

CASE REPORTS AND COMMENTARIES

Submitted by

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MASTER OF MEDICINE

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OF THE

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DEDICATION

With much affection, this book is dedicated to my wife Faith Njoki and our son Wesley Wanyoro for great tolerance, material and moral support during my training.

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First acknowledgement goes to the ordinary Kenyans whose taxes have financed my career in medicine.

My sincere gratitude and appreciation to my university supervisors Dr. R. Rukaria and Dr Machoki M. for excellent guidance encouragement and support in the long commentaries.

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To my fellow colleagues in the department with whom it has been so pleasurable working with, I say thank you.

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Finally much appreciation to my parents, brothers and sisters for the great encouragement given to me.

DECLARATION

This is to certify that the case records presented in this book were managed by me under the guidance and supervision of the senior members of the staff in the Department of Obstetrics and Gynaecology at the Kenyatta National Hospital, Nairobi, Kenya.

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

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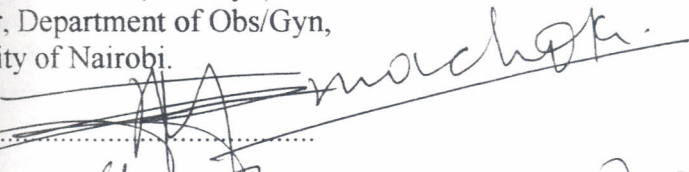


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This is to certify that Obstetric cases No. 3,9,13,and 14 and Gynaecology cases No. 4,11,13 and 14 were managed by Dr. Wanyoro A.K. under my supervision and guidance at Kenyatta National Hospital, Nairobi, Kenya.

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This is to certify that Obstetric case No. 4,5 and 8 and Gynaecology case No. 3 and 8 were managed by Dr. Wanyoro A.K. under my supervision and guidance at Kenyatta National Hospital, Nairobi, Kenya.

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INTRODUCTION

KENYATTA NATIONAL HOSPITAL

All the short cases presented in this book were managed in the obstetrics and gynecology unit of Kenyatta national Hospital (KNH). The long commentaries were also researched in the same unit.

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. With advancement of time, it changed to King George V Hospital and later to Kenyatta National Hospital in 1970. It was made a state 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 neighboring countries. The hospital provides preventive, curative, promotive, specialized 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. Postgraduate medical courses were started later. It also serves as a training institution for paramedical staff in corroboration with the Kenya Medical Training College. Research facilities are also found within the hospital complex mainly under the University of Nairobi's faculties of Medicine, Pharmacy and Dentistry.

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 mainly for patients in high-risk category. All the antenatal patients are booked into the clinic every Monday morning on a rotational basis by each of the three firms. The patients are first interviewed by the clinic midwives who record personal history, obstetric history and the medical/surgical history. Blood pressure, weight,

and height measurements and urinalysis are done on all patients. A senior registrar then reviews all the patients and makes a selection of the high-risk cases to be followed up in the ANC. Normally, about forty patients and a few staff members are booked per each session.

High-risk criteria for booking include: -

1. Primigravida and adolescents.
2. Previous obstetric complications such as, operative deliveries, antepartum and post partum haemorrhage, stillbirths and neonatal deaths, ruptured uterus, vesico-vaginal fistula etc.
3. Complications of present pregnancy such as multiple gestations, multiparity, threatened abortion, etc.
4. Medical diseases complicating pregnancy e.g. anaemia, diabetes mellitus, hypertension, cardiac disease, etc.
5. Gynaecological conditions such as previous infertility, previous gynaecological surgery, etc.

For those patients who are booked for follow up, a detailed medical, obstetric, gynaecological, family and social history are taken. A thorough physical examination is then done to include uterine size, fetal lie, presentation and fetal heart tones. Blood for antenatal profile for haemoglobin estimation, blood group and rhesus and serology for syphilis, is taken. Other tests relevant to individual patients e.g. random blood sugar, indirect Coombs test (ICT), obstetric scan, etc are requested as appropriate. The patients are counseled for HIV screening and tests are done on a voluntary basis. The patients are then given appointments for subsequent visits; those for immediate admission are sent to the antenatal wards through the labour ward. Tetanus toxoid is given to every patient and the next dose scheduled after 4 weeks.

Follow up

The patients are seen every four weeks up to 28 weeks gestation, two weekly up to 36 weeks gestation and then weekly thereafter till delivery. Patients may be seen more or less often depending on individual cases. During each visit, the following are routinely done:-

1. Weight is taken (in kilograms).
2. Blood pressure measurement.
3. Urinalysis for protein and sugar.
4. Patient is asked for any complaints
5. Further 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, presentation and 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 caesarian section of non-recurring indication. For those planned for elective induction of labour or repeat caesarian section, amniocentesis is 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 and family planning.

The Maternity Unit

The Maternity Unit is made up of the labour ward, three lying in (antenatal/postnatal) wards, a maternity theater, mothers' hostel and the newborn unit. A private wing in the maternity unit has recently been inaugurated.

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 rescuscitaire. An acute room with capacity for three beds caters for very sick patients who need close observation; these include those with severe hypertensive disease in pregnancy, cardiac disease, severe infections, etc. 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 in the antenatal clinic report directly to the labour ward admission desk while unbooked patients are admitted through casualty. The midwife receives the patients and records the vital signs. The senior house officer assisted by interns then does clerking and full physical examination; those patients not in labour and not having acute problems are admitted to the antenatal ward. If in labour, or has an acute problem, she is admitted into the first stage area or the acute room.

FIRST STAGE OF LABOUR

Here, both doctors and the primary nursing midwife accurately keep a record of the progress of labour; for this purpose, a partogram is utilized. This partographic record consists of the following: -

1. Patients identification, parity, and time of admission.
2. Date and time of rupture of membranes, whether artificially 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 used, dosage and time administered.
10. Maternal vital signs every $\frac{1}{2}$ -hour.

All vaginal examinations are aseptically done after the bladder has been emptied. Such assessment is done every 4 hours or sooner where indicated. Amniotomy is routinely done at 4 cm or more of cervical dilatation. 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; usually, pethidine is used but tramadol has been also utilized. With the partogram, signs of obstructed labour, fetal distress, impending uterine rupture and maternal distress are noted early and intervention procedures instituted.

SECOND STAGE OF LABOUR

When second stage is imminent as evidenced by an urge to bear down and full cervical dilatation, the patient is transferred to the delivery room. In the delivery room, she is placed in lithotomy position and the vulvoperineal toilet and draping is done. The midwife or doctor encourages the patient to bear down during a uterine contraction. If the perineum is tight, 10 mls of 2% lignocaine hydrochloride is infiltrated locally 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. Once 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 delivers the anterior shoulder while upward traction will deliver the posterior shoulder. The rest of the body quickly follows. Where the cord is still intact, it is clamped and cut. The baby is handed over to a receiving midwife or paediatrician for Apgar Scoring, weighing and resuscitation (where necessary). Ergometrine 0.5 mg intramuscularly is given at delivery of the anterior shoulder unless it is contraindicated as in cardiac disease, hypertension or before complete delivery in multiple pregnancy. Intravenous ergometrine or an infusion of oxytocin is given where post-partum haemorrhage is anticipated. The senior house officer carries out the delivery of high-risk patients like breech, multiple pregnancy, preterm deliveries, cardiac patients or those requiring operative vaginal delivery. A paediatrician is usually in attendance for these cases.

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 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. 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 in the 4th stage room. The patient keeps her bladder empty and a vulva pad is monitored. If no complications are noted, she is transferred to the lying-inward to continue resting and observations. To encourage bonding and early initiation of lactation, rooming in is encouraged. If no problems arise, and the baby is well, and has been immunized, they are discharged home after 24 hours to be followed up in a post-natal clinic after six weeks.

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 post-natal, family planning and child immunization clinic at their nearest health centers. 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 counseling. Patients with medical or other conditions are referred to relevant clinics for follow-up.

PERINATAL MORTALITY MEETINGS

These are held once a week every 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.

THE NEWBORN UNIT (NURSERY)

This 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 join the mothers. 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 centers.

The Neonatology team comprises consultants, senior house officers and trained neonatal nurses.

Mothers who are themselves well but have their babies in the nursery are accommodated in the Mother's Hostel. They visit the nursery every three hours for purposes of breast-feeding.

THE COLD OBSTETRIC 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 post-natal 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. A team composed of consultants, senior house officers, interns and the nursing staff runs each ward. The senior house officers and the interns 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.

OBSTETRIC PROCEDURES

1. OPERATIVE VAGINAL DELIVERY

The Malmstrom vacuum extractor is used in this unit when operative vaginal delivery is indicated. Obstetric forceps are not used. The main indications for operative vaginal delivery are: -

- a) Prolonged second stage of labour when there is no absolute cephalopelvic disproportion
- b) Cardiac disease in second stage of labour
- c) Hypertensive disease in second stage of labour

At full cervical dilatation, the patient is placed in lithotomy position (unless she has cardiac disease) and vulva-vaginal toilet done with antiseptic solution. Draping and aseptic catheterization is done then vaginal examination repeated to confirm cervical dilatation, position, and station of the vertex. The head should be engaged with less than 2/5 palpable above the pelvic brim and the cervix fully dilated. Cephalopelvic disproportion is also ruled out. Under local anaesthesia, mediolateral episiotomy is performed. The largest vacuum cap that can fit into the vagina and onto the fetal scalp is then applied. A vacuum is built up with the cup held onto the scalp. A finger is used to ascertain that no maternal soft tissues have been held. The vacuum is increased by 0.2 kg per cm² at one to two minute intervals to 0.8 kg per cm² to create a chignon. 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 delivery of the head has occurred, the vacuum is released and delivery completed as described for spontaneous delivery.

CAESAREAN SECTION

Cesarean sections are either elective or emergency. For elective cesarean sections, the haemoglobin level must be at least 10 g/dl, amniocentesis be done (where necessary especially if the gestation age is in doubt) and surfactant test positive and there must be at

least two units of compatible blood available for necessary transfusion. The patient is normally starved for at least six hours prior to the operation.

Minimal preparations are possible for emergency caesarian operations; blood is always taken for compatibility testing although transfusion may not always be necessary. Consent for operation is obtained from the patient, her spouse or other accompanying relative. The abdomen, vulva and perineum are shaved. Pre-medication is administered using intramuscular atropine sulphate 0.6 mg about half-hour before operation. In serious emergency, half this dose is given in theater intravenously by the anaesthetist.

The patient is placed on the operating table in supine position, her legs are drawn up, and aseptic catheterization is done, the catheter being left in situ to provide continuous bladder drainage. The abdomen is cleaned using cetavlon or hibitane then povidone-iodine is applied followed by sterile draping. 100% pre-oxygenation is done for five minutes. General anaesthesia is induced with 200 - 500 mg intravenous thiopentone depending on patients' body weight; the anaesthesia is maintained with nitrous oxide and halothane via a cuffed endotracheal tube.

Sometimes spinal block anaesthesia is used instead of general anaesthesia. This has the advantage of providing muscle relaxation and analgesia without inducing the patient to sleep. For general anaesthesia, muscle relaxation is obtained using succinyl-choline 50-100 mg intravenously before intubation then a long acting muscle relaxant, usually pancuronium, is given.

The abdominal incision is made usually the sub-umbilical midline one or the Pfannenstiel incision. Using a second clean knife, the incision is extended deeper through subcutaneous tissues to the rectus sheath. This is then opened vertically using curved scissors after separating it from the underlying rectus muscles. These muscles are deflected laterally by blunt dissection to expose the parietal peritoneum. Using two long straight artery forceps, one on either side placed at the upper end, the peritoneum is opened, ensuring that there are no adherent viscera beneath.

Moist abdominal packs are placed on either side of the uterus in the paracolic gutters to keep the gut away from the operating field and to minimize soiling with blood and liquor. A Doyen's retractor is used to fully expose the lower uterine segment and keep the bladder away. Using dissecting forceps, the loose vesico-uterine peritoneum is held and incised transversely in an elliptical fashion. A mounted swab is used to push this peritoneum off the lower segment thus taking the bladder down with it. Using the second knife, a shallow elliptical incision is made on the myometrium; in the midline, this is deepened to reach the fetal membranes. Guided by the index and middle fingers, the incision is extended laterally on either side using curved dissecting scissors.

The membranes are then ruptured and the right hand inserted into the uterus below the presenting part, which is now gently lifted out of the uterus and abdomen. With the assistant applying fundal pressure, the baby is delivered. The cord is double clamped then cut and the baby handed over to the midwife or paediatrician for resuscitation if needed, weighing and Apgar scoring. Soon, the anaesthetist administers ergometrine 0.5 mg intravenously. The placenta is delivered manually and the membranes extracted by gently pulling using artery forceps. The uterine cavity is cleaned using a mounted swab to remove pieces of membranes, placental tissue and clots.

Hemorrhage along the incision is controlled by applying Green-Armitage uterine clamps. The incision is then repaired in two layers using continuous chromic catgut No.2 suture, using the second layer to bury the first. The vesico-uterine peritoneum is then repaired using No.1 chromic catgut continuous suture. The surgeon then checks the incision site to ensure adequate haemostasis. The abdominal packs are removed and any clots cleared out. The scrub-nurse and her runner-nurse then enumerate the swabs and instruments to ensure a correct count and inform the surgeon.

Using chromic catgut No.2/0, the parietal peritoneum is closed in a continuous fashion; the rectus sheath is closed using continuous No. 1 Vicryl or No.2 chromic catgut suture on a cutting needle. The subcutaneous adipose tissue layer is then closed with plain catgut

No.2/0 to obliterate potential spaces for haematoma collection. The skin around the incision is then cleaned with antiseptic solution or normal saline then repaired using interrupted mattress sutures of non-absorbable material such as nylon or silk. The incision is then cleaned and dressed.

The drapes are removed and the patients' legs drawn up; the catheter is removed (unless otherwise indicated) and the colour of urine ascertained. Gentle pressure is applied on the fundal region to expel any clots from the uterus into the vagina. Vaginal toilet is done using mounted swabs soaked in antiseptic solutions. Anaesthesia is reversed using intravenous neostigmine 2.5 mg and atropine sulphate 1.2 mg.

POSTOPERATIVE MANAGEMENT

The patient is then transferred to the labour ward for half hourly observations until she is fully awake when she is taken to the post-natal ward. Antibiotics (usually crystalline penicillin and gentamycin) are given intravenously for 48 hours then oral Amoxicilin is given for five days. Continued analgesia is given by pethidine for the first 24 hours then oral ibuprofen. The patients are maintained on intravenous fluids until the bowel sounds are established then oral fluids and feeds are gradually restarted. Early ambulation is encouraged. A check haemoglobin is done on the third postoperative day while the wound is inspected on the same day. If the patient has no complication she is discharged on the 4th postoperative day. Removal of the skin stitches is done on the seven postoperative days either in the ward or in the nearest health facility. The patients are reviewed in the postnatal clinic after six weeks as described for normal deliveries.

SPECULUM EXAMINATION

The bivalve (Cusco's) speculum is preferred although the Sims speculum is also sometimes used. The procedure is indicated in cases of suspected preterm premature rupture of membranes and in antepartum Hemorrhage (APH). It is also done to assess vaginal discharge and for removal of a MacDonald stitch.

The procedure is explained to the patient and she is asked to lie in semilithotomy position on an examination couch. Vulva-vaginal 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 and 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 other abnormality. When the procedure is complete, the speculum is withdrawn in the same way it was introduced.

DIGITAL PELVIC EXAMINATION

The patient is informed of the procedure and the reasons for performing it. She is asked to empty the bladder or catheterization is done. The operator puts on sterile gloves; with the patient in semi-lithotomy position, vulva-vaginal toilet is done. The external genitalia is inspected. Using the left hand thumb and index finger, the labia are parted and the index and middle fingers of the right hand are inserted into the vaginal cavity.

Pelvic assessment is then done; the diagonal conjugate is estimated by trying 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). Cervical dilation, length, consistency, position as well as uterine position is determined. The adnexa are palpated for tenderness and masses. The fornices are felt for masses. On completion of internal examination, the gloved fingers are inspected for blood or abnormal vaginal discharge.

AMNIOCENTESIS

All patients for elective delivery have amniocentesis done at 38 weeks gestation, or earlier, depending on the indications for determination of fetal lung maturity. The procedure is also carried out for bilirubin spectrophotometry in a Rhesus iso-immunized patient (when the indirect Coomb's test is positive). Amniocentesis is done in the clinic or in the ward. The

procedure is explained to the patient and having emptied her bladder, she lies in the dorsal 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 cc syringe, the needle is gently advanced into the amniotic cavity.

If for surfactant test, 4 cc of amniotic fluid is withdrawn; for bilirubin spectrophotometry, about 6cc is withdrawn and put in a darkened bottle to avoid sunlight decomposition of the bilirubin.

The colour of the amniotic fluid is noted as well as presence of lanugo hair 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 $\frac{1}{4}$ 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. 1 ml of amniotic fluid and 1 ml of 95% ethanol (1:1 dilution) are put into the first test tube. 0.5 ml of amniotic fluid, 1 ml of 95% ethanol and 0.5 mls of normal saline is put into the second one (1:2 dilution). Both 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 test.

GYNAECOLOGICAL SERVICES

ACUTE GYNAECOLOGICAL SERVICES

Acute gynaecological services are based in Ward 1 D; this ward has 40 beds that commonly accommodate triple the number of patients (i.e. up to 120). Patients are mainly admitted through the casualty by the medical officers. Those seen but do not meet admission criteria are treated and sent home while some are referred to the gynaecology clinic for follow-up.

Once admitted, patients are clerked by the intern, then reviewed by the senior house officers. Majority of patients admitted are those with incomplete abortions; others are due to ectopic pregnancy, acute pelvic infections, tubo-ovarian masses, and Bartholin abscess. Some are admitted through the Family Planning Clinic for removal of translocated intrauterine devices as day cases or surgical sterilization under general anaesthesia. An emergency theater is allocated on a 24-hour basis for emergency gynaecological operations.

There is a busy procedure room in the ward where uterine evacuation is done using Karman's cannula and syringe. Here, patients with incomplete abortions have uterine evacuation done three times in a day by a senior house officer; majority are discharged home immediately while those with sepsis or anaemia are retained for further management.

Cases of carcinoma of the cervix are seen at the gynecological consultant clinic on thursday and are then admitted for examination under anaesthesia (EUA) every Friday. After confirming the diagnosis, those with Stage I disease are transferred to Ward 1B for Wertheims hysterectomy while the majority with more advanced disease are referred to the Radiotherapy Department for pelvic irradiation. Those whose disease is beyond treatment with surgery or radiotherapy are referred to the Nairobi Hospice for terminal care.

THE COLD GYNAECOLOGY WARD

This is Ward 1B; it has 32 beds shared out among the three firms. Patients admitted here are mainly those followed and worked up for surgeries in the gynaecology clinic; a few are from Ward 1D. The bulk of admissions are either those requiring hysterectomy for uterine fibroids or tubal surgery for infertility. Patients with gynaecological malignancies undergoing chemotherapy are also found here. Each firm has a full day theater once a week when elective operations are performed.

THE GYNAECOLOGY CLINICS

These are held on Tuesday, Wednesday and Thursday afternoons, by firms I, III and II respectively. All the doctors in the particular firm are usually involved. Patients are usually

referred from the Casualty, other clinics in the hospital or from other peripheral health facilities.

All new patients are seen by senior registrars and consultants; a history taking and physical examination is done and investigations requested as appropriate to individual cases. Majority of patients present with infertility or uterine fibroids. Routine cervical smears are normally done. Other patients on follow-up include those who have undergone surgery or chemotherapy.

OTHER CLINICS

The colposcopy clinic is run every Friday morning by a trained consultant and senior house officer. All patients from within or referred with abnormal cervical smear are evaluated. Diagnosis and treatment is done as appropriate.

The Gynaecological Oncology Clinic is run at the same time as the colposcopy clinic. Patients who have been treated for various cancers are seen here.

FAMILY PLANNING SERVICES

These are offered in the Family Welfare Center, located in a separate building. It caters for many clients from Nairobi and its environs.

A wide range of contraceptives is 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 sterilization are referred to the Voluntary Surgical Contraception (VSC) theater located in the building.

LAPAROSCOPY AND V.S.C. THEATER AND WARD

Previously located in the Rahimtulla Wing, but now located within the Family Welfare Clinic No. 66, the ward has eight beds where patients are admitted as day cases. 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 centers.

The senior house officer reviews all clients and those found suitable for the procedures are given an appointment. They are counseled and advised on pre-operative preparations. Operations are done under sedation with local anaesthesia. Tubal ligation is by minilaparotomy and the procedure is used to train intern doctors. Patients are discharged later in the day to be followed up after one week then five weeks. Those who had Laparoscopy are sent back to the gynaecology clinic to await tubal surgery. For those patients who are deemed fit to undergo laparoscopic surgery, a laparoscopic theater has been established.

THE ADOLESCENT COUNSELLING CLINIC

This is an extension of the main Family Planning Clinic. All patients in the adolescent age group presenting to the maternity or acute gynaecological ward as a result of pregnancy are followed up here. They are counseled and provided with appropriate contraceptive methods.

RADIOTHERAPY SERVICES

The Radiotherapy Department serves the entire country and also neighboring countries. Patients sent here are mainly those with inoperable carcinoma of the cervix. External radiation is done using Cobalt-60, administered daily except weekends and public holidays. Once a full course of this has been given, patients are given intracavitary radiation using Caesium-137 twice a week. They are followed up in the Radiotherapy Clinic.

COMMON GYNAECOLOGICAL PROCEDURES

PAP SMEAR

This is usually done in the gynaecology and family welfare clinics. The procedure is explained to the patient who is then asked to lie in the semi-lithotomy position. The surgeon puts on sterile gloves and without vulval swabbing inserts a Cusco's speculum into the vagina. The vaginal walls and cervix are inspected. A standard kit of pap smear is used which contains a fixative, a microscopy slide, a cervical brush and wooden spatula for the

vault and ectocervix currating. The mucus and scrapings obtained are spread onto a clean dry glass slide. This is covered with a fixative and sent for cytological examinations. The speculum is then removed gently.

GYNAECOLOGICAL OPERATIONS

All these are discussed with the patients before admission (for elective operations) or on admission for cases of emergency. The patients consent for operation is obtained. Commonest operations done include laparotomy for ectopic pregnancy, pelvic abscess, tubo-ovarian masses and total abdominal hysterectomy. Marsupialization of Bartholin's abscess and repair of genital fistula is also done. These operations are done under general anaesthesia. Evacuation of the uterus for incomplete abortion is done in the acute gynaecology ward procedure room using Karman's canula under no anaesthesia. Evacuation of hydatidiform mole, missed abortion or blighted ovum is done under general anaesthesia.

PREOPERATIVE PREPARATION

Acute emergency operations are prepared for theater straight away. The abdomen is cleaned and shaved. The patient is premedicated with intramuscular atropine sulphate half an hour before operation. Blood is taken for grouping and cross match as an intravenous vein is established.

For none emergency operations, baseline investigations (haemoglobin and urea and electrolytes) are done within two weeks of operation. Special investigations are done depending on the disease. Blood is booked and reserved for the day of operation. The patient's relatives are asked to donate blood and if the patients' haemoglobin levels are high they are autodonated. The number of pints depends on the operation to be performed.

The patient is starved from midnight. The operation area is cleaned and shaved in the morning. The patient is premedicated with 50mg of pethidine and .6mg of atropine sulphate half an hour before theater. An intravenous line is established and the patient wheeled to theater. The varies operations are described in detail in the case histories presented elsewhere in this book.

POST OPERATION MANAGEMENT

After the operation, general anaesthesia is reversed and the patient taken to the recovery room. The vital signs are observed 1/2 hourly until the patient is fully awake when she is transferred to the ward. In the ward, vital signs are taken four hourly.

Postoperative analgesia is offered by 50mg of intramuscular pethidine for the first 24 hours then oral ibuprofen. Prophylactic antibiotics are usually given. These usually consists of intravenous crystalline penicillin 2MU every 6 hours and gentamicin 80mg every 8 hours for the first 24 to 48 hours. Then oral antibiotics are given. Intravenous fluids are maintained until the bowel sounds are established. Normal diet is gradually introduced. Initially patients are allowed liquids, then light diet. Early ambulation is encouraged and a check haemogram is done on the third postoperative day.

Most patients are kept in the wards for 4 days and are then allowed home through the gynecology outpatient clinic in six weeks. Removal of the stitches is usually done in the nearest clinic on the seventh postoperative day.

LABORATORY SERVICES

The Obstetric and Gynaecology Unit enjoys all the laboratory services offered by the hospital. In addition, the unit runs its own laboratory which deals with:

- 1) Semen analysis
- 2) Radioimmunoassay of hormones
- 3) Surfactant (or Bubble-shake) test
- 4) Pregnancy test
- 5) Post coital test
- 6) Urine and blood sugar determinations.

OBSTETRIC CASE NO. 1

**CERVICAL INCOMPETENCE: SUCCESSFUL PREGNANCY FOLLOWING
MACDONALD CERVICAL CERCLAGE**

NAME: G. N.
AGE: 27YRS
IP NO: 0536511
1st admission:
DOA: 6/10/98
DOD: 14/10/98
2nd admission:
DOA: 19/3/99
DOD: 20/3/99
Parity: 0+2

Presenting history:

She was para 0+2 admitted through the antenatal clinic for insertion of McDonalds stitch. She had cervical incompetence. She had no complaints.

Obstetrics and Gynecology history:

She was Para 0+2.

In 1996 she had a spontaneous abortion at 20 weeks which started with vaginal bleeding then later expulsion of fetus. There were no labor pains and the patient only reported feeling some discomfort. Evacuation was required for retained products of conception.

In 1997, she again had an abortion at 16 weeks. She had been admitted at Nazareth hospital with vaginal bleeding. She then had expulsion of fetus at the hospital and evacuation was done for incomplete abortion.

She had her menarche at 14years. Her menstrual periods occurred after 21 days and lasted 3 days. They were regular. She had never been on any contraceptive method.

Her last menstrual period was on 11/6/1998. Her expected date of delivery was on 18/3/1999. She was at a gestational age of 16 weeks. She had attended her antenatal clinic at Kenyatta National Hospital from 12 weeks of gestation.

Past medical and surgical history:

This was not significant.

Family and social history:

She was a married housewife. She never used to take alcohol or smoke. Her husband was a businessman and there was no chronic illness in the family.

Systemic enquiry:

This was not contributory.

Physical examination:

She was in good general condition. She was not pale and had no edema, jaundice or lymphadenopathy. Her pulse was 88 per minute, temperature was 36⁰c, and blood pressure was 120/60mmHg and a respiratory rate of 22 per minute.

Abdominal examination:

The lower abdomen was uniformly distended. The uterus was corresponding to 16 weeks gestation. There was no tenderness or any other masses palpable.

Pelvic examination:

Speculum examination:

She had normal external genitalia. The vaginal walls were healthy. The cervix looked short approximately one centimeter long. It was closed and had no anatomical defects. There was no abnormal discharge seen.

A digital examination was done and confirmed the speculum findings. The vaginal walls felt normal. The cervix was about one centimeter long with no palpable defects. The uterus was

about 14 weeks and the adnexial were normal. There was normal discharge on examining fingers.

The central nervous, respiration and cardio-vascular systems:

These were essentially normal.

Diagnosis:

A diagnosis of recurrent mid trimester pregnancy loss due to cervical incompetence was made.

Management:

Investigations done:

Brucella test: Negative.

VDRL: was negative,

Blood group was AB-Positive

Random blood sugar was normal

2/10/98: Urea and electrolytes -Na-130mmol/l, K-4.3mmol/l, urea 3.1 mmo/l

5/10/98: Haemoglobin-Hb-12.8g/dl, WBC- 5.4×10^9 /l, platelets – 320×10^9 /l

21/9/98: U/S- single intra uterine pregnancy at 14 weeks and no abnormalities seen.

She was planned for Macdonald stitch insertion. An informed consent was obtained. She was premeditated half-hour before theatre with 0.6mg atropine sulphate and 50mg of pethidine.

Macdonald stitch insertion:

The patient was put under general anesthesia. She was then positioned in lithotomy position and the vulvo-vaginal toilet done. The perineum was draped with sterile towels. The bladder was catheterized. Examination under anesthesia was performed and revealed normal

external genitalia with normal vaginal walls. The cervix was short and approximated to about a one centimeter. There were no defects on the cervix. The adnexial felt normal. An Auvards speculum was inserted to expose the cervix and using a Sims speculum the anterior vaginal wall was retracted. The anterior and posterior lips of the cervix were held with a sponge holding forceps and the cervix gently drawn towards the introitus. With a double strand silk no.2 stitch on a round-bodied needle, a pulse string was inserted at the level of the internal os. The needle was directed into the stroma to avoid the endocervical canal. Four bites were taken starting at 5 o'clock and exiting at four o'clock then entering at 2 o'clock and exiting at 1 o'clock then at 11 o'clock and exiting at 10 o'clock and finally through 8 o'clock to exit at 7 o'clock. The knot was then tied at 6 o'clock. The knot was tightened so that the internal os could just admit the tip of a finger. Multiple knots were made and a strand of about 1cm long was left in order to allow easy removal. There was slight bleeding but no drainage of liquor at the end of the procedure. The general anesthesia was then reversed.

Post-operative management.

The vital signs were observed routinely. She was put on complete bed rest. She was started on salbutamol 4mg and phenobarbitone 30mg each 8 hourly for 2 weeks. The postoperative period was uneventful. She was discharged on the third post-operative day on Salbutamol and Phenobarbitone for two weeks and was to continue with bed rest at home. She was advised against coitus. She was advised to report to the hospital incase she developed labour pains, vaginal bleeding or any abnormal discharge. She was to be reviewed in the antenatal clinic in two weeks.

Follow-up:

She was seen in at the antenatal clinic for a total of 7 times. The antenatal period was uneventful. Her blood pressure remained normal and ranged between 120-130/60-70mmHg. Her weight increase was normal. Urinalysis done at every visit was normal with no proteinuria.

On 3/3/99 when she was 38 weeks, the stitch was removed and she was allowed home to await labour. She was seen once more at 40 weeks in the antenatal clinic.

Readmission

On 19/3/99 she was readmitted in labor. She had developed labour pains 3 hours prior to admission. She had no liquor drainage or vaginal bleeding. On examination, she was found to be in good condition. Her blood pressure was 120/80mmHg, the pulse was 80/minute, temperature was 37°C and the respiration rate was 22/minute.

Abdominal examination revealed a fundal height that was term. The foetus was in longitudinal lie and cephalic presentation. The head was 3/5 above the pelvic brim. She was having 3 contractions every ten minutes lasting over 40 seconds. The foetal heart rate was at 142 per minute and regular.

A pelvic examination revealed normal external genitalia. She was not draining. The cervix was fully effaced and 6 centimeter dilated. The pelvis was adequate and there was no caput or moulding.

A partograph was initiated and she was actively managed. Artificial rupture of membranes was done and clear liquor was drained. She was monitored closely as described in the introduction. On next review after four hours, she was found to have progressed well. On examination she was still having 3 contractions every 10 minutes lasting for more than 40 seconds. The foetal head was only a 1/5 above the pelvic brim and the foetal heart tones were heard at 140 per minute and regular. A pelvic examination showed that she was still draining clear liquor, the cervix was 9 cm dilated and there was no caput or molding. She had a spontaneous vertex delivery an hour later to a live male infant who scored 9 at one minute and 10 at five minutes. The baby weighed 3.5 kg. Third stage was managed as described in the introduction. She was stable post delivery and was discharged the following day through the postnatal clinic in six weeks. She was seen six weeks after delivery and was found to be stable and discharged through the family welfare clinic.

DISCUSSION:

Recurrent pregnancy loss is a distressing problem both for the patient and the physician. The prevalence of recurrent abortion is approximately 1% while the risk for an untreated recurrent spontaneous aborter to continue to experience foetal wastage is 40% but with specific treatment in selected cases the viable pregnancy rates is as high as 90% (1). The patient presented had 2 mid trimester pregnancy losses.

Incompetent cervix is characterized by painless cervical dilatation in the 2nd trimester or early 3rd trimester, with prolapsed and later ballooning of membranes. This is followed by expulsion of the foetus (2, 3). The patient presented had relatively pain free abortions.

The incidence for cervical incompetence varies greatly from 0.05 to 1% of all pregnancies but it is thought to be responsible for mid trimester pregnancy loss in up to 16% of cases (4,5). In Kenyatta National Hospital (KNH) the reported incidence is 1.15% (6).

The cause of cervical incompetence of the internal os remains unclear since only circumstantial evidence has been used to establish it. Three main causes have been suggested which include trauma (overzealous therapeutic or diagnostic D&C, lacerations from previous vaginal delivery, cervical surgery such as deep cone biopsy or cervical amputation). The other causes are congenital causes as in abnormalities of collagen and abundance of muscle tissue with abnormal sparse connective tissue and in DES exposure in utero and hormonal imbalances as would occur if there is a disparity between estrogen and progesterone production (2,3, 7). Two percent of patients have no apparent etiologic factors. The patient presented had two evacuations for incomplete abortion.

The net effect is a weakened sphincteric mechanism of the internal os meaning that when the uterine contents reach a critical volume they overcome the reduced resistance in the internal os and herniation and extrusion commences.

The diagnosis is usually a diagnosis of exclusion (7). One may commonly elicit a history of painless effacement and dilatation of the cervix prior to bleeding or labor in the mid trimester from these patients. Some may give a history of precipitate labor while others may give history suggestive of previous trauma to the cervix as in cervical surgery, induced abortion or a previous difficult delivery. Clinical examination in pregnancy reveals shortening of the cervix, opening of the cervix or herniation of membranes and foetal sac (7). Serial ultrasonography to determine the cervical length, the integrity of the internal os, and the width of the cervical canal may be useful in establishing the diagnosis (8, 9). The patient presented was diagnosed to have cervical incompetence from a suggestive history and physical examination.

Outside pregnancy, more investigations can be done with the menstrual cycle in mind. The normal isthmus is short and relatively atonic during menstruation while during the early proliferative phase of the cycle there is gradual increase in isthmus tone which is greatest following ovulation. It gradually lengthens and assumes a hypertonic tubular appearance as secretory phase progresses then relaxation occurs just before menstruation (7). With above in mind a variety of methods for diagnosis of cervical incompetence have been suggested. This includes traction test of Bergman and Svenerund consisting of pulling a Foleys catheter containing 1ml of water. Other tests include easy passage of size no 8 hegars dilator and hystero salpingogram with demonstration of widening of the internal os (2,3, 7).

Ultra sound has been shown to be very useful in the diagnosis of cervical incompetence. It can provide reliable and objective information on the uterine cervix and the lower segment. The transvaginal ultrasound has been shown to be more superior to the transabdominal ultrasound. It has been shown to consistently clearly identify the cervix. It also doesn't need a full bladder which at have been shown to elongate the cervix. Serial ultra sonography for women suspected cervical incompetence is important in that it a significant number can avoid cervical cerclage, with the cerclage being reserved for those women who are shown to have developed cervical effacement(7,8,11).

A scoring system has been suggested. This is based on clinical and historical data.

Suggestive history includes a previous history of premature or mid trimester pregnancy loss without an obvious cause. Visual evidence of previous surgical or obstetric trauma on cervix, history of painless premature labor and rapid delivery, progressive dilatation of more than 2 cm during mid trimester or a previous diagnosis of cervical incompetence with previous cerclage. A maximal score of 5 and a minimum score of 1 is possible (10). The patient presented had a score of two.

Surgical treatment forms the mainstay of management of cervical incompetence. Its aim is to reinforce the weakened interval os by some kind of purse string suture. Surgical management has evolved since Shirodkar performed the first cerclage operation in 1955. This stitch is permanent and requires subsequent caesarian section deliveries. In 1957, Macdonald devised an endocervical purse string with 4-6 bites of No. 4 silk on a Mayo needle. Macdonald suture is the method commonly used although many others more have evolved. Its advantage is its simplicity of performance and removal prior to delivery thereby permitting vaginal delivery. Its success rate is 85-90% (2, 3, 7). In KNH, Njage reported a success rate of 64.2% following Macdonald cerclage (6). The patient presented had a successful management of cervical incompetence using Macdonald cerclage.

Cerclage during pregnancy must be deferred till 12 weeks gestation to allow spontaneous abortions for genetically & environmentally determined abortions. Most surgeons prefer surgery after 12 weeks but before 15 weeks after which the operation is technically difficult. Ultra sound is done to exclude major foetal abnormalities prior to surgery. Surgical correction is usually unsuccessful if a dilation of 3-4cm is reached and is therefore advised before this dilatation (3, 7). Cerclage in the patient presented was done at 14 weeks gestation. An ultrasound scan had shown no foetal malformation.

The procedure is contraindicated when there is rupture of membranes, polyhydramnios, a cervix which is greater than 5cm dilated, intra uterine foetal demise and obvious foetal abnormalities as well as when there is bleeding (3, 7).

Infections and bleeding may complicate Macdonald cerclage. Other complications may include rupture of foetal membranes, bladder injury, and scarification of cervix leading to cervical dystocia and premature labor. Other complications may include risk of anesthesia, cervical laceration and uterine rupture if labor starts before removal of the stitch.

Complications are frequent if the cerclage is done after 18 weeks gestation (8). The patient presented had none of these complications and went on to have a term delivery. Most authors advise avoidance of coitus for a week after the cerclage, sedatives and strict bed rest and antibiotics.

The stitch should be removed after 37 weeks of pregnancy. Other times when it may be removed is if the patient goes into premature labor has preterm rupture of membranes or an inevitable abortion or vaginal bleeding. In our patient the stitch was removed at 37 completed weeks and she went on to deliver at 40 weeks.

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MALARIA IN PREGNANCY: MANAGEMENT AND LIVE BIRTH.

NAME : B.D.

IPNO : 0495522

AGE : 23 YEARS

DOA : 14/3/98

DOD : 18/3/98

PRESENTING COMPLAINT:

She was admitted from home with three days history of headache, chills and fever.

HISTORY OF PRESENTING COMPLAINT:

She was well until three days prior to admission when she developed severe headache. This was associated with fever, joint pains and chills. The headache was frontal and was associated with blurred vision. She then developed episodes of hotness of body followed by cold spells. She also had generalized weakness of body and malaise. She had traveled to Western Kenya two weeks prior to onset of the illness.

OBSTETRICAL AND GYNECOLOGY HISTORY:

She was a primigravida. Her last menstrual period was on 14/6/97 and her expected date of delivery was on 21/3/98. At admission she was 39 weeks by dates. Her menarche was at 16 years. She had a regular menstrual cycle of 28 days with a moderate flow of 4 days. She had not used any contraceptive method.

She had attended antenatal clinic at Woodley health center from 30 weeks. She had attended three times and no antenatal profiles had been done. These were done while she was in the ward.

PAST MEDICAL HISTORY:

This was not significant.

FAMILY AND SOCIAL HISTORY:

She was a single lady educated up to form four. She used to stay with her parents at Kibera. She did not smoke or take alcohol. There was no chronic illness in the family.

SYSTEMIC INQUIRY:

No abnormalities were detected. She had no vomiting, no diarrhea and no epigastric pain. She had no frequency of micturation or dysuria.

PHYSICAL EXAMINATION:

GENERAL:

She was sick looking. She was febrile, not pale or jaundiced. She had no lymphadenopathy or leg oedema.

Her temperature was 38.5⁰ C, blood pressure was 120/80 mmHg, respiration rate of 22 per minute and pulse rate of 100 per minute.

CARDIOVASCULAR SYSTEM:

The pulse was not collapsing. It was of good volume. The jugular venous pressure was not elevated. The first and second heart sounds were heard and normal. There were no murmurs.

RESPIRATORY SYSTEM:

The chest was symmetrical with equal air entry bilaterally. There were no added sounds.

CENTRAL NERVOUS SYSTEM:

She was well oriented in time space and person. All reflexes were normal. She had no neurological deficit. The pupils were equally and bilaterally reacting to light.

ABDOMEN:

The abdomen was uniformly distended. The fundal height was corresponding to term gestation. The foetus was in longitudinal lie and cephalic presentation. The presenting part was not engaged. The foetal heart tones were heard at 146/minute and regular. No contractions were felt. The liver and spleen were not palpable and there was no renal angle tenderness.

PELVIC EXAMINATION:

This was not indicated.

IMPRESSION:

Malaria in pregnancy at 39 weeks gestation.

MANAGEMENT:

Blood slide for malaria parasites. This had been done at casually and was positive. She was admitted to the antenatal wards and intramuscular Aspergic 1gm given to lower the temperature. Intramuscular Paluther 160mg stat followed by 80mg daily for four days. She was put on 1gram of paracetamol orally every 8 hourly. By the second day the temperature had gone down to 37.4⁰C.

INVESTIGATIONS DONE IN THE WARD:

15/3/98/:

Haemogram: Hb- 11.8 g/dl, WBC- 8x 10⁹/l, platelets – 180 x 10⁹/l.

Differential: Neurophils – 65%, Lymphocytes – 30%, Monocytes/eosinophils – 5%

Peripheral Blood film – Normal red blood cells with 1% infected with Plasmodium falciparum.

Urea and Electrolytes: Na⁺ - 133 mmol/l, K⁺ - 3.2 mmol/l.

Liver function tests: Not done.

Urinalysis – Normal, culture: No growth obtained.

Blood group: B positive.

VDRL - Negative

Random Blood Sugar – 4.2 mmol/l

16/3/98:

Repeat blood slide for malaria parasites: negative.

On 16/3/98 she had improved and had no fever, headache or chills. She went into spontaneous labour, she was taken to labour ward where she was assessed and found to be in active labour.

LABOUR WARD REVIEW:

She was in fair general condition. Her temperature was 37.2⁰C, Pulse rate 88/minute, respiration rate was 20/minute and blood pressure was 120/80 mmHg.

ABDOMINATEXAMINATION:

The fundal height was equivalent to term gestation. The foetus was in longitudinal lie and cephalic presentation. The head was 2/5 above the pelvic brim. The foetal heart tones were heard at 138/ minute and regular. She was having 3 contractions every 10 minutes lasting more than 40 seconds.

PELVIC EXAMINATION:

She had normal external genitalia. The cervix was 7 cm dilated and fully effaced. The membranes were bulging and no cord was felt. The pelvis felt adequate.

DIAGNOSIS:

A diagnosis of a primigravida on malaria treatment in active labour was made.

MANAGEMENT:

Artificial rupture of membranes was done and clear liquor was obtained. A partograph was initiated and labour actively managed as described in the introduction. She progressed well and 4 hours later she felt the urge to push. She was assessed and found to be in second stage. She was taken to the delivery room and she delivered a 3.2kg female baby who had an Apgar score of 8 in one minute and 10 in 5 minutes. The placenta was clinically normal and cord blood taken for peripheral blood film had no malarial parasites.

POST DELIVERY:

She remained stable and she finished her course of Paluther injections. She was then discharged on prophylaxis Chloroquine 300mg weekly and haematinics to attend post natal clinic in 6 weeks but she never turned up for the clinic.

DISCUSSION:

The patient presented was a primigravida who presented with a three-day history of headache, chills, fever and general body ache. She had recently traveled to Western Kenya. She was at 39 weeks of gestation.

Malaria is a protozoa disease transmitted by the bite of infected female anopheles mosquitoes.

Malaria infection during pregnancy is a major public health problem in the tropics and subtropical regions of the world. In endemic areas pregnant women and children are the main groups at risk for malaria.

It is estimated that 40% of the world population is at risk. It is estimated that 90% of the global burden of malaria and most of deaths from the disease occur in sub-Saharan Africa (1). It affects over 200 million people and kills between 1-2.5 million annually (2,3).

Malaria is a priority disease in Kenya accounting for 30% of outpatient attendance in hospitals nationally. Plasmodium falciparum malaria is the commonest type in Kenya and accounts for up to 98% of the cases. It is associated with significant morbidity and mortality. Other species are plasmodium malaria and plasmodium ovale which account for up to 2% of cases while plasmodium vivax is very rare (4). Our patient had plasmodium falciparum malaria.

The prevalence of malaria varies from place to place depending on the endemicity of the disease. The coast province and the lake region (Nyanza and Western) are hyperholoendemic while the very high grounds of Abardare ranges and Mount Kenya are malaria free (4). Malaria is stable in areas of altitudes below 300 meters above sea level. Areas which are 1700meters above sea level have unstable malaria with seasonal malarial swings especially during rainy seasons (4). Our patient had traveled to Western Kenya prior to onset of illness which is hyperholoedemic area.

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Malaria is severe in infants, young children (less than 5 years), non-immune adults (especially tourists and people from the highlands) and also in pregnant women. The increased susceptibility of pregnant women to malaria has been thought to be due to either sequestration of the parasite in the placenta or due to depression of selected components of the immune system in association with increased production of several hormones (2,4,5).

Pregnancy is thought to exert a dampening effect on immunity to malaria leading to recurrent and severe infection due to increased susceptibility and high density of plasmodium infection (2,5). In Coast Province, a prevalence of 21% of malaria in pregnant women has been reported (6).

Primigravida are at a more increased risk of malaria in pregnancy and susceptibility tends to wane with subsequent pregnancies (2,4,5). The increased susceptibility has not been well explained because hormonal changes during pregnancy even though they may affect the immunologic response, would not account for the differences observed in successive pregnancies since each pregnancy would experience the same type of hormonal changes (5). Our patient was a primigravida and this would have put her at an increased risk.

The initial symptoms of malaria are non-specific and include general malaise headache, fatigue, abdominal discomfort and generalized body ache followed by chills and fever (6,7). Our patient had most of these symptoms. In other cases a prominence of headache, chest pains, nausea and vomiting, abdominal pains arthralgia or diarrhea may be present. The classical malaria paroxysms in which fever spikes, chills and rigors occur at regular intervals are rare. True rigors are common with *P. Vivax* and *P. Ovale* than with *P. Falciparum* (7).

The utero placental vascular spaces provide a relatively protected site for parasite sequestration and development. It is this parasite replication in the placenta and its potential to alter transplacental nutrient transport as well as the passage of parasitized red blood cells to the fetus, which may seriously compromise fetal growth, and survival of the newborn

infant (2,5,8). The parasites may involve the placenta extensively since they have an affinity for decidual vessels. The density of parasitization and delivery of reduced birth weight babies have been shown to be associated (8). However placental parasitization below 32 weeks is rare. This is thought to be due to a maternal factor that leads to suppressed placental infection between 16-32 weeks gestation. This factor had been explained on the basis of a surge of immunity following the high rate of maternal infection of early pregnancy (8).

In areas of low transmission, or during epidemics where women have little or no pre-existing immunity to malaria, infection is associated with extremely high risks of maternal and perinatal mortality (9). The particular dangers of malaria in pregnancy in women with low immunity are hyperpyrexia, hypoglycemia, severe haemolytic anaemia, cerebral malaria and pulmonary oedema. Women of all parities are affected.

In areas of moderate or high transmission, adults who have been exposed to malaria since childhood have usually developed immunity to it. Although this immunity is altered during pregnancy, infection with malaria is usually asymptomatic but is associated with anaemia and low birth weight (9). These complications are more common in primigravida.

Anaemia results in increased risk of premature birth, high perinatal mortality and maternal death, low birth weights and abortions may also occur (4,5). Our patient was a primigravida. She delivered a baby who was appropriate for gestation age although she delivered within one week of developing malaria.

The incidence of congenital malaria is rare even in endemic places. It is estimated that the incidence in endemic areas is less than 1% (2,5). It is thought that the placenta acts as a barrier in sequestering the parasite hence preventing invasion of the fetus despite evolution of the parasite within it (5,8). Our patient delivered a baby who had no congenital malaria.

The diagnosis of malaria is based on clinical history and examination. It is confirmed by finding of malarial parasites on a blood slide (2,4). Our patient's diagnosis was made by clinical history and examination and confirmed by a blood slide.

Malaria is usually classified on clinical course (6)

(1) Uncomplicated malaria.

Patients have symptoms of malaria and red cell parasitaemia of less than 5%.

(2) Severe complicated malaria:

The red cell, parasitaemia is greater than 5%, patient is prostrated, unconscious, has respiratory distress, cerebral malaria convulsions, renal, failure, hypoglycemia or malarial haemoglobinuria.

Our patient had uncomplicated malaria.

Increased resistance of *P. falciparum* to antimalarial drugs has been a major problem. In Kenya chloroquine was the drug of first choice until 1983 when the first resistance was documented (4). Resistance in Kenya varies from 0% in Turkana to 85% in endemic area (6). The choice of antimalarials therefore depends on knowledge of sensitivity, availability of drugs and in pregnancy the potential toxicity to the baby (3,6). However in severe malaria, treatment is extremely important and concern about the drugs effect on the baby are outweighed by the dangers malaria poses to the mother and foetus (4,5).

Previously chloroquine was the drug of choice in uncomplicated malaria as it was cheap, rapidly effective and well tolerated. However the ministry of health has withdrawn its use due to the high resistance and currently, it recommends the use of sulfadoxine-pyrimethamine based drugs as first line treatment (4). In severe malaria quinine has been the drug of choice. However Artemesinin derivatives are currently being preferred to quinine because they have been found to safe, have a rapid speed of effect and are easy to administer. They also have fewer side effects. Our patient was treated with Paluther, which is a derivative of *Artemesinin*. Supportive treatment will vary from case to case and may include antipyretics haematinics and blood transfusion. Our patient was given antipyretics and haematinics.

In most areas of the rural tropics, eradication of malaria is not feasible due to lack of resources. The control of malaria in pregnancy involves treatment of acute attack, and prophylaxis for the rest of pregnancy and puerperium. Other measures to control malaria include prevention of malaria bites by use of insecticides, impregnated bed nets and mosquito repellants. Avoidance of visits to malarial zones during pregnancy, vector control in the community as well as health education will further reduce maternal transmission.

In Kenya, currently recommended chemoprophylaxis is Fansidar or Metakelfin. Either of these is given in two doses, first dose after first trimester and second dose during third trimester (4). Proguanil 100mg daily can also be used but compliance is poor. Chemoprophylaxis is taken until puerperium is over. Our patient was given chloroquine 300mg weekly to take until the end of puerperium as at that time chloroquine as prophylaxis was still advocated.

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RETAINED PLACENTA: MANUAL REMOVAL.

NAME: E. N.
IDNO: 0527055
AGE: 32YRS
DOA: 10/8/98
DOD: 12/8/98
PARITY: 2+0

Presenting complaint:

The patient presented through casualty with a day's history of lower abdominal pains.

History of presenting complaint:

She was well until a day prior to admission when she developed labor like pains. The pains were episodic and had increased both in frequency and intensity over time and were also being referred to the back. She had no drainage of liquor or vaginal bleeding.

Obstetrical and gynecologic history:

She was a para 2+0. Her first delivery was in 1989. It was a spontaneous vertex delivery at Pumwani maternity Hospital. Her second delivery was in 1993. It was also a spontaneous vertex delivery at Kenyatta National Hospital. During this last delivery she had a retained placenta which was removed manually. All her children are alive and well.

Her last menstrual period was on 24/10 /97 and her expected date of delivery was on 31/7/98. She was at gestation age of 41+ weeks on admission. She had attended her ante-natal clinic at a private clinic, which was said to have been uneventful. She had had antenatal profiles done but she had no results and no card.

Her menarche was at 19 years and she had a cycle of 30 days lasting 4 days. They were regular with no dysmenorrhoea.

She had been on contraceptive pills between 1990 to 1992, which she stopped to conceive and then she was on depo provera between 1993 to 1996, which she stopped to conceive.

Past medical and surgical history:

She was admitted in 1988 with anemia of unknown cause. She was transfused two units of blood.

Physical examination:

She was in good general condition. She was not pale and was afebrile. She had no jaundiced or edema.

She had a blood pressure of 110/60mmHg, pulse rate of 98 per minute, respiration rate of 22 per minute and a temperature of 37⁰c.

Abdominal examination:

The abdomen was uniformly distended. The fundal height was term, with a fetus in longitudinal lie and cephalic presentation. The presenting part was 3/5 up and the fetal heart tones were heard at 140 per minute and regular.

Pelvic examination:

She had normal external genitalia. The cervix was 4 cm dilated anterior and soft and fully effaced. The fetal membranes were intact and there was no caput formation and neither was there any molding.

Other system:

These were essentially normal.

Impression:

A diagnosis of active labor was made.

Management:

She was admitted to labor ward. The labor was monitored with a partogram. She progressed well and had a spontaneous vertex delivery to a live male infant who weighed 2400 grams and scored 7/1 and 9/5. After delivery of the baby, intra muscular ergometrine 0.5mg was

administered. Controlled cord traction was attempted with every contraction but the placenta showed no signs of separation. A drip of 20 I.U of syntocinon in normal saline was started and further controlled cord traction was attempted. After 30 minutes with no success., a diagnosis of retained placenta was made. Blood for grouping was taken and two units of compatible blood requested for. The patient was counseled about the diagnosis and the management and she gave an informed consent for manual removal under general anaesthesia. The syntocinon drip was maintained with 20IU. She was premedicated with atropine sulphate and taken to theatre.

Procedure:

Under general anesthesia, she was placed under lithotomy position and vulva vaginal toilet done and urinary bladder catheterized. Examination under anesthesia revealed a cervix, which was 4cm dilated, and a retained placenta confirmed.

The left hand was placed on the abdomen to stabilize the uterus. The right hand was introduced in the uterine cavity and was passed along the umbilical cord to the lower margins of the placenta attachment at the fundus. A line of cleavage was found with the edge of the hand and the placenta gently separated from the uterine wall along the cleavage line while maintaining the left hand on the abdominal wall to stabilize the uterus. The separated placenta was then delivered as the hand was retrieved from the uterus. It was inspected and was found to be complete. The cervix and the vagina had no tears and there was minimal lochia loss. Vulvo- vagina toilet was done and anaesthesia was reversed. Total blood loss was estimated to be 450mls.

Post operative management:

The immediate post operative period was uneventful and the vital signs remained normal with half hourly monitoring. She was started on oral Amoxycilin 500mg 8 hourly and flagyl 400mg 8hourly for five days. She was observed for 48 hours and since she remained stable with minimal lochia loss she was discharged through the postnatal clinic on antibiotics and haematinics. She was also counseled about the likely hood of retained placenta in her next pregnancy. She never turned up for the postnatal clinic.

Post natal investigations

Blood group-O Rhesus positive.

Haemogram- 12g/dl.

VDRL-negative.

DISCUSSION:

Retained placenta is said to have occurred when placenta has not separated 30 minutes following delivery (1). The patient presented had not had delivery of the placenta 30 minutes after delivery of the baby despite being given ergometrine on delivery, controlled cord traction and a drip of 20 units of syntocinon.

Retained placenta is one of the commonest causes of post partum hemorrhage (PPH) and PPH has been shown to be one of the major causes of maternal mortality (2, 3, 4).

Retained placenta may be caused by uterine inertia, or the presence of a constrictive ring at the cervical opening following intra venous use of Ergometrine after delivery of a baby (5,6). In most of the cases abnormal adherence of placenta is the main cause of retained placenta (1). Our patient most probably had an abnormally adherent placenta although this could not be ascertained at manual removal.

The Nitabuch layer is the fibronoid layer that separates the chorion frondosum from the decidual basalis and at delivery this forms the plane of separation between the placenta and the uterine wall. In abnormally adherent placenta this layer is absent or deficient and the placenta may infiltrate the myometrium (5).

Placenta accreta is the general term of all abnormally adherent placenta whose diagnosis is clinical (1, 5). Several degrees of placenta accreta are described depending on the degree of adherence ranging from superficial morbid adherence to the decidual basalis to either invasion of myometrium or full thickness penetration of myometrium (placenta accreta vera, increta or percreta respectively) (1).

The incidence of morbidly adherent placenta is thought to be approximately 1/2000 – 1/7000 deliveries while it is thought that placenta accreta vera or superficial myometrium adherence of villi accounts for 80% of abnormally adherent placenta. Placenta increta accounts for 15% while percreta accounts 5% (1).

Morbidly adherent placenta has been associated with multi parity, previous placenta praevia, previous caesarian section or previous uterine surgery and previous endometritis (1). It has also been shown that a previous history of retained placenta or post partum hemorrhage (PPH) increases the relative risk of retained placenta or PPH in subsequent birth by up to 4 times when compared with those without such a history (7). The patient presented had a history of retained placenta in the previous delivery.

Normal 3rd stage of labor should be less than 15 minutes. A placenta, which is not delivered within 30 minutes, should be considered retained and a decision should be made to deliver it manually. If however the bleeding is excessive before this time elapses, then early manual removal should be considered (1). Blood for grouping and cross matching of at least two units of blood is taken and patient is started on a plasma expander. A drip of oxytocin is started pending definitive treatment. An informed consent for even possible hysterectomy is also taken because one may result to operation if the hemorrhage is uncontrolled and even more extensive surgery may be needed (1, 5). In this patient intervention was done after half an hour.

In active management of 3rd stage of labor, uterotonic agents like ergometrine are administered with the birth of the anterior shoulder. This is followed by gentle controlled cord traction in order to deliver the placenta. Early administration of uterotonics can lead to entrapment of the placenta. To avoid this complication, an oxytocin may be given later at the time of placenta separation (1). If the above fails, several ways have been advocated for removal of a morbidly adherent placenta.

Manual removal:

This procedure is performed under general anesthesia. Grasping the fundus with one hand placed over the abdomen stabilizes the uterus. The other hand traces the course of the umbilical cord through the vagina and cervix into uterus, perforating the membranes at the placenta margin and then looking for the cleavage line between the uterus and the placenta. With the palmer side towards the placenta, it is then peeled off from the uterus gently and

when it is completely separated it is grasped and pulled out from the uterus. It is then examined both on the fetal and maternal sides to ensure its completeness. The uterus is massaged until a firm tone is achieved (16). After inspection of any missing parts of the placenta, re-exploration of the uterus is usually advised to remove any of the missing parts. This is the procedure done in our patient and the placenta was removed with ease with no undue difficulty.

For the morbidly adherent placenta, other methods have been advocated. They include conservative management where in women of low parity the placenta or portions of it is left in situ if bleeding is minimal. During conservative management, cytotoxic drugs such as Methotrexate have been used with some success (1, 6, 7). The risks of conservative management include suppuration and infection. Subsequent pregnancies have a high risk of accreta. Other people have advocated the use of intra-umbilical ergometrine with some success (6). In most cases of placenta accreta particularly those associated with placenta previa, hysterectomy is required (1, 6, 5).

The immediate mortality and morbidity is that associated with post partum haemorrhage. Massive blood loss and hypotension may occur. Intra uterine manipulation may lead to perforation and onset of infection. Patients should be monitored for disseminated intravascular coagulation and renal failure. Sheehans syndrome may also arise due to prolonged shock. The patient may have sterility as a result of hysterectomy performed to control bleeding. Death may ensue due to these complications (1, 6, 8). Recurrence is also common (1, 7). Although our patient did not develop any of the problems, she is at a very high risk of retained placenta and hence post partum haemorrhage in her future pregnancy and she was counseled accordingly.

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OBSTETRIC CASE NO. 4

CORD PRESENTATION: EMERGENCY CAESARIAN SECTION

NAME: R. W.
AGE: 32YRS
IPNO. 0328160
DOA: 15/3/00
DOD: 20/3/00
Parity: 2+0

Presenting complaints:

The patient presented with labor like pains for 2 days.

History of presenting illness:

She was well until 2 days prior to admission when she developed lower abdominal pains. They were mild at first but increased in amount, intensity and frequency with time. She then decided to seek medical treatment. She had no history of vaginal bleeding or drainage of liquor.

Obstetrics and Gynecologic history:

She was a para 2+0. Her first delivery was in 1991, at home and at term through a spontaneous vertex delivery. The outcome was female infant weighing 2020 grams. The baby died after three months of pneumonia. Her puerperium was uneventful. Her second delivery was in 1995 at Kenyatta National Hospital (KNH) through a spontaneous vertex delivery at term. The outcome was a female infant whose weight was 3 kg, who was alive and well.

Her menarche was at 17 years. She had periods after every 21-25 days that lasted 3 days. They were irregular with mild dysmenorrhoea.

She had been on contraception pills up to 1999 February when she stopped to conceive.

Present pregnancy history:

Her last menstrual period was on 26/5/99 and the expected date of delivery was on 3/3/00. She was at a gestation of 41 weeks on admission. She had attended antenatal clinic from 16 weeks in a private clinic. She then changed at 34 weeks to Kenyatta National Hospital. Her antenatal period was uneventful.

Antenatal profiles: She had a haemogram of 13g/dl, blood group was B Rhesus positive and the VDRL was negative,
Elisa for HIV was negative

Family and social history:

She was the 7th born in a family of 13 siblings. All were alive and well. She was a married clerical officer educated up to form four. She stayed with her family at Riruta. There was no history of twins or chronic illness in the family. She did not smoke or take alcohol.

Past Medical and Surgical History:

This was not significant.

Physical Examination:

Her general condition was good. She was not pale or febrile. She had no edema.

She had a blood pressure of 100/60mmHg, pulse rate of 82 per minute, respiration rate of 22 per minute and a temperature of 36⁰c.

Abdominal examination:

The abdomen was uniformly distended. The fundal height was term. The foetus was in cephalic presentation and longitudinal lie. The head had not engaged and was 5/5. The fetal heart rate was heard at 144 beats per minute and was regular. She was having 3 contractions every 10 minutes that were lasting less than 20 second.

Pelvic examination:

She had normal external genitalia and the cervix was 2cm dilated and about 1.5cm long. The membranes were intact and at these time no cord was felt.

Other systems examination:

These were all normal.

Diagnosis:

A diagnosis para 2+0 in latent labor was made.

Plan of Management:

She was put on the partograph and was given pethidine for analgesia. She was to be reviewed after four hours.

Review after four hours:

The patient was getting two contractions every 10 minutes that were lasting between 20 to 40 seconds. Abdominal examination reviewed a uniformly distended abdomen still in cephalic presentation and longitudinal lie. The head was 5/5 up. The foetal heart rate was heard at 140 per minute and regular.

A pelvic examination reviewed normal external genitalia. She was not draining and the cervix was 4 cm dilated and less than 1 cm long. The membranes were bulging. A pulsatile cord was felt in front of the presenting part.

Diagnosis

A diagnosis of **cord presentation** was made and patient prepared for emergency Caesarian section.

Management:

She was informed of the diagnosis and the mode of management. She gave an informed consent to under go an emergency caesarian section. The foot of the bed was elevated and

two pillows put under her buttocks. Blood for grouping and cross match was taken and an intravenous drip started with 5% dextrose.

She was premedicated with atropine sulphate 0.6mg and wheeled to theater.

In theater she was put in the Trendelenburg position as the abdomen was cleaned and draped, general anesthesia was given. The abdomen was opened through a sub umbilical midline incision and a lower uterine caesarian section done. A life male infant was delivered who scored 9 one at minute and 10 at five minutes and weighed 3950g. The foetus was in cephalic presentation. The placenta which was fundal anterior was delivered with its membranes. Ergometrine was given and the uterus and abdomen were closed in layers.

Post operative care:

The baby and the mother were allowed to room in. The mother was given the usual postoperative care as described in the introduction. She was transferred to the postnatal wards. The vital signs remained within normal. She was allowed to room in with her baby and she was able to initiate breast-feeding within the first day. The uterus involuted well at an average of one centimeter a day. Her breasts remained normal and she had no breast engorgement or nipple cracking. She was mobilized within 12 hours of the operation and the bowel sounds were reestablished within 18 hours. She did well and was discharged on the 5th postoperative day through the postnatal clinic in 6 weeks. She was counseled that during her next delivery she will under go a trial of scar and so she should deliver in a place with theatre facilities.

Follow-up.

She was reviewed after six weeks. The wound had healed well and the baby was growing well. She was advised on family planning and discharged through the family planning clinic.

DISCUSSION:

This was a para 2 +0 patient who presented in latent labor. She was found to have a cord presentation and an emergency caesarian section was done and a live baby delivered.

Umbilical cord prolapse is defined as descent of the umbilical cord into the lower uterine segment. Several forms of cord prolapse are recognized. This includes occult cord prolapse where by the cord lies adjacent to the presenting part. In overt cord prolapse the cord lies below the presenting part and occurs after the membrane ruptures. Cord presentation is characterized presence of umbilical cord below the level of the presenting part before rupture of membranes occurs (1,2). Our patient had cord presentation, which was managed fast enough to avoid overt prolapse. In occult prolapse, the umbilical cord cannot be palpated during pelvic examination whereas in cases where the cord is ahead of the presenting part it can often be palpated by a keen examiner (2). A pulsatile umbilical cord could be palpated through the unruptured fetal membranes in our patient.

Malpresentation of the cord occurs in 1 in 300 pregnancies (2,5). The incidence of overt umbilical cord prolapse in cephalic presentation and frank breech is 0.5%, while it is much higher in complete breech (5%) and in transverse lie (20%) (1). In Nairobi it has been shown that cord prolapse has a prevalence of 1: 200-300 deliveries (3). At the Kenyatta National Hospital (KNH), an incidence of 0.57% has been reported (4).

Cord malpresentation is often associated with conditions in which the presenting part of the fetus is incompletely filling the pelvis and is poorly applied to the cervix. This allows room for the cord to pass between the presenting part and the pelvic wall. It is thus common in prematurity. It is also common in abnormal presentations, lie and positions (breech, brow, compound, face, transverse, occipital posterior positions), pelvic tumors, placenta praevia, polyhydramnios, multiple gestation and premature rupture of the membranes (1, 2, 5). Up to 80% of cord prolapse have been shown to occur in multiparous women (8). Cord presentation in our patient could have been attributed to the high foetal head.

As long as the membranes remain intact, the condition is that of cord presentation. It becomes prolapse when the membranes rupture (2, 5). Though the fetal mortality is lower in cord presentation than in overt cord prolapse, the problems of presentation and prolapse of the cord are similar and these two must be considered together (5). Since the membranes were still intact in the patient presented she had cord presentation.

Prolapse of the cord to a level at or below the presenting part exposes the fetus to intermittent cord compressions against the pelvic wall, the presenting part, the cervix or vaginal walls which in turn compromises the fetal circulation (1, 2). The fetus may get into hypoxia and may have hypoxic brain damage. It may also die if action is not taken fast enough (1).

In cord presentation, the membranes are not ruptured and although the perinatal mortality is low the fetus is still at a major risk from cord compression. In cord prolapse, further vasospasms of the cord occurs due to exposure to air which causes irritation and cooling of the Whartons jelly. Handling of the cord may also cause vasospasms (1,2).

If cord compression is total and prolonged, fetal bradycardia results. This presents with persistent, severe variable decelerations, which leads to development of hypoxia, metabolic acidosis, brain damage or death. As the above is happening, fetal activity lessens and meconium staining of liquor is noted (6).

The diagnosis of cord presentation requires a high degree of suspicion and diligence when performing pelvic examination in patients in labour. The cord loops are palpated through the membranes if the cervix is dilated. When the membranes have ruptured cord presentation occurs and this can be diagnosed simply by visualizing the cord passing through the cervix or palpating it on pelvic examination. Occult cord prolapse is rarely palpated during pelvic examination and diagnosis can be inferred only if fetal heart rate shows variable decelerations, bradycardia or both associated with intermittent compressions (1,2). Cord

presentation in the patient presented was diagnosed through careful pelvic examination which allowed for timely intervention.

Management of cord presentation and prolapse depends on maturity of the fetus and whether the fetus is alive or not. It also depends on the dilatation of the cervix and descent of the presenting part. If the baby is dead, cord prolapse can be ignored only if the patient has no other obstetrical indication for caesarian section like gross cephalopelvic disproportion or 2 or more previous caesarian scars. In this situation, the problem is the mechanical one of the associated Malpresentation (5). This should also apply if the foetus is pre viable.

An emergency caesarian section before rupture of membranes should deliver the patient with funic presentation at term. If the fetus is premature however, the patient should be hospitalized and nursed in Sims or Trendelenburg position in an attempt to position the cord within the uterine cavity. These patients should have serial ultra sound scans to ascertain cord position, presentation and gestation age (1). Our patient who had cord presentation at term underwent an emergency caesarian section.

In cases of cord presentation variable fetal heart decelerations are recognized during labor. Such patients should have an immediate pelvic assessment to rule out cord prolapse. If occult cord presentation is suspected the patient is put in Sims or Trendelenburg position to alleviate cord compression. If fetal heart rate returns to normal, labor may be allowed to progress (1,2). Provided no further decelerations are noted oxygen, and continuous fetal heart rate monitoring should be instituted. However if moderate to severe variable deceleration or bradycardia persists the patient should be delivered by an emergency caesarian section (1,2). Cord prolapse demands immediate action to preserve the life of the fetus. After a pelvic assessment for dilatation, pulsation's of the cord and status of presenting part, and if the fetus is viable i.e. >25 weeks gestation the patient is placed in the knee chest, Sims or Trendelenburg position. The examiner applies continuous upward pressure on the presenting part thus maintaining the fetus away from the prolapse cord until preparation for caesarian section are complete. The patient must be on oxygen and no attempt at displacing the cord in the uterine cavity should be made. (1,2).

The most difficult cases are those of cord presentation in which the cervix is fully dilated or almost fully dilated and in which the fetus is alive with a longitudinal lie. The choice of caesarian section or assisted vaginal delivery has been of major problem to Obstetricians but in virtually all cases caesarian section is to preferred (1, 5).

Vaginal delivery may be accomplished in cases of cord prolapse or presentation only if at the time of diagnosis the cervix is fully dilated and cephalo pelvic disproportion is not anticipated. An experienced obstetrician or midwife determines that delivery is imminent. Other times when vaginal delivery may be allowed is when the foetus is previsible or when the foetus is dead and there is no maternal indication for caesarian section. In all other cases caesarian section is done. Breech extraction, internal podalic version, and forceps rotations or other operative vaginal deliveries carries with them more hazards to the mother and to the fetus than judiciously performed emergency caesarian section (1).

Another difficulty arises when there is no cord pulsations. It is generally accepted that a non-pulsatile prolapse cord with absence of fetal heart sounds is diagnostic of fetal death. However this premise is challenged in the light of experience with ultra sound where 2 cases of fetuses with neither a pulsatile cord nor fetal heart on auscultation were found to have fetal hearts activity on real time ultra sound. Through expeditious caesarian section, one of the fetuses was salvaged (9). It is therefore recommended that real time ultrasound should be performed urgently in cases where no fetal heart or cord pulsation's are felt. To avoid spasm of the vessels of the cord repeated handling should be avoided (9). None of these difficulties arose in our patient since the foetus was mature and alive.

Fetal mortality and morbidity rates are high and prognosis depends on degrees and duration of umbilical cord compression occurring before diagnosis and treatment. It also depends on neonatal resuscitation before and after delivery. With early diagnosis and occlusion lasting less than 5 minutes prognosis is good (1). If delivery is effected within less than 10 minutes the perinatal mortality is as low as 5.5 % (5). Prematurity and trauma at delivery also affect the fetal outcome. In KNH cord prolapse was found to be responsible for a perinatal

mortality of 9.8%. (4). If complete or partial cord occlusion occurs for more than 5 minutes fetal damage and demise may be inevitable.

Even when the cervix is approaching but has not attained full dilatation, perinatal mortality is lower in cases delivered by emergency caesarian section (1,5). Other complications include those related to anesthesia, blood loss and infection in the mother due to caesarian section and operative delivery. However recovery is usually total. The patient presented had an emergency caesarian section and the maternal and fetal outcome was good and recovery was total.

Patients at risk for umbilical cord prolapse and presentation should be treated as high-risk patients. Those with Malpresentation or poorly applied cephalic presentation should have an ultrasound at onset of labor to determine the lie and position of the cord. They should be continuously monitored to detect variable decelerations and bradycardia (1,2).

Prophylactic measures such as admission of those patients with unstable and transverse lie to hospital in the last three weeks of pregnancy and avoidance of artificial rupture of membranes before the fetal pole has engaged in the pelvis are important in lowering the perinatal mortality. Vaginal examination following spontaneous rupture of membranes will help in early diagnosis of cord prolapse. Careful search for and diagnosis of cord presentation before artificial rupture of membranes should help to decrease cord prolapse and thus lower morbidity and mortality (1, 2, 5). It has been shown that with careful ultrasound it is possible to diagnose cord presentation antenatally (10).

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MULTIPLE PREGNANCY-SUCCESSFUL VAGINAL DELIVERY

NAME: S. M.
AGE: 34yrs.
IPNO: 0654710
DOA: 7/5/00
DOD: 9/5/00
Parity: 3+1.

Presenting complaints.

The patient was admitted with 4 hours history of draining of liquor and 6 hours of labor like pains.

History of presenting complaint:

She was well until 6 hours prior to admission when she developed labor like pains. These were intermittent, increasing in frequency and intensity and were followed 2 hours later by drainage of liquor. She had no history of vaginal bleeding.

Obstetrics and Gynecologic history:

She was para 3+1 gravida 5. Her first delivery was in 1992 while the last delivery was in 1996. All her deliveries were normal spontaneous vertex deliveries and the children were alive and well. In 1997 she had a spontaneous abortion at 3 months gestation No evacuation was done.

Her menarche was at 14 years and she had a regular menstrual period of 28 days lasting 4 days with no dysmenorrhoea.

She had been on contraceptive pills up to 1999 when she stopped in order to conceive.

Current pregnancy history:

Her last menstrual period was on 4/9/99 and her expected date of delivery was on 11/6/00.

She was at a gestation of 35 weeks. She had attended her antenatal clinic at the Kenyatta

National Hospital. She had started attending antenatal clinic on 23/2/00 at 26 weeks gestation. She had attended antenatal clinic 6 times. At 30 weeks of gestation, twin pregnancy was suspected. The fundal height was found to be equivalent to 34 weeks. Ultra sounds scan done on 21/3/00 showed normal twin pregnancy at 30 weeks. She was to continue on haematinics and antenatal follow-up every two weeks. At 32 weeks she was seen in the clinic. She had no complaints and her blood pressure was normal. The fundal height was equivalent to 36 weeks gestation. She was advised on rest and to continue on haematinics. Before attending her next appointment, she was admitted on 22/4/00 at 34 weeks with lower abdominal pains, which were intermittent but was not increasing in intensity or frequency. She did not have dysuria or frequency of micturation. She had no vaginal discharge and neither had she bled vaginally or drained. On assessment she was found to have no contractions.

A vaginal digital examination showed normal genitalia. The cervix was thick about 1 centimeter long, posterior and closed.

An impression of preterm labour was made and the patient was admitted to the floor. She was started on bed rest, 30mg of Phenobarbitone and 4mg of salbutamol orally.

A urine specimen taken was normal on urinalysis while culture and sensitivity grew no organism.

The patient's condition was discussed during the major round on 2/5/00. By then she had no complaint and the abdominal pains had completely gotten finished. It was then decided that she could have bed rest at home while continuing with phenobarbitone 30mg and salbutamol 4mg orally three times a day. She was then discharged to be seen in the antenatal clinic in two weeks time. However she went into labour before two weeks.

Antenatal profile: blood group-O Rhesus positive, VDRL-negative, Haemoglobin-11.4g/dl.

Family and Social History:

She was a married teacher. Her husband was a clerk.

She stayed at Githurai with her family. She did not smoke or take alcohol.

There was no chronic illness in the family.

Her sister had twins and her father was also a twin.

Past medical and surgical history:

This was not significant.

Physical examination:

She was in good general condition. She was not febrile, had no edema, jaundice or pallor. She had a blood pressure of 110/60mmHg, pulse rate of 80 per minute, respiratory rate of 20 per minute and a temperature of 37.3°C.

Abdominal examination:

The abdomen was uniformly distended. The fundal height was equivalent to term. There were multiple fetal parts palpable. The first fetus was in cephalic presentation and the second in breech presentation, they were all in longitudinal lie and the head of first twin was 3/5 above the pelvic brim. She was getting two contractions every ten minutes lasting at between 20 to 40 seconds Fetal heart tone was heard and regular at 134 beats per minute.

Pelvic examination:

She had normal external genitalia and she was draining clear liquor. The cervix was 6 cm dilated, fully effaced and well applied to the presenting part. The pelvis felt adequate.

Other systems:

These were all normal.

Diagnosis:

A diagnosis of a para 3+1 with multiple pregnancy in active labor was made.

Plan of management:

She was started on a partograph. The fetal heart rate, contractions and maternal vital signs were charted every 30 minutes. She was for review after 4 hours. However she progressed well and in three hours she reached second stage. She was delivered of dizygotic twins the first one a boy who was delivered in cephalic presentation. He had an Apgar score of 9 at one minute and 10 at five minutes. He weighed 3400grams. *The abdomen was reassessed and the second twin was found to be in longitudinal lie and breech presentation.* The fetal heart tones were heard at 132 per minute and were regular. A digital pelvic examination revealed a *fully dilated cervix. Membranes of the second bag were bulging. No cord was felt.* Artificial amniotomy was done and clear liquor was drained. A drip of 5iu of syntocinon in 5%dextrose was started. The second baby was delivered by assisted breech delivery. It was a girl who scored 9 at one-minute and 10 at five minutes and weighed 2800g. The placentas, which were separate, were delivered by controlled cord traction. They weighed 900grams. Syntocinon drip was continued in fourth stage. She was observed in the labour ward for one hour. She never developed any complication and she was transferred to the postnatal ward.

Post delivery observations:

She was closely monitored for 24 hours. She was done immediate post partum bilateral tubal ligation for which she had been counseled antenatally as she had attained her desired family size. This was done in the family planning clinic. She was comfortably positioned on the couch and a nurse kept conversing with her throughout the operation. In lithotomy position vulva vaginal toilet was done and using a cuscus speculum the genitalia was examined and found normal. The cervix was patulous and she had minimal lochia rubra. A digital examination confirmed above speculum findings. The uterus was equivalent to 18 weeks and was mobile. The adnexia and cul de sac was normal.

She was repositioned in supine position and the abdomen was cleaned and draped. Using 20cc of 1-% lignocaine, local anaesthesia was administered in a diamond shape at just below the umbilicus. A two-centimeter incision was made at a level just above the uterine fundus and the abdomen opened in layers. Using a hook the tubes were hooked and held with

DISCUSSION:

The patient presented was para 3+1 with twin pregnancy who subsequently had a successful vaginal delivery.

World wide the incidence of twins in the past has been approximately to 1:80 pregnancies. However recently the incidence of multiple births has been steadily increasing especially since the 1970's due to the use of Assisted Reproduction Therapy (1). The incidence of monozygotic twins has been relatively constant through out the world at 4:1000.

Monozygotic twins results from progeny arising from division of a zygote that arose from the fertilization of ovum by one sperm (1,2).

Ethnicity, age, geographical variations, hereditary factors and use of fertility enhancing drugs however influence the rate of dizygotic twins. The highest rates of dizygotic twins occur in Africa with up to 45/1000 in Nigeria compared to rates of less than 5: 1000 births in far East countries and intermediate rates of 10-12:1000 in Caucasians (2,3,6,7). In his study in Kenya, Oyieke (4) found an incidence of 1:55 births at Kenyatta National Hospital (K.N.H.) and he attributed this to the fact that K.N.H. is a referral hospital . In a study done at Kenyatta hospital and Pumwani maternity hospital, an incidence of 2.2% was found (14). Azabuike found a rate of 1:19 in Nigeria (5). In the patient presented her father was a twin. Her sister had also had a twin delivery.

Monozygotic twins can be diamniotic-dichorionic, diamniotic monochorionic, or mono amniotic monochorionic. If the zygote splits in the first 48 hours after fertilization, a diamniotic dichorionic placenta results. This occurs in 30% of monochorionic twins. If the zygote splits between the 3rd and 8th days the resulting placenta will be dichorionic mono amniotic. This forms 70% of monozygotic twins. Monozygotic twins are mono amniotic, sharing the same sac, if the zygote splits after the amnion has formed at approximately the 9th day to 12th day. If the splitting occurs later after the yolk sac has formed, conjoined twins results (1,2 7).

Dizygotic twins represent duplication of the normal process of conception. Implantation and development of the embryos, arising from fertilization of two ova, from the same or opposite ovaries occurs. Each fetus has its own membranes and its own placenta. The foetus may be like or unlike and will have differences in the genetic constitution (1,2,3,6,7). The zygosity in twins is ascertained by placentation, sex of twins, red cell antigens, placental enzymes, and dentition pattern and dermatographics (4). The twins in this patient were dizygotic.

To diagnose twin pregnancy requires a high index of suspicion and good clinical examination (2). Currently it is possible to diagnose more than 90% of twins before delivery (1). However in K.N.H. Oyieke showed that only 75% of twins are diagnosed before term and as many as 25% are undiagnosed until the delivery of the 1st twin (4). In her study, Mutungi found that diagnosis of twins was made antenatally in only 40.8% of patients and in 44.1% it was made after delivery of the first twin (14). Early diagnosis of twins is important because the outcomes are much better than if they are discovered as a surprise in the delivery room. (1). Twin pregnancy in the patient presented had been diagnosed in the antenatal period at 30 weeks.

Twins are suspected when the mother presents with exaggerated symptoms of early pregnancy like hyperemesis gravidarum or very early preeclampsia (PET). The usual clinical pointer to the diagnosis is over distention of the uterus, multiple palpable foetal parts. Multiple foetal poles are usually recognized. Polyhydramnios may also be present (2,6,7). The diagnosis should always be confirmed by ultra sound scan (1,2,6,7). The patient presented had none of the above problems other than for preterm labour.

Traditionally most complications of pregnancy have been considered to occur with increased frequency in twin pregnancy. The risk increases as the number of fetuses increases. However this has been disputed by careful reviews but still some complications are higher in twin pregnancy than in singleton pregnancy (2).

Maternal complications include increased rate of hyperemesis gravidarum, cholestasis of pregnancy, acute liver of pregnancy, anemia, gestational diabetes, increased risk of infections especially urinary tract infection and puerperal infections and PET. The woman is also at higher risk of developing psychological complications with families experiencing a great deal of stress and marital difficulties. Obstetrical complications include increased incidence of preterm labor, preterm premature rupture of membranes, increased incidence of caesarian delivery, increased incidence of hemorrhage both antepartum and post partum. (1,2,6,7). The patient presented had preterm labor.

Fetal complication includes increased perinatal morbidity and mortality. In the developed world twins contribute to 12.6% of perinatal mortality. The risk for a peri-natal death is three to ten fold for a twin than for a singleton (1,6,7). In a study of 588 twin pregnancies, the rate of fetal wastage was found to be highest in mothers under 20 years of age, those of low parity and those who were delivered before the physiologic maturation of the fetus. The crude mortality rate for twin one was 6.1/100 versus 8.5 for twin 2 (8).

Prematurity is the main cause of mortality and morbidity in twin pregnancy (1,2,3,4,6,7). Other complications arising in the foetus include foetal growth retardation, congenital anomalies, cord prolapse and retention of second twins (1,2,6,7). Monozygotes have high incidence of twin to twin transfusion and conjoint twin's (2). A patient with twin pregnancy is a high-risk patient and needs meticulous antenatal care and follow-up (1,2). The babies born to our patient had none of these complications and were appropriate for gestation age.

Three main approaches have been advocated for prevention of preterm labor. This includes hospitalization for extra bed rest from 32-34 weeks up to 36 or 37 weeks, cervical suture has also been tried as an alternative method in addition to extra rest and use of tocolysis (2). However these measures remains a matter of controversy. In most centers the trend followed is intensive antenatal care (1,2,6,7,9,). It is advisable that people handling multiple pregnancy patients should be able to recognize and manage complications related to multiple pregnancy. The preterm delivery is a frequent occurrence and peri-natal mortality

decreases significantly if the birth weight is >2000 grams or gestation age is >34 weeks. Hence prevention, diagnosis and treatment of premature labor form a major component of antenatal care in this women (1,5).

In 70% of twin pregnancy the 1st foetus presents as vertex and in 40% both will be vertex (2). The route of delivery is determined usually by the gestation age and the presentation of the 1st twin (13). If the 1st foetus is cephalic and labor occurs after 34 weeks or more, the 1st foetus is delivered in the same manner as in singleton deliveries. Hence in such cases the indication for caesarian section remains the same as in singleton pregnancies. Labor should be conducted in a well-equipped hospital under supervision of an obstetrician, with an anesthetist and pediatrician at hand (1,2,6,7). Immediately the 1st twin is delivered a transverse lie or oblique lie of 2nd twin is sought, and corrected by external version through the lax abdominal wall. Vaginal examination should be performed to identify uncertain presentation or exclude cord prolapse after the rupture of the 2nd bag of membranes. Careful fetal heart monitoring must be continued because uteroplacental blood flow of 2nd twin may be jeopardized (2). With the presenting part fixed in the pelvis and oxytocin drip running, birth of the second twin occurs within 15 minutes of delivery of the 1st twin. The second twin in the patient presented had a stable lie and was delivered within 10 minutes of delivery of the first delivery.

Caesarian section is advocated when the 1st twin is presenting as breech. Some authors advocate for caesarian section if the gestation age of the twins is below 33 weeks. (1,2,6,7,11). Our patient had 1st twin cephalic and second breech and so was delivered vaginally.

Post partum hemorrhage is a major risk to these patients. This risk is minimized by continuous use of oxytocin infusion through and for sometime after the 3rd stage of labor. It is reinforced by the use of ergometrine (2,3,6,7). The third stage in the patient presented was managed as above and the patient had no complication.

Post delivery these patients must be offered effective family planning due to the socio economic influence of twin pregnancy. In our patient bilateral tubal ligation was done. The patient had attained her desired family size and hence had decided that she will undergo tubal ligation after this pregnancy even before twins were diagnosed.

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OBSTETRICS CASE NO.6

PRETERM PREMATURE RUPTURE OF MEMBRANES

Name: D. M.
IP. No. 0550974
Age. 24 years
DOA: 4-12-1998.
DOD: 18-12-1998.

Presenting illness:

The patient presented with a day's history of draining of liquor.

History of presenting illness:

She was well until a day prior to admission when she developed sudden onset of draining of liquor. There was no prior history of trauma or interference. The fluid run down her legs to the floor. She had no history of lower abdominal pain, dysuria or prior abnormal vaginal discharge. She was reviewed in a private clinic from where she was referred to Kenyatta National Hospital.

History of current pregnancy:

Her last menstrual periods was on 1- 5 1998 and the expected date of delivery was on 8-2-1999. She was at a gestation 31 weeks.

She had attended her antenatal clinic (ANC) at Kawangware, which was said to have been uneventful, but no ante natal profiles had been done but were done in the ward.

Past obstetrics and gynecologic history:

She was para 0+0. She had attained her menarche at 14 years. She had her periods after every 28 days lasting 4 day. They were regular and she had no dysmenorrhoea.

She had been on contraception pills for one year. She had stopped taking the pills in January 1998 in order to conceive.

Past medical history:

This was not significant.

Family and social history:

She was a married housewife who used to work as a computer operator.

She used to take alcohol before she got pregnant but did not smoke. There was no history of any chronic illness in the family.

Physical examination:**General:**

Her general condition was good and she had no pallor. She had no edema or jaundice.

Her temperature was 37⁰c, pulse rate was 76 per minute, respiration rate was 24 per minute and the blood pressure was 140/70 mmHg.

Abdominal Examination:

The abdomen was uniformly distended. The fundal height was equivalent to 32 weeks. The foetus was in longitudinal lie and cephalic presentation. The head was 5/5 above the pelvic brim. There was no tenderness elicited. The fetal heart tones were heard at 134 per minute.

Vaginal speculum examination:

She had normal external genitalia. The cervix looked closed. There was minimal liquor draining from the external os. The cervix was not inflamed and the liquor was not foul smelling.

Other Systems:

These were essentially normal.

Impression:

A diagnosis of **preterm premature rupture of membranes (PPROM)** was made.

Management:

A decision was made to manage her conservatively to allow for increased foetal maturity. She was put on strict bed rest and was started on oral Amoxicillin/Clavulonic 375mg three times a day for a week. Close surveillance of the mother and the foetus was instituted. This was aimed at helping to detect at the earliest opportunity signs of chorioamnionitis and or foetal distress. The surveillance included:

- Maternal pulse and temperature every four hours,
- Examination of the mothers' abdomen daily to assess for uterine tenderness or irritability, the amount of liquor, foetal lie and presentation as well as the foetal heart tones.
- Foetal movements were charted daily.
- Frequent and daily pad monitoring for any further draining of amniotic fluid, its color as well as smell
- Twice weekly white cell blood counts and their differentials.

Investigations:

5-12-1998:

Haemogram-Hb -11g/dl, wbc- $11.2 \times 10^9/l$

High vaginal swab for culture and sensitivity: No growth obtained.

VDRL- Negative.

Blood Group- O Rhesus positive.

14-12-1998:

Haemogram -Hb-11.4g/dl, wbc- $10.3 \times 10^9/l$.

Fetal kick chart: Normal.

15-12-1998:

Ultra sound- Single intra uterine pregnancy at 35 weeks gestation with adequate liquor.

From 4/12/98 to 17/12/98, she remained stable. She remained on bed rest. Her temperature, blood pressure, pulse rate and respiration rate remained normal. She had no uterine tenderness or irritability. Clinically liquor assessments remained adequate and the

foetal lie remained longitudinal and the presentation cephalic. The foetal heart rate ranged between 138 to 146 per minute. Foetal movements remained adequate as charted by the mother (10 in 12 hours). She continued having minimal liquor drainage and changed pads two to four times every day, which was not foul smelling. Although she was to have white blood cell assessment twice weekly this could not be achieved due to logistics problems of the laboratories. However weekly white blood cell assessment remained normal. She was given a therapeutic course of Amoxycilin/Clavulonic acid for one week and it was decided that she should not continue with antibiotics since she had no foci of infection. Despite an ultra sound showing 35 weeks gestation, it was felt that she could not be induced as the liquor was adequate and not foul smelling. She was draining minimal liquor. The other consideration was that both the mother and the foetus were stable.

On 17-12-1998 she went into spontaneous labor.

Labor ward review:

She was in good general condition and getting two moderate every 10 minutes lasting between 20 to 40 seconds.

Her blood pressure was 120/70mmHg, pulse rate was 78/minute, respiration rate was 20/minute and the temperature was 36.6⁰c.

Abdominal examination:

The fundal height was 34 weeks. The foetus was in, cephalic presentation and longitudinal lie. The head was 3/5 up. The fetal heart tones were heard at 135 per minute. They were regular. There was no tenderness elicited.

Vaginal exam:

She had normal external genitalia. The cervix was 8cm dilated no membranes felt, no caput or molding.

Other systems:

This was essentially normal.

Diagnosis:

A diagnosis of active labour in a patient with prolonged premature rupture of membranes was made.

Management:

She was started on the partograph and her labour was managed as described in the introduction. The uterine contractions, foetal heart tones and maternal pulse were charted every 30 minutes and were all-normal. Maternal blood pressure and temperature were recorded hourly. Within two hour's she had the urge to bear down. She was examined and found to be in second stage. She was wheeled to the second stage room and progressed well to deliver a live male infant who scored 8/1 and 10/5 and whose weight was 2450g. The placenta and the membranes were delivered and looked healthy with no foci of infection. The paediatric registrar who felt that the baby was well and needed no antibiotics reviewed the baby. Post delivery she did well and she was discharged on 18-12-1998. She was to attend postnatal clinic in the nearest health facility after six weeks.

DISCUSSION:

Premature rupture of membrane is said to occur if rupture of membranes happens before onset of labour. Fetal membrane rupture that occurs before onset of labour at a gestation age of less than 37 weeks is known as preterm premature rupture of membranes (PPROM) while that occurring after 37 weeks but before labour is called term premature rupture of membranes (TPROM) (1). Our patient whose fetal membranes ruptured at 31 weeks had PPRM.

Premature rupture of membranes occurs in 2-18% of all pregnancies with an average of 10.7% of all pregnancy. Up to 90% of premature rupture of membranes occurs at term (1,2). Premature fetuses (1000-2500g) account for 5% of all premature rupture of membranes. Those below 1000g account for less than 0.5% (2).

At Kenyatta National Hospital (KNH), it has been shown that PROM occurs in 8.24% of all pregnancies (3). It was found to account for 16% of all pregnancy in the Nairobi birth survey (4).

The risk factors for premature rupture of membranes (PROM) can be divided into remediable and non-remediable factors. The remediable factors include cervical vaginitis, incompetent cervix, cigarette smoking and prenatal diagnostic procedures like amniocentesis and chorionic sampling. Other risk factors thought to increase the risk of PROM and which could be amenable are coitus, mineral and vitamin deficiencies and cervical examinations. The non remediable risk factors include prior premature rupture of membranes or prior preterm delivery, prior cervical surgery, vaginal bleeding in pregnancy, placental pathology like praevia, abruption and marginal cord insertion and collagen disease like Ehlers Danlos Syndrome. Fetal gender (male) is also thought to be a risk factor though not conclusively confirmed (1,2). Our patient had none of the above risk factors other than for the gender of fetus being male. Environmental factors such as time of the night have been implicated with most premature rupture of membranes occurring at night between 2 A.M and 4 A.M (6).

With all the above risk factors, the unifying mechanism of PROM is thought to be a weakness in the chorioamnion membrane that occurs before rupture. This weakness could be relative or absolute, local or generalized. It has been shown that the membranes at the point of rupture are thinner and the collagen fibers in the connective tissue layer are decreased. This is probably due to proteolytic activity on the collagen type III. Potential sources of proteolytic activity to the collagen fibers in premature rupture of membranes may include trypsin, proteolytic enzymes from seminal fluid, bacteria protease's secreted by cervical vaginal flora and maternal protease's released in response to chorioamnionitis. The net effect of these protease's is to degrade the Type III collagen essential for the strength of the fetal membranes. Hence subclinical or overt intra uterine infections may lead to weakening of fetal membranes and perhaps augment a prior focal weakness leading to some cases of premature rupture of membranes (1). In this patient infection could not be incriminated since a high vaginal swab grew no organisms.

PROM is an important cause of premature labour, prolapse of the cord and intrauterine infection. Its significance will depend on gestation age of the foetus at time of occurrence. The latency for labor in term PROM is 48 hours in 91% of patients whereas that for patients with PPRM is prolonged. Considering that 20-40% of PROM occurs below 37 weeks, the perinatal mortality in this group accounts for up to 10% of all perinatal deaths (1,2). The maternal impact like that of the foetus may be altered by the gestational age at the time of PROM. As the latency of labour extends beyond 48 hrs (as it is likely to occur with PPRM) the risk of chorioamnionitis in women presenting with PPRM is much higher (26.5%) as compared to those with term PROM (6.7%). Among women who had caesarian section those with PPRM had a higher risk of post partum endometritis when compared to those with term PROM (5). Those presenting with PPRM are also at higher risk of operative abdominal delivery with all its antecedent complications (1). The patient presented did not develop chorioamnionitis. However on admission she was given a dose of Amoxicilin/Clavulonic for one week. This dose was not repeated, as she had no foci of infection. She went into spontaneous labor and had a vertex vaginal delivery.

Symptoms have been said to be the key to diagnosis (2). The patient usually reports a sudden gush of fluid or a continuous leakage or occasionally a trickle of fluid may be reported suggesting a small tear. Color and consistency of fluid and whether it contains flecks of vernix may be useful (1). The physical examination should be conducted efficiently to minimize the number of vaginal examination and the risk of chorioamnionitis. The uterus may be smaller than the gestational dates and there may be prominence of the fetal parts on palpation (2).

The role of digital vaginal examination in the management of patients with premature rupture of membranes is controversial with some people being for it to assess the status of cervix and others being against. However it has been shown that cervical evaluation (where by you note the color of the liquor, any presence of vernix, presence or absence of cord prolapse and the status of the cervix) by means of speculum examination is adequate (7,8). In KNH digital examination is never done unless delivery is anticipated. Our patient who had PPRM at 31 weeks was assessed with a speculum where drainage of liquor was confirmed and the cervix was found to be long and posterior. No cord prolapse was found.

However difficulties may arise in diagnosing PROM with history and physical examination alone since fluid may not be present in the vagina for evaluation or the fluid may be contaminated with urine, cervical mucus, bath water, vaginal discharge or meconium. Hence multiple cytological, biochemical, calorimetric and sonographic methods have been developed for detection of ruptured membranes. No one test has been found to be completely adequate and diagnosis depends on integration of history, physical examination and laboratory tests (8).

These tests include identification of lanugo, staining of lipids, identification of fetal cells, pH determination where the vaginal pH changes from 5.2-6.0 to 6.0-8.1 after rupture of membranes since amniotic fluid is alkaline. Litmus paper, bromthymol blue and nitrazine paper may be used to check for a rise in pH. Other tests include Arbolization and determination of alpha fetal proteins (2,8).

To perform these tests the amniotic fluid is collected from the posterior fornix during the sterile speculum examination with sterile cotton tipped swab and pH assessed using a nitrazine paper which is positive at a pH of 7. The swab is then streaked across a glass slide for arborization (8). Our patient had obvious diagnosis of PPRM from history and the physical examination and so none of these tests were needed.

Management of PPRM has many opinions and controversies. Different people have advocated two ways of management. The first one is the no interference way. It entails no vaginal manipulation and no attempts at delivery. This approach may be beneficial to those patients presenting with PPRM and also to those with term PROM. However this approach carries the worst prognosis. The second approach is that, if the gestation age is above 33 weeks and if the fetus is mature according to physiological tests, and if labour doesn't set in within 12 hrs of rupture of membranes then induction should be done (1,2). Both groups agree on the desirability of delivery if there is PROM and amnionitis (1).

If the patient has term premature rupture of membranes (TPROM), a sterile speculum is done on admission to confirm rupture of membranes. It is also used to rule out cord prolapse as well as assess the favourability of the cervix. If bishop score is favorable, early induction should be done since there is little to be gained by extended periods of latency. In patients with other obstetrical indication for induction, early induction is indicated regardless of the Bishops Score (9). In those patients with a poor bishop score, conservative management is advocated, if there is no other obstetric indication for induction. This entails an ultra sound examination to determine the biophysical profile as well as the presentation, lower genital tract cultures for gonorrhoea and chlamydia, initial maternal leukocyte count which is done later every after 24 hours. Maternal temperatures and fetal heart rate are taken every 4 hrs. The patient is advised also on absolute bed rest. If the patient remains afebrile and cultures are negative spontaneous labour may be expected. Patients managed this way have the worst prognosis (9). If fever and fetal tachycardia ensues or if one of the cultures is positive, then induction and antibiotics is warranted. The alternative plan is to induce labour soonest possible after diagnosis of term PROM with minimal vaginal examination and instrumentation (9).

In preterm premature rupture of membranes (PPROM) initial management should include confirmation of rupture of membranes, determination of presence or absence of infections, gestational age assessment, determination of fetal lung maturity status, early detection of fetal distress and early detection of maternal or fetal infections. Then management is followed as below:

In patients who present with premature rupture of membranes at between 34 and 36 weeks, induction is probably indicated like for TPROM. Some obstetricians may prefer to wait for 24 hours in expectation for accelerated lung maturity. If the estimated age is 26-34, management should be based on amniocentesis diagnosis of fetal lung maturity and the presence or absence of infection. If maturity is shown by a favorable L/S ratio or phosphatidyl glycerol or if there are signs of amnionitis, induction should be done. If L/S ratio is in the immature range and there is no evidence of amnionitis then bed rest, with vital signs every 4 hours and daily white blood cells determinations is done (10).

Our patient, who had PPRM at 31 weeks gestation was managed conservatively. Twice weekly white blood counts, total and differential were planned for but due to problems of the laboratory this could only be done on weekly basis. A high vaginal swab for culture and sensitivity was done which grew no organisms, fetal kick chart was started which was normal and 4 hourly temperature chart and fetal heart rate monitoring remained normal. There was no increased uterine irritability noted. This is the management advocated for at K.N.H.

If leakage of fluid stops and patient remains afebrile with no uterine irritability she may be allowed home with strict instruction of no douching, no coitus and monitoring of temperature so that if amnionitis develops delivery is done.

If gestation is less than 26 weeks or the foetus is preivable the patient and the family are counseled since there is little chance of fetal salvage and there is considerable maternal risks involved in conservative management and the best option is immediate delivery (2,10).

The role of antibodies in PPRM has remained controversial though it has been shown that they may be useful in reducing neonatal sepsis in risky population. They may also decrease the risk of post partum endometritis particularly for women undergoing caesarian section. It is recommended that an extended course of broad-spectrum antibiotics such as cephalosporins be used. (11). The patient presented was given Amoxycilin/ Clavulonic for one week, which has a broad spectrum of activity.

There is no equivocal indication for use of antenatal corticosteroids in PPRM. However via extrapolation with gestations with intact membranes there are potential benefits for cortical steroids in lowering the occurrence of respiratory distress syndrome and intracranial hemorrhage. However this is at a risk of maternal post partum infection. Because the life time harm from the neonatal disease is grave and sequel of infection in mothers is usually mild some people have recommended corticosteroids in those patients with PPRM at 24-33 weeks in absence of frank maternal infection or fetal infection or compromise (12). In our set-up steroids are not routinely given in PPRM and the patient presented was not given any.

Patients with PPRM are at an increased risk to develop intrapartum variable decelerations and fetal distress. It has been shown that short term prophylactic saline solution amnio infusion is of significant benefit in lowering the incidence of variable deceleration and also in improving the metabolic state in the newborn of women with preterm premature rupture of membranes (13).

PPROM especially that occurring early in gestation carries with it a high risk of perinatal morbidity and mortality as a result of prematurity and some complication such as infections, cord prolapse, and abruption. The foetus has a high risk of developing the oligohydramnios tetrad that includes pulmonary hypoplasia, peculiar falsies, limb deformities and probably fetal growth retarded. The mother has a higher risk of chorioamnionitis and post partum sepsis (14). Thus the aim in management of PPRM is to try and minimize the fetal and maternal mortality and morbidity. The patient presented had PPRM at 31 weeks. She was

successfully managed conservatively. She remained asymptomatic for 13 days when she went into labour and delivered a live baby whose weight was 2450 grams.

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OBSTETRICS CASE NO. 7

BRONCHIAL ASTHMA IN PREGNANCY: LIVE BIRTH

NAME : J.K.
AGE : 25 YEARS
PARITY : 2+0
IPNO : 0517412
DOA : 14/6/98
DOD : 27/6/98

PRESENTING COMPLAINTS:

The patient was admitted through casualty with history of difficulty in breathing for 5 months, which had become worse for the last 2 days.

HISTORY OF PRESENTING COMPLAINT:

The patient had been having episodic difficulty in breathing on and off for the last 5 months. However over the last 2 days the problem had become worse. The difficulty in breathing was not related to exercises. It was associated with a dry cough, wheezing and tightness in the chest. It was also aggravated by cold weather, which had set in. She did not have orthopnea or easy fatigability. She had been treated at various clinics and had been put on medication for the difficulty in breathing which she could not remember. These attacks have been occurring at least once a week.

PAST MEDICAL HISTORY:

She had never been hospitalized before and had never had an asthma attack before.

ALLERGY:

She did not have a known allergy problem.

OBSTETRICS AND GYNECOLOGY HISTORY:

She was para 1+0, gravida 2. Her last menstrual period was on 6/10/97 and her expected date of delivery was on 11/ 7/98. On admission she was at maturity of 36 weeks. She had attended antenatal clinic only twice in Nkubu hospital. Antenatal profiles were not done, but these were done in the ward. No antenatal card was available. Her menarche was at 16 years. She had a regular menstrual cycle with menstrual bleeding for 3 days at intervals of 26-28 days. She had been on oral contraceptives in 1997, which she stopped in order to conceive.

FAMILY AND SOCIAL HISTORY:

She was currently separated and was staying at Umoja with her children. She used to sell clothes. She did not drink alcohol or smoke. Her mother was asthmatic and hypertensive.

PHYSICAL EXAMINATION:

She was in good general condition. She was not febrile. She had no oedema or lymphadenopathy. She had a temperature of 36.4⁰C, pulse rate of 76/minute, respiration of 26/minute and blood pressure of 120/70MmHg.

RESPIRATION SYSTEM:

She was tachypnoeic and had flaring of alae nasi. There was no subcostal or intercostal retraction. She had bilateral coarse rhonchi but no crepitations.

CARDIOVASCULAR SYSTEM:

The pulse was normal in character. The first and second heart sounds were heard and normal. No murmurs were heard.

ABDOMINAL EXAMINATION:

The fundal height was term with longitudinal lie and cephalic presentation. The head was not engaged. The fetal heart tones were heard at 144 beats per minute and regular.

PELVIC EXAMINATION:

This was not indicated.

DIAGNOSIS:

A working diagnosis of asthmatic attack in para 1+0 at 36 weeks gestation was made.

INVESTIGATION:

Antenatal profiles: Hb: 13g/dl, VDRL –negative, Blood group: B positive.

Peak flow meter to measure expiratory volume was not available.

Chest X-ray: was not necessary.

TREATMENT PLAN:

She was started on Aminophylline 250mg intravenously slowly and 200mg of hydrocortisone. A drip of 500mg of Aminophylline in 500mls of normal saline every 8 hourly was started. She was also started on Amoxicilin 500mg three times a day for one week. She improved and she was transferred to the antenatal wards.

ANTENATAL WARDS:

She was started on a foetal kick chart. She continued with Amoxicilin 500mg three times a day to finish a course of one week. She was started on oral salbutamol 4mg three times a day. She was still getting mild attacks and was started on Palmicort inhaler and Salbutamol inhaler. With this combination she improved and the foetal kick chart remained adequate (10 in 12 hours). She was discharged home but before she went home she went into spontaneous labour on 25/6/98.

LABOUR WARD:

General Condition

Her general condition was good. She was not pale or jaundiced. She had no oedema or lymphadenopathy. Her blood pressure was 120/70, pulse – 80/min, respiration rate – 20/min.

Respiration System

She was not distressed. She had normal vesicular breathing with no crepitations or rhonchi.

Abdomen

The fundal height was found to be term, longitudinal lie and cephalic presentation. The foetal head was only 2/5 above the pelvic brim. The foetal heart tones were heard.

Pelvic examination

She had normal external genitalia. The cervix was 6cm dilated. The membranes were bulging and no cord was felt.

A partograph was initiated and labour actively managed. Artificial rupture of membranes was done and clear liquor obtained. Four hours later she went into second stage and had a spontaneous vertex delivery to a female infant whose weight was 2600grams with an Apgar score of 9 in one minute and 10 in five minutes.

Post delivery

She was maintained on Salbutamol and Palmicort inhaler. She was discharged 48 hours after delivery through the chest clinic and postnatal clinic in 6 weeks.

FOLLOWUP:

She was seen in the postnatal clinic at 6 weeks. The postnatal period was normal and she had not gotten any asthmatic attack. She was breastfeeding actively. The breasts were active

and normal. She was given counseling on family planning . She was using the anti asthmatic medications regularly and was referred to chest clinic for follow up.

DISCUSSION:

Approximately 1-4% of pregnancies are complicated by bronchial asthma (1,2). However the true prevalence may be even higher because up to 10% of the population appears to have non-specific airway hyperactivity, a hallmark of asthma. The major problem in asthma management during pregnancy has been shown to be under treatment, particularly due to the unfounded fear of fetal effects of medication (2).

Asthma is a lung disease characterized by partial or completely reversible airway obstruction, either spontaneously or with medication. Airway inflammation and responsiveness to a variety of stimuli including environmental irritants, viral respiratory infections, cold air or exercise also characterize asthma. The hallmark of asthma is bronchial smooth muscle contractions, mucus hypersecretion and mucosal oedema. Biochemical effectors of these changes include primary mediators such as histamines, which are released from lung tissues upon challenge with an allergen. Secondary mediators include prostaglandins, thromboxanes and leukotrienes (1,2,3).

Asthma represents a broad spectrum of illness ranging from mild wheezing to severe bronchial constriction capable of causing respiratory failure, severe hypoxaemia and death. The functional results of acute bronchial spasm are airway obstruction and reduced airflow, which makes the work of breathing to increase. Patients present with exacerbations of acute or sub acute episodes with progressively worsening shortness of breathing, cough, wheezing, chest tightness or a combination. Subsequently there is ventilation perfusion mismatch leading to hypoxemia, respiratory muscle failure leading to hypercarbia, increase in pulmonary vascular resistance and development of negative pleural pressures associated with lung hyper-inflation manifested by pulsus paradoxus (1,2). Our patient had come with an exacerbation and had presented with difficulty in breathing and wheezing.

In acute illness such as occurs in an acute exacerbation, maternal partial pressures of oxygen (P_{aO_2}) falls from its normal value of near 100 mmHg. Because the fetus operates on the steep portion of the oxygen dissociation curve, decreases in maternal P_{aO_2} below 60

mmHg results in profound and rapid decrease in fetal oxygen saturation and fetal hypoxia (2). Clinical stages of asthma include mild respiratory alkalosis with compensated hypoxia to uncompensated respiratory alkalosis through ventilation perfusion mismatch to respiratory acidosis (1).

In a study done on 112,530 pregnant women, among whom 381 were asthmatic patients, there was a statistically significant increase in preterm delivery, decreased birth weights and increased maternal mortality rates among the asthmatics compared to controls. It was also found that these women had an increase in hyperemesis gravidarum, vaginal hemorrhage, pre-eclampsia (PET) and induced and complicated labors (4). Our patient had neither of these complications but she went into labour within 12 days after the acute attack.

It was been shown that there is an increase in low birth weights, chronic hypertension and PET in the pregnancy of women with asthma compared to those without (3,4). Therefore although the effect of pregnancy on asthma is variable, there is increase in maternal and fetal morbidity and mortality. The mechanism (s) of these adverse effects on the foetus have not been defined but poor asthma control may be the most important factor and that adequate control during pregnancy is important in improving maternal and foetal outcome (2). The attack in our patient was controlled and so both the mother and the baby escaped complications.

Maternal alkalosis and hypoxaemia, both of which may arise in severe asthma, affect fetal oxygenation (5). Up to a 1/3 of all asthmatic women can expect worsening of the disease during pregnancy while in some there is no effect and in some it improves (1). Women beginning pregnancy with severe asthma are more likely to experience worsening of their disease. In 60% of women asthma behaves the same with successful pregnancies while about 10% have an exacerbation during labour and delivery. There is an 18 fold increased risk of exacerbation following caesarian section compared to vaginal delivery (1). The patient presented was delivered by spontaneous vertex and had no asthma prior to this pregnancy.

Although the subjective impression by the patient and the clinical examination are not very accurate in predicting severity, helpful signs may include labored breathing, tachycardia, pulsus paradoxus, prolonged expiration and use of accessory muscles. Potentially fatal attack signs include central cyanosis and altered level of consciousness (1). An arterial gas analysis when compared with that of normal pregnant woman provides a direct assessment of maternal oxygenation, ventilation and acid balances. Pulmonary functions testing should be done as a routine (1,2). In Kenyatta Hospital pulmonary functions are not routinely done and our patient had none.

Effective management of asthma in pregnant women relies on: [1] Objective assessment of maternal lung function and foetal well being, [2] Avoidance or control of environmental precipitating factors, [3] Pharmacological therapy and, [4] Patient education. Objective measurements of lung volumes or flow rates are essential in monitoring the severity of asthma in order to make appropriate therapeutic recommendations since the patient and physicians perception of asthma severity are often insensitive or inaccurate. These measurements also help to differentiate asthma from other causes of dyspnoea during pregnancy. The single best measure of pulmonary function for assessing the severity of asthma in pregnancy is air expired in one second from maximum inspiration (FEV1). However peak expiratory flow rate may be used (2). Unfortunately neither of these lung functions were done in our patient since these are not routinely done in our unit.

Early sonography provides a bench mark for progressive fetal growth with sequential sonographic evaluation in 2nd and 3rd trimesters. If asthma is moderate or severe or if intra-uterine growth retardation (I.U.G.R) is suspected, fetal kick charts should also be encouraged in 3rd trimester (2). Asthma in our patient was not severe and IUGR was not suspected so ultrasonography was not done but a foetal kick chart was kept and remained adequate.

Asthma has a strong association with allergy and it may be necessary to remove furred or feathered pets from the household, encase mattresses and pillows in airtight plastic covers, wash bedding weekly with hot water, avoid vacuum and avoid activity that provoke an attack. The patients are also advised to avoid tobacco smoke, strong odors, air pollutants, food additives and drugs like aspirin (2).

Most anti asthmatics are safe during pregnancy. It is also known that because asthma is an air way disease, the medication of choice is inhalational (2). The aerosol medications deliver the drug directly to the lungs and thus minimize systemic side effects. Inhaled B₂ agonists are usually sufficient for mild intermittent asthma and they can be used indefinitely if needed. For moderate asthma inhaled anti-inflammatory agents like beclomethasone or cromaglyn sodium are used for primary therapy. Inhaled corticosteroids are also used and at recommended doses provide effective asthma control with minimal side effects. A spacer to bypass the oral pharynx is advisable to improve respiratory tract penetration as well as reduce risk of oral pharyngeal candida infection (2).

When asthma is uncontrolled by above two means, a burst or short course of oral corticosteroids is indicated. Such indication is when the peak expiratory flow rate is reduced by 20% or more or by greater intolerance to exercise or by development of nocturnal symptoms. This course of oral corticosteroids is tapered over 7-14 days. If this is not effective the patient has severe asthma and these patients may need oral corticosteroids on a routine basis. Though prolonged use of oral corticosteroids may be associated with increased risk of gestational diabetes, maternal adrenal insufficiency and risk of I.U.G.R, use of these agents is often justified to avoid potentially fatal attacks (2,5). Attempt to control asthma in our patient with oral salbutamol proved futile and she was then started on inhalational drugs, which managed to control the symptoms.

Patients should be educated on the risk factors and they should be advised not to delay seeking medication if an exacerbation is severe. In symptomatic exacerbation, the patients

may take 2 puffs of a B₂ agonist inhaler every 20 minutes for an hour and if the response is not good they should seek medical help (2,5).

Progressive status asthmaticus can lead to life threatening asthma, which requires mechanical ventilation. In a pregnant woman, this threat and the treatment also involve the foetus. Severe asthma that requires intubation with mechanical ventilation poses multiple problems that are compound in a pregnant woman by the fetus. Some authors have even recommended termination of pregnancy to save the mother while others have recommended bronchial alveolar lavage in an attempt to manage the pregnant women requiring mechanical ventilation (6).

The management of acute, severe asthma in pregnancy involves administration of oxygen to maintain a PaO₂ as near normal as possible and above 60mmhg and oxygen saturation of at least 95%. It also entails the performance of baseline blood gases, intensive foetal monitoring for late 2nd or 3rd trimester fetuses, obtainance of a baseline pulmonary function and administration of an inhaled B₂ against (2). By maintenance of an adequate PaO₂ the fetal risk is reduced markedly and there is no reason to terminate pregnancy. In addition to accepted pharmacological therapy (aminohyline, corticosteroids, albuteral and terbuteline) for severe asthma in pregnancy, warm metapreterenol saline solution irrigation every 3 hrs have been shown to be a useful measure in patients requiring mechanical ventilation (6).

Our patient had only a mild attack which was managed successfully.

Vaginal delivery is best for asthmatics unless obstetric indications demand a caesarian section (1). For patients who have received systemic or inhaled corticosteroids during pregnancy, hydrocortisone 100mg is given intravenously immediately labor starts and every 8 hours until delivery occurs (6,9). Meperidine given intramuscularly usually relieves bronchial spasms while providing pain relief (8). Should anesthesia become necessary, epidural block, saddle block or pundental block is preferred to general anesthesia (5,8). Should general anesthesia be needed, halogenated agents with broncholytic activities are

desirable. Nitrous oxide has no specific bronchial effect while cyclopropane may cause bronchial spasm (5). Our patient had vertex delivery and needed no anesthetics.

Breast-feeding is advocated in light of prevention of the atopic state as well as for prevention of food allergies in the offspring. Hence breast feeding should be encouraged in asthmatic patients since the drugs used to control asthma have been shown to have minimal risk on the breast feeding infant (5). Breast-feeding was initiated in our patient.

Medication used during labour and delivery may affect asthma and some anti asthmatics may also affect labour. Prostaglandins to induce second trimester abortions and for induction of labour have been shown to increase lung resistance in normal persons. Prostaglandins have been shown to exacerbate severe asthmatic attacks in predisposed persons and should be used with caution or avoided completely in asthmatic patient's (5). Oxytocin has no effect on the bronchial smooth muscles. Care must be exercised when using narcotic agents to allay anxiety and pain during labour since they may depress respiration and inhibit the cough reflex. They may also dry secretions and release histamines that may provoke bronchial spasms (5). Terbutaline may inhibit labour and therefore may be relatively contraindicated at term but other anti asthmatics have no effect on labor and should be continued to control asthma during the critical period of labour (7).

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OBSTETRICS CASE NO. 8

ONE PREVIOUS CAESARIAN SCAR: SUCCESSFUL TRIAL OF SCAR-LIVE

BIRTH

NAME: J. N.
AGE: 25Yrs
IPNO: 0660838
DOA: 21/5/00
DOD: 22/5/00

Presenting complaint:

The patient was admitted with one-day history of labour pains.

History of presenting complaints:

She was well until a day prior to admission when she developed lower abdominal pains, which were episodic and were being referred to the back and the thighs. The pains were increasing in frequency and intensity. She had no vaginal bleeding or draining of liquor.

Obstetric and gynecology history:

She was para 1+0 gravida 2. Her last menstrual period was on 19/8/1999 and her expected date of delivery was on 26/5/00. She was at a gestation of 39 weeks. She had attended her antenatal clinic at Kenyatta National Hospital from 29 weeks gestation and had attended 7 times. The antenatal period had been uneventful.

Antenatal profiles:

Her blood group was O Rhesus positive., VDRL was Negative and her haemoglobin level was 10.8g/dl.

A clinical pelvimetry done at 37 completed weeks had revealed a clinically adequate pelvis.

An erect lateral pelvimetry had been ordered at 37 completed weeks but the patient had only managed to have it done 2 days before admission and it could not be traced.

She had delivered in 1997 at Nazareth hospital. A caesarian section was done due to fetal distress and the outcome was a live male infant who was alive and well.

Her menarche was at 14 years of age. Her menstrual periods occurred after 28 days and lasted for 3 to 4 days. They were regular and she had no dysmenorrhoea. She had never been on any contraception method.

Family and social history:

She was married and used to work as a cashier. She did not smoke or take alcohol. There was no history of twins or chronic illness in the family.

Past medical and surgical history:

This was not significant.

Physical examination:

She was in good general condition and she was not pale. She had no jaundice and no edema. She had a pulse of 80/minute., respiration rate of 22/ minute., a blood pressure of 130/70mmhg and a temperature of 36⁰c.

Abdominal examination:

The abdomen was uniformly distended and she had a visible Cohen scar. The fundal height was term, longitudinal lie and cephalic in presentation. The head was 3/5 up and the fetal heart tones were heard and regular at 124 per minute. She was having 2 contractions every 10 minutes lasting 20-40 seconds.

Pelvic examination:

She had normal external genitalia. The cervix was 4 cm dilated central and fully effaced, membranes were bulging. The sacral promontory could not be tipped and the true conjugate was estimate at more than 11.5 cm. The sacral curve was smooth and the ischial spines were not prominent. The subpubic angle was obtuse and the distance between the ischial tuberosities could accommodate 4 knuckles. Hence the pelvis felt adequate. No cord was felt

Other systems:

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

Diagnosis:

A diagnosis of one previous scar with a clinically adequate pelvis in active labour was made.

Plan of management:

She was counseled on the plan of management and gave an informed consent to undergo trial of scar. Artificial rupture of membranes of the foetal membranes was done and clear liquor was obtained. An intra venous line was fixed and she was started on 10% dextrose solution. A blood sample was taken for grouping and cross match and she was given buscopan 20mg intramuscularly. A partograph was initiated and labour was monitored closely. On review after 4 hours she was found to have progressed to 8cm with no caput or molding and the head was 1/5 above the pelvic brim. Within one hour after this review she went into second stage and she delivered a 2950 grams male infant who scored 8 at one minute and 10 at five minutes. Ergometrine 0.5 mg was given with good effect. The placenta and membranes were delivered and were found complete and weighed 450 grams.

Post delivery her blood pressure was 100/60, pulse was 78 per minute and respiration rate of 22 per minute. The uterus was well contracted and she had no tenderness over the scar. She had minimal lochia loss and no tears or laceration. Since she was not bleeding exploration of the lower segment was deferred and she was discharged to the postnatal ward with instruction of pad monitoring. The following day her condition was good and she had minimal lochia loss and uterus was well contracted and equivalent to 16 weeks gestation. She was allowed home through the postnatal clinic in six weeks and counseled that during her next delivery she will still need trial of scar and thus she should deliver in hospital.

Post natal follow-up:

The patient preferred to be seen in her nearest clinic for follow-up.

Discussion:

Presented is a para 1+0 who had one previous caesarian scar due to foetal distress. She had a successful trial of scar.

Caesarian section rate continues to rise as new indications for the operation continue to be proposed and a method for safely decreasing the caesarian sections rates is truly needed.

Current literature demonstrates safety of trial of labour in a woman who has had a prior delivery by a low transverse caesarian section (1). The patient presented had a previous low transverse caesarian section scar.

In the developed countries the caesarian section rate is between 20-30% due to the relative safety of the procedure and concern about malpractice litigation. Of these, up to 30% are performed solely because of a previous caesarian section (2,3). At the Kenyatta National Hospital (KNH), Karanja found a caesarian section rate of 17.8% and of these, 51.2% were performed solely because of a previous section (4).

Studies have shown that in the developed world, 60-80% of all patients who undergo a trial of scar (TOS) has a successful vaginal delivery (1,2,5,6). In Kenya, Walton (1975) showed that of 184 patients undergoing TOS at K.N.H., 73.9% delivered vaginally (6) while Githiru (7) showed a success rate of 53.1%. In spite of these results of safety of vaginal delivery after previous caesarian section reported in literature, few patients are allowed a trial of scar (1,4). The patient presented had a successful trial of scar.

In cases of caesarian section performed because of malpresentation and other indications not necessary recurring, vaginal delivery should occur in 75-80% in subsequent delivery (2). It has been shown that the most the successful trial of scar was in those patients whose initial section was due to breech presentation. However, the previous indications bears little relationship to subsequent vaginal delivery and up to 75% of those whose previous caesarian section was due to a diagnosis of cephalic pelvic disproportion (CPD) have a successful vaginal delivery (1,3,5). The patient presented had a caesarian section due to fetal distress that is a non-recurring condition.

Criteria for vaginal delivery following previous caesarian section may include the patient with only one previous caesarian section. The incision on the uterus should have been a lower uterine segment and the original indication should not be necessarily recurring in subsequent pregnancies. Macrosomia, malpositions or malpresentation like breech or any other condition that would be likely to preclude vaginal delivery (2,5,6) should not complicate the current pregnancy. The patient presented fulfilled the above criteria and so was deemed fit for trial of scar.

While most authors agree with above criteria, studies have shown that some of the criteria if not fulfilled, are not absolute contraindication for TOS since even in women whose previous caesarian section was due to CPD, 75% will have a successful trial (1,3,5). Some may even deliver bigger babies than the caesarian section one (1). In Kenya upto 36.2% of women with mechanical factors, which are likely, to re-occur had a successful vaginal delivery (6). Success is enhanced if the woman has had a previous vaginal delivery or the infant is less than 4kg.

Most authorities agree that a previous fundo or classical caesarian section is an absolute contraindication to trial of scar (1,2). However other contraindication appears less clear. For example, there appears to be little increased risk in attempting a trial of scar in presence of mild macrosomia (2). A significant number of patients whose original caesarian section was due to CPD have a successful vaginal delivery (3,5). Our patient had none of these contraindications.

It has also been shown that the success rate with patients with two previous scars is 72% and up to 90% of patients with three previous scars have a successful vaginal delivery (1,5). Hence even two prior caesarian sections is no longer an absolute contraindication. In Kenya only patients who have one previous lower uterine caesarian section scar are tried. This is done only if the pelvis is deemed adequate and there are no signs of cephalo pelvic disproportion.

The management of these patients should start in the antenatal clinic. A patient with a previous scar should be booked and managed in a place with facilities of operative delivery. This allows correct selection of cases for trial of scar and it has been shown that effective antenatal monitoring reduce the failure rates by almost 20% (6). The role of pelvimetry would be to prevent a woman with absolute CPD from undergoing an emergency caesarian section following an unnecessary TOS and also prevention of uterine rupture (6,8). However some authors feel that x-ray pelvimetry in assessing the true conjugate in a patient with a previous scar should be done only in cases of obvious pelvic contraction (8,9), cases of singleton breech presentation in primigravida or multi gravid, or in cases of suspected congenital or acquired defects (9). The implication for developing countries where x-ray facilities are scarce is that x-ray pelvimetry is not essential for management of a woman with cephalic presentation and a previous one scar.

The only women who needs x-ray pelvimetry are second gravidas whose 1st pregnancy ended in caesarian section due to CPD. This is considered a relative indication in some quarters and even in absence of facilities these women should have a trial of scar than an elective caesarian section (8). At Kenyatta National Hospital X-ray pelvimetry is usually done in patients with one previous scars. However studies done in this institution have doubted its usefulness (9). In the patient presented an X-ray pelvimetry could not be traced and trial of scar was done on the basis of a clinical pelvimetry.

The use of oxytocin augmentation in these patients is a controversial topic. In a study done on the use of oxytocin augmentation in previous scar, 41% of patients with previous scar were given oxytocin and out of this 65% had vaginal delivery. In another study done on 1796 patients on trial of scar it was found that use of oxytocin was not related to the risk of dehiscence (1,5). Hence judicious use of oxytocin appears to be safe in vaginal delivery following previous caesarian section (1,2,5). It is suggested that just as in cases without prior caesarian section, oxytocin administration should be precise by use of infusion pumps coupled with electronic monitoring of both mother and fetus (5). However this is controversial and is not practiced in Kenya.

The role of epidural anesthesia in these patients also remains controversial. Some obstetricians feel that epidural anesthesia may mask the rupture thus jeopardizing the mother and foetus (2). However some studies have shown that epidural anesthesia could be safe in TOS (1,5).

The most feared complication is uterine rupture. However 44-60% of uterine rupture precedes onset of labour and is frequently associated with classical caesarian section (2). With uterine rupture the maternal mortality is 1% and perinatal mortality rate is about 50% though exact data is not available. The other complication is uterine dehiscence. This is the unsuspected and undiagnosed separation of a uterine scar from a previous caesarian section usually limited to the area of scar. The incidence of uterine dehiscence increases by 15% if there has been two previous caesarian section. It is nearly 20% if there have been 3 previous sections. In K.N.H. a rate of scar rupture of 6.5% has been reported in patients undergoing trial of scar (6). Studies done elsewhere have shown that the risk of uterine dehiscence and rupture was similar in those patients undergoing trial of scar and those not undergoing TOS even with use of oxytocin augmentation (1,5). Our patient had no such complication.

The management of any defect found in the uterine cavity after a successful trial of scar is controversial and it is recommended that if a defect is felt in the lower uterine segment and patient is stable haemodynamically, there is no need for repair. If however, there is significant bleeding or the condition of patient is not stable or if the defect is in the upper segment exploratory laparotomy and repair is done and an elective caesarian section should be performed for subsequent pregnancies (5). It is felt that with proper selection, proper monitoring and with facilities and staff available, trial of labour with a previous caesarian section far outweighs the risks and the policy that once a caesarian section always a caesarian section should be abandoned (5,6).

The following protocol must be followed in all patients who are undergoing trial of scar. On admission, an intra venous line is placed with a large bore canula, external or internal foetal monitoring of foetal heart as well as uterine activity is instituted, and an informed consent for an emergency caesarian section is obtained. Two units of type specific blood for

maternal transfusion must be at hand. No oral intake of solid foods is allowed until delivery.

Appropriate anesthesia, a fully equipped operation room, and obstetric and neonatal staff experienced in emergency care must be available through out 24 hours (1,2). All the above had been done for our patient. In our unit the operation theater is available for 24 hours. Provided facilities and staffing are available to offer 24 hours service of operative delivery, the aim of management in labour should be towards reducing the rate of uterine rupture. Adequate monitoring of labour in these patients is necessary to detect any complications and to be able to offer timely emergency delivery. In the developing world active management of labour and the proper use of the partograph and interpretation of early signs of rupture like maternal tachycardia, vaginal bleeding and fetal distress would subsequently reduce the rate of uterine rupture (7).

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OBSTETRICS CASE NO. 9

PLACENTA PRAEVIA IN THREE PREVIOUS SCARS: ELECTIVE CAESARIAN SECTION

NAME: F.G.
AGE 37 YEARS
UNIT NO: 0670638
DOA: 4/7/00
DOD: 13/7/00
PARITY: 3+1

Presenting illness:

The patient was admitted from the antenatal clinic at term with no complaints. She was for elective caesarian section and bilateral tubal ligation due to 3 previous scars at term.

Obstetric and gynaecology history:

She was para 3+1 with 3 previous caesarian sections. Her first delivery was in 1985 through *a caesarian section due to cephalo-pelvic disproportion and the outcome was a live male baby who weighed 3 kg.* Her second delivery was in 1987 through a caesarian section to a female baby whose weight was 2.7 kg. Her third delivery was in 1988 through a caesarian section to a live male baby whose weight was 3.5kg. All these children were alive and well. She had a spontaneous abortion in 1984 at 16 weeks gestation. Evacuation was done. Her menarche was at 14 years. Her menstrual cycles were of 30 days lasting 4-5 days. They were normal and regular. She had never been on any contraceptive method.

Her last menstrual period was on 6/10/99 and her expected date of delivery was on 13/7/00. At admission she was at a gestation of 38 weeks and 5 days. She had attended antenatal clinic at Kenyatta National Hospital starting from 22 weeks of gestation and the antenatal period was uneventful. She was thought to have a breech presentation. She had been counseled for a bilateral tubal ligation and she had given an informed consent. Her antenatal

profile was a haemoglobin of 12.3g/dl, VDRL-negative and blood group –B Rhesus positive. A routine antenatal ultra sound scan had not been done on this patient.

Past medical and surgical history:

She had never been admitted or operated on other than for the caesarian sections and during the evacuation.

Family and social history:

She was a married housewife whose husband was a businessman. She stayed at Kahawa with her family. She did not smoke cigarettes or take alcohol. There was no chronic illness in her family.

Systemic enquiry:

This was not contributory.

Physical examination at admission:

She was in good general condition. She was not pale and was afebrile. She had no edema or jaundice. She had a blood pressure of 100/60 mmHg, pulse of 80/minute, respiratory rate of 20/minute and a temperature of 37°C.

Abdominal examination:

The abdomen was uniformly distended. There was a sub umbilical midline scar. The fundal height was term. The fetus was in longitudinal lie and in breech presentation. The fetal heart tones were heard at 140 per minute and regular. There was no organomegally.

Pelvic examination:

This was not indicated.

Other systems:

The respiratory, central nervous and cardiovascular systems were normal.

Diagnosis:

A diagnosis of a para 3+1 with 3 previous scars and breech presentation at term was made. She was admitted for elective caesarian section.

Pre operative investigations:

Haemoglobin level-13g/dl, Urea and electrolyte-Normal.

However the following day the patient went into labor and was transferred to labor ward for emergency caesarian section.

Review in labor ward.

On review in labor ward she was found to be having 2 contractions every ten minutes lasting for less than 20 seconds. The fundal height was term and fetus was in longitudinal lie. A soft mass was felt at the pelvic brim, which was thought to be the breech. The fetal heart was heard and regular. A digital examination found she had normal external genitalia. The cervix was parous but closed and she was not bleeding or draining. She was informed of the diagnosis and she gave consent for emergency caesarian section.

An intravenous line was set up as blood was taken for grouping and cross match. She was premedicated with 0.6 mg of atropine sulphate half-hour before theatre.

Operation:

In theatre she was put in semi-lithotomy position and vulva vaginal toilet done. She was catheterized and clear urine drained. She was repositioned in supine position, abdomen cleaned and draped. General anesthesia was given and the abdomen was opened in layers after excision of the old scar. A lower uterine segment caesarian section was done and on opening the uterus the placenta was encountered. It was incised and the baby was quickly delivered. The baby was in cephalic presentation and was a male infant. He had an Apgar score of 10 in one minute and 10 in five minutes and weighed 3350 grams. The placenta and membranes were delivered and looked normal. It was low lying and was covering the internal os anteriorly. The uterus and abdominal wall were closed in layers. Bilateral tubal

ligation was done. The swabs and instruments were counted and reported correct and the abdomen closed in layers.

Post operative care:

Her vital signs were observed 1/2 hourly till she was fully awake and then 4 hourly. She was put on Crystalline penicillin 2mu every 6 hours and gentamycin 80mg every 8 hours for 48 hours and then Amoxycilin 500mg for five days. She continued with intravenous fluids and parental analgesics until the resumption of bowel sounds when she was allowed to take oral medication. She was discharged home on the seventh postoperative day after the stitches were removed. She was to attend antenatal clinic in six weeks.

Post operative clinic:

She was reviewed after 6 weeks and the wound had healed well. The baby was healthy and the mother had no complaints. They were discharged to the well baby clinic in their nearest hospital.

DISCUSSION:

The patient presented had an undiagnosed partial placenta praevia. She had been thought to have breech presentation. She had not had an ultra sound scan during the pregnancy so ultra sound placenta localization had not been done.

Placenta praevia is said to occur when the placenta is located over or near the internal cervical os. The incidence of placenta praevia is approximately 0.3% (2). The risk of *placenta praevia with un-scarred uteri is 0.26% and this incidence increases with the number of caesarian sections to 10% in patients with 4 or more scars (2). Locally an incidence of 1:400 deliveries have been found in one series, while in the Nairobi birth survey Mati et al found an incidence of 0.15% (3,4).*

Multi-parity and advancing age increases the risk of placenta praevia. Other identifiable risk factors include race (blacks have a higher risk), smoking, prior caesarian section with risk increasing from 1.5-4.0 fold as number of caesarian sections increases and history of induced or spontaneous abortion (1,2,5). The mechanism of placenta praevia could be due to hypoxia, which causes a larger placenta that, is more likely to cover the internal os. Surgical damage to the endometrium of the lower segment has also been shown to be a cause (1,2). Several studies have identified caesarian section as one factor that could potentially damage the endometrium and myometrium supporting the hypothesis that such damage is an etiological factor in placenta praevia (2,6,10). The patient presented had had three previous caesarian sections and this definitely put her at a higher risk.

Three degrees of the placenta praevia have been recognized. These are: -

- * Total placenta praevia where the internal cervical os is covered completely by the placenta.
- * Partial placenta praevia where the internal os is partially covered by the placenta.
- * Low lying placenta where the placenta is implanted in the low uterine segment such that the placental edge does not reach the internal os but is in close proximity (1). The patient presented had a partial placenta praevia since the placenta was covering the internal os anteriorly.

This traditional classification which was based on digital palpation of the cervix has been overtaken by that based on the distance of the placental edge from the internal os. In this classification the superior accuracy of transvaginal ultra sonography on measuring the actual distance between the placental edge and the internal os is used. A distance of more than 2cm from the placental edge to the internal os allows safe delivery. While vaginal delivery may be possible if the distance is 1-2 cm, this is determined by whether there is hemorrhage or not. A distance of less than 1cm or if there is overlap requires a caesarian section (9). In Kenya the old classification is still used since transvaginal ultra sonography is still not widely used.

The most characteristic event in placenta praevia is painless vaginal hemorrhage, which usually appears near or at end of second trimester or after. Such bleeding as may occur in placenta praevia is sudden in onset occasionally making its appearance when the woman is asleep. In more than 50% of patients with placenta praevia, the first episode of bleeding occurs at 31 weeks. Almost 75% of all women with placenta praevia experience at least one episode of bleeding while 25% may not have any bleeding (7). The patient presented fell in this last group of patients and the placenta praevia was diagnosed at operation.

Placental localization can often be obtained by careful sonography. Trans abdominal sonography has been found to be the safest, simplest and precise method with accuracy as high as 97%. Diagnostic accuracy of sonographic placental localization of the placenta has *been improved by the use of trans-vaginal ultra sonography. Another safe method of* placenta localization includes the use of magnetic resonance imaging (1). In Kenya, trans-abdominal ultra-sonography remains the main tool in the diagnosis of placenta praevia in suspected patients.

In women with uterine bleeding during the second half of pregnancy, placenta praevia or abruptio placenta must be suspected. As noted 75% of women will present with bleeding at one time and for this patients placenta localization should be done and if delivery is planned for an examination under double setup ready to do an emergency caesarian section may be

performed. The problem arises in the 25% who will not bleed at any time. In these patients, finding of abnormal presentations or failure of the presenting part to descend (1) could make diagnosis suspicious. These patients should then have an ultra sound for localization of placenta.

The patient presented had been diagnosed to have a breech presentation. At operation she was found to have a cephalic presentation with partial placenta praevia. It is now accepted that the frequency with which the presence of the placenta praevia is suspected before hemorrhage is at index of the quality of ANC care. In modern practice when ultra sound scan is employed routinely this may give the 1st clue. Physical findings, which should arouse suspicion, are; abnormal or unstable hie, abnormal presentation like breech, a presently part that is held high are deviated from midline. A presently part that is rendered difficult to define on palpation through the anterior abnormal wall should indicate an anterior placenta praevia. These physical signs become more significant the longer they persist and if detected on two or more separate antenatal examinations in the last 6-8 weeks of pregnancy, then it is appropriate to take steps to exclude placenta praevia by some form of placentography (11).

Patients with placenta praevia may be considered in four groups:

- (i) those whom the fetus is preterm but there is no pressing need for delivery,
- (ii) those in whom the fetus is reasonably mature,
- (iii) those in labor and
- (iv) Those in whom bleeding is so severe to mandate immediate delivery inspite of fetal age (1).

In those patients who have placenta praevia and preterm babies with no active bleeding, bed rest in an environment that provides the greatest safety to the mother and fetus is advised. Hospitalization is ideal. Caesarian section is the accepted mode of delivery in practically all cases of placental praevia primarily for the well being of the mother (1). When the placenta lies far enough posteriorly that the low segment can be incised transversely without encountering it, the transverse incision is performed. However controversy arises when the

placenta is anterior and some authors feel that to avoid maternal and fetal hemorrhage a vertical uterine incision is safe (1). However if the distance between the placental margin is greater than 2 cm as determined through use of trans vaginal ultra sound, vaginal delivery can be accomplished if there is no hemorrhage. If this distance is 1cm or less a caesarian section should always be performed (9).

Premature delivery is a major cause of perinatal death even when expectant management is practiced. Serious fetal malformations have also been found to be more common. It has also been found that the rate for the small for gestation age (SGA), meconium-stained liquor and poor Apgar scores at 5 minutes are increased (11). But some authors have not found increased incidence of intra uterine growth retardation in this patient's (8). Maternal mortality is also increased especially where there is associated hemorrhage and also that associated with increased rate of operative delivery (1).

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The frequency of placenta accreta in the presence of placenta praevia also increases with scarring from caesarian section and it has been shown that after one caesarian section the frequency is 24% and this rises to as high as 67% after 4 caesarian sections (1,2). The risk of placenta praevia after caesarian section increases from 1.5-4 fold (2). The patient presented who now had 4 previous caesarian section could have been at a much higher risk of placenta praevia in her next pregnancy but she had attained her desired family size and a bilateral tubal ligation was done.

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CAESARIAN SECTION FOR FOETAL DISTRESS: WOUND DEHISCENCE:

TENSION SUTURE

NAME: V.L.
AGE: 23 YEARS
UNIT NO: 0673243
DOA: 19/7/00
DOD: 6/8/00
PARITY: 1+0

Presenting complaint:

The patient presented with a history of six hours of labour pains and drainage of liquor.

History of presenting complaint:

The patient was well till six hours before admission when she developed labour pains. These were immediately followed by spontaneous drainage of liquor. The labour pains had increased in intensity and frequency.

There was no vaginal bleeding.

Obstetrical history:

She was para 1+0. She could neither remember her last menstrual period nor quickening. At admission the fundal height was equivalent to term. She had attended antenatal clinic at a city council clinic and had done so only three times.

Antenatal Profiles:

VDRL -ve

Blood group B-positive

HB 10.3gm/dm

Past medical and surgical history:

This was not significant.

Family and social history:

She was a married housewife who used to say in Industrial area. Her husband was a casual worker. She did not smoke cigarettes or take alcohol. There was no chronic illness in the family.

Physical examination on admission to labour ward:

At admission to labour ward she was in good general condition. She was not pale or jaundiced. Her blood pressure was 120/80, pulse 100/min, respiratory rate 22/min and temperature 37.6°C.

Abdominal examination:

The abdomen was uniformly distended and the fundal height was term. The foetus was in longitudinal lie and cephalic presentation. The head was 4/5 above the pelvic brim. She was having two contractions every 10 minutes lasting between 20 to 40 seconds. The foetal heart tones were heard at 136/min and were regular.

Pelvic examination

Her external genitalia was normal. The cervix was fully effaced central and 4cm dilated. She was draining meconium stained liquor grade 2. No cord was felt but there was caput and moulding grade 2.

Diagnosis

A diagnosis of foetal distress with cephalo pelvic disproportion was made.

Plan of Management

She was scheduled for delivery by emergency caesarian section. The diagnosis and mode of management was explained to her and informed consent obtained. An intravenous drip of 10% dextrose as blood for grouping and cross match was taken. She was premedicated with 0.6mgm half an hour before theatre.

Caesarian section was done as described in the introduction and a life male infant delivered who weighed 3600gm and scored 7/1, 8/5 and 10/10. The foetus had moulding grade 2 and caput grade 2. He was in meconium stained liquor grade 3 which was not foul. Placenta and membranes were normal. She was given intra operative parental gentamycin 80mgm and crystalline penicillin 2 mega units start. In the ward she continued with these antibiotics for 3 days, then was started on oral amoxicillin 500mg 3 times a day. Analgesia was provided for the first 24 hours with pethidine, then she was given brufen. She remained stable with no fever and normal lochia until the 6th post operative day when she had a gush of blood (about 20mls) from the incision site. Firm bandage was applied. Then the following day she had burst abdomen on removal of stitches.

Examination After Burst Abdomen

She was in fair general condition. She was not febrile, pale or jaundice. She had no edema or lymphadenopathy. Her blood pressure was 110/80mmHg, pulse rate was 76 per minute, respiratory rate was 18 per minute and her temperature was 36.6°c.

Systemic examination:

Her respiratory, central nervous system and the cardio-vascular systems were normal.

Breasts:

The breasts were well developed, active and not engorged. There were no palpable masses.

Abdomen:

The abdomen was not distended and was moving with respiration. There was a sub umbilical midline wound. There was a defect of the skin, subcutaneous tissues and the rectus sheath. The peritoneum felt intact and so the intestines were not visible. The uterus was not palpable abdominally. There was no fluid oozing from the wound.

Pelvic examination:

This was not indicated.

Diagnosis:

A diagnosis of **burst abdomen** was made and patient prepared for tension suture.

Plan of management:

The diagnosis and the mode of management were explained to the patient. She gave an informed consent for tension suture insertion. The wound was dressed with gauze soaked in warm saline and an intra venous line established to start on fluids. She was premedicated with atropine 0.6mg and pethidine 50mg a ½ hour before theatre.

Wound dehiscence repair:

The patient was placed in supine position and general anesthesia given. In the semilithotomy position, vulva and vaginal toilet was done, she was catheterized and clear urine drained. The abdomen was cleaned and draped. An examination under general anesthesia reviewed a wound dehiscence of the whole length. A 3cm defect of the peritoneal layer was found. The suture in the rectus layer had given way leaving the peritoneum intact. There was no significant infection. The wound was cleaned with savlon and betadine solution. The margins were refreshed and the old sutures removed. Four No 2 nylon interrupted tension sutures were passed through all the layers of the wound and rubber tubing placed on the skin ends of the stitches to prevent them cutting through the skin. The wound edges were apposed using mass closure with No 1-nylon suture. The tension suture was then tightened and skin closed with No. 3/0-nylon suture. General anesthesia was then reversed.

Post operative care:

The patient left the recovery room for the ward while fully awake for normal observations. She remained on intravenous fluids for 24 hours when bowel sounds were found to be present and she was allowed to take oral fluids. She was put on intravenous augmentin 1.2 grams twice a day for 5 days. The check hemoglobin on 1/8/00 showed hemoglobin of 11.1g/dl, WBC of 8.7x10⁹/l and platelets of 435. Culture of the wound debris grew

staphylococcus that was sensitive to augmentin. She remained well and both baby and mother were discharged on the 11-post tension suture day after removal of the sutures.

She was booked to attend the postnatal clinic on the 6th post delivery week but she never turned up.

DISCUSSION:

Presented is a patient who developed wound dehiscence on the 7th post caesarian section day.

Wound dehiscence is a broad term, which is used when there is separation of the suture layers of the abdominal wall following surgery. Other terms used synonymously are wound disruption, evisceration and burst abdomen. When all the layers of the abdominal wall are disrupted, wound dehiscence is said to have occurred while evisceration is said to occur when there is extrusion of the gut through the opening (1,2,3). The patient presented had wound disruption up to the rectus layer while the peritoneal layer was intact.

The incidence of wound dehiscence varies considerably depending on the age of the patient, type of surgery performed, type of incision, type of suture material used, surgical technique and the general health of the patient. It ranges from 0.3-3% of all cases of pelvic surgery with the incidence being lowest with the transverse incisions as compared to vertical incisions (1). Other factors that increase the occurrence of wound dehiscence include inadequate haemostasis, which leads to haematoma formation, which in turn keeps the tissue edges apart leading to poor healing. Infection leads to accelerated dissolution of catgut and granulation tissue formation, which also increases the risk of wound disruption. Increased intra abdominal pressure, poor surgical technique, over-tightening of sutures leading to tissue necrosis and excessive use of diathermy has all been implicated. Leaving of large dead spaces, which have a tendency of accumulation of tissue fluids, which are easily invaded by infective material also, leads to wound dehiscence (1,2,3). Nutritional factor especially anemia and lack of vitamin C have also been implicated. The patient presented had presented with pre labor rupture of membranes which by itself could have predisposed her to burst abdomen due to the risk of infection. She had no anemia.

Recent studies have shown that closure of the subcutaneous tissue after caesarian section especially in obese women significantly reduces the incidence of wound dehiscence (5). The use of delayed absorbable suture material like polyglycolic decreases wound disruption. It has also been shown that the use of the far near closure technique (Smead-Jones) helps to

reduce disruption (1,4). The patient presented had none of these risk factors and delayed absorbable suture vicryl had been used. However due to poor surgical technique the suture had given way.

Incisions in the upper abdomen are more likely to disrupt than those in the lower abdomen. In the lower abdomen, vertical incisions are more liable to serious breakdown than the transverse incisions. Therefore patients with a midline incision are likely to have burst abdomen than those with a Pfannestiel incision (8). Our patient had a midline vertical incision.

Most patients with wound dehiscence presents with draining of serosanguinous fluid from the wound. When a patient complains of this it should act as a warning sign of impending burst abdomen. Wound dehiscence usually occurs within 5-8 days of operation though it may occur earlier especially where poor technique is the course. Some patients will report that they felt the wound give way while in some the wound gives way on removal of sutures. In 50% of would dehiscence, there is association with infection (1). The patient presented had some oozing of serosanguinous fluid on the sixth postoperative day and the wound busted on removal of the stitches the following day.

On recognition of wound dehiscence, the abdomen should be covered with sterile gauze or towels soaked in warm saline especially if there is evisceration. Closure of the disrupted incision is indicated without delay since any delay is associated with high mortality and morbidity (1,2,6). An ideal suture material would be silver wire but due to its unavailability, any inert material especially monofilament nylon is used. Large gauge monofilament nylon No 2 is usually used. Tension suture which involves a through and through suture involving all layers is preferred. The alternative is the use of mass closure (Smead-Jones) technique (1,3). The patient presented had a successful tension suture.

The tension suture is left for between 10-14 days and the sutures are placed 2.5-4cm on either side of the wound margin and about 1.5cm apart (1,2). Prior to closure, the wound is

thoroughly cleaned and gentle debridement done. The intestines are manipulated as little as possible in case of evisceration. The wound should be cultured for anaerobic and aerobic bacteria and a broad-spectrum antibiotic started and modified according to culture and sensitivity results. Patients with wound dehiscence have a high morbidity rate. They also have prolonged hospital stay. The mortality rate associated with wound dehiscence is between 0.3-0.4% (7). Although the patient presented recovered well, she had prolonged hospital stay as compared to other post-caesarian section patients. She was started on intravenous Augumentin and this was continued after the culture and sensitivity result.

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