (insulin dependent)
- Type 2 diabetes (non-insulin dependent)
- Other specific types (secondary diabetes)
- Gestational diabetes

There are three ways to diagnose pre-existing diabetes mellitus. These include symptoms of diabetes (polyuria, polydypsia, and/or unexplained weight loss plus a

casual plasma glucose concentration of equal or greater than 200mg/dl, fasting plasma glucose equal to or greater than 126mg/dl and two-hour plasma glucose of equal to or greater than 200mg/dl after drinking 75g glucose load (6).

The best method of diagnosing gestational diabetes continues to be controversial. The two-step system is currently recommended in the United States by NDDG (1979). A 50g 1-hour screening test is followed by a lOOg, 3-hour oral glucose tolerance test for those with an abnormal result from a glucose challenge (141-190 mg/dl). Two or more values must be met or excluded. Abnormal values include fasting > 95 mg/dl, 1 - Hour > 180 mg/dl, 2-hour >155 mg/dl and 3-hour > 140 mg/dl (1,6).

A 1-step diagnosis protocol is commonly utilized outside North America. A single ante partum 2-hour (75g) oral glucose tolerance test (OGTT) is performed. The test is considered abnormal and diagnostic for GDM if any two or more serum glucose values meet and exceed the following cut off: Fasting plasma glucose >95 mg/dl (5.3 mm/L), 1 hour post challenge >180 mg/dl (10.0 mmol/L) and 2 hour post challenged 55 mg/dl (8.6 mmol/L).

The incidence of congenital anomalies in infants of diabetic women is related to the presence of hyperglycaemia in early gestation. Therefore, optimal glycaemic control should be achieved before conception. Glycosylated haemoglobin (Hb A1e) levels can be monitored as a reflection of the patient's degree of glycaemic control during the preceding 4 to 8 weeks. Normal levels are associated with an incidence of congenital malformations similar to that seen in non-diabetic women, HbAlc levels greater than 10% indicate the most significant risk of malformations developing. Preconception counselling should therefore be done for patients with pre-existing diabetes. Conception should be prevented until euglycaemia is achieved. Glycaemic control should be optimized to achieve euglycaemia before conception. Oral hypoglycaemic medication should be discontinued because these may be teratogenic, particularly if taken during organogenesis (first 8 weeks of pregnancy). Patients should be started on insulin preconception or as soon as pregnancy is diagnosed. The patient should be advised to start taking a prenatal vitamin with folic acid before attempting conception (1,4).

The patient presented the pregnancy was unplanned and therefore preconception counselling could not have been done.

Pregnancy management of women with pre-existing diabetes will involve dietary therapy, glucose monitoring, exercise, and insulin therapy. The goal of dietary therapy is to avoid single large meals and meals with a large percentage of simple carbohydrates. A total of 6 feedings per day is preferred with 3 major meals and 3 snacks to limit the amount of energy intake presented to the blood stream at any interval. Examples include foods with complex carbohydrates and cellulose, such as whole grain breads and legumes. The goal of exogenous insulin therapy during pregnancy must be to achieve diurnal glucose excursions similar to those of pregnant women who are not diabetic. Because approximately 25% of diabetic patients develop pre-eclampsia, it is imperative to monitor blood pressure, proteinuria and the development of non-dependent oedema closely. Ophthalmologic, cardiac and renal function should be assessed at the initial visit and reassessed during the pregnancy as indicated. A urine specimen should be submitted for culture every trimester so that asymptomatic bacteriuria can be treated in a timely fashion (5).

Determination of maternal serum alpha-fetoprotein level should be carried out at 16 to 20 weeks gestation. A sonogram should be obtained at 18 to 20 weeks gestation to rule out foetal anomalies. Because infants of diabetic mothers are at risk for both macrosomia and IUGR, serial sonograms should be performed as clinically indicated. Because diabetic patients carry an increased risk of stillbirth, particularly in the 3rd trimester foetal testing with nonstress test, contraction stress test and biophysical profile is recommended (5).

Present recommendations are that appropriate timing of delivery should be based on both maternal and foetal risk factors. In general, every delivery can be delayed until term or until the onset of spontaneous labour as long as good metabolic control and good antenatal surveillance are maintained. The patient presented had good metabolic control and went into spontaneous labour at 36 weeks gestation.

The mode of delivery should be based on obstetric considerations. Diabetes is not an indication for caesarean section (3).

Fetal complications with diabetes in pregnancy include spontaneous abortion, foetal demise, congenital abnormalities, macrosomia associated with birth trauma or shoulder dystocia, intrauterine growth restriction, neonatal hypoglycaemia, hyperbilirubinemia, hypocalcaemia, polycythaemia, prematurity and respiratory distress syndrome (1-6).

In the case presented, the infant was macrosomic and borne preterm at 36 weeks.

Maternal and obstetric complications include maternal birth trauma or operative delivery, polyhydramnios, pregnancy induced hypertension, preterm labour, infectious morbidity (genitourinary tract, endometritis, wound infections) and potential for worsening of vascular complications such as retinopathy or nephropathy **(1-6).**

There is no single contraceptive method appropriate for all women with diabetes. Diabetes carries a risk of vascular disease, and the oestrogens in oral contraceptives statistically increase the risk of thromboembolism, stroke, and myocardial infarction. Progestin only oral or parenteral contraceptives may also be used because of minimal effects on carbohydrate metabolism. There is possible increased risk of pelvic infections with intrauterine devices. Many overtly diabetic women elect puerperal sterilization, and this should be made readily available (2).

The patient presented was planed for bilateral tubal ligation at 6 weeks post delivery.

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OBSTETRIC CASE 9

DEEP VENOUS THROMBOSIS IN PREGNANCY

NAME: E.W
AGE: 22 YEARS
IP NO: 0957800
D.O.A: 11.05.05
D.O.D: 29.06.2005

L.M.P:02.11.04
E.D.D:09.08.05
GESTATION: 26 weeks
PARITY: PARA 0+0

PRESENTING COMPLAINT

She presented with painful swelling of the left lower limb for 3 days.

HISTORY OF PRESENTING COMPLAINT

She was admitted through casualty with a 3 days history of a painful left lower limb swelling. There was no history trauma prior to the onset of the swelling. There was history of fever. She had no history of cough, chest pain or difficulty in breathing.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was a primigravida who had not started antenatal care. Her last menstrual period was on 02.11.2003 and her expected date of delivery on 09.08.2004. She was at 26 weeks of gestation.

She attained menarche at 16 years and had a regular menstrual cycle of 26 days with a flow of three to four days. She had not used any contraceptives.

Past Medical and Surgical History

She had no previous history of similar illness and had never been admitted before.

FAMILY AND SOCIAL HISTORY

She was a single woman who worked as a hair dresser in Nairobi. She stays with her brother. No history chronic illness in the family. She did not smoke cigarettes or drink alcohol.

PHYSICAL EXAMINATION

She was in fair general condition, had no pallor, jaundice, cyanosis or dehydration. She had a blood pressure 110/60 mmHg, pulse rate 80/ min, respiratory rate 20/min, and temperature was 36.8° C.

ABDOMINAL EXAMINATION

There was a lower abdominal distension and the abdomen was moving with respirations. The liver and the spleen were not palpable. The fundal height was 26 weeks gestation and corresponded with the dates. The foetus was in longitudinal lie and breech presentation and the foetal heart tones were heard and regular at 150 beats per minute.

Vaginal examination was not done.

CARDIOVASCULAR SYSTEM

She had a regular pulse of 80 beats per minute and the jugular venous pulse was not elevated. The apex beat was in the 5th intercostals space anterior axillary line, the first and second heart sounds were heard and normal and she had no murmus.

RESPIRATORY SYSTEM

She was not in respiratory distress; she had good air entry bilaterally with no crepitations or rhonchi.

LOCAL EXAMINATION

The left lower limb was swollen from the thigh to the foot. It was warm and shiny over the thigh and no varicosities were noted. There was tenderness over the culf muscles. Measurements were taken using a tape measure 25 cm below the anterior superior iliac spine for the thigh and 10cm below the tibia tuberosity for the leg. The circumferences of the thighs were 48cm on the left and 43 cm on the right and the circumferences of the legs were 37.7cm on the left and 32 cm on the right. The difference in thigh and leg circumference was significant.

IMPRESSION

An impression of deep venous thrombosis at 26 weeks gestation was made with cellulitis as a differential diagnosis

MANAGEMENT

She was told the diagnosis and explained the plan of management. She was admitted to the antenatal ward and started on intravenous infusion of heparin 10,000 units in normal saline 6 hourly. She was also panadol lOOOmg 8 hourly for pain relief. The affected limb was elevated on the bed with the aid of pillows.

Progress was monitored by daily measurement of leg and thigh circumferences. Heparin therapy was monitored using activated partial thromboplastin time (aPTT). A full haemogram and other antenatal profiles were done. A Doppler ultrasound scan of the left lower limb was done to establish the diagnosis. After seven days of treatment with heparin, the pain and swelling had subsided and the values of aPTT done were within therapeutic range. She was started on Warfarin 5mg daily orally. After 3 days of initiation of Warfarin, Heparin was stopped. She was allowed home on 29.05.04 through the antenatal clinic on Warfarin 5mg daily until 36 weeks of gestation when she was to be readmitted for convertion back to heparin.

INVESTIGATIONS DONE

1. Haemogram
   - WBC 11.2 x 10^9/1
   - Haemoglobin- 11.8g/dl
   - Platelets - 553 x 10^9/1
2. Blood group - B Rhesus Positive.
3. VDRL Negative.
4. HIV test Negative

5. KCCT Results

Date	19.05.05	25.05.05	07.06.05	22.06.05	15.07.05
Test (S)	33	>120	40	29	33.3
Control (S)	40	35	37	30	33.3

6. Prothrombin time results

Date	19.05.05	07.06.05	28.06.05	15.07.05
Test(S)	18~~	16	11	10.5
Control(S)	15	14	13	12.2
Index	83%	88%	118%	116%
INR	1.20	1.14	0.85	0.92

Limb measurements

DATE	THIGH (25cm below the anterior superior iliac spine)		LEG (10 cm below tibial tuberosity)	
	RIGHT (cm)	LEFT (cm)	RIGHT (cm)	LEFT (ci
11.05.2005	43.0	48.0	32	37.7
12.05.2005	43.0	47.5	32	37.5
13.05.2005	42.5	47.5	32	36.0
14.05.2005	42.5	47.0	32	35.0
16.05.2005	42.5	47.0	32	34.0
18.05.2005	42.5	46.5	32	33.0
20.05.2005	42.5	43.5	32	32.5

Doppler ultrasound scan

- 13.05.04 - showed deep venous thrombosis involving the left external iliac vein at 26 weeks gestation.

READMISSION

The patient was readmitted on 12.07.05 at 36 weeks gestation for conversion of anticoagulation from Warfarin to heparin. She was started on subcutaneous heparin 5000 units 8 hourly and Warfarin stopped.

COAGULATION SCREEN AFTER READMISSION

1. Haemogram	WBC	-	$7.99 \times 10^6/l$
	Hb	-	12.0gldl
	Plat	-	$438 \times 10^9/l$
2. Prothrombin time	Test	-	10.5s
	Control	-	12.2s
	Index	-	116%
	INR	-	0.92
3. aPTT(KCCT)	Test	-	33.3s
	Control	-	33.3s

Coagulation was therefore sub-therapeutic. The dosage of heparin was increased to 10000 units 8 hourly. The KCCT after change the dose was test-38 sec. and control 32 sec.

At 37 weeks gestation she went in to spontaneous labour. She was taken to the labour ward for delivery and heparin injections were withheld.

She had 2-3 contractions in 10 minuets lasted 20-30 seconds. Fetal heart tone were 120/ mins irregular.

Vaginal examination was done, cervix was 4 cm dilated ARM was done and liquor was meconium stained grade II. She was informed the diagnosis and prepared for delivery through emergency caesarean section. Bedside clotting time was 8 min. Blood for grouping and cross matching was taken and two units of blood prepared and taken to theatre. She gave a written informed consent.

In theatre, vulvovaginal toilet and aseptic catheterization were done. The abdomen was cleaned and draped with sterile towels. Under general anaesthesia, the abdomen was open through a lower midline incision. A lower uterine segment caesarean section was performed The outcome was a live female infant who scored 8 at 1 minute and 10 at 5 minutes and weighed 3450g. There was cord around the neck twice, and the placenta was complete and grossly normal. The uterus was closed in layers and haemostasis achieved. The abdomen was closed in layers after ascertaining swabs and instruments count. Vulvovaginal toilet was done and the catheter removed. She had an estimated blood loss of 500 ml.

POST OPERATIVE MANAGEMENT

The vital sign were observed half hourly until she was fully conscious, one hourly for 4 hours and then 4-hourly thereafter. She was put on intravenous fluids, 1 litre of dextrose alternating with normal saline 8-hourly for 24 hours. Analgesia was through intramuscular pethidine 100 mg 8-hourly for the first 24 hours then oral ibuprofen 400 mg 8-hourly. She was also put on intravenous benzyl-penicillin G 2 mega units 6 hourly and intravenous gentamicin 80 mg 8-hourly for 24 hours then oral amoxicillin. She was restarted on heparin injections on the second postoperative day. She continued with heparin post-operatively but was later converted to warfarin 5 mg once daily. She was discharged home through the haematology and postnatal clinic in two weeks.

POSTNATAL REVIEW

She was reviewed in the postnatal clinic 2 weeks later as planned. She had no complaints and the baby was breastfeeding exclusively. Her breasts were lactating, not engorged, the abdominal wound had healed well and the uterus was well involuted. She was counselled on the options for contraception and referred to the family welfare clinic at 6 weeks postpartum. She was to continue with warfarin with review in the haematology clinic.

DISCUSSION

The patient presented was 22 year old primigravida admitted with left lower limb deep venous thrombosis at 26 weeks of gestation who was managed with anticoagulation with heparin and warfarin. Delivered by caesarean section with good outcome

The risk of venous thromboembolism is five times higher among pregnant women as among non-pregnant women of similar age (1-3). Estimates of the incidence of pregnancy associated venous thromboembolism vary from 1 in 1000 to 1 in 200 deliveries (4). Thromboembolic complications, including pulmonary embolism, are major causes of death among women during pregnancy and the puerperium (5). Thus venous thromboembolism is an uncommon but leading cause of morbidity and mortality among women during this period.

The incidence of thromboembolism is 0.2% in the antepartum period and 0.6% in the postpartum period. Caesarean section increases the incidence to 1-2% (6). At Kenyatta National Hospital (KNH) an incidence of 1.6% has been reported (7).

Vascular clotting develops mainly due to circulatory stasis, infection, vascular damage, or increased coagulability of blood. All the elements of Virchow's triad (circulatory stasis, vascular damage and hypercoagulability of blood) are present during pregnancy. Increase in calibre of capacitance vessels produce vascular stasis, and blood hypercoagulability is due to increased amounts of factors VII, VIII, and X. Thrombin- mediated fibrin generation is increased many times during pregnancy. Significant vascular damage occurs during delivery. Venous return from the lower extremities is reduced by the pressure of the gravid uterus on both the iliac veins and the inferior vena cava.

Other important predisposing factor include heavy cigarette smoking , obesity, previous thromboembolism, anaemia, haemorrhage, heart disease, hypertensive disorders, prolonged labour, operative delivery and postpartum endomyometritis. Almost 90% of DVT affect the left side among pregnant women with 55% among women who are not pregnant (8). This difference may reflect compression of the left common iliac vein by the right common iliac artery and the left ovarian artery which

cross the vein on the left side only. Furthermore in pregnancy most cases are ileofemoral rather than calf vein thrombosis (72% vs.9%) and ileofemoral DVT is more likely than calf vein thrombosis to lead to pulmonary thromboembolism (8). The patient presented had DVT involving left external iliac vein.

DVT in pregnancy can present or be associated with, lower abdominal pain due to periovarian collateral circulation or thrombosis. When coupled with the mild pyrexia and leucocytosis of thromboembolism, this pain can be mistaken for other intraabdominal disorders such as urinary tract infection or appendicitis (8).

Clinical evidence of DVT of the legs precedes pulmonary thromboembolism in only about half the cases. Importantly 40% of asymptomatic patients with DVT are found to have a concomitant pulmonary embolism. Chest-discomfort, shortness of breath, air hunger, tachypnoea and obvious apprehension are signs and symptoms that should alert the physician to a strong likelihood of pulmonary embolism. The most reliable symptom is breathlessness (9).

The presently available techniques for the objective diagnosis of DVT include contrast venography or phlebography, non-invasive methods, and biochemical assays. Venous ultrasonographic imaging is most widely used and has largely replaced venography. Proximal veins are compressed under gentle pressure with the ultrasound transducer (compression ultrasonography) the inability to compress a vein indicates presence of DVT (9, 10). Impedance plethysmography, real time B-mode ultrasonography, magnetic resonance imaging and computed tomography are some of the other tests that can be used. Venography remains the standard for confirmation but it has the risk of inducing thrombosis itself (9). The sensitivity of real-time ultrasonography has been shown to be 100% with a specificity of 99% using contrast venography as the standard (11). Magnetic resonance imaging is reserved for specific cases in which ultrasound findings are equivocal. Computed tomographic scanning may also be used to assess the lower extremities.

Treatment options in venous thrombosis include anticoagulation, caval filters, fibrinolytic therapy, and surgical thrombectomy [,0] The last three therapeutic approaches have been assessed less extensively and are not routinely used. A

combination of anticoagulation, analgesics and bed rest is usually adequate in the management of antepartum DVT; the gestational age should be taken into account in order to avoid warfarin in the first trimester and after 36 weeks. Anticoagulation is initially achieved with heparin such that the activated partial thromboplastin time (aPTT) is prolonged to 1.5 to 2.5 times the laboratory control value. Heparin may be given by several regimes:

- The dosage schedule recommended by the American College of Obstetricians and Gynaecologist include a loading dose of 80U/Kg (Minimum 5000U). This is followed by a continuous infusion of heparin, at a dose of 15-25 U/kg/Hr. After 4hrs, the activated partial thromboplastin time (aPTT) is determined and adjusted accordingly. Once a steady state is achieved, aPTT is measured daily.
- Subcutaneous adjusted dose heparin may also be used in the treatment of DVT to maintain the aPTT at 1.5 times the control value as determined at 6 hrs after the last injection.
- Alternatively treatment with one of the low molecular weight heparin compounds is suitable.

If IV heparin is introduced at the same time as oral warfarin, then heparin can be safely discontinued after 5 days. The ideal duration of therapy for pregnant women is undetermined. The American College of Obstetricians and Gynaecologists recommend therapeutic subcutaneous heparin throughout pregnancy and 6 to 12 weeks postpartum (9).

Warfarin crosses the placenta and is teratogenic and if given in the first 8 weeks of pregnancy may result in congenital abnormalities, which include nasal hypoplasia, ophthalmological abnormalities and retarded development. Central nervous system abnormalities have also been reported with second and third trimester coumarin explosure (9).

During delivery, heparin does not cross the placenta. Its effects on blood loss at delivery will depend upon a number of variables including the dose, route and time of administration, the magnitude of incisions and lacerations; the intensity of postpartum

myometrial contractions and retraction; the presence of other coagulation defects. In general, therapeutic heparin therapy should be stopped during the time of labour and delivery. If the uterus is well contracted and there has been negligible trauma to the lower genital tract, it can be restarted within several hours. Otherwise, a delay of 1 or 2 days may be prudent. Protamine sulphate 1 mg per 100U of heparin administered slowly IV will generally relieve the effects of heparin promptly and effectively. Protamine sulphate should not be given in excess of the amount needed to neutralise heparin because it has an anticoagulant effect (9).

After delivery, thromboprophylaxis should be continued for a minimum of 6 weeks, but in patients with severe thrombotic problems, for 3 months (8). Many patients with underlying congenital or acquired thrombophylia will require antenatal prophylaxis, the timing of which will depend on the patient's history and thrombophylic disorder. The practise in our set up is to continue warfarin treatment for a period of 6 months postpartum of from the time of diagnosis. It is also recommended that heparin prophylaxis be given in subsequent pregnancies beginning a month before the gestation of onset of DVT in the previous pregnancy.

The indications for preventive therapy include previous documented DVT or pulmonary embolism or antithrombin III deficiency. Heparin is the drug of choice given 5000-7500 units subcutaneous twice daily during the first and second trimester. Around the beginning of the third trimester, the dosage increased by approximately one-third to provide additional anticoagulation for the increased coagulation factors in late pregnancy. Prophylaxis should be stopped with the outset of labour and started again following delivery and continued for at least 2 weeks (6).

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OBSTETRIC CASE 10

ECLAMPSIA - CAESERIAN SECTION - LIVE BIRTH

NAME:	Z. A	D.O.A:	27/07/05
IP NO:	1047259	D.O.D:	03/08/05
AGE:	14 YEARS	L.M.P:	26/10/04
PARITY:	0+0	E.D.D	03/08/05

MATURITY: 39 WEEKS + 2 DAYS

PRESENTING COMPLAINT

The patient presented with history of convulsion for 12 hours.

HISTORY OF PRESENTING COMPLAINS

According to the mother she had complained of headache and epigastric pain one day prior to admission and had used panadol and actal with slight improvement. She started fitting 12 hours prior to admission and she had convulsed several times. The fits were described as generalized clonic tonic convulsions each lasting about 3 minutes. She was taken to Makina health centre where she was given intramuscular injection of valium lOmg and referred to KNH.

PAST MEDICAL HISTORY

She had no history of epilepsy or any convulsive disorder. She had no chronic illness and had never been hospitalized before.

OBSTETRIC AND GYNAECOLOGY HISTORY

She was a primigravida. Her last menstrual period was 26.10.2005 and therefore her EDD was 03 .08.2005. She had attended ANC only once at Makina Health Centre and the BP was 110/70mmHg. Urinalysis done was normal. Other antenatal profiles had not been done.

She attained her menarche at the age of 12 years. Her menses were regular every 21-28 days and lasting for 4 days. Had not used any method of family planning.

FAMILY SOCIAL HISTORY

She was single and stayed with her parents. She had dropped out of school in standard seven who due to pregnancy. She neither drunk alcohol nor smoked cigarettes. There was no history of twins or chronic illness in her family.

PHYSICAL EXAMINATION

Patient was awake but restless. Her pupils were equal and bilaterally reacted to light. She had biting her tongue and had blood stained frothy secretions fill the mouth. Her neck was soft and kenning sign was negative. BP: 180/110mmHg, Pulse: 100/minute, RR: 24/minute, Temperature: 37.0°C

CARDIOVASCULAR AND RESPIRATORY SYSTEM

Both systems were normal.

ABDOMEN

The abdomen was distended with a fundal height of 36 weeks. The fetus was in longitudinal lie and cephalic presentation. The descent was 5/5 up and fetal heart was heard and regular at 120 beats per minute. She had proteinuria of 3+. No contractions palpable during examination.

VAGINAL EXAMINATION

The external genitalia were normal. The cervical os was closed. The cervix was 2cm long, firm and posterior. The pelvis was adequate. Catheterization was done aseptically.

INVESTIGATIONS DONE

Hb: 11.5g/dl

BS for mps was negative.

RBS-4.3 MMOL/L

DIAGNOSIS

A diagnosis of eclampsia at term with poor bishop score was made.

MANAGEMENT

Two lines were fixed and she was given mgS04 solution 4g bolus and then a drip of mgSo4 infusion was run in a rate of 1 g per hour for 24 hours to control convulsions. She also gave hydrallazine 5mg slowly over 5min to control the blood pressure. Repeat of blood pressure 15 min later was 130/80mmhg. The urinary bladder was catheterised and input and out put was recorded. Due to the unripe cervix, arrangements were made for delivery by emergency caeserian section. Informed consent was obtained from her mother who had accompanied her and blood for grouping and cross match, urea, creatinine and haemograme ware also taken. She was shaved premedicated and taken to theatre.

In theatre she was placed in supine position abdomen was cleaned and draped. General anaesthesia was induced and patient was intubated. The abdomen was opened through a Pfannentiel incision. A lower caesarean segment caeserian section was done. The outcome was a live female infant birth weight of 2900gm and with an Apgar score of 7/1, 8/5 and 9/10. The baby was taken to the newborn unit due to mother condition. The placenta was delivered by controlled cord traction and grossly looked normal. The uterus was closed in layers and the abdomen was closed after correct instrument and swab count. The general anaesthesia was reversed uneventfully.

POSTOPERATIVELY

Postoperatively she was taken back to the acute room of labour ward where she stayed for 24 hours. There she continued with a drip of MgS04 and was also put on I.V Augumentin 1.2g 8 hourly and flagyl 500mg 8hourly. The pain was controlled with I.M pethidine lOOmg 6 hourly and diclofenac I.M 75mg 8 hourly for 2 days then she was given diclofenac orally. The Blood Pressure stabilized at the range of 120-140/60-80mmHg. She had no further postpartum convulsions. Her urine output was adequate. After 24 hours, she was transferred to the general ward. She was then commenced on tabs phenobabitone 60mg bd and oral antibiotics. The patient remained stable, the BP became normal and renal functions were normal. She was discharged on the seventh post op day on phenobabitone alone. She was counselled on personal hygiene, family planning and breast-feeding.

POSTPERATIVE FOLLOWUP

She was seen two weeks after discharge in the postnatal clinic. Her BP was 120/70mmHg. The wound was well healed and the uterus was well involuted. She was counselled on family planning and given another appointment of four weeks, which did not turn up.

FOLLOWUP AT FOUR WEEKS

She come with no complaints, the BP was 110/70mmhg. Wound has healed and uterus was not palpable. She was father counselled for family planning and sent to the family planning clinic.

DISCUSSION

The patient presented was a 14 years old primegravida admitted with eclampsia at term. She was delivered by emergency caesarean section due to an unripe cervix. The outcome was favourable.

Eclampsia is the occurrence of seizures in a woman with preeclampsia that cannot be attributed to other causes. The seizures are of grand mal type and may appear before, during, or after labour (1). The patient presented had no other cause of seizures as she had no history of epilepsy and blood slides for malaria was negative, but had elevated blood pressure. About 75% of cases occur before delivery most commonly in the last trimester, and become increasingly common as term approaches. About 50% of the postpartum eclamptic seizures occur in the first 48 hours after delivery but they may occur as late as 6 weeks postpartum (2).

The incidence of eclampsia varies with geographical location. This is attributed to differing ANC between varying centres. It is highest in the developing countries (0.17% in Nairobi, 0.39% in Ile-lfe in Nigeria) as compared to developed countries (.0036 in Oxford UK) (3, 4, 5, 6).

Eclampsia is therefore a consequence of poorly managed PET with a higher incidence reported in unbooked mothers (3). Antenatal care provides the opportunity for proper screening, early recognition and provision of appropriate care for those patients with classical signs of preeclampsia (7). The patient presented had attended antenatal care only once where blood pressure was normal.

The actual aetiology of PET is unknown, but has a complex pathogenesis. It is known to be associated with failure of trophoblastic invasion of spiral arteries and placental ischaemia, but the mechanisms of this impairment is unknown (1, 8). It is proposed that the diffuse systemic endothelial dysfunction is triggered by factors released from ischaemic placenta. Other possible causes include genetic predisposition, increased pressor response, endothelins, nitric acid, endothelial cell activation, coagulation abnormalities and cardiovascular system maladaptation. Vascular constriction causes resistance to blood flow and subsequent arterial hypertension. Endothelial cell

damage and leakage causes local hypoxia, haemorrhage and end organ damage as in severe PET and eclampsia (1, 8, 9,10)

The predisposing factors to preeclampsia and hence eclampsia include nulliparity, black race, maternal age below 20 and above 35 years, low socio- economic status, multiple gestation, hydatidiform moles, polyhydroamnios, non-immune fetal hydrops, diabetes, chronic hypertension, and underlying disease (2). The patient presented was nulliparous, below 20 years, and of low socio economic status, which are predisposing factors to pre eclampsia.

The management of eclampsia include control of seizures, blood pressure control, expedited delivery and management of subsequent complications. The control of seizures now is done by use of MgS04. Fifteen years of experience with MgS04 has proved it to be effective and safe (1, 2). At KNH, use of MgSO started three years ago. Other drugs used for control of seizures include diazepam, phenytoin and chlormethiazole (1,2).

Blood pressure is controlled by boluses or drips of hydralazine. Other drugs, which may be used, include labetolol, nifedipine, diazoxide and trimethapan. Timing of delivery depends on the patient's condition, state of the cervix and progress of labour at admission. A 4 to 8 hour trial of labour may be indicated for most patients with preeclampsia - eclampsia. If neither effacement nor dilatation of the cervix has occurred and does not occur significantly over this period, caeserian section is performed. With severe preeclampsia fetal gestational age less than 32 weeks, and an unfavourable cervix, caeserian section is performed without a trial of labour (1,2, 3).

Patients who remain comatose one hour after the last fit and with a Glasgow coma scale of 9 or less should be delivered within four hours. In these patient a caeserian section is required unless the patient in established labour, and would deliver within 2-4 hours. Patients with a Glasgow coma scale of 10 and above with a ripe cervix or already in labour are preferably delivered by vaginal route within 12 hours.
The patient Z.A presented had repeated convulsions and unfavourable cervix, hence she was delivered by caeserean section.

Complications of eclampsia include renal failure, DIC, pulmonary oedema, abruptio placenta, pulmonary embolism, cerebral vascular accidents, blindness, hypertensive crisis, high maternal and fetal morbidity and mortality (2). After delivery the patient should be monitored in the acute room for 24-48 hours. The mgS04 is continued together with hydralazine if BP is still elevated for that length of time. The antihypertensives and anticonvulsants are then weaned off stepwise as the patient stabilizes. The blood pressure usually settles within 48 hours of delivery or may be delayed for up to 2 weeks and occasionally up to six weeks (1). Z.A had a normal BP after a single bolus of hydrallazine and there was no evidence of end organ damage.

It has been demonstrated that various tests and examinations can predict occurrence of PET. The tests that have been proved to be of some use include the rollover test, angiotensin II infusion and urinary kallekrein excretion.

A variety of strategies have been used in attempts to prevent pre-eclampsia. Usually these strategies involve manipulation of diet and pharmacological attempts to modify the pathophsiological mechanisms thought to play a role in the development of pre eclampsia. The latter includes use of low dose aspirin and antioxidants. The antioxidants commonly used include Vitamin C, Vitamin E and folic acid (1).

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OBSTETRIC CASE 11

CORD PRESENTATION - FAVOURABLE OUTCOME AFTER CAESERIAN

NAME:	U. A	D. O.A:	18/12/04
IP.NO:	5733/04	D.O.D:	22/12/04
AGE:	26 YEARS	L.M.P:	26/03/04
PARITY:	0+0	E.D.D:	01/01/05

MATURITY: 38 WEEKS.

PRESENTING COMPLAINT

The patient was admitted with 3 hours history of labour pains.

HISTORY OF PRESENTING COMPLAINT

She was admitted as a referral from Fatuma maternity with a diagnosis of big baby in labour. She had presented with intermittent lower abdominal pains that radiated to the back that were increasing in both intensity and frequency. She also presented with drainage of clear fluid per vagina started 30 minutes after pains. There was no vaginal bleeding. She reports normal fetal movement.

OBSTETRIC AND GYNAECOLOGICAL HISTORY

The patient was para 0+0 gravida 1. Her last menstrual period was on 26.03.04 and the expected date of delivery was on 01.01.05. The gestation by dates was 38 weeks. Her menarche was at 15 years. Her cycles were regular occurring every 28 days and lasting 3 to 4 days. She had not used any family planning method previously.

ANTENATAL CLINIC

She has attended Mukumu mission hospital since 28 weeks. Her antenatal profile was as follows:

Blood group : B Positive

Hb	10.4g/dl
VDRL	Negative
HIV	Negative

Two doses of anti-tetanus toxoid had been given to her. No diagnosis of twins was made.

PAST MEDICAL AND SURGICAL HISTORY

She had never been admitted before. She was not on any chronic medication

FAMILY AND SOCIAL HISTORY

She was a married housewife .She did not drink alcohol or smoked cigarettes. There is no family history of twins or chronic illness.

PHYSICAL EXAMINATION

The patient was a young woman in good general condition, was afebrile, not pale and not jaundiced. She had bilateral pedal pitting oedema. Her pulse rate was 88 minutes, blood pressure was 120/80mmHg, and respiratory rate was 18/minutes.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended. Fundal height was term, lie was longitudinal, presentation was cephalic and fetal heart was heard and regular. There were 2-3 contractions in 10 minutes last 20-30 seconds. Decent 4/5 and fetal heart tones 138per minutes, which is regular.

VAGINAL EXAMINATION

There were normal external genitalia. The cervix was soft, moderately effaced, and anterior and 3 cm dilated. A pulsating cord was felt at the os.

DIAGNOSIS

A diagnosis of a primigravida with cord presentation in latent phase of labour was made.

MANAGEMENT

The assisting midwife was asked to alert the theatre staff to prepare for an emergency caesarean section. She was informed of the diagnosis and mode of management by emergency caesarean. She gave informed consent, blood was taken for grouping, cross matching, the pubic hair was shaved, and given intramuscular injection of atropine, 0.6mg was given and was wheeled to theatre.

In theatre, she was placed in semilithotomy position and aseptically catheterized. The abdomen was then cleaned draped. General anesthesia was given, then the abdomen was opened in layers and lower uterine segment caeserian section was performed. Twin gestation was found intraoperatively. The first twin was cephalic live male infant weighing 2900grams and scored 8 in 1 and 10 in 5. The second twin was breech, live male weighing 2600grams and scored 7 in 1 and 10 in 5.

There was a single placenta with one chorion and two amniotic sacs. The uterus was cleaned and stitched in layers. There was persistence-relaxed uterus, which managed with syntocinon. The swab and instrument count was correct. The abdomen was then closed in layers, with good haemostasis.

POST OPERATIVE MANAGEMENT

The mother did well postoperatively. The two babies joined the mother as soon as she was fully awake from anaesthesia and both did well. On the fourth postoperative day, they were discharged to be seen in 2 weeks in the postnatal clinic. However, she did not come for her appointment.

DISCUSSION

U.A was 26 years old primegravida presented with cord presentation in early labour. She underwent emergency caesarean section had twin gestation, which was diagnosed, at caeserian section with good maternal and fetal outcome.

Umbilical code anomalies could be divided into developmental and accidental disorders. Developmental disorders include anomalies of length (normal range 30-100cm), vascular number (2 arteries+1 vein) and insertion (usually singly at centre of placenta). Accidental abnormalities consist of true knots, loops around parts of the body mainly the neck, torsions, proplases and structures (1). The 'accidents' occur as a result of fetal movements. Umbilical code presentation is defined as descent of the umbilical code into the lower uterine segment to the level of or beyond the presenting part when the membranes are intact. It should be distinguished from cord prolapse where the descent is the same but the membranes are ruptured. There are two types of umbilical cord prolepses: occult (descent at the level of the presenting part) and overt (cord lies below the presenting part). Umbilical code prolapse is one of the most serious obstetric emergencies becausc of the very high perinatal morbidity and mortality caused by compression of the cord between the fetus and the uterus, cervix, or pelvic inlet (2). The incidence of umbilical cord prolapse reported in the literature ranges from 0.14 to 0.62 percent and has not changed in years (3).
The patient presented had cord presentation.

The causes or predisposing factors are those, which lead to inadequate application of the presenting part to the cervix and those due to obstetric interventions. Usta et al in 1999 reported that obstetric interventions contributes to nearly half of cases of UCP (4). These interventions include amniotomy, scalp electrode application, intrauterine catheter insertion and external cephalic version. Factors that lead to inadequate filling of the cervix by the presenting part are prematurity, malpresentation, malposition, and minor degrees of placenta praevia and cephalopelvic disproportion. Others are hydramnios, multiple gestation and premature rupture of the membranes. Malpresentation is one of the leading causes of umbilical cord prolapse. It is present in to 41% of UCP (2). The incidence of overt cord prolapse in cephalic presentation in the USA is 0.5, in frank breech 0.5%; in complete breech 5%; in footling breech 15%

and in transverse lie 20% (2). However, the majority of umbilical cord prolepses occur with the vertex presentation because of the low frequency of malpresentation. The patient presented the predisposing factor to the prolapse was twinning which was diagnosed at delivery.

Monozygotic twins (identical twins) are the result of the division of a single fertilized ovum. Monozygotic twinning occurs in about 2.3 - 4 of 1000 pregnancies in all races. The rate is remarkable constant and is not influenced by heredity, age of the mother, race, parity or other factors. Dizygotic twins (fraternal twins) are produced from separately fertilized ova. Slightly more than 30% of twins are monozygotic; nearly 70% are dizygotic. Dizygotic has hereditary determinants (5). Twinning is associated with increased pregnancy related complication, which includes cord prolapsed, fetal abnormalities, spontaneous abortions, hyper emesis, anaemia, polyhydroamnios, pregnancy induced hypertension, prematurity, premature rupture of membranes, twin-to-twin transfusion and postpartum haemorrhage (5).

Preterm deliveries have a higher rate of umbilical cord prolapse, probably due to the smaller size of the presenting fetal parts and the increased frequency of malpresentation among premature foetuses. Babies with birth weight less than 1250 grams, for example, had a 19-fold increases risk of umbilical cord prolapse in one series while the risk of umbilical cord prolapse in a term pregnancy is confined to the second bom twin, in whom there is an increased probability of malpresentation (6, 7). The patient presented had term pregnancy.

Multiparous women have a higher risk of umbilical cord prolapse may be due to the increased likelihood of rupture of membranes (ROM) prior to the engagement of presenting part, since engagement in multiparas often occurs after labour has begun and later in the nulliparas (4). On the other hand, the risk of cord prolapse during expectant management of patients with premature rupture of membranes (PROM) is small, but should be considered due to the potential for an adverse outcome. As an example, a review of nine studies that included 731 patients with PROM reported a 1.9 percent incidence of cord prolapse (4). Polyhydromnious is often associated with an unstable lie. Ruptures of membranes may be followed by a forceful gush of fluid that carries the cord ahead of the unengaged fetus and through the cervical os. Mean

cervical dilation and station at the time of umbilical cord prolapse are 5.8cm and 1.6 respectively, although the ranges of values are broad (8).

The presented was primegravida and the membrane was intact.

The diagnosis of umbilical cord prolapse is by inspection of an already prolapsed cord beyond the vaginal entroitus, digital palpation of the cord and having a high index of suspicion based on the presentation and cardiotogographic findings when available. Moderate to severe variable fetal heart decelerations and/bradycardia that are relieved by lying on the side are highly suggestive of occult cord prolapse/presentation and calls for continuous cardiotogographic monitoring, pelvic examination or urgent Doppler ultrasonography (1,3).

The management of umbilical cord presentation and prolapse depends on whether there is a fetal viability, associated obstetric complications, and degree of cervical dilatation and station of the fetal head among other factors. However, the mode of delivery of choice when the fetus is alive is emergency caeserian section unless the cervix is fully dilated and the presenting part is at or below the ischial spines so that the baby is delivered by assisted vacuum delivery (2, 3). When the baby is alive and preparations for emergency caeserian section are underway, measures to prevent or to minimize complications of umbilical cord prolapse should be instituted. These include postural treatment in the tiring and inelegant knee chest position or high Trendelenberg position or exaggerated Sim's position with placement of pillows below hips. The cord should be kept in vagina and possibly protected by displacing the presenting part away keeping it between two gloved fingers (2, 3).

This was not done to the patient presented.

A protruding overtly prolapsed cord must be placed into the vagina to minimize vasospasm and desiccation but where this is not possible warm packs are gently wrapped around it. Other methods that have been used to displace the fetal head from compressing the cord include rapid filling of the urinary bladder with 500 to 700 mis for normal saline and concomitant intravenous administration of tocolytics such salbutamol or ritodrine and funic (cord) reduction by lifting the fetal head from the vagina and digitally elevating the cord above the widest part of the vertex so as to place in the nuchal area. The patient should be put on oxygen. These measures are

important especially if delay in delivery is inevitable as when the patient is to be transferred to another centre for delivery (3, 8).

The patient presented underwent emergency caesarean section immediately after diagnosis.

The complications due umbilical cord presentation and prolapse are maternal and fetal. The perinatal morbidity and mortality rates are high and depend on the degree and duration of cord compression and the resuscitation measures instituted. Complete cord compression in the development of profound metabolic acidosis in 10 to 20 minutes. The perinatal mortality due to overt umbilical cord prolapse in the USA is about 20%, but rates of 30-50% have been documented (1,2, 3). When delivery is achieved within 30 minutes of diagnosis, however, the mortality is reduced to 10% (1). Maternal complications are those related those related to general anaesthesia, haemorrhage and sepsis after caeserian section or operative vaginal delivery.

Our patient luckily delivery was achieved in about 20 minutes hence the good maternal and fetal outcome.

Knowledge of preventive measures particularly in developing countries, Kenya included, is crucial. These include anticipation of UCP in patient risk. Amniotomy after ascertaining there is no cord presentation should be performed with controlled release of liquor by slight pressure of the presenting part onto the pelvic brim. After the amniotomy, palpating the inferior pole of the presenting part does careful search of the cord. The fetal heart rate should be checked after any amniotomy including spontaneous ones. Where facilities allow, cord tracing by Doppler ultrasonography, should be done in case of variable deceleration of fetal heart tones before amniotomy **(1).**

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OBSTETRIC CASE 12

BURST ABDOMEN AFTER CAESERIAN SECTION SECONDARY REPAIR

NAME:	D.O	PARITY	O+O
AGE:	15 YEARS	IP NO:	6019/04
D.O.A:	19.12.04	D.O.D:	29.12.04

PRESENTING COMPLAINT

The patient presented with complaints of excessive oozing from the wound and creamish protruding mass on the fifth postoperative day.

HISTORY OF PRESENTING COMPLAINT

She had undergone emergency caeserian section 5 days earlier due to severe fetal distress. Outcome was a live female infant who had an Apgar score of 3 in 1, 5 in 5, and 5 in 10; and weigh 3200gm died ir NBU 6 hours later. She had been admitted as refferal from Ingotse health centre with diagnosis of fetal distress. She laboured at home for 16 hours with TBA at Shikoti. On admission she was had irregular fetal heart rate of 124/min at 8cm cervical dilatation with meconium stained liquor grade III. She was subsequently taken for caeserian section. The abdominal cavity was accessed through a low midline incision. On the fifth post operative day, she noticed excessive oozing from the wound and later the omentum came out.

OBSTETRIC AND GYNAECOLOGY HISTORY

She was an adolescent girl who is now para 1+0, having delivered 5 days earlier, at a gestation of 40 weeks. He menarche was at 15 years, with periods flowing for 3-4 days and occurring every 28 days. She had attended ANC at Ingotse health centre in Shikoti and made only one visit. The antenatal profile were not done.

PAST MEDICAL AND SURGICAL HISTORY

This was not significant.

FAMILY AND SOCIAL HISTORY

She was a single standard 6 pupil living with her grandmother in Shikoti Kakamega. She neither smoked nor took alcohol. There was no family history of chronic illness.

EXAMINATION

GENERAL EXAMINATION

She was in fair general condition. She had mild pallor, was afebrile, not jaundiced and no lymphadenopathy. He blood pressure was 110/70mmHg, pulse was 80/minunte, respiratory rate was 18/minute and temperature was 37.2°C.

RESPIRATORY, CARDIOVASCULAR AND CENTRAL NERVOUS SYSTEMS

These were essentially normal.

ABDOMINAL EXAMINATION

The abdominal incision was open and the omentum was protruding out of the incision. There was some serous fluid oozing from the site.

PELVIC EXAMINATION

The external genitalia was normal. There was minimal lochia rubra, which was not offensive.

DIAGNOSIS

A diagnosis of burst abdomen on the fifth postoperative day was made.

MANAGEMENT

The plan of management was explained to the patient and her grandmother. Her grandmother gave an informed consent for the operation. Blood was taken for grouping and cross matching. She was starved and put on intravenous fluids. She was premedicated with atropine 0.6mg and pethidine lOOmg 30 min before theatre. The protruding omentum was covered with sterile gauze. The patient was then taken to theatre.

OPERATION

In the operating room, she was placed in supine position and given general anaesthesia. She was placed in semilithotomy position, vulvo vaginal toilet was done and then patient was catheterized.

She was then repositioned in supine position and the abdomen was cleaned and draped. The stitches in all layers of the abdomen had given way. The protruding omentum was legated, tied and cut off. The intestines rest of omentum was normal. The uterus looked normal and was involuting adequately. The uterine incision was healing well. There was no fluid in the pouch of Douglas.

The wound edges of the abdomen was freshened using a surgical blade until they freely bled. The peritoneum was then approximated with chronic catgut. The rectus sheath, muscles and skin were then stitched using nylon by interrupted mass closure technique. Wound was then cleaned/dressed. General anaesthesia was then reversed, and patient later wheeled to the ward.

POST OPERATIVE CARE

The vital signs were observed quarter hourly until the patient was fully awake, then 4 hourly. Pethidine was given in a dose of lOOmg 8 hourly for 24 hours. She was also put on crystalline penicillin 2 mu QID, and gentamycin 80my TID for 3 days. She was given oral augmentin 625mg bd. and ponstan 500mg TID from the third day for a total of five days. Oral sips were restarted on the 1st postoperative day, and light diet on the second day. Her hospital stay was uneventful. All stitches were removed on the 11th day postoperatively. The wound was well healed. She was discharged to be seen again in post-natal clinic in four weeks.

FOLLOW UP

She was reviewed in the post natal clinic after 4 weeks. She did no have any complaints. The wound was completely healed. She was slightly pale and was put on haematinics. She was counselled on family planning and the need to continue schooling. She preferred to use barrier methods if the need arose. She was also sent to the family welfare clinic for further follow up.

DISCUSSION

The patient presented had burst abdomen on the fifth postoperative day. She was repaired by mass closure technique and recovered well.

Wound dehiscence is the separation of layers of the abdominal wall. Incomplete or partial dehiscence means separation of the layers posteriorly, sometimes including the fascia. If the peritoneum is included in this disruption, the dehiscence is considered complete. If the intestines and other abdominal contents protrude through the incision it is referred to as evisceration or burst abdomen (1). The patient presenting here had burst abdomen as the full length of the abdominal layers had opened up and omentum was protruding.

In the West, wound dehiscence occurs once in 300 caeserian operations (2). Literature from general surgery report a wound dehiscence rate of between 0.5 to 5% and from gynaecology it is 1%. The lower gynaecologic dehiscence rate is ascribed to increased elasticity after pregnancy and the fact that it is done sub umbilically (3).

Wound dehiscence with evisceration is a serious complication of abdominal surgery. It is associated with prolonged morbidity and high mortality. Mortality ranges from 10 to 24%. The most common cause of death being cardio-respiratory insufficiency and peritoneal sepsis (4).

There are five distinct processes of wound healing. These are: Inflammation, epithelialization, fibroplasia, wound contraction and scar maturation.
The processes do not occur in a strict sequelae, but often occur simultaneously. The incidence of wound disruption is influenced by the type of incision made and the closure technique used. Vertical incisions tend to be disrupted more easily than transverse ones (1). The patient presented had a vertical incision.

No single aetiological factor can account for all obstetric wound disruptions, a combination of causes ultimately lead to the complication. Pre-operative factors which may influence wound dehisccnce causation are mainly nutritional due to deficiency of proteins, vitamins and minerals. Other pre operative factors implicated

are advanced age and obesity (5, 6, 7). The patient presented was a teenager from a low socio economic background and may have had poor nutritional intake.

The intra operative factors implicated are technical faults. These are factors like failure to identify appropriate layers, and failure to tie knots properly. In the patient presented. Vicryl used in stitching the rectus had given way in one end possibly due to poor knotting. Post operative factors contributing to wound dehiscence are mainly infectious and anaemia (5, 6, 7, 8). This patient her wound was not septic.

The tensile strength of the fascial layer is greater than any other abdominal layers; hence strong sutures should be used. Wound disruption due to technical faults usually occur before the 6^{th} day post operatively. The peak incidence is on the sixth to eight post operative day with 24% occurring between the 2 and fifth postoperative day, 55% between 6^{th} and 8^{th} day, and 21% after the 10^{th} day (8).

Polyglactin 910 (Vicryl) and polyglycolic acid (dexon) sutures are degraded slowly by hydrolytic enzymes and adequately maintain their tensile strength, hence good for fascial closure. In the unused state, these sutures are stronger than nonabsorbable sutures. After 14 days, they have lost 50% of their tensile strength are still as strong as silk suture (1,8). The patient presented developed wound dehiscence on the fourth postoperative day though vicryl had been used for the fascial layer. The cause was therefore more technical rather than the suture material.

Local infection is perhaps the most important cause of delayed wound healing and dehiscence. It causes depression of collagen synthesis and increased collagenolysis. Infection is estimated to cause in 2.5 - 16.1% of caesarean section patients (9,10).
Wound infection has been seen to be higher among patients with prolonged rupture of membranes, more than 3 vaginal examinations during labour, prolonged operation time and blood loss more than 1.5 litters (10,11). None of these factors seemed to have influenced wound disruption in our patient.

Dressings may impair the healing of open wounds by damaging the delicate new cells and capillaries on the wound surface. Use of wet poly acrilamide gel/Geliperm) and silastic foam for deeper wounds, hydrocolloid, polyurethane, polyvinyldiene,

polyethelene and the human skin can increase the rate of epithelial healing (9). Chronic diseases like neoplasm, diabetes mellitus, human immunodeficiency virus infection may lead to poor wound healing due to limitation of collagen deposition and fibroblastic activity (1, 11).

Wound disruption begins with separation of peritoneum then proceeds outwards. In some cases the skin is spared and the patient presents later with incisional hernia (1). When wound dehiscence occurs, the abdomen should be instantly covered with sterile gauze. Closure should be done immediately it is recognized. When a delay of several hours is anticipated before repair because of a recent meal, the bowels can be replaced using sterile gloves and gently packed with lap pads soaked in povidine - iodine and an abdominal binder be placed over them. Broad-spectrum antibiotics should be initiated and baseline blood counts and serum electrolytes should be obtained (1).

In the operating room, the wound should be meticulously explored under general anaesthesia. Necrotic tissue, clots and suture materials should be removed. Aerobic and anaerobic cultures should be obtained. The bowels and omentum should be inspected and thoroughly cleansed with warm normal saline.

In the recommended Smead-Jones closure, a through and through approach is used. Using an appropriate suture like monofilament nylon, all the abdominal layers are brought together in a continuous fashion with stitches places 2.5 to 4cm either side of the around margin and about 1.5 cm apart. The peritoneum and fascial layers are closed together. The subcutaneous tissue and skin are packed open for later delayed closure if there is evidence of infection. The stitches are removed on the fourteenth postoperative day (1, 3). The patient presented here was stitched with nylon in a single layer as described in Smead - Jones method. The stitches were removed on the 11^{th} day as the wound was well healed and patient was requesting discharge. On subsequent review, the wound had excellently healed with minimal scar size.

Wound disruption leads to prolonged and expensive hospitalization, with a return to theatre for a second operation. Emphasis on preventive measures for wound disruption will forestall the suffering experienced by these patients. The pre operative factors such as anaemia may be corrected by transmission and better nutrition during

pregnancy. The intra operative factors can be minimized with good asepsis and surgical techniques. One should avoid weak sutures, avoid too-fine sutures for tissue closure, and avoid damaging sutures with haemostatic or fraying by improper tying. One should also choose appropriate incision for each patient to reduce wound dehiscence especially when infection is anticipated.

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OBSTETRIC CASE 13

ADOLESCENT PREGNANCY -CAESEREAN SECTION - GOOD OUTCOME

NAME	E.N	PARITY:	0 + 0
AGE:	13	D.O.A.:	11.01.05
ID NO.:	146/05	D.O.D.	15.01.05
LMP:	April 2004	EDD	January 2005

PERSENTING COMPLAINT

She was admitted with history of labour pains for 3 hours.

HISTORY OF PRESENTING COMPLAINT

The patient was brought to hospital by her stepmother with complains of intermittent lower abdominal pain and blood stained mucoid discharge. She was having 2-3 contractions in 10 minutes last 20-30 seconds. There was no per vaginal bleeding and no urinary symptoms.

OBSTETRIC HISTORY

She was a primigravida. Her last menstrual period was some times in April 2004 so her expected date of delivery was January 2005. Antenatal clinic she had attended once at PGH Kakamega on 6th of December 2004, the fundal height correspond to the period of amenorrhea. She was planned for elective caeserian section due to CPD. She did not come for the next visit. Antenatal profiles were VDRL and HIV were negative, haemoglobin of 10.2g/dl and has blood group O positive.

GYNAECOLOGIC HISTORY

She attained her menarche at the age of 12 years. Her menses were irregular for the first 6 months then become regular occurring every 26 days and lasting 4 - 5 days. She had never used any form of contraception.

PASTMED1CAL AND SURGICAL HISTORY.

This was not contributory

FAMILY AND SOCIAL HISTORY

She is single stays with her father and stepmother. Her mother died 10 years ago. She never took alcohol or smoked cigarettes. There was no family history of chronic illness. She had dropped out of school at class 6 due to pregnancy.

PHYSICAL EXAMINATION

GENERAL EXAMINATION

She was a young lady in fair general condition. She was not pale, not jaundiced, not oedematous, and no peripheral lymphadenopathy. Her blood pressure was 120/80 mmHg, temperature was 36.7 °C , pulse was 84 per minute, respiratory rate 22/minute.

CENTRAL NERVOUS, RESPIRATORY AND CARDIOVASCULAR SYSTEMS.

These were essentially normal

ABDOMINAL EXAMINATION

The abdomen was uniformly distended with a fundal height corresponding to term. The lie was longitudinal with cephalic presentation that was 5/5 above the pelvic brim. She was having 3 contractions every 10 minutes each lasting 30-40 seconds. The fetal heart was heard with 140 beats per minutes regular.

PELVIC EXAMINATION

The external genitalia was normal. On digital examination, the cervix was partially effaced with a dilatation of 4cm. The membranes were intact and no cord palpable. The sacral promontory was easily tipped and the sacral pubic angle was very narrow on pelvic assessment.

DIAGNOSIS

An impression active phase of labour with cephalo-pelvic disproportion in a teenage was made.

MANAGEMENT

She was planned and prepared for immediate caeserian section operation. The patient and stepmother were given explanation on the diagnosis and mode of delivery. The consent was signed by her stepmother. Blood for grouping and cross-matching was taken two units of blood requested for. She was started on intravenous normal saline. She was also given intramuscular atropine 0.6 mg. The patient then was wheeled to theatre where a low uterine segment caesarean section was made via Cohen incision under general anaesthesia. A live male infant in cephalic presentation extracted. The apgar score was 9 in 1 and 10 in 5minutes.The infant weighed 3500gms. The placenta was delivered and weighed 400gms. The uterus was closed in layers and haemostasis achieved. The abdomen was closed in layers after ascertaining swabs and instruments count. Vulvovaginal toilet was done and the catheter removed. Estimated blood loss was 500mls.

POST -OPERATIVE MANAGEMENT

The vital sign were observed half hourly until she was fully conscious, one hourly for 4 hours and then 4-hourly thereafter. She was put on intravenous fluids, 1 litre of dextrose alternating with normal saline 8-hourly for 24 hours. Analgesia was through intramuscular pethidine 100 mg 8-hourly for the first 24 hours then oral ibuprofen 400 mg 8-hourly. She was also put on intravenous benzyl-penicillin G 2 mega units 6 hourly and intravenous gentamicin 80 mg 8-hourly for 24 hours then oral amoxicillin.

She and her baby did well postoperatively; They were discharged home through the postnatal clinic in six weeks.

POST-NATAL FOLLOW-UP

When she was reviewed in the post-natal clinic after 4 weeks, she had no complaints and the baby was well and exclusively breastfeeding. She was counselled on family planning and referred to the family planning clinic.

DISCUSSION.

The patient presented was a 13 year old, single primegravida who had cephalo -pelvic disproportion in active phase of labour. She was delivered by emergency caesarean section with good outcome.

Teenage pregnancy is when pregnancy occurs when a girl aged between eleven and nineteen years. The term teenage is virtually synonymous with adolescence, the latter emphasizing the physiological maturation that occurs during the teenage period (1). The patient presented was 13 years old.

Adolescence is a period when a complex interplay of physical, mental, emotional and psychosocial changes occur. It is a period where self-definition and sexual identity develops. For various reasons this normal development may go awry. One such complication is pregnancy in the teenage often resulting from ignorance and youthful adventurism (2).

Even though general fertility rates worldwide are declining among all women, the pregnancy rate amongst adolescents is increasing. In some Sub-Sahara African countries one out of every five adolescent females has given birth each year, so that almost all females are likely to have had a child by the age of 20 years (3). Studies carried out at KNH in 1980 showed an incidence of 11.4% (4), while in 1983 the incidence was reported to be 18.6% (5). Muraya found an incidence of 21% in rural Kenya (6).

Early marriages, societal permissiveness, and overall decline of the age of menarche favour early exposure to sexual activity and are probably responsible for the increased teenage pregnancies. These accompanied by rapid urbanization and modernization have led young people to break away from traditional African social fabric which by itself it is slowly dying out as most people adjust to the western lifestyles emphasizing modern education (1,7).

Sanghvi (1983) found that teenage pregnancy is a common and important obstetric problem in Nairobi accounting for 18.6% of all deliveries in the city. Most cases were in their late teens but a substantial proportion was very young (5). Twenty six percent in his series had already had one or more previous pregnancies and 58.4% of all cases became pregnant while in primary school. Muraya (6) found that 66.4% of pregnant rural teenagers had only primary education.

The patient presented was a standard six pupil.

Sanghvi concluded that the frequency of teenage pregnancy is achieving such alarming proportions that many teenagers opt to get illegal abortions and that for those who decide to carry the pregnancy to delivery; they face more antenatal, intrapartum and postpartum complications of pregnancy (5).

The patient presented apparently attended antenatal clinic only once, had cephalopelvic disproportion ending up with caesarean section.

Pregnant adolescents have a higher incidence of medical complications involving mother and child than do adult women, although there are emerging data that these risks may be greatest for the youngest teenagers. The incidence of low birth weight (<2500g) is more than double the rate for adults, and the neonatal death rate (within 28 days) is almost three times higher. The mortality rate for the mother although low, is twice that of adult pregnant women. Adolescent pregnancy has been associated with other medical problems, including poor maternal weight gain, prematurity (birth at <37 weeks' gestation), pregnancy induced hypertension, anaemia and sexually transmitted diseases (7).

Whether biological or social factors account for most medical complications is unclear. The only biological factors that have been associated consistently with negative pregnancy results are low prepregnancy weight and height, parity and poor pregnancy weight gain. Many social factors have been associated with poor birth outcomes including poverty, unmarried status, low educational levels, drug abuse, and inadequate prenatal care (1).

The patient presented came from a poor social-economic background, had low level of education, was single and had inadequate prenatal care.

Anaemia and syphilis rates were high and a higher incidence of antenatal complications including hypertensive disease in pregnancy; threatened abortion, antepartum haemorrhage and others were reported (5). Ngoka (4) reported that between 11.8% and 42.9% of his patients had some degree of anaemia while Muraya reported hypertensive disease in pregnancy in 2.5% of his cases compared to 0.5% in the older patients (6).

These findings are similar to others from the African continent (2,3,6,7,8). Teenage pregnancies are associated with a variety of antenatal problems including anaemia, hypertensive disorders, premature rupture of membranes, preterm delivery, intrauterine growth retardation and low birth weight. The incidence of obstructed labour, fetal distress, and operative abdominal and vaginal deliveries is higher than in the general population (1,2,3,4,5,6,7,8).

The patient presented had CPD.

Research during past decades supports the common belief that children of adolescent mothers do not fare as well as do children of adult mothers from a psychological perspective. These children have an increased risk of developmental delay, academic difficulties, behavioural disorders, substance abuse, and becoming adolescent parents themselves.(9)

It has been suggested that teenagers have greater nutritional requirements during pregnancy than older women, and these additional requirements compete with the growth needs of the fetus and results in low birth weight (7).

Many studies and programmes have addressed the challenging issue of adolescent pregnancy. Because adolescent pregnancy is a multifaceted problem, it demands multidimensional solutions that should be tailored to the needs of individual communities. There are no easy answers.(9)

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OBSTETRIC CASE 14

PLACENTA PREVIA TYPE IV - EMEGENCY CAESAREAN SECTION - LIVE BABY

NAME:	M. K.	PARITY:	1+0
IP NO.:	1047276	DO A:	12.08.2005
AGE:	26 YEARS	DOD:	15.09.2005
LMP:	23.12.2004	GESTATION	33 WEEKS
EDD:	29.09.2005		

PRESENTING COMPLAINT

She presented with a one day history of painless vaginal bleeding.

HISTORY OF THE PRESENTING ILLNESS

She was well until the morning of admission when she developed painless per vaginal bleeding which on standing trickled down the legs to the floor. She changed pad three times before coming to the hospital. There was no history of trauma or coitus. She had no other bleeding episode before this. There was no history of vaginal discharge or drainage of liquor and no urinary symptoms.

OBSTETRIC AND GYNAECOLOGICAL HISTORY

She is para 1+0 gravida 2 at 33 weeks of gestation. Her last menstrual period was on 23rd December 2004 and her expected day of delivery on 29th September 2005. Her first delivery was at term in 2001 by spontaneous vaginal delivery the baby is alive and well. She had started antenatal care at Fatima Nursing Home where she had made 3 visits. Her haemoglobin level was 12.0 g/dl; blood group was 'O' Rhesus 'D' positive, VDRL and HIV tests were negative.

She attained menarche at 15 years, her menstrual flow used to last 3 days in a regular cycle of 28 days. She had used contraceptive pills from June 2001 to October 2004.

FAMILY AND SOCIAL HISTORY

She was married housewife. The husband was a lawyer. She neither smoked cigarettes nor drank alcohol.

PHYSICAL EXAMINATION

She was in good general condition, was not pale and had no oedema. She had a blood pressure of 120/70 mmHg, a pulse rate of 86/min, a respiratory rate of 20/min and a temperature of 36.7°C.

SYSTEMIC EXAMINATION

The cardiovascular, respiratory and the central nervous system were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended and was moving with respiration. The liver and the spleen were not palpable. The fundal height corresponded to 34 weeks gestation. The lie was longitudinal in cephalic presentation and foetal heart tones were heard and regular at a rate of 142 beats per minute. No area of tenderness.

SPECULUM EXAMINATION

She had normal external genitalia with a soaked sanitary towel. The vulva was also bloody, but had no active vaginal bleeding. There was a large blood clot in the vagina, the vaginal walls and the cervix looked healthy. The cervix was closed and had slight oozing of blood through the cervical os.

DIAGNOSIS

A diagnosis of antepartum haemorrhage at 33 weeks of gestation was made

MANAGEMENT

An intravenous line was secured using a gauge 16 intravenous canula. A blood sample was taken for grouping and cross-matching and 3 units of blood ordered. An urgent obstetric ultrasound scan was done which revealed a single intrauterine pregnancy at 33 weeks of gestation and 6 days. The placenta extended to the lower uterine segment covering the internal os.

She was transferred to the admitting antenatal ward for conservative management of placenta previa. She was counselled on the diagnosis and the need to have inpatient

management. She was put on bed rest, with monitoring of pads. She was also put on haematinics (Ranferon 12 syrup 10ml three times daily) and intramuscular dexamethasone 6 mg twice daily for a total of four doses to enhance foetal lung maturity. Three units of blood were ordered and kept in the blood bank in readiness for urgent transfusion.

She remained stable until 37 weeks gestation when she developed heavy vaginal bleeding. She was prepared for theatre and started on intravenous normal saline. She was premedicated with intramuscular Atropine 0.6mg.

OPERATIVE MANAGEMENT

She was noted to be having brisk vaginal bleeding. The abdomen was cleaned and draped. General anaesthesia was induced and the abdomen opened through a sub-umbilical lower midline incision. A lower uterine segment caesarean section was performed. The uterine incision cut through the upper margin of the placenta. The outcome was a live female infant who had an Apgar score of 9 at 1 minute and 10 at 5 minutes and weighed 3650 grams. The placenta was found to be in the lower uterine segment covering the os completely. The uterus was closed in layers and haemostasis achieved. The abdomen was then closed in layers and general anaesthesia reversed.

POSTOPERATIVE CARE

She was observed continuously in the recovery ward until fully conscious and then hourly for 6 hours and then 4 hourly thereafter. She was put on intravenous benzyl penicillin G 2 mU 6 hourly, gentamicin 80 mg 8 hourly, intramuscular pethidine for analgesia for 24 hours then oral diclofenac.

She did well postoperatively and was discharged home on the fourth postoperative day through the postnatal clinic in six weeks on haematinics and analgesics.

POSTNATAL CLINIC

When she was reviewed after 6 weeks in the postnatal clinic, the wound had healed well and the baby was well and exclusively breastfeeding. She was discharged through the family planning clinic for contraception.

DISCUSSION

The patient presented was a para 1+0 admitted with placenta previa at 33 weeks gestation and managed conservatively until 37 weeks of gestation when a emergency caesarean delivery was done following heavy vaginal bleeding. She delivered a live female infant weighing 3650g.

Placenta previa is defined as a condition where by the placenta is located over or very near the internal os.

Four degrees of this abnormality have been recognized: (1, 2, 3)

1. First degree (low lying): part of the placenta lies in the lower uterine segment but does not reach the internal os.
2. Second degree (marginal): the lower margin of the placenta reaches the internal os, but does not cover it
3. Third degree (Partial): the internal os is partially covered by the placenta.
4. Fourth degree (central or total): the placenta lies centrally over the internal os.

The significance of the different types lies in the increasing morbidity and mortality to the mother and foetus as the placenta becomes more centrally placed. As the lower segment of the uterus forms in the latter half of pregnancy, the placenta tends to become sheared off. Because the endometrium is less well developed in the lower uterine segment, the placenta is more likely to become attached to the underlying muscle (placenta previa accreta), with consequent problems during the third stage of labour/delivery (1,3).

The incidence of placenta previa is 1:200 (0.5% of births) deliveries (2, 3, 4). Varying incidences have been reported in different studies at Kenyatta National Hospital; Kirima reported an incidence of 1:116, Ojwang' an incidence of 0.25%, and Mbithi an incidence of 1 percent (5, 6, 7).

A number of factors appear to increase the risk of placenta previa. These include advancing maternal age, multiparty, smoking, cocaine use, prior placenta previa, one of more previous caesarean births and prior suction curettage for spontaneous or induced abortion (3, 4, 8). The patient presented had none of these factors.

The strong association between placenta previa and parity, previous caesarean delivery and suction curettage suggest that endometrial damage is an aetiological factor. Presumably each pregnancy damages the endometrium underlying the implantation site, rendering the area unsuitable for implantation. Subsequent pregnancies are more likely to become implanted in the lower uterine segment by a process of elimination (4, 8).

The most characteristic of placenta previa is the sudden onset of painless vaginal bleeding in the second or third trimester of pregnancy. Bleeding may begin without an obvious inciting cause such as pelvic examination, intercourse or onset of labour. When the placenta is located over the internal os, the formation of the lower uterine segment and the dilatation of the internal os result inevitably in tearing of placental attachments. The bleeding is augmented by the inability of the myometrial fibres of the lower uterine segment to contract and thereby constrict the torn vessels (3, 4, 8). Our patient presented with painless vaginal bleeding in the third trimester.

On abdominal examination, the uterus is soft, with absence of palpable contractions in 75% of cases. Fetal distress is usually not seen unless the haemorrhage is severe. The lie is abnormal in up to 35% of cases but if the vertex is presenting it is usually felt, high above the pelvic brim (2, 8).

Per vaginally, there is fresh bleeding. Digital examination is contraindicated in any case of suspected placenta previa. Speculum examination may be differed until evidence that placenta previa does not exist is obtained, as extrauterine causes of antepartum haemorrhage are usually benign and thus need not be diagnosed urgently (8). Earlier, the double set up examination was considered as the final diagnostic step in the management of placenta previa. With the increased accuracy of ultrasound the criteria for performing this examination have narrowed, and deserve re-evaluation (3, 8).

Transabdominal sonography is used to locate the placenta. It is highly accurate but not infallible, as there are no markers to locate the internal cervical os precisely. The rate of false negative results with transabdominal sonography has been reported to be as high as 7%. False-positive results are often a results of bladder distension. The use of transvaginal ultrasonography has substantively improved diagnostic accuracy of placenta previa (3, 4, 8).

There is evidence that low implantations are much more common in early pregnancy but the majority of these resolve and never become symptomatic. A low placenta may be seen in up to 40% of patient on ultrasound in the second trimester, but in 95% of these cases the placenta has moved away from the os by term. A centrally located placenta in the second trimester, despite the likelihood of subsequent upward migration with uterine enlargement, usually does not display the migration phenomenon. The mechanism of the apparent placental movement is not completely understood (3, 4, 8).

Women with placenta previa may be considered as follows: Those in whom the foetus is preterm but there is no indication for delivery, those in whom the foetus is reasonably mature, those in labour and those in whom haemorrhage is severe as to mandate delivery despite foetal immaturity. Management with a preterm foetus, but with no active bleedings consists of close observation. In some cases prolonged hospitalization may be ideal. However, the woman can be discharged after bleeding has ceased and the foetus is judged to be healthy. The woman and her family must fully appreciate the problems of placenta previa and be prepared to transport her to hospital immediately (2, 3, 8). In our set-up however, realistic, careful and somewhat subjective patient selection is required for safe outpatient management: patients who have economic disadvantages, little domestic support, young children at home, no telephone facilities or transportation difficulties and the unreliable blood transfusion facilities are unlikely to be good candidates for this treatment approach. All patients are therefore managed as inpatients until delivery as was the case for our patient.

Early in pregnancy transfusions to replace blood loss and the use of tocolytic agents to prevent premature labour are indicated. If the patient is between 24 and 34 weeks

gestational age a single course of dexamethasone or betamethasone (two doses of 12mg intramuscularly separated by 24 hours) should be given to promote foetal lung maturity (2, 8).

Caesarean section is the method of choice for central or partial placenta previa. Bleeding from the placental bed may occur as the lower uterine segment is weakly contractile. Specific bleeding points if seen may be sutured but the use of multiple sutures to control a generalized bleed is usually futile. Direct injection of oxytocin, ergometrine or prostaglandin (15-methyl PGF_{2a}) may be successful in arresting the bleeding.

Other methods to arrest bleeding are uterine artery legation or bilateral internal iliac artery legation. Packing of the lower uterine segment has been suggested. Hysterectomy may be required for those cases where bleeding is not controlled by the above measures or when placenta accreta or percretta are present (1, 2, 3, 4, 8).

Vaginal delivery is usually reserved for patients with a marginal implantation and a cephalic presentation (2). Double set-up examination is done in the operation theatre under anaesthesia keeping everything ready for caesarean section. Palpation of the placenta on the lower segment not only conclusively confirms the clinical diagnosis but also identifies the degree. Low rupture of the membranes is done which helps in the initiation of labour and thereby encourages descent of the head. This in turn presses on the separated placenta and controls the bleeding. Oxytocin drip may be started. If amniotomy fails to stop bleeding or fails to initiate labour, caesarean section is performed (9).

Rhesus immune globulin should be given to all at risk patients with third trimester bleeding who are rhesus negative and unsensitized (10).

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OBSTERIC CASE 15

INTRAPARTUM FOETAL DISTRESS - EMERGENCY CAESAREAN SECTION: LIVE BIRTH

NAME: T.B.
AGE: 24 YEARS
IPNO: 1034911
DOA: 27.09.2005
DOD: 01.10.2005

PARITY: 1+0
LMP: 27.12.2004
EDD: 04.10.2005
GESTATION: 39 WEEKS

PRESENTING COMPLAINTS

She presented with a 5 hour history of intermittent lower abdominal pains.

HISTORY OF THE PRESENTING COMPLAINTS

She was admitted to the labour ward at 6.30 am with a 5 hour history of intermittent lower abdominal pains that radiated to the back. The pains were increasing in frequency and intensity. She was getting 2-3 contractions in 10 minutes lasting 20 -30 seconds. There was no drainage of liquor or vaginal bleeding.

OBSTETRICS AND GYNAECOLOGICAL HISTORY

She was para 1+0. Her first delivery was a spontaneous vaginal delivery in 1999 to male infant who weighed 2800gm who was alive and well. Her last normal menstrual period was on 27th December 2004 and her expected date of delivery on 04th October 2005. She was at a gestation of 39 weeks.

She had antenatal care at Kenyatta National Hospital from 24 weeks of gestation and had made seven visits. Her blood group was 'A' Rhesus 'D" positive, VDRL and HIV test were negative and had a haemoglobin level of 12.1 g/dl. She had two tetanus toxoid injections and had no complications during the pregnancy.

She attained menarche at 14 years and prior to conception, she had a regular menstrual cycle of 28 days with duration of flow of 5 days. She had used IUCD between 1999 to 2002.

PAST MEDICAL HISTORY

This was not significant.

FAMILY AND SOCIAL HISTORY

She was married doing business at Kawangware market. Her husband was a matatu driver. She did not smoke cigarettes or drink alcohol and had no history of chronic illness on the family.

PHYSICAL EXAMINATION

She was in fair general condition, was not pale, jaundiced or oedematous. She had a blood pressure of 120/74 mmHg, a pulse rate of 80/min, respiratory rate of 20/min and a temperature of 36.5° C.

The central nervous system, respiratory system and the cardiovascular system were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was symmetrically distended and moving with respiration. The liver and the spleen were not palpable. The fundal height corresponded to a term gestation, the foetus was in longitudinal lie and cephalic presentation and the foetal heart tones were heard and regular with a rate of 138 beats per minute. Descent was 3/5 up. Three moderate contractions in 10 minute each lasting 30 seconds were palpated.

PELVIC EXAMINATION

She had normal external genitalia. The cervix was anterior in position, more than 70% effaced, soft and 4 cm dilated. The membranes were intact.

DIAGNOSIS

A diagnosis of active phase of labour was made.

MANAGEMENT

She was admitted to a first stage room in labour ward where her labour was monitored on a partograph. She was reviewed 4 hours later and found to have an irregular foetal heart rate of 120 to 128 beats per minute. Descent was remain 3/5 and had 3

contractions in 10 minutes each lasting 40 seconds. The cervix was fully effaced, soft, 7 cm dilated with no caput or excessive moulding. Artificial rupture of the membranes yielded thick meconium stained liquor grade **III.** The umbilical cord was not felt.

A diagnosis of foetal distress was made. The patient was counselled on the diagnosis and prepared for an emergency caesarean section. She was nursed in a left lateral position, put on intravenous dextrose infusion and given oxygen by mask. She gave an informed consent for emergency caesarean section and was premeditated with atropine 0.6 mg intramuscularly before being wheeled to the operating room.

An emergency caesarean section was performed though a lower midline abdominal incision and a transverse incision in the lower uterine segment. The outcome was a live female infant with an Apgar score of 7 in 1 minute and 8 in 5 minutes with a birth weight of 3050 grams. There was cord around the neck tightly, the placenta looked grossly normal. There was thick meconium stained liquor. The infant was reviewed by the paediatrician who admitted her to the newborn unit with suspected meconium aspiration syndrome.

POST- OPERATIVE MANAGEMENT

The vital sign were observed half hourly until she was fully conscious, one hourly for 6 hours and then 4-hourly. She was put on intravenous fluids, 1 litre of dextrose alternating with normal saline 8-hourly for 24 hours. Analgesia was through intramuscular pethidine 100 mg 8-hourly for the first 24 hours then oral mefenamic acid 500 mg 8-hourly. She was also put on intravenous benzyl-penicillin G 2 mega units and intravenous Gentamicin 80 mg 8-hourly for two days then continued with oral amoxil.

She did well postoperatively; the baby was discharged from the newborn unit on the third day. They were discharged home through the postnatal clinic in six weeks.

POST-NATAL FOLLOW-UP

She was seen in the post-natal clinic after 6 weeks. She had no complaints and the infant was well and exclusively breastfeeding. She was counselled on family planning and referred to the family planning clinic.

DISCUSSION

The patient presented was 24 years old para 1+0 diagnosed with intrapartum foetal distress who was delivered by caesarean section to a live female infant who was admitted to the newborn unit with suspected meconium aspiration syndrome.

Foetal distress may be defined as a complex of signs indicating a critical response in the foetus to stress. It implies metabolic derangement, notably hypoxia and acidosis that affect the functions of vital organs to the point of temporary or permanent injury or death. Foetal distress may be acute or chronic. Skilful monitoring will detect some degree of foetal compromise in at least 20% of all obstetric patients (1).

The oxygen supply to the foetus depends principally on the adequacy of uterine perfusion, placental gas transfers and foetal circulation. The physiology of foetal circulation in terms of the higher percentage of foetal haemoglobin, the higher haemoglobin concentration and the higher affinity of foetal haemoglobin for oxygen enabling more efficient delivery of oxygen to the tissues renders the foetus relatively resistant to mild to moderate hypoxia. However, in severe hypoxia foetal tissue requirements for aerobic metabolism exceeds the oxygen supply and foetal tissue hypoxia results. The foetus as a result turns to anaerobic metabolism, which causes a rise in lactic acid levels and a consequent fall in the tissue and blood pH. Hypoxia for the foetus may arise from factors affecting intervillous space perfusion, placental oxygen transfer or umbilical blood flow (2).

Maternal position, exercise or chronic maternal medical conditions such as hypertension and diabetes may be associated with decreased placental blood flow. During a normal uterine contraction, there is an acute interruption of blood flow through the intervillous space. If the contractions are prolonged or tetanic the uteroplacental reserve may be exceeded and foetal hypoxia produced. Maternal hypotension, placental infarcts or premature placental separation may also affect oxygen delivery to the foetus. Oxygen transfer can actually be increased by administration of high oxygen concentration to the mother, which increases the maternal-foetal oxygen gradient and can significantly increase the foetal blood oxygen contact (3).

The objective of monitoring the foetus in labour is to detect foetal abnormalities at a stage when they are reversible. The current modalities for the monitoring of the foetus are intermittent auscultation, cardiotocography, colour and quality of amniotic fluid and foetal blood sampling. Moulding of the foetal head and caput formation serve as accessories to monitor the foetus.

No foetal compromise is present when there is absence of any abnormality of foetal rate (FHR) or rhythm and no response to uterine contractions other than early decelerations (1).

Foetal heart rate patterns are reflections of underlying pathophysiologic mechanisms. Abnormal patterns may be indicative of hypoxia with or without acidosis. Evaluation of the foetal ability to tolerate decelerations requires examination of all components of the foetal heart rate pattern. Concomitant loss of variability or baseline tachycardia suggests the possibility of hypoxia and acidosis. If the return to baseline is gradual rather than abrupt the clinician should be suspicious of progressively worsening hypoxia and possibly progressive foetal depression. If variability and baseline are normal, the foetus can be assumed to be tolerating the intermittent stress, changes in foetal heart rate may indicate early hypoxia without acidosis (4).

Measurement of pH in capillary scalp blood may help to identify the foetus in serious jeopardy. The pH of the foetal capillary scalp is normally lower than umbilical venous blood and approaches that of umbilical arterial blood. The following protocol has been recommended to try and confirm foetal distress. If pH is greater than 7.25, then labour is observed. If the pH is between 7.20 and 7.25, pH measurement is repeated within 30 minutes. If the pH is less than 7.20, another scalp blood measurement is taken immediately and the mother taken to the operating room for preparation for surgery. If the pH is still low immediate caesarean delivery is performed (5). In our setup, foetal scalp blood is not done and hence it is difficult to objectively determine the foetus that is actually having foetal distress.

The significance of the presence of meconium in labour is controversial and likewise the necessity of rupturing the membranes in an attempt to detect the presence of meconium. The presence of thick meconium in labour particularly in association with

post-term pregnancy, oligohydramnios and poor foetal growth has been associated with increased risk of acidemia, which then increases the risk of meconium aspiration (2). Meconium staining without foetal heart abnormalities or foetal scalp abnormalities and with labour progressing well seems to have no great significance. Meconium in the presence of complicated labour with foetal heart rate abnormalities has a greater risk of foetal hypoxia than either meconium alone or foetal heart rate abnormalities alone (6).

The patient presented had thick meconium stained liquor with foetal heart rate irregularity and slow progress.

In cases of possible foetal compromise, vaginal examination should be done to assess for rapid progression or cord prolapse. Intrauterine resuscitation will help improve the condition of the foetus and may help avoid unnecessary intervention. Intrauterine resuscitation measures include:

1. Maternal position change often alleviates cord compression - turning the patient on her side improves uterine blood flow by relieving uterine pressure on the maternal aorta and vena cava. A good rule in the labour room is that all patients should recline as much as possible in a semi lateral position (1, 2, 3, **4)**

2. Maternal hypotension should be corrected by intravenous hydration, position change or vasopressor treatment if the cause is conduction anaesthesia related vasodilatation. Ephedrine is the drug of choice in this situation.

3. Administration of supplemental oxygen to the mother results in improved foetal oxygenation, assuming that placental exchange is adequate and umbilical cord circulation is unobstructed.

4. Oxytocin should be discontinued until foetal heart rate and uterine activity return to acceptable levels.

5. Vibroacoustic stimulation (VAS) or foetal scalp stimulation may be used to induce accelerations in foetal heart rate that indicate the absence of acidosis.

6. Tocolytic agents such as Beta-adrenergic agonists can be administered to decrease uterine activity in the presence of uterine hypertonus with non reassuring foetal heart rate patterns.

7. Therapeutic amnioinfusion should be considered for repetitive, non reassuring variable decelerations. The therapeutic goal is expansion of the amniotic fluid volume. Amnioinfusion has been shown to the useful in the management of variable decelerations in foetuses with oligohydramnios and subsequent cord compression. Amnioinfusion has also been used for dilution and lavage of meconium (4).

8. In the past, bolus doses of hypertonic dextrose were used for the management of foetal distress. But the use of dextrose has been shown to be of little value **(4).**

9. If maternal acidosis is the cause of foetal acidosis, administering bicarbonate to the mother may benefit both patients.

Labour may be continued in the presence of reassuring signs of foetal status through foetal acoustic stimulation, scalp stimulation, or sampling. If foetal well-being cannot be documented, if the situation worsens, if the signs of probable foetal distress persist for 30 minutes, or if there is continued foetal distress despite conservative treatment, immediate delivery is indicated. If caesarean section is chosen, it must be done rapidly (1). #

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OBSTETRICS LONG COMMENTARY

PREVALENCE OF ANEMIA AMONGST ANC ATTENDANTS AT KAKAMEGA PROVINCIAL GENERAL HOSPITAL

Project summary

Anaemia is a condition that is characterized by reduction in red blood cell volume and decrease in the concentration of haemoglobin in the blood. Commonly anaemia is the final outcome of the nutritional deficiency of iron, folate, vitamin B12, and some other nutrients. The WHO criterion for the diagnosis of anaemia in pregnancy is a haemoglobin concentration of under 11 g/dl or the haematocrit equivalent of less than 33% in the peripheral blood. Anaemia is by far the most common pregnancy complication worldwide. According to World Health Organization (WHO) estimates, it affects two-fifths of the non-pregnant and over half of all pregnant women in developing countries.

In this study the aim was to determine the pattern and prevalence of anaemia in pregnancy as seen at the Provincial General Hospital Kakamega. Another objective was to determine the socio-demographic profile of women attending the antenatal clinic for the first time and to identify some of the causes of anaemia in the study population.

A prospective descriptive study was used.

The study was carried out at Provincial General Hospital Kakamega on pregnant women attending ante-natal clinic for the first time. It covered a period of 2 months involving a representative sample of 280 pregnant women who were attending antenatal clinic at the hospital. Only those attending ante natal clinic for the first time were taken. They were interviewed and recruited in a language they could understand i.e. Kiswahili, English and Kiluya using a structured close-ended questionnaire. Information obtained was edited then entered into a computer and analyzed using SPSS-PC PACKAGE.

The blood sample and stool were analyzed in the hospital laboratories using Culter Counter, and wet preparation of the stool for microscopic ova and cyst. Peripheral blood smear was used to identify malaria parasites.

The results were used to assess the prevalence of anaemia among pregnant women and hence we were able to classify the type and some of the causes of anaemia. The areas of management that require improvement have been identified and recommendations have been made accordingly.

The results show high prevalence of anemia (25.7%). Iron deficiency and megaloblastic anaemia accounted for (46.3%, 6.0%) of all cases respectively. The prevalence of anaemia was high in those ages 20-35 years. According to socio-demographic data showed that most women attend antenatal clinic for the first time during second and third trimester(63.2, 33.9%). Malaria parasites were seen in (31.8%) of pregnant women, while worm infestation account for (18.0%).

2. Introduction and Literature Review

Anaemia is by far the most common pregnancy complication worldwide. According to World Health Organization (WHO) estimates, it affects two-fifths of the non-pregnant and over half of all pregnant women in developing countries. During pregnancy, late arrival for treatment is common, with large numbers of those affected being seen for the first time with severe degree of anaemia (1). Severe anaemia in pregnancy is an important contributor to maternal mortality in many parts of the world. One such place is Kilifi District on the Kenyan Coast. In a cross-sectional survey done in the antenatal clinic Kilifi District Hospital, mainly among women attending clinic for the first time, the prevalence of severe anaemia was 10% (2). Later in gestation, 34- 36 weeks equivalent was even higher at 17.5%. A retrospective analysis of deaths occurring in the maternity ward at Kilifi District Hospital between November, 1994, and September, 1997, revealed severe anaemia to be the sole cause of ten of the 43 maternal deaths (2). In a study in Kericho District Hospital, Sawe found prevalence of anaemia to be 24.5% among pregnant women (3). In study in cost province Rukaria found a prevalence of 21% among pregnant woman (4). Sinei found prevalence of 12.4% in rural Kenya (5).

Women in developing countries account for 95% of anaemic pregnancies in the world. The contribution anaemia makes to maternal morbidity and mortality and its association with low birth weight in sub-Saharan Africa is well-documented (6,7). In contrast, the impact of maternal anaemia on infant mortality in a developing country context is inconclusive and reviews of the topic highlight the need for more research (8). Essential Obstetric Care Manual states that anaemia is a major indirect cause of maternal morbidity and mortality in Kenya and is generally under-reported. In areas where malaria is prevalent, the number of women affected increases (9).

Anaemia is a condition that is characterized by reduction in red blood cell volume and decrease in the concentration of haemoglobin in the blood. Commonly anaemia is the final outcome of the nutritional deficiency of iron, folate, vitamin B12, and some other nutrients (10). The WHO criterion for the diagnosis of anaemia in pregnancy is a haemoglobin concentration of under 11 g/dl or the haematocrit equivalent of less

than 33% in the peripheral blood. In Africa, haemoglobin concentration of lOg/dl (haemotocrit equivalent 30%) is a cut off (1).

Several factors are responsible for the high prevalence of anaemia in childbearing women, and they vary according to geographical location. During pregnancy there is an increased demand for nutrients as a result of the expanding maternal RBC mass and the needs of the growing fetus and placenta, and in between pregnancies the demands are increased by the iron loss due to menstruation (11). In Africa, anaemia in women is caused by multiple factors (12).

In public health terms, iron deficiency is by far the most important cause of nutritional anaemia. Iron deficiency may result from a combination of several factors, including inadequate dietary intake and/or low dietary availability, increased iron needs during pregnancy and periods of rapid growth such as adolescence, chronic iron losses due to parasitic infections such as hookworm and schistomiasis, and impaired iron utilization in chronic and repeated infections. Iron requirement during the second and third trimester is about 7 mg/day. This may not be adequately obtained, since the main source of iron in the diet in these countries is non-haeme iron. Its absorption is affected by meal composition, (commonly consumed foods contain phytates, polyphenols, vegetable proteins, which are inhibitors of iron absorption) and therefore less bio-available (12). There are indications that inadequate intake of vitamin A worsens iron deficiency anaemia. Anaemia develops rapidly because in most cases iron store are depleted even before pregnancy starts (1). However, it is also reported that even in developed countries, where the diet quality is good, only 20% of women have normal iron stores at the end of pregnancy and postpartum in the absence of supplementation (13,14).

It has been known for many years that haemoglobin concentration falls during pregnancy, principally as a result of haemodilution (the physiological anaemia of pregnancy), reaching a minimum at about 32 weeks of gestation. WHO recommends that the haemoglobin concentration should not fall below 11.0 g/dL at any time during pregnancy (1). Low haemoglobin values, which may be associated with a poor outcome of pregnancy, can be remedied by iron supplementation, as the majority of cases of anaemia are due to iron deficiency associated with depleted body iron stores

and inadequate iron intake. It is, therefore, understandable that routine iron supplementation during pregnancy has become commonplace (10).

Malaria during pregnancy is a major public health problem in tropical and subtropical regions throughout the world. Malaria has been estimated to cause 8% to 14% of all low birth weight babies and 3%to 8% of infant deaths in areas of Africa with stable malaria transmission. In terms of its effect on mothers, severe anaemia increases the risk for maternal mortality, and malaria anaemia is estimated to cause as many as 10,000 maternal deaths each year in Africa. (15,16,17). Because majority of cases involving anaemia in pregnant women are associated with malaria, the main objective for diagnosis is to detect women at high risk of being infected by malaria by conducting blood sampling to determine the type of anaemia (15). Pregnancy is associated with increased susceptibility to malaria especially during the second and third trimester and early pueperium (18,19). Pregnancy is associated with immunodepression thus lowering resistance to malaria (20, 21). Malaria attacks are more severe in primigravidae (19). Rukaria and associates in 1996 found that 66% of women with falciparum positive parasitaemia were anaemic (Hb<10g/dl) and the higher the parasite density the severe the anaemia (22).

Mechanism of anaemia is multifactorial. This includes haemolysis, bone marrow dyserythripoiesis and folate deficiency. Malaria produces haemolysis when parasitised cells rapture and other cells are constantly removed from the circulation by the lymphoid macrophages system. Autoimmune haemolysis is thought to be responsible for the accelerated haemolysis and increased severity of anaemia (23, 24, 25).

Only 4 out of 24 countries included malaria in pregnancy as part of their plan of action (26). A recent trial in Kenya showed a considerable impact of SP intermittent treatment on anaemia in all pregnant women (14, 15).

Strategies to prevent malaria during pregnancy (such as preventive intermittent treatment) can substantially reduce the prevalence of severe maternal anaemia (27, 28). All pregnant mothers should receive 3 tablets of sulphadoxine - pyrimethamine at

the first attendant visit occurring after first trimester is completed. A second dose is given at the beginning of the third trimester (28).

Apart from deficiency associated with malaria, folate deficiency can also be caused by poor dietary intake alone, especially as folate-rich foods can be depleted of folate by prolonged cooking, which is common practice in much of tropical Africa. Pregnant women are prone to folate deficiencies because of high physiological requirements, and deficiency is especially common in multigravidae, twin pregnancies, and the last trimester and in lactation (12).

Hookworm infection is widespread in many tropical countries, and chronic blood loss due to hookworm is a major contributor to anaemia, particularly moderate and severe anaemia. The degree of iron deficiency anaemia due to hookworm depends on the content and bioavailability of iron in the diet, the size of body iron stores, and the intensity and duration of the infection (29). Torlesse and Hodges report on anthelmintic treatment with albendazole in pregnant women. Given their finding of an average 6.6-gm/dl rise in haemoglobin, it is not surprising that treatment of this infection, especially in this vulnerable group, results in reduced anaemia. Although data on hookworm and anaemia in pregnant women rarely appear in the scientific literature, this information is probably available in many unpublished reports within a country (30).

The likelihood that chronic diseases like tuberculosis, renal and liver diseases and others play an important etiologic role for anaemia of pregnancy in developing countries has not often been studied (31, 32).

HIV/AIDS is ranked high as determinant of anaemia in women and its prevalence is increasing in women of reproductive age in sub-Saharan Africa (33, 34). Recent studies in areas with high HIV-1 zero-prevalence have reported that HIV-positive women have increased prevalence and severity of anaemia during pregnancy (35). Opportunistic infections and dietary deficiencies in AIDS patients are associated with anaemia. Also, an independent effect of HIV infection on haemoglobin concentration that is not associated with concurrent infection or dietary deficiency has been

demonstrated (36). Furthermore, HIV infection diminishes a pregnant woman's capacity to control P. falciparum infection, further increasing the risk of anaemia (37).

Haemoglobinopathies such as thalassemia and sickle cell disease are other known causes of anaemia reported in the region. Where health services are inadequate, mortality is high among those with the severe type of haemoglobinopathy. With improvement in health care services, cases of severe sickle cell disease (Hb-SS) that affect about 1% of individuals should also be expected among the anaemic cases during pregnancy (38).

There are also other obstetrics and gynaecological reasons such as child bearing e.g. abortions, ectopic pregnancy, frequent child birth, antepartum haemorrhage and post partum haemorrhage; menorrhagia (9).

Anaemia during pregnancy is a well-known and considerable risk factor for both mother and fetus. Fetal consequences are an increased risk of growth retardation, prematurity, still birth, asphyxia at birth and/or cerebral damage and intrauterine death. Prematurity is a consequence of anaemia in early pregnancy, which leads to release of placental stress hormones (CRH, Norepinephrine), that induce fetal release of ACTH and Cortisol. These induce production of uterine contraction stimulating hormone (estrogen) and inhibition of insulin-like growth factor (IGF), an important anabolic hormone for fetal development (6).

Prevention of anaemia should be the mainstay of management. Once anaemia develops intervention is appropriate as it may both improve quality of life and reduce morbidity and mortality (39). Prevention can take many forms such as giving supplementation of ferrous sulphate and folic acid, intermittent preventive treatment of malaria and treating infections. Prevention of malaria during pregnancy require a package consisting of intermittent preventive treatment (IPT) and insecticide treated bed nets (ITNs), particularly in areas of little malaria transmission ROLL BACK MALARIA is a global partnership founded in 1998 by the World Health Organisation (WHO), The United Nations Development Programme (UNDP) The United Nations Emergency 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 approach delivered through antenatal clinics and programmes that provide service to the community (15).

Other preventive measures may include ensuring comprehensive obstetric and social history in antenatal clinic, proper dietary counseling on sources of iron available in the community, family planning and spacing three years intervals and also discouraging eating of soil during pregnancy (9).

Treatment of anaemia depends on the degree of anaemia in pregnant women. For instance mild anaemia is treated by administration of iron and folate; moderate anaemia may need blood transfusion if anaemia is detected near full term. Parenteral iron may occasionally be used in patients who are intolerant of oral iron or malabsorb it, or where it is necessary to rapidly replenish body stores (e.g. in late pregnancy). Severe cases should be admitted to hospital for close supervision and intensive treatment (9, 40). Whenever possible, the cause of anaemia should be determined before treatment is instituted. Blood transfusion should only be used where the haemoglobin is dangerously low, where there is risk of a further dangerous fall in haemoglobin (e.g. rapid bleeding), or where no other effective treatment of anaemia is available (40). In particular there is a lack of data from settings where the burden of anaemia is high and a large number of women reach term with severe anaemia. An inherent difficulty in prospectively establishing the contribution of anaemia in pregnancy to subsequent infant mortality lies in the ethical necessity for medical intervention (37).

3 Justification

Maternal and perinatal mortality and morbidity in developing countries is still unacceptably high. It is reported that 56% of pregnant women in developing countries and 18% in the developed countries are anemic, and in Africa the estimated prevalence in pregnant women is 50%-60% (42). The World Health Organization estimates that more than half the pregnant women in the world have a haemoglobin level indicative of anaemia (9).

The etiological factors of anemia are often environmentally determined and its prevalence and severity varies from region to region. The results obtained in one region cannot therefore be used to solve the problem of another region directly. For instance Mati (1982) found that in Nairobi the commonest type of anaemia during pregnancy was megaloblastic anaemia associated with haemolysis due to malaria with resultant secondary folate deficiency (41).

In another study conducted at Kericho District Hospital, the general obstetric characteristics and pregnancy outcome and the role of malaria in causation of the anaemia was noted. Iron deficiency, dimorphic, and megaloblastic anaemia accounted for 53.6%, 27.5% and 7.3% of all respectively (3).

Studies, including the World Health Organisation technical reports, have often recommended that there is a need to determine the factors associated with anaemia in every locality so as be to be able to design the appropriate public health intervention programmes. This study will therefore go a long way in an attempt to obtain information on anaemia in pregnancy as seen at Provincial General Hospital Kakamega, a hospital in the Western Region of Kenya and hence contribute towards an overview of the problem as seen in the country program.

4. Objectives

4.1 Broad Objectives

To determine the pattern and prevalence of anaemia in pregnancy at the Kakamega Provincial General Hospital.

4.2 Specific Objectives

1. To determine the socio demographic characteristics of women attending clinic for the first time who present with anaemia at Provincial General Hospital Kakamega
2. To determine the prevalence of anaemia in antenatal women attending clinic for the first time at Provincial General Hospital Kakamega
3. To identify some of the causes of anaemia in the study population
4. To identify the clinical features in antenatal women attending clinic for the first time at Provincial General Hospital Kakamega
5. To recommend some interventions to reduce prevalence of anaemia in pregnancy.

5. Methods and Materials

5.1 Study Design

This was a prospective-descriptive comparative study.

5.2 Study Area

It was carried out at Provincial General Hospital Kakamega at antenatal clinic as from June to July 2005.

Provincial General Hospital Kakamega is a provincial referral/teaching hospital for Western Kenya. It has bed capacity of 450 and caters for an estimated catchment population of 3.4 million people growth rate of 2.15%. Provincial General Hospital Kakamega offers full range of comprehensive health services i.e. medical, surgical, paediatric, obstetrics/gynaecology, psychiatric and emergency services. These services are promotive, preventive and curative.

The obstetric/gynaecological department of this hospital consists of the maternal and child health/family planning, gynaecology ward and maternity unit. The maternity unit is made up of labour ward, operating theatre, antenatal and postnatal wards and a newborn unit. The maternity unit has a capacity of 100 in-patient beds and is managed by two consultant obstetrician/gynaecologists, one registrar in obstetrics and gynaecology, two medical officers, two medical interns, one clinical officer intern, one nursing officer in charge, three nursing officers and 67 nursing staff. The maternity unit conducts on average 300 deliveries and 580 admissions per month. Maternal and child health department conducts antenatal clinic and mothers with high risk factors are referred to specialist antenatal clinic held every Tuesday. The average monthly ANC attendance (both new and old patients) is about 550.

Patients who need admission e.g. those in labour and those who are sick are admitted through labour ward directly. Referrals are also admitted through labour ward. Their particulars, including the diagnosis are entered into a book in the labour ward and files opened.

5.3 Study Population

The study comprised of 280 of antenatal women who attended antenatal clinic for the first time in the index pregnancy during the study period.

5.4 Sampling

5.4.1 Selection of study subjects

Antenatal women who attended antenatal clinic for the first time in the index pregnancy were recruited in the study.

5.4.2 Sample size determination

From the literature studies done in Kenya, it is shown that prevalence of anaemia in pregnancy range between 12.4% to 24.5 % (3, 4, 5). For the purpose of this study estimated prevalence of anaemia in pregnancy was taken as 20%. The following formula was used for a sample size determination.

$$n = \frac{Z^2 Pq}{"d^1}$$

Where

n = minimum sample size

Z = standard error from the mean corresponding to 95% confidence level =1.96

P = 20% taken to be estimated prevalence of anaemia

q = 1.0-p

d = precision/reliability with which to determine P=5%

Therefore n = 280.

5.4.3 Study Period

The study was intended to take two months starting from June to July 2005. On average from monthly returns in antenatal clinic there are about 60 - 100 clients attending antenatal clinic per day (Monday - Friday) except on holidays. Of this about 20 to 40 clients were coming for the first time.

5.5 Inclusion and Exclusion criteria

5.5.1 Inclusion Criteria

All pregnant women who attended antenatal clinic for the first time in the index pregnancy at Provincial General Hospital Kakamega, during the specified period were included in the study.

5.5.2 Exclusion Criteria

1. Those clients who were too sick or did not wish to participate in the study.
2. Those who started clinic elsewhere but are coming to Provincial General Hospital, Kakamega for the first time.
3. Those clients who had been on the treatment for malaria, anemia in their index pregnancy.

5.6 Ethical Considerations

Approval to carry out the study was sought from the Ethical and Research Committee (ERC) at Kenyatta National Hospital. Patients who were recruited into the study underwent counselling and examination.

This study did not interfere with antenatal clinic protocol. Names were not entered in the study but rather serial numbers for our research records. The research results were used for the intended purpose only, i.e. partial fulfilment of the masters of medicine degree in obstetrics and gynaecology of the University of Nairobi. However, it may be quoted or cited by any other interested parties anywhere in the world.

Informed consent was included in the study. This was obtained freely without compulsion. All clients found to have problems were given effective management and advice.

5.7 Constraints of the study

1. The tests were expensive therefore will be paid by principal investigator. Some tests like sick ling test, HB electrophoresis are too expensive so will not be included in the study.
2. There was a general failure to return for results by some of the clients. Although it was explained to them the importance of coming back for the results. One of the main reasons was financial status of the clients - some of them were too poor to afford to make another trip back before the next visit.
3. Shortage of blood in the blood bank and lack of parenteral iron in the hospital denied the clients proper management.
4. Shortage of staff was also a constraint, for instance, the laboratory technician had to work over-time and had to be paid for the time invested in and this was not budgeted.

5.8 Data collection

The clients underwent screening by qualified nurses to check those who were coming to the antenatal clinic for the first time and qualify for the study using inclusion criteria were selected. Clients gave informed consent and the research assistants ensured the following:

- A questionnaire was filled out (see appendix 1.)
- Physical examination was carried out to note such features as fever, pallor, jaundice and splenomegaly, oedema, symphysio-fundal height in cm. and basal crepitating.
- Two millilitres of blood was removed from ante-cubital vein and put in a sequestrated bottle and sent to the laboratory for haemoglobin concentration estimation, packed cell volume, red cell count, leucocytes count, haematocrit using Coulter Counter.
- A thick blood slide was made and examined under microscope for the presence of malaria parasites.
- Each client was given a plastic container to put a stool specimen. A slide preparation was made and examined microscopically for the presence of worms such as ascaris, hookworms, trichuris trichura S. mansoni and E. histolytica.

5.9 Data management

Data collected was edited before being entered into a computer for analysis using SPSS Package. Descriptive statistics was determined during the analysis. Intrauterine growth retardation was determined during the analysis using fundal height versus gestational period, and the difference of less then or equal to four weeks was deemed significant. Chi Square and Mann Whitney U-test was applied to identify factors related to prevalence of anaemia.

RESULTS

Altogether 280 pregnant women attending antenatal clinic for the first time at the Kakamega Provincial General Hospital (clients) were studied. This represents a 100% respondent rate of the study subjects approached for consent to enrol in the study. All the clients participating in the study agreed to give 2 millilitres of blood sample and stool for analysis.

Socio-demographic Characteristics of Clients

Age, Marital Status, Education Level and Occupation of Clients

The age of the clients ranged from 15-43 years with a median age of 23 years (Table 1). Clients with anaemia had median age of 24 years and clients without anaemia had a median age of 23 years. Age and Hb were not found to be significantly related. However, at extremes of reproductive age (<20yrs and >35yrs) versus ages 20 to 35 yrs there was a significantly increased prevalence of anaemia between ages 20-35 years (p=0.02).

Majority of clients were noted to be married that is 228 clients (81.4%) (table 1). At least 15 clients were found to have no formal education that comprised 5.4%, while 133 clients who comprised 47.5% had primary education, which formed the majority of all respondents. A significant number (98) of respondents were secondary school leavers who comprised 35% while 12.1% had attended college or university whose total was 34 clients. Close to half of the clients were housewives (48.9%), followed by business (17.5%), then farming (13.2%). The results are shown in Table 1 below.

Table 1: Socio-demographic characteristics of clients

Characteristics Age Interval	Non Anemic		Anemic		Total		Test
	No	**%**	**No**	**%**	**No**	**%**	
15-20	72	(34.6)	17	(23)	89	(31.8)	X^2=0.161
21 -25	53	(25.5)	29	(40.2)	82	(29.3)	
26-30	50	(24.0)	17	(23.6)	67	(23.9)	
31 -35	18	(8.7)	7	(9.7)	25	(8.9)	
36-40	14	(6.7)	2	(2.8)	16	(5.7)	
>41	1	(0.5)	0	(0.0)	1	(0.4)	
	208	**100**	**72**	**100**	**280**	**100**	
Marital Status							
	No.	**%**	**No.**	**%**	**No**	**%**	
Married	167	(80.3)	61	(81.4)	228	(81.4)	
Single/Others	41	(19.7)	11	(15.3)	52	(18.6)	X^2 =0.695
Total	**208**	**100**	**72**	**100**	**280**	**100**	
Education							
	No.	**%**	**No.**	**%**	**No**	**%**	
Primary	98	(47)	35	(48.6)	133	(47.5)	
Secondary	71	(34.1)	27	(37.5)	98	(35)	X^2 =0.685
College/University	26	(12.5)	8	(11.1)	34	(12.1)	
None	13	(6.3)	2	(2.8)	15	(5.4)	
Total	**208**	**100**	**72**	**100**	**280**	**100**	
Occupation							
	No.	**%**	**No.**	**%**	**No**	**%**	
Housewife	106	(51.5)	31	(43)	137	(49.3)	
Business	35	(17.0)	14	(19.4)	49	(17.6)	X^2 =0.314
Farmer	23	(11)	14	(19.4)	37	(13.3)	
Skilled/Professional	23	(11)	9	(12.5)	32	(11.5)	
Unskilled/semiskilled	13	(6.3)	4	(5.6)	17	(6.1)	
Student	6	(2.9)	0	(0.0)	6	(2.2)	
Unknown	2	(0.9)	0	(0.0)	2	(0.7)	
Total	**208**	**100**	**72**	**100**	**280**	**100**	

Past Obstetric History of Clients

Number of previous deliveries

Out of 280 clients who attended antenatal clinic, 98 (35%) respondents were primigravidas. Only 30 (9.9%) clients had 4 or more deliveries. Majority of anaemic clients were either primagravida and para 1 with 34.7% and 26% respectively. The

median number of deliveries was 1 with a mean of 1.4 (SD= 1.53). Statistically this was not significant. The results are presented in the Table 2.

Table 2: Number of previous deliveries by clients

•nber of deliveries per client	Non-anemic No.	%	Anemic No.	%	Total No.	%	Test
0	73	35.0	25	35.7	98	(35.0)	
1	60	28.8	19	26.4	79	(28.2)	
2	31	14.9	13	18.0	44	(15.7)	X^2=0.725
3	20	9.6	9	12.5	29	(10.4)	
4	15	7.2	3	4.2	18	(6.4)	
5	5	2.4	0	0	5	(1.8)	
6	2	0.9	1	1.4	4	(1.4)	
7	1	0.5	0	0	2	(0.7)	
8	1	0.5	2	2.8	1	(0.4)	
Total	**208**	**100**	**72**	**100**	**280**	**100**	

History of abortions

Of the 280 clients seen, 98 did not have to answer this question as they were primagravida, whilel63 clients (58.2%) had no history of abortions. Only 16 clients reported having one abortion (5.7%), while 4, 3 and 2 clients reported having 2, 3 and 5 abortions respectively.

Number of Living Children

Among the clients interviewed, 98 clients did not have to answer this question. Of the 186 clients who did respond the overall mean was 1.79 of living children (SD= 1.53). The mean for those clients with anaemia was 1.71 (SD= 1. 36) as compared to the mean of those without anaemia of 1.81 (SD= 1.27). The median number of living children for all groups was 1.

Table 3: Number of living children of clients

-acteristics	Non - Anaemic		Anaemic		Total		Test
	No.	%	No.	%	No.	%	
0	81	38.9	28	38.8	109	38.9	
1	62	29.8	24	33.3	86	30.7	X^2 =0.464
2	33	15.9	8	11.1	41	14.6	
3	14	6.7	8	11.1	22	7.9	
4	12	5.8	2	2.8	14	5.0	
5	5	2.4	1	1.4	6	2.1	
6	1	0.5	0	0	1	0.4	
7	0	0	1	1.4	1	0.4	
Total	**280**	**100**	**72**	**100**	**280**	**100**	

Previous history of nostnartum haemorrhage or antepartum haemorrhage

Out of 280 respondents, 15 clients (8.4%) reported previous history of postpartum or antepartum haemorrhage. Out of 15 clients 5 (10.4%) were anaemic from overall of 72 anaemic clients.

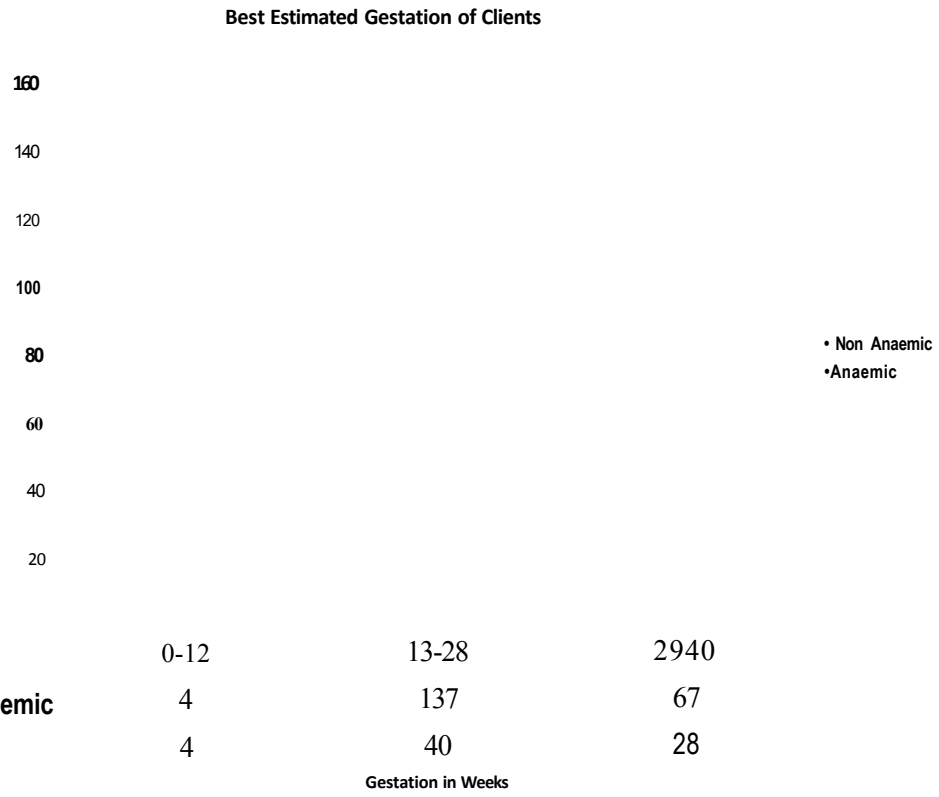
Present Pregnancy

Gestation of clients (weeks) at first presentation in the clinic

Gestation by dates

The study shows that the majority (177) of the clients were coming to attend antenatal clinic for the first time at the second trimester of the pregnancy that is 63.2%. The mean gestation by dates was 25.4 weeks (SD= 6.54) while the median was 26 weeks. The results presented in figure 1 bellow.

Figure 1: Gestation of Clients Based on LMP



This however closely followed the obstetric examination findings of symphysio-fundal height, as shown in the Table 4 below:-

Table 4: Symphysio-fundal height during examination correlated with LMP

Symphysio-fundal height in cm	*No.*	%	Estimated Gestation in weeks	*No.*	%
0-12	8	2.9	0-12	8	2.9
13-28	170	60.7	13-28	177	63.2
29-40	100	35.7	29-40	95	33.9
missing cases	2	0.7	missing cases	0	0.0
Total	280	100	Total	280	100

Previous admissions in current pregnancy and diagnosis

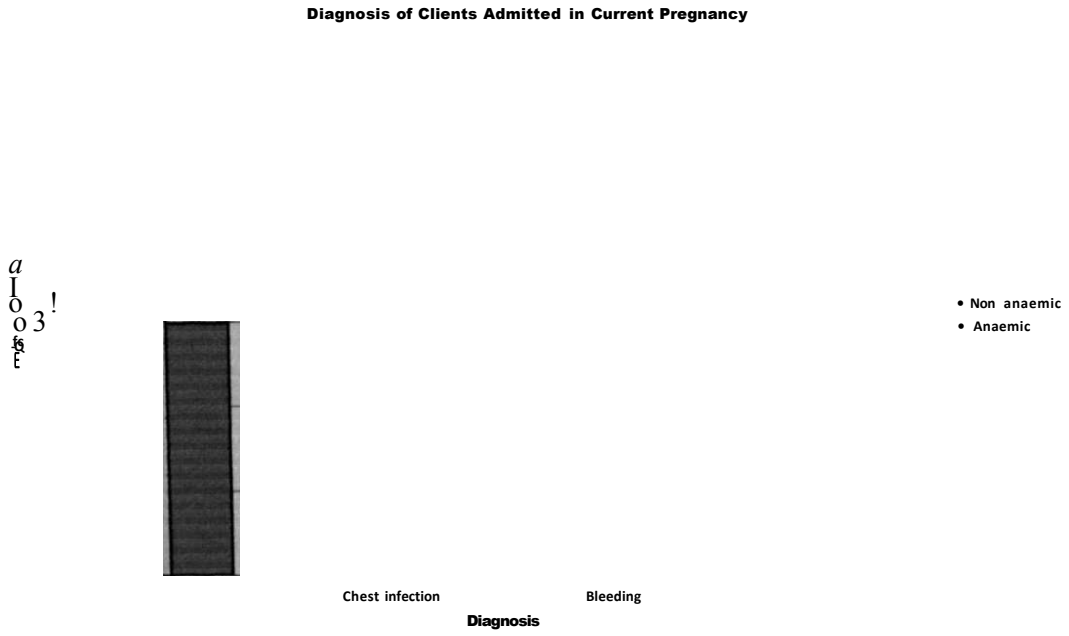
Out of the 280 respondents only 14 clients had a previous admission for this current pregnancy. Each of these clients had only been admitted once. The reasons for admission were malaria 8 clients, per vaginal bleeding were 4, chest infection 1 and

only 1 client was admitted for insertion of Mc stitch. Their diagnosis is shown in Figure 2below and table 5 bellow.

Table 5: Previous Admission in Current Pregnancy and Diagnosis

	Non - Anaemic		Anaemic	
	No.	%	No.	%
Insertion of Mac Donald Stitch	1	10	0	0
Chest Infection	1	10	0	0
Bleeding	3	30	1	25
Malaria	5	50	3	75
Total	10	100	4	100

Figure 2: Previous Admission in Current Pregnancy and Diagnosis



History of chronic illness and on treatment or not

History of chronic illness namely asthma, tuberculosis and hypertension was reported in 3 clients. The clients with tuberculosis and hypertension were currently on treatment for these illnesses.

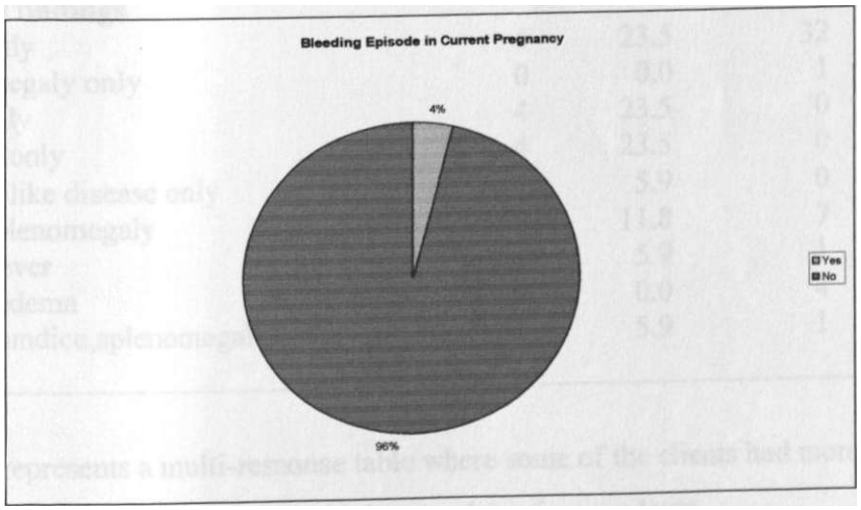
Table 6: Clients with Bleeding Episode in Current Pregnancy.

' Bleeding Episode	Non - Anaemic		Anaemic		Test
	No.	%	No.	%	
Yes	7	3.4	4	5.6	X^2 =0.304
No	201	96.6	68	94.6	
Total	**208**	**100**	**72**	**100**	

Bleeding episode in current pregnancy

Only 11 clients (3.9%) had a history of bleeding in this pregnancy. 5.6% were anaemic and 3.4% were non-anemic. Statistically not significant. Results are shown in Table 6 and Figure 3 below:

Figure 3: Clients with Bleeding Episode in Current Pregnancy.



Clinical Data

Presenting complaints and Physical Findings of Clients

Of all the clients, only 41 had presented complaints. Lethargy and fatigue were the major complain for anaemic clients 8 (26.7%) and non anaemic 6 (24,o%), palpitations account 11 (36,7%) for anaemic clients while non anemic were 2 (8.0%). Other complaints are shown in the table 7 bellow. Only 64 clients had any physical findings. Thirty-six of these clients had pallor 32 (69.6%) were anaemic and 4 (23.5%) non anaemic the results are shown in Table 7.

Table 7: Presenting complaints and physical findings of clients

Presenting complaints	*Non Anaemic*	*%*	*Anaemic*	
Lethargy/fatigue	6	24.0	8	26.7
Palpitations	2	8.0	11	36.7
Dysuria	2	8.0	5	16.7
Cough	5	20.0	1	3.3
Fiver	4	16.0	1	3.3
Vomiting	0	0.0	1	3.3
Headache	2	8.0	3	10.0
Diarrhoea	1	4.0	0	0.0
Lower abdominal pain	1	4.0	0	0.0
Per vaginal bleeding	1	4.0	0	0.0
Vaginal itch	1	4.0	0	0.0
Physical findings				
Pallor only	4	23.5	32	69.6
Splenomegaly only	0	0.0	1	2.2
Fever only	4	23.5	0	0.0
Oedema only	4	23.5	0	0.0
Candida like disease only	1	5.9	0	0.0
Pallor,splenomegaly	2	11.8	7	15.2
Pallor, fever	1	5.9	1	2.2
Pallor,oedema	0	0.0	4	8.7
Pallor j aundice,splenomegal ly	1	5.9	1	2.2

Table 7 represents a multi-response table where some of the clients had more than complaints and therefore, given a higher number of respondents.

Out of 280 clients 52 (18.6%) had pallor and 41 (56.9%) of this were anaemic. This is statistically significant X =0.00. The results are shown in Table 8.

Table 8: Physical findings recorded

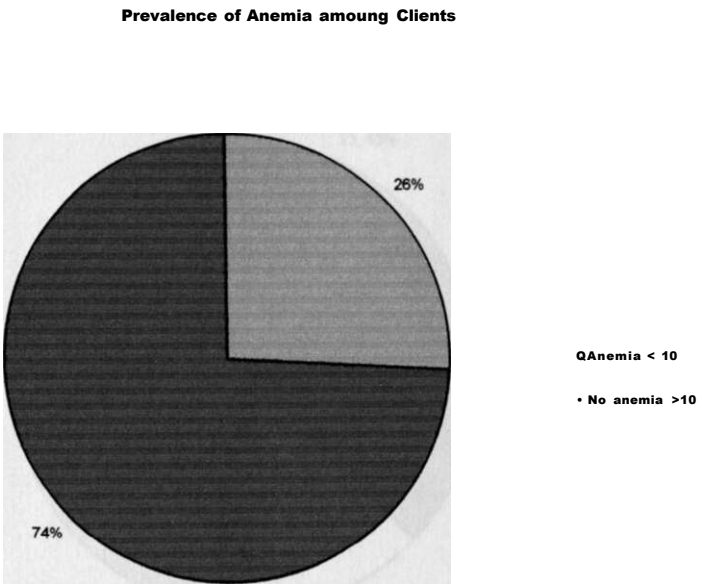
Physical findings recorded	Non-anemic		Anemic		Total		Test
	No.	%	No.	%	No.	%	
Clients with pallor	11	5.3	41	56.9	**52**	**18.6**	X^2= 0.00
Clients without pallor	197	94.7	31	43.1	**228**	**81.4**	
Total	**208**	**100**	**72**	**100**	**280**	**100**	

Haematological Findings

Haemoglobin levels (gm/dl)

Seventy-two clients (25.7%) were found to have a haemoglobin level of less than 10 g/dl and were considered anemic as per the cut-off in this study (1). Prevalence of anemia was shown to be 26% as shown in Figure 4.

Figure 4: Prevalence of Anemia among Clients



Haemoglobin levels of clients are shown in the figure 5 below. Only one client had severe anaemia (Hb <5.9g/dl). Twelve clients (16.7%) had moderate anaemia (Hb 6-7.9g/dl) while fifty-nine clients (81.9%) had mild anaemia (Hb 10-11.9g/dl).

Figure 5: Haemoglobin levels of clients

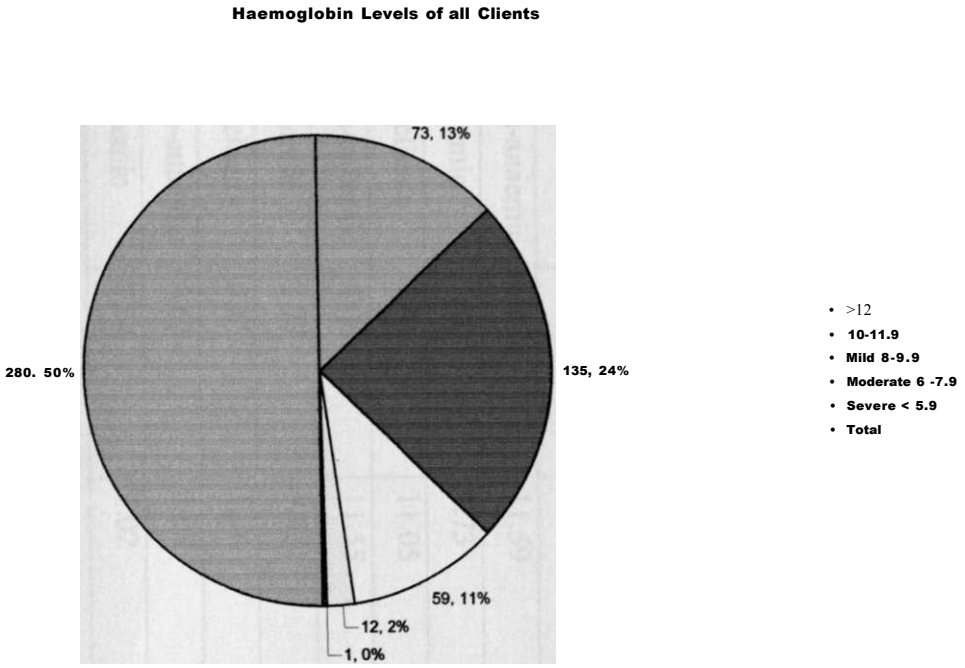


Figure 6: Haemoglobin levels of clients

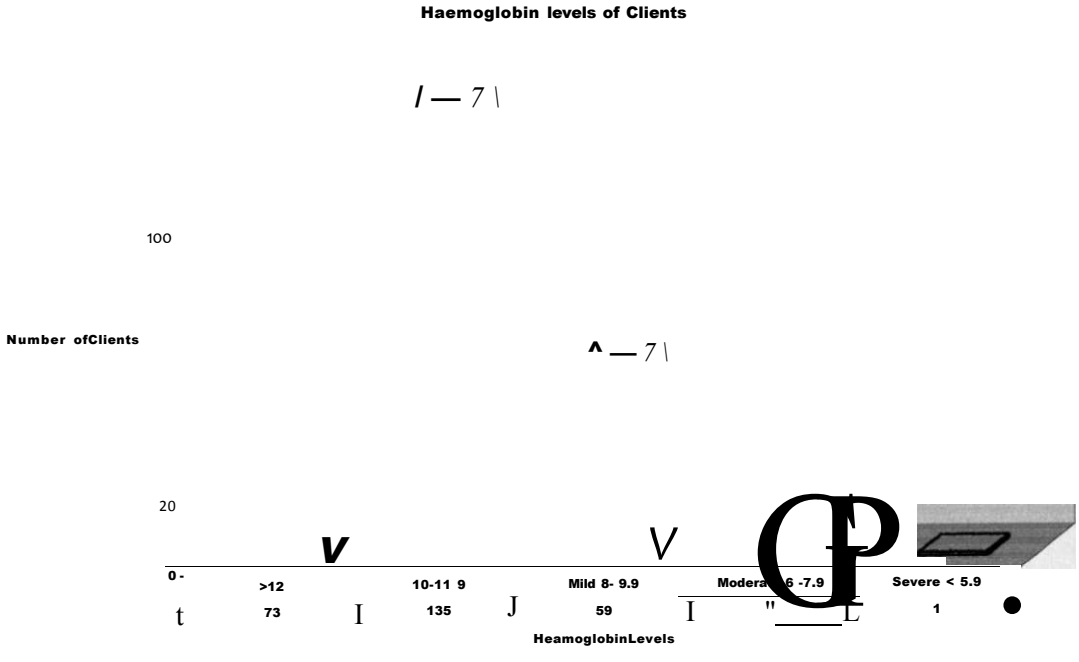


Table 9: Haematologieal Indices of all Clients

Value	Client group	RBC (10^6/ml)	Hb (g/dL)	PCV	MCV (fl)	MCH(pg)	MCHC (g/dl)	WBC (10^3/ml)
Mean	All clients	4.03	10.86	33.42	84.28	27.24	32.24	6.49
	Non-anaemic	4.15	11.59	35.09	86.22	28.43	32.89	6.50
	Anaemic	3.70	8.73	28.62	78.70	23.85	30.37	6.49
Median	All clients	4.04	11.05	33.70	84.60	28.00	32.80	6.40
	Non-anaemic	4.06	11.55	34.9	85.50	28.50	33.20	6.30
	Anaemic	3.77	9.05	28.90	75.75	23.70	30.80	6.65
SD	All clients	0.67	1.64	4.63	8.73	3.79	2.23	1.69
	Non-anaemic	0.65	1.08	3.62	6.38	2.68	1.935	1.71
	Anaemic	0.64	1.02	3.77	11.73	4.41	1.95	1.65

The difference in the values between anemic clients and non-anaemic clients is statistically significant for all the red cells indices P-0.00 for all values, while the difference in white cells counts between them is not statistically significant P=0.362

Table 10: Haematological Indices of all clients

k«matological Mice	Client group	Low	Normal	High
jjC (10^6/ml)	Non-anaemic	44(21.2%)	146 (70.2%)	18 (8.7%)
I	Anaemic	37 (51.3%)	34 (47.2%)	1(1.4%)
r	Non-anaemic	0	208(100%)	0
r	Anaemic	72 (100%)	0	0
L [	Non-anaemic	13(6.3%)	195 (93.8%)	
	Anaemic	62 (86.1%)	10(13.9%)	
|KV(fl)	Non-anaemic	4 (2.0%)	181 (90.5%)	15 (7.5%)
	Anaemic	31(46.3%)	32 (47.8%)	4 (6.0%)
PCH(pg)	Non-anaemic	5(2.4%)	14 (6.7%)	189 (90.9%)
	Anaemic	21 (29.2%)	27(37.5%)	24 (33.3%)
idCHC(g/dl)	Non-anaemic	9 (4.3%)	44(21.2%)	155 (74.5%)
	Anaemic	21 (29.2%)	39 (54.2%)	12 (16.7%)
^ BC (KVVml)	Non-anaemic	7 (3.4%)	196 (94.7%)	4(1.9%)
	Anaemic	4 (5.6%)	68 (94.4%)	0

Normal values: RBC (3.80-4.8 10^6/ml), MCV (75-95 fl), MCH (22-25 pg) MCHC (29-32g/dl), WBC (4.0-12.0 x10^3/ml), PCV (30-44%)

The study shows that 44 (21.2%) of non-anemic clients had low count of RBC (3.8-4.8x 10^6) while 18 (8.7) had high values. Of anemic clients 37 (51.3%) had low values of RBC and only 1 (1.4%) had high numbers of RBC. When Hb <10gm/dl and PCV <30% were compared only 62 (86.1%) of the clients had low PCV while 72 (100%) of client had low Hb.

Of those anemic 31 clients (46.3%) showed features of microcytic anaemia MCV (75-95 fl) while 4 (6.0%) had macrocytic type of anaemia. Results were shown in table 9 above.

Table 10: Haematological Indices of all clients

Haematological indice	Client group	Low	Normal	High
RBC (10^6/ml)	Non-anaemic	44(21.2%)	146 (70.2%)	18 (8.7%)
	Anaemic	37(51.3%)	34 (47.2%)	1(1.4%)
Hb	Non-anaemic	0	208(100%)	0
	Anaemic	72 (100%)	0	0
PCV	Non-anaemic	13(6.3%)	195 (93.8%)	
	Anaemic	62 (86.1%)	10 (13.9%)	
MCV (fl)	Non-anaemic	4 (2.0%)	181 (90.5%)	15(7.5%)
	Anaemic	31(46.3%)	32 (47.8%)	4 (6.0%)
MCH(pg)	Non-anaemic	5(2.4%)	14 (6.7%)	189 (90.9%)
	Anaemic	21 (29.2%)	27(37.5%)	24 (33.3%)
MCHC (g/dl)	Non-anaemic	9 (4.3%)	44(21.2%)	155(74.5%)
	Anaemic	21 (29.2%)	39 (54.2%)	12 (16.7%)
WBC (10^3/ml)	Non-anaemic	7 (3.4%)	196(94.7%)	4(1.9%)
	Anaemic	4 (5.6%)	68 (94.4%)	0

Normal values: RBC (3.80-4.8 10^6/ml), MCV (75-95 fl), MCH (22-25 pg) MCHC (29-32g/dl), WBC (4.0-12.0 x10^3/ml), PCV (30-44%)

The study shows that 44 (21.2%) of non-anemic clients had low count of RBC (3.8-4.8x 10^6) while 18 (8.7) had high values. Of anemic clients 37 (51.3%) had low values of RBC and only 1 (1.4%) had high numbers of RBC. When Hb <10gm/dl and PCV <30% were compared only 62 (86.1%) of the clients had low PCV while 72 (100%) of client had low Hb.

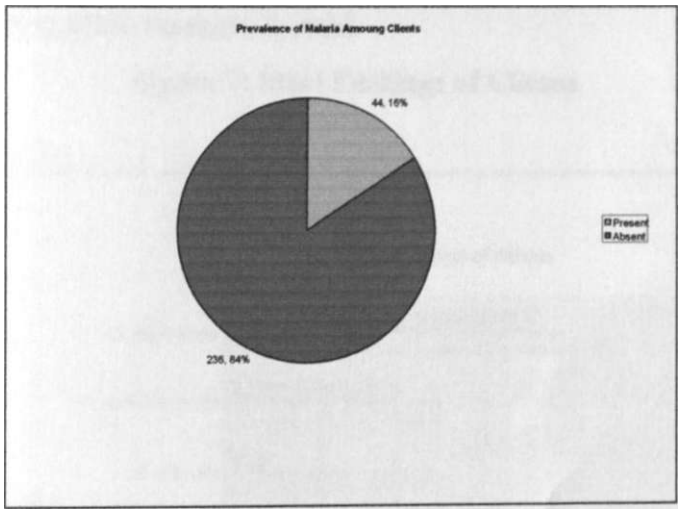
Of those anemic 31 clients (46.3%) showed features of microcytic anaemia MCV (75-95 fl) while 4 (6.0%) had macrocytic type of anaemia. Results were shown in table 9 above.

Other Laboratory Findings

Blood slide for Malaria Parasites

All clients had a blood slide done to test for malarial parasites, and of these only 44 slides (16%) were positive.

Figure 6: Prevalence of Malaria among Clients



Out of 280 clients, 14 clients who had malaria parasites were anaemic. 30 clients had malaria parasites were not found to be anaemic. These findings were not statistically significant. Results are shown in table 11 bellow.

Table 11: Prevalence of malaria among clients

	Non- Anaemic		Anaemic		Total		P - value
	No	%	No.	%	No.	%	
Absent	178	(85.6)	58	(80.6)	236	(84.3)	P-value = 0.313
Present	30	(14.4)	14	(19.4)	44	(15.7)	Chi - square = 1
Total	**208**	**100**	**72**	**100**	**280**	**100**	

Stool for ova and cysts

Stool samples were taken from all 280 clients. Forty-eight clients (18%) had positive stool findings as shown in Figure 7 below. This data statistically was not significant with relation to anemic clients (p= 0.811)

Out of 280 clients, 48 clients had parasites in the stools but only 13 (18.1%) were anaemic. The remaining clients were not. The results are shown in table 12 and figure 7 show distribution of the parasites in stool.

Figure 7: Stool Findings of Clients

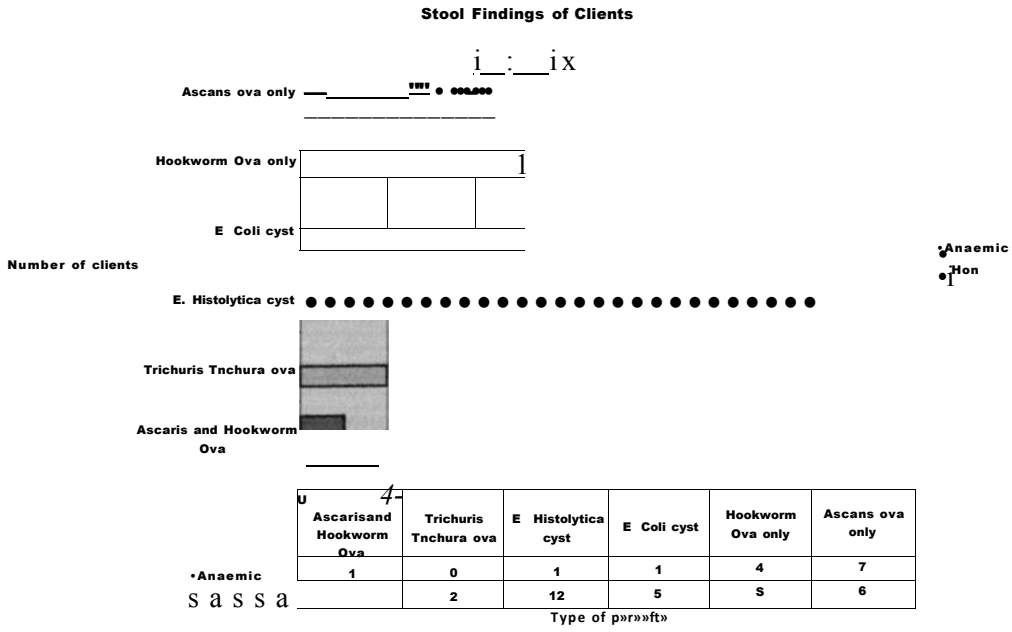


Table 12: Stool Findings of the clients

Parasites in Stool	Non - Anaemic		Anaemic		Test
	No.	%	No.	%	
Yes	35	16.8	13	18.1	X^2 = 0.8115
No	173	83.2	59	81.9	
Total	**208**	**100**	**72**	**100**	

Discussion

Anemia is one of the most widespread public health problems, especially in developing countries, and has important health and welfare, social, and economic consequences. These include impaired cognitive development, reduced physical work capacity, and in severe cases increased risk of mortality, particularly during the perinatal period. This study has shown that anemia is a continuing problem in this population as it had been seen in many parts of rural Kenya (51). Therefore, the prevalence of anemia among pregnant women in Kakamega stands at 25.7% similar to that found by Sawe (24.5%) in Kericho in 1992 (3).

Socio-economic factors were not a significant to the degree of anemia found in these two areas: Kericho is considered a region of relatively high economic status while Kakamega is at low level compared to it. This supports WHO recommendations that the aetiology and prevalence of anemia in any specific population must be accurately determined because of the high variability from region to region within the same country (1). Making direct comparison on the prevalence of anemia in different regions that study anemia in Kenya and Africa is difficult because different authors have not only used different cut off points of haemoglobin concentration for the diagnosis of anemia but also the denominator has been quite variable. By the WHO definition a pregnant woman is anemic if the haemoglobin concentration is less than llgm/dl at sea level, adjustment of 0.3gm/dl for every 1,000 meters rise in altitude (1). In this study the cut off was lOgm/dl because most works in the tropics have taken this as a standard as the cut off point.

The majority of the clients had a haemoglobin concentration ranging between 10 and llgm/dl. This is similar to those found by Sawe at Kericho (3) Sanghvi (43) in Nairobi and Llewillyn-Jones (45) in Malaysia. Sinei found a higher range of 12-13.9mg/dl in Machakos (5). Severe anemia (Hb < 6 gm/dl) was found in 2.1% of all clients compared to 2.8 % by Kibunguchy in Mombasa (44), 18.1% by Fomulu in Nairobi (46) and 0.1% by Sinei in Machakos (5). Fortunately, in our study most (40%) of the anemic clients had mild anemia (Hb 8-9.9gm/dl).

Red cells indices were used in this study to characterize the type of anaemia and hence indicate the probable aetiology. The results show 46.3% of the anemic clients had iron deficiency as shown in Table 9. This is similar to the results by Sawe (53.6%) and Massawe (56%) in the studies done in Dar es Salaam (3, 47). Sempewo in Machakos found 70% of pregnant women to be iron deficient (48). In Awassa Ethiopia, Brabin et al found that the prevalence of iron deficiency anemia was 18.4% (27). Nutritional deficiency is the commonest cause of iron deficiency and in the tropics infestation by worms play another significant role. In this study, E.histolytica (27%) and hookworms (18.7%) were isolated, which are responsible for iron deficiency anaemia. Dietary studies have showed generally that there is usually a predominance of foods with low bioavailability of iron. (12, 13, 14,).

Folic acid deficiency is the main cause of megaloblastic anemia and very rarely vitamin B12 deficiency (12). Folic acid deficiency is thought to be mainly nutritional (12). Red cells haemolysis may occur in malaria and sickle cell diseases causing folic acid deficiency. Mati found the commonest type of anemia in Nairobi to be megaloblastic and attributed this to malaria infestation in pregnancy (41).

The majority of clients seen (31.8%) were aged between 15 and 20 years as in the Sawe study (3). Thus, pregnancy tends to occur early in the lives of most women. These results are similar to those obtained by other works (3, 5, 8, 44, 47). Anemia was more prevalent among the younger women compared to the older women which was similar to that obtained by others (41, 44, 47). However, Sinei in Machakos found that it was more common among the older women (5). Probably young age has other confounding variables that predispose them to anemia e.g. being single, low level of education and low socio-economic status although these were insignificant in the present. However, in our study only age was statistically significant, P-value being 0.02.

Those who were either primigravida or secondgravida account for the majority of the clients seen (63.4%). Sawe found that the majority were either para 1 or para 2 similar to the results obtained by Sinei (5) and Kibunguchy (5, 26). The prevalence of anemia tends to increase with increasing parity for those who were para 4 and less but above para 5 the prevalence of anemia dropped significantly. It is not clear why this was so.

Sinei (5) found a higher prevalence of anemia among those with high parity but Mati, Kibunguchy found the opposite (41, 44).

The majority of the clients seen were married. Out of 208 of non-anaemic clients, 167 (80.2%) were married, while out of 72 anaemic clients 61 (84.7%) were married Table 1. These results were similar to those found by Sawe, Kibunguchy, Massawe (3,43, 47). However, in this study the prevalence of anemia was not related to marital status although other studies found that it did (3, 43, 47).

Majority of anaemic clients in this study had primary education (50%), and only 2.8% had no formal education. Sawe found that 60% of anaemic clients had received no education and similar results obtained by Sanghvi in Nairobi (56%) and 12.3% respectively) showed the same (3, 43). It would appear that those with primary education, majority had a higher prevalence of anaemia in our study. This is in comparison with those with secondary and higher education levels. This would suggest that higher level of education has a positive impact on the severity of anemia but in this study, it was not statistically significant.

In this study, it was seen that most pregnant women attended ANC during their second and third trimester (62.8% and 34.3% respectively) while very few indeed attend during their first trimester (2.9%). Massawe in Tanzania and Marielle K Bouyou-Akotet in Gabon reported similar findings on antenatal clients reported for the first time (47, 52). The national demographic and health survey in Kenya 2003 found an ANC attendance (at least one ANC during one pregnancy) of 88% (53). Although health workers from rural health centers in Kenya are advised to undertake regularly outreach work in the villages of their respective catchments areas, in practice such visits are rare due to a number of reasons such as accessibility, availability and affordability (49). Probably the delayed attendance at ANC were caused by some factors observed during this study among others are lack of money as most of them were simple housewives who had low education. Kakamega is a relatively a poor area where the means of survival is small-scale farming activities whose returns are very little. Another factor, which might have discouraged women to attend ANC during their first trimester, is the mode of transport of bicycle or 'bodaboda'. Women would prefer to avoid making many trips to the ANCs.

The study showed that the majority of the anemic clients presented with complaints such as lethargy and fatigue (34.1%), palpitation 31.7% as shown in table 7. All clients were assessed for physical findings of anaemia whereas pallor (18.6%) was significant finding with P-value of 0.00 as shown in Table 8. The results show that 21.2% had pallor while they were actually not anaemic. Our results for clinical evaluation of pallor were comparable with findings of other studies from developing and Western countries conducted in mixed groups of children and female adult (27).

Pallor of the skin and mucous membranes may not become noticeable until the Hb is below 7g/dl (WHO 1999). This explains the generally recognized low sensitivity of clinical pallor examination for all anemia (Hb <11 gm/dl) and increase of sensitivity as Hb level decreases. However, our findings contradict the study of Dusch et al on the low sensitivity of clinical pallor examination (50). The advantages of clinical screening are the low cost and generally good acceptability because of its non-invasiveness. In addition, our findings confirm the subjectivity of perception of pallor. This explains that why 21.2% of the clients were identified as pale but were not anemic as discussed earlier.

The prevalence of malaria infestation among anemic women was 19.4% table 11. This result was similar to Sawe who obtained 18.8% in contrast to Massawe 33.5%; Sinei 31.6%; Mati 30%; except Kibunguchy who obtained 60% (47, 5, 41, 3, 44). Malaria infection causes anemia due to haemolysis of parasited and sensitized red blood cells. However, in this study the relationship between malaria and anemia was insignificant. Malaria has been shown to contribute significantly to anaemia in pregnant women in studies from Kenya and Malawi (2, 20, 22) and in endemic areas, it affects particularly the primigravidae. In Kakamega, malaria is endemic but accentuated during the rainy season with occasional epidemics. Our study was conducted during January to February, before the start of the main rainy season. Probably this explains the low prevalence of malaria; however, we were not able to conduct other sensitive tests for malaria such as placental histopathology.

Worm infestation is not significantly related to anaemia, however, worm infestation was 18.1% among anemic clients. Massawe found worm infestation and severe

anemia to be significant (47). Among the parasites seen, ascaris was 15.5%. Chwaya and Rebecca found 41 % of Nepalese pregnant women who were infested by worm were anaemic (17, 29). Usually hookworms contribute to anaemia in various groups of the population including women and children. In the study done by Chwaya and Rebecca, in pregnant anaemic women, the presence of hookworm was associated with severe anaemia. Contribution of hookworm to anaemia is dependent on hookworm load. However, in the context of a poor diet and low body iron stores, even light to moderate hookworm infestation is sufficient to cause anaemia. In hookworm endemic areas, women of reproductive age are susceptible to anaemia because their iron stores are inadequate (17, 29).

Conclusion

Anemia in pregnancy is a major obstetric problem at the Kakamega Provincial General Hospital contributing significantly to ill health in pregnancy. Pregnancies that occur early in life and too frequently are associated with a high prevalence of anemia.

The status of women in the society such as marital status and the level of education did not influence the prevalence of anemia. Diseases such as malaria (19.4%) and worm infestation (18.1%) were not significantly related to anemia as well.

The antenatal care that was being offered though helpful in reducing the prevalence of severe form of anemia, it was unable to prevent the development of mild form of anemia that occurred with advancing gestation as the majority of clients attended antenatal clinic during their late second and third trimester. Iron (46.3%) and folic acid (6.0%) are still the commonest micro-nutrient deficiency responsible for the anemia seen.

RECOMMENDATIONS

All pregnant women should be offered adequate antenatal care and a haemogram must be performed. Those found to be anemic should be treated early to prevent later complications. Routine haematinic supplements are recommended for this particular community throughout pregnancy. It is imperative that the hospital make sure that the drugs are available all the time.

There is a need to sensitize pregnant women to attend antenatal clinic during their first trimester to facilitate vital clinical evaluation, laboratory investigations and eventually carry out treatment effectively.

Malaria and worm infestation must be routinely screened in all pregnant women and treated them accordingly. Routine prophylaxis of with effective drugs should be continued.

The general public and the medical personnel need to be sensitized about the magnitude and severity of anemia in pregnancy through the available and appropriate forums of communication.

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GYNAECOLOGY - SHORT CASES

GYNECOLOGY CASE 1

SYMTOMATIC UTERINE FIBROIDS -TOTAL ABDOMINAL

HYSTERECTOMY

NAME:	M. N.	PARITY	4+0
		D.O.A	11.04.05
AGE :	38 YEARS	D.O.D	16.04.05
IP/NO.:	1022013	WARD	**IB**

PRESENTING COMPLAINT:

The patient presented with a 1 -year history of progressive swelling of the abdomen and 6 months history of heavy prolonged menses.

HISTORY OF PRESENTING ILLNESS:

M.N was admitted through GOPC where she had presented with the above complaints. She was well prior to the onset of the abdominal swelling. The swelling was progressive, and was associated with lower abdominal pain that worsened during menstruation. She also had heavy, prolonged menses lasting 5-8 days. She did not have changes in bowel habits and no urinary system complaints.

OBSTETRIC AND GYNAECOLOGICAL HISTORY:

She was para 4+ 0. All her deliveries were by spontaneous vertex delivery, last delivery was in 1997, and all are alive and well. She attained menarche at 15 years, cycles were 28 days and menses lasted 3 days. She did not experience dysmenorrhea. Her LMP was 19/03/2005. She had used depo provera injection between 1995 and 1996. Since then she has been using safe day method and barriers.

PAST MEDICAL AND SURGICAL HISTORY:

This was not significant.

FAMILY AND SOCIAL HISTORY:

She was married and a businesswoman. She did not take alcohol or smoked cigarettes. There was no family history of any chronic illness.

PHYSICAL EXAMINATION:

She was in good general condition. She had no pallor, or jaundice and was not febrile. She had neither hymphadenopathy nor oedema. Her blood pressure was 110/65 mmHg, Pulse was 84 per minute, respiratory rate was 18 /minute and temperature was 36.3°C.

ABDOMINAL EXAMINATION:

The abdomen was distended in the lower aspect and moved with respiration.

On palpation there was a tender suprapubic mass corresponding to 22 weeks. It was firm, irregular, but mobile with rough surface and no raised local temperature. The skin over the mass was mobile and no distended vessels. The liver and spleen were not enlarged.

PELVIC EXAMINATION:

She had normal external genitalia. The vagina walls were normal. The cervix was 2cm long, firm and the os was closed. The uterus was moving with the cervix and corresponded to 22 weeks. There were no masses in the adnexae and the cul-de-sac was empty. There was a clean discharge

DIAGNOSIS:

A diagnosis of symptomatic uterine fibroids was made.

MANAGEMENT:

The patient was informed on the diagnosis and counseled on TAH and she gave an in informed consent for the operation.

INVESTIGATION DONE:

Haemogram:

WBC	:	4.3 X 10^9/L
RBC	:	5.1 XIO^{12}/L
HB:		12.9 g%
HCT	:	37.5 %
MCV	:	68 fl.
Plates	:	145 x 10^9/L

Urea and electrolytes.

Na^+	142 mmol/L
K^+	4.0 mml/L
Urea	4.8 umoL/L

Blood group - 0 positive.

Pelvic ultrasound - multiple uterine fibroids.

Pap smear: superficial intermediate and parabasal squmous cell seen. No endocervical cells seen. There was no evidence of malignant cells (PAP CLASS I).

Pre operative management

The patient was starved from midnight on the evening prior to the operation. A soap enema was given in the morning and the abdomen plus pubic hair was shaved. Pre-medication was given Atropine Sulphate 0.6mg and Pethidine 50mg intramuscularly half an hour before theatre.

TOTAL ABDOMINAL HYSTERECTOMY:

In theatre, general anaesthesia was given, patient was put in semilithotomy position. Vulvo- vaginal toilet was done, she was catheterized, and pelvic examination was done. Earlier findings were confirmed. The vagina was painted with methylene blue.

The patient was then put in supine position and the abdomen was scrubbed using chlorhexidine and iodine. She was then draped with sterile towels. The abdomen was opened through a sub umbilical midline incision in layers. The uterus was found to have multiple fibroids and a size of 20 weeks. The ovaries, Fallopian tubes, gut, kidneys and liver were grossly normal. The gut was packed a way from the operating field. Hysterectomy was then done as described in the introductory pages. Haemostasis was achieved and abdomen was closed in layers, after correct instrument and swab count. She lost lOOOmls of blood and was transfused one unit of blood.

POST OPERATIVE MANAGEMENT:

The patient was reversed from anesthesia and taken to recovery room in good condition. Vital signs were observed half hourly until the patient fully recovered form anaesthesia and then 4 hourly thereafter.

Antibiotics were given Crystalline Penicillin 2 mega units six hourly and Gentamycin 80mg eight hourly for the first two days then oral Amoxicillin 500mg eight hourly for five days. The patient was maintained on intravenous fluids about 2.5 per day until for the first 24 hours. Pain was taken care with Pethidine 1 OOmg every 6 hours for during the first 48 hours then she was given oral diclofenac lOOmg three times a day after meal. Oral feeds were re-started after ascertaining the bowel sounds on the second day. Haemoglobin level was checked on the third postoperative day was 9.5g/dl.

The wound was inspected on the fourth postoperative day and was healing well the patient was discharged home on the fourth day on analgesics ,haematinics and oral antibiotics to be seen in six weeks time in GOPC.

HISTOLOGY REPORT

Gross: Uterus with both ovaries and fallopian tubes present. The uterus had several nodular fibroids with the largest measuring 1 Ocm. Microscopy: Sections shows simple leiomyomata with cystic and hyaline degeneration. Ovaries were normal. Endometria tissue showed cystic glands with loose stromal tissue.

FOLLOW U P

She came to the clinic as per the appointment at 6 weeks after discharge. She had no complaints. The wound was well healed

And she was explained on benign nature of the histology results. She was given another appointment for 3 months.

DISCUSSION

M.N was a 38 year old, para 4+ 0 lady who presented with symptomatic uterine fibroids for which a total abdominal hysterectomy was done.

Fibroids are by far the most common benign tumors of the uterus. They are composed of smooth muscle cell and a variable amount of connective tissue. Various terms are used to refer to the tumor such as fibromyoma, myofibroma, leiomyofibroma, fibroleiomyoma, myoma, and fibroma. The term leiomyoma is a reasonably accurate one that emphasizes the origin of this tumour from smooth muscle cells and the predominance of the smooth muscle components (1,2, 3).

Leiomyomas are present in 20-25% of reproductive age women, but for unknown reason, leiomyoma are 3-9 times more frequent in black than white women. Indeed by the fifth decade as many as 50% of black women will have leiomyomata (3). In a study done at Kenyatta National Hospital, uterine fibroids accounted for 66.8% of the hysterectomies done and two thirds of patients with uterine fibroids were aged 26-40 years (8). With newer imaging techniques, the true clinical prevalence may be higher. Carefull pathological examination of surgical specimens suggests that the prevalence is as high as 77% (6).The patient presented was 38 years old and black.

The aetiology of leiomyoma is unknown. Leiomyomas are not detectable before puberty and being hormonally responsive, normally grow only during the reproductive years. Estrogens are thought to play a role in their growth as increased estrogen receptors have been found in myomas compared to the surrounding tissue. Human placental lactogen and human growth hormone has also been implicated. Leiomyomas have been found to decrease or even disappear during menopause (3, 9). The patient presented was in her reproductive years.

Uterine leiomyomas originate in the myometrium and are classified by anatomic location. Submucous leiomyomas lie just beneath the endometrium and tend to compress it as they grow toward the uterine lumen. Their impact on the endometrium and its blood supply most often leads to irregular uterine bleeding. Leiomyomata may also develop pedicles and protrude fully into the uterine cavity. Occasionally they

may even pass through the cervical canal while still attached to the uterine corpus by a long stalk. When this occurs, leiomyomas are subject to torsion or infection. Intramural or interstitial leiomyomas lie within the uterine wall, giving it a variable consistency. Subserous or subperitoneal leiomyomata may lie just at the serosal surface of the uterus or may bulge outward from the myometrium. The subserous leiomyomata may also become pedunculated. If such a tumour acquires an extrauterine blood supply from the omental vessels, it pedicle my atrophy and resorb; the tumour is then said to be parasitic. Sub serous tumors arising laterally may extend between the two peritoneal layers of the broad ligament to become interligamentary leiomyomas (3, 5). Most of the fibroids are located in the body of the uterus and only 2% are cervical (9). The patient presented here had multiple intramural fibroids.

The typical uterine leiomyoma is a firm, multinodular structure of variable size. The cut surface appears as a glistering pinkish white and grey. Subserous leiomyoma contain more fibrous tissue than the submucous ones, while the submucous ones contain more smooth muscle tissue than the subserous ones. Sarcomatous change is more common in submucus tumours (1).

Multiple secondary changes may occur as the leiomyoma grows. These include Atrophy that is tumour regresses after menopause or after pregnancy, hyaline degeneration mean that mature or [4]old' tumours are white but contain yellow, soft and often gelatinous areas of hyaline change. Cystic liquefaction this follows extreme hyalinization. They can become septic due to circulatory inadequacies which may cause necrosis of the central portion followed by infection. Calcification (calcerous) may occurs more in sub serous leiomyomata due to circulatory deprivation followed by precipitation of calcium carbonate and phosphates. Carneous (red) degeneration- occurs as a result of venous thrombosis and congestion and is commonest in pregnancy. Myomatous (fatty) degeneration this ussualy follows hyaline and cystic degeneration and malignant transformaion (leiomyosreoma) may develops with a frequency of 0.1-0.5% that of diagnosed leiomyomata (3, 5, 6).

Symptoms of leiomyoma are present in only 35-50% of patients. Most leiomyoma do not produce symptoms and even large ones may remain undetected, particularly by the obese patient and depend on their location, size, and state of preservation and

whether or not the patient is pregnant. Abnormal uterine bleeding is by far and away the most common and most important clinical manifestation of leiomyomas, being present in up to 30% of patients (1,2,3,5,6,10).

The bleeding pattern most characteristic of myomas is menorrhagia or hypermenorrhoea, prolonged or excessively heavy menstruation. Bleeding at other times in the cycle is not characteristic of myomas, and it should be investigated to rule out endometrial disease. The heavy bleeding can cause anaemia. Location seems to be more important than size in determining the bleeding symptoms. Submucous myomas, those in or partially intruding into the endometrial cavity, are most likely to cause menorrhagia (5,6).

The patient presented had excessive and prolonged menses for 6 months.

Pelvic pressure arises when the uterine size is increased. The size of myomatous uterus is described in menstrual weeks, as is a pregnant uterus. Unlike the pregnant uterus, a myomatous uterus is irregularly shaped and the specific symptoms can arise from myomas in a particular location (6).

Patient presented fibroid corresponded to 20 weeks pregnancy.

There is acute pain in the rare cases when degeneration occurs or when there is torsion of a pedunculated fibroid. When acute pain is the sole indication for treatment, other disease processes particularly endometriosis should be carefully excluded (6).

The patient presented had pain and mass was tender.

Reproductive dysfunction is not inevitable with the myomatous uterus, but the risk of placental abruption is substantially increased if a myoma is under the placental site (7). Other pregnancy complications including pain and premature labour are directly related to the size of the myoma (7). If the endometrial cavity is distorted by submucous myomas, the risk of infertility is increased (8). The role of intramural myomas in causing infertility is controversial: older studies suggest that they are a rare source of infertility, but more recent studies in women undergoing in-vitro fertilization suggest they play a part more commonly. However, couples should complete a full infertility assessment before the role of myomas is addressed (8).

This patient had 4 children myomas did not interfered her fertility.

Conditions that should be differentiated from uterine fibroids are: pregnancy, ovarian masses, endometriosis, uterine adenomyosis, myometrial hypertrophy, uterine sub involution, congenital abnormalities, adherent adnexa to omentum or bowel, adenocarcinoma of the uterine tube, and uterine sarcomas. Medical conditions that cause bleeding should also be excluded (2,3,10).

Diagnosis of leiomyomas is mainly clinical. History of mass or menstrual abnormities and uterine mass (es) can be palpated abdominally and by bimanual palpation. A pelvic ultrasound generally assists in establishing the diagnosis, as well as excluding pregnancy as a cause of the uterine enlargement. Anaemia is common due to excessive uterine bleeding. Occasionally erythrocytosis may be encountered. This is due production of erythropoitin by the tumour or due to compression of the ureters thus inducing kidney erythropoietin production. Leukocytosis, fever and an elevated sedimentation rate may be present with acute degeneration or infection (2,3,7,10).
The patient presented had history of progressive abdominal swelling, heavy and prolonged menses and there was a pelvic mass on bimanual palpation. Abdominal pelvic ultrasound confirmed the findings.

The choice of treatment depends on the patient's age, parity, pregnancy state, desire for future fertility, general health and symptoms, size, location and state of preservation of leiomyoma. Myomas do not require treatment, if they are symptom less or if the patient is postmenopausal. Surgery is indicated for acute torsion, intestinal obstruction caused by pedunculated or parasitic myoma, and when the tumour is large and causing symptoms (2, 3).
This patient was done surgical management because of the large size of tumour. She also had no desire for more children.

Myomectomy is done for infertility. Small myomas with uterine size below 14 weeks can be removed by vaginal hysterectomy or laparascopically assisted total vaginal hysterectomy. Larger tumours are removed by total abdominal hysterectomy as our patient presented here (2,3).

Ovaries are preserved in young women, but removed in women after the age of 45-50 years. This patient had done TAH.

Medical therapies are available as adjuncts to surgical treatment. Effective medical treatment likely to result in the permanent cure for leiomyomata is not available (1). Anti progestin, therapy with mifeprostone (RU 486) for 3 months has been shown decrease leiomyomata volume by 49% (11). A Gestrinome (a synthetic dericative of ethynyl-nor-testosterone) property induces repression of leiomyomata. GnRH analogues bind to GnRH receptors and result in biphasic response. A temporary increase in the level of gonadotropins and gonadol steroids (agonist phase), this is then followed by chronic suppression of gonadotrophins and gonadol steroids (1). GnRH analogues treatment remits in 'medical oophorectomy' and 'medical menopause' and is associated with symptoms of profound hypogonadal state (hot flashes, insomnia, mood lability, headaches, and vaginal dryness). The side effects and effect on fibroid symptomatology lasts as long as the treatment is continued. GnRH agonists, progestational agents, danazol may be used to induce amenorrhoea in patients with symptomatic leiomyomata and iron deficiency anaemia unresponsive to oral iron therapy (1). Transcatheter uterine artery embolization has been shown to cause regression of uterine fibroids (12).
This was not used in the patient presented.

Complications of abdominal hysterectomy include injuries to the urinary tract and gut, haemorrhage, postoperative wound infection, dehiscence, pelvic abscess, and vaginal vault prolapse (1).

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GYNECOLOGY CASE 2

RUPTURED ECTOPIC PREGNANCY RIGHT PARTIAL SALPINGECTOMY:

NAME	S.W.	D.O.A	13/04/05
IPNO.	1018460	D.OD	17/04/05
AGE	32 YEARS	LMP	24/02/05
PARITY	2+0		
AMENORRHOEA	: 11/40		

PRESENTING COMPLAINTS:

She was admitted with 3-day history of lower abdominal pains.

HISTORY OF PRESENTING COMPLAINT:

She had been well till three days prior to admission when she developed dull lower abdominal pains, which progressively increased in intensity. There was no per vaginal bleeding or discharge and no dysuria.

OBSTETRIC AND GYNAECOLOGICAL HISTORY:

She was para 2+0. Her first pregnancy was in 1989 by spontaneous vertex delivery to a live male infant.

Her second delivery was in 1996 also by spontaneous vertex delivery and the child was live and well. Her menarche was at 13 years. Her menses were regular coming every 30 days and lasting 3 to 4 days. Her last menstrual period was on 24th February 2005 and had amenorrhea of 11 weeks. She had been having an intrauterine contraceptive device in situ since 1996.

PAST MEDICAL AND SURGICAL HISTORY:

The patient had never been admitted before. There was no history of sexual transmitted diseases.

FAMILY AND SOCIAL HISTORY

She was married and a housewife. Her husband was a businessman. They lived in Buruburu.

She did not smoke or take alcohol. Her husband was a moderate smoke.

There was no family history of chronic illness.

PHYSICAL EXAMINATION

On examination, she was sick looking, anxious. She was moderately pale, had no lynphadenopathy, jaundice, cyanosis or oedema. Respiratory rate was 20/min, BP wasl00/60mmHg, pulse was 98/min, and Temperature was 36.4°C.

The respiratory cardiovascular and central nervous systems were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was not distended and moved with respiration. There was marked tenderness over the lower abdomen with guarding and rebound tenderness. There were no masses palpable. Paracentesis was positive for non-clotting blood.

VAGINAL EXAMINATION

She had normal external genitalia. The cervix was 2cm long and soft at posterior, cervical os was closed and the IUCD strings were felt. Uterus was bulky and mobile The pouch of Douglas was full and the adnexae were tender bilaterally.

Cervical motion tenderness was positive bilaterally. There was a whitish discharge on examining finger.

DIAGNOSIS

A diagnosis of ruptured ectopic pregnancy was made.

INVESTIGATIONS

A repeat PDT was positive.

MANAGEMENT

The patient was informed of the diagnosis and the need for emergency laparatomy.. Informed consent was obtained and blood sample was taken for grouping and cross

matching. Premedication of IM atropine 0.6mg and pethidine 50 mg were given 30 min before theatre.

LAPARATOMY

In theatre, the patient was given with general anaesthesia. She was positioned in semi-lithotomy position and vulvovaginal toilet was done. She was catheterized and 60mls of clear urine was obtained. She was then repositioned in supine position then abdomen was cleaned and draped. The abdomen was opened in layers through a pfanniestiel incision.

Found: There was massive haemoperitoneum of about 21itres mixed with large clots and POCs. There was an ruptured right ampullary ectopic pregnancy. The left tube, both ovaries and uterus were look grossly normal. No adhesions noted.

Done: Right partial salpingectomy. Blood drained from peritoneal cavity and peritoneal toilet was done with warm saline and then closed in 3 layers and the skin closed with subcuticular vicryl number 3/0. She was reversed successfully from anaesthesia and then taken to the recovery room.

POST-OPERATIVE MANAGEMENT

The vital sign was monitored half hourly until fully awake and stable then 4 hourly for the first 24 hours. She was taken to the ward when she was fully awake and stable. She was maintained on intravenous infusion of Normal saline alternating with 5% dextrose 2.51itre in the first 24 hours. She also received crystalline penicillin and gentamycine in a dose of 2mu 6 hourly and 80mg 8 hourly respectively for 24 hours. Analgesia she was given in the form of intramuscular pethidine 1 OOmg 6 hourly for the first 24 hours.

On the first post-operative she was in fair general condition but mildly pale. The bowels sounds were heard on which basis she was started on oral sips and in the afternoon she was put on light diet and parenteral drugs were substituted with oral amoxycillin and ibuprofen. The wound was exposed on the third day and was found to be dry, after which she was discharged home on amoxicillin, ibuprofen and haematenics and was advised to come back for review in GOPC after 2 weeks.

FOLLOW UP

She was seen after 2 weeks. The wound was healing well and she had no complaints. She was counseled and sent to the family welfare clinic for further counseling, provision of family planning method and follow up.

DISCUSSION

The patient presented admitted to KNH with a diagnosis of ruptured ectopic pregnancy. She had conceived despite having an intrauterine contraceptive device in situ. Emergency laparatomy was done and right ampullary ectopic pregnancy found for which partial salpingectomy was done with good recovery.

Ectopic pregnancy refers to the implantation of a fertilized ovum on any other tissue other than the endometrium of the uterus. More than 95% of ectopic pregnancies occur in the fallopian tube and the majority of these are in the ampullary region on 55%. Other sites of ectopic pregnancy include the cervix, ovary, broad ligament or peritoneum (1,2, 3). In this patient, the ectopic was in the ampullar,

Ectopic pregnancy was probably first described in 963 A.D. by Albucasis, an Arab writer. In 1693, Busiere described and demonstrated an ectopic pregnancy after examining the body of an executed prisoner in Paris, France. In 1876, before the initiation of surgical therapy, the mortality from ectopic pregnancy was estimated to be 60%. The first successful operative treatment of ectopic pregnancy was performed in 1883 by Lawson Tait in England (3 4).

The time incidence of ectopic gestation is difficult to determine accurately. This is largely the result of studying population groups with different underlying factors. The incidence has been found to be higher in developing countries and has been found to be rising in the developed countries. This has been attributed to the rising incidence of STDS and to the efficacy of modem antibiotic treatment for pelvic inflammatory disease. It is roughly thought to occur once in every 200 pregnancy (3, 4).

In the United States, a rate of 16 ectopic pregnancies per 1000 pregnancy was reported in 1989, which was a five fold increase over the 1970 rates (3, 5, 6). In Jamaica one ectopic was reported in 28 deliveries in 1979 (8). Webala (7) found an incidence of one ectopic pregnancy for every 15 deliveries at Kenyatta National Hospital in 1979. Approximately 95% of the extra uterine implantations occur in the oviduct. Ampullary implantation accounts for 55% of the tubal pregnancies, isthmic

portion 20 to 25%, infundibular and fimbrial 17%, interstitial 2-4% (3). Mwathe (8) found ampullary in 34.7%, isthmus 19.5% and fimbrial 14.8%

The etiology of ectopic pregnancy is not known, but there are factors associated with increased incidence of ectopic pregnancy. These factors can be divided into mechanical and functional factors. Mechanical factors prevent or retard passage of the fertilized ovum into the uterine cavity. Prior tubal surgery to either restore patency or perform sterilization confers the highest risk. After one ectopic pregnancy, the chance of another is 7-15 fold .The chance that a subsequent pregnancy will be intrauterine will is 50-80%, and the chance that the pregnancy is ectopic will be 10-25%, the remaining case will be infertile. Other mechanical factors causing increased ectopic pregnancy include salpingitis, peritubal adhesions, developmental abnormalities of the tube, example previous pelvic operations including abortion and tumors that distort the tube (1,6)

Functional factors that delay passage of the fertilized ovum into the uterine cavity also lead to increased incidence of ectopic pregnancy. Altered tubal motility may follow changes in serum levels of estrogens and progesterone, likely from up regulation of adrenergic receptors in smooth muscle. An increased incidence of ectopic pregnancies have reported with the use of progestin only oral contraceptives; with the use intrauterine devices with or without progesterone; after use of postovulatory high does oestrogens to prevent pregnancy; and after ovulation induction (1).

Other studies have shown that copper containing IUDS prevent both intrauterine and extra uterine pregnancies by 95% but not ovarian pregnancies. Because IUDS prevent implantation more effectively in the uterus than in the tube, a woman conceiving with IUD is 6 to 10 times more likely to have a tubal pregnancy than if she conceives without contraception (6, 9). Mwathe 1984 found that 52.4% of those with ectopic pregnancy had the device in situ at the time of presentation (8).
The patient presented here conceived with an IUD and the outcome was an ectopic.

Wabela 1979 in a study done at Kenyatta National Hospital, found association of chronic pelvic inflammatory disease in 69% of cases (7).However in 50% there is no evidence of PID. This can cause delaying or preventing migration secondary to the

following: loss of cilia of the lining epithelium and impairment of muscular peristalsis, narrowing of the tubal lumen, formation of pockets due to adhesions between mucosal folds and peritubal adhesions resulting in kinking and angulation of the tube. Chlamydia infection is an important pathogen causing tubal damage and subsequently tubal pregnancy (6, 10).

The patient presented did not give any history of PID.

Ectopic pregnancy accounts for 10% of maternal deaths (9, 10). Sinei 1987at Kenyatta National Hospital it was found to account for 4.7% of the deaths (11). Direct morbidity includes intestinal fistulas, extra uterine molar pregnancy and choriocarcinoma. The most important indirect morbidity is poor fertility prognosis (9, 10).

Clinical manifestations of a tubal pregnancy are diverse and depend on whether rupture has occurred or not. Most patients present with abdominal pains and amenorrhoea with some degree of vaginal spotting or bleeding. Dizziness and light-headedness may occur.

There is tenderness on abdominal palpation, and vaginal examination, especially cervical motion causes exquisite pain. The posterior vagina fornix may bulge because of blood in Cul-de-sac, or a tender, boggy mass may be felt to one side of the uterus. Symptoms of diaphragmatic irritation, characterized by pain in the neck or shoulder, especially on inspiration, develop in perhaps 50% of women with sizeable intraperitoneal haemorrhage (1). There may be changes in pulse and blood pressure and some bradycardia and hypotension may occur. Paracentesis may be positive for none clotting blood (1,3).

The patient presented here had lower abdominal pains and tenderness and a positive paracentesis. Period of amenorrhoea was 11 weeks.

Numerous conditions may have a presentation similar to extrauterine pregnancy. These include appendicitis, salpingitis, ruptured corpus luteum cyst or ovarian follicle, spontaneous abortion or threatened abortion, ovarian torsion, urinary tract disease. Intrauterine pregnancies with other abdominal or pelvic problems such as degenerating fibroids must also be included in the differential diagnosis (1, 5).

Laboratory test which may aid in the diagnosis of ectopic pregnancy, include pregnancy tests, B-human chorionic gonadotrophin assays, and serum progesterone. Ultrasonography allows the clinician to rule out an intrauterine pregnancy when an ectopic pregnancy is suspected. The presence of an intrauterine gestation on ultrasound effectively may rules out ectopic pregnancy (1). Abdominal ultrasound cannot recognize uterine pregnancy until 5 to 6 menstrual weeks or 28 days after timed ovulation. This is also true for adnexal or cul-de-sac masses. Vaginal ultrasonography with a vaginal transducer can be used to detect uterine gestation as early as one week after missed menses when the serum BHCG level is greater than 1500mlu/ML. Vaginal sonography is also used to detect adnexal masses. This results in earlier and more accurate diagnosis of uterine and ectopic pregnancies (1).

The patient presented was not done ultrasound but pregnant test was positive.

Management may be medical, surgical or expectant. Salpingectomy is the oldest successful operation done for ectopic pregnancy. Although salpingectomy offers almost 100% cure, surgical treatment is evolving with efforts not only to prevent death, but also to allow rapid recover, preserve fertility and to reduce costs (12). Laparascopic salpingostomy is slowly replacing laparotomy. Linear salpingostomy has now become the standard laparascopic operation when an ectopic mass is unruptured, but measures more than 4cm (13).

Several medical therapies have been used that include methotrexate, prostaglandins, dactinomycin, etoposite, hyperosmolar glucose, anti HCG antibodies, and potassium chloride. Candidates for this medical treatment include unruptured ectopic sac, haemodynamic stability and normal liver and renal functions. Methotrexate (MTX), a folinic acid antagonist, has been shown to destroy proliferating trophoblast and may be effective in the medical management of asymptomatic women. Selection criteria for methotrexate treatment are required. The most important selection criterion involves patient's haemodynamic stability. Others include stable or rising HCG with peak values <15,000 mlU/ml, desire for future fertility, intact tubal serosa, no active bleeding, unruptured ectopic pregnancy <3.5 cm in greatest diameter. Contraindications to methotrexate therapy include hepatic dysfunctions, renal disease,

active peptic ulcer disease, blood dyscrarias, poor patient compliance, and presence of fetal cardiac activity (5).

About 5 to 10% of medical therapy fails and this is higher in pregnancies above 6 weeks gestation or with tubal mass greater than 3.5cm in diameter. Failed treatment managed by elective surgery or emergency surgery if rupture occurs. Expectant management is sometimes offered in centers with good monitoring facilities. The natural history of ectopic pregnancy is such that a majority of these tubal pregnancies can resolve without treatment (13).

In our set up most patient present late when rupture already occurred and are therefore managed by laparatomy. The patient presented here had profuse hemorrhage.

Following resection of an ectopic pregnancy, approximately 15% of women ovulate within 19 days and 65% within 24 days and by the 30^{th} postoperative day almost 75% will have ovulated. Contraception should there be used once sexual activity resumes if there is no desire to conceive immediately (14).
The patient presented here was counseled on family planning and referred to the family planning clinic.

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GYNECOLOGY CASE 3

BATHOLINS ABSCESS - MARSUPULAZION:

NAME:	A.M.	D.O.A:	12/04/05
IP/NO.:	1018446	D.O.D:	15/04/05
AGE :	26 YEARS	PARITY	2+0

PRESENTING COMPLAINT

She came with a painful swelling of the right labia for three days.

HISTORY OF PRESENTING COMPLAINT

She was well until four days prior to admission when she developed a painful swelling of the left labia. The swelling was increasing in size and becoming more painful that she had difficulty in working. There was no vaginal bleeding or discharge and there was no dysuria or frequency.

OBSTETRIC AND GYNAECOLOGICAL HISTORY

She was para 2 + 0. Her deliveries were by spontaneous vertex delivery. The last delivery being 1999. Her last menstrual period was on 7/4/05. The menses were regular occurring every 28 days and lasting four days. She had used depo from 1999-2002 and was on pills from 2002 to date.

FAMILY AND SOCIAL HISTORY

She was married and a house wife. She did not take alcohol or smoke cigarettes: There was no family history of chronic illness.

PAST MEDICAL HISTORY

She had not suffered any major illnesses and had no history of sexual transmitted diseases.

PHYSICAL EXAMINATION

She was in fair general condition and had no pallor, not jaundiced and not edematous.

Her blood pressure was 110/70 mmHg, pulse rate was 82/minute, respiratory rate was 22/minute and temperature was 36.70°C.

ABDOMINAL EXAMINATION

The abdomen was not distended. There were no areas of tenderness and there were no masses or organomegaly.

VAGINAL EXAMINATION

There was a swelling of the right labia about 8cm in diameter. The swelling was shiny, tense and very tender on palpation. The left labia and clitoral was normal. Digital examination could not be done due to marked tenderness of the swelling. No discharge or blood noted at the vulva.

DIAGNOSIS

A diagnosis of right side Bartholins abscess was made.

INVESTIGATIONS

PCV : 42%

Urea and electrolytes:

Na+ : 140 mmoL/L

K+ : 47 mmoL/L

Creatinine : 74 umol/L.

MANAGEMENT

She was admitted into the acute gynaecological ward and put on intramuscular diclofenac 75 mg 8 hourly for pain relieve and prepared for marsupialization. The nature of the management was explained to her. She gave an informed consent. Half an hour before theatre, she was pre-medicated with 0.6mg of atropine intramuscularly. In theatre, she was put under general anaesthesia and placed in lithotomy position. Vulvo-vaginal toilet was done and the bladder aseptically catheterized. Examination under anaesthesia revealed a right sided Bartholin's abscess. The cervix was smooth and closed and the adnexae and the pouch of Douglas were normal. The abscess was drained by making a wedge shaped vertical incision over the centre of the abscess.

The edges of the incision were marsupialized using catgut number 2/0. The abscess cavity was flushed with hydrogen peroxide and packed with gauze soaked in Betadine. A pus swab was taken for culture and sensitivity.

Post-operatively she was put on oral augmentin 625mg 12 hourly and mefenamic acid 500mg three times daily. The pack was removed after 24 hours. She was discharged home on the same antibiotic and analgesics and advised to have sitz baths. She was given an appointment for review in the gynaecology outpatient clinic in two weeks.

FOLLOW-UP

She was reviewed in the gynaecological outpatient clinic after two weeks. She had no complaints. On examination the wounds had healed well. The pus swab report was not available on the day of review.

DISCUSSION

This was a 26 year old para 2+0 who presented with a Bartholin's abscess. She had marsupialization done and did well postoperatively.

Bartholin's abscess is a common condition in women of reproductive age (15-49 years). According to Mumia, the condition formed 1.7% of admissions in the acute gynaecological ward at Kenyatta National Hospital (1). Ndede found an incidence of 1.9% in the same ward (2).

Bartholin's glands are two rounded, pear-shaped glands deep in the perineum. They are homologous with the bulbo-urethral (Cowper's) glands in the male. They are located at the entrance of the vagina at the 5 and 7 o'clock positions. A normal Bartholin's gland cannot be palpated. The Bartholin's ducts are approximately 2cm in length and open into a groove between the hymen and the labia in the posterior lateral wall of the vagina (3). The duct is lined by multilayered columnar cells and not by transitional epithelium as is usually stated. The secretion of the gland is colourless and mucoid and has a characteristic odour. It is produced mainly in response to sexual excitement when considerable amounts are poured into the vulva to act as a lubricant for coitus. The gland continues limited activity after the menopause (4).

Obstruction of the Bartholin's duct occurs commonly usually near the orifice (5). Obstruction of the main duct results in retention of secretions and cystic dilatation. Infection is an important cause of obstruction; however, other causes include inspisated mucus and congenital narrowing of the duct. Secondary infection may result in recurrent abscess formation (6).. In women over the age of 40, enlargement may be caused by the rare adenocarcinoma of the Bartholin's gland. More than 85% of women who develop enlargement of the Bartholin's gland do so during their reproductive years (3). In a study by Ndede, the mean age at presentation at the Kenyatta National Hospital was 23.5 years with a range of 15-39 years (2). The patient presented was 26 years old.

Years ago bilateral enlargement of Bartholin's glands was believed to be a pathognomonic sign of gonococcal infection. This is no longer true. Unilateral or

bilateral Bartholin's gland infection in the majority of cases is not caused by a sexually transmitted disease (3). Wren examined purulent exudates from 28 cases of Bartholin's abscess for aerobic, anaerobic and microaerophilic bacteria. Most infections seemed to be caused by a single organism, anaerobic types predominating (7). Lee in 1977 examined percutaneous aspirates from intact Bartholin's gland cysts and abscesses for bacteria and genital mycoplasma found 83% of the cysts were sterile while 70.6% of the abscesses contained bacteria (8). Positive cultures from Bartholin's gland abscesses are often polymicrobial and contain a wide range of bacteria similar to the normal flora of the vagina (9).

An abscess of the Bartholin's gland tends to develop rapidly over 2 to 4 days. Symptoms include acute vulval pain; dyspareunea and pain when walking. Local symptoms of acute pain and tenderness are due to rapid enlargement, haemorrhage, or secondary infection. The signs are those of a classic abscess; erythema, acute tenderness, oedema and occasionally cellulitis of the surrounding subcutaneous tissue. Without therapy, most abscesses tend to rupture spontaneously by the third or fourth day. A.M presented with classical sign of an abscess.

The treatment of infections or enlargements of the Bartholin's gland depends on their symptomatology. Asymptomatic cysts in women under the age of 40 do not need treatment. The therapy for acute adenitis without abscess formation is broad-spectrum antibiotics and frequent sitz births (3).

The treatment of choice for a symptomatic cyst or abscess is the development of a fistulous tract from the dilated duct to the vestibule. Simple incision and drainage of a Bartholin's gland abscess are complicated by a tendency for the abscess to recur. The classic surgical treatment is to develop a fistulous tract to 'marsupialize' the duct. After an elliptical wedge of tissue has been removed, the remaining edges of the duct or abscess are everted and sutured to the surrounding skin with interrupted sutures. This forms an epithelialized pouch that provides drainage for the gland. The recurrence rate following marsupialization is approximately 5 to 10 percent (3). An alternative surgical approach is to insert a Word_catheter (a small catheter with an inflatable Foley's balloon) through a stub incision into the abscess and leave it in place for 4 to 6 weeks. During this period a tract of epithelium will form (9). One may

use carbon dioxide laser to produce a neostoma in a Bartholin's duct cyst at the time of cyst drainage. This technique when used in selected patients may offer benefits over conventional approaches and has little or no morbidity (10) Excision of a Bartholin's duct and gland is indicated for persistent deep infection, multiple recurrences of abscesses, or enlargement of the gland in women over the age of 40. Patient presented treated using marsupialization procedure.

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GYNECOLOGY CASE 4

SEXUAL ASSAULT OF AN ADOLESCENT GIRL

NAME:	V.N.	D.O.A	18/10/05
AGE:	16 YEARS	D.O.D	19/10/05
IP/NO.:	1054415	PARITY	0+0
WARD:	1 D.	LMP	05/10/05

PRESENTING COMPLAINT

She presented through casualty with history of having been sexually assaulted 6 hours earlier by person known to her.

HISTORY OF PRESENTING COMPLAINT

A brother of her friend raped her when they went to visit him in his house at around 12 p.m. She started bleeding profusely immediately after penetration. She called the neighbors who brought her to KNH. Her friend went to buy safaricom card and left with her brother who raped her.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 0 + 0. Her LMP was on 05/10/05. Her menarche was at 14 years. Her menses were regular lasting 3-4 days and coming every 28 days. She had no history of family planning use. She had no sexual experience prior to this.

PAST MEDICAL HISTORY

This was not contributory.

FAMILY AND SOCIAL HISTORY

She was the first born in the family of 5 siblings. She finished class 8 in a school in Kakamega district. She was staying with her sister at Kangemi. Currently she is not working. She never took alcohol or smoked cigarettes. There was no family history of chronic illness.

PHYSICAL EXAMINATION

She was a young girl in good general condition. She was in emotional distress, crying, clothes were torn and soiled in blood. She was pale, her blood pressure was 100/60mmHg, pulse was 92/minute, and her respiratory rate was 24 per minute and temperature was 36.2°C.

Central nervous system, respiratory, cardiovascular and musculoskeletal systems were normal.

ABDOMINAL EXAMINATION

The lower abdomen was tender. There were no masses and no organomegaly.

VAGINAL EXAMINATION

All her clothes were socked with blood. The external genitalia was normal with bruises at the introitus. There was no active bleeding or other body secretions seen. Speculum examination showed a small-lacerated wound on the upper 2/3 of posterior vagina wall, which was not actively bleeding. The cervix, was posterior and closed.

DIAGNOSIS

A diagnosis of sexual assault was made.

MANAGEMENT

She was informed of the investigations to be done and the treatment she was to receive and the subsequent follow up including counseling.

INVESTIGATIONS DONE

ELISA for HIV : Negative.

VDRL : Negative.

PDT : Negative.

High vaginal swab no growth

PCV 30%

MANAGEMENT

She was started on antiretrovirals: Combivir I BD and stockrin 600 mg OD for 28 days. She was given emergency contraception of postinor II start. She was also put on norfloxacin 800mg stat and doxyclycline lOOmg BD for one week. She was also given brufen for pain. She was discharged on the second day through the high risk clinic for counseling and follow up.

FOLLOW-UP

She was to have repeat HIV test at 6 weeks and at 6 months. Baseline investigations of full haemograme, liver function test and creatinine level were done which was in normal limit. She was to continue with the counseling sessions.

DISCUSSION

V.N. presented above came with history of sexual assault. She was put on antibiotics, antiretroviral and emergency contraception.

Sexual violence has been defined as any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic women's sexuality, using coercion, threats of harm or physical force, by any person regardless of relationship to the victim, in any setting including but not limited to home and work (1).

The National women study in the USA revealed that 13% or one of 8 adult women are survivors of at least one completed rape during their lifetime. Of the women who they surveyed, 0.7% had been raped during the past year, equaling an estimated 683,000 adult women who were raped during a 12-month period. Of these women 39% were raped more than once, and most rapes occurred during childhood and adolescence. Indeed it is said 'rape in America is a tragedy of the youth (2). In 1978, a Federal Beaureu of Investigation report indicated that close to 200,000 rapes were reported nationwide each year and that this could represent no more than 50% of the actual rapes committed. Victims, even today, are reluctant to report rapes to authorities because of embarrassment, fear of retribution, and feeling of guilt or simply lack of knowledge of their rights (3).

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. There has been great debate about the inadequacies of this law. This also applies for rape of none minors (6). Hopefully, the current law reform will address this issue.

The most common injuries from sexual assault are vaginal laceration resulting in bleeding and pain. Intraperitoneal extension of a vaginal laceration or damage tc the anal mucosa is rare (4). The patient presented sustained vaginal lacerations, caused excessive bleeding.

Following sexual assault, women have many concerns including pregnancy, STI (including human immunodeficiency virus (HIV) infection) being blamed for the assault, having their name made public and having their family and friends find out about the assault.

In the past, society has held many misconceptions about the rape victims, particularly a female. These included the notion that the individual encouraged the rape by specific behavior or dress and that no person who did not wish to be could be raped. Further, the feeling that rape was an indication of basic promiscuity was widely held. In many instances, sexual assault victims were accused of lying to cause problems for otherwise innocent men. To some extend many of these societal conceptions are held today (3).

Sexual assault happens to people of all ages and races in all socioeconomic groups. The perpetrator may be a stranger but he or she is not uncommonly an individual well known to the individual and may be a close relative (2).

In submitting, the victim loses control over his or her life for that period and frequently experiences anxiety and fear. When the attack is life threatening, shock with associated physical and physiological symptoms may occur. Two phases of rape-victim syndrome have been identified (7).

The immediate or acute phase lasts from hours to days and may be associated with paralysis of the individuals' usual coping mechanisms. Outwardly, the victim may demonstrate manifestation ranging from complete loss of emotional control tc a very well controlled behavior pattern. The actual reaction may depend on a number of factors, including the relationship of the victim to the attacker, whether force was used and the length of time the victim was held against his or her will. Generally the victim appears disorganized and may complain of both physical and emotional symptoms. Physical complains include specific injuries or general complaints of soreness, eating problems, headaches and sleep disturbances. Behaviors patterns may include fear, mood swings, irritability, guilt, anger, depression and difficulties in concentration. Frequently the victims will experience flashbacks. The second phase of the rape trauma syndrome involves long-term adjustment and is designated the

reorganization phase. During this time flashbacks and nightmares may continue, but phobias also develop. If a major complication such as contraction of a sexual transmitted disease including HIV, or a pregnancy occurs, resolution may be more difficult (3, 8).

The responsibilities of a physician providing immediate treatment for sexual assault include to obtaining an accurate gynecologic history, including a recording of the sexual assault. To assess, documenting and treating physical injuries. To obtain appropriate cultures (including samples for forensic tests), treating any existing infection and providing prophylaxis for sexually transmitted disease. To provide therapy to prevent unwanted pregnancy, providing counseling for the patient and her partner and/or family. Also arranging for follow up medical care and counseling and finally to report to legal authorities as required by law (1, 3, 8).

The patient presented was investigated for HIV, and syphilis. She was given antiretroviral and antibiotics. She also received emergency contraception. Counseling was initiated and was to continue during follow up.

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GYNECOLOGY CASE 5

PELVIC ABSCESS - LAPARATOMY/DRAINAGE:

NAME	K.N.	D.O.A:	16/04/05
AGE	25	DATE OF OPERATION:	17/04/05
IP/NO.	1022013	D.O.D:	27/04/05
PARITY:	1+0	WARD:	ID

PRESENTING COMPLAINTS:

The patient presented with complaints of lower abdominal pains and per bleeding per vagina for two weeks. She also complained of vomiting and hotness of the body.

HISTORY OF PRESENTING COMPLAINT

She had attempted to procure an abortion two weeks prior to admission by inserting a catheter. She reported that the foetus came out but she continued bleeding per vaginally. The bleeding had been accompanied by low abdominal pains. The abdominal pains worsened on the day of admission making it possible for her to walk. Three days prior to admission, she had started vomiting and this worsened on the day of admission. She also experienced hotness of the body for one week prior to admission.

OBSTETRICS AND GYNAECOLOGY HISTORY

She had her menarche at 13 years, her cycle was regular every 28 days and last for 5 days. She was a Para 1+0, her last delivery was in 2000 by SVD the baby was alive and well. Her LMP was on 23/12/04. By the time she aborted, she had amencrrhcco. of 14 weeks. She never used any form of contraception.

FAMILY AND SOCIAL HISTORY

She was the third born in the family of seven siblings. She was single who lived in Kariobangi with her brother. She was working in a salon. She did not smoke or take alcohol. There was no family history of chronic illness.

PAST MEDICAL HISTORY

This was not significant.

PHYSICAL EXAMINATION

Examination revealed a very sick looking patient distressed by pain, moderately dehydrated, not jaundiced, not pale, not cyanosed, had no oedema or peripheral lymphadenopathy. Her vital signs were, temperature 38°C, blood pressure 100/50mmHg, pulse rate 100 per minute and respiratory rate of 24 per minute.

CENTRAL NERVOUS, RESPIRATORY AND CARDIOVASCULAR SYSTEMS

These were essentially normal

ABDOMINAL EXAMINATION

The abdomen was distended, it was diffusely tender, was guarding, rebound tenderness and not rigid. Due to the diffuse tenderness, it was not possible to palpate for organomegaly or any masses. The bowel sounds were heard and normal.

PELVIC EXAMINATION

The external genitalia appeared normal. The vaginal walls felt normal, cervix was about 1cm long, 2cm dilated, products of conception were felt and uterus was bulky. There was a boggy feeling at the pouch of Douglas, adnexae felt free but tender. Cervical excitation was positive bilaterally and examination of gloves revealed an offensive blood coloured discharge.

INVESTIGATIONS

Haemogram.

Hb : 12.0g/dl;

WBC 10 X 10^9/L

Urea and electrolytes

Urea 4.4mmol/L

Na+ 138mmol/L;

K+ 4.5mmol/L

Abdominal pelvic ultrasound showed features of pelvic abscess.

DIAGNOSIS

An impression of pelvic abscess was made.

MANAGEMENT

She was planned for emergency laparatomy and drainage and patient informed about it. Informed consent was obtained. A sample for blood group and cross match was taken. She was maintained on intravenous fluids to correct dehydration. The patient was prepared and preoperative medication IM atropine 0.6mg and pethidine 50 mg 30min before theatre was given. She was taken to theatre early morning the following day.

LAPAROTOMY AND DRAINAGE

In the operating room, the patient was placed in supine position and general anaesthesia administered. She was then put in lithotomy position and vulvo-vaginal toilet done. The bladder was catheterised and about lOOmls of clear urine drained. Using KuScos speculum the vaginal walls and cervix was inspected and found intact. The anterior lip of the cervix was grasped with a tenaculum. Using the metal curettes, products of conception were evacuated and were found smelling. The uterus involution was enhanced with intramuscular ergometrine 0.5mg.

The patient was then repositioned to supine position and the abdomen cleaned then draped. Through a low midline incision, the abdomen was opened in layers. The

parietal peritoneum was thick and oedematous. The bowels were matted together and adherent to parietal peritoneum. Through blunt dissection, the adhesions were released. There was a thick pus collection in both paracolic gutters and in the pouch of Douglas. A specimen of the pus was collected for microscopy and culture with antibiotic sensitivity.

The pus was drained by vacuum suction. The gut was inspected and found viable and patent. The uterus and adnexae were inspected. The uterus was found intact, tubes were bilaterally identified but found to be inflamed. Peritoneal lavage was done with rifocine. Two corrugated drains were left in situ, one each of the paracolic gutters. Haemostasis was ascertained and verification of swabs and instrument count.

Mass closure of the abdomen was then carried out using vicryl number 2. The skin was closed using nylon number 1 together with drains. The estimated blood loss was 200mls.

POSTOPERATIVE PERIOD

The patient was reversed from anesthesia and taken to recovery room in good condition. Vital signs were observed half hourly until the patient fully recovers form anaesthesia and then 4 hourly thereafter. She was taken back to the ward.

She was maintained on intravenous infusion. She was also received intravenous crystalline penicillin 2 mega units six hourly and Gentamycin 80mg eight hourly and metronidazole for one week. Pain was taken care with Pethidine lOOmg every 6 hours for during the first 48 hours then she was given oral diclofenac lOOmg three times a day after meal.

She did well on first day, oral feeds were re-started after ascertaining the bowel sounds and the drains were removed. Haemoglobin level was checked on the third postoperative day was lOg/dl. The culture did not grow any organisms. The suture were removed on ninth day wound was nice healed and discharged home on 10 lh postoperative day in good condition. She was advised to come to GOPC in two weeks for review.

POST-OPERATIVE FOLLOW UP

At review she was in good general condition, the wound was healed and had no complaints. She was given contraception advice and referred to family planning clinic.

DISCUSSION

The patient presented was a 25years para 1+ 0 who was admitted with pelvic abscess. She was done Laparatomy and drainage and given antibiotics. She did well.

Pelvic abscess is a collection of pus that may be confined to tube (pyosalpinx), or involve the tube and the ovary (tubo-ovarian abscess), or may lie between the leaves of the broad ligament (broad ligament abscess). Purulent material may be collected in the pouch of Douglas (cul-de-sac abscess) where it is usually walled off superiorly by intestinal loops and omentum, while its inferior surface dissects between rectum and vagina. A pure ovarian abscess is rare. Frequently, abscess formation is found at more than one anatomic site in the same patient since the acute infection is usually bilateral (1).

The incidence of pelvic abscess varies from region to region due to the different management of the predisposing factors. Majority of the pelvic abscess patients are between 20 and 40 years of age (1). The patient presented was 25 years. Pelvic abscess may occur as a sequel to acute pelvic inflammatory disease, postabortal or puerperal sepsis (1, 2, 3). Fomulu in his study found that 18.2% of abortions were complicated by pelvic abscess (4). Chebrot showed that 13% of the patients with pelvic abscess had attempted abortion with crude unsterile methods (5). K.N. developed pelvic abscess postabortal. At the time she presented to the hospital, she already had septic retained products of conception.

Pelvic abscess is frequently associated with organisms other than the gonococcus, commonly anaerobic species, especially bacteroides. The incidence of acute pelvic inflammatory disease (PID) decreases with advancing age. Adolescent females are at risk of developing acute salpingitis. The 2 most incriminated pathogens of PID, neisseria gonorrhoea and Chlamydia trachomatis have a predilection for columnar epithelium which in cervix of adolescent females is exposed to recede later in life. Gonorrhoea is often cultured during the first 24 to 48 hours of PID but is often absent later. In late disease, anaerobic bacteria such as prevotella, bacteroides, peptococcus and peptostreptococcus tend to predominate (1, 2, 3).

Actinomycoses is usually incriminated in tubo-ovarian abscesses associated with an intrauterine device (3, 6, 7). The above scenario has been demonstrated at Kenyatta National Hospital (KNH). Gonococcus was present in 75% of patients In the acute pelvic inflammatory disease (PID) but only in 4% of those with pelvic abscess(5,8) The patient presented the pus had no growth.

Patients normally present with complaints of fever, vomiting, low abdominal pains and foul smelling vaginal discharge. They may also present with dysuria, frequency or painful defecation (1, 2, 3, 9). The patient presented here had fever, vomiting, low abdominal pains and vaginal discharge that were offensive smell. Examination normally reveals febrile sickly patients, distended abdomen that is acutely tender with rebound tenderness. On vaginal examination, there is acute tenderness exacerbated by movement of cervix and swelling that may be felt beside the uterus or in the pouch of Douglas. The tender uterus feels enlarged and presence of offensive vaginal discharge (1, 2, 3, 9). The patient had the above signs.

Laboratory investigation will usually confirm what is already known. Generally, the clinical picture is usually sufficient to diagnose a pelvic abscess. Ultrasound or CT scan may be used to assess the size of the abscess or for follow up during treatment (1, 2, 3).The differential diagnosis include periappendiceal abscess, ectopic pregnancy, ovarian neoplasm, uterine leiomyoma, retroflexed and incarcerated uterus, endometriosis, carcinomatosi s and diverticulitis with perforation (1, 2, 3) .

Fluids and electrolytes balance are maintained with intravenous fluids (1, 2). The patient being discussed was started on intravenous fluids on admission. If evidence of septic shock present, a central venous line and urinary catheter are placed and the administration of dopamine with or without steroids may be necessary (1).

Antibiotic therapy is employed using empirical regimes directed at the expected pathogens, usually penicillin, and aminoglycosid and a drug specific for bacteroides fragilis. This regimen may be modified when the results of endocervical, blood and cul-de-sac cultures are available (1,2, 3).

Surgery is mainstay of treatment of pelvic abscess. However, some abscesses respond to the above conservative management. Failure of conservative therapy is indicated by persistent fever, increase in size of the pelvic mass, or spreading level of peritonitis. Failure is usually evident within 48-72 hours of admission. Immediate surgery is indicated if intraperitoneal rupture is suspected or if the diagnosis is uncertain (1, 2, 3, 9).

During laparatomy, the bowels should be packed off before the pelvic dissection commences. Intraoperative lavage is essential to minimise the danger of post-operative reaccumulation of subphrenic or pelvic purulent collectors. Drainage following the procedure is usually via the vaginal cuf or flank drains (1,3). In the patient presented 2 flank drains were left.

Colpotomy drainage is sometimes done for pelvic abscesses pointing into vagina. There are 3 requirements for colpotomy drainage of a pelvic abscess. The abscess must be midline, also the abscess should be adherent to the cul-de-sac peritoneum and should dissect the rectovaginal septum to assure the surgeon that drainage will be extra peritoneal and that pus will not be disseminated transperitoneally. In addition, abscess should be cystic or fluctuant to ensure adequate drainage (1,3, 8).

The immediate complications of pelvic abscess include septic shock, acidosis, anuria, pulmonary embolism and thrombophlebitis. Late complications include chronic ill health, pelvic pain, dysmenorrhoea, dyspareunia, bowel obstruction, infertility and ectopic pregnancy (3).

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GYNECOLOGY CASE 6

TRANSLOCATED IUCD - REMOVAL BY D AND C UNDER GENERAL ANAESTHESIA

NAME	: A S	PARITY:	7+0
AGE	: 52 YEARS	D. O. A	16.04 05
IPNO.	: 1018453	D O D	16.04.05

PRESENTING COMPLAINT

She was admitted with complaints of failed attempt at removal of IUCD.

PRESENTING HISTORY

She had presented at the family welfare clinic for removal of the IUCD. She associated the IUCD with the recurrent low backache she had been having. Attempts to remove it at the clinic failed as the threads were lost. The lippes IUCD was inserted back in 1984, several months after last delivery.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 7+0 All were spontaneous vertex delivery, last delivery being in 1984.Her menarche was at 15 years. Menses lasted 5 days cycles were regular. For the last one year she had been having irregular menses with cycle of 7 to 10 days. Her last monthly period was some times in March 2005.

PASTMEDICAL HISTORY

This was not significance.

FAMILY AND SOCIAL HISTORY

She was divorced and worked as a primary school teacher at Kawangware. She neither took alcohol nor smoked cigarettes. There was no family history of chronic illness.

PHYSICAL EXAMINATION

She was in good general condition, afebrile, not pale or jaundiced. Her blood pressure was 140/80mmHg, pulse was 82/minutes, temperature was 36.5°C and respiratory rate was 20/minutes.

RESPIRATORY, CARDIVASCULAR AND CENTRAL NEVOURS SYSTEMS

These were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was uniformly distended. There were no areas of tenderness. There was no organomegaly, and no other palpable masses.

VAGINAL EXAMINATION

Speculum examination. The external genitalia was normal and normal vaginal walls, cervix appeared healthy and no thread were seen at the os. Digital examination reveal firm and closed cervix no thread were felt. The uterus was normal size, and anterverted. The pouch of Douglas and admixes were free.

DIAGNOSIS

A diagnosis of translocated 1UCD was made.

INVESTIGATIONS

Haemogram

HB	13.0g/dl
WBC	$5.3X10^{9}/L$
RBC	$4.96X10^{12}/L$
PLATELETS	$252x10^{12}/L$

Urea and electrolytes

Na^{+}	152mmol/L
K	4.58mmol/L
Creatinine	88. UMol/L

Pelvic Ultrasound - Antervarted uterus with normal size, shape and echo partten There were no uterine masses .IUCD seen in uterine cavity. Endometrial thickness appears normal There were no adnexae masses or fluid in the pouch of Douglas.

MANAGEMENT

The patient was prepared and scheduled for removal of the IUCD under general anaesthesia. The intended management was explained to the patient and an informed consent was obtained. She was to be done as a day case. She was admitted in the Morning of the day of operation. Having been instructed not to feed. She was shaved and given premedication of atropine 0.6 mg and pethidine 100 mg. She was then wheeled to theatre.

D&C PROCEDURE

In theatre, she was given general anesthesia and then placed in lithotomy position, Vulvo-vaginal toilet was done and patient draped. The bladder was catheterised. An auvard speculum was inserted into the vagina to expose the cervix. The anterior lip of the cervix was cervix was grasped with a tenaculum forceps. The uterus was sounded found to be anteverted. It was dilated with Hegars dilators up to size 8. A small metallic curette was inserted into the uterus and rotated. Curetting was done a few times before the IUCD was pulled out. It was inspected and found to be complete. Vulvaginal toilet was done. Then general anesthesia was reversed.

POST OPERATIVE

She was monitored in the recovery room half-hourly until she was fully conscious, than she was taken to the ward where she remained stable and was discharged in the evening of the same day with panadol. She had to be followed up in GOPC in 2 weeks.

REVIEW

She was seen on the appointed date; she had no complaints. She was counselled on alternative methods of contraception and discharged from the clinic through the family welfare clinic for contraception.

DISCUSSION

The patient presented here was admitted with a diagnosis of translocated IUCD. Dilatation and curettage wad done under general anesthesia where the IUCD was successfully removed

The intrauterine contraceptive device (IUCD) is made of plastic or metal or a combination of these materials (1).

The intrauterine contraceptive device is the second most commonly used modern contraceptive method in Kenya. Unlike oral contraceptives, the effects of IUCD are limited to the uterus (2). It is one of the safest and cost effective methods of family planning. The IUCD arc especially useful in large-scale family planning because they are cheap, and give long-term protection. The method is independent of coitus and fertility is usually restored immediately after the device is removed (1).

IUCD are classified into the hormonal and none hormonal. The medicated IUCD are impregnated with pharmacologically active agent that gradually dissolves when placed in the uterus. The non-medicated include lippes loop and the dackon shield that was withdrawn from the world market in 1974. The medicated IUCDs include copper T, Copper 7, multiload, nova-T and progestasert (1, 2,3).
The patient presented had lippes loop, which was inserted in 1984. Lippes loop was withdrawn in 1985.

These are copper T380A (paragard) progesterone releasing T (progestasert) and the levonorgestresl releasing T (Mirena). The copper T 380A has bands of copper on the cross arms of the T in addition to copper wire around the stem, providing a total surface area of 380mm of copper, almost double the surface area of copper of earlier copper devices. The copper T380A is approved for up to 10 years of continuous use. The progestasert must be replaced every year (4, 5).

The mechanisms by which these devices affect contraception have not been defined precisely.They cause the formation of "biologic form" within the uterine cavity that contains strands of fibrin, phagocytic cells, and proteolytic enzymes. Copper IUCDS

continuously release a small amount of the metal producing an even greater inflammatory response. All IUCDS stimulate the production of prostaglandins within the uterus, consistent with smooth muscle contraction and inflammation. The altered intrauterine environment interferes with sperm passage through the uterus preventing fertilization. Other mechanism include disruption of endometrial maturation with progesterone releasing devices alteration of normal tubal cilia action and even disruption of the oocyte maturation. IUCD are not abortifacient (1, 4).

The markers threads on the IUCD enable the patient to feel them and ascertain the presence of the IUCD in position. These threads also enable removal of the IUCD when the time comes (1, 4). In the patient presented, the threads were not seen at the time of removal..

Efficacy with copper T 380A device is high with a failure rate of less than 1% per year with prolonged use. In contrast progestasert T has a failure rate of about 1-1.5% with 25% of pregnancies being ectopic (1, 4, 5).

Insertion can be accomplished at any time if this is desired or is more convenient for the patient so longer pregnancy is rulled out (1).

IUCD can have some side effects and complications these include the following: Fainting or collapse of the patient at the time of insertion of the IUCD. Intermenstrual spotting and menorrhagia occurs in 50% of cases. They are mostly seen during the first few days and months and tend to disappear later. Dysmenorrhoea and intermestrual pain due to uterine colics; these subside as the patient become tolerant.

Acute and chronic salpingo-oophoritis occurs in 1-2% of women per year. This happen mostly when infection has been present previously and has passed unrecognised. Infection with *Actinomyces israelii,* an anaerobic gram positive bacterium, has been reported in association with IUCD use. Most diagnoses have been made using appearance of colonies on Pap smear due to the difficulty of culturing the organism. When *A. israelii* is detected on Pap smear, antibiotic treatment is recommended, and if the repeat Pap smear is positive, the IUCD should be removed (1, 7).

Uterine perforation and abortion: the earliest adverse effects are those associated with insertion. They include clinically apparent or silent uterine perforation, either when sounding the uterus or during insertion of the device, and abortion of an unsuspected pregnancy. Most perforations occur, or at least begin, at the time of insertion (1,7,8).

Spontaneous extrusion of the IUCD occurs during the first year in 2-10% of cases depending on the type. The occurrence may or may not be recognize by the patient. It is most likely to happen during the first menstrual period. If a pregnancy occurs in a patient with an IUCD, it will be ectopic in 5% of cases. This is because the fallopian tubes are less well protected against pregnancy than the uterus. Compared to women using no contraception, however, women wearing either Copper T380A or the levonorgestrel T have an 80% to 90% reduction in the risk for ectopic pregnancy which is a greater reduction than that seen for users of barrier methods. In contrast, the Progestasert increases the risk slightly, probably because the progesterone affects tubal motility and does not inhibit ovulation (1,7, 8).

If pregnancy occurs and the patient wishes to continue with the pregnancy, the IUCD may be removed by traction on the plastic tail. If gentle traction does not effect prompt and easy removal, it is probably best to leave the device I place. However, the incidence of spontaneous abortion with the device insitu is about 50%, whereas the normal incidence is 12% or higher. Removal of the device reduces the risk of spontaneous abortion to 20-25% and virtually eliminates the risk of septic abortion (1, 8).

When the tail of a device cannot be visualized, the device may have been expelled or it may have perforated the uterus. In either event, pregnancy is possible. Conversely, the tail simply may be in the uterine cavity along with a normally positioned device. Often, gentle probing of the uterine cavity with a rod with terminal hook will retrieve the strings (7).

When the tail is not visible and the device is not felt by gentle probing of the uterine cavity, sonography is done to ascertain if the device is within the uterine cavity. If

these findings are negative or inconclusive, then a plain X-ray of the abdomen and pelvis is taken with a sound into the uterine cavity. Instillation of radio-contrast for hysterography may be done, and hysteroscopy is yet another alternative(l, 7).

An open device of inert material, such as Lippes Loop, located outside the uterus may or may not do harm. Perforation of large and small bowel and bowel fistulas, with attendant morbidity have been reported remote from the time of insertion. An extrauterine copper-bearing device induces an intense local inflammatory reaction and adherence to the inflamed structure. This was evident in the case presented where the device was found in adhesions involving the right fallopian tube. Chemically inert devices usually are removed from the peritoneal cavity by laparoscopy or posterior colpotomy. Copper bearing devices are more firmly adherent and laparotomy may be necessary as was the case in our patient (6).

The major reason for IUCD removal is desire for pregnancy. Medical reasons for removal are partial expulsion, usually occurring in the first few months of use; persistent cramping, bleeding, or anaemia, acute salpingitis or Actinomyces infection on Pap smear; pregnancy, intra-abdominal placement/perforation and significant post-insertion pain (1).

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GYNECOLOGY CASE 7

CARCINOMA OF THE OVARY STAGE III - T.A.H., BSO AND CHEMOTHERAPY

NAME	:RT	D O A	26/04/05
AGE	.60 YEARS	*DOD*	12/05/05
IPN0	: 1022048	WARD	ID

PRESENTING COMPLAINTS

The patient was admitted through the acute gynaecological ward with complaints of progressive abdominal swelling, and dull pain in the abdomen and backache for 6 months. She developed difficult in breathing for one week prior to admission.

HISTORY OF PRESENTING COMPLAINTS

She had developed progressive abdominal swelling since six months prior to admission. This was associated with progressive weight loss and loss of appetites. There was also abdominal pains and backache. Prior to admission had developed difficult in breathing.

Initially had sought treatment at Kijabe private hospital where she was given some medication but without improvement The symptoms continued to worsen and she decided to come to KNH.

OBSTETRICS AND GYNAECOLOGY HISTORY.

She was a para 0+0. She had her menarche at 16 years and her cycles had been regular every 28-30 days lasting 3-4 days, flow was normal. She was post menopausal for the last 15 years. There was no history of contraceptive use.

PAST MEDICAL HISTORY

There was no history of hospitalization. She had been followed up for sometime for infertility. She was put on various drugs (she could not remember the names) but with no success.

FAMILY AND SOCIAL HISTORY.

She had been married for 10 years but separated with the spouse due to inability to get children. There was no history of similar illness or other chronic illness in the family. She did not smoke or take alcohol.

SYSTEMIC INQUIRY

She had history of weight loss and loss of appetite. No history of constipation.
She had difficulty in breathing.

PHYSICAL EXAMINATION

She was an elderly woman in fair general condition afebrile, slightly pale; she had no lymphadenopathy, no oedema and no jaundice. Her blood pressure was 140/85mmhg, pulse rate was 100 beats per minute and temperature was 36.7°C.

RESPIRATORY SYSTEM

Has mild respiratory distress with use of accessory muscles of respiration. Respiratory rate was 22 per minute. The chest was clear with no crepitations and no rhonchi.

ABDOMINAL EXAMINATION

The abdomen was grossly distended and moved with respiration. There was hard irregular, ballotable mass arising from the pelvis. The mass was non-tender and no visible pulsating vessels. There was ascites demonstrated. There was no hepato-splenomegaly.

PELVIC EXAMINATION

She had normal external genitalia, cervix was posterior, firm and the os was closed, about 1.5cm long. The uterus was difficult to appreciate the size due to fullness of pouch of Douglas. There was no discharge on examining finger.

IMPRESSION

An impression of ovarian tumour was made.

INVESTIGATIONS

Pelvic abdominal ultrasound

The liver, Gall bladder and biliary system were normal. The spleen was normal; there was right-sided hydronephrosis. The uterus was of normal size and echo pattern There was a huge abdomino pelvic cystic mass likely of ovarian origin.

Conclusion: ovarian tumour

1. Haemogram

Haemoglobin	11.2g/dl
WBC	$8.9X10^9$/L
Haemocrit	40.7%
Platelets	$509x10^9$/L

2. Urea, Electrolyte, creatinine

Na"	134 mmol/L
K	5.0 mmol/L
BUN	4.2 umol/1
Creatinine	80 umol/1

3. Liver function tests

Total protein	84 g/dl
Albumin	44.0g/dl
Alanine Transferase	14 mmol/L
Aspartate Transferase	23 mmol/L
Bilirubin	Total 32 mmol/L
	Direct 1.7 mmol/L

5. **Blood group** B positive

Pap Smear: Inflammatory cells only.No abnormal cells seen

Chest X ray: Reported normal chest radiograph

MANAGEMENT

She was admitted to the cold gynaecological ward and prepared for exploratory laparotomy. The nature of the illness was explained to her and she gave an informed written consent. Two days before the day of surgery she was started on laxatives (dulcolax) and put on a fluid diet. The night before the operation she had enema and was fasted overnight. On the morning of the operation she was given another enema. She was premedicated with Atropine 0.6mg intramuscularly half an hour before being taken to theatre. Two units of blood were made available.

In theatre, she was put under general anaesthesia and placed in lithotomy position. Vulvovaginal toilet and aseptic catheterization was then done. At examination under anaesthesia, she had normal external genitalia; the uterus was anteverted and minimally mobile. There were bilateral adnexal masses

The abdomen was open through a extended midline incision. There was about 7 litres of straw coloured ascitic fluid. There were bilateral grape-like fungating masses the largest being about 5x5cm. Metastatic seedlings were noted on the peritoneum, pouch of Douglas, liver and the under surface of the diaphragm.

Total abdominal hysterectomy and bilateral salpingo-oopherectomy was then done. It was not possible to do infracolic omentectomy as the omentum was matted on the liver Mass closure of the abdomen was done.

POST-OPERATIVE CARE

The patient was transferred to the recovery ward and observed half hourly until fully awake then taken back to the ward. She continued on intravenous fluids, normal saline alternating with 5% dextrose about 3 litres in 24 hours. She was put on crystalline penicillin 2 mega units 6 hourly and Gentamicin 80mg 8 hourly intravenously for 48 hours then Amoxicillin 500mg 8 hourly for 5 days. She was also put on pethidine lOOmg 8 hourly for 24 hours then continued on mefenamic acid 500mg orally for 6 days.

On the first post-operative day bowel sounds were present and she was started on oral sips. On the second post-operative day she started on light diet and oral mediations. She did well post-operatively and on the 5^{lh} post-operative day she was discharged home on Amoxicillin and mefenamic acid. She was unable to go home on discharge for financial reasons.

Histology confirmed papillary serous cystadenocarcinoma of the ovary.

She was started on chemotherapy with intravenous cisplatin 50mg stat, Adriamycin 50mg stat and cyclophosphamide 500 mg daily for five days. These courses of chemotherapy were to be repeated every three to four weeks and prior to each course, haemogram, liver function and renal function tests were done and confirmed to be normal. She had six courses of chemotherapy. She had improved clinically with no evidence of ascites or palpable masses. She was then discharged to the gynecological outpatient clinic for follow-up.

DISCUSSION

The patient presented was a 60 year old nulliparous woman who presented with advanced carcinoma of the ovary. She had laparotomy with total abdominal hysterectomy and bilateral salpingo-oophorectomy and was later started on chemotherapy with cisplatin, Adriamycin and cyclophosphamide.

Ovarian cancer is the seventh most common malignancy worldwide. Ovarian cancer has the highest fatality-to-case ratio of all the gynaecologic malignancies. For women in the United States, lifetime risk of developing the disease is approximately 1 in 70 or 1.4% (1,2,).

Epithelial cancers are the most common malignancies, and because they are usually asymptomatic until they have metastasised, patients present with advanced disease in more than two thirds of the cases (1, 2). Studies done in our set up indicate that ovarian cancer is the third commonest gynaecological malignancy after cancer of the cervix and choriocarcinoma (3, 4). Worldwide the prevalence is age related within increased risk after 45 years and peak between 60 and 75 years with the majority of cases between 40-60 years (3, 4). The patient presented was 60 years old.

The causes of ovarian cancer are poorly understood, but several factors have been associated with an increased or decreased risk of the disease. Age over 40 years, white race, nulliparity, infertility, history of endometrial or breast cancer, and family history of ovarian cancer consistently have been found to increase the risk for invasive epithelial cancer. Parity, oral contraceptive use, history of breastfeeding, tubal ligation, and hysterectomy has been associated with decreased risk of ovarian cancer (1,2, 5, 6).

An association between ovarian cancer and a family history of ovarian cancer and other malignancies including breast, endometrial, colon and prostate cancer has been reported in the literature (2, 5, 6).

Three main hypotheses have been proposed to explain the pathogenesis of ovarian cancer; the incessant ovulation, gonadotrophin and pelvic contamination theories. The incessant ovulation hypothesis postulates that repeated minor trauma to the epithelial

surface of the ovary caused by continuous ovulation increases the likelihood of ovarian cancer. The gonadotrophin hypothesis postulates that exposure of the ovary to continuously high levels of circulating gonadotrophins increases the risk of malignancy. The pelvic contamination theory suggests that carcinogens may come into contact with the ovary after passing through the genital tract (2, 5, 6).

Ovarian cancer may be divided into three major categories based on the cell type or origin, epithelial, germ cell and sex cord and stromal. The ovary may also be the site of metastatic disease by primary cancer from another organ sites. Epithelial neoplasms are derived from the ovarian surface mesothelial cells and include six cell types. Serous, mucinous, endometrioid, clear cell, transitional cell and undifferentiated. Germ cell neoplasms arise from the germ cell elements of the ovary and include dysgerminoma, endodermal sinus tumour, choriocarcinoma, teratoma, polyembryoma and mixed germ cell tumours. Sex cord and stromal neoplasms include granulosa cell tumour fibroma, thecoma, Sertoli leydig cell and gynadroblastoma. Neoplasms metastatic to the ovary commonly arise from the breast, colon, stomach, endometrium or lymphoma (1,2, 5).

The patient presented had epithelial cancer histology showed papillary serous cystadenocarcinoma of the ovary.

Epithelial ovarian cancer accounts for 90% of all cases of ovarian cancer. The tumours are derived from the coelomic epithelial or mesothelium (1, 2, 5).
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. A history of non-specific complaints, including nausea, dyspepsia and altered bowel habits, is particularly common. Early satiety and abdominal distension as a result of ascites are generally signs of advanced disease. A chango in bowel habits, such as constipation and decreased stool calibre, is occasionally noted. Large tumour may cause a sensation of pelvic weight or pressure. Rarely, an ovarian tumour may become incarcerated in the cul-de-sac and cause severe pain, urinary retention, rectal discomfort, and bowel obstruction (6). Abnormal vaginal bleeding may occur in patients with ovarian cancer in the presence of synchronous endometrial carcinoma. Granulosa theca cell tumours

are classically oestrogen-producing tumours that present with abnormal vaginal bleeding (1, 2, 5, 6).

The patient presented had sign of advanced disease.

The most important sign of epithelial ovarian cancer is the presence of a pelvic mass on physical examination. A solid, irregular, fixed pelvic mass is highly suggestive of an ovarian malignancy. Ascites or malignant pleural effusion may also be present (1, 2, 5, 6).

Patient presented had Ascitis and irregular pelvic mass.

In general the pre-pubescent girl and the postmenopausal woman are at greatest risk for developing a pelvic mass that subsequently proves to be a malignant ovarian neoplasm. The reproductive age woman is more likely to have functional ovarian cyst or endometriosis. The work-up should involve physical examination, radiographic evaluation, ultrasound, CT scan, MRI, and laboratory evaluation.

Ultrasonography is the most important radiographic test to evaluate an adnexal mass. Malignant masses are likely to be solid, with septations, bilateral and to have ascites (2). Patient presented ultrasound was done which showed pelvic mass and ascitis.

CA 125 is an antigen expressed by 80% of non mucinous epithelial ovarian cancers. A level greater than 35 U/ml is considered abnormal. In premenopausal women, however, CA 125 levels may also be elevated in a number of benign conditions, including pelvic inflammatory disease, endometriosis, pregnancy and hemorrhagic ovarian cysts. In addition, approximately 50% of women with early ovarian cancer have a normal CA 125 level (5). Other markers for ovarian causes include CA 19-9, CA 15-3, OVX1, Her -2/neu and human chronic gonadotrophin (1).

Surgery is the cornerstone of therapy for ovarian cancer. For a patient suspected of having ovarian cancer, primary surgery accomplishes the following goals: confirmation of the diagnosis of ovarian cancer. Precise determination of extent of

disease, maximum cytoreductive surgery in patients with advanced stage disease. Procedures in the surgical staging of ovarian cancer include the following:

Samples of ascites or peritoneal washings from the para colic gutters and pelvic and sub diaphragmatic surface for cytology. Complete abdominal exploration. Intact removal of tumour. Hysterectomy and Infra colic omentectomy. Biopsies of abdominal peritoneal implants if present random biopsies from the paracolic gutter peritoneum, pelvic peritoneum, and right sub diaphragmatic peritoneal surface. Pelvic and para-aortic lymph node biopsies and cytoreductive surgery to remove all visible disease (1,2,5,6,7)

Ovarian cancer is surgically staged according to the staging system developed by the International Federation of Gynaecology and Obstetrics (FIGO).

Stage I: Growth limited to the ovaries

IA:Growth limited to one ovary: no ascites, no tumour on the external surfaces; capsule intact.

IB:Growth limited to both ovaries: no ascites, no tumour on the external surface, Capsule intact

IC:Tumour either stage I A or IB but with tumour on surface of one or both ovaries; or with capsule ruptured; or with ascites present containing malignant cells or with positive peritoneal washings

Stage II: Growth involves one or both ovaries with pelvic extension

II A: Extension or metastases to the uterus or tubes

II B: Extension to other pelvic tissues

II C: Tumours either stage IIA or IIB, but with tumour on surface of one or both ovaries, or with capsule ruptured; or with ascites present containing malignant cells, or with positive peritoneal washings.

Stage III: Tumour involves one or both ovaries with peritoneal implants outside the pelvis and/or positive retroperitoneal or inguinal nodes. Superficial liver metastases equal stage III. Tumour is limited to the true pelvis but with histologically proven malignant extension to small bowel or omentum.

IIIA: Tumour grossly limited to the true pelvis with negative nodes but with histologically confirmed microscopic seedling of abdominal peritoneal surfaces.

II1B: Tumour of one or both ovaries with histologically confirmed implants of abdominal peritoneal surfaces, non exceeding 2 cm in diameter nodes are negative.

IIIC: Abdominal implants > 2cm in diameter or positive retroperitoneal or inguinal nodes.

Stage IV: Growth involves one or both ovaries, with distant metastases, if pleural effusion is present, there must be positive cytology to alot a case to stage IV. Parenchymal liver metastases equal stage IV.

The patient presented had stage III disease.

In patients with stage 1A disease and grade I tumours, chemotherapy following initial surgical treatment has no influence on survival. Therefore, this group of patients if selected carefully does not require chemotherapeutic treatment. However, all other patients should undergo systemic chemotherapy. Agents shown to be active against epithelial ovarian cancer include cisplatin, carboplatin, cyclophosphamide, and paclitaxel. Combination therapies hav.- been demonstrated to be superior to single agent treatment currently the most effective regimen uses a combination of paclitaxel and cisplatin or carboplatin. Six courses are given every 3 to 4 weeks (1,2,5,6). The patient presented had combination chemotherapy with cisplatin, cyclophosphamide and adriamycin.

Assessment of response to combination chemotherapy is based on physical examination, changes in size of palpable or radiographically measurable lesions, and changes in the CA125 level. Although the preoperative CA125 level does not correlate with tumour burden, changes in response to chemotherapy appear to be of some prognostic benefit (1,2,5,6).

After completion of initial therapy for ovarian cancer, patients without clinical evidence of disease may undergo a second-look operation to determine the therapeutic response and assess the persistence of tumour (2).

The prognosis for patients with ovarian cancer is primarily related to the stage of the disease. The 5 year survival rate for patients with stage I epithelial ovarian cancer, is depending on tumour grade, between 76% and 93%. The 5 year survival rate for those with stage II disease is 60% - 74%. Stage III ovarian cancer is associated with 5 year survival rate of approximately 23 - 41%. The survival rate for a patient with stage IV disease is about 11% (2).

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GYNACOLOGY CASE 8

CHORIOCARCINOMA: CHEMOTHERAPY AND REMISSION

NAME:	P. K.	IP NO:	1018495
AGE:	24YEARS	D.O.A:	16-04-05
PARITY:	0 + 1	D.O.A:	10-05-05

PRESENTING COMPLAINT

The patient was admitted with complaints of vaginal bleeding for 4 days and dizziness for 1 day.

HISTORY OF PRESENTING COMPLAINT

She had incomplete abortion two months prior to admission. She had evacuation done and then she was discharged. She was well till 4 days prior to admission when she developed vaginal bleeding. The bleeding was heavy. She changed soaked pads more than twice per day. She had not resumed her menses from the last pregnancy, which ended with an abortion.

OBSTETRIC AND GYNECOLOGICAL HISTORY

She was a para 0+1. Her last menstrual period was 23-12-04. She had abortion at 2 months and evacuation was done. Her menarche occurred at the age of 16 years. Her menses lasted for 4 to 5 days coming every 28 days, and were regular. She had no dysmenorrhoea. She had not used any contraceptive method.

PAST MEDICAL AND SURGICAL HISTORY

This was not significant.

FAMILY AND SOCIAL HISTORY

She was a single lady and unemployed. She stayed with the sister in Dandora. She was a lastborn in a family of 8 siblings. There was no family history of a chronic illness.

PHYSICAL EXAMINATION

She was sick looking and moderately pale. She had no jaundice, lymphademopathy, oral thrush or oedema. She was clinically afbrile. The vital signs were: blood pressure 90/50mmHg, pulse rate 102/minute, respiratory rate 22/minute and temperature 36.4°C.

ABDOMINAL EXAMINATION

The abdomen was distended on the lower half and moved with respiration. There was mild tenderness on the suprapubic area. There was a suprapubic mass arising from the pelvis and corresponding to 14 weeks gestation.

PELVIC EXAMINATION

The external genitalia were normal. On speculum examination there was an irregular mass on the anterior vagina wall. Speculum examination provided some bleeding from the mass. On digital examination, the cervix was closed, the uterus was bulky and there were bilateral adnexal masses. The pouch of Douglas was free and there was a soft mass on the anterior vaginal wall.

OTHER SYSTEMS

The respiratory and central nervous systems were normal.

DIAGNOSIS

A diagnosis of gestational trophoblastic disease with anaemaia was made.

Investigations

- Haemogram
  - Hb 6.7g/dl
  - WBC 4 X 10^9/L
  - RBC 5.2 X 10^{12}/L
  - PLT 240 X 10^9/L
- BhcG 10,110 miu/ml
- Blood group O Rhesus positive
- Pelvic Ultrasound Showed a bulky uterus with no products of conception.

Bilateral ovarian cysts with enlarged ovaries.

MANAGEMENT

A diagnosis of choriocarcinoma with severe anaemia was made. A decision was made to start her on Methotrexata, Actinomycin-D and Cyclophosphamide (MAC) after raising the haemoglobin level to normal. She was transfused 4 units. She had the following investigation done prior to commencement of chemotherapy: Chest x-ray, repeat haemogram, urea and electrolysis and liver function tests. The results were:-

• Liver function tests	Total Protein	64g/L
	Albumin	37g/L
	SGOT	lOu/L
	SGPT	I2u/L
Urea and electrolysis	Na+	132mmol/L
	K+	4.0mmol/L
	Urea	106mmol/L
	Creatine	64ummol/L
Heamogram	Hb	10.5 g/d I
	RBC	5.6 X $10^{.2}$/L
	WBC	3.8 X 10^{9}/L
	PLT	245 X 10^{9}/L
Chest x-ray	Showed normal lung fields and normal cardiac show.	

After the baseline investigations were confirmed satisfactory, she was started on the first course of MAC (Methotrexate 50mg, Actinomycin D 0.5mg and Cyclophosphamide 250mg daily for 5 days). She tolerated the chemotherapy well and

she was discharged home on haematinics and booked for readmission for the second course after 14 days.

Re-admissions

22-05-05: She was readmitted for the second course. The BHcG were 3,342 miu/ml and the baseline investigations (LFTs, U/E/C and Haemogram) were normal. She was given second course of the chemotherapy, which she tolerated well.

14-06-05: She was readmitted for the third course. The BhcG were 37.6 miu/ml and the baseline investigations were within normal. Third course of chemotherapy was given and was well tolerated. She was discharged home on heamantinics.

17-07-05: Given the fourth course of chemotherapy, BhcG then was 2miu/ml. She developed mouth ulcers. She was started on Leucovaril 15mg daily for 5 days and intravenous Zantac 150mg twice daily.

04-08-05: She was started on the fifth course of chemotherapy. She tolerated well. The BhcG levels were less than 2miu/ml. There after she got one more dose of Methotrexate and the chemotherapy was stopped and she was discharged to be followed up in the gynaecolgy outpatient clinic (GOPC).

Follow-up

She was seen at the GOPC after 1 month and she had no complaints and was found to be good general condition. The BhcG levels were less than 2miu/ml (within normal). She was advised on contraception and choose combined oral contraceptive pills. She was to be seen after 1 month. She is still on follow-up at the GOPC and she continues with contraception and does BhcG monthly.

DISCUSSION

The patient presented was para 0+1 who had choriocarcinoma following an abortion. She was started on triple agent chemotherapy and responded very well.

Gestational trophoblastic neoplasm (GTN) include the tumour spectrum of hydatidiform mole (complete and partial), invasive mole, placental-site trophoblastic tumour (PSTT), and choriocarcinoma. They arise from fetal tissue within the maternal host and are composed of both syncytiotrophoblastic and cytotrophoblastic cells. In addition to being the first and only disseminated solid tumours that have proved to be curable by chemotherapy, they elaborate a unique and characteristic tumour marker, human chorionic gonadotrophin (1, 2, 3, 4).

Hydatidiform mole is the most common of the trophoblastic neoplasm and develops in 1:1000 pregnancies in USA and Europe. Choriocarcinoma is rare and is reported in 2-5% of all GTN with an incidence in the USA of 1 in 40,000 pregnancies (1, 2). In the Far East and Central Africa, the incidence is one case for every 5000-6000 pregnancies (5). Fongoh at Kenyatta National Hospital reported an incidence of 1:1118 deliveries in 1984 (6). Makokha et al. had reported only 65 cases between 1975 and 1979 (7). In about half of all cases of choriocarcinoma, the antecedent gestational event is hydatidiform mole. One-fourth-follow term pregnancy and the remainder occur following abortion.

Hydatidiform mole should be suspected in any woman with bleeding in the first half of pregnancy, passage of vesicles, hyperemesis gravidarum, or pre-eclampsia, eclampsia with onset before 24 weeks. Absent fetal heart tones and a uterus too large for the estimated duration of gestation on physical examination support the diagnosis. Ultrasonography and serial (3-hCG determinations are necessary to establish a firm diagnosis of H-mole (5, 8, 9).

The exact aetiology of trophoblastic disease is unknown. The incidence is higher in women under 20 and over 40 years of age, nulliparity, multiparity, low socio-economic status, blood group A or AB married to a husband of blood group O, diet

deficient in proteins, folic acid and carotene and women who have previously had a molar pregnancy (5,8,9). The patient presented was 24 years old, her blood group was A possitive, she came from a low social class background.

Choriocarcinoma is a pure epithelial neoplasm, comprising both neoplastic syncytiotrophoblastic and cytotrophoblastic elements without chorionic villi. Early systemic haematogenous metastasis tends to develop in gestational choriocarcinoma. It invades the myometrium and metastasizes locally to the broad ligament or by blood to the lungs, brain, liver, and vagina (1, 3, 4, 5, 10).

Locally invasive gestational trophoblastic tumour develops in about 15% of patients after molar evacuation and infrequently after other gestations (11). These patients are usually seen clinically with irregular vaginal bleeding, theca lutein cysts, uterine sub-involution or asymmetric enlargement and persistently elevated serum (3-hCG levels. The trophoblastic tumour may perforate through the myometrium, causing intraperitoneal bleeding, or erode into the uterine vessels causing vaginal haemorrhage; bulky necrotic tumour may involve the uterine wall and serve as a nidus for infection. Patients with uterine sepsis have a purulent vaginal discharge and acute pelvic pain (3). The patient presented had metastasis to the vaginal wall.

Once the diagnosis of malignant trophoblastic disease has been established, an accurate history should be obtained and a detailed physical examination performed, sites of metastases should be sought, especially in the lower genital tract. A chest X-ray and scans of the brain and liver should be obtained. CT scan is the diagnostic procedure of choice for brain, lung, liver, and renal metastasis (1,3).

Malignant gestational trophoblastic tumour is categorized into non-metastatic or metastatic disease. Non-metastatic disease is confined to the uterus while metastatic disease has extra uterine metastases. Metastasis is usually associated with choriocarcinoma, which has a tendency towards early vascular invasion with widespread dissemination. The most common sites of metastases are lung 80%, vagina 30%, pelvis 20%, liver 10%, and brain 10% (3).

Metastatic GTD is further categorized into good and poor prognosis disease. Good prognosis metastatic disease has a short duration from the antecedent pregnancy of less 4 months, has pHGG levels less than 40,000 mlU/ml, has no metastases to the brain or liver; and has no significant prior chemotherapy. In poor prognosis metastatic disease there is a long duration (>4 months) from the antecedent pregnancy, has high levels of serum pHGG above 40,000 MlU/ml, has metastases to brain or liver, has had previous unsuccessful chemotherapy or follow a term pregnancy. The official International Federation of Gynaecology and Obstetrics (FIGO) staging of GTN is as follows (1,4).

Stagel Confined to the uterus

Stagell Limited to the genital structures

Stagel 11 Lung metastases

StagelV other metastases

Sub stage

- A No risk factor
- B One risk factor
- C Two risk factors

Risk factors

1. (3hCG >100,000 mlU/ml
2. Duration from termination of antecedent pregnancy to diagnosis >6 months.

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 (3). A prognostic scoring system proposed by the World Health Organization reliably predicts the potential for resistance to chemotherapy. When the prognostic score is higher than 7, the patient is categorized as high risk and requires intensive combination chemotherapy to achieve remission. Patients with stage I disease usually have a low risk-score, and those with stage IV disease have a high-risk score. The distinction between low and high risk applies mainly to patients with stage II or III disease (1,4). The patient presented had disease stage II.

W.H.O. Prognostic Scoring System for GTD

	Parameter	0	1	2	4
1.	Age (years)	<39	>39		
2.	Antecedent pregnancy	Mole	Abortion	Term	
3.	Interval between end of antecedent pregnancy and start of chemotherapy (months)	<4	4-6	7-12	>12
4.	PhCG (mlU/ml)	$<10^3$	10^J - 10^4	$\0^A$- 0^5	>10'
5.	ABO groups	-	0 or A	B or AB	-
6.	Largest tumour including uterine (cm)	<3	3-5	>5	-
7.	Site of metastasis	-	Spleen, kidney	GIT, Liver	Brain
8	Number of metastasis	-	1-3	4-8	>8
9	Prior Chemotherapy	-	-	1 drug	>2 drugs

The total score is obtained by adding the individual scores for each prognostic factor: <4 low risk, 5-7, middle risk; >8, high risk.

Patients with malignant, non-metastatic disease and metastatic low risk GTN are treated with single agent chemotherapy. Methotrexate is considered the drug of choice. However, Actinomycin D. can be used in-patient with poor liver function. During treatment, the serum p-hCG titres are monitored weekly. One additional course of chemotherapy is administered after a normal serum hCG titre. After 3-4 normal hCG titres, the titres are done monthly for 1 year. A switch from methotrexate to Actinomycin is made if the patient receiving methotrexate for non-metastatic or metastatic low-risk GTN develops rising or plateauing serum HCG titres (1,3, 12).

Prior treatments for poor prognosis/high risk gestational trophoblastic disease have included MAC (Methotrexate, ActinomycinD, and Chlorambucil or cyclophosphamide). Currently EMA/CO (Etoposide, methotrexate, Actinomycin D, Cyclophosphamide and vincristine) chemotherapy provides the best response rate (approximately 80%) with the lowest side effect profile (1, 3, 12). Treatment of malignant trophoblastic disease must be continued with repeated courses of combination chemotherapy until (hCG titres have returned to non detectable levels. It is recommended that all high-risk patients receive at least three courses of triple-agent chemotherapy after HCG titres have returned to normal. After remission is achieved, follow-up is as for non-metastatic or good prognosis disease (1,3, 12).

During the period of follow-up care, patients with GTN should use a reliable method of contraception, such as oral contraceptives or depot progesterone. The serum hCG titres are critical in monitoring the status of the disease, and a normal intrauterine pregnancy interferes with this critical monitoring tool (12).

The prognosis for non-metastatic GTN is excellent with cure rate with chemotherapy of close to 100%. Metastatic low risk GTN has a cure rate with chemotherapy of close to 100%. Metastatic high risk GTN has a cure rate with chemotherapy of approximately 75% (1,2, 12).

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(GYNECOLOGY CASE 9

LONG TERM REVERSIBLE CONTRACEPTION - JADELLE INSERTION

NAME:	M.A	L.M.P:	30/10/04
AGE :	39 YEARS	LAST DELIVERY:	04/02/04
PARITY:	5+0	F.P CLIENT NO:	2939/04
DATE OF INSERTION:	04/11/04		

HISTORY OF PRESENTING COMPLAINT

She had delivered 8 months prior to being seen in the family planning clinic. She had been using condoms since last delivery but now wanted a more reliable method. She had been breast-feeding exclusively until then when she began weaning the baby. She was counselled on various methods family planning she chose Jadelle because she wanted to stay for longer time before getting pregnancy.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 5+0. Her last delivery was on 04/02/04 by spontaneous vertex delivery at Kakamega General provincial Hospital. All children were alive and well. Her menarche was at 14 years. Her LMP was on 30/10/04. Her menses were regular coming every 28 days and lasting 5 days. She had no dysmenorrhoea. In between pregnancy she had used natural family planning.

PAST MEDICAL HISTORY

She had been admitted only for childbirth. She had no chronic illness and had never had any major surgery.

FAMILY AND SOCIAL HISTORY

She was married and lived with her husband in Mumias. She is a primary school teacher. There is was no family history of chronic illness. She does not take alcohol or smoke cigarettes.

PHYSICAL EXAMINATION

She was in good general condition. She was a febrile, not pale, not jaundiced, not oedematous. She had no varicose veins. Her blood pressure was 120/70mmHg, pulse was 74/minute, temperature was 36.6°C and respiration was 20/minutes. Her weight was 70kg.

Central nervous, respiratory, cardiovascular and musculoskeletal systems were essentially normal

BREAST EXAMINATION

The breasts were full and active. There were no masses or lumps in all the quadrants. There was no abnormal discharge and no areas of tenderness.

ABDOMINAL EXAMINATION

The abdomen was of normal fullness and moved with respiration. There were no palpable masses and no organnomegally.

VIGINAL EXAMINATION

There were normal external genitalia. The cervix was firm, posterior, long, and os was closed. The uterus was anterverted and of normal size. The adnexae and pouch of Douglas was free and non-tender.

MANAGEMENT

The client was counselled on the different contraceptive methods available, their mechanisms of action, effectiveness, indications, contraindications, side effects and benefits. She chose Jadelle as her contraceptive method of choice. The procedure was explained to her and she give verbal consent.

She was made to lie on a couch with her left upper limb extended on an arm support. The inner aspect of the left arm was cleaned with betadine and draped with a sterile drape with a window. Three millilitres of lignocaine was injected to the inner aspect of the left arm, first to a small area and then to two areas about 5 cm long. A small incision was made on the skin using a scalpel. A trocar with three marks on it was

inserted through the incision and advanced gently under the skin to the first mark near the hub of the trocar. The first implant was loaded using the thumb and the forefinger and pushed gently with the plunger towards the tip of the trocar until resistance was felt. While holding the plunger steady, the trocar was withdrawn until it touched the handle of the plunger and the mark close to the tip was visible. The same was repeated for the second implant. After insertion of the second implant the edges of the incision were pressed together and closed with an adhesive bandage (Elastoplast) and then wrapped with gauze.

The client was instructed to keep the insertion area dry and to remove the gauze after three days and to keep the Elastoplast until review one week later.

FOLOW UP

She was reviewed a week later on 09/11/04 in the family welfare clinic. She had no complaints and the incision had healed well. She was given another appointment for 1 month, then after 2 months. During these visit she was found to be fine. She was subsequently given a six-month appointment.

DISCUSSION

The case presented is of a 39 year old para 5+0 who wanted a long term reversible method of contraception 8 months after delivery. She had levonorgestrel implant (Jadelle) inserted.

Norplant implants comprise 2 or 6 levonorgestrel-containing silastic capsules inserted under the skin. Norplant the six rod capsule version consists of six rods each measuring 34 mm in length and 2.4 mm in outside diameter and containing 36 mg of the progestin levonorgestrel. About 80mg/d is released during the first 6 to 12 months after insertion. The release rate then gradually declines to 30 to 35 mg/d. Blood levels are about 0.35ng/ml at 6 months and remain above 0.25ng/ml for five years. Plasma levels less than 0.20ng/ml result in higher pregnancy rates (1).

The two-rod levonorgestrel system termed Norplant II or Jadelle was introduced in Kenya in 2004 after Norplant was phased out. It consists of 2 rods each measuring 44mm in length and 2.4 mm in diameter and containing 75 mg of levonorgestrel. It is effective for five years just like Norplant. It has release rates, pregnancy rates and adverse effect profile similar to Norplant but has the advantage of being easier to insert and remove (2).

Levonorgestrel implants prevent pregnancy through several mechanisms including inhibition of ovulation, thickening of cervical mucus (making sperm penetration difficult), creation of a thin atrophic endometrium and premature luteolysis (the degradation of the corpus luteum causing a rapid decline in ovarian oestrogen and progestin production that leads to endometrial shedding).

The implants are usually placed under the skin on the inside of the woman's upper arm in a fan-like configuration using a trocar. It is recommended that they be replaced after 5 years.

Norplant failures are rare. The rate of accidental failure in the first year of use is 0.2%. The Population Council also reports a failure rate of 0.2 pregnancies per 100 woman years of use in the second year and rates of 0.9, 0.5, and 1.1 in the third, fourth and fifth years respectively. To avoid norplant insertion in women who are already pregnant, norplant should be inserted within seven days of onset of menstruation or

immediately post-abortion. Because the failure rate increases to an unacceptable level in the sixth year, the capsules should be removed at the end of the fifth year (3).

Major potential health sequelae have not been identified in association with the use of norplant, but side effects are fairly common. Some degree of menstrual irregularity such as increased flow or spotting has been reported in up to 60% of norplant users in the first year of use. However, the occurrence of such side effects is time dependent with the rate declining by about 50% after one year. Headache is cited as the reason for discontinuation of norplant in about 20% Of women. Weight change and mastalgia are also cited with varying frequency among users (4, 5).

Absolute contraindications for use of the implants include thrombophlebitis or thromboembolic disease, undiagnosed genital bleeding, acute liver disease, benign or malignant liver tumours, and known or suspected breast cancer. Relative contraindications include heavy cigarette smoking, a history of ectopic pregnancy, diabetes mellitus, hypercholesterolemia, severe acne, severe vascular or migraine headaches and severe depression (2).

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GYNECOLOGY CASE 10

CARCINOMA OF THE VULVA STAGE II-ENBLOC RADICAL VULVECTOMY AND RADIOTHERAPY

NAME:	K.N.	D.O.A	04/09/05
AGE :	58 YEARS	D.O.D	19/09/05
IPNO :	1048281	WARD	IB
PARIT:	11+0		

PRESENTING COMPLAINTS

The patient presented with 2 years history of vulva ulcer and itchiness.

HISTORY OF PRESENTING COMPLAINTS

She was referred from a Kitui District hospital with 2 years history of ulcer on the left vulva. The ulcers initially started as a small pimple, gradually increased in size, and then ulcerate. She had a history of right vulva itchiness for as long as she had noticed the swelling. Three months after noticing the swelling the lesion had started paining and on admission, it was aggravated by sitting. At Kitui hospital, a biopsy was done in 11.08.05. This showed invasive veruca carcinoma of the vulva. She was referred with the biopsy result.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 11+0. Her last delivery was 1988 all by spontaneous vaginal delivery. She was postmenopausal for the last fifteen years. She had no history of sexually transmitted disease. She never used any method of family planning.

PAST MEDICAL AND SURGICAL HISTORY

This was no significant.

FAMILY AND SOCIAL HISTORY

She was married live with husband in Kitui. She did small-scale farming in Kitui. There was no history of chronic illness in the family.

PHYSICAL EXAMINATION

She was an elderly lady, in fair general condition, had no pallor, afebrile, not dehydrated, and had no oedema. Her blood pressure was 110/70mmHg, pulse rate was 80 per minute, temperature was 36.7°C and respiratory rate was 20 per minute.

CARDIOVASCULAR, RESPIRATORY AND CENTRAL NERVOUS SYSTEMS

These were essentially normal.

ABDOMINAL EXAMINATION

The abdomen was not distended and moved with respiration. There were no surgical or therapeutic marks. On palpation the abdomen was soft, non-tender had no ascites. Liver and spleen were not palpable. There was no inguinal lymphadenopathy.

PELVIC EXAMINATION

There was an exophytic fungating mass involving right labial minora and labia majora about 5x6cm in diameter. The mass was not fixed to underlying structures. There was no involvement of perineum, urethra, vagina or anus. On digital examination the vaginal wall was smooth no mass felt. The cervix was posterior, small size and grossly normal uterus.

INVESTIGATIONS AND RESULTS

Haemoglobin	:	13.7 g/dI
RBC		4.9X1012/L
WBC		10X10 9/L
Platelets	:	226 x 10 9/l

Urea and Electrolytes

Na+	149mmol/l
K+	5.4mmol/l
BUN	3.2mmol/l
Creatinine	8.6mmol/l

Liver Function Tests

Total protein	72.6g/dl
Albumin	27.2g/dl
ALT	14u/l
AST	4u/l
ALP	38.7u/l
Total Bilirubin	4.9mmol/l
Direct Bilirubin	4.9mm01/l

DIAGNOSIS

An diagnosis of cancer of the vulva was made.

MANAGEMENT

The diagnosis and anticipated mode of management was communicated to her. She planned for radical vulvectomy and given an informed consent. She was starved from midnight. She was shaved and premedicated half hour before theatre with atropine 0.6mg and pethidine 50mg intramuscular. Four unit of blood were prepared.

OPERATION

In the operating room, general anaesthesia was induced and maintained. The lower abdomen and vulva was cleaned and draped. Examination under anaesthesia confirmed previous findings. An arcuate incision was made 2 cm above the symphysis pubis and inguinal ligament joining both, anterosuperior iliac spines. The incision was continued to make a "butterfly" vulval incision of Marshall and Parry-Jones. An en bloc dissection of the groin lymhatics an attached subcutaneous fat with overlying skin to the region of mons pubis. The vulva incision was continued along the labial-crural folds towards the perineum then dissecting out along 2cm margin of the tumour. A vaginal incision was made circumscribing the introitus just out of the hymenal ring. The subcutaneous tissues were undermined on the lateral and posterior aspect of the vaginal walls thus freeing the vulva. After ascertaining haemostasis, closure of the incision was accomplished using vicryl number 0. The wound was not dressed. The urinary catheter was left in situ. Reversal from general anaesthesia was successful.

POST-OPERATIVE CARE

Her vital signs were monitored half hourly until she was fully awake, then 4 hourly. She was started on intravenous gentamycin 80mg 8 hourly, crystalline penicillin 2 mega units 6 hourly and flagyl 500mg 8 hourly. Analgesia was achieved with intramuscular pethidine lOOmg 6 hourly for 24 hours then ibruprofen for 4 days. Wound cleaning was done twice daily with chlorhexidine and healed nicely. The urinary catheter was removed on the tenth day.

The histology results showed invasive veruca carcinoma of the vulva with involvement of three lymph nodes. She was discharged on 15 day after surgery through radiotherapy department where she was started on radiotherapy.

COMMENT

The patient presented here was diagnosed to have carcinoma of the vulva stage II for which radical vulvectomy was done followed by radiotherapy.

Carcinoma of the vulva is an uncommon malignancy accounting for 0.3% of all female cancers and 3 to 5% of all female genital malignancies (1,2,3). It is the fourth commonest cancer and accounts for 3.3% of all gynaecological tumours at Kenyatta National Hospital (4). IT is primarily a disease of postmenopausal women with a peak incidence in 60s and is commoner in whites (1,3).

The patient presented here was 60 years old and was of black race.

Cancer of the vulva may arise from the skin, subcutaneous tissues, urethra, and glandular elements of the vulva or the mucosa of the lower third of the vagina. Squamous cell carcinoma accounts for about 90% of the cases; melanoma is the second commonest accounting for 5 to 10%. Some of the less common vulval malignancies include sartholins carcinoma, basal cell carcinoma, extramammary Paget's disease, sarcomas and mestastasis from other sites (1, 3, 5). At Kenyatta National Hospital, squamous cell carcinoma was found to account for 97.4% of patients with cancer of the vulva (4).

The patient f presented here had squamous cell carcinoma.

No specific aetiologic factor has been identified for vulval cancer, and the relationship of the invasive disease to vulval dystrophy and vulval intraepithelial neoplasia remains unclear. Hypertension and diabetes mellitus are common in patients with

invasive vulva cancer, but this may simply be related to the elderly population affected. The association of vulval cancer with obesity and cigarette smoking are also unclear. The common association between cervical, vaginal and vulval cancer suggests a common pathogen-Human papilloma virus (HPV). The HPV-positive group has been characterised by a younger mean age, more tobacco use, and the presence of vulva intraepithelial neoplasia (VIN) in association with the invasive component (1, 2, 3, 5, 6, and 7).

The gross appearance of the vulval cancer depends on the origin and histologic type. Spread from the primary vulval cancer sites occur by the several route. Direct extension to the adjacent structures such as the vagina, urethra and anus. Lymphatic embolization or permeation to reglona lymph nodes. Haemotogenous spread to distant sites including the lungs, liver and bones. The lymphatic route spread is by far the most common. The pelvic lymph nodes are virtually never involved in the absence of inguinofemoral nodal involvement (1,2,3,5,7).
The patient presented had inguinal nodes involvement on histology.

In 1988 FIGO approved the following surgical staging:

Stage 0: Carcinoma in situ, intraepithelial carcinoma.

Stage 1: Tumour confined to the vulva or perineum or both 2cm or less in greatest diameter (no nodal metastasis).

Stage 1A: Stroma invasion not greater than 1.0mm.

Stage IB: Stroma invasion greater than 1.0mm.

Stage II: Tumour confirmed to the vulva or perineum or both -more than 2cm in greatest diameter (no nodal metastasis).

Stage III: Tumour of any size with one or both following:
Adjacent spread to the lower urethra, the vagina or the anus.
Unilateral regional lymph node metastasis.

Stage IVA: Tumour invades any of the following: upper urethra, bladder mucosa, rectal mucosa, or pelvic bones or bilateral regional nodes metastasis.

StagelVB: Any distant metastasis including pelvic lymph nodes (3, 5).

K.N. was in stage III since the largest diameter of the lesion was about 6cm. The lesion was confined to vulva and had nodal metastasis.

Pruritus vulvae or a vulval mass is the presenting complaint in over half of the cases. Other patients complain of bleeding or vulva pain, whereas approximately 20% of patients have no complaints, and the tumour will be found incidentally during routine pelvic examination (1, 2, 3, and 7). In Kenyatta National Hospital, the most common complaint is vulva swelling (4).

The patient discussed presented with vulva itchiness, swelling and pain.

Invasive squamous cell carcinoma of the vulva involves the labia majora in about 2/3 of the cases. The remaining tumours involve the clitoris, labia minora or posterior fourchette and perineum. These cancers can be exophytic, ulcerating or flat (3). Examination of the patient presented revealed an exophytic lesion involving both labia majora and minora. A biopsy diagnosis before treatment of vulval lesion is mandatory (1,3, 7).

The patient was referred from a peripheral hospital with the biopsy result.

Cystoscopy, intravenous pyelography on proctoscopy (or all three) is indicated if it appears that locally advanced cancer may be involving the bladder or rectum (3). These investigations were not done for K.N. as there were no features of bladder or rectum involvement.

Radical vulvectomy with bilateral inguinal lymphadenectomy performed by en bloc excision has been the standard therapy applied to most patients with carcinoma of the vulva. This operation entails radical removal of the entire vulva, the mons pubis, the inguinofemoral lymph nodes and often the pelvic nodes (1, 3,5).

K.N. underwent radical vulvectomy with dissection of inguinal lymph nodes.

Radical vulvectomy usually leads to a large surgical defect that is generally closed under tension with a high subsequent breakdown rate and disfigurement of the genital area. Other concerns include psychosexual disturbances, urinary or fecal incontinence and vaginal relaxation (3, 5). To reduce the chances of wound breakdown, some authors have advocated the use of mucocutaneous flaps and cutaneous flaps (3, 5, 8). Separate incisions are also currently advocated (3, 5).

The indicators for radiation therapy are preoperatively in patients with advanced disease who would otherwise require pelvic exenteration. Post-operatively to treat the pelvic lymph nodes and groin of patients with two or more positive groin nodes, post-operatively to help prevent local recurrences in patients with involved or close surgical margins(5).

The status of the groin nodes is the most important prognostic factor for patients with invasive squamous cell carcinoma of the vulva. The other prognostic factors are the size, location and the histologic type. As the tumour increases in size, the incidence of metastasis increases (1,3, 5).

The patient had lymph node involvement and hence appears to have poor prognosis.

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GVNKCOLOGV CASE 11

INCOMPLETE ABORTION - MANUAL VACUUM ASPIRATION

NAME:	V. W.	D.O.A :	11/04/05
AGE:	27 years	D.O.D:	12/04/05
ID NO:	1015450	WARD:	ID

PRESENTING COMPLAINT

She presented with a history of vaginal bleeding, lower abdominal pains, and backache for one day.

HISTORY OF PRESENTING COMPLAINT

The patient had been well prior to the onset of per vaginal bleeding. She bled in clots and expelled a fetus. The abdominal pains were colicky and radiated to the lower back. She was also dizzy after several hours of bleeding and had fainted once. There was no history of trauma or pregnancy interference. There was no history fever or any illness prior to development of these complaints.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 2+0 gravida 3 . She had spontaneous vertex delivery in 1988 to a female child who is alive and well. In 2000 she had another normal delivery to female infant who is also alive and well. Her menarche was at 13 years. Her cycles were occurring regularly every 28 days and lasting 5 days. Her last normal menstrual cycle was on 26.12.04, and therefore a period of amenorrhoea of 15 weeks. She had not started antenatal clinic yet. She had been on oral contraceptives between 2000 and 2003. She was para 2 plus 0, gravida 3

PREVIOUS MEDICAL HISTORY

This was not significant.

FAMILY AND SOCIAL HISTORY

She was a single woman who lived in Kawangware and working in a saloon . She neither took alcohol nor smoked cigarettes. She had one steady sexual partner. There was no family history of chronic illness.

GENERAL EXAMINATION

She was a young lady in fair general condition, afebrile, moderately pale but had no oedema. Her blood pressure was 100/60mm hg, pulse rate 90 per minute, respiratory rate was 18 per minute, and temperature was 36.7°C.

ABDOMINAL EXAMINATION

The abdomen had normal fullness. Fundal height was 14 weeks. There were no areas of tenderness. There was no organomegaly.

PELVIC EXAMINATION

The external genitalia was normal and bloods stained. The vagina was warm, and moist. The cervix was 4cm dilated. The products of conception were felt at the os. The uterus was 14 weeks size and mobile. Both adnexae and pouch of Douglas were free. There were clots on examining finger.

DIAGNOSIS

A diagnosis of incomplete abortion was made.

MANAGEMENT

Blood samples were taken for grouping and cross matching and PCV estimation. She was started on intravenous fluid replacement of normal saline alternating with 5% dextrose. The diagnosis and need for evacuation were explained to the patient and she gave a written informed consent. She was then asked to empty bladder and taken for manual vacuum aspiration in the procedure room.

The patient was put in lithotomy position. Vulvo- vaginal toilet was done and then she was draped. A repeat pelvic exam was done and confirmed above findings. A cuscos speculum was inserted, fixed and the cervix stabilized with tenaculum at the anterior lip. A size 12 Karmans cannula was introduced and the vacuumed syringe attached. The valves were opened and the cannula moved gently in and out and rotated through 180° on either side. This was done till a gritty sensation was felt. About 150mls of products of conception were evacuated. The cannula, tenaculum were first removed and cervix was cleaned. There was no bleeding then speculum was removed and patient cleaned. The bleeding was well controlled. The patient was taken to the ward to recover. Her PCV (packed cell volume) was 26%.

She improved following fluid replacement and feeding. She did not require transfusion. She was continued on intravenous crystalline penicillin 2 MU qds, gentamycin 80 mg tds and flagyl 500mg tds for 24 hours. The next day she was stable enough and was discharged on oral antibiotics of amoxil 500mg three times daily, flagyl 400 mg three times daily for five days and haematinic ranferon one twice daily for two weeks. She was counselled on family planning and other post abortion care such as personal hygiene and prevention control and then referred to the family planning clinic for further contraception advice and method provision.

DISCUSSION

The patient presented was a 27-year-old para 2 + 0 who had incomplete abortion for which manual vacuum aspiration was done.

Abortion is defined as a pregnancy termination before the 20th completed week on a fetus weighing less than 500gms (1). Abortion can occur spontaneously or be induced for therapeutic or elective termination of pregnancy. The larger the gestational age at the time of termination the higher the chances of serious complications such as haemorrhage, sepsis, uterus perforation and even death (1).

The patient presented here had spontaneous abortion with significant haemorrhage.

The exact incidence of abortion is unknown because only those that develop complications end up in hospitals. In most developing countries, the incidence has continued to rise causing serious public health problem (1). The incidence of abortion is generally considered to be about 15 % of all pregnancies (2). At KNH, it was reported that up to 60% of the total gynaecological emergency admissions were due to abortion with 15% of them suspected to have been induced (2). In Nigeria 76.7% of emergency gynaecological admissions were due to induced abortion (3). Worldwide complications of unsafe abortion are responsible for 13% of all maternal deaths. These deaths can be prevented if women have access to family planning information and services that care for abortion related complications, and where abortion is not prohibited by law, safe abortion care (4). In the spectrum of reproductive wastage, spontaneous abortion is probably the largest single contributor with an incidence of 15-40%. About 75% of spontaneous abortion occurs before 16 weeks and 62% by 12 weeks (5).

Most spontaneous abortions are associated with abnormal products of conception and occur prior to clinical evidence of pregnancy. In about 60% of spontaneous abortion occurring during first trimester, there is an abnormal Karyotype, 50% being aneuploid and 50% euploid (5).

Other causes include maternal infection like rubella, toxoplasmosis, brucellosis and malaria, advancing maternal and paternal ages, aging sperm and egg, abdominal trauma and smoking. Others are immunological factors like SLE (systemic lupus erythematosus) and antiphophoslipid antibodies, endocrinopathies like hypothyroidism, uncontrolled diabetes and corpus luteum insufficiency, uterine fibroids and cervical incompetence (5, 6, 7).

There was no obvious cause of abortion in the patient presented here.

A patient with incomplete abortion presents with vaginal bleeding with or without passage of the fetus or placental tissue and lower abdominal pains. On physical examination she may be pale and in shock depending on the rate and amount of blood loss. On examination the cervix is usually open (5, 6). The patient presented had incomplete abortion.

In case of induced abortion the patient may admit to pregnancy interference. There could also be signs of local manipulation such as cervical tears, or uterine perforations. In case of septic abortion, there may be foul smelling discharge, fever and pelvic peritonitis or generalized (7).

Incomplete abortion is managed by prompt evacuation of the uterus and treatment of complication. Evacuation can be done by manual vacuum aspiration using Karman's cannula and syringe or sharp curettage. In Kenyatta National Hospital, manual vacuum aspiration is done. This procedure does not require anesthesia and hospital stay is short. Prophylactic antibiotics are usually given (8, 9).

The patient presented was evacuated by manual vacuum aspiration and was given antibiotics.

Complications of abortion include haemorrhage, sepsis, uterine perforation and cervical laceration. Maternal death can occur and is mainly due to infection, haemorrhage, and embolism (6). Long-term complications include lower abdominal pains, dyspareunia and infertility. Abortion can also lead to rhesus isoimmunizaiton.

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GYNAECOLOGY CASE 12

VAGINAL SEPTUM WITH HAEMATOCOLPOS AND HAEMATOMETRA; RESECTION OF VAGINAL SEPTUM

NAME: A.S.

AGE: 16 YEARS

PARITY: PARA 0+0

IPNO: 0970802

DOA 12.06.05

DOD: 16.06.05

PRESENTING COMPLAINT

She was admitted with an 6 month history of cyclic lower abdominal pains and backache.

HISTORY OF THE PRESENTING COMPLAINTS

She was admitted through the acute gynaecological ward as a referral from Embu Provincial General Hospital where she had presented with an six month history of cyclic lower abdominal pains associated with low backache. She had not attained menarche. The pains were colicky in nature, lasted three weeks and recurred every three weeks. They were progressively getting worse and were relieved by analgesics.

She had undergone examination under anaesthesia at Embu Provincial General Hospital in which the vagina was found to be sealed by a thick septum. Rectal examination had revealed a distended upper vagina with a bulky uterus. An ultrasound scan done showed haematocolpos. She was referred as a case of vaginal atresia for vaginoplasty.

PAST MEDICAL HISTORY

She had no significant medical or surgical history.

FAMILY AND SOCIAL HISTORY

She was an orphaned standard eight pupil who lived with her aunt in Embu.

PHYSICAL EXAMINATION

She was in fair general condition, not pale, afebrile. She had a blood pressure of 110/60 mmHg, a pulse rate of 84 per minute, a respiratory rate of 18 per minute and a temperature of 37.2°C.

She had normally developed secondary sexual characteristics with normal pubic and axillary hair development. She had breast development Tanner class **II.**

ABDOMINAL EXAMINATION

The abdomen was not distended and moved with respiration. There was a firm, tender smooth and mobile pelvic mass that corresponded to a 14 week pregnant uterus.

PELVIC EXAMINATION

She had a normal inverted triangle pattern of female pubic hair distribution. The labia majora and minora, clitoris, and urethral opening were normal. There was no hymen and the vagina was inaccessible.

INVESTIGATIONS

1. Ultrasound scan - showed uterine and vaginal cavities filled with echogenic material dilating the cavities indicating haematometra and haematocolpos. The vaginal stripe was short and thickened. The ovaries were normal and there were no adnexal masses.
2. Urea, electrolytes and Creatinine:

   Na' : 136mmol/l

   K^+ : 3.7 mmol/1

   Urea: 6.5 mmol/1

   Creatinine: 52 |imol/l
3. Haemoglobin level 13 g/dI

DIAGNOSIS

A diagnosis of a transverse vaginal septum with haematocolpos and haematometra was made.

MANAGEMENT

She was prepared for examination under anaesthesia (EUA) and excision of the septum. Consent was obtained from her aunt. She was staved from mid night and premedicated before taken to theatre.

In theatre she was put under general anaesthesia and placed in lithotomy position. The vulva and the perineum were cleaned and draped. Urinary bladder catheterised. EUA was then performed; she had normal pubic hair, labia majora and minora and clitoris. The vagina was sealed by a thick septum. Rectal examination revealed a distended upper vagina with a bulky uterus.

Sharp and blunt dissection of the thick vaginal septum was done up to the region of the uterine cervix. Dark chocolate coloured blood about one litter was drained. An 18 gauge Foley's catheter was left inflated in the uterine cavity. A urethral catheter was also left insitu. A vaginal pack with Sufratul was left in the vagina.

Post-operatively she did well, the vaginal pack was removed on the second post-operative day and the urethral catheter removed on the third post-operative day. She was discharged home on the fourth post-operative day through the gynaecological outpatient clinic in two weeks. She however requested for referral to Embu provincial General hospital for further follow up. A referral note was written and patient instructed to have the uterine catheter removed after two week at the provincial hospital.

DISCUSSION

The case presented is of a 16 year old nulliparous woman who presented with cryptomenorrhoea due to a transverse vaginal septum with cyclic lower abdominal and back ache. She had excision of the septum done.

Transverse vaginal septa are the result of faulty fusion or canalization of the urogenital sinus and mullerian ducts. The incidence is appropriately 1 in 30,000 to 1 in 80,000 women. Approximately 46% occur in the upper vagina, 40% in the mid portion, and 14% in the lower vagina (1,2).

Transverse vaginal septum is associated with few urological or other anomalies. The lower surface of the transverse septum is always covered by squamous epithelium. The upper surface can be covered by glandular epithelium (2).

In neonates and young infants, imperforate transverse vaginal septum with obstruction can lead to serious and life threatening problems caused by the compression of surrounding organs by fluid that has collected above the septum from endocervical glands and mullerian glandular epithelium in the upper vagina that has been stimulated by the placental transfer of maternal oestrogen (2).

When the uterus begins to menstruate, ihe vagina fills with blood which remains fluid. Some of its water content is continually being absorbed so the material becomes inspisated. The amount gradually increases and in the course of months or years distends first the vagina (haematocolpos), then the cervix and uterus (haemotocevix and haematometra), and finally the tube (haemotosalpinx). If the tubes remain open, pelvic endometriosis is a possible complication. A mucocolpos or a haematocolpos can become infected and cause pyocolpos (3).

An incomplete vaginal membrane may cause dyspareunea, sterility or obstructed labour. A complete septum only occasionally causes symptoms before puberty. The secondary sexual characteristics then develop as usual but menstruation does not appear. Primary amenorrhoea, therefore, is often the complaint that brings the problem to light. Acute retention of urine may occur 3 or 4 years after the onset of

hidden menstruation at around 15 to 18 years. Often there is a history of monthly attacks of lower abdominal pains or backache (1,2. 3).

The case presented had monthly attacks of lower abdominal and backache.

On examination a tumour, dull to percussion, may be found in the lower abdomen. The tumour consists of a distended uterus, cervix or upper vaginal compartments or a combination of these (3).

The patient presented had a suprapubic mass corresponding to a 14 weeks pregnant uterus.

Once the diagnosis of cryptomenorrhoea is made surgical treatment is urgently required since every menstrual episode further dilates the genital tract and threatens permanent impairment of reproductive function. When the outflow of menstrual blood is prevented by a thick vaginal membrane at any level, incision of the latter alone is inadequate. The raw area in the vagina always seals over and does so rapidly. It is therefore essential to cover any deficiency with vaginal epithelium (1).

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GYNECOLOGY CASK 13

PRIMARY INFERTILITY: TUBAL FACTOR - LAPARASCOPIC TUBOPLASTY

NAME:	K.K	L.M.P :	10/10/03
AGE	: 34 YEARS	D.O.A:	27/10/03
IPNO	: 0872554	D.O.D:	01/11/03
PARITY	: 0+0		

PRESENTING COMPLAINT

She was through GOPC where she had been followed up for inability to conceive for 10 years.

HISTORY OF PRESENTING COMPLAINT

She got married 10 years ago. She had lived with her husband all through and had been having regular unprotected intercourse at least two to three times weekly. She and her husband had a sexually transmitted infection in 2000 for which they were treated. The husband had no other child anywhere else.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was para 0+0. She had her menarche at 15 years. Her last monthly period was on 10.10 .03. She had regular cycles of 28 days and last for 3 days. She had no dysmenorrhoea. She had never used any contraceptive.

PAST MEDICAL HISTORY

She had no history of major illness.

FAMILY AND SOCIAL HISTORY

She was married and worked as executive. Her husband was an inspector with the City Council. He has no erective dysfunction. She and her husband neither smoked nor drunk alcohol. There is no chronic illness in the family.

PHYSICAL EXAMINATION

She was in good general condition. She was not pale or jaundiced. She had no edema. Her blood pressure was 110/70 mmHg, temperature was 36.7°C, respiratory rate was 20 breaths per minutes and pulse rate was 80 beats per minute.

BREAST EXAMINATION

The breasts appeared normal development. There were no lumps or masses. There was no milk or discharge from the nipples.

ABDOMINAL EXAMINATION

The abdomen was scaphoid and moving with respiration. There were no surgical or therapeutic marks. She had no areas of tenderness. There were no palpable masses. Spleen and liver were not enlarged.

VAGINAL EXAMINATION

She had normal external genitalia. Vaginal walls warm and moist. There was no obvious vaginal discharge. The cervix was firm, long, posterior and closed. The uterus was normal sized, anterverted and freely mobile. There were no adnexal masses. The pouch of Douglas was empty. There was a clear discharge on examining finger.

INVESTIGATIONS

HSG -The uterine cavity is of normal size and shape, with smooth outlines. No intrauterine filling defect. Fimbrial dilatation with bilateral locula suggestive of fimbrial adhesions

Semenalysis		normospermia
ELISA FOR HIV		Negative
Haemogram	Hb	13.8g%
	WBC	$4.7x10^{9}/L$
	RBC	$4.76x10^{12}/L$
	Platelets	294X1 $0^{\cdot 2}$/L

Urea and electrolytes

Na*	141 mmol/L
K^+	4.3mmol/L
Urea	5-0 mmol/L
Creatinine	74Umol/L

DIAGNOSIS

An impression of Primary infertility secondary to tubal blockage was made.

MANAGEMENT

She was admitted and prepared for diagnostic laparoscopy. The procedure was explained to her and she give an informed consent. She was starved overnight. She had enema at midnight and was shaved and had a bath on the morning of surgery. She was premedicated with Atropine 0.6 mg intramuscularly half an hour before theatre.
In theatre, she was placed in lithotomy position after being put under general anaesthesia. Vulvovaginal toilet was done and aseptically catheterization performed. A pelvic examination was then done where a normal external genitalia was noted. The cervix was posterior and closed and the adnexae were normal bilaterally and the pouch of Douglas was free. The uterus was anteverted, of normal size and mobile. A Cusco's speculum was then inserted and the anterior lip of the cervix held by a tenaculum. A uterine manipulator was then attached to the cervix.

The abdomen was then cleaned and draped with sterile drapes. A small incision umbilical incision was then made and a trocar inserted after which the laparoscope was introduced. A pneumoperitoneum was created using carbon dioxide. Two ancillary ports were then created on the lower abdomen under direct laparoscopic view. She was then placed in Tredellenberg's position.

Exploration revealed mild peritubal and periovarian adhesions bilaterally, a left sided ovarian cyst and a polycystic right ovary. Laparoscopic adhesiolysis, left ovarian cystectomy and drilling of the right polycystic ovary were then performed. On

chromotubation, there was free spill of dye on the left side and healthy fimbriae were noted. Haemostasis was assured and a cocktail consisting of heparin and hydrocortisone irrigated around the pelvic operation site. The ancillary instruments were removed and the pneumoperitoneum, and finally the laparoscope were removed. The ports were closed using subcuticular vicryl.

POST OPERATIVE MANAGEMENT

Post- operatively the patient did well and was discharged on the second post operative day on oral doxycycline lOOmg twice daily, metronidazole 400mg three times a day and mefenamic acid 500mg three times a day. She was given an appointment to the gynaecological outpatient clinic in six weeks. She was planned for ovulation induction in three months time and was advised on weight reduction.

DISCUSSION

The patient presented was a 34 year old who presented with primary infertility with bilateral proximal tubal obstruction. She had laparoscopic adhesiolysis, ovarian cystectomy and drilling of a polycystic ovary.

Infertility is defined as one year of unprotected intercourse without pregnancy. This condition may be further classified as primary infertility in which no previous pregnancies have occurred and secondary infertility which no previous pregnancies have occurred and secondary infertility in which a prior pregnancy, although not necessarily a live birth, has occurred (1).
The patient presented had primary infertility.

Fecundibility is the probability of achieving pregnancy within a single menstrual cycle, and fecundity is the probability of achieving a live birth within a single cycle. The fecundibility of a normal couple has been estimated at 20% to 25% (1,2). On the basis of this estimate, about 90% of couples should conceive after 12 months of unprotected sex (2). Childlessness ma> be a tragedy to the married woman and can be a cause of marital upset as well as of personal unhappiness and ill health. This can affect either the male or the female partner (1). The diversity and multiplicity of possible cause of infertility needs meticulous investigations to reveal them. Female infertility contributes most of the cases than male. However, 10% of males are absolutely sterile (1).

Infertility affects 10-15% of couples of reproductive age (3, 4). In Sub -Saharan Africa infertility rates are much higher with some authors reporting rates as high as 30%. Mati found that 60% of all new patients attending the gynaecological outpatient clinic at Kenyatta National Hospital complained of infertility with both primary and secondary types being reported equally. (5, 6)

Both partners in a relationship contribute to potential fertility, and both may be sub-fertile. A primary diagnosis of male factor infertility is made in about 30% of infertile couples, and the man may be contributory in another 20-30%. An abnormality in the woman is responsible for the remaining 40-50 % of cases (3).

The causes of infertility are either male or female factors. Male factors include endocrine disorders, anatomic disorders, abnormal spermatogenesis, abnormal sperm motility and sexual dysfunction. Female factor infertility includes ovulatory, pelvic and cervical factors (7).

In most developing countries, the major preventable causes of infertility are sexually transmitted diseases, postpartum infection and post-abortion infections. In Africa 85% of all cases of female infertility are due to tubal blockage and in over 70% of cases these are attributed to previous pelvic inflammatory disease (6). Tubal factors include damage or obstruction to the fallopian tubes, usually associated with previous PID or tubal surgery. Peritubal and peviovarian adhesions resulting from previous PID, surgery or endometriosis is also responsible. The risk of tubal infertility has been reported to be 12%, 23% and 54% after one, two and three episodes of PID respectively. In a study by Oyieke et al, pelvic adhesions and bilateral tubal occlusion were the leading causes of infertility 61.3% followed by ovulatory factors 15.9% and hyperprolactinaemia 9.9% (8).
The patient presented suffered sexual transmitted disease 3 years ago. This and possibly other previous other infection may have contribute to the tubal blockage and infertility.

A history and physical examination of both partners is essential. In the male, information about previous testicular or inguinal surgery, infections, trauma and erectile/ejaculatory dysfunction should be sought. Normal testicular volume (20ml) should be confirmed. Regular menstrual cycles largely exclude ovulatory disorders. Pelvic surgery, infection or intrauterine contraceptives device usage may indicate tubal pathology. Coital frequency and normal pelvic anatomy should be confirmed (9).

The basic investigations that should be performed before starting any infertility treatment are semen analysis, confirmation of ovulation, and the documentation of tubal patency by hysterosalpingogrjphy (4). For best results of seminalysis, abstinence is required at least 3-5 days prior to semen collection. The World Health Organization recommends the following for normal values (10).

- Volume - at least 2ml or greater
- Sperm concentration- 20 million/ml
- Motility - At least 50% or more with forward progression
- Morphology- at least 30% or more normal forms (14% strict Kruger criteria).
- While blood cells- Fewer that 1 million /ml
- PH 7.2- 7.8

Female fertility evaluation involves testing for ovulatory functions and testing for tubal patency. Tests for ovulatory function include basal body temperature which rises 2 days after luteinizing hormone (LH) peak which occurs after the day of ovulation. Urine LH kits can predict the day of ovulation. An endometrial biopsy can be performed to document luteinization of the endometrium due to progesterone from a post ovulatory corpus luteum. A lag of 2 days histologically from the patient's actual menstrual cycle day indicates a luteal phase defect. Finally, a serum progesterone level of greater than 4ng/ml indicates ovulation (10).

Tubal and peritoneal factors account for 30% to 40% of cases of female infertility. Hysterosalpingography (HSG) is the initial diagnostic test used to assess tubal patency because it has a sensitivity of 85% to 100% in identifying tubal occlusion. The best technique for diagnosing tubal and peritoneal disease is laparoscopy. It allows visualization of all pelvic organs and permits detection of intramural and subserosal uterine fibroids, peritubal and periovarian adhesions and endometriosis. Abnormal Findings on HSG can be verified by direct visualization on laparoscopy (4).

Management of infertility depends on the cause. Many causes of male factor infertility require therapy in consultation with an urologist. Therapies to treat male factor infertility often involve hormonal manipulation in the female partner. The initiation of intracytoplasmic sperm injection (ICSI) has revolutionized therapies for male infertility. As long as viable sperm can be retrieved by ejaculation, epidydimal aspiration, or testicular biopsy, successful pregnancy can usually be achieved (11).

The treatment of specific ovulatory disorder is determined by the diagnosis. Agents currently available for the management of anovulation include clomiphene citrate, gonadotrophin-releasing hormone (GnRH), human menopausal gonadotrophin (hMG), follicle-stimulating hormone (FSH), and bromocriptine (10).

The treatment options for achieving pregnancy available to the infertile woman with damaged fallopian tubes include reconstructive surgery and in vitro fertilization (IVF). 1VF is the only treatment option for women with inoperable fallopian tubes, and tubal disease coincident with other important fertility factors, such as male factor infertility (11). Surgical techniques include salpingolysis, salpingostomy or fimbrioplasty, end to end anastomosis and tubal re-implantation depending on the pathology and the site of the obstruction. Good prognosis patients have minimal peritubal adhesions, minimal tubal damage and obstruction limited to the distal ends. Laparoscopic methods have been shown to be associated with less adhesions formation after surgery than laparotomy and are thus the method of choice for the treatment of tubal factor infertility (12).

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GYNECOLOGY CASE 14

VESICOVAGINAL FISTULA - SUCCESSFUL REPAIR

Name	: V.K	D.O.A	10/05/05
Age	: 18 YEARS	D. O. D:	17/05/05
IP.NO.	: 0520134	WARD:	IB
PARITY	: 1+0		

PRESENTING COMPLAINT

The patient presented with a five months history of leaking urine.

HISTORY OF PRESENTING ILLNESS

She was admitted as a transfer from acute gynaecological ward following referral from Kitui District Hospital. She had been well until January 2005 when she had a difficult labour. She had labour for over 24 hours at home, She delivered by caeserian section of stillbirth 4200gms.The urinary catheter was not retained after surgery. She started leaking urine on six day after delivery. She did not have stool incontinence. She was discharged from hospital on day ten with a referral latter to KNH. She manages to come to KNH in May 2005.

OBSTETRIC AND GYNAECOLOGIC HISTORY

She was a para 1+0. Her last delivery was 07.01.05, which ended in a stillbirth. Her menarche was at 14 years. Her cycles were regular occurring every 28 days and lasting 4 days. She had no menses since after delivery. She had never used any form of contraceptive.

PAST MEDICAL HISTORY

She had been admitted only during the index delivery. Otherwise she had never been admitted before. She did not suffer any chronic illness before delivery.

FAMILY AND SOCIAL HISTORY

She is single and living with her mother. She had been born out of wedlock and was raised by the mother. Her father died when she is seven years. She was scheduled up

to standard 8, but could not continue due to financial constraints. She did not smoke of drunk alcohol.

PHYSICAL EXAMINATION

She was in fair general condition; she was not pale, and not febrile. She also had no oedema, no jaundice and no lymphadenopathy. Her blood pressure was 120/70mmHg, her temperature was 36.5°C, pulse was 82/minutes, and respiratory rate was 18/minutes. Her height was 148 cm and wore shoes size 3

CENTRAL NEVOUS, CARDIOVASCULAR AND RESPIRATORY SYSTEM

These essentially normal.

ABDOMINAL EXAMINATION

The abdomen was of normal fullness with a midline sub umbilical scar. It was soft and not tender. There was no organomegaly or other masses.

PELVIC EXAMINATION

She had normal external genitalia. There was some vulvo perineal skin excoriation. On speculum examination, a circumferential defect was noticed in the anterior vaginal wall measuring 2 by 3 cm and was 2 cm from the urethra and 3 cm to the cervix. There was a tight band in the posterior vaginal wall. The cervix appeared intact and normal.

IMPRESSION

Impression of vesicovaginal fistula was made.

INVESTIGATION

Haemogram

Haemoglobin :	14.4g/dl
WBC	$9.3x10^{9}$/ml
Platelets	$190x10^{12}$/mis

Urea and Electrolytes

Na^{+}	137mmol/l

K^+ 3.94mmol/l

Creatinine : 31Umol/L

MANAGEMENT

She was informed of her diagnosis and the operation to be done. She gave an informed consent and was prepared for theatre. On the eve of theatre, she was put on enema and starved overnight. On the morning of the operation day she was given intravenous broad-spectrum antibiotics and premeditated with atropine 0.6mg and pethidine 50mg. She was then wheeled to the operating theatre.

PROCEDURE

In theatre, she was put under general anesthesia and then placed in lithotomy position. Vulvovaginal toilet and draping was done. Examination under anesthesia was then commenced. The examination confirmed a vesicovaginal fistula classified as IIAb. Jungle juice was then infiltrated into the left posterolateral aspect of the vulva and the fistula edge. The episiotomy was given, and the vulva was stitched away from the operating field. The fistula was dissected all round the anterior bladder wall was released from the pubic symphysis and the vaginal wall mucosa. The bladder was advanced on the urethra with right and left anterior bladder fixation. The fistula was then closed transversely tension free with vicryl 2/0 and 3/0. Dye test was done and there was no leakage of dye. The anterior vaginal wall was then fixed on the pubic symphysis. Episiotomy was then closed. The vagina was packed with gauze. The patient was reversed successfully from anaesthesia.

POST OPERATIVE MANAGEMENT

The patient was observed half hourly until she was fully awake, then 4 hourly. Intramuscular pethidine lOOmg was given 6 hourly for 2 days. Intravenous dextrose saline Vi litre four hourly was given for 24 hours after which she commenced plenty of oral fluids. The vaginal pack was removed on the 2^{nd} postoperative day. She resumed normal diet on the first postoperative day. Her bed remained dry and the urine was clear. She was discharged on the seven postoperative days.

FOLLOW UP

She was seen 2 weeks after the operation. A dye test done was negative. The catheter was removed. She was counselled to avoid sex for 3 months and also on the need for any subsequent deliveries to be by caesarean section.

DISCUSSION

The patient presented was 18 years old para 1+0 had fistula sustained from a prolonged difficult labour successful repair.

Vesicovaginal fistula (VVF) is an abnormal fistulous tract extending between the bladder and the vagina that allows the continuous involuntary discharge of urine into the vaginal vault. It is a source of misery to the affected women due to the constant dribbling of urine down their legs, the wetting of their clothes and the accompanying smell. The women become a social embarrassment and often outcasts. Malnutrition and neglect may also supervene (1,2, 3).

The true incidence of VVF is unknown. In Africa it is estimated at 1-2 per 1,000 deliveries where the mother survives (1). At Kenyatta National Hospital (KNH), 166 cases were treated between 1979 and 1982 (4).

In developing countries, the predominant cause (97%) of VVF is prolonged obstructed labour (2). Obstetric causes accounted for 87-92% of all VVFs treated at KNH between 1979 and 1982 (4). Numerous factors contribute to the development of VVF in developing countries. Commonly, these are areas where the culture encourages marriage and conception at a young age often before full pelvic growth has been achieved. Chronic malnutrition further limits pelvic dimensions, increasing the risk of cephalopelvic disproportion and malpresentation. In addition, few women are attended by qualified health care professionals or have access to medical facilities during child birth; their obstructed labour may be protracted for days or weeks (2).
The patient presented was young and presented to the hospital with prolonged labour.

The pathophysiology of VVF due to obstructed labour is as a result of pressure necrosis. During labour the bladder is displaced upwards into the abdomen and the bladder base and the urethra are compressed between the presenting part and the posterior surface of the pubis. If this continues for a long time, as in unrelieved obstructed labour, the intervening soft tissues become devitalized by ischemia. Usually the anterior vaginal wall and underlying bladder neck are affected but sometimes the area of necrosis is higher up in which case the anterior tip of the cervix and underlying trigone are involved. Compression of soft tissues posteriorly between

the sacral promontory and the presenting part may occur at the same time with necrosis of the posterior vaginal wall and underlying rectum. The devitalized areas separate as a slough, usually between the third and tenth day of the puerperium, resulting in urinary incontinence and, if the rectum is involved, faecal incontinence as well. The area which sloughs and hence the tissue loss is increased by infection (5, 6). The patient presented developed urinary incontinence on the six day of puerperium following obstructed labour and no urinary bladder management after caesarean section.

After such fistulas develop, the lives of these young women are ruined unless they can gain access to curative surgical services. The constant, uncontrolled dibble of urine makes them offensive to their husbands and family members. They can no longer live with their families. Most of them eventually become destitute social outcasts - and yet these are otherwise healthy functional young women (6).
The patient presented was single.

VVF in developed countries are attributed predominantly to inadvertent bladder injury during pelvic surgery (90%). They involve a relatively limited focal bladder injury leading to smaller VVFs than are observed in developing countries (2). Other causes include malignancy and radiation therapy (6).

Other causes of VVF include direct trauma during operative vaginal delivery (obstetrics forceps, craniotomy or symphysiotomy) rupture of the uterus, caesarean section. Infection alone is a rare cause of VVF; however infection with lymphogranuloma venereum is an important cause of VVF in the tropics. It causes vulval ulceration which may destroy the urethra. When carcinoma of the cervix is treated by intracavitary radium, the neighbouring bladder may receive a high dose of radiation with progressive devitalisation of the bladder wall. A urinary fistula may develop months or years after the causative irradiation (5).

The most common presenting feature of vesicovaginal fistulae is continuous leakage of urine from the vagina. Irritation of the vagina, vulval mucosa, and perineum follow and women complain of foul ammoniacal odour (7).

The patient presented present with continuous leakage of urine and foul smell of urine.

There is no internationally recognized classification for VVF. However, a classification based on anatomic and physiologic location of the fistula is commonly in use (1).

Type I: Fistula not involving the closing mechanism

Type II: Fistula involving the closing mechanism

A Without (sub) total involvement of the urethra

a) Without a circumferential defect

b) With a circumferential defect

B With total involvement of the urethra

a) Without circumferential defect

b) With circumferential defect

Type III: Miscellaneous e.g. ureterovaginal and exceptional fistulas.

This classification has prognostic significance with worsening prognosis with a higher class. The fistula can also be classified according to the size of the fistulae into:

Small	less than 2 cm diameter
Medium	2-3 cm diameter
Large	4-5 cm diameter
Extensive	greater than 6 cm diameter (1).

An evaluation begins with a history and physical examination facilitated by use of a speculum, good lighting and positioning. A history of a large volume vaginal leakage with no voided urine suggests a sizeable vesicovaginal fistula whereas lesser vaginal fluid drainage associated with regular voiding raises the possibly of ureterovaginal fistula or, perhaps, a very small or intermittent vesicovaginal fistula (1).

Dye tests traditionally have been performed to evaluate the patients for a urinary tract fistula. With the patient in position for pelvic examination on the examination table a 16F Foley catheter is placed and a speculum inserted into the vagina. In a patient with a larger VVF, urine is easily seen in the vaginal vault; in some cases, the fistula itself is visualized. If not, the vaginal apex is sponged dry and 100ml of a dilute solution of

methylene blue or indigo carmine is instilled into the bladder via the Foley's catheter. This is done with the speculum in place and the vaginal cuff of cervix and upper vagina in full view. The prompt appearance of blue dye indicates a VVF (7).

VVF due to pressure necrosis is preventable by efficient obstetric care. Anticipation of difficulty before labour begins and termination by caesarean section of labour prolonged by disproportion before the stage of obstruction is reached can eliminate the problem. However, it is still sometimes possible to prevent a urinary fistula from forming in a patient first seen in obstructed labour. Keeping the bladder at rest after delivery by continuous drainage, and controlling sepsis, by systemic broad spectrum antibiotics and gentle daily vaginal irrigation with mild antiseptic, may prevent full thickness sloughing of the bladder wall (5).

Bladder fistulae should be treated conservatively in the first instance. Natural healing always reduces their size and will close some completely. This may be encouraged by continuous drainage through a urethral catheter for up to 6 weeks. Suprapubic drainage is less effective. A part from achieving a reduction in size by spontaneous healing, delay will allow all sloughs to separate and the tissue planes reappear, producing much more favourable conditions for surgery. It usually takes at least 3 months after pressure necrosis fistulae have formed for the tissues to reach a condition suitable for operative repair. After surgical trauma an interval of 2 months may be sufficient in some cases (5, 7).

During the waiting period the patient's general health should be build up by the treatment of any residual sepsis and the correction of anaemia. A high protein diet is desirable. Other sequelae of obstructed labour, such as sacral bed sores or foot drop, should also be dealt with during the interval (5, 7).

VVFs which do not heal spontaneously must be treated surgically. The route of repair for VVF can either be vaginal or abdominal depending on the experience of the surgeon and the type of fistula. The approach route of choice for type I and II fistulae is vaginal. For type III, the abdominal approach may be necessary (1). The vaginal route is characterized by minimal blood loss, low post operative morbidity, shorter operative and post operative recovery time.

Excellent success rates for both the vaginal and abdominal approaches are obtained when the following general surgical principles are followed: Complete preoperative diagnosis, exposure, haemostasis, mobilization of tissue, tissue closure under no tension and water-light closure of bladder with any cystostomy repair also timing to avoid infection and inflamation of tissue, dequate blood supply at area of repair and continuous catheter drainage post operatively.

Continuous bladder drainage post-operatively is vital for successful repair of VVF. A large calibre catheter minimizes the potential for catheter blockage by blood clots, mucus and calcareous deposits (1, 2). To achieve continuous drainage of urine, the patient must drink as much as possible in order to produce a minimum of 4000 ml of urine per 24 hours. If the catheter blocks, it must either be flushed out or changed. Any delay will result in tension of the sutures and the repair may break down (1). The indwelling catheter is not removed for at least 14 days after the operation but if there is leakage after 14 days the catheter can be left for another 1-2 weeks (1). In our set up, dye test is done on the 14^{lh} postoperative day and if there is no leakage of urine, the catheter in removed.

Patient presented dye test was negative on day 14 and catheter was removed.

Once the catheter is removed the patient is instructed to refrain from sexual intercourse for 6 months. A pregnancy following successful repair mandates elective caesarean section (8).

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GYNECOLOGY CASE 15

UTERINE PERFORATION - LAPARATOMY AND REPAIR

NAME:	S.K	D.O.A:	01/06/03
AGE:	40 YEARS	D.O.D:	06/06/03
IP NO.:	0887279		

PRESENTING COMPLAINT

She presented with vaginal bleeding and lower abdominal pains for five days.

HISTORY OF PRESENTING ILLNESS

The patient had gone for termination of pregnancy at a private clinic in Umoja where a 'doctor' inserted a laminaria tent into the cervix one week prior to admission.

Three days later, she expelled the fetus and other products of conception, but the laminaria tent did not come out. She went to another nursing home where an attempt to remove the laminaria tent by pulling out the strings was made, but only the strings came out. She continued to bleed and had lower abdominal pains. She was subsequently referred to KNH.

PAST OBSTETRIC AND GYNAECOLOGY HISTORY

She was para 4 + 1. Her last menstrual period was on 28/01/2002. The pregnancy was 18 weeks gestation when she sought termination. She had not attended any ANC. All her deliveries were by spontaneous vertex delivery. Her last delivery was three years ago and the child is alive and well. Her menarche was at 15 years and her cycles were regular occurring every thirty days and lasting 4 days. She had never used family planning before.

PAST MEDICAL HISTORY

This was not significance.

FAMILY AND SOCIAL HISTORY

She was a married woman. She ran a small business. She did not smoke or take alcohol. No history of chronic illness.

SYSTEMIC INQUIRY

This was not significant.

PHYSICAL EXAMINATION

She was sick looking, mildly pale, and had low-grade fever.The vital signs were: BP: 120/70mmHg,Temperature - 37.5°C, Pulse Rate -88/minute, Respiratory Rate - 20/minute.

CENTRAL NERVOUS SYSTEM, RESPIRATORY SYSTEM, CARDIOVASCULAR SYSTEM

These were essentially normal.

ABDOMEN

The abdomen had normal fullness, and was generalized tenderness in the suprapubic area. There was marked guarding. She had a fundus corresponding to 20 weeks gestation.

VAGINAL EXAMINATION

On Speculum examination, there was normal vaginal mucosa, the cervical os was dilated to 4cm, bleeding from the os was noted and there was no foreign object seen.
On digital examination, the cervix was 4 cm dilated, the uterus was 20 weeks size, the adnexae and pouch of Douglas were tender but no masses were felt.

ABDOMINAL SCAN.

She had come with a pelvic scan done before referral by the nursing home. The scan had reported an echogenic mass penetrating the uterine wall, there was fluid collection on the pouch of Douglas.

DIAGNOSIS

An impression of perforated uterus with a foreign body was made.

OTHER INVESTIGATIONS DONE

Full Blood Count

HB :	8.5 g/dl
WBC:	7.8x 10^9/1
Platelets:	450x10 ^{12}/I.

Urea and electrolytes

Na+:	139 rnmol/L
K+ :	4.0 mmol/L
Creatinine:	68mmoi /L

MANAGEMENT

S.K was planned for emergency laparatomy. She was explained to her the diagnosis and plan of management. A consent was obtained and a wide pore cannular was inserted, and she was started on crystalline penicillin, gentamycin and metronidazole. She was also started on intravenous fluids and prepared for laparatomy. Blood for grouping was drawn and theatre was informed. She was given premedication of atropine 0.6mgs and pethidine 50mgs half hour before theatre.

OPERATION

Patient was positioned in supine position, and given general anaesthesia. She was then repositioned in semilithotomy position and catheterized aseptically - obtaining 200mls of clear urine. Examination confirmed above findings. She was positioned in supine position; abdomen was cleaned and draped in a sterile technique. The abdomen was then opened via sub umbilical midline incision.

The findings were laminaria tent perforating through the left fundo-posterior aspect of uterus, another perforation in the right fundo-lateral aspect and some little clear fluid in the pouch of Douglas. The second perforation seemed to have been caused by one end of the laminaria tent during manipulation. The tent was removed, the uterus perforations had their edges refreshened and then repaired in layers. The gut and omentum was thoroughly inspected and found to be intact. The abdomen was then cleaned with warm saline and was then closed in layers and a corrugated drain left in situ.

POST OPERTIVE CARE

Postoperative management included intravenous fluids and above-mentioned antibiotics. After 24 hours the drain was no longer draining and it was removed. The subsequent post-operative period was uneventful. On the fourth postoperative day, she was discharged on antibiotics for removal of stitches on seventh postoperative day in the nearest medical facility.

POST OPERATIVE FOLLOWUP

She came for review on second week postoperatively and the wound was found to have completely healed. The uterus was well involuted. There was no discharge. She was counselled on family planning method and sent to family welfare clinic to receive further counselling and method provision.

DISCUSSION

S.K as presented here had undergone the process of termination of pregnancy where a laminaria tent was used. She sustained perforation of the uterus in the process and was referred to Kenyatta National Hospital where repair of the uterus was done.

Unsafe abortions and their complications are a major cause of maternal mortality (1). In Kenya induced abortions are illegal unless performed when the life of the mother is in danger (2)

Illegal abortions are carried out in all countries (2). The local incidence of induced criminal abortion is unknown but it is thought that up to 80% of patients admitted at Kenyatta National Hospital (KNH) with an abortion are induced (3). The number of patients admitted with abortion both in Kenya and other African countries is high and up to 60% of acute gynaecological emergency admissions are abortion related (2, 3, 4). The majority of illegal abortions are induced outside hospitals. In a study in rural Kenya, it was found that 32% are induced in hospitals, 65% are self induced at home, and 1% is in an office and 1% in the bush or shamba (5).
The patients presented had an abortion in a private clinic.

Induced criminal abortion has previously been associated with the young single women. In some studies, these are also the patients that were likely to have a fatal outcome (6, 7). In Kenya, the adolescent girl, the unmarried poor and unemployed woman has been found to be the main culprits (7). This has also been found to be the case in the rest of Africa (6). In the 1970's a study done to review abortions in Kenya showed that in Nairobi, 53% of patients with septic abortions were teenagers while 79% of single women were in the induced group.
The patient was presented was 40 years old and married.

Induced (illegal) but safe abortions are expensive in Nairobi (8). Safe abortion remains a preserve of mainly the elite. W.H.O. defines unsafe abortion as a procedure for terminating an unintended pregnancy carried out either by persons lacking the

necessary skills or in an environment that does not conform to minimal medical standards or both (9).

It has been estimated that almost two in every five pregnancies worldwide are unplanned—the result of non-use of contraception or of ineffective contraceptive use or method failure. Expanding and improving family planning services can help reduce unintended pregnancy and induced abortion. However, family planning services are frequently unable to meet the demand, or may be inaccessible or unaffordable, or there may be a range of social barriers that prevent women and couples from using them. Studies show that many married women in developing countries do not have access to the contraceptive methods they would prefer to use in order to space pregnancies or limit family size. The situation is worse for unmarried women, particularly adolescents, who rarely have access to reproductive information and counselling, and are frequently excluded from contraceptive services (9).

The patient presented was para 4 and had never used family planning.

Criminal abortion is dangerous because it is usually carried out by semi skilled individuals under conditions which, while making for secrecy, deny asepsis. Apart from introducing infection, instruments passed blindly may perforate the uterus or the vagina and other abnormal viscera. Laminaria tents are commonly used to help dilate the cervix. They are made from the stems of *Laminaria digita* or *Laminaria japonica,* a brown seaweed. The strongly hygroscopic laminaria are thought to act by drawing water from proteolyteaglycan complexes causing them to dissociate and thereby allowing the cervix to soften and dilate. Synthetic hygroscopic dilators are also available. The tent must be inserted within the cervix without being too deep, too shallow or rupturing membranes. After 4 to 6 hours, the laminaria will have swollen and thereby dilate the cervix sufficiently to allow easier mechanical dilation and curettage (10).

In the case presented here, the laminaria tent was possibly inserted excessively injuring the uterus.

Haemorrhage, shock, anuria, peritonitis and septicaemia are all causes of a fatal outcome. Air embolism is also not an unknown finding at post mortem examination. A later complication is tubal occlusion (1).

Physical examination of the patient rarely allows a deduction that the abortion has been deliberately induced. Occasionally, signs of recent injury to the cervix, uterus or vagina are found, or the circumstances of the case may raise suspicions and even provide proof. Usually the patient will not admit to criminal interference (1).

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GYNECOLOGY LONG COMMENTARY:

KNOWLEDGE, ATTITUDE AND PRACTICE OF MEDICAL PERSONNEL AT PROVINCIAL GENERAL HOSPITAL KAKAMEGA TOWARDS VASECTOMY

1. Project Summary

Vasectomy is defined as a procedure in which the two tubes carrying sperms from the testes to the urinary tract are surgically altered so sperms cannot pass through and be released to fertilize a woman egg during sexual intercourse. Sterilization will remain the most widely used contraceptive method over the next decade. The estimated number of couples relying on vasectomy worldwide is 43 million. Vasectomy is safer, simpler and less expensive than female sterilization. Men and women are less aware of vasectomy than other family planning methods. The procedure is usually performed within 20 minutes using local anesthesia. Except when technical considerations dictate otherwise, a non-scalpel approach should be used to identifying the vas, as this results in a lower rate of early complications. The disadvantage of vasectomy is that sterilization is not immediate. Complete expulsion of sperms stored in the reproductive tract beyond the interrupted vas deference takes about 3 months or 20 ejaculations.

In this study the aim was to assess the knowledge, attitude and practice of medical personnel regarding vasectomy. Another objective was to determine the socio-demographic characteristic of the respondents. This was done using a cross sectional descriptive study.

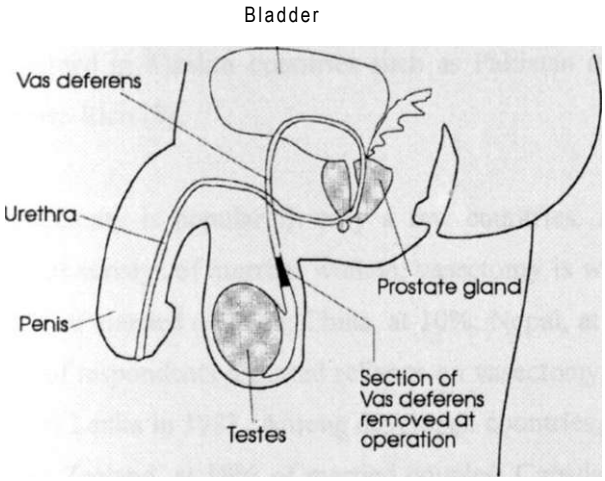
The study was carried out at the Kakamega Provincial General Hospital in Western Province, Kenya over 1-month period. The study population comprised of 138 medical personnel (doctors, clinical officers and nurses) who were working within the hospital. The data will be obtained by a self-administered questionnaire and the results will be analyzed using Epi Info version 6.0.

The results enabled us to find out their knowledge attitude, and practice on vasectomy among medical personnel and will therefore be used in future as a basis of making recommendations for popularizing vasectomy among male clients.

2. Introduction and Literature Review

Myths have surrounded the whole practice of vasectomy. Incorrect perceptions that vasectomy causes impotence, cancer or other health hazards are widespread sometimes strongly enough even among medical doctors and nurses (2).

Vasectomy can be defined as a procedure in which the two tubes that carry sperm from the testes to the urinary tract are surgically altered so sperm cannot pass through and be released to fertilize a woman's egg during sexual intercourse. For couples who have made the decision not to have any further children, vasectomy is considered the safest and easiest form of surgical sterilization. While reversible in many cases, vasectomy could be considered a permanent form of birth control (3).



The Male Reproductive Tract

Sperms are produced in the testes and travel into the epididymis (a small crescent shaped organ attached to the back of the testicle) where they are stored for two weeks. After they leave the epididymis, sperms are discharged into the vas deferens that delivers them into the urethra at the time of ejaculation. Live sperms are stored along the entire length of the vas deferens and sperms constitute less than 1% of the total volume of the ejaculate. Men have one testis, epididymis, and vas deferens on each side, although in rare cases the vas deferens may be absent on one side (4).

Vasectomy has grown in popularity throughout the world since its inception in the 19th century. However, vasectomy is one of the least used contraceptive methods in the developing world (5).

Vasectomy is used as a means of contraception in many parts of the world. A total of about 50 million men have had a vasectomy- a number that corresponds to roughly 5 percent of all married couples of reproductive age. In comparison, about 15 percent of couples rely on female sterilization for birth control. For instance, according to records, approximately half a million vasectomies are performed in the United States each year. About one out of six men over age 35 has been vasectomized. The prevalence of men undergoing the procedure increases with higher levels of education and income (6).

High rates of acceptance are also found in Korea and China. Vasectomy has also been accepted in Muslim countries such as Pakistan and Roman Catholic countries like Puerto Rico (7).

Vasectomy is popular in only a few countries. Among developing countries with recent surveys of married women, vasectomy is widely used only in South Korea, at 12% of married couples; China, at 10%; Nepal, at 5%; and India, at 4%. Also, about 6% of respondents reported reliance on vasectomy in Thailand in 1987 and about 4% in Sri Lanka in 1982. Among developed countries, use of vasectomy is widespread in New Zealand, at 18% of married couples; Canada, at 16%; the US, at 13%; and the Netherlands, at 11%. In Latin America and the Caribbean, vasectomy use is highest in Brazil, at about 3% of married couples, and between 1% and 2% of couples in Costa Rica and Guatemala. In all surveyed countries in sub-Saharan Africa and in the Near East and North Africa, less than 1% of married couples rely on vasectomy (8).

In a six-country study involving in-depth interviews with 218 couples, virtually all couples cited economic reasons and a concern for women's health as a motivating factor for not wanting any more children. The results were remarkably similar across the six countries surveyed - Bangladesh, Kenya, Mexico, Rwanda, Sri Lanka and the

United States. In every country, many couples chose vasectomy because it was a safer choice than tubal ligation. Research in Brazil, Colombia and Mexico also found those men's concerns about their wives, and the wives themselves, play an important role in a decision to have a vasectomy (9).

In East Africa, for instance vasectomy was introduced in Uganda in 1984 and it was initially performed at 3 pilot sites: these were the main government hospitals in Jinja, Kampala and Mbarara. Between 3 and 6 vasectomies were performed each year in the first few years following its introduction. By early 2000, over 600 men had opted for vasectomy as a method of contraception. Staff at a total of 7 sites are now trained and equipped to provide vasectomy services in Uganda (10).

However, vasectomy is a negligible portion of the method mix in Kenya. Users tend to be highly educated and urban. Reasons for vasectomy's unpopularity in Kenya include most men's (and some providers') beliefs that family planning is a woman's responsibility and that vasectomy is like castration. Programme issues include ensuring the availability of providers, supplies, and equipment. IEC issues include dispelling myths about vasectomy and encouraging belief in joint couple responsibility and decision-making about FP (11).

A study done in Machakos in Kenya found that 88.7% approved of female sterilization while 64.5% disapproved of vasectomy. The same study indicated that effect on future fertility was the greatest fear men had about vasectomies (59.2%). About 23.5% thought male sterilization led to impotence (12). In a previous study of 1993 in Machakos, it was shown that a hospital group perceived vasectomy as the best method for men. And 53.2% men were aware of the correct procedure of vasectomy and only 24% had correct knowledge of how the procedure affects masculinity (13).

But another study in Kenya cited that economic motives had encouraged them to about some forms of family planning and were willing to endure criticism of the older generation in accepting tubal legation. However, attitudes toward vasectomy were uniformly negative (14). In a separate study quality of care in delivery of services among Ministry of Health Service Delivery Points (SDPs) in Kenya was examined in

1989 and 1995. In 1995, 25% of SDPs offered tubal ligation and 11% offered vasectomy (15).

A study conducted by AVSC International between 1992 and 1995 found out that couples around the world go through a highly similar decision-making process when they choose vasectomy as their family planning method. Study findings were based upon in-depth, qualitative interviews with couples using vasectomy in Bangladesh, Mexico, Kenya, and Rwanda, where the prevalence of vasectomy is relatively low, and Sri Lanka and the US, where it is relatively high. Concerns about the woman's health were cited by respondents in each country as reasons to cease childbearing and to opt for vasectomy as the means to achieving that end (16).

The researchers found prenatal and postpartum programs, well-baby clinics, and gynaecologists', paediatricians', and family physicians' offices to be important locations in which to provide information about vasectomy. They recommend that counselling and promotional materials on vasectomy focus upon the positive aspects of vasectomy and address men's fears, women's concerns, and cultural issues surrounding vasectomy (17).

Nzioka sought to investigate the factors that influence male participation in decision-making about family planning and use of modern contraception in Kenya. The findings showed that 28 and 66 percent of men in Siaya and Machakos district were familiar with vasectomy as a method of contraception for men (1).

Vasectomy is one of the few effective contraceptive methods that involve men as opposed to what has always been traditionally accepted that women are the ones who are supposed to take contraceptives. Since the mid-1980s, some family planning programmers have observed and criticized the overwhelmingly female focus of most countries' programs (18). In addition, contraceptive use in the developed world was perceived as liberating women from "the authoritarian control exercised by male partners and male community leaders, *health professionals*, etc." (19).

In Kenya, EngenderHealth has trained surgeons who include key clinical personnel from the major governmental and non-governmental umbrella family planning

organizations - The Ministry of Health (MOH), The Family Planning Association of Kenya (FPAK), and The Christian Health Association of Kenya (CHAK). They form a cadre of skilled and enthusiastic professionals; several of the trained surgeons have started their own local campaigns to let men know more about vasectomy. In some areas of the country that are resistant to the idea of family planning, such as Kisii and Mombasa, these surgeons have succeeded in doubling or tripling the number of acceptors. The EngenderHealth reports also that men want to talk to doctors about the procedure, but many doctors have little knowledge of vasectomy (20).

Male involvement in family planning (FP) means more than increasing the number of men using condoms and having vasectomies. Male involvement also includes the number of men who encourage and support their partner and their peers to use FP and who influence the policy environment to be more conducive to developing male-related programs. In this context, "male involvement" should be understood in a much broader sense than male contraception. In addition, should refer to all organizational activities aimed at men as a discrete group, which have the objective of increasing the acceptability and prevalence of family-planning practice of either sex including the role of medical personnel (21).

The Kenya Vasectomy Promotion Project, sponsored by JHU/PCS and the Association for Voluntary and Safe Contraception (AVSC), was designed to increase potential acceptors' knowledge of vasectomy(22).There is notable increase in the number of men seeking reproductive health services in the project sites. This is because messages stress that the vasectomy procedure is simple and safe, that men who have vasectomies remain healthy and virile. Radio, television, and newspaper ads also direct men to visit Kencom House, the male-only clinic in Nairobi, where specially trained male service providers and counsellors make men feel welcome. Potential clients can also write or access a special telephone hotline for more information. More men are adopting vasectomy as a method of contraception. An emerging trend shows a great improvement in men's attitude towards reproductive health (22, 23).

Medical practitioners, surgeons and nurses, are faced with great challenges when it comes to actual practice of vasectomy. Over 50 representatives from 24 reproductive

health research, service delivery, training, advocacy, and donor organizations and institutions, as well as universities, met in Washington, DC, December 3rd to 5th, 2003 to prioritize future research related to vas occlusion techniques and to develop guidelines for vasectomy techniques in diverse health care settings (24). For instance, Dr. Dorflinger briefly reviewed the FHI/EngenderHealth-sponsored 2001 Expert Consultation on Vasectomy Effectiveness, which aimed to improve understanding of vasectomy techniques and effectiveness, present new research results, plan for the dissemination of new research, and define future research needs. Simple ligation and excision was not as effective as previously thought, according to research conducted in Mexico, as well as a seven-country study conducted subsequent to the Mexico trial. The study in Mexico among 217 men showed that, after ligation and excision, some men needed as long as 24 weeks or more to reach azoospermia. Almost 13 percent of the men were considered to have a failed vasectomy because substantial sperm (more than 3 million per millilitre) remained at 24 weeks. Many experts agreed that modifying a simple ligation and excision technique commonly used in developing countries to perform male sterilization could increase its effectiveness (25).

Simple ligation and excision vasectomy involves cutting and removing a short piece of the vas deferens, then tying the remaining two ends. This procedure is safe and highly effective. However, modifying ligation and excision by adding a technique called facial interposition reduces the likelihood of vasectomy failure, as defined by semen analysis. Fascial interposition involves pulling the sheath that covers the vas over one severed end, then sewing it shut to create a natural tissue barrier (26).

Available data also suggest that use of cautery (burning the inside of the ends of the vas) is more effective than ligation and excision. Still unknown, however, is whether cautery is more effective than ligation and excision with fascial interposition (27). A preliminary evaluation of a battery-powered, hand-held cautery device suggests that disposable thermal cautery devices may be effectively processed and safely reused. Experts recommend further study of the programmatic feasibility of using cautery devices in a cost-effective way in low resource setting (28).

In a no-scalpel vasectomy, the doctor feels for the tubes under the skin and holds them in place with a small clamp. Instead of making two incisions, the doctor makes one

tiny puncture with a special instrument. The same instrument is used to gently stretch the opening so the tubes can be reached. The tubes are then blocked using the same methods as conventional vasectomy. There is very little bleeding with the no-scalpel technique. No stitches are needed to close the tiny opening, which heals quickly; with no scar. The, no-scalpel vasectomy was invented by a Chinese surgeon, and is used throughout China (4).

Complications occur in about 5% of patients undergoing a vasectomy, but usually resolve without treatment. Sometimes bleeding into the scrotum can occur within the first 24 hours. In addition, infections can occur either at the site of the scrotal incisions, or deeper within the scrotum. Superficial skin infections are minor and usually resolve with warm soaks and antibiotics. Deep scrotal infections are rare but very difficult to eradicate and may require surgical drainage. A sperm granuloma is a small lump at the vasectomy site or in the epididymis due to the accumulation or leakage of sperm. It usually occurs within the first three months after a vasectomy, but may occur years later. Sperm granulomas usually resolve spontaneously, but the lump can be removed surgically if it remains painful.

Failure of the vasectomy to result in permanent sterility occurs in approximately 1 in 500 patients. This usually occurs immediately after the vasectomy when sperm form a new connection between the separated ends of the vas deferens. Because this can occur even years after a vasectomy, the results of a vasectomy cannot be guaranteed. New proteins called sperm antibodies are found in the serum of up to 70% of patients undergoing a vasectomy. Sperm antibodies are not harmful. Rarely a man can become impotent following a vasectomy. Post-vasectomy impotence is psychological and usually responds to counselling (4, 30).

Vasectomy reversal is common today, and using standard microsurgical techniques fertility can be restored to 50 to 60% of patients if the interval between the vasectomy and the reversal is less than 10 yrs. There have been occasional medical reports suggesting a causal relationship between vasectomies and prostate cancer. However, to-date there has been no convincing evidence of a link between vasectomies and prostate cancer (4).

Vasectomy is performed by trained providers, in Kenya, vasectomy is mainly provided by doctors (20).

3. Justification

A WHO expert committee defined five methods in 1975 to evaluate the success of Family Planning Programmes (29). One of them is the evaluation of knowledge, attitude, motivation and behaviour among people. The knowledge and attitude of people towards Family Planning methods are important determinants in their adoption of Family Planning methods.

However, little is known about medical personnel's role in the adoption of Family Planning methods. Studies about medical practitioners and their roles, needs, even training have often been neglected in both family planning programs and in surveys used to design and evaluate such programs.

Vasectomy is one among the permanent methods of contraception that involve men alone, at least physically. Vasectomy is easier, cheaper and associated with almost no risks or side effects. However, vasectomy enjoys low popularity though it is slowly increasing in its scope as a contraceptive method in Kenya. Therefore, it was necessary to establish reasons for its low usage among contraceptive methods. There were no indicative reasons suggesting this tendency due to few researches in this area.

This study helped to identify attitude of medical personals that affect provision of vasectomy and ways of improving them.

4. Objectives

To assess the knowledge, attitude, and practice of medical personnel regarding vasectomy in Western Province.

4.1 Specific Objectives

1. To determine the socio-demographic characteristics of medical personnel in the study
2. To determine the knowledge of medical personnel to vasectomy
3. To determine the attitudes of medical personnel related to vasectomy
4. To determine the practice of medical personnel related to vasectomy

5. Methods and Materials

5.1 Study Design

This was a cross sectional descriptive study involving doctors, nurses and clinical officers.

5.2 Study Area

The study was conducted at Provincial General Hospital Kakamega. This is a provincial referral/teaching hospital in Western Kenya. It has bed capacity of 450 and caters for an estimated catchments population of 3.4 million people with growth rate of 2.15%. Provincial General Hospital Kakamega offers full range of comprehensive health services i.e. medical, surgical, paediatric, obstetrics/gynaecology, and psychiatric and emergency services. These services are promotive, preventive and curative.

The obstetric/gynaecological department of this hospital consists of the maternal and child health/family planning, gynaecology ward and maternity unit. The maternity unit is made up of labour ward, operating theatre, antenatal and postnatal wards and a newborn unit. The maternity unit has a capacity of 100 in-patient beds and is managed by two consultant obstetrics/gynaecologists, one registrar in obstetrics and gynaecology, two medical officers, two medical interns, and one clinical officer

intern, one nursing officer in charge, three nursing officers and 67 nursing staff. The maternity unit conducts on average 300 deliveries and 580 admissions per month. Mother and child health department conducts antenatal clinic and mothers with high risk factors are referred to specialist antenatal clinic held every Tuesday. The average monthly antenatal clinic attendance (both new and old patients) is about 550.

One BTL/vasectomy theatre is available to conduct services from Monday to Friday. It has one on duty nurse and one assistant. The medical doctor and any intern doctor on duty in the gynaecology ward will be responsible to operate and deal with the cases involving vasectomies.

5.3 Study Period

It was carried out at Provincial General Hospital Kakamega, Western Province, from 5th August 2005 to 30th August 2005.

5.4 Study Population

The study comprised of all medical personnel working at the Provincial General Hospital Kakamega. Therefore, it specifically included doctors and nurses and clinical officers.

5.5 Sampling

All medical personnel included i.e. doctors, nurses and clinical officers.

5.6 Sample Size

This is based on the formula below,

$$n = \frac{z^2 pq}{d^2}$$

where n = the desired sample size

z = the standard normal deviate usually set at 1.96 which corresponds to 95% confidence interval.

p = 90% taken to be probable level of awareness of vasectomy of

q = 1-p

d = degree of accuracy with which p is determined set at 5% from this required sample size is 138.

5.6.0 Inclusion and Exclusion criteria

5.6.1. Inclusion Criteria

All medical personnel doctors, nurses, and clinical officers were included in the study.

5.6.2. Exclusion Criteria

Those who did not wish to participate in the study were excluded from the study.

5.7.0 Ethical Considerations

This study involved a self-administered questionnaire designed to interview medical personnel at Provincial General Hospital Kakamega. The personnel were not required to indicate their names on the questionnaires in order to maintain confidentiality. The proposal was submitted to Kenyatta National Hospital research and Ethics Committee for clearance and approval and it was granted. Permission was sought from management board of Provincial General Hospital Kakamega.

5.8 Constraints of the Study

We envisaged no constraints in general. However, some participants misplaced their questionnaires, some of them did not return the questionnaires, and therefore the research assistants made a follow up.

5.9 Data collection

Data were collected through a self-administered questionnaire for 138 health care workers.

5.9.1 Data Management

Data collected was edited before being entered into a computer for analysis using Epi Info version 6.0.

A total of 138 health care workers responded to the questionnaire, a response rate of 100%.

Social Demographic Characteristics

Majority of the respondents were females (60.2 percent) and males were 39.8 percent. Nurses were the majority respondents (64.5 percent) while clinical officers and doctors were at 17.4 percent and 18.1 percent respectively.

The respondents' ages ranged from 19 years to 56 years with a median of age of 31 years. Of all the respondents 53.6 percent of the respondents were married, 39.9 percent were single and 6.5 percent had separated, married or divorced.

Slightly more than half (55.8 percent) of the respondents were Protestants while 36.2% were Catholics. Muslims and others comprised only 4.3% of the respondents.

The social demographic characteristics are summarized in Table 1.

Table 1: Social demographic characteristics of the respondents

Characteristics	Frequency	Percentage
Sex		
Male	55	39.8
Female	83	60.2
Marital status		
Single	55	40.1
Married	74	54
Separated/divorced	4	2.3
Widowed	5	3.6
Professional status		
Doctors	24	17.4
Nurses	89	64.5
Clinical officer	25	18.1
Religion		
Protestant	50	36.2
Catholic	77	55.8
Muslim	5	3.6
Others	6	4.3

Knowledge, Attitude and Practice of Vasectomy

This section provides data on the level of knowledge of medical professionals and their overall attitudes towards vasectomy.

All the respondents were asked whether they have ever heard of vasectomy. Almost all the respondents (99.3%) replied that they have heard of vasectomy before and

only one respondent had not heard about it. When asked how they learned about vasectomy, almost half of the respondents indicated that they learnt about vasectomy in medical institutions (table 2). Other sources were books, seminars and from other health care workers. The results are as shown in the table below.

Table 2: Sources of information about vasectomy

Source	Frequency	Percentage
Medical institutions	71	51.4
Books	22	15.9
Seminar	7	5.0
Health care workers	14	10.1
No response	24	17.4
Total	138	100

Respondents were also asked what vasectomy meant. Majority (94.2%) of the respondents correctly pointed out that vasectomy referred to the resection of the tubes carrying the sperms. Few respondents (2.9%) said that vasectomy referred to removal of testes and one respondent said that vasectomy meant castration. The responses were as shown in the table 3.

Table 3: Respondents' meaning of vasectomy

Response	Frequency	Percentage
Testis crushed	2	1.5
Cutting of tubes carrying sperms	129	94.2
Removal of testis	4	2.9
Castration	1	0.7
Don't know	1	0.7
Total	138	100

On the question whether vasectomy made men impotent, 74 percent said that it does not but 26 percent of the respondents said it made men impotent. The results as shown in table 4

Table 4: Responses on whether vasectomy made men impotent

Sex	Vasectomy makes men impotent		***TOTAL***	***Test***
	Yes	No		
Male	12(23.1%)	40 (76.9%)	52	P value=0.55
Female	23 (27.7%)	60 (72.3%)	83	
TOTAL	35 (25.9%)	100 (74.1%)	135 (100%)	

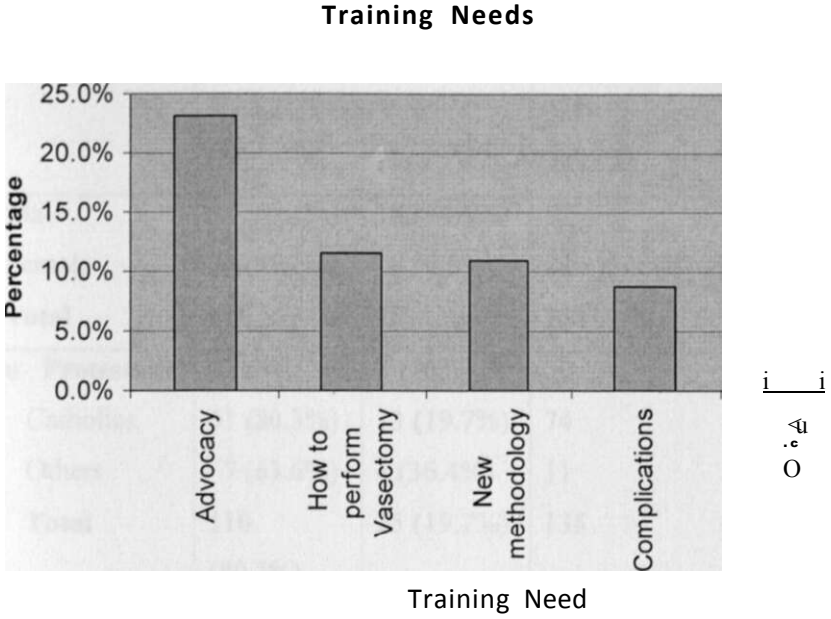
NB 3 respondents did not answer.

From table 3 though a higher percentage of women than men thought vasectomy made men impotent, the difference was however not statistically significant (P value= 0.55).

Respondents were also asked whether they needed more information on vasectomy. About 83 percent of the respondents were affirmative on the need for more information while 16.7 percent said they did not need any further information on vasectomy besides what they know.

Those who said they needed more information were in turn asked what sort of training they needed to in order to give them more information about it. Among the types of training cited - advocacy on vasectomy was mentioned by 23.2%, how to perform vasectomy 11.6%, and new methodologies of performing vasectomy 10.9. The responses are as shown in the figure 1.

Figure 1: Training needs



Approval of Vasectomy

The respondents were also asked whether they approved vasectomy. Majority of the respondents 80.3%, approved vasectomy. The results are shown in table 5.

Table 5: Approval of vasectomy by social demographic characteristics

Characteristic	APPROVE OF VASECTOMY		TOTAL	Test
	Yes	No		
Sex Male	34 (65.4%)	18 (34.6%)	52	df=l
Female	74 (90.2%)	8 (9.8%)	82	$X^{2=}$12.59
Total	108	26	134	P value=0.000*
Religion Protestant	42 (84%)	8(16%)	50	df=2
Catholics	61 (80.3%)	13 (19.7%)	74	$X^{2=}$2.439
Others	7 (63.6%)	4 (36.4%)	11	P value=0.486
Total	110 (80.3%)	25 (19.7%)	135	
Marital status				df=l
Single	49 (77.8)	14 (22.2%)	63	
Married	61 (82.4%	13 (74.6%)	74	$X^{2=}$6.229
Total	110 80.3%)	27(19.7%)	137 (100%)	P value=0.101
Professional				
Doctors	21 (87.5%)	3(12.5%)	24	df=2
Nurses	73 (83%)	15 (17%)	88	$X^{2=}$2.429
Clinical officers	15 (62.5%)	9 (37.5%)	24	P value=0.488
Total	109 (80.1%)	27(19.9%)	136 (100%)	

From the above results in table 5, only gender was significantly associated with approval of vasectomy with a higher percentage of females approving vasectomy compared with their male counterparts. Other socio-demographic characteristics were not statistically significant.

Respondents who approved vasectomy were also asked why they approved it. The responses are presented in Table 6.

Table 6: Reasons for approval of vasectomy

Reason	Frequency	Percentage
A family planning method	74	74.8
Safe FP method	9	9.1
Men involvement in family planning	10	10.1
Others	6	6
Total	99	100

Majority of those who responded (74.8%) stated that it is a method of family planning just like any other method. About 10% of the respondents said that it was a good way of men's involvement in family planning. Other reasons were that it was good if the wife could not use family planning methods due to medical reasons, consequently a safe method and good for those who want to avoid children.

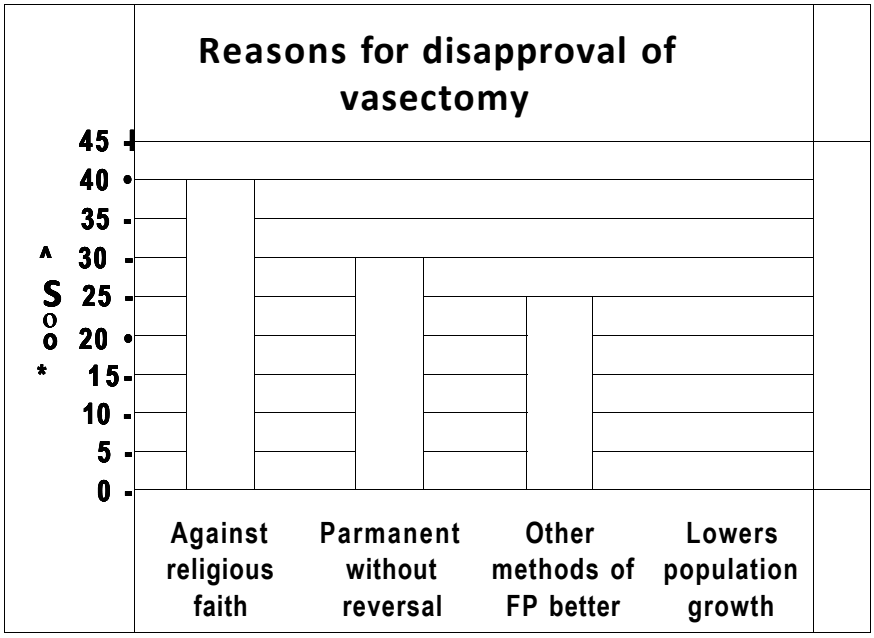
Those who disapproved vasectomy were asked to give reasons for their response. The respondents gave the following responses.

Table 7: Reasons for disapproval of vasectomy

Response	Frequency (%)
It is against ones faith	7 (38.9)
Permanent without reversal	6 (27.8)
Lowers population growth	1 (5.6)
Other methods are better	4 (22.3)
Total	18(100%)

In table 7 above, 38.9 % (7) of the respondents said that vasectomy was against their religious faith, while 27.8 % (6) disapproved vasectomy because it is considered as a permanent method without reversal and the remaining 22.3 % (4) thought that other methods were better. Only one respondent mentioned lowering population growth as the reason for his/her disapproval of vasectomy.

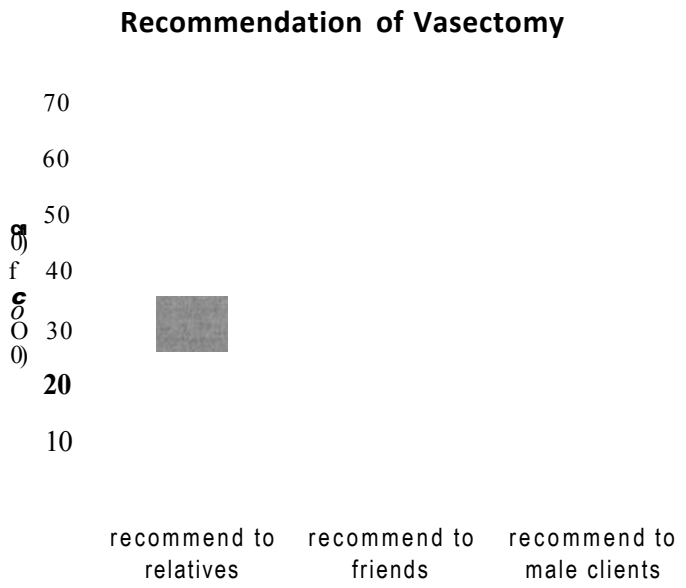
Figure 2: Reasons for disapproval of vasectomy N= 18



Respondents were also asked whether any of their close relatives had undergone vasectomy. Only 6.5 percent (9) of the respondents answered in the affirmative while the rest answered in the negative or did not know. The respondents' preferences on vasectomy are as shown in the figure 3.

Respondents were also asked whether they would recommend vasectomy to their relatives, friends or their male clients. The responses are presented in the figure 3.

Figure 3: **Recommendation** of vasectomy



From the figure above the percentage of respondents, recommending vasectomy increased from relatives to clients. While 59.1 percent of the respondents would recommend vasectomy to their male clients, only 36.2 percent would recommend vasectomy to their relatives.

The respondents' recommendation of vasectomy to the male clients was cross-tabulated with some social demographic characteristics in order to sec whether there was any significant relationship. The results are presented in the table 8.

Table 8: Proportion of respondents who would recommend vasectomy to their male clients

Category	Recommend vasectomy to male clients			
	Yes	No	Total	
Marital status				
Single	31 (49.2%)	32 (50.8%)	63 (46%)	df=1
Married	50 (67.6%)	24(2.4%)	74 (54%)	X= 7.78
Total	81 (59.1%)	56(40.9%)	137(100%)	P value=0.020*
Sex				
Male	21 (40.4%)	31 (59.6%)	52 (40.4%)	df=1
Female	58(71.6)	23 (28.4%)	81 (70.7%)	X-12.8
Total	79 (59.4%)	54 (40.6%)	123 (100.0%)	P value= 0.000*
Religion				
Protestant	31 (63.3%)	18(36.7%)	49 (35.8%)	df=2
Catholic	43 (55.8%)	34 (44.2%)	77 (56.2%)	X =0.783
Others	7 (63.6%)	4(36.4%)	11 (8.0%)	P value=0.676
Total	81 (59.1%)	56 (40.9%)	137(100%)	
Professional				
Doctors	11 (45.8%)	13 (54.2%)	24(17.6%)	df=2
Nurses	60 (68.2%)	28 (31.8%)	88 (64.7%)	X=4.74
Clinical officers	10(41.7%)	14(58.3%)	24(17.6%)	P value=0.029*
Total	81 (59.6)	55 (40.4%)	136(100%)	

From the results, sex, profession and marital status were statistically associated with recommendation of vasectomy to the male clients. Females were more likely to recommend vasectomy to their clients compared to males (p value 0.000). Married respondents were also likely to recommend vasectomy compared to their single counterparts (p value =0.020). Nurses were also more likely to recommend vasectomy

compared to other professionals. However, after controlling for sex and professional status, marital status was not significantly associated with recommendation for vasectomy to male clients.

Practices of Vasectomy

Respondents were then asked whether they have ever done vasectomy during their practice. Of those who responded only 5.9 percent of doctors had performed vasectomy before.

For the nurses' respondents they were asked the number of times they had assisted in vasectomy. Only 8 (13.1%) of the nurses had assisted in vasectomy. Respondents were also asked whether they were at the time performing vasectomy. Majority (91.8%) of the respondents were at the time not performing vasectomies.

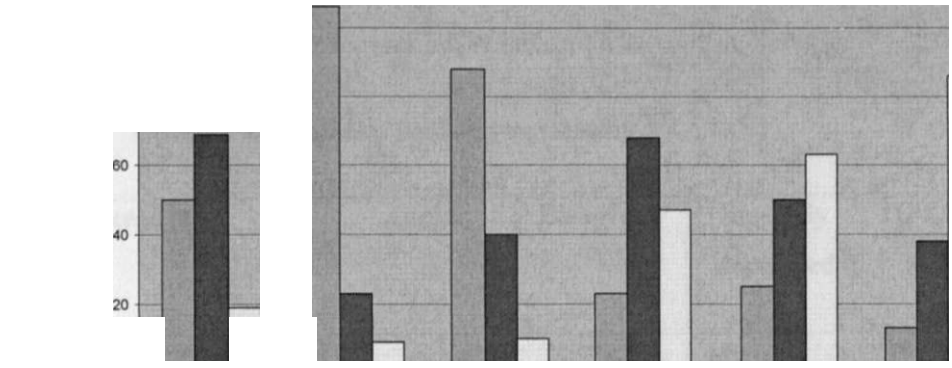
Respondents were also asked the number of vasectomies they performed in the last one-year. Majority of the respondents had not performed vasectomy. Of all the respondents, only 5.1 percent (who numbered 5) had performed vasectomy before and one respondent acknowledged performing two operations in the year preceding the study.

Respondents were asked a series of questions on whether they agree, disagree or strongly disagree on vasectomy being performed to married men, all men who needed it, men with many children or young men who do not need children. The responses are shown in table 9.

Table 9: Opinion on who should undergo vasectomy

vasectomy for married men	No.	%
Agree	50	36.2
Disagree	69	50
Strongly disagree	19	13.8
vasectomy for all men who needs it		
Agree	106	76.8
Disagree	23	16.7
Strongly disagree	9	6.5
vasectomy for men with many children		
Agree	88	63.8
Disagree	40	29
Strongly disagree	10	7.2
vasectomy for men in general		
Agree	23	16.7
Disagree	68	49.3
Strongly disagree	47	34.1
vasectomy for young people who don't need children		
Agree	25	18.1
Disagree	60	36.2
Strongly disagree	53	45.7

Figure 4: Opinions on who should have vasectomy



	Married men only	All men who need it	Men with many children	Men in general	Young people not wanting children	Should not be performed at all
• Agree	50	106	88	23	25	13
• Disagree	69	23	40	68	50	38
• Strongly disagree	19	9	10	47	63	86

who should go for vasectomy

Respondents answered each question in this section with 100% (138) respondent rate. From the results above, respondents were asked whether vasectomy should be for married men only and fifty respondents (36.2%) agreed, Sixty-nine respondents (50%) disagreed but only nineteen (13.8%) strongly disagreed. However, one hundred and six respondents (76.8%) agreed that vasectomy should be for all men who request for it. Many respondents (63.8%) agreed that vasectomy should be performed for the men with many children. When asked whether vasectomy should be performed on young men who do not need children, only twenty-five (18.1%) of the respondents agreed, fifty (36.2%) disagreed while sixty-three (45.7 %) strongly disagreed with this suggestion.

Personnel to perform vasectomy

The study also asked a series of questions to the respondents on who may be authorized to perform vasectomy. Respondents were asked whether they agreed or not, whether vasectomy should be performed by nurses, doctors, any trained person or community based agent. The responses are in table 10.

Table 10: Opinion on who can perform vasectomy

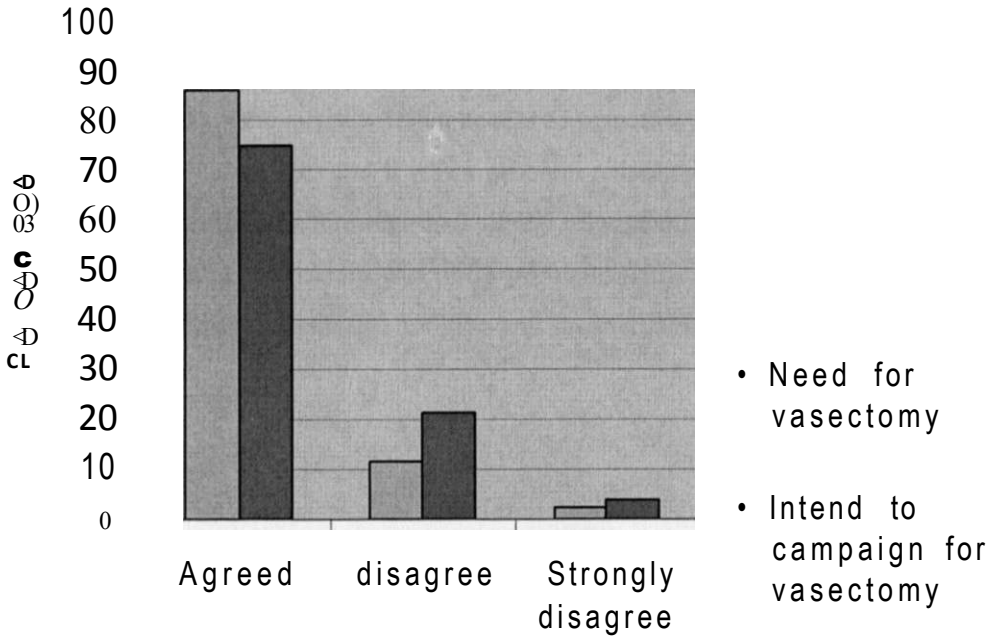
Category	Agree	Disagreed	Strongly disagreed	TOTAL
Should be performed by				
Doctors	126 (94.7%)	6 (4.5%)	1 (0.8%)	133
Nurses	78 (59.5%)	48 (36.6%)	5 (3.8%)	131
Any trained persons	94 (71.2%)	25(18.9%)	13(9.8%)	132
Community based agents	29 (22.7%)	46 (35.9%)	53 (41.4%)	128

From the results majority of the respondents agreed that doctors should perform vasectomy. Most respondents (71.2%) agreed that any trained person could do vasectomy. Majority also disagreed or strongly disagreed that community-based agents should perform vasectomy.

Campaign for vasectomy

Respondents were asked if there was any need for campaign for vasectomy and whether they intended to campaign for vasectomy in future. Of all respondents, 86% agreed that there was a need for campaign, while 11.6% disagreed and only 2.3% strongly disagreed on the need for campaign. When respondents were asked whether they intended to campaign for vasectomy in future 74.8% agreed, 21.3% disagreed and 2.3% strongly disagreed (figure 5).

Figer 5: Perception on Need and Intention to Campaign for Vasectomy



Personal views oil vasectomy

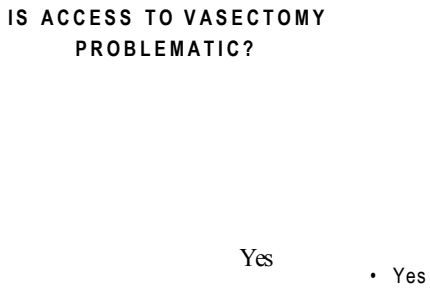
Personal views on vasectomy were sought from the respondents. About 39.4% stated that vasectomy is against their morals and religion, 37.4% said that it was better to use other methods of family planning rather than have vasectomy while 22.5% said that vasectomy was suitable and should be supported. One respondent admitted having undergone vasectomy and others did not respond (table 11).

Table 11: Personal views

Personal views	No (%)
Against morals and religion	40 (39.3%)
Better to use other methods of FP methods	38 (37.2%)
Its okay and should be promoted	23 (22.5%)
Already vasectomized	**1 (1%)**
Total	102 (100%)

Finally, respondents were asked whether access to vasectomy is difficult and therefore problematic in their localities and if it is a problem respondents were asked why they thought it was a problem. More than half of the respondents 69 (54.3%) were of the opinion that access to vasectomy was not a problem, while 58 (46%) thought it was problematic. Some respondents did not give any specific answers (figure 6).

Figure 6: Is access to vasectomy problematic n= 127



For those who said that access to vasectomy was a problem (46%), they were asked to give reasons why they thought so. The responses were as follows.

Table 12: Reasons Why Access to Vasectomy is Problematic

Reasons	Percentage (%)
Lack of awareness	19(35.2%)
Few health facilities performing vasectomy	13 (24.1%)
Financial costs to high	6(11.1%)
Few trained staff	7(12.9%)
Social stigma	9(16.7%)
Total	54 (100%)

From the results, nineteen respondents (35.2%) felt that the major hindrance to access to vasectomy services is lack of awareness about vasectomy itself. This was followed by the fact that health facilities that offer vasectomy are few, financial costs,

inadequate trained staff and social stigma (24.1%, 11.1%, 12.9%, and 16.7% respectively) as shown in table 12.

M i l

The main objective was to assess knowledge, attitude and practice of vasectomy among medical personnel in Provincial General Hospital Kakamega. Knowledge of vasectomy was significant. Many studies in the past had shown a relationship of disparity between knowledge, attitude and practice as based on data from other studies (12, 13).

The knowledge of vasectomy among medical personnel in our study done in the Provincial General Hospital Kakamega is almost universal with 99.3% having heard about it and 94.2% are well-versed in the procedure. According to this study medical personnel obtained knowledge on vasectomy from medical institutions (62.3%) and from other references such as books (19.3%). Both bivariate medical personnel (doctors and nurses) know that vasectomy does not make men impotent. The level of knowledge now is comparatively very high to the situation back in 1994 when service providers needed more training and motivation on vasectomy. In an AVSC (now EngenderHealth) study, Kenyan providers thought that vasectomy, like castration, caused the loss of sexuality and strength. Misgiving and apprehension including weight gain and the inhibition of sexual desire were common. (35).

Attitude of Vasectomy

Female medical personnel (90.2%) favoured vasectomy as a family planning method. This significant response can be interpreted as the female yearning for men to take an active approach to get involved more seriously in using a family planning method. They favored vasectomy because it is the sole method, which involve men directly while almost all the remaining methods are designed for women. In this study, religion was not considered as an obstacle towards vasectomy in general. The data shows that 84% of Protestants thought that it was acceptable religiously whereas 80.3% Catholics held the same views.

The study has shown that married medical personnel approved vasectomy more than their single (unmarried) counterparts did. Doctors seemed more at ease in approving

vasectomy than the rest with 87.5% of approval rate. Only 18% of respondents disapproved vasectomy, citing reasons such as being against their faiths, irreversibility of the procedure, lowering of population growth or deemed other methods of family planning as better.

Nevertheless, the attitude of approval is not the same as that ot the spirit of recommendations to clients and especially to relatives - while 59.1% would recommend it to their male clients only 36.2% would do that to their close relatives. This shows that respondents were considerably skeptical about the method when it concerned their close relatives. Married medical personnel are likely to recommend vasectomy (82.4%) than their single counterparts (77.8%). Among the reasons that married personnel might have been that, they already had children and hence saw the utility for the method. In turn, female personnel would recommend vasectomy (71.6%) than male (40.9%).

Practice of v asectomy

Though medical personnel would approve and recommend vasectomy, however, the level of actual practice of vasectomy is incredibly very low at 5.9%. The study has shown that at the Provincial General Hospital Kakamega vasectomy is the least practiced procedure. Having understood that vasectomy is one best of family planning methods and a voluntary one, medical personnel agreed that it should be provided to all men who needed it (76.8%) and to men with many children (63.8%). Vasectomy has a probability of pregnancy of 0.1% in the first year. It is simpler, safer, less expensive, and more effective than female sterilization. Following that, routine in-service updates should be conducted at hospitals in order to sustain competence and bolster interest (31).

Medical personnel also disagreed to have vasectomy practiced to married men only (50%). It was cited that doctors or any other trained personnel could perform vasectomy 94.7% and 71.2% respectively. While 86% of medical personnel agreed on the need to campaign, out of which 74.8% intended to campaign. Therefore, 12% of those who saw the need to campaign interestingly did not intend to campaign. This

could indicate that some medical personnel were ready to verbal conformity than actual implementation.

Personal views on vasectomy showed 39.4% influenced decision to practice, these views were based on morals and religious orientation, in this way, and medical personnel resorted to recommend other methods of family planning (37.4%). Only 22.5% supported vasectomy as a family planning method and this could explain why only 5.9% had performed vasectomy before, grounds for low performance can easily identified here.

There can be a score of reasons for vasectomy's unpopularity in Kenya in some providers' beliefs, it may be a perception that family planning is still a woman's responsibility and that vasectomy is like castration. Dispelling myths about vasectomy and encouraging belief in joint couple and medical personnel responsibility and decision-making about FP is very vital is still vital, as other studies have shown (36). Men have always persisted in the belief that family planning is a woman's responsibility, and many confused the procedure with castration (32, 33). A survey for a project on male involvement in FP found that only 22% of men and 31% of women approved of vasectomy (34). Despite high knowledge and attitude as shown in this study at the end of the day, the practice matters.

CONCLUSION

Our study has shown that knowledge and attitude are very high but it has also shown that many require training on techniques of advocacy as well as how to acquire new methods of vasectomy.

Religion, morals, culture and myths can be classified as not significant factors in either approving or recommending vasectomy. The study has clearly indicated for instance that Catholics who are generally viewed as anti contraceptives had strongly approved vasectomy in the same spirit as Protestants.

Interestingly also personal opinions of medical personnel were seen to influence performance of vasectomy. While recommending vasectomy to clients was observed to be very high but when it came to close relatives it was substantially very low.

Female medical personnel as well as nurses are more likely to recommend vasectomy than male doctors and clinical officers due to the desire from female personnel for men involvement in family planning methods.

Despite high knowledge of vasectomy, in general the study has shown that in practice vasectomy is rarely performed. The practice leaves a lot to be desired.

RECOMMENDATIONS

1. Strengthen training programs to impart new methods of vasectomy
2. Teach providers new techniques to advocate vasectomy to their clients
3. Encourage and conduct campaigns about vasectomy in the provincial level among medical personnel to influence actual practice of vasectomy after having acquired knowledge
4. To study professional/client relationship to measure the actual response rate in the future to see whether practice has improved or not and what is to be done. Since vasectomy is a medical personnel/client procedure like any other, we recommend that future research to include this component.
5. To closely study whether the myths and cultural belief are still largely existent although in the surface medical personnel may deny this. It may

be that the unwillingness from the part of medical of medical personnel to advocate and hence to perform vasectomy is fundamentally hindered by this factor more than any other is.

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APPENDIX 1

QUESTIONNAIRE FOR PREVALENCE OF ANAEMIA AS SEEN IN PROVINCIAL GENERAL HOSPITAL KAKAMEGA

Serial No.

2. IP NO.

SOCIO DEMOGRAPHIC DATA

3. AGE OF PATIENT (completed in years)

4. Marital Status (Insert No. in box)

   1. Single
   2. Married
   3. Widowed
   4. Separated/Divorced

5. Highest Level of Education (Insert No. in Box)

   1. None
   2. Primary
   3. Secondary
   4. College/University

6. Occupation (insert code in the box)

   1. Housewife
   2. Farmer
   3. Unskilled/semi-skilled worker
   4. Business
   5. Skilled/profession workers

OBSTETRICS AND GYNAECOLOGY

7. No. of Deliveries

8. No. of Abortions

9. No. of Children Alive
   If NO to questions 7 & 8 go to question 12

10. Last Delivery Date Month Year

L x z i z r z r z o

11. Previous history PPH or APH(Insert No. in box)

[1] Yes

[2] No

PRESENT PREGNANCY

Date Month Year

1 1 ! 1 1 1

1. Gestation by dates in weeks

13. Have you ever done pregnant test in this pregnancy? (Insert number in box)

1. YES

2. NO

14. If yes what is the extrapolated gestation in weeks?

15. Have you ever done an obstetric ultrasound in the first three months of this pregnancy? (Insert number in box)

1. YES 1 1

2. NO

16. If yes what is the extrapolated gestation in weeks?

17. From question 12-16 what is the best-estimated gestation in weeks?

18. Have you been previously admitted in this pregnancy? (Insert number in box)

[1] Yes

[2] No

If No. to no. 18 go to question 19.

19. If YES to question 18, what was the diagnosis? (Put a tick in the right box)

1. Malaria 1 I
2. Anaemia I I
3. UTI I I
4. Chest Infection 1 I
5. Bleeding |_____|
6. Other (specify)

20. If Yes No. Q. 18, how many times? I——1

21. Are you suffering from any of these chronic illnesses? (Put tick in box)

1. None I I
2. Diabetes mellitus
3. Renal failure
4. Tuberculosis
5. Hypertension I 1
6. Cardiac disease I I
7. Sickle cell I 1
8. Other (specify)

22. State whether on treatment or not to items in question 21 (put number in box)

1. Yes 1_____|
2. No
3. Not applicable |____1

23. Have you had any bleeding episode in this pregnancy?

1. Yes
2. No

24. Have you taken any iron or folic acid during this pregnancy? (Insert number in box)

Yes

2. No

25. Do you have fetal movement (Insert number in box)

1. Yes

2. No

PRESENT COMPLAINT (Tick in the box)

1. None
2. Fever
3. Palpitations
4. Cough
5. Lethargy and fatigue
6. Pain during urination
7. Others (Specify)

PHYSICAL FINDINGS (Tick relevant box)

1. None
2. Pallor (of conjuctiva, tongue, nail beds and/or palms)
3. Jaundice
4. Splenomegaly

5. Fever

6. Oedema

7. Basal chest crepitations

8. Symphysio fundal height in cm.

9. Others (Specify)

LABORATORY FORM

IP NO:

SERIAL NUMBER:

1. a) **Haemoglobin concentration gm/dl**

b) Red cell count

c) Leucocytes:

- Total

Differential:

Neutrophils

Lymphocyctes

Basophils

Eosinophils

Monocytes

a) Platelet count

b) PVC

MCV

MCH

MCHC

3. Peripheral blood film picture
4. Comment
5. Malaria parasites a) absent.....b) present....
6. Stool for ova and cysts:(State specific one found)

CONSENT FORM FOR PREVALENCE OF SEVERE ANAEMIA IN PREGNANCY AS SEEN AT THE PROVINCIAL GENERAL HOSPITAL KAKAMEGA

Study number. MCH No

Hello, my name is. I am working with Dr. Khadija Said, a postgraduate student from the University if Nairobi, Department of Obstetrics and Gynaecology. We are carrying out a study to determined the factors associated with anaemia in pregnancy and ways of improving the health of pregnant women. I hope you will feel free to discuss with me, as all information you provide will not be divulged to anyone else, nor will there be a penalty for refusing to respond to any questions. You are free to refuse to answer any questions during the interview, but I hope you will help us gather information needed to improve the services provided to pregnant women and their future babies. Any questions regarding this study may be directed to Dr. Khadija Said on telephone number 0722957105.

Thank you.

Do you have any questions you would like to ask me before we begin?
Do we have your consent to continue with these questions?

I, MCH No.....having been informed about the study/having read all the above, and understand all what it entails, do willfully consent to participate in the study.

(Client signature/thumb print) *(Date)*

(Investigator who informed/discussed with patient) *(Date)*

KISWAHILI TRANSLATION

FOMU YA IDH1N1: UTAFITI KUHUSU UPUNGUFU WA DAMU KWA WANAWAKE WAJAWAZITO KATIKA HOSPITALI YA MKOA WA KAKAMEGA.

Fomu Namba. MCH Namba

Habari gani, mimi ni Nafanya kazi na Dk. Khadija Said, mwanafunzi wa shahada ya uzamili ya Udaktari katika Chuo Kikuu cha Nairobi, Idara ya Uzazi na Magonjwa ya Wanawake. Sisi tunatafiti sababu za upungufu wa damu miongoni mwa wanawake wajawazito ili kutafuta mbinu za kustawisha hali za afya zao. Natumai kuwa utanipa ushirikiano katika mjadala huu. Taarifa zote utakazonipatia zitatunzwa na zitakuwa siri, pia hakutakuwa na adhabu ya aina yoyote ikiwa hutakuwa tayari kujibu maswali fulani. Hivyo, kuwa huru kukataa kujibu swali lolote ambalo hutapenda wakati wa usaili. Hata hivyo, tunatumai kuwa utatupa ushirikiano wa kutosha ili kutuwezesha kukusanya taarifa muhimu ili kupelekea kuboresha hali za kinamama wajawazito hapo baadaye baada ya utafiti huu. Kama una swali lolote za ziada kuhusu utafiti huu wasiliana na Dk. Khadija Said kwa simu namba 0722957105.
Asante sana.

Je, una swali lolote ambalo ungependa kuniuliza kabla hatujaanza usaili?
Je, unatoa idhini ili tuanze rasmi usaili?

Mimi, MCH Namba.....nimepewa taarifa kamili kuhusu utafiti huu kwa vile nimesoma kwa makini maelezo yote muhimu kuhusu utafiti hapo juu, nimeelewa vizuri kinachonipasa na natoa idhini ya hiari ya ushiriki katika utafiti huu.

(Sahihi ya mteja/dole gumba) (*Tarehej*

(Mtafiti aliyetoa maelezo kwa mteja) *(Tarehe)*

APPENDIX 2

QUESTIONNAIRE FOR KNOWLEDGE, ATTITUDE AND PRACTICE OF MEDICAL PERSONNELS TOWARDS VASECTOMY.

Answer the questionnaire according to instructions given.

Serial Number

SOCIO DEMOGRAPHIC CHARACTERISTICS

1. Age in completed years

2. Sex

3. Professional Status (insert number in box)
   1. Doctor
   2. Nurse
   3. Clinical officer

4. Marital Status (insert number in box)
   1. Single
   2. Married
   3. Separated (Divorced)
   4. Widowed
   5. Other (Specify)

5. Religion
   1. Catholic
   2. Protestant
   3. Muslim
   4. Other (Specify)

KNOWLEDGE OF VASECTOMY

6. Have you ever heard of vasectomy? (Insert number in the box)
   1. Yes
   2. No

7. How did you learn about vasectomy? (Insert number in the box)
   1. Training in medical school
   2. Books
   3. Health care workers
   4. Seminar
   5. Specific training in vasectomy

8. What is vasectomy? (Insert number in the box)
   1. Testis crushed
   2. Tubes that carry sperms cut
   3. Testis removed
   4. I don't know
   5. Other..... (Specify)

9. Does vasectomy make men impotent? (Insert number in the box)
   1. Yes
   2. No

10. Do you think you need more information on vasectomy? (Insert number in the box)
   1. Yes
   2. No

If No to Question 10 go to Question 12.

11. If yes to question 10 what type of training? (Put tick in the box)

1. on how to perform vasectomy

2. on complication and side effects

3 on new methods of performing vasectomy

4 on how to advocate men to go for vasectomy

5 others, specify

ATTITUDE OF VASECTOMY

12. Do you approve of vasectomy? (Insert number in box)

1. Yes
2. No

13. If Yes to Question 12, why?

14 If yes to question 12 why?

15. Has any of your close relative such as brother, uncle has been done vasectomy? (Insert a number in box)

1. Yes
2. No.
3. I do not know

16. Have you recommended vasectomy to your relatives? (Insert a number in box)

1. Yes
2. No

17. Have you recommended vasectomy to your friends? (Insert a number in box)

1. Yes
2. No

18. Have you recommended vasectomy to your male clients? (Insert a number in box)

1. Yes
2. No

PRACTICE OF VASECTOMY

19. How many times have you performed vasectomy to your clients?

20. If you are a nurse, how many times have you assisted in vasectomy?

21. Are you currently performing vasectomy? (Insert a number in box)

1. Yes
2. No

22. How many vasectomies have you performed last year?

23. If you were to recommend vasectomy to someone, when would you advise him to perform it? (Circle the appropriate answer or specify)

1. Immediately after the first visit to his doctor
2. When he has discussed it with his wife
3. When he has too many children
4. Other, specify

24. How should be vasectomy provided? (Insert a number in box)

1. Free

2. At a cost

25. Do you consider vasectomy as castration? (Insert a number in box)

Yes

No

26. If Yes, why?

27. If No, why?

Tick the most appropriate response on whether you agree, disagree or strongly disagree.

Characteristic	Agreement scale		
	1 agree	**2 disagree**	**3 strongly disagree**
Q 28. *Who should go for vasectomy?* • Married men only • All men who need it • Men with many children • Men in general regardless whether they have children or not • Young people who do not plan to have children in the future • Should not be performed at all			
Q29. *Who should perform vasectomy?* • Doctors • Nurses • Any person who has been trained to do it • Community based agents			
Q30. *Is there any need to campaign for vasectomy?*			
Q31. *Do you intend to campaign for vasectomy?*			

32. What would classify as your personal view on vasectomy? (Circle the appropriate answer or specify)

1. It is against my morals
2. It is against my religion/belief
3. I can not ever imagine perform it
4. Am vasectomized already
5. Am very careful about protecting myself against the risk of unwanted pregnancy to wife
6. Other.....(Specify)

33. Do you think access to vasectomy is problematic in such a way that it is not really accessible to those who want it?

1. Yes
2. No

34. If Yes, why

35. If No, why

Thank you very much for taking your time to answer the questions.

CONSENT FORM

STUDY ON VASECTOMY: KNOWLEDGE, PRACTICE AND ATTITUDE OF MEDICAL PERSONNEL

Dr. Khadija Said is a postgraduate stunt in the University of Nairobi, in the department of Obstetrics and Gynaecology undertaking a study to find out the knowledge, attitude and practice about vasectomy among medical personnel. This will be done by asking questions listed below. After this the answers to the questions will be analyzed to come up with results. The data that will be obtained will be used to enhance and design strategies to promote, improve vasectomy as a means of male sterilization.

The medical personnel's joining this study will do so on voluntary basis and may choose not to answer all the questions. The data obtained in this questionnaire will be handled in strict confidentiality.

I kindly request you to give consent to join the study. As evidence of your acceptance, please sign here.

Signature..... Date...../...../2005

Thanking you in advance.

Dr. Khadija S Said

Glossary

Bladder - A muscular, elastic pouch that serves to store and expel urine

Epididymis - Tightly coiled, very small tubes covering the back and sides of the testis, where sperm are stored and mature after leaving the testis before they are transported to the vas deferens

Prostate gland - Located below the bladder, gland that contributes significantly to seminal secretions and is where the ejaculatory ducts, the vas deferens, and the urethra join

Scrotum - The sac that contains the testicles, epididymis, and vas deferens

Semen - The combination of sperm and glandular fluid released by the urethra when a man ejaculates; normally a mixture of less than 1% sperm and 99% seminal fluid

Seminal vesicle - A sac at the end of the vas that produces a component of seminaecretions, the fluid that is ejaculated by a man at sexual climax and that transports and nourishes the sperm

Testes/testicles - Located in the scrotum, the male reproductive glands that produce sperm and male hormone (testosterone)

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Fax: 725;
Telegrams: "MEDSUP", Nairc
Email: **KNHplan@Ken.Healthnet.<**

Ref: KNH-ERC/01/2898 **Date: 27th July 2005**

Dr. Khadija Said
Dept. of Obstetric & Gynaecology
Faculty of Medicine
University of Nairobi

Dear Dr. Khadija

RESEARCH PROPOSAL: "VASECTOMY: KNOWLEDGE, ATTITUDE AND PRACITCE OF MEDICAL PERSONNEL IN PROVINCIAL GENERAL HOSPITAL KAKAMEGA. WESTERN PROVINCE. KENYA" (PI 04/07/2005)

This is to inform you that Kenyatta National Hospital Ethics and Research Committee reviewed and approved your above cited research proposal for the period 27th July 2005 to 26th July 2006. You will be required to request for a renewal of the approval if you inten continue with the study beyond the deadline given.

On behalf of the Committee, I wish you fruitful research and look forward to receivii summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when proces related research study so as to minimize chances of study duplication.

Yours sincerely,

Prof. A/N. GUANTAI
SECRETARY - KNII-ERC

c.c: Prof. K. M Bhatt, Chairperson, and KNH-ERC
The Deputy Director (C/S), KNH
The Dean, Faculty of Medicine, UON
The Chairman, Dept. of Obs/Gynae, UON
The HOD, Medical Records, KNH
Supervisors: Dr. M. Ndavi, Obs/Gynae, UON
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Ref: KNH-ERC/01/2876

Date: 15th July 2005

Dr. Khadija Said
Department of Obs/Gynae
Faculty of Medicine

University of Nairobi *

Dear Khadija

RESEARCH PROPOSAL: "PREVALENCE OF ANAEMIA IN PREGNANCY AS SEEN AT THE PROVINCIAL GENERAL HOSPITAL, KAKAMEGA" (P61/4/2005)

This is to inform you that Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** revised version of your above cited research proposal for the period 15th July 2005 to 14th July 2006. 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, and KNH-ERC
The Deputy Director (C/S), KNH
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Supervisor: Dr. M. Ndavi, Dept. of Obs/Gynae, UON
Dr. Gathari Ndirangu, Obs/Gynae, KNH