

## OBSTETRICS CASE NO. 11

### POST PARTUM ECLEMPسيا: MANAGEMENT

**NAME:** C. W.  
**AGE:** 23 YRS  
**IPNO:** 0659549  
**DOA:** 16/5/00  
**DOD:** 21/05/00  
**Parity:** 2+0

#### **Presenting complaint:**

The patient was admitted to labor ward through casualty with history of convulsions after delivery.

#### **History of presenting illness:**

The patient was admitted as a referral from a private clinic with history of convulsions after delivery. She had been admitted a day before in a private nursing home in labor. The blood pressure at admission was 120/90mmHg. She had no headache, no epigastric pains or blurred vision. Urine protein had not been done. She had progressed well and delivered a live male infant who weighed 2.2kg. After 12hrs, the patient had a generalized convulsion, after complaining of severe headache and blurred vision with no epigastric pain. The blood pressure then was 130/100 mmHg. Three hours later she had another generalized convulsion and blood pressure then was 160/130 mmHg. She was only given phenobarbitone 60mg intra-muscular injection and then referred to Kenyatta National Hospital. On arrival at Kenyatta National Hospital the blood pressure was found to be 148/98 mmHg. In casualty department she was sedated with 10mg of intravenous Valium and a drip of Valium 40mg was started.

#### **Obstetrics and gynecological history:**

She was para 2+0 at admission. Her first delivery was in 1997. It was a spontaneous vertex delivery in a private nursing home. The baby was 4kg and the pueparium was normal.

Her last menstrual periods were in August but she was not sure of the dates. She had been attending her antenatal clinic at a private clinic. This was uneventful with no sign of elevated blood pressure. She had only attended three times and the last attendance was on 18/4/00. Her blood pressure then was 100/70mmHg. Her antenatal profiles showed a haemoglobin of 13.9g/dl, VDRL-negative, and blood group was O Rhesus positive.

Her menarche was at 16 years. She had her periods after every 30 days lasting 3 days. They were regular and she had no dysmenorrhoea. She had never been on any contraception method.

**Past medical and surgical history:**

This was not significant

**Family and social history:**

She was a married housewife and used to stay in Dagoretti market with her husband who was a casual worker. There was no history of hypertensive disease in any of her relatives. There was no chronic illness in the family. She never used to take alcohol or smoke cigarettes.

**Physical examination:**

She was in fair general condition. She had moderate pedal pitting edema. She had no jaundice and neither was she febrile.

Her blood pressure at admission was 158/128mmHg, pulse was 65 per minute, respiration rate was 23 per minute and temperature was 37 degrees centigrade.

**Central nervous system:**

She was conscious though drowsy. She was disoriented and semi sedated. Her pupils were bilaterally and equally reacting to light. Her neck was soft and she had a negative Kernigs sign. She had no neurological deficit.

**Respiration system:**

The trachea was central and there was equal chest expansion. She had vesicular breath sound with no crepitations or rhonchi.

**Breast examination:**

Her breasts were well developed and in Tanner class four. The nipples were normal and there was minimal colostrum.

**Cardiovascular system:**

There were no abnormalities found.

**Abdominal examination:**

The abdomen was not distended. It was moving with respiration. The uterus was equivalent to 18 weeks gestation and was well contracted. There was no tenderness and no other masses were palpable.

**Pelvic examination:**

She had normal external genitalia. There were no vaginal tears. The cervix was partulous and she had minimal lochia loss.

**Diagnosis:**

A diagnosis of **post partum eclampsia** was made.

**Management:**

She was admitted to the labour ward-acute room. She was given intravenous hydralazine 20 mg and Valium 20-mg stat.

A drip of 40mg hydralazine was started at 10 drops per minute and titrated against blood pressure such that diastolic was maintained at 90-100mmHg. A drip of Valium 40 mg that had been started in casualty was continued at 20 drops per minute that kept her sedated but arousable. An input output chart was started. She was also started on crystalline penicillin 2

MU 6 hourly. A urinary catheter was inserted for input output chart as well as daily urinalysis. The baby was admitted to the newborn unit due to the mothers' condition. However by the following day the mother was well enough to room in with her baby.

**Investigation:**

16/5/00

Urinalysis- proteins 3+

Urea and electrolytes-Urea-6.2mmol/l, Na-131mmol/l, K-4.1mmol/l, Creat. -79umol/l.

Blood sugar-2.6mmol/l

Blood slide-Negative for malaria parasites.

18/5/00

Urea and electrolytes- Urea-3mmol/l, Na-141mol/l, K-6.74mmol/l due to haemolysis, Creat. -77 umol/l.

Liver function test- SGOT-17u/l, SGPT-8u/l, Total bilirubin-7.1 and direct bilirubin-4.8, Total proteins and albumin not reported.

Haemogram: Hb-12g/dl, Platelets- $200 \times 10^9/l$

On the first day she remained stable and the blood pressure was controlled on the above regimen. It ranged at between 140-160/90-100mmHg. The input on the first day was 3000mls against an output of 2400mls. The following day she had an input of 3100mls against an out put of 3200mls. Daily urine protein became trace and then was negative by the third day after admission. She was sedated for the first 24 hours with continuous intravenous Valium which was later substituted to oral valium 10mg 8 hourly. She remained sedated but conscious. The following day she was stable enough to start breast feeding her baby and the baby was brought back from the new born unit and they started rooming in. She managed to initiate breast feeding with no difficulty. After 48 hours in the acute room, she was discharged to the postnatal wards on methyldopa 500mg and phenobarbitone 30mg every 8 hours. She remained stable with blood pressure ranging from 130-150/80-90mmHg and was discharged on the sixth post admission day to be seen in the postnatal clinic after one week. She was discharged on methyldopa 500mg and phenobarbitone 30mg three times

a day. The discharge blood pressure was 130/80mmhg. She was counseled on family planning and she wanted to use an intra uterine contraception device after 6 weeks.

**Follow-up:**

She was reviewed in the postnatal clinic after one week. She had no complaint and the blood pressure was 120/80mmHg. She had no proteinuria. She was advised to stop phenobarbitone and the aldomet was reduced to 250mg three times a day. She was seen again after two weeks and since the blood pressure was still normal (120/70), she was advised to stop aldomet. On further review after another three weeks, she was stable with no complaint. The blood pressure was 120/70mmHg and she had no proteinuria. She was discharged from the clinic after been counseled on early antenatal booking at Kenyatta National Hospital (KNH) in her next pregnancy. She was referred to family planning clinic for IUCD insertion.

## **DISCUSSION:**

The patient presented was para 2+0 who was admitted with post partum eclampsia. Eclampsia is an acute disorder appearing only in pregnancy and puerperium characterized by tonic-chronic seizures during which there may be loss of consciousness and sometimes coma. Almost without exception, pre-eclampsia precedes the onset of fits but it may also develop in those with pregnancy aggravated hypertension. It is commonest in the 3<sup>rd</sup> trimester and as term approaches (1, 2, 3). In rare instances it may develop before 29<sup>th</sup> week (1). It is almost a disease of primigravidas and is said to be less severe in other pregnancy. The patient presented was in her second pregnancy and she had no history of pre-eclampsia.

The incidence of eclampsia varies with geographical distribution and also the social economic status. It occurs in 0.2-0.5% of all deliveries (1). Locally, Mati et.al found an incidence of 1.8/1000 at KNH and 1.6/10000 at Coast General Hospital (4).

In Kenya, eclampsia has been found to be commonest in patients below 25yrs, primigravida and those of low social economic status (5, 6).

Our patient though not a primigravida fell amongst the age group when eclampsia is commonest and was of low social economic status.

It has been shown that 75% of eclamptic fits occur before delivery. About 50% of post partum eclamptic seizures occur in the 1<sup>st</sup> 48hrs after delivery but they may occur as late as 6 weeks post partum (1). The patient presented had eclamptic fits 12 hours after delivery.

In Kenya, Wanjohi (1984) found that 62.2% of eclampsia occur after 36 weeks gestation (6). Other studies have shown that 37.2% of all eclampsia occur pre partum, 32.5% intra partum, and 30.3% occur post partum (10). Mati (5) in his study, found that 45.5% of patients developed eclampsia pre- partum, 42.5% intra- partum and 12.1% post- partum.

The pathogenesis of eclamptic fits is not known. Seizures have been attributed to platelet thrombi, hypoxia due to localized vasoconstriction, and foci of hemorrhage in the cerebral cortex (1). Recent investigations have shown that the pathophysiologic mechanism of

hypoxia and acidosis, blood pressure control and delivery if patient is in ante-partum period. (2).

Historically diminution of cortical irritability by sedation and isolation of patients have been tried without much success. Other forms of therapy included such as 8% chlormethiazole edisylate, diazepam infusion and lytic cocktail containing promethazine hydrochloride, chlorpromazine and pethidine. However there is no clear benefit of one treatment regime over the other with respect to maternal and perinatal mortality. (8).

Presently the rational approach to treatment of eclampsia is use of a combination of antihypertensive and anticonvulsant drugs. Most clinicians agree on the use of diazepam for the immediate control of convulsions. This due to its rapidity of action despite concern on its use due to the fear of respiratory center depression on mother and foetus. In Kenyatta National Hospital, intravenous diazepam is used and titrated against sedation while hydralazine is used to control the blood pressure (1, 2). This was the regime used on the patient presented.

In the United States of America (USA), magnesium sulphate is the anti convulsant of choice. It is used to arrest and prevent convulsions due to eclampsia without producing generalized central nervous system depression in either mother or baby. Its mechanisms of action are unknown but it is thought to decrease cortical irritability and agitation associated with severe pre-eclampsia and eclampsia (1, 2, 8). Magnesium sulphate is also recommended for women at increased risk of eclampsia like those with severe pre-eclampsia while it should be withheld for those at low risk (11). Magnesium sulphate is yet to be introduced in our hospitals.

More recently phenytoin sodium has been advocated for treatment of severe pre-eclampsia and to prevent convulsions and for treatment of eclampsia. It rapidly crosses the brain blood barrier and it has a stabilizing effect on the neuronal membranes (1, 9). However it is not as effective as magnesium sulphate (9).

Hydrallazine is given intravenously whenever the diastolic blood pressure is 110 mmHg or higher. Boluses of 5-10mg at 15-20 minutes interval are advocated until a satisfactory response is achieved. This is the drug of choice for controlling blood pressure. The goal is to bring the diastolic blood pressure to between a range of 90-100mmhg. (1, 2). Other antihypertensives used include diazoxide in Australia, sodium nitropruside, trimethan, nitroglycerin and labetalol (1). In post partum eclampsia, some of the constraints of therapy no longer apply and things like sodium nitropruside and diuretics may be used. In USA, patients with severe pre-eclampsia are maintained on magnesium sulphate for 24 hours after delivery but it may be used for up to 48 hours. Phenobarbitone is also used in those with persistent hypertension. If the diastolic pressure remains persistently above 100mmhg a thiazide diuretic and clonidine, aldomet, prazosin or a beta-blocker may be used (1). The patient presented was maintained on intravenous valium and hydrallazine until the blood pressure was controlled and then substituted to phenobarbitone and methyl dopa.

Eclampsia is one of the commonest causes of maternal mortality in both developed and developing world. In Kenya eclampsia has been shown to be responsible for a maternal mortality of 46.5/1000 deliveries (5). Death arises due to cerebral hemorrhage, aspiration pneumonia, hypoxic encephalopathy, hepatic rupture, renal failure and anaesthetic accident (1). The patient presented had none of these complications and her outcome was good.

The risk of having a hypertensive disorder in subsequent pregnancy is about 33% while the risk of a recurrent eclamptic fit is only 2%. So it is concluded that the risk of recurrent eclampsia in subsequent pregnancy is not high to recommend against future pregnancies (1,2). Our patient was advised accordingly and the need to book at Kenyatta National Hospital in her next pregnancy.



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## **OBSTETRICS CASE NO.12**

### **TEENAGE PREGNANCY WITH CEPHALOPELVIC DISPROPORTION:** **EMERGENCY CAESARIAN SECTION.**

**NAME:** E. N.  
**AGE:** 16 yrs  
**IPNO:** 0666415  
**DOA:** 17/6/00  
**DOD:** 25/6/00

#### **Presenting Complaints:**

She was a referral from Pumwani Maternity Hospital where she had presented with labour like pains for one day

#### **History of Presenting Complaint:**

She was well until a day prior to admission when she developed lower abdominal pains. They were being referred to the back and the thighs. They had increased in frequency and intensity. There was no associated vaginal bleeding or drainage of liquor. She was seen in Pumwani Maternity Hospital from where a diagnosis of an adolescent in labour with a contracted pelvis was made and she was referred to Kenyatta National Hospital (K.N.H.). The reason for referral was that the theatre was not operational due to some electrical problem.

#### **Obstetrics and Gynecologic History:**

She was a primigravida who had attained her menarche at 14 years of age. Her menstrual periods occurred after every 30 days with a flow of 4 days. She had no dysmenorrhoea and the periods were regular. She had never used any contraceptives.

Her last menstrual period was on 15/9/99 and her expected date of delivery was on 22/6/00.

Her gestation by dates was 39 weeks at admission. She had attended antenatal clinic at a

clinic in Eastleigh. Antenatal profiles had been done but the card was not available. The antenatal period was said to have been uneventful. Her blood group was O Rhesus positive and VDRL was negative.

**Past Medical History:**

This was not significant.

**Family and Social History:**

She was a single girl, a last born of a family of 7 siblings. She was an orphan living in Mathare valley with an aunt. She was a standard 5-dropout. Both her parents died of unknown disease. Her father died in 1997 and the mother died in 1998. There was no known chronic illness in the family. She never smoked or took alcohol.

**Physical Examination:**

She was a young girl in good general condition. She was not pale or jaundiced. She had no edema or lymphadenopathy.

She had a blood pressure of 110/60 mmHg, respiration rate of 20 per minute, pulse rate of 80 per minute and a temperature of 36<sup>0</sup>c.

**Systemic examination:**

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

**Breast examination:**

Her breasts were well developed. They were in Tanners stage four. They had no palpable masses.

**Abdominal Examination:**

The abdomen was uniformly distended and moving with respiration. The fundal height was term. The fetus was in longitudinal lie, cephalic presentation and the head was 5/5 above the pelvic brim. The fetal heart tones were heard at 130 beats per minute. They were regular.

She was getting 3 contractions every ten minutes lasting less than 20 seconds. The weight of the baby was estimated to be approximately 3000 grams.

#### **Pelvic Examination:**

The external genitalia were normal. The cervix was central, soft, effaced fully and 2 cm dilated. The membranes were intact but ruptured spontaneously during vaginal examination and she drained clear liquor. No cord was felt. The sacro pulmontary was easily tipped and the true conjugate was estimated at approximately 8.5cm. The ischial spines were not prominent, the subpubic angle was acute and intertuberous distance could not admit four knuckles.

#### **Diagnosis:**

A diagnosis of a teenage primigravida in latent labour with contracted pelvis was made.

#### **Management:**

The patient was planned for a trial of labour. She was actively managed as described in the introduction. A partograph was started. Blood for grouping and cross match was taken, and an intravenous line set up. She was reviewed 4 hours later.

#### **Review:**

She was reviewed 4 hours later. The head was 4/5 above the pelvic brim. The fetal heart tones were 134 per minute and regular. She was getting three contractions every 10 minutes lasting more than 40 seconds. On pelvic examination, she was still draining clear liquor, the cervix was 4 cm dilated and the presenting part was poorly applied. There was a caput grade 2 and 1<sup>st</sup> degree molding.

An impression of cephalopelvic disproportion (CPD) was made and patient prepared for emergency caesarian section.

The diagnosis and the mode of management were explained to the patient and to her aunt. The aunt gave an informed consent for emergency caesarian section since the patient was a minor. She was premedicated with atropine half-hour before she was taken to theatre.

**Operation:**

She was put in semi-lithotomy position and the vulva and vagina toilet done. The urinary bladder was aseptically catheterized and clear urine was drained. She was repositioned in the supine position and the abdomen cleaned and draped. She was put under general anesthesia and the abdomen was opened in layer. The bladder was not edematous. A lower uterine segment caesarian section was done as described in the introduction. A life female infant was delivered who was in clear liquor. She had an Apgar score of 9 at one minute and 10 at five minute and weighed 3250 grams. The fetus was in cephalic presentation. She had molding grade 2 and caput grade 2.

**Post Operative care**

The vital signs were observed half hourly till she was fully awake, then four hourly. She was maintained on intra venous fluids and was also put on prophylactic crystalline penicillin 2mu every 6 hours and gentamycin 80mg every 8 hours for 48 hours. For analgesia she was given intramuscular pethidine 50mg 4 hourly for the first 24 hours then oral ibuprofen. On the first post operative day she was started on oral sips after the return of the bowel sounds and then commenced on light diet on the second day. She was allowed to room in with the baby. On the first day she was shown the proper technique of breast-feeding and she was able to initiate breast feeding. Subsequently she had no problem with breast feeding and her breast never became engorged. She did well and on the 7<sup>th</sup> postoperative day she was discharged after the removal of the stitches through the post-natal clinic after six weeks.

**Post Natal Follow Up:**

The patient was well and had no complaint. The baby was also well and breast feeding well. The mother had not resumed her menses and she was counseled on family planning. She was discharged to the adolescent clinic.

## **DISCUSSION:**

Adolescence is defined as the period during which the individual progresses from the point of appearance of secondary sexual characteristics to sexual maturity. The psychological processes and pattern of identity develop from those of a child to those of an adult and transition is made from a state of total social economic dependence to one of relative independence (1). Teenage has been defined as the age between 11 years and 19 years. Teenage pregnancy is any pregnancy occurring in this age group. Our patient was 16 years and thus a teenage mother.

The problem of teenage pregnancy has been well documented. In a study done in Nigeria (2), 7.5% of all pregnancies were adolescence while in Kenyatta National Hospital (3), a teenage pregnancy rate of 11.1% have been found. In Nairobi teenage pregnancy is a common and important obstetric problem accounting for 18.6% of deliveries in the city (4). In the rural, Kenya, an incidence of 21% of all pregnancy is adolescent (5).

The rate of adolescence pregnancy has been rising due to the fact that the age of menarche is decreasing such that pregnancy is possible at earlier ages. Women in their teens are now engaging in sexual activity with resultant increase in teenage pregnancy (3). In Nigeria, a study showed the age of menarche to be 12.59 years (6). Studies have also shown that girls start sexual activity very early (7,8). In one study the earliest age of sexual activity in girls in rural Kenya was found to be 13 years (7). Lema et al also showed that 4.1% of the sexually active girls have had sexual intercourse by the age of 10 years and 23.8% of the teenage schoolgirls in Nairobi are sexually active (8). In United States of America (USA) it is estimated that 50% of 19 year old girls have engaged in sexual activity (9).

Despite sexuality among adolescent being quite high, majorities do not use any method of contraception and when they do, the methods are ineffective or unreliable such as withdrawal or safe days. As a result pregnancy amongst adolescent girls is high (10). Because she is not fully physically developed, a teenage mother is at a greater risk of complication during pregnancy and is several times more likely to die as a result of the

pregnancy when compared to other pregnant women (11). Our patient had never been on any contraception before and also had cephalopelvic disproportion most likely due to the fact that her pelvis was not fully developed.

Between 1985-1987, an average of 10,000 girls dropped out of school per year because adolescent pregnancy (12). Poor education is a feature of adolescent pregnancy. Those who drop out of school have been shown to be the ones who do not do well in the class. The rates of drop out are higher in standard 8 and form 4 (12). The patient presented had dropped out of school at standard five.

Unwanted pregnancies have been shown to be the major reason for illegal abortion (8). The adolescent girl with unplanned and or unwanted pregnancy may end up illegally procuring an abortion. In Kenyatta National Hospital, 74.1% of patients with septic abortion are single girls, 53% of who are aged between 14-20 years (3). Omuga, found that of patients presenting with incomplete abortion at KNH, 18% were girls between 12-19 years and out of these 76% had unwanted pregnancy (7). The patient presented was only 16 years old but fortunately had carried the pregnancy to term.

By the nature of their sexual behavior, these adolescents are also at a greater risk of contracting sexually transmitted infections' including AIDS. If and when they get them, they may not seek medical attention early enough because of ignorance or fear of ridicule from the medical personnel. (11).

The adolescent girl is more likely to become pregnant again. It has been shown that pregnancies may occur even within one year of delivery. Some of the teenage mothers have even become grand-multiparous at 19 years (5). To avoid further unwanted pregnancies in our patient, she was discharged through the adolescent clinic for counseling on sexual behavior and appropriate family planning methods.



The teenage pregnant girl is at a very high risk of developing medical problems. It has been shown that 38% of all eclamptic cases are teenage mothers with a high rate of fetal growth retardation. Vesical vaginal fistulae are also quite common. They are also likely to receive little or no antenatal care (ANC) which makes the out come of the pregnancy even worse. In the Nairobi birth survey 64% of adolescents started ANC late with 7.1% not having attended ANC at all. Of those who attended ANC 29.6% had antenatal complication while 36.2% had labour complication as compared to 18.3% of other women. These includes a high rate of prolonged labour fetal distress, operative interventions, low birth weight deliveries, a higher perinatal mortality rate of 62/1000 compared to 46/1000 for other women and a higher maternal mortality rate of 102/100,000 compared to 57/100,000 in other women (4,10). The patient presented had attended antenatal care and didn't have prolonged labor due to prompt intervention of the obstructed labor.

The psychological problems are many. It is a fact that most of these girls drop from school and are stigmatized by their family and the society at large. They are even more likely to become pregnant again and they feel that the future is bleak since family, society and their boy friends or man friends usually neglect them. After an abortion or delivery the woman may loss her self-esteem after being let down by the boy/man friend. She may loose interest or confidence in men and thus shun further heterosexual relationships finding solace in members of her sex only. Others may go into serious pursuits to prove to the world that they can achieve something. Others may fall easy prey to men and boys thus ending up pregnant again. The long-term complication of sexually transmitted diseases may also have a great impact on these women (10). The patient presented was at a high risk of psychological problems since she was an orphan staying with a relative and now she had become a single mother. She was to have psychological support through the adolescent clinic.

The prevention of adolescent pregnancy is usually surrounded by political, social, legal and religious controversy. It is felt that to prevent this major problem, programs aimed at providing information and education on reproductive health and contraception for adolescents must be put in place. The vacuum at present in service delivery systems for

adolescents leaves these vulnerable girls with poor alternatives as sources of information and education which is usually distorted and most learn through their mistakes. Hence it is recommended that the society should accept adolescent fertility as a real. It should also be recognized as a significant contribution to our health, social, economic, and political development. There is need to initiate and organize special health services for this group. These services should include ante natal care clinics for teenagers, contraception advice and other needed medical care in both rural and urban areas (10). The attitude that sex is for adults and sex is private must be discarded and sexuality of the young people must be looked at. These young people need sex education to teach them the facts about sexual development, Planned Parenthood, relationships, sexual intercourse, pregnancy and contraception as well as about sexually transmitted diseases. (14). In Kenyatta National Hospital a special clinic (adolescent clinic) has been set up to deal with this aspect of reproductive health in adolescents and the patient presented was referred to this clinic.

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## **OBSTETRICS CASE NO. 13**

### **DEEP VEIN THROMBOSIS IN PREGNANCY: MANAGEMENT AND SUCCESSFUL DELIVERY.**

**NAME:** M. N.  
**AGE:** 23 YEARS  
**UNIT NO:** 0660822  
**DOA:** 18/5/00  
**DOD:** 26/6/00  
**PARITY:** 1+0

#### **Presenting complaint:**

The patient presented with one-week history of pain and swelling of the left thigh.

#### **History of presenting complaint:**

She was well until a week prior to admission when she developed sudden onset of pain and swelling in the left calf. The pain and swelling later shifted to the left inner thigh. The pain was made worse by walking. She had been seen in a clinic in Pangani where she was given analgesics. She was then reassured that this was due to pressure symptoms. However the pain and swelling got worse and the patient decided to seek treatment at Kenyatta National Hospital (KNH).

#### **Past obstetrics and gynecologic history:**

She was para 1+0 gravida 2. Her menarche was at 16 years of age. Her menstrual cycle was of 28 days lasting 3-4 days. It was regular, of moderate flow and she had no dysmenorrhoea.

Her first delivery was in 1998 at term, in Pumwani Maternity Hospital through spontaneous vertex. The baby was 2.5kg and was alive and well. The patient did not have deep vein thrombosis in that pregnancy.

She had been on Depo Provera for contraception, which she stopped in June 1999 to conceive.

Her last menstrual period was on 1/9/99 and her expected date of delivery was on 8/6/00.

She was at a gestation age of 37 weeks at admission. She had attended antenatal clinic in a private clinic from 25 weeks of gestation.

Antenatal profiles: Blood group-O rhesus positive, hemoglobin level of 10.3g/dl and VDRL was negative.

**Past medical history:**

This was not contributory.

**Family and social history:**

She was a married housewife. She never used to drink alcohol nor smoke. She lived in Naivasha with her family. Her father had died in 1998 due to congestive cardiac failure. There was no chronic illness in her family.

**Physical examination:**

She was in good general condition. She was not pale or jaundiced. She had no edema or lymphadenopathy. She had a blood pressure of 110/60mmHg, pulse was 80 per minute, respiratory rate of 20 per minute and her temperature was 37°C.

**Musculo skeletal system:**

She had an atalgic gait. The left thigh was warm, swollen and tender. It had a circumference of 52.5cm compared to the right whose circumference was 47cm at a point 15-cm from the medial condyles. The calves were not swollen or tender. The feet were normal. All the peripheral pulses were present.

**Abdomen examination:**

The abdomen was uniformly distended and moving with respiration. The fundal height was term and the fetus was in longitudinal lie, cephalic in presentation and the head was not engaged. The fetal heart tones were heard at 144 per minute and were regular.

**Pelvic examination:**

This was not indicated.

**Other systems:**

There were no abnormalities elicited.

**Diagnosis:**

A diagnosis of **deep venous thrombosis** in pregnancy was made.

**Plan of management:**

The diagnosis and mode of management was explained to her. She was started on 1000 I.U. of intravenous heparin every hour through continuous drip infusion. A consultation was sent to the hematologist. She was put on bed rest with elevation of the foot in the acute phase. She was to have a Doppler examination of the thigh but she couldn't afford it for almost a month and the hospital was not doing Doppler's at that time.

**Hematologist review:**

The hematologist reviewed her on 25/5/00 and he concurred with the above diagnosis. He advised heparin 10,000 I.U. in 500mls of normal saline every 10 hours. The acute symptoms had improved by 6 days. However she started having petechie bleeding and heparin infusion was stopped and she was commenced on 5000 I.U. of subcutaneous heparin every 4 hours, which she tolerated well.

**Investigations done:**

23/5/00:

PTT : Test – 14 seconds, Control –13 seconds.

PTI - 93%, INR – 1.08

KCCT: test 36 seconds, control 34 seconds

2/6/00:

KCCT - test 40 seconds, control 34 seconds.

5/6/00:

Full haemogram: Hb- 8.2g/dl, WBC  $9.7 \times 10^9/l$ , and Platelets  $212 \times 10^9/l$ .

14/6/00:

Doppler: Showed proximal  $\frac{1}{2}$  of the left superficial femoral vein was incompressible and did not show any Doppler signal. There was no echogenic intramural clot seen. The rest of the deep venous system was normal with a normal venous trace and flow augmentation and were compressible. A conclusion of proximal left superficial femoral vein thrombosis was made.

17/6/00:

KCCT: test-42 seconds, control 38 seconds

Haemogram: Hb-10.8g/dl, platelets  $211 \times 10^9/l$

19/6/00:

KCCT test- 30 seconds, control 32 seconds.

23/06/00:

Hb -9.7g/dl

WBC -  $9.7 \times 10^9/l$

Platelets-  $173 \times 10^9/l$



**Post natal follow-up:**

She was seen in the hematology clinic 2 weeks after delivery and she was advised to continue with warfarin until 6 weeks post delivery. In the postnatal clinic she had no complaints. She was discharged to continue follow-up in the hematology clinic.

**Discussion:**

Thrombo-embolic disease (which includes superficial and deep vein thrombosis and thrombophlebitis, septic pelvic thrombo-phlebitis and pulmonary embolus) accounts for almost half of all obstetric morbidity and mortality worldwide. In one series in the United Kingdom (U.K.), thrombo-embolism was shown to be the commonest cause of maternal deaths (4). The patient presented had thrombosis of the proximal left superficial femoral vein.

Coagulation is a complex enzymatic process involving the sequential activation of a series of potent pro-enzymes. The thrombin generated by this process serves several functions, which include the formation and conversion of fibrinogen to fibrin. The normal function of coagulation and fibrinolytic system is to maintain an intact but patent vascular tree. The main components playing a part in normal homeostasis are vascular constriction, the formation of a platelet clot and fibrin generation. The process of coagulation is closely regulated and normally confined to sites of vascular damage (2,3).

There are three factors that influence the formation of thrombin within the vascular tree namely: The condition of the vessel wall, Blood flow and the constituents of the blood. All these factors may be altered during pregnancy to predispose towards intra-vascular thrombus formation (2).

Hypertensive disease of pregnancy, operative surgery of pelvis or pelvic infection may damage blood vessels. The pressure of the gravid uterus may reduce blood flow particularly in vessels of the lower limb and pelvis. Bed rest will also aggravate stasis. The constituents of blood are also changed to a hypercoagulable state (2). Hence in pregnancy each of the elements of the Virchows triad (stasis, hyper coagulability and vascular damage) is present at some time or other (1). It has also been shown that thrombin mediated fibrin generation increases throughout pregnancy (2,5). Due to the above, the likelihood of venous thrombo embolism in normal pregnancy and puerperium is increased by a factor of 5 compared to the

non-pregnant state (5). The only recognizable risk factor in the patient presented was the pregnancy.

The reported incidence of thrombo-embolic disease during pregnancy varies widely. The incidence of ante partum disease has been reported to be as high as 0.15% for superficial veins and 0.36% for deep veins. Approximately 2000 pregnancies are complicated by pulmonary embolus (1,2,5). In Kenya, it has been shown that deep venous thrombosis occurs in 0.16% of all admissions. Out of these, 87.5% was pregnancy related deep venous thrombosis. About 51.4% occurred in post partum period, 37.14% antenatal and 11.43% in the post abortion period (6). In the patient presented the deep venous thrombosis was pregnancy related.

Stasis is probably the strongest single predisposing event to deep venous thrombosis (DVT). Other predisposing factors include pelvic surgery, increasing maternal age, parity and obesity. In addition any mother with history of previous DVT or pulmonary embolism during the existing pregnancy, or a previous pregnancy or during oral contraceptives use is considered at risk (2,5,6). The patient presented had none of this history and she was relatively young and not obese.

The signs and symptoms of thrombo-embolic disease result from obstructed venous return either singly or in combination with vascular inflammation. Those of superficial thrombophlebitis are easily recognized and include a reddened, tender area in relation to a superficial vein with surrounding edema and inflammation (2,5).

The signs and symptoms of deep venous thrombosis vary greatly. They depend on the degree of occlusion and the intensity of inflammatory response. At one end of the patient clinical spectrum, the patient may have severe pain and develop an edematous white leg due to extensive iliofemoral thrombosis. Other patients may have no signs and pulmonary embolism may be the first evidence of thrombo embolic disease (1,2,5). The patient in this

presentation had presented with calf pains, which later shifted to the thigh. At admission the thigh was swollen and tender.

More than 50% of patients exhibiting the classical signs of calf or thigh tenderness, pain, erythema and edema do not have DVT (5,7). Despite this lack of sensitivity and specificity in the diagnosis of thrombo-embolic diseases, a good physical examination is still necessary to exclude disorders which may mimic thrombo embolic disorder. These includes rupture of a bakers cyst, muscle strain or haematoma, arterial insufficiency, neurological pain, arthritis, lymphagitis, myositis, bone disease and varicose veins (1).

Objective tests for thrombo-embolic diseases are either invasive or non-invasive.

Venography or phlebography is said to be the standard method of confirming a clinical diagnosis of deep venous thrombosis. However it has its limitations and may itself cause thrombosis (1,5). Impedance plethysmography measures volume change within the leg. It has been found to be a reasonable screening method in pregnant women with suspected thrombosis (5).

The use of real time B-mode ultrasonography during which venous compressibility is assessed has been found to be a very good non-invasive method to detect proximal deep vein thrombosis. In some series it has been found to have a sensitivity of 90% and specifically of up to 99% and with the addition of duplex and color Doppler ultra sound technology similar sensitivity are found with shorter time for examination (1,5,7). Diagnosis of deep vein thrombosis in the patient presented was made from history and physical examination as well as real time Doppler ultra sonography of the affected limb.

The mainstay of therapy in the management of thrombo- embolism is anticoagulant therapy. This should be started without delay. Some people feel that due to the low sensitivity and specifically of the clinical diagnosis of thrombo-embolism, anti coagulant therapy should not be started without conformation using objective tests (1,5,8). However due to the seriousness of complications arising therefrom especially pulmonary embolism some other

authors advocated for immediate start of therapy on the suspicious of deep venous thrombosis in pregnancy (4). In Kenyatta National Hospital, therapy is usually started on clinical diagnosis before confirmation can be done and this was what was done in this patient.

Heparin is the anticoagulant of choice for treatment of thrombo-embolic disease during pregnancy. It is a heterogeneous mucopolysaccharide organic acid with a half-life directly related to dose and extent of active thrombosis and inversely proportional to renal function (1). It neither crosses the placenta nor is it excreted into breast milk due to its high molecular weight of 10,000-40,000 (1,2,5,8). It acts by inhibiting a number of clotting factors including thrombin and factors IX, X, XI and XII. It also potentiates the action of antithrombin III and in small amounts also inhibits factor Xa (2).

Two heparin regimens are commonly employed. Full dose heparin sufficient to prolong PTT to 1.5-2 fold over the baseline is the treatment of choice for acute thromboembolic disease. A continuous intravenous infusion is usually given. The goals of initial therapy are to maintain unfractionated heparin levels of between 0.2-0.4u/ml, anti-factor Xa activity between 0.4 and 0.7 per ml and the APTT (aPPT) between 1.5-2.5 times control. It should be administered for at least 5 days or until clinical improvement is noted (1,2,9).

Thereafter heparin may be administered subcutaneously 10,000-15,000 units every 8 to 12 hrs titrating against APTT of 1.5-2.0 times control (8). Other authors feel that heparin may be administered either subcutaneously or as continuous infusion with similar results (1). The loading dose for intravenous route is 110U/Kg stat followed by a continuous infusion of 1000 units/hour. APTT should be monitored every few hours to make fine adjustment. If the subcutaneous route is selected the loading dose is 150u/kg intravenously followed by 20,000 units of calcium heparin every 12 hours with mid interval APTT for adjustment (1).

Subcutaneous heparin is thought to have low rates of thrombus extension and bleeding complication than does continuous infusion and is easy to use even at home (1). The second therapeutic regimen is low dose heparin. It is primarily used for prevention of thrombo

embolic disease (1). The patient presented was given intravenous heparin, which was later changed to subcutaneous heparin after the disappearance of the acute symptoms.

Because it does not cross the placenta and its ease of administration, subcutaneous heparin is used in those patients needing chronic anticoagulation in pregnancy. The patients are advised to stop injecting heparin once regular uterine contractions have started. If delivery appears likely within 12 hrs of the last heparin injection, an episiotomy is avoided. It does not affect the uterine hemostasis. If the APTT is greater than 60 seconds during the second stage, protamine sulphate may be considered as an antidote (1). Heparin was used in the patient presented and she had no excessive bleeding after delivery. She was converted to warfarin after delivery to continue up to 6 weeks.

For long-term therapy warfarin is used. It exerts its effect by lowering the activity of vitamin K dependent factors. It is best used outside pregnancy. It is safe in puerperium. It should not be used routinely in pregnancy especially between 7-12 weeks gestation. If used during this period, warfarin embryopathy such as nasal hypoplasia, stippled epiphysis and central nervous system abnormalities may occur (5,8). If it is used during pregnancy, it should be stopped at 36 weeks and replaced with heparin for the remainder of the pregnancy since warfarin has no antidote and it has been shown to cause retroplacental clot or intracerebral bleeding. Intracerebral bleeding has a fetal mortality of 15-30% (2). Our patient was converted to warfarin after delivery, as is the practice in our hospital.

Other modality of treatment for deep venous thrombosis especially in women who have recently suffered pulmonary embolism and who need operative delivery is the use of vena caval filters. They are also advocated for patients where heparin therapy fails to prevent recurrent embolism from the pelvis or legs or if embolism develops from these sites despite the use of heparin (5).

In puerperium, the continuous use of heparin must be weighed against the risks of osteoporosis and the ease of oral warfarin. The duration of anticoagulation will depend upon

the timing and severity of the thrombotic episode. In puerperal women anticoagulants should be continued for 6 weeks to avoid recurrent thrombo-embolism. The anticoagulant of choice is warfarin (2). Our patient was put on warfarin for continuous anti coagulation during the puerperium.

The risk of recurrence in a woman with a previous history of thrombo embolism has been estimated to be about 12% during pregnancy. It is unaffected by whether the thrombo-embolism occurred during a previous pregnancy, after previous surgery or in association with oral contraception (2). This increased risk in patients with a previous history has also been demonstrated in Kenya (6). Most people feel that in these women, prophylactic anticoagulant therapy should be given throughout pregnancy. Many advocate subcutaneous heparin (5). Other obstetricians prefer to use heparin up to 12 weeks of pregnancy then change to warfarin and then to heparin at 36 weeks (2). The use of aspirin for venous thromboembolic disease prevention during pregnancy should be avoided and is said to be of no benefit to these women. Its only benefit has been shown in men undergoing hip replacement and it is thought that aspirin at best is ineffective in prophylaxis against venous thrombosis and at worst only increase the rate of maternal and neonatal complications (1). The patient presented was advised on these risks and the need to start prophylactic anticoagulation during her next pregnancy.

In conclusion thrombo-embolism is a leading cause of maternal mortality. Crucial to successful outcomes is the identification of patients at risk, early diagnosis of DVT and pulmonary embolism and prompt initial of appropriate therapy (8).

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## **OBSTETRICS CASE NO. 14**

### **FOOTLING BREECH IN ONE PREVIOUS SCAR: EMERGENCY CAESARIAN**

#### **SECTION:**

**NAME** : C. A.  
**AGE** : 25 YEARS  
**IPNO** : 0684741  
**DOA** : 11/9/00  
**DOD** : 14/9/00  
**PARITY** : 2+0

#### **Presenting complaint:**

The patient was admitted through casualty as a referral from Pumwani Maternity Hospital with a diagnosis of footling breech. The reason for referral was that the hospital staff had downed their tools due to lack of pay.

#### **History of presenting illness:**

She was well until 8 hours prior to admission when she developed labor pains. The pains were episodic and were being radiated to the back. They had increased both in frequency and intensity. Four hours later the patient had spontaneous rupture of membranes and she noted that the foot of the fetus was protruding through the vagina. She was taken to Pumwani Maternity Hospital where an emergency caesarian section could not be carried as the council staffs were on strike. She was hence referred to Kenyatta National Hospital (KNH). She had no history of vaginal bleeding.

#### **Obstetrics and gynecologic history:**

She was para 1+0. She had an emergency caesarian section in 1999 January due to transverse lie. The outcome was a life female infant who weighed 4 kg. She died at one year of age due to malaria infection.

Her menarche was at 16 years. She had her menstrual periods after every 28 days. They lasted 4 days and were regular. She had never been on any contraception. Her last menstrual period was on 8/12/99. Her expected date of delivery was on 15/9/00. She was at a gestation age of 40 weeks + 3 days at admission. She had attended her antenatal clinic at a private clinic. She had started antenatal clinic at 16 weeks of gestation. The antenatal period was said to have been normal. The antenatal card was not available but her blood group was O Rhesus Positive.

**Family and social history:**

She was a married housewife. She stayed with her husband at Kangemi. She did not smoke or drink alcohol. There was no chronic illness in the family.

**Past medical and surgical history:**

This was not significant.

**Systemic enquiry:**

No abnormality was elicited.

**Physical examination:**

She was in good general condition. She was not pale or febrile. She had no edema or lymphadenopathy. Her blood pressure was 120/70 mmHg, Pulse rate was 88 per minute, respiration rate was 22 per minute and the temperature was 36.4<sup>0</sup>c.

**Abdominal examination:**

She had a midline sub umbilical scar. The abdomen was uniformly distended and moved with respiration. The fundal height was term. The fetus was in longitudinal lie and breech in presentation. She was having 3 strong contraction in 10 minutes each lasting more than 40 seconds. The fetal heart tones were heard at 130 beats per minute and were regular.

**Pelvic examination:**

She had normal external genitalia. She was draining clear liquor. A fetal foot was seen protruding from the introitus. It was slightly edematous. The cervix was 8 centimeter dilated with slight edema of the anterior lip.

**Other systems:**

The other systems were essentially normal.

**Diagnosis:**

A diagnosis of **footling breech** in one previous scar in active labor was made.

**Management:**

The patient was scheduled to undergo emergency caesarian section. She was informed of the diagnosis and the mode of management. She gave an informed consent for emergency caesarian section. An intravenous infusion with 5% dextrose was started. A blood sample for grouping and cross-match had been taken in casualty. She was premeditated with 0.6mg atropine and wheeled to theatre.

**Operation and outcome:**

In theatre she was put in semi-lithotomy position and vulva vaginal toilet done. She was aseptically catheterized and 200mls of clear urine drained. She was repositioned and the abdomen cleaned and draped. General anesthesia was induced. The abdomen was opened in layers after excision of the old scar.

A lower uterine caesarian section was done as described in the introduction. A life female infant was delivered by breech extraction. The baby weighed 3500 grams and had an Apgar score of 8 at one minute and 10 at 5 minutes. The placenta and membranes were delivered and the uterus and abdomen closed.

**Post operative care:**

The pediatrician reviewed the baby. She was found to be normal and was allowed to stay with the mother. Routine postoperative care was instituted as described in the introduction. Crystalline penicillin 2 m.u. every 6 hours and gentamycin 80mg every 8 hours were given intravenous for the first 48 hours . She was then started on Amoxycilin 500mg 8 hourly for five days. Pethidine 50-mg intra-muscularly every 4 hours was given for analgesia for the first 24 hours. She was maintained on intravenous fluids for 24 hours after which the bowel sounds were established and she was allowed to take orally.

She remained stable and she was discharged on the 4<sup>th</sup> postoperative day on Amoxycilin 500 mg and ibuprofen 400 mg every 8 hours for 5 days. Stitches were to be removed in the nearest hospital and she was to be reviewed in the postnatal clinic in 6 weeks.

**Post natal clinic:**

The patient had done well. The wound had healed completely and the baby was breast feeding well. She had not resumed her menses. Family planning was discussed and the patient discharged through the family planning clinic.

## **Discussion:**

Breech presentation refers to a situation where the podalic pole of the fetus presents at the maternal pelvic inlet with the cephalic pole in the fundus (1). Three types of breech presentations have been recognized namely: -

Frank breech where the hips are flexed and the knees are extended, complete breech where both the hips and the knees are flexed and the footling breech where one or both hips extended (1). Our patient had a footling breech.

Breech presentation arises when spontaneous version fails to occur. Under normal circumstances the fetal buttocks and lower limbs require more room than the head and consequently they occupy the more roomy area at the fundus (2). Conditions that predisposed to breech presentation includes fetal anomaly (e.g. hydrocephalus), uterine anomaly (uterine fibroids and septum's), multiple pregnancy, prematurity, oligohydromnios and fetal tumors (2,3). A flexed fetal attitude aids in version while deflection leads to breech presentation. Low-lying placenta and fundo insertions of placenta are also thought to predispose to breech presentation (3). No recognizable predisposing factor was found in our patient.

The incidence of breech presentation varies with the gestation age. Up to 40% of fetuses at 20 weeks presents as breech. This incidence gradually decreases with maturity and at term the incidence is 3-4% (1,2,3). In singleton breech presentation, 40% are frank, 10% complete and 50% are footling in fetus of less than 2500grams while in those above 2500grams 65% are frank breech, 10% complete breech and 25% are footling breech (4). At Kenyatta National Hospital an incidence of 3.5-5% have been reported while in Mati reported an incidence of 2.7% for Nairobi (5,6). Our patient had footling breech presentation.

The diagnosis of breech presentation is usually made on abdominal palpation and vaginal examination. Confirmation may be done by using ultra sound scan. The ultra sound is an important tool because fetal anomalies are detected and the fetal weight, gestational age, and

the attitude of the fetus can be known (1,2,4). X-ray is limited to the determination of the presentation, fetal skeletal abnormalities and the assessment of the pelvic diameters since radiation risks to the fetus limits its routine use (3,4). Our patient had none of these investigations since at presentation she was already in labor and the diagnosis was obvious.

When version fails or is contraindicated, the decision on the mode of delivery should be made. When vaginal delivery is anticipated strict criteria must be followed. This includes fetuses weighing between 2000-3500grams, adequate pelvis with an inlet of more than 10.5cm and an anteroposterior diameter of 11.5cm. The fetus must be flexed and the gestation must be above 34 weeks (4). The problem with vaginal breech delivery is the higher perinatal morbidity as well as mortality (8). Vaginal breech delivery is contraindicated in footling breech, prolonged rupture of membranes, dysfunctional uterine labors, poor obstetric history and hyper-extended fetal head (3). A contracted pelvis, previous caesarian section and preterm breech are other contraindications to vaginal breech deliveries (3,4). Our patient had footling breech and had one previous caesarian section.

At Kenyatta National Hospital, all breech deliveries are managed routinely by caesarian section unless the patients come in second stage. A lot of controversy remains in the management of breech presentations. This is due to the fact that persistence of breech presentation at birth results in higher perinatal morbidity and mortality. These high rates are due to associated higher incidence of prematurity, congenital malformations and birth trauma. There is also higher maternal morbidity and mortality due to a higher incidence of caesarian section and trauma associated with vaginal delivery (3,4,7).

Management of breech presentation should start at the antenatal period where expectant spontaneous version is normally anticipated. Persistent breech presentation after 36 weeks necessitates an attempt at external cephalic version (3,4). Studies have shown that external cephalic version under tocolysis in well-selected pregnancies reduced breech occurrence in labor and subsequent caesarian section (8). The dangers of external cephalic versions include abruptio placenta, rupture of membranes and premature labor, cord accidents,

uterine rupture and fetal maternal hemorrhage, (2,3,4,8). Success is higher among parous women with flexed breech (7). Diagnosis in our patient was made in labor and in any case she was not a candidate for external cephalic version as she had one previous caesarian scar.

Caesarian section remains the recommended mode of management of footling breech (3,4). Despite the morbidity to the mother routine caesarian section reduces most of those morbidity factors for the baby.

A prognostic index for vaginal delivery was been introduced by Zatachni and Andros (9). They used parity, previous breech delivery, and gestation age in weeks and estimated fetal weight. A score of 0-3 is unfavorable for vaginal breech delivery. Labor induction or augmentation in breech presentation is defended by some and condemned by others (3,4,10). Breech presentation results in a three fold to then fold increase of perinatal mortality and morbidity in comparison to cephalic presentation. Maternal mortality morbidity is also high (3,4). Some of the complications leading to these high poor fetal outcome includes cord compression and prolapse which is associated with 15% of footling breech, and 5% of complete breech. Fetal malformations, cephalic hematoma, tentorial tears, brachial palsy, fracture of lung bones and injury to the fetal adrenals, liver and genitalia are all common (3,4). Our patient had none of these complications but considering that she had one previous caesarian section scar she would have been at a very risk of uterine rupture if intervention was not timely.



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## **OBSTETRICS CASE NO. 15**

### **UNSENTISIZED RHESUS NEGATIVE MOTHER**

**NAME** : M. N.  
**AGE** : 26 YEARS  
**IPNO** : 0687269  
**DOA** : 26/9/00  
**DOD** : 29/9/00  
**PARITY** : 1+0

#### **Presenting complaint:**

The patient presented with labour like pains for 6 hours.

#### **History of presenting complaint;**

She was well until 6 hours when she developed lower abdominal pains. It was being referred to the back and was increasing in amount with time. One hour later she had spontaneous rupture of membranes. She had no vaginal bleeding.

#### **Obstetric and gynecology history:**

She was para 1+0 gravida 2. Her first delivery was in 1998 to a Rhesus positive baby at term in Pumwani Maternity Hospital. The baby was born by spontaneous vertex and weighed 3500g. She was given Anti -D immunoglobulin.

She had her menarche at 14 years of age. She had her periods after every 28 days, which lasted between 3-4 days. They were regular. She had been on oral contraception pills between 1998-1999 and she stopped in order to conceive.

Her last menstrual period was on 4/1/2000 and her expected date of delivery was on 11/10/2000. She was at a gestation of 37 weeks and 5 days.

She was booked to attend antenatal clinic at Kenyatta National Hospital at 20 weeks due to being Rhesus factor negative (Rh<sup>-ve</sup>).

**Antenatal investigations:**

VDRL - Negative

Haemoglobin level: 12.3g/l

Blood group: O-VE

Husbands' blood group: B+VE.

Direct Coombs test at 34 weeks: negative. She was then given Anti-D globulin 300mg although this is usually done at 28 weeks but a Coombs test had not been done at 28 weeks.

Her antenatal period was normal.

**Past medical history:**

This was not significant. She has never been transfused.

**Family and social history:**

She was a married housewife. She stayed with her husband and child at Waithaka. She never smoked or took alcohol. There was no chronic illness in the family.

**Physical examination:**

She was in good general condition, not pale or jaundice. She had no fever or lymphadenopathy. The blood pressure was 110/70, pulse rate was 76 per minute, respiratory rate was 22 per minute and temperature was 37<sup>0</sup>c.

**Abdominal examination**

The abdomen was uniformly distended and moved with respiration. The fundal height was term. The fetus was in longitudinal lie and cephalic presentation. The head was 5/5 above the pelvic brim. She had 3 contractions every 10 minutes that were lasting less than 20 seconds. The fetal heart tones were heard at 130 per minute and were regular.

**Vaginal examination:**

She had normal external genitalia. She was draining clear liquor. The vaginal walls were normal. The cervix was fully effaced and 2cm dilated. No membranes were felt.

**Other systems:**

These were essentially normal.

**Diagnosis:**

A diagnosis of a **Rhesus –VE mother in latent labour at 37 weeks and 5 days** was made.

**Management:**

A partograph was initiated and labour managed actively as described in the introduction. On review 4 hours later she was found to be having 2 contractions lasting at between 20- 40 seconds. The fetus was still in longitudinal lie and the head was 4/5<sup>th</sup> above the pelvic brim. On digital examination the cervix was found to be a centimeter long and 4-cm dilated. She was still draining clear liquor. She was augmented with syntocinon 5 i.u in 5% dextrose starting with ten drops per minute and escalating by 10 drops every 30 minutes until she had 3 moderate contractions. This was achieved at 40 drops per minute and this rate was maintained.. She progressed well and on next review the head was only 2/5<sup>th</sup> above the pelvic brim and the cervix was 9 cm dilated. Within the hour she went into second stage delivered a life male infant who weighed 3600grams and had an Apgar score of 9 in one minute and 10 in 5 minutes. From the cord blood the babies blood group was O Rhesus positive and the direct Coombs test was negative

**Postnatal follow-up:**

Both the baby and the mother did well. It was felt that she did not need a repeat dose of Anti D globulin as she had delivered within less than three weeks of the antenatal anti D globulin dose. She was then discharged on the 3<sup>rd</sup> day through the nearest health facility for family planning and immunization in 6 weeks. She was also advised for follow-up at Kenyatta National hospital during her next pregnancy.

**Discussion:**

The Rhesus antigens are lipoproteins confined to the red blood cells membranes. Isoimmunization occurs not only when a Rhesus negative mother carries a Rhesus +ve foetus but it may also follow a previous transfusion with Rhesus positive blood (2,3).

Fetal maternal transfusion does occur during pregnancy. Usually the amounts of foetal cells that pass to the maternal circulation are few and are destroyed by the mother's immune system before provoking any immune response. This protection is enhanced if there is ABO incompatibility (2,3). It has been documented that a Rhesus negative baby may be isoimmunized by a Rhesus positive mother. This is the so-called grand mother theory (7).

There are no naturally Rhesus D antibodies in a Rhesus D negative mother. The antibodies are only produced after prior antigenic stimulation by Rhesus D positive red blood cells reaching the maternal circulation. It has been shown that unprovoked fetal maternal transfusion occurs in 67% of all pregnancy in 1<sup>st</sup> trimester, 15.9% by second trimester and 28.9% in third trimester (3). Our patient was not isoimmunized and she was given prophylactic anti-D at 34 weeks.

Landsteiner and Wiener first recognized the Rhesus blood group in 1940. In 1941 whereas Levine conclusively established that Rhesus incompatibility was one of the causes of hydrops fetalis (1). The Rhesus system is the most complex of the human blood groups. It has a medelian dominant inheritance. The Rhesus antigens are Dd, Cc and Ee. The Rhesus (D) or Rhesus factor is the major antigen and is of particular concern. Its presence or absence is used to categorize individuals as either Rhesus positive or negative (3,4). A Rhesus positive individual may be homozygous or heterozygous. It has been shown that 45% of Rhesus positive individuals are homozygous and 55% are heterozygous (2). The production of the Rhesus antigen is controlled by genes that are located in chromosome number 1. The CDE antigens are independently inherited from other blood groups (4).

The incidence of Rhesus negativity complicating pregnancy varies worldwide. It is independent of sex. The differences are thought to be racial. It has been shown that the Basque populations have the highest incidence of 30-35 (3). Rhesus negativity among the African Blacks ranges from 2-5%. In Nairobi, an incidence of 4.1-5% have been found (4,5)

Although the Rhesus D-antigen on fetal red cells has been found early in gestation, the likelihood of immunizing transplacental haemorrhage becomes greater towards the end of pregnancy (1,3). Factors that predispose to increased risk of significant foetal maternal haemorrhage include abortion (spontaneous or induced), amniocentesis, abdominal trauma, external cephalic version, and manual removal of placenta and caesarian section. It has also been shown that placenta praevia, abruption placenta, intrauterine fetal demise and multiple pregnancy also increases the risk (1,2,3). The patient presented had none of this predisposing event during her pregnancy.

Isoimmunization may occur with as little as 0.1mls of fetal blood. The risk of Isoimmunization is increased with transfusion exceeding 0.25mls (3). About 30% of Rhesus negative women never become sensitized. These are the non-responders. It has also been shown that ABO incompatibility confers partial protection by the inactivation of the foetal cells before they provoke an immune response (2,3).

The initial response of a Rhesus negative individual to Rhesus positive blood is the formation of Igm antibodies. These are not capable of crossing the placenta. Subsequently Igg antibodies are formed which readily crosses the placenta. The antibodies coat the foetal red blood cells producing an extravascular haemolysis, primarily in the spleen. As haemolysis increases in degree, anaemia ensues. The fetus responds to this anaemia by increasing red blood cell production. This production occurs in the extramedullary region of the liver and spleen. The net result of the increased erythropoiesis is the increase in erythroblasts in the circulation. It is because of these increased erythroblasts that the term erythroblastosis fetalis was coined (4).

The strength (titer) and the binding constant (avidity) of the mothers anti –D determine the degree of haemolysis and therefore severity of the haemolytic disease. In 50% of cases the fetus is so mildly affected that survival occurs without any treatment. In 25%, the foetus is in good condition at birth but if no appropriate treatment is started the baby may die of kernicterous or survive with brain injury like deafness, spastic choreoathetosis, cerebral palsy and mental retardation (4). In the other 25%, the fetuses are so severely affected that red blood cells production does not compensate the haemolysis. They develop hydrops fetalis (anasarca). Five percent (5%) develop hydrops fetalis at 18-34 weeks while the rest develop it just before birth (4). The baby delivered by the patient presented did not have any of these complications, as the mother was not Rhesus immunized.

The use of anti –D in the Rhesus negative mother who has given birth to a Rhesus positive baby offers protection in 98% if used within 72 hours of birth (7). Where resources are available, anti-D should be given late in pregnancy. Other times when it should be given is in Rhesus negative women presented with abortion. Those with APH, ectopic pregnancy, amniocentesis or abdominal trauma must get it. A total of 100ug of anti D will neutralize at least 4 mls of fetal blood (7). Our patient was given anti D at 34 weeks.

Anti D is no value to sensitized patients. These patients are followed up with serial antibody titers (1,3). Titers exceeding 1:8 are thought to be critical. Amniocentesis is then done for bilirubin assay, which is a sign of haemolysis. By using Lelay charts an intervention criteria according to severity is planned. When the foetus is mildly affected this test is done twice weekly till maturity of the lungs is ascertained at which time delivery is done. Moderately affected fetuses require aggressive lung maturity enhancement and delivery. For the severely affected foetus aggressive management is paramount. It requires intrauterine transfusion using O Rhesus negative blood until lung maturation and then delivery (1,2,3).

The detection of isoimmunization should be early in pregnancy. Thus all women (pregnant) should have determination of their ABO and Rhesus on the first visit. Those who are Rhesus

negative should have an indirect Coombs test at this stage. This is what was done in the patient presented and anti D was given when the Coombs test was found negative.

The management of a Rhesus –D negative unsensitized mother during pregnancy consists of regular indirect Coombs test screening. This helps in detection of sensitization early and also to prevent it (1,2,3). All those women not immunized at the first contact get a repeat Coombs test at 28 weeks and then at 34-36 weeks. In absence of antibodies, prophylactic anti –D is given. Once antibodies are detected, they should be quantified by titres. A titre of 1:8 or more signifies a fetus at high risk and intervention is necessary (2). Because of hazards of augmentation that occurs if circulating anti –D drops very low then a repeat anti-D is given if delivery doesn't occur within 12 weeks of anti D (4). In the patient presented delivery occurred within 3 weeks and no anti D was given.

Prevention of isoimmunization is the mainstay of management. Anti D was used first, in Liverpool in 1964 with great success (7). Following delivery, the infants of Rhesus negative women should have their blood group determined. This information should be readily available before administering anti-D to the mother. The baby should also have bilirubin levels determined and a haemogram. Among the unsensitized patients, perinatal mortality is usually low but in sensitized mothers perinatal mortality is very high. In Kenyatta National Hospital a perinatal mortality rate of 600/100000 have been found in sensitized women (8).



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## **OBSTETRICS LONG COMMENTARY.**

### **TITLE: TO COMPARE THE OUTCOME OF LABOUR BETWEEN BOOKED AND UNBOOKED PARTURIENTS IN KENYATTA NATIONAL HOSPITAL (K.N.H).**

#### **SUMMARY**

This was a cross sectional comparative study done to compare the outcome of labour between patients booked to deliver at Kenyatta National Hospital (K.N.H.) and those who were not booked. The study was conducted during the months of June, July and August 1999.

During the study period 1729 deliveries were conducted at the Kenyatta National Hospital Labour Ward. Out of these 643 (37.4%) were booked whereas 1083 (62.6%) were unbooked. Of the unbooked patients 801 had attended antenatal clinic elsewhere. The total antenatal clinic attendance was 83.7%. Hence 16.3% of patients had not had any antenatal care.

Among the booked patients, 15.9% had attended antenatal clinic 1-3 times, 45.4% attended 4-6 times while 38.7% had attended more than 7 times. Of the unbooked patients who had attended antenatal clinic elsewhere, 30.0% had attended 1-3 times, 44.8% had attended 4-6 times while only 7.5% had attended more than 7 times. The mean attendance for the booked patients was 6 compared to a mean of 3.5 times for the unbooked patients.

More unbooked patients (81.4%) were in no gainful employment as compared to 61.7% of the booked patients. This difference was found to be statistically significant ( $p=0.0006$ ).

At admission, 11.3% of unbooked patients had no detectable foetal heart tone compared to only 1.3% of the booked patients. This difference was statistically significant ( $p=0.00042$ ).

A significant difference was found when the liquor characteristics were compared. More of the unbooked patients (28%) had meconium stained liquor compared to the booked patient's

(15.6). This difference was statistically significant ( $p=0.00104$ ). No difference was found in the mode of delivery. More babies (31.5%) of the unbooked mothers were admitted to the new-born unit compared to only 17.8% of the babies of booked patients. This difference was found to be statistically significant ( $p=0.00074$ ). However no difference was found as to the reason of admission to the new-born unit. A statistically significant difference ( $p=0.00130$ ) was found when the post partum complications were compared. More unbooked patients (17.3%) developed post partum complications as compared to only 5.4% of the booked patients. However the reasons for admission were not statistically significant.

The early perinatal mortality was significantly higher for the unbooked patients when compared to the booked patients ( $p=0.00041$ ). This was also the case with the perinatal mortality where more unbooked patients babies had a perinatal mortality as compared to the booked patients ( $p<0.0001$ ).

The unbooked patients were further divided into those who were referred from health facilities and those who referred themselves. The perinatal mortality between the two groups was then compared. It was found that perinatal mortality of referred patient was 401/1000 compared to 218/1000. Although perinatal mortality for both groups is quite high a significant difference was found ( $p=0.01369$ ).

It was therefore concluded that the perinatal mortality of the unbooked patients delivery at Kenyatta National Hospital is significantly higher compared to that for the booked patients. The maternal outcome of the unbooked patients was also significantly worse as compared to the booked patient. A significant number of pregnant women do not attend antenatal clinic due to various difficulties while those unbooked patients who have attended antenatal clinics elsewhere start late in most cases.

It was recommended that unbooked patients be considered as high-risk patients. The antenatal clinic services at Kenyatta National Hospital should be free or highly subsidised to allow more patients to book in the hospital.

## LITURETURE REVIEW

### ANTENATAL CARE.

This concept as we know it today originated in Boston in the first decade of this century. Before this a pregnant woman used to visit the doctor for confirmation of pregnancy and probably not visit again till delivery [1].

In Kenya the Ministry of Health set up a task force in 1972 to study and identify problems associated with health care in rural areas. Through this task force, the concept of Maternal child Health and Family Planning arose. This has four strategies namely:

I: maternal strategy dealing with fertile and pregnant women and delivery, which ends with

II: an infant strategy covering the first year of a child's life.

III: a toddler strategy, focusing on pre-school years and

IV: a school-age strategy.

The maternal strategy deals with fertile and pregnant women, delivery and ends up with the infant strategy covering the first year of the child life. The maternal strategy begins with the consideration of the underlying causes of complications of pregnancy prior to conception to ensure that when a pregnancy occurs, it proceeds as trouble free as possible. This would then reduce the perinatal mortality rates which then helps in the acceptance of family planning to avoid ill timed or ill spaced conceptions. An area emphasised in this prevention of maternal mortality and perinatal mortality is provision of quality ante-natal care. This involves screening at the service delivery point and identifying the at "risk" groups of pregnant mothers like those with many previous pregnancies, previous operative deliveries, previous complications of third stage, previous still births, neonatal deaths or recurrent abortions. It also considers the extremes of age like the teen-age pregnancy and those women above forty years, maternal height and maternal disease [2].

Thus in antenatal care quality of services offered should be emphasised and the main objective should be to ensure that every pregnancy culminates in the delivery of a healthy baby from a healthy mother [1,5]. This is realised by having as its principle the

identification and treatment of the high risk patient whose pregnancy because of her medical history or of a significant development in pregnancy is likely to have a poor outcome [1].

The initial visit should include assessment of risk which is achieved by taking a complete history, doing a thorough physical examination with particular emphasis on those aspects which may influence the current pregnancy, laboratory investigations like blood group, rhesus factor, VDRL, haemogram and urinalysis and recently voluntary HIV screening [1,5,6]. Subsequent visits or decision to refer to a more specialised unit depends on the risk assessment or on the development of risks as the pregnancy progresses.

Of late the world health organisation has realised that only a few of the commonly used antenatal interventions improve the maternal health. It has also realised that even fewer of these interventions have an impact on lowering the maternal mortality (3). This realisation has led to a lowered emphasis's on the risk approach. A new concept of comprehensive reproductive health care has emerged. In Kenya the ministry of health has come up with a reproductive health strategy whose goal is the provision of an integrated system of reproductive care (4). The current world health organisation recommendation is that once a woman is pregnant she needs attention through out pregnancy and childbirth, including basic maternal care and obstetric care for the management of complications (3).

Antenatal care should provide an opportunity to focus on total health and well being of the whole family. This should include physical, psychological, social and environmental well being. However bad ante-natal services may be worse than none since it provides the expectant woman with a false sense of security that allows her to ignore some signs and symptoms which if left to her own self she might seek urgent help [5].

For many years, The World Health Organization (WHO) was an active proponent of the "risk approach" aimed at channeling limited resources more effectively towards the women most likely to have serious complication (3). However it has been realized that only a few commonly used antenatal interventions improves maternal health and few still have an impact on maternal mortality. Currently preventive intervention has been shown to be

effective in terms of prevention of pregnancy rather than preventing its complications (3). Hence the safe motherhood initiative has replaced the high-risk approach. It aims at provision of a comprehensive and integrated system of reproductive health care. It integrates quality antenatal care for all women, provision of effective and safe family planning (FP) services, provision of safe termination of pregnancy where abortion is legal and treatment of abortion related complications. It also integrates the prevention of other causes of maternal death such as haemorrhage, sepsis, eclampsia, obstructed labour, embolism and ectopic pregnancy (3). In Kenya this has led to the initiation of the National reproduction health strategy whose aim is to integrate all the above (4).

### **MATERNAL MORTALITY AND MORBIDITY:**

Maternal and perinatal mortality and morbidity are the best indicators of quality antenatal care and obstetric care in a community. The outcome of pregnancy depends not only on the reproductive performance of the mother but also on environmental and on standard of obstetrical care [7].

Maternal death is defined as death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. The denominator is defined as the total number of live births and the maternal mortality rate is calculated per 100000 live births [8]. Maternal mortality is also a measure of the awareness of the population in the use of available obstetric services.

The estimated maternal mortality rate for Africa in general is 640/100000 live births but this could even be higher [9]. The Kenya Demographic and Health Survey (1998) estimated the maternal mortality in Kenya to be 590/100000 (10). Most of these deaths are due to haemorrhage, sepsis, eclampsia, anaemia and trauma, all of which could be preventable. Behind this are a series of indirect causes like poor communication and transport systems, shortages in the health institutions and other logistical problems as well as some cultural beliefs. All these act synergistically to convert a bad situation into a desperate one. Apart

from the deaths, those who survive are afflicted with the stigmata of child bearing gone amiss like obstetric fistulae and infertility. Efforts applied in Africa to prevent these include improvement of health care, retraining of traditional birth attendants and expansion of family planning services. Despite these efforts the maternal mortality still remains high and many countries have gone a step further to preventive care by initiating the Primary Health Care programme. One of the best examples of this is the antenatal care, which if made widespread would go a long way to lower the maternal mortality [9].

In 1980, the maternal mortality in K.N.H was found to be 1.96/1000(11). It was found that the five leading causes were post-abortion sepsis, puerperal sepsis, haemorrhage, ruptured uterus, and ectopic pregnancy. When the maternal mortality in the labour ward was considered alone to avoid deaths in gynaecology wards, it was found to be 2.23/1000. Most of these deaths were found to be due to puerperal sepsis after either patient were referred from other hospitals or after having delivered at home. It was felt that the factors contributing to these deaths could be divided into patients factors like refusal to be operated on, medical factors like late referrals for specialised attention, social factors, and administrative factors like overcrowding and delayed transportation. It was felt that in most cases they could be avoided [11].

In a study on ruptured uterus done on 82 patients, it was found that 71.9% were either not booked or were booked in places other than K.N.H (12). Only 28.1% had been booked in Kenyatta and 9 of these ruptured while having trial of scar. In these series, 42 patients were referred as emergencies having been in labour elsewhere. The overriding problems were noted to be poor staffing and monitoring as well as lack of facilities for operative delivery [12]. Another study done at KNH showed that majority of patients (70.7%) who had ruptured uterus had arrived very late and were not booked either[13].

In Harare hospital, a study done in 1987 showed a maternal mortality rate of 122/100000 live births (14). An attempt to calculate the mortality rate for the maternity hospital was done by excluding all women from outside the municipality and the mortality rate was found



to be 53/100000 for the greater Harare maternity unit. The major causes were found to be avoidable accounting for 88%. The majority of the deaths were found to be due to hypertensive diseases in pregnancy, haemorrhage, puerperal sepsis and abortion complications and 64% of the women had not booked [14].

In a study done in Dar-Es-salaam, the main causes of maternal mortality were identified as Hypertensive diseases in pregnancy, complication of operative delivery, anaemia, sepsis and post partum haemorrhage. These were all avoidable with quality antenatal care and delivery [15]. In Cameroon a study done in 1989 showed a maternal mortality of 2.8/1000 live births and it was felt that most of these deaths [95.2%] could have been avoided. Some factors that were thought to have contributed to these mortalities included late presentation for antenatal care or intra-partum care, inadequate therapy, lack of materials and supplies in referring units as well as poor communication and lack of transport [16].

#### **PERINATAL MORTALITY.**

Like maternal mortality, this is also a good measure of quality antenatal and obstetric care. In developing countries, foetal wastage has received little attention in the past because health authorities were preoccupied with high levels of infant mortalities. An understanding of these problem is important in the developing world where acceptance and utilisation of family planning methods is low since it is known that one of the factors favouring adoption of family planning is low level of perinatal, infant and childhood mortality (11).

Several factors have been shown to influence the perinatal mortality rate. In the Nairobi birth survey, the early perinatal mortality rate was found to be 35.6/1000 (17). In this survey, it was shown that the main factors contributing to this high mortality rate included:

- a) Age: with teen-age mothers having the highest rate of 44.8/1000,
- b) Booking status at place of delivery: failure to book at place of delivery being associated with an early perinatal mortality rate of up to 2.4 times that of the booked mothers,
- c) Height: height of < 150cm being critical,

- d) Mode of delivery: breech delivery being associated with higher rates,
- e) It was also shown that the duration of labour played a major role with labour lasting less than twelve hours having the least rates and the rate increasing as the duration of labour increases with a sharp increase after 18 hours (17). Musoke (18) in a study done in Mulago special baby care unit showed that perinatal mortality and morbidity varies with the degree of care during pregnancy, labour, delivery as well as postnatal [18].

The obstetrical outcome is worse in the unbooked patient than those who are booked. In a survey of 22000 consecutive hospital births, it was found that the unbooked patient had a much higher perinatal mortality as well as maternal mortality and morbidity (19). In this study, the perinatal mortality for the unbooked patient was 249/1000 compared to only 22/1000 for healthy booked patients and 74 for booked patients who had complications antenatally. The maternal mortality rate was also found to be higher (18.4/1000) for the unbooked patient compared to 3.7/1000 for the booked with antenatal complications and only 0.4/1000 in the booked healthy patients. It was then concluded that unbooked patients are a primary high-risk group for perinatal and maternal mortality (19).

In a study done in a Marondera district in Zimbabwe (20), the overall perinatal mortality rate was found to be 35/1000. The unbooked mothers suffered a higher perinatal mortality rate of 143/1000 as compared to 51/1000 in those who were booked. They also had a three times increase in the perinatal mortality rate. However in this study very few of the perinatal deaths occurred outside the hospital suggesting that the referral system to this hospital was working well but some of the patients arrived late to save the baby. In those who arrived late the delay was again attributable to poor communication like either lack of telephone or an ambulance [20].

In K.N.H, it has been shown that despite the fact that over 97.3% of all emergency referrals having attended ante-natal clinic else where, the perinatal mortality amongst this group stands at greater than three times that of the booked patients [21]. In another study (22), it

was shown that 6.9% of all deliveries in 1990 were emergency referrals from either health centres, dispensaries and nursing homes Nairobi as well as referrals from district and provincial hospitals. In this study, the perinatal mortality was found to be ten times that of the booked patients. The maternal outcome was equally poor. These poor outcomes were attributable to delays in arrival to the hospital and delays in decision in making as well as poor transport [22].

The main reasons that are given by the referring hospitals especially the government ones are lack of anaesthetist and lack of supplies. It was thus felt that improved transport and ensuring prior telephone communication [21,22] could achieve decreasing this high perinatal mortality level. Here it is noteworthy that in most parts of the country the infrastructure has collapsed, and telephones in some hospitals are cut off. It is also noted that many health workers have continued leaving the public employment for the private sector and this study will thus act as an indicator of how these factors have affected the perinatal and maternal outcomes.

In the Nairobi birth survey of 1981, Mati. et. al. found that patients delivering in places other than the place of their ante natal booking had a higher early perinatal mortality rates. They found that failure to book at place of delivery was associated with an overall early perinatal mortality rates of 2.4 times that of the booked patients. It was felt that booking status is a very important factor in determining the perinatal mortality and that antenatal care without parallel provision of safe delivery facility cannot reduce the high perinatal mortality [17]. However in a cross sectional study in Thika District Hospital it was found that despite the fact that unbooked patient contributing to 49.5% of all deliveries, there was no significant difference in the perinatal mortality rates between them and the booked patients. In fact the booked patients had a higher perinatal mortality. It was concluded that self-referral in this study is not a risk factor for poor perinatal outcome [23].

In their study in K.N.H, Johnston et al found a perinatal mortality rate of 100/1000. They thought that this high rate is mainly attributed to unbooked patients delivered here and also

to the high-risk nature of the deliveries done here. It was felt that the main contribution to this high perinatal mortality was due to prematurity with many of these women having attended no ante-natal clinic, are unbooked and some arriving in the hospital very late [24].

In rural areas, studies have shown that over 94.8% of pregnant women have sought A.N.C though the quality of this care was doubtful. The early perinatal mortality correlated well with the place of care with the district hospital having the lowest rates of 26/1000 and this rate increasing to 223/1000 in those who never had any antenatal care [25]. The perinatal mortality rates and the out come of pregnancy have been shown to be worsened by the duration of labour both in rural and urban areas with the rate increasing by more than 4 times after 24 hours [17,26].

In assessing the perinatal mortality and the high risk approach in ante-natal screening in a rural area in Kenya, Voorhoeve et al found that the perinatal mortality rate was 46.4/1000 with still births contributing to 29.6/1000 and early neonatal deaths contributing to 16.8/1000. They found that many of the contributing factors could be avoided by the high-risk strategy [27].

#### **RATIONALE:**

- Many health facilities offering antenatal services do not have delivery facilities and even those offering delivery have poor monitoring of labour and cannot manage complicated labour. It is also noted that even some of the health facilities with theatres will for some reason refer patients to (Kenyatta National Hospital) KNH. This study thus attempted to determine the proportion of unbooked patients delivering in K.N.H., compared the outcome of labour between the booked and unbooked patients. It also tried to determine whether patients referred from public hospitals have a better outcome than those referred from private health facilities. Appropriate recommendations were then made.

**BROAD OBJECTIVE:**

To compare the outcome labour between booked and unbooked parturient in Kenyatta National Hospital.

**SPECIFIC OBJECTIVES:**

- a) To determine the proportion of unbooked parturients delivering in KNH.
- b) To determine the pattern of ante natal care utilisation by unbooked parturients.
- c) To determine the number referred from government hospitals and those referred from private health facilities.
- d) Compare the early perinatal mortality between the booked and unbooked mothers.
- e) To compare the early perinatal mortality between those referred from the government hospitals and those referred from the private facilities.

**HYPOTHESES:**

1. Unbooked parturient have a higher early perinatal mortality rates than those parturient booked and delivered at K.N.H.
2. Parturients referred from nursing homes and clinics have higher early perinatal mortality rates than those referred from government hospitals.

**STUDY DESIGN:**

This was a cross sectional comparative study looking at women presenting in labour at KNH and determining their booking status as well as their referral status. Comparisons were then made between those booked at KNH and those not booked at KNH as well as those referred from government hospitals and those referred from Nursing homes and private clinics.

**STUDY POPULATION:**

The study population comprised of women who were admitted in labour at K.N.H and who delivered there from 1<sup>st</sup> June to 31<sup>st</sup> August. Subjects were recruited at the admission desk and then followed up in the postnatal wards after they had delivered and rested.

### **SAMPLE SIZE:**

The sample size was calculated by using the Epi info Ver 5 package as shown below.

Using Epi Info Ver 5., assuming a complication rate in the booked patients of 20% and a complication rate of 40% in the unbooked, ratio of booked to unbooked 1:1.

Having a confidence interval of 95%;

Power of 95%

A risk ratio of 2.0

The sample size was calculated as 286 subjects composed of 143 unbooked and 143 booked mothers. However during data collection, an excess of 6 booked mothers and 8 unbooked mother were recruited thus bring the total population studied to 300 with 149 booked and 151 unbooked patients. All were included in the analysis after discussions with the supervisor and statistician.

### **MATERIALS AND METHODS**

The study was conducted from 1<sup>st</sup> June to 31 August 1999. The principle investigator collected data with the assistance of one nurse attached to the labour ward.

A total of 300 mothers presenting in labour and justifying the stipulated selection criteria were recruited for the study. These were divided into two groups of 149 booked and 151 unbooked. A history was then taken guided by a questionnaire. It included baseline characteristics, past obstetric and gynaecological history and history of current pregnancy as well as antenatal attendance in the current pregnancy. The booking status as well as referral status was also determined. A physical examination was then done to determine the condition of mothers at admission, stage of labour and foetal status. The foetal heart tones were determined and the liquor characteristic was noted. The mode of delivery was recorded and the immediate foetal outcome determined as per Apgar score as well as the outcome of the baby after 7 days. The maternal outcome was determined and the number of days stayed in the hospital. All the above data was entered into an investigator administered questionnaire. The data was then analysed for statistical significance using student T-Test and Chi-square. Some questions although included in the data collection were not analysed

as it was realised that they were not necessary in answering our objectives and acted as a guide in the data collection.

### **INCLUSION CRITERIA:**

All patients who presented at KNH labour ward for delivery during the month of June, July and August who consented to participate in the study.

### **EXCLUSION CRITERIA:**

- a) All women who delivered at below 28 weeks of gestation
- b) Women who were admitted in labour ward while not in labour like referral admitted and then discharged for follow up in our ante- natal clinic.
- c) Women who delivered before arrival in the labour ward.

### **SAMPLING METHODS:**

The non-probability sampling method was used where by every consecutive parturient who met the inclusion criteria was recruited unless consent for participation was denied. Subjects were picked without any randomisation.

### **DATA MANAGEMENT:**

Data was collected using an investigator-administered questionnaire. With the help of computer this data then analysed using the student T-Test and Chi Square to test for statistical significance.

### **VARIABLES:**

- a) Personal data.
- b) Social demographic data.
- c) Past obstetrical outcomes.
- d) Present pregnancy follow up.
- e) Referring facility if any.
- f) Mode of delivery.

g) Maternal and foetal outcome.

**ETHICAL CONSIDERATION:**

The patients were informed on the nature and purpose of the study and verbal consent obtained. The questionnaire was coded so that it carried no name or any identification; all data collected was treated confidentially and was not to be diverged outside the study. Mothers were assured that it was their right to either participate or not and no services were denied for those un-willing to participate. The study proposal was passed to the hospital ethical committee to be vetoed.

**TERMS:**

BOOKED: All patients who had attended antenatal clinic at K.N.H.

UNBOOKED: All patients who had not been attended antenatal clinic at K.N.H. This were then grouped into self-referrals, government referral and referrals from nursing homes and clinics.

PERINATAL DEATH: Still births and all deaths occurring in the first week of live.

EARLY PERINATAL DEATH: Still births and deaths occurring within the first 24 hours of delivery.



## RESULTS

**TABLE I**

**Age Distribution of Booked and Unbooked Patients**

Age Group	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
15-19	10	6.7	25	16.6	<b>0.02143</b>
20-24	50	33.6	61	40.4	
25-29	50	33.6	39	25.8	
30-34	23	15.4	16	10.6	
> 35	16	10.7	10	6.6	
<b>Totals</b>	<b>149</b>	<b>49.7</b>	<b>151</b>	<b>50.3</b>	

Table I shows the age distribution of booked and unbooked patients. . Three hundred patients were interviewed as explained in the section on sample size instead of 286. Therefore 149 booked patients and 151 unbooked patients are analysed. While only 6.7% of booked patients were teenagers, 16.7% of unbooked patients were teenagers. On the other hand 10.7% of booked patients were above 35 years. The rest were distributed between 20-34 years. The differences were statistically significant for the entire study population (P=0.02143).

**TABLE II****Marital Status of Booked and Unbooked Patients**

Marital Status	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
Married	121	81.2	102	67.5	<b>0.02741</b>
Single	26	17.4	48	31.8	
Divorced or Separated	1	0.7	1	0.7	
Widowed	1	0.7	0	0	
<b>Totals</b>	<b>149</b>	<b>49.7</b>	<b>151</b>	<b>50.3</b>	

Table II shows marital status. While 81.3% of booked patients were married, 17.4% were single and the rest were divorced, separated or widowed. Of the unbooked patients, 67.5% were married, 31.8% were single while the rest were divorced or separated. The differences were not statistically significant ( $P=0.02741$ ).

**TABLE III****Education Levels Distribution of Booked and Unbooked Patients**

Educational Level	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
None	1	0.7	1	0.7	<b>0.000</b>
Primary	33	22.1	80	53.0	
Secondary	72	48.3	44	29.1	
College	39	26.2	24	15.9	
University	4	2.7	2	1.3	
<b>Totals</b>	<b>149</b>	<b>49.7</b>	<b>151</b>	<b>50.3</b>	

Table III shows education status of booked and unbooked patients. Only 0.7% of both groups had no education at all. Majority of unbooked patients (53%) had primary education

while 48.3% of booked patients had attained secondary education. However, when the differences were compared they were not statistically significant ( $P=0.000$ ).

**TABLE IV**

**Occupation of Booked and Unbooked Patients**

Occupation	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
Unemployed	59	39.6	100	66.2	<b>0.0006</b>
Self employed	33	22.1	23	15.2	
Casual Labourer	12	8.1	5	3.3	
Professional	45	30.2	23	15.2	
Totals	149		151		

Table IV shows occupation status. While only 39.6% of booked patients were unemployed, 66.2% of unbooked were unemployed. 22.1% of booked patients and 15.2% of unbooked patients were self employed while 8.1% and 3.3% were casual labourers respectively. 30.2% of booked and 15.2% of unbooked patients were professionals (secretaries, computer operators and teachers) respectively. The differences were found to be statistically significant ( $P=0.0006$ ).

**TABLE V****Pattern of Contraception use of Booked and Unbooked Patients**

Contraceptive Use	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
YES	63	42.3	47	31.1	<b>0.04498</b>
NO	86	57.7	104	68.9	

Table V compares the pattern of contraception use. 42.3% and 31.1% of booked and unbooked patients respectively had contraceptive use before the index pregnancy, while 57.7% and 68.7 % of booked and unbooked patients had no contraceptive use respectively. The differences were statistically significant ( $P=0.04498$ ). The commonest used contraceptives were the pill followed by the injectable contraception.

**Figure 1: Parity Distribution of Booked and Unbooked Patients**

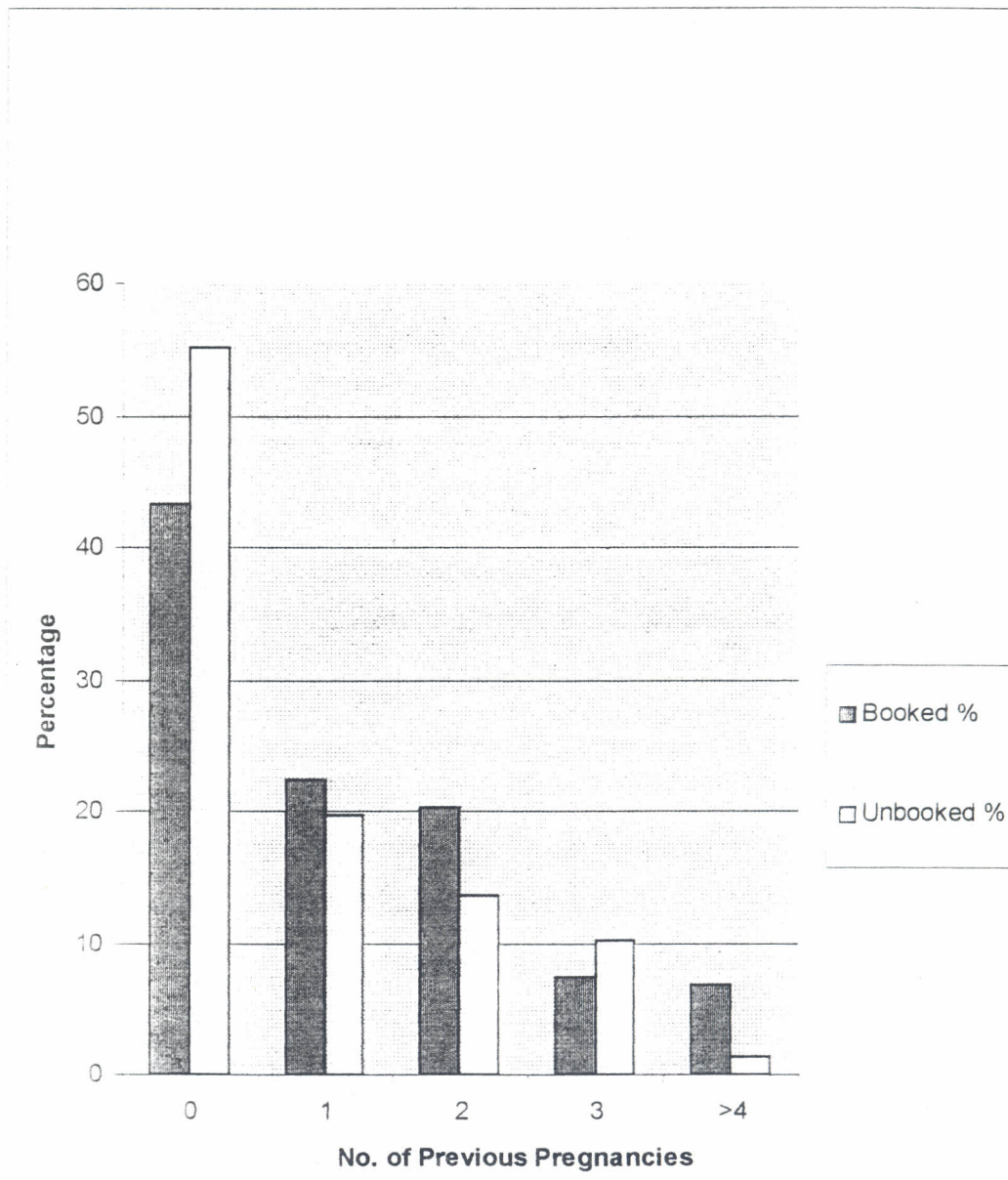


Figure I is a graphic representation of the No. of pregnancies of booked and unbooked patients. 43.2% of booked and 53.1% of unbooked patients were primigravidas, 22.3% of booked patients and 19.7% of unbooked patients had one previous pregnancy, 20.3% of booked and 13.6% of unbooked had 2 previous pregnancies while 7.4% of booked and 10.2% of unbooked patients had 3 previous pregnancies. This left only 6.8% of booked with

4 or more previous pregnancies and 1.4% of unbooked with 4 or more previous pregnancies. These differences were not statistically significant ( $p=0.08260$ ).

**TABLE VI**

**Gestation Age at Start of ANC of Booked and Unbooked Patients**

Gestation Age at Start of ANC	Booked		Unbooked	
	n	%	n	%
≤ 20 Weeks	10	7	10	9.3
21-30 Weeks	64	44.7	64	59.9
≥ 31 Weeks	69	48.3	33	30.8
Total	143		107	

Table VI shows the gestation age at start of ANC of booked and unbooked patients. Of the whole study population, 91.3% had attended antenatal clinic while 8.7% had not. Only 7% of booked patients and 9.3% of unbooked patients had started ANC at 20 weeks and below while 44.7% of booked patients and 59.8% of unbooked patients started ANC at between 21 weeks - 30 weeks. About 48.3% of booked patients and 30.8% of unbooked patients started ANC at over 31 weeks of gestation. The mean gestation age at start of ANC for booked patients was 30.070 weeks with a median of 30 and a mode of 28, while the mean for unbooked patients was 28.336 weeks with a median of 26 and a mode of 28 weeks. Six of the booked patients could not remember the gestation age at the start of antenatal care and their card could not be traced. Thus this patients were excluded during analysis for gestation age.

**TABLE VII****ANC attendance of booked and unbooked Patients.**

No. Of Times Attended ANC	Booked		Unbooked	
	n	%	n	%
0	0	0	26	17.7
1-3	23	15.9	36	30
4-6	64	45.4	66	44.8
≥7	63	38.7	11	7.5
Total	145		147	

Table VII shows the number of times the patients attended ANC. 17.7% of the unbooked patients had not attended ANC. Majority of unbooked patients 54.4% had attended 1-4 times while majority of booked patients 53.1% had attended 5-8 times. 13.8% of booked attended less than 9 or more times while none of the unbooked patients had attended more than 8 times. The mean number of times for booked patients was 6.090 with a median of 6.000 and a mode of 8.000, while the mean number for unbooked patients was 3.456 with a median of 4.000 and a mode of 4.000. Four of the booked patients could not remember the number of times they had attended antenatal clinic and their cards could not be traced. This was also so in four of the unbooked patients who had attended antenatal clinic but they could not remember the number of times.

**TABLE VIII****Foetal heart tone at admission of booked and unbooked patients**

Foetal Heart rate	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
Present	147	98.7	134	88.7	<b>0.00042</b>
Absent	2	1.3	17	11.3	

Table VIII shows the foetal heart tones at admission. Whereas 98.7% of booked patients had a foetal heart tone at admission only 88.7% of unbooked patients had detectable foetal heart tone. This left only 1.3% of booked patients without detectable foetal heart tones compared to 11.3% of unbooked. The differences were statistically significant ( $P=0.00042$ ).

**TABLE IX****Liquor characteristics of booked and unbooked patients**

Liquor characteristic	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
Non meconium stained	125	84.4	109	72.0	<b>0.01004</b>
Meconium stained	24	15.6	42	28.0	

Table IX compares the characteristics of liquor of booked and unbooked patients. 84.4% and 72% of booked and unbooked patients had non-meconium stained liquor while 15.6% and 28% of booked and unbooked patients had meconium stained liquor respectively. The differences were statistically significant ( $P=0.01004$ ).



**TABLE X****Mode of delivery of Booked and Unbooked patients**

Mode	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
SVD	87	58.4	87	57.6	<b>0.18576</b>
BREECH	4	2.7	10	6.6	
VACUUM	1	0.7	4	2.6	
CAESARIAN SECTION	57	38.3	50	33.1	

Table X shows a comparison of mode of deliveries. 58.4% and 57.6% of booked and unbooked patients delivered SVD, 2.7 and 6.6% had Breech delivery, 0.7 and 2.6% had vacuum extraction while 38.3 and 33.1% of booked and unbooked patients had a caesarean section. The differences were not statistically significant ( $P=0.18576$ ).

**TABLE XI****Immediate Foetal Outcome of Booked and Unbooked patients**

Outcome	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
Live birth	146	98.0	130	86.1	<b>0.00074</b>
FSB	2	1.3	13	8.6	
MSB	1	0.7	8	5.3	

Table XI makes a comparison of the immediate Foetal outcome of pregnancy. Whereas 98.0% of booked and 86.1% of unbooked patients had a live birth, 1.3 and 8.6% had FSB and 0.7 and 5.3% had MSB. Whereas the MSB and FSB is higher for unbooked patients, the difference was not statistically significant ( $P=0.00074$ ). The mean Apgar score for the

booked patients was 9.34 with a median of 10 and a mode of 10 compared to a mean of 8.35 for the unbooked patients

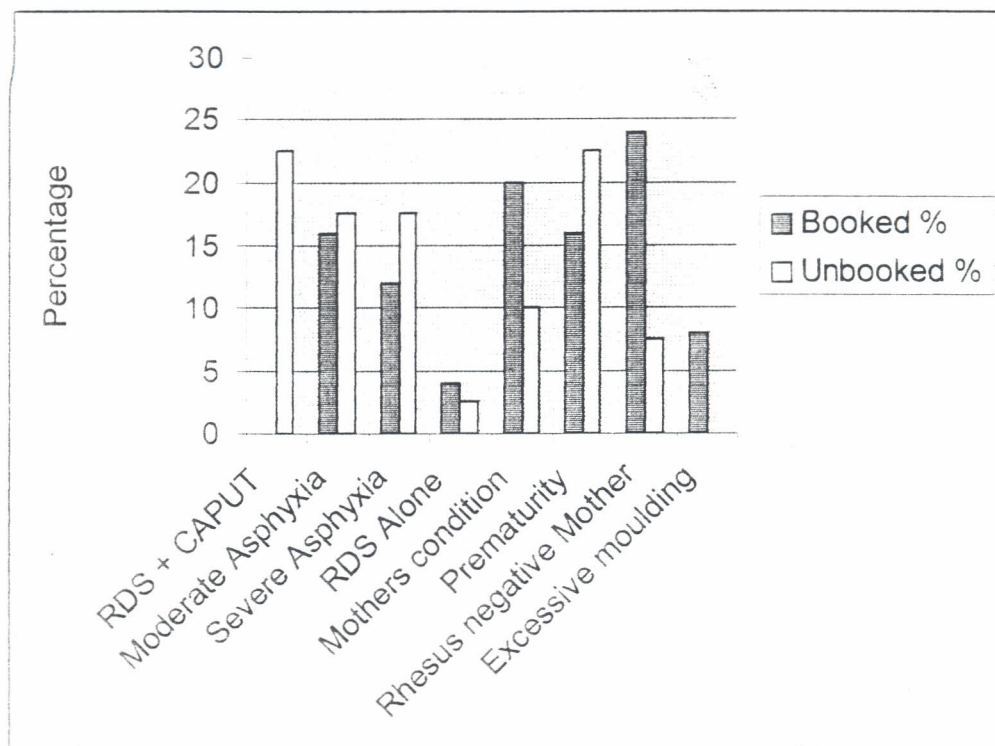
**TABLE XII**

**NBU admission of babies of booked and unbooked patients**

NBU admission	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
YES	26	17.8	41	31.5	<b>0.00792</b>
NO	120	82.2	89	68.5	
Total	146	52.9	130	47.1	

Table XII compares the new born unit admission rates of booked and unbooked patients. The admission rates were 17.8% and 31.5% of booked and unbooked patients. The differences were statistically significant( $P=0.00792$ ).

**Figure II: Reasons for admission to NBU of babies of booked and unbooked patients.**



The most common reason for admission was due to moderate or severe Asphyxia (28% for booked and 35% for unbooked patients). Other reasons for admission to NBU were severe caput with RDS, maternal condition, prematurity and excessive moulding. However, when the differences were compared there was no statistical difference ( $P=0.06609$ ).

**Figure III: Type of complication**

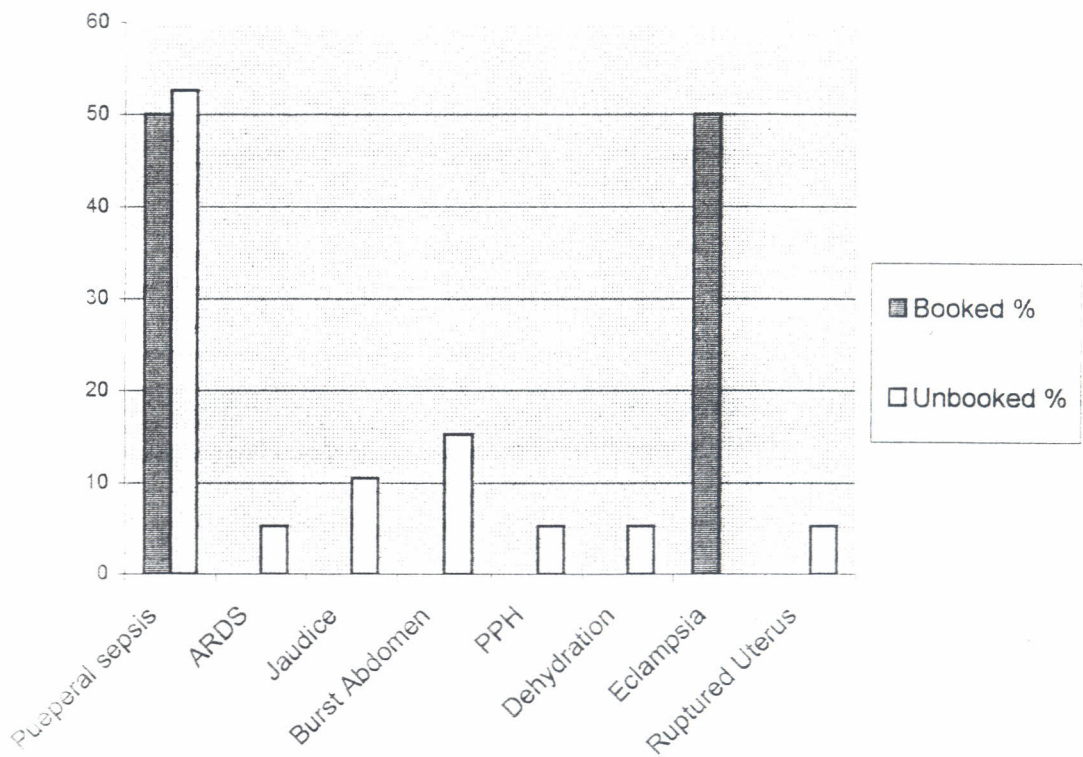


Figure III is a bar chart showing the types of maternal complications found in the study population. Only 4 booked mothers had complications compared to 19 of those not booked. Of the four booked mother with complication, 2(50%) had puerperal sepsis while the other 2 had eclampsia. Of the 19 unbooked mothers with complication, 10(52.6%) had puerperal sepsis, 3(15.8%) had burst abdomen. The other complications seen in the unbooked mothers were jaundice. Post partum haemorrhage, dehydration and ruptured uterus. These differences were not significant (P=0.12213).

**TABLE XIII****Maternal complication of booked and unbooked patients**

Complication	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
YES	8	5.4	26	17.2	<b>0.00130</b>
NO	141	94.6	125	82.8	
Total	149	49.5	151	50.5	

Table XIII shows complication rates of booked and unbooked patients. Only 5.4% of booked had some complications whereas 17.2% of unbooked patients had some complication. The differences were found to be statistically significant ( $P=0.00130$ ).

**TABLE XIV****Early Perinatal (24hr) Mortality rate of booked and unbooked patients**

EPMR	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
ALIVE	144	96.6	128	84.8	<b>0.00041</b>
DEAD	5	3.4	23	15.2	
Total	149	49.7	151	50.3	

Table XIV shows the early perinatal mortality rate of booked and unbooked patients. The early perinatal mortality rate was 34/1000 and 152/1000 for booked and unbooked patients respectively. This differences were statistically significant ( $P=0.00041$ ).

**TABLE XV****Perinatal Mortality rate of booked and unbooked patients**

PERINATAL MORTALITY	Booked		Unbooked		Significance ( $\chi^2$ )
	n	%	n	%	
ALIVE	143	96.0	110	72.8	<b>0.0000</b>
DEAD	6	4.0	41	27.2	

Table XV compares the perinatal mortality of booked and unbooked patients. The perinatal deaths were 6 and 41 which gives a perinatal mortality rate of 40/1000 and 272/1000 for booked and unbooked patients respectively. The differences were statistically significant (P=0.0000).

**TABLE XVI****Maternal Outcome of booked and unbooked patients**

Outcome	Booked		Unbooked		Significance( $\chi^2$ )
	n	%	n	%	
DISCHARGED	149	100	150	99.3	0.60333
DEAD	0	0	1	0.7	

Table XVI shows the maternal outcome of booked and unbooked patients. There was only one maternal death in the whole study population, which was of an unbooked mother. The occurrence of this event was so rare to calculate the maternal mortality rate.

**Figure IV: Reasons for not attending Ante-natal Clinic**

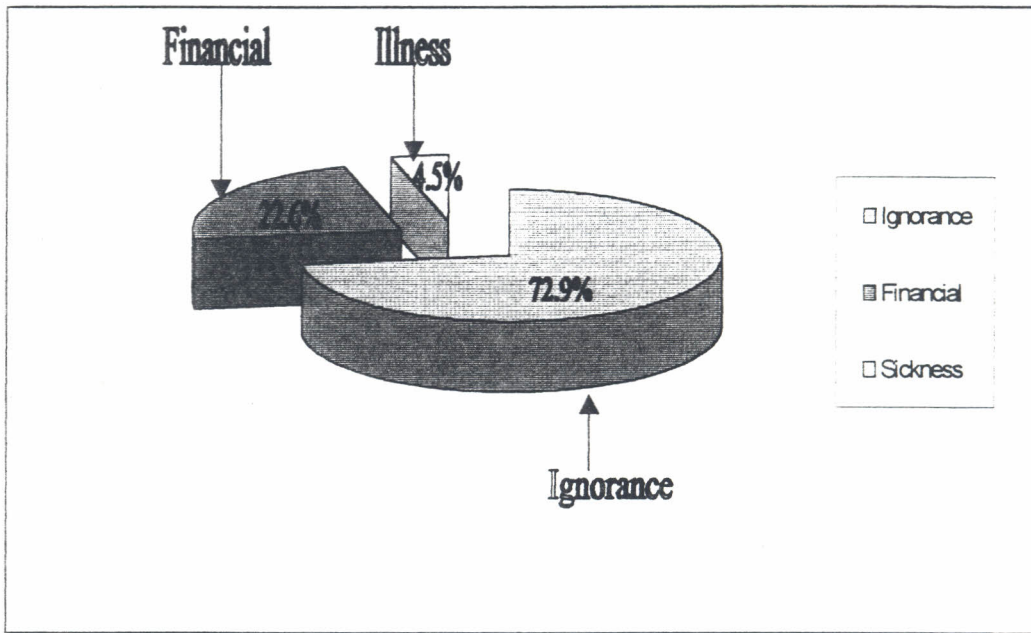


Figure IV is a Pie-chart representation of reasons given by patients who had not attended ANC. Majority of them (72.7%) were ignorant of the importance of ANC attendance, 22.6% complained of financial difficulties, while the rest (4.5%) was due to illness.

**Figure V: Place of Referral**

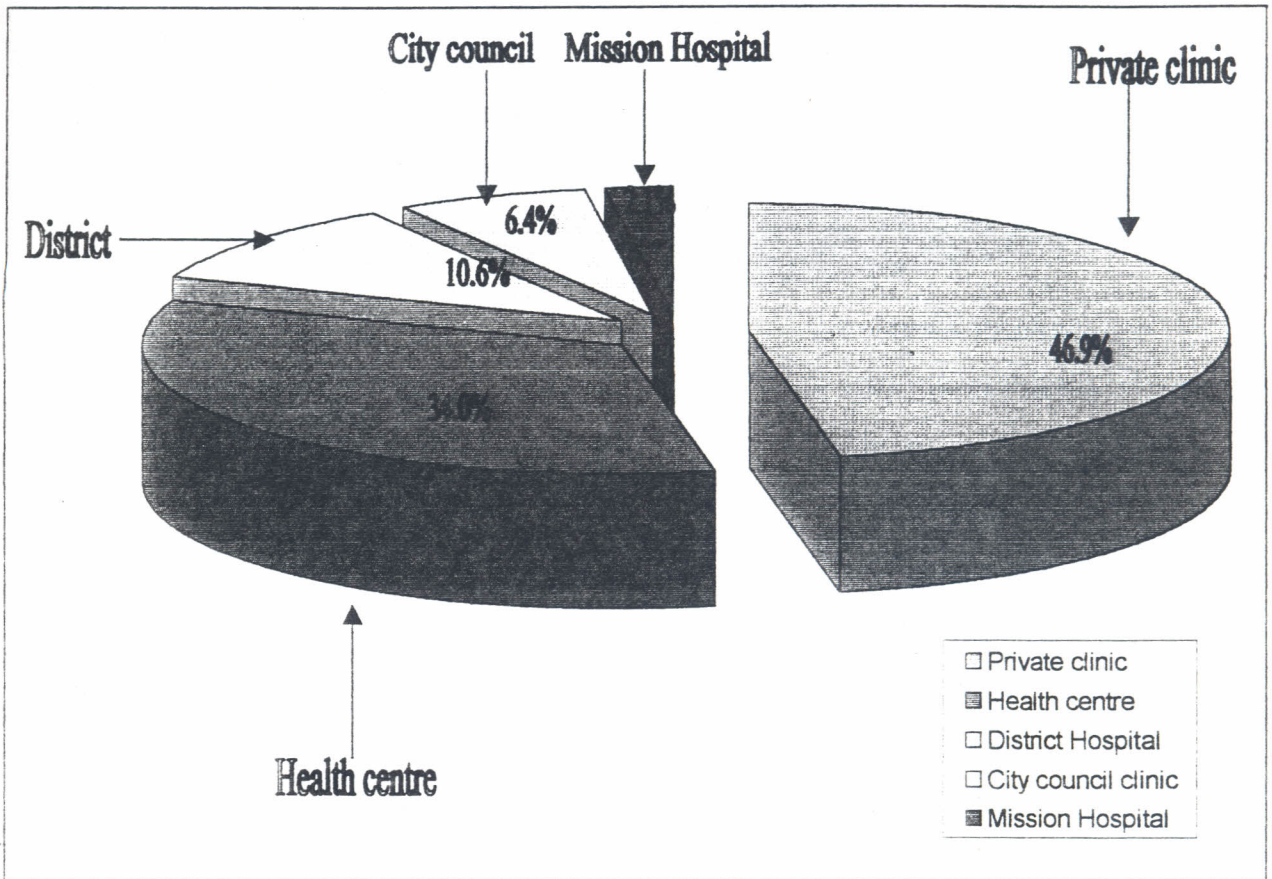


Figure V is a pie chart showing graphically the place of referral. Majorities of the unbooked patients were referred from private clinics (46.9%) followed by Health centres (34.0%). The rest are referred from District hospitals (10.6%), City council clinics (6.4%) and mission hospitals (2.1%).



Figure VI: Reasons for Referral

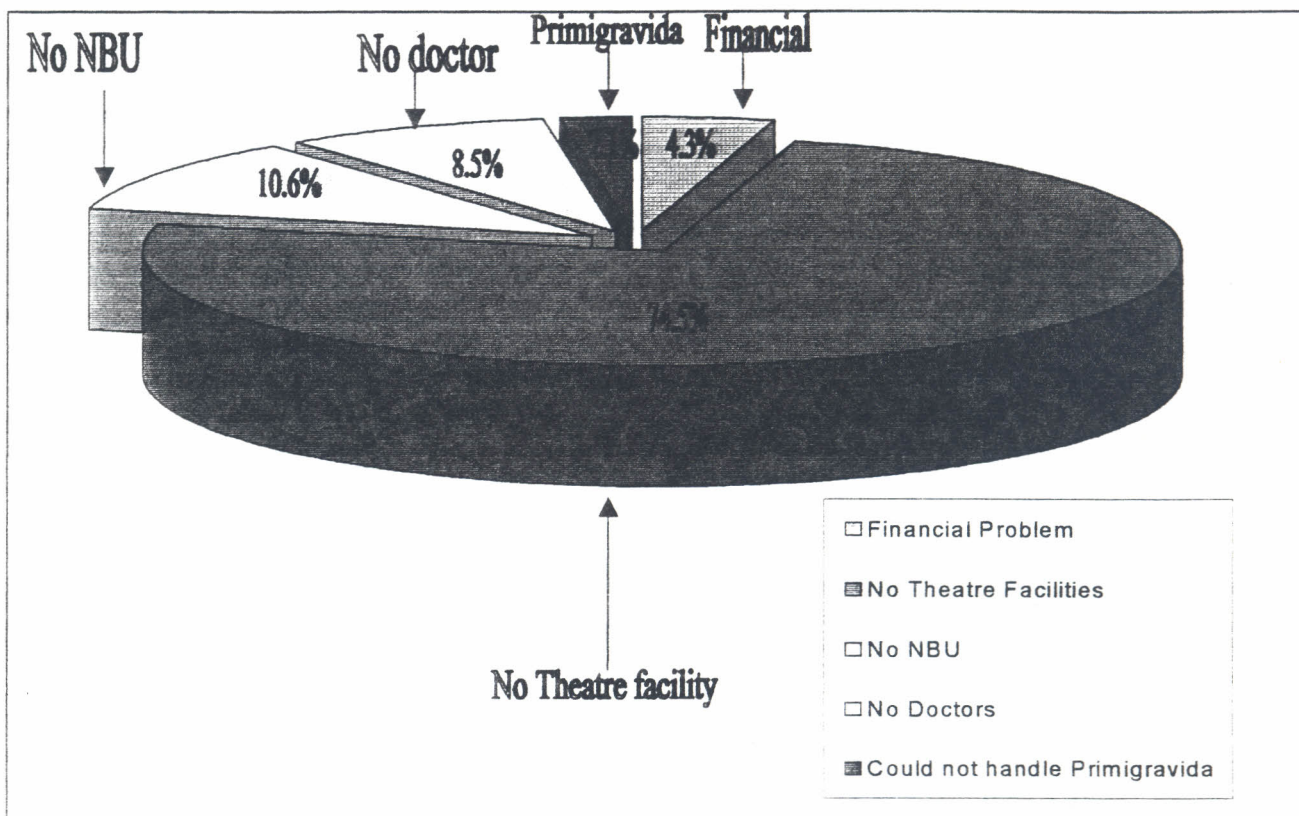


Figure VI shows a pie chart of reason for referral. Majority were referred because of lack of theatre facility (74.5%), while 10.6% were referred due to lack of a functional NBU. 8.5% were due to lack of doctors while the rest were due to financial problems and 2.1% due to primigravidity.

**TABLE XVII****Antenatal utilisation of Referred and Self-Referred patients.**

ANC UTILIZATION	REFERRED		SELF- REFERRED		Significance ( $\chi^2$ )
	n	%	n	%	
YES	40	85.1	84	80.8	<b>0.51959</b>
NO	7	14.9	20	19.2	

Table XVII compares the antenatal utilisation of referred and self referred patients. 85.1% and 80.8% of referred and self referred patients had attended ANC while 14.9 and 19.2% of referred and self referred patients had not attended ANC. These differences were not statistically significant ( $P=0.51959$ ). However most of these patients had attended antenatal clinics very few times with 74.8% having attended for less than 6 times and only 7.5% had attended for more than 7 times.

**TABLE XVIII****Early Peri-natal outcome (24Hours) of Referred and Self-Referred patients.**

Early Outcome	Referrals		Self Referrals		Significance ( $\chi^2$ )
	n	%	n	%	
ALIVE	37	78.7	91	87.5	<b>0.16463</b>
DEAD	10	21.3	13	12.5	

Table XVIII compares the early perinatal mortality of referred and self referred patients. While the referred patients had a higher perinatal mortality rate of 213/1000, as compared to

125/1000 for self referred patients, the difference was not found to be statistically significant (Pvalue=0.16463).

**TABLE XIX**

**Peri-natal outcome of Referred and Self-Referred patients.**

Outcome	Referred		Self Referred		Significance ( $\chi^2$ )
	n	%	n	%	
ALIVE	28	59.6	82	78.8	<b>0.01369</b>
DEAD	19	40.4	22	21.2	

Table XIX compares the perinatal mortality of referred and self referred patients. The perinatal mortality rate of referred patients was 404/1000 while that of self-referrals was 218/1000. These differences were found to be statistically significant (Pvalue=0.01369).

**TABLE XX**

**Place of Referral by Early Perinatal Outcome.**

Outcome	GOK Facility		PRIVATE Facility		Significance ( $\chi^2$ )
	n	%	n	%	
ALIVE	19	79.2	18	78.3	<b>0.60933</b>
DEAD	5	28.8	5	21.7	
	24	51.1	23	48.9	

Table XX compares the early perinatal mortality of patients referred from government health facilities and those referred from private health facilities. The EP MR of those referred from government health facilities was 208/1000 and those referred from private health facilities was 217/1000. The difference was not statistically significant (P=0.60933).

**TABLE XXI****Place of Referral by Perinatal Outcome.**

Outcome	GOK Facility		PRIVATE Facility		Significance ( $\chi^2$ )
	n	%	n	%	
ALIVE	14	58.3	14	60.9	<b>0.85942</b>
DEAD	10	41.7	9	39.1	

Table XXI compares the perinatal outcome of government referrals and private referrals. The government referrals had a perinatal mortality of 417/1000 compared to 391/1000 for private referrals. The difference was not statistically significant ( $P=0.85942$ ).

## DISCUSSION

The outcome of pregnancy depends on a number of factors, which include the reproductive efficiency of the woman as well as the standard of obstetrical care. Other factors that play a major role include age, parity, physique and general health of the pregnant woman [31]. It has been shown that the confidence that the population has on the ability of certain health facilities determines their behavior on seeking emergency obstetrical treatment [41,42]. It also been suggested that what it requires to lower the maternal mortality is a literate female population, access of this population to health services including family planning, quality antenatal care, peri-natal care and the political will to succeed [43].

During the study period a total of 1729 deliveries were conducted in the labor ward at Kenyatta National Hospital (KNH). These included 646(37.4%) booked patients and 1083(62.6%) unbooked patients. Amongst the unbooked patients, 801 patients were booked to deliver elsewhere thus the total ANC attendance of all the patients was 83.7% and 282 (16.3%) had not attended antenatal clinic at all.

Of the patients analyzed, 254 (85%) were at a gestation age of 38 weeks and above. Only 46(15) were below 38 weeks gestation with 33 (11%) being at 33 to 37 weeks and 13 (4%) being at between 28 to 32 gestation. Of the patients interviewed, 255(85 %) were admitted in first stage of labour while 45 (15%) were in second stage. Majority 151 (50.4%) were discharged within 3 days with 76 (25.4%) being discharged within 24 hours.

Age characteristics have been shown to determine the outcome of pregnancy as well as the booking status of the patients. In this study, 67.2% of booked patients and 66.2% of the unbooked patients were in the age group 20-29 years. However the unbooked group had more teenagers (16.7%) as compared to the booked group (6.7%). On the other hand 17.2% of unbooked patients were over 30 years compared to 25.4% of booked patients. Thus more of the unbooked patients tended to be younger (table 1) and the difference was statistically significant as has been found by others (2,16,27,28).

In their study Fawcus et. al. found that most of their unbooked population was single [28]. However in this study, most of the patients were married (81.2% booked and 67.2% unbooked). Only 18.8% of booked and 32.2% unbooked were either single, divorced or widowed.

The level of education has a direct impact on social class as well as on knowledge, attitudes and practice on health issues. The booked patients were shown to have a higher education level as compared to the unbooked patient's majority of who had only reached primary level. However the difference was not statistically significant and this compared well with other studies [23].

The other important determinant of social welfare as well as socio-economic status is employment. In this study, majority of booked patients were in some income generating activity with 30.2% being in professional employment, 22.1% in self employment, 8.1% in casual employment and only 39.6% being unemployed. The unbooked patients were likely to be unemployed [66.2%], with only 15.2% in professional employment, 15.2% self-employed, and 3.3% in casual employment. These differences were statistically significant meaning that unlike in studies of rural Kenya, [23] the patients booked in Kenyatta Hospital are likely to be in some income generating activity.

It was also found that the patients booked to deliver in Kenyatta National Hospital (KNH) are likely to have used contraceptives [42.3%] compared to only 31.1% and this was statistically significant. It would thus seem that the attendance of family planning clinic equips the woman with knowledge and probably changes her attitude towards attendance of antenatal clinic at KNH. However the type of contraceptives used by these women didn't show any statistical difference with oral contraceptives leading as contraceptive of choice.

It has been reported that perinatal mortality is lowest with the 2<sup>nd</sup> born child doubling for the 5<sup>th</sup> child and increasing drastically thereafter [32]. However in the Nairobi birth survey this was not found to be so and parity had little effect on perinatal mortality [17]. In this study,

43.2% of the booked patients and 53.1 % of the unbooked patients were primigravida. Only 22.3% of booked and only 19.7% of unbooked had a previous pregnancy while 20.3% and 13.6% of booked and unbooked mothers had 2 or more previous pregnancies. The rest had had 3 or more pregnancies. These differences were not statistically significant meaning that parity doesn't affect the booking status at KNH which agrees with the Nairobi birth survey (17).

Attendance of ANC offers great benefit in lowering the maternal and perinatal mortality as well as morbidity [33]. Majorities of the pregnant women have been shown to be attending ANC [5,23,30,34,35,36,37] and this was also shown in this study where most of unbooked patients had attended ANC [74%]. The whole population ANC attendance was 91.3% leaving only 8.7% having not attended ANC at all.

It is recommended that ANC should start as early as possible [1,6,27,28] with the first visit being within 8 weeks of pregnancy where risk assessment is done [5,38]. However in this study, majority of the patients started attending ANC quite late with only 7% of booked patients and 9.3% of unbooked patients starting ANC attendance by 20 weeks. Majority of those unbooked patients who had been booked elsewhere started ANC at between 21-30 weeks while majority of patients booked at KNH started ANC after 31 weeks [48.3%]. This study shows that majorities of pregnant women start attending ANC late. Even those booked at KNH started late. This has also been shown to be the case during the 1998 Kenya Demographic and health survey (10). It would be interesting to know the reason why.

When visits are strategically planned 10 visits for primigravida and 8 visits for multi-para would suffice if they have no increased risk. The number of visits would increase as the risk assessed increases [29]. The population studied here fell short of these recommendations with the mean of 6 visits for booked and 3 visits for the unbooked.

The poorest outcome of pregnancy has been associated with none attendance of ANC as well as delivery at places other than the place of booking [17]. The reasons given by those

who never booked was that they didn't know the importance of attending ANC [72.7%], financial difficulties [22.7%] and illness (4.6%)(figure IV). It means that more campaign is needed to teach the population about the benefits of antenatal clinic attendance. We also need to empower women through education and equal employment opportunity to improve their social economic status. It is also important to make antenatal care free of charge since it is a preventive measure [28], which would then make it more accessible, available and affordable.

In this study, the booking status didn't have any effect on the mode of delivery. Majority of patients were delivered by spontaneous vertex (SVD) (58.4% booked and 57.6% unbooked). The caesarian section level for the unbooked patients was lower (33.1%) compared to that of booked patients (38.5%). This difference was not statistically significant and compares with other studies in Kenya [22]. However the caesarian section rate in this study is much higher than that shown in a teaching hospital in Yaonde [39].

Majorities of the patients admitted in labor are in good condition (99.3% booked and 97.4% unbooked). However the condition of the fetus of the unbooked patients showed a higher chance of experiencing intra-uterine fetal death (IUFD) (11.3%) compared to only 1.3% in booked patients. This difference was highly significant meaning that the unbooked patients have a higher likelihood of being admitted with an I.U.F.D compared to the booked patient at KNH. It could be that those patients with IUFD were referred to Kenyatta for induction. It could also be that patients with loss of foetal movements could have either referred themselves here or were referred. On arrival this patients could have gotten IUFD due to some delay.

Among the live born fetuses, the incidence of fetal distress as evidenced by meconium stained liquor was higher among the unbooked (28%) compared to only 15.6% of the booked patients. This was statistically significant ( $p=0.01004$ ). It was also found that more babies of unbooked mothers (31.5%) were admitted to the newborn unit compared to only 17.8% of babies of booked mothers. This difference was statistically significant (0.00792).



The babies of the unbooked mothers had a lower Apgar score at five minutes compared to those of the booked mothers. This difference was also statistically significant ( $p < 0.005$ ). Therefore babies of unbooked mother were more likely to be distressed than those of booked mothers.

However when the reasons for admission into the newborn unit were compared there was no differences found and Asphyxia was leading followed by RDS and caput and prematurity. So the complications of babies born to the unbooked patients were the same as those seen in babies born to the booked patients but the magnitude was higher.

The unbooked patients also had a higher rate of FSB (8.6%) and macerated still birth(MSB) (5.3%) compared to only 1.3% FSB rate of booked patients and 0.7% MSB rate. This supports the fact that the unbooked patients are likely to have I.U.F.D. or a severely stressed fetus at admission.

To further assess the outcome of pregnancy the early perinatal mortality rate (EPMR) and the perinatal mortality of both groups were compared. Unlike what was found in Thika district hospital [23], the EPMR of the unbooked patients was unacceptably high (152/1000) compared to 34/1000 for the booked patients. This difference was highly significant ( $p = 0.00041$ ) and supports the Nairobi birth survey where it was found that the EPMR of the unbooked patients was 234.3/1000 compared to 29.7/1000 in the booked patients [17]. In the Kenya demographic health survey of 1998 (10) the neonatal deaths occurring in the first 24 hours were on average 68/1000 in 0-4 years preceding the survey. The early perinatal mortality rate (EPMR) for unbooked mothers in this study was 9.9 times higher compared to that of booked patients.

Unbooked patients have been shown to have an unacceptably high peri-natal mortality rate in various studies [22,28,29,30].

This was also shown in this study where by the perinatal mortality for the unbooked patients was 272/1000 compared to only 40/1000 for the booked patients. The unbooked patients had a 4 times the perinatal mortality found in the Kenya demographic health survey in 1998 of

74/1000 (10). This difference was highly significant ( $p < 0.001$ ). It means that like in other centers the unbooked patients delivering at KNH have a very high perinatal mortality compared to the booked women. The peri-natal mortality of the unbooked patients is 6.8 times higher than that of the booked patients.

These figures compared very well with what was found by Dawodu et. al. in perinatal mortality survey in an African teaching hospital [29].

Differences were also found on the maternal outcome. It was found that while majority of patients in both groups developed no complications, 17.2% of unbooked patients had some complications compared to only 5.4% of booked patients. This difference was statistically significant meaning that the unbooked patient is more likely to develop complications in puerparium compared to the booked mother. There was one maternal death in the unbooked mothers compared to none in the booked mothers during this period.

In his study, Nyongesa found that puerperal sepsis rate was significantly higher in the emergency referred patient [22]. However in this study the types of complications found in both study populations were not significantly different and both groups had a high sepsis rate (figure III). It is well known that puerperal sepsis is one of the major causes of maternal morbidity and mortality [40]. This study has shown that puerperal sepsis is higher in the unbooked patients and actually more of the unbooked patients developed complications compared to the booked mothers.

Of the unbooked patients, 47(31.1%) were referred from health institutions in and around Nairobi while 104 (68.9%) were self referred. Thus majority of the unbooked patients were self-referred. It has been shown that people avoid utilizing health facilities because of lack of confidence in the services offered and concern about the availability of drugs, poor knowledge of Obstetric complications as well as cultural barriers. The woman with obstetric complication will be eager to seek treatment at the district or health center level if services are available. Government hospitals can be improved by improving on existing resources, availing physicians with training in management of obstetrical complications even if not

specialists backed by midwives. This forms the key to reduction of emergency obstetric complications [23,41,42].

Of those referred, 24 (51.1%) were referred from government health institutions while 23 (48.9%) were referred from private institutions. District hospitals referred 10.6%, mission hospitals 2.1%, health centers (34%), city council clinics (6.4%) while private clinic referred a majority of 46.8%. Thus majority of mothers were referred from private clinic and health centers.

Various reasons were given for referring the patients. Majority were referred due to lack of theatre facility, while lack of newborn unit facilities came second. Lack of doctor was given in 8.5% of referrals while financial problems and inability to handle primigravida featured to a lesser extent (Fig. VI). The lack of theatre facility was also given as a reason in other studies while unlike in other studies lack of anesthetist and lack of blood did not feature in this study [21].

The referred patient unlike the self-referred patient had a higher early perinatal mortality rate (231/1000) for referred compared to 125/1000 in self referred patients, though this was not statistically significant. On the other hand although the perinatal mortality rate in both referred and self referred patients is unacceptably high in this study, the referred patients had a much higher perinatal mortality (404/1000) compared to the self-referred patient (218/1000). This difference was statistically significant ( $p=0.01369$ ) This may mean that it puts a mother at a higher risk if she passes through another health facility than when she refers herself directly to Kenyatta hospital. It would suggest that the referring facilities are ill equipped in material or manpower to be able to diagnose obstetrical complications early enough and thus facilitate early referral. The collapsed infrastructure may also have a negative effect on the ease of referral. The same grim perinatal outcome was also found in other studies at KNH [21]. The place of referral whether government or private health facilities did not make any statistical difference both having very poor early perinatal mortality rate as well as perinatal mortality (table 20 and 21)

## CONCLUSION

- (1) The majority of patients delivering at K.N.H. labor wards have not been booked to deliver there.
- (2) The early perinatal mortality rate is high in unbooked compared to booked patients delivering at KNH.
- (3) The peri-natal mortality rate of the unbooked patients is unacceptably high compared to the perinatal mortality of booked patients.
- (4) The EP MR and perinatal mortality of referred patients is much higher than that of self referred patients.
- (5) The maternal outcome of the unbooked mothers is poor compared to that of the booked mother.
- (6) Most pregnant women starts attending antenatal clinic late in the 2<sup>nd</sup> or 3<sup>rd</sup> trimester and a significant number of pregnant women are still unable to attend ANC due to ignorance of its importance or financial difficulties.
- (7) Patients referred from Government and private clinics have a very high early peri-natal mortality and peri-natal mortality.

## RECOMMENDATIONS

- (1) Recognize the unbooked patients as a high-risk patient and target this group for education and booking and probable delivery in place of booking.
- (2) Equip the hospitals and other health institutions that deal with antenatal care and deliveries with manpower and resources to be able to handle Obstetric complications and emergencies to minimize referrals to K.N.H.
- (3) Make antenatal care free or subsidized at Kenyatta National Hospital so that more patients can book to deliver here instead of just coming in labor.
- (4) More studies are required to determine why majority of pregnant women starts antenatal care late.

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## **GYNECOLOGY CASE NO. 1**

### **MUCINOUS PAPILLARY ADENO CARCINOMA OVARY STAGE 1A: RIGHT SALPINGO-OOPHORECTOMY AND CHEMOTHERAPY**

**Name:** N.W.  
**IP No:** 0512938.  
**Age:** 17yrs.  
**Sex:** Female.  
**DOA:** 25/5/98.  
**DOD:** 28/6/98.

#### **Presenting complaint:**

The patient presented with a five-month history of abdominal swelling.

#### **History of presenting complaint:**

She was well until 5 months prior to admission when she noticed an abdominal swelling. This was gradually increasing in size and was accompanied by abdominal pain, which was not being relieved by analgesics. The pain was colicky in nature, sharp and would subside without treatment. She had no history of fever and no history of vaginal discharge. She had also no history of constipation, frequency of micturation or dysuria. She gave a history of having developed hoarseness of the voice.

#### **Obstetrical & Gynecology History:**

She was para 0+0. Her menarche was at 15 years. Her last menstrual period was on 7/4/98. Her menstrual cycles were irregular and had no established pattern. Her periods would last for 3 to 7 days after every 30 to 60 days. She had no history of sexual contact.

#### **Past medical history:**

This was not significant

#### **Family and Social history:**

She was a 3<sup>rd</sup> born in a family of 4 siblings. She was a form 3 student and stayed with her parents.

**Examination:****General:**

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

Vital signs: She had a temperature of 36°C, pulse rate of 68 per minute, respiration rate 20 per minute, blood pressure of 120/60mmHg.

**Breasts:**

Her breasts were in Tanners class 4 of development. There were no masses palpable.

**Respiratory and Cardiac systems:**

These were essentially normal.

**Abdomen:**

The abdomen was uniformly distended and moved with respiration. There was a mobile mass palpable which was equivalent to a 34 week gravid uterus. It was non tender, irregular and felt cystic.

**Diagnosis:**

A diagnosis of a pelvic tumour was made.

**Investigations:****Ultra-sound:**

Showed a large multiseptate, cystic mass arising from the pelvis and extending to the level of umbilicus. The mass had the characteristic of ovarian malignancy. There was no associated ascitis or hepatic metastasis.

Conclusion: Ovarian mass.

12-6 -98

**Haemogram:**

Hb-11.1g/dl, wbc- $5.9 \times 10^9/l$ , platelets  $582 \times 10^9/l$

U/E

Na-138 K<sup>+</sup>-3.8 urea-6.3 mmol/l

LFTs-SGOT-17u/l, SGPT-8 u/l, Total bilirubin-7.1, direct 4.8

Total proteins normal.

IVU- Not done

The patient was admitted and prepared for laparotomy

### **Preparation:**

The procedure was explained to the patients and her family and her brother gave an informed consent since she was a minor. She was grouped and cross-matched 2 units of blood. On the day of operation she was starved from midnight and atropine 0.6mg and pethidine 50 mg were given half hour before she was taken to theatre.

### **Laparotomy:**

Under general anesthesia, vulva and vaginal toilet was done and she was aseptically catheterized. The abdomen was cleaned and draped and through an extended sub - umbilical incision it was opened in layers.

### **Found:**

A large right ovarian tumor, which was approximately 30 cm in diameter, which felt cystic, was found. The omentum was hypertrophied but no seedlings were found on it. The left ovary and tube were normal. The uterus, spleen and liver were all normal.

### **Done:**

A right salpingo - oophorectomy was done and the tumor was removed intact. The omentum was sampled. The consultant felt that it was not necessary to sample the left ovary since there were no suspicious lesions on it and the tumor on the right had not broken the capsule. The tumor was opened and found to be haemorrhagic, septate and with areas of necrosis. These specimens were taken for histology.

**Post Operative:**

The patients' vital signs were observed in the recovery ward every 30 minutes until she was fully stable then was taken to the ward. She was put on pethidine for analgesia for the first 24 hours also on crystalline penicillin and gentamycin. She was on intra-venous fluids until the bowel sounds returned. After this she was put on Amoxicilin 500mg every 8 hours and ibuprofen 200mg for five days. She improved and was discharged through gynecologic out patient clinic to check for histology results in two weeks time. However the patient never managed to go home due to financial difficulty.

**Histology results:**

Sections taken from omentum showed hemorrhage and congestion but no tumor involvement. Numerous sections of the ovarian mass showed mucin producing cells, forming glands and in some areas lining finger like projections with fibro-vascular core. There were areas of infiltration and multi-loculation.

**Diagnosis:**

Papillary mucinous cystadenocarcinoma of ovary.

**Follow-up:**

She was then prepared for chemotherapy.

Pre- chemotherapy investigations:

16-6-98 LFTs-normal.

16-6-98 U/E – normal.

16-6-98 Haemogram- Hb-11.1g/dl, Wbc-5.9, plateletes-582.

**Chemotherapy:**

The patient and her family were counseled about the diagnosis, the management and the side effects of the drugs to be used. The first pre-chemotherapy investigations were done on 16/6/98 and they were normal. These investigations were repeated before every course of chemotherapy and they remained normal. The patient was started on the first course of chemotherapy on 17/6/98. These consisted of 50mg of Cisplatin stat, 50mg of Adriamycin stat and 500mg of Cyclophosphamide daily for five days. All the above

drugs were given by intravenous route. She was also given plasil 10mg intravenous three times a day to prevent vomiting. She tolerated the drugs well.

The above regimen was repeated after intervals of 3 weeks. Before each course a full haemogram, urea and electrolytes and liver function tests were done and they remained within normal. She developed alopecia on the third course but otherwise she tolerated the drugs well. She had 12 courses and was then discharged for follow up in the gynecologic out patient clinic.



## **DISCUSSION:**

This was an adolescent patient with ovarian malignancy. She had no ascitis and no intra peritoneal spread so she was staged as stage 1A. She was treated with a right salpingo-oophorectomy and subsequent chemotherapy.

Ovarian cancer is a major causes of deaths in gynecology the world over. In United States of America (U.S.A.), it is the 5<sup>th</sup> leading cause of death due to cancer in women (1). In Kenya, ovarian cancer has been ranked 3<sup>rd</sup> as a cause of gynecologic malignant disease after cervical carcinoma and chorio carcinoma. At the Kenyatta National Hospital (K.N.H) it has been found to comprise 8.1% of all female genital malignancies (2). In Uganda, it has been ranked second after cervical cancer and comprises 15% of all Gynecologic malignancies (3).

In a study done at KNH, the commonest ovarian tumors seen were granulosa cell tumors (35.3%). Serous cystadenocarcinoma was leading with 13.8% followed by mucinous cystadenocarcinoma at 5.8% (4). This compares well with other reports (1). Our patient had the mucinous cystadenocarcinoma.

The etiology of ovarian cancer like in all cancers is unknown though a few associated factors are known. The strongest correlation is poor reproductive performance with patients, who have infertility, repeated spontaneous abortion and delayed childbearing being at a higher risk. Women with breast cancer have twice the chance of developing ovarian carcinoma (1). It is thought that hormonal and environmental factors play a major role in initiation of carcinoma of ovary. Pregnancy has a protective role since poor reproductive performance is associated with increased risk (5). Other factors that are protective are breast-feeding and oral contraceptive. Radiation exposure and environmental pollution may increase the risk (5,6). Some families have shown some familial tendency towards developing carcinoma of the ovary (1,6). The patient presented had neither of these risk factors.

Little is known about the histogenesis of ovarian cancer. A foreign body such as talc or starch may serve as the initiator. Approximately 10% of "normal ovaries" removed during hysterectomies for benign diseases contain such foreign material (1).

There is a clear age relationship to the type of ovarian malignancy. In children the most common ovarian tumors are malignant germ cell tumors which is rare in women over 40 years. In 90% of all adult, epithelial malignant tumors are found (1). Our patient who was an adolescent had an epithelial malignant tumor (mucinous adenocarcinoma) which presents at an average age of 50-55 years but a significant number are found in reproductive years (1,6).

The presentation of ovarian cancer is non-specific. Patients may complain of vague gastro intestinal symptoms, weight loss, abnormal vaginal bleeding or an abdominal mass. Other symptoms may be urinary, lower limb edema and varicosity's while others may present with effects of hormones produced by certain tumors. Acute abdomen due to torsion, rupture or intra-peritoneal bleeding has been noted. Other patients may only present with symptoms of metastasis. (1,5,6). Our patient presented with abdominal swelling which had increased gradually.

The most common signs of an ovarian carcinoma include adnexia mass or masses, an abdominal mass, ascitis (though these may also occur in benign tumors) and evidence of metastasis like lymphadenopathy (1,5,6). The patient presented had a large palpable abdominal mass with no ascitis.

All patients with suspected ovarian cancer must have a complete blood count, blood chemistry, liver function tests, coagulation profile, urinalysis, cervical and vaginal cytology, chest x-rays, abdominal x-ray, intra venous pyelogram, barium enemas, liver and bone scan. (1). The most useful tools in ovarian tumor diagnosis are ultrasonography and or CT scan. Laparoscopy may be done for small suspicious tumors (5,6). The patient presented had an ultra- sound, which showed a pelvic tumor with features suggestive of ovarian malignancy.

Some tumor makers are important for diagnosis and follow-up. These include beta human chorionic gonadotrophin, alpha fetal protein, placenta alkaline phosphate and carcino embryonic antigens. The use of mono chonal antibody like CA-125 has allowed for the identification of extent of intraperitoneal disease and is expressed in more than 80% of non-mucinous epithelial ovarian tumors. (1,5,6,7). The final evaluation, staging and diagnosis and decision on the planning of mode of management and prognosis is made at laparotomy (1,6,5). Our patient initial diagnosis was made by use of U/S and clinical studies and confirmed and staged at laparotomy. Histological specimen was taken for histopathologic investigations which showed papillary mucinous cystadenocarcinoma.

The main stay of management of ovarian carcinoma is usually a combination of surgery and chemotherapy. Radiotherapy is rarely used. The large tumors with evidence of spread require as much debulking as possible without compromising the patients' survival. This acts by cytoreduction making chemotherapy or radiotherapy more effective (1,6).

In young patients whose ovarian function should be maintained, a unilateral oophorectomy followed by chemotherapy is advised for stage 1 disease. However in the older patients and in those patients whose disease is more advanced, bilateral salpingo oophorectomy and total abdominal hysterectomy is done. Omentectomy and sampling of lymphnodes is mandatory for all patients (1,5,6). Our patient who was a young girl and who had stage 1 of ovarian carcinoma and whose ovarian function was vital had unilateral salpingo oophorectomy and chemotherapy. Ideally, samples from the other ovary should have done but this was not done in our patient.

Chemotherapy is given either as single agent using an alkylating agent like mephalan or Cisplatin or a combination of Cisplatin, Cyclophosphamide and Adriamycin. It has been shown that the greatest impact upon response to treatment and patient survival has been realized when surgical reduction of tumor size is combined with potent combination

chemotherapy (7). The patient presented was managed with a combination of Cisplatin, Cyclophosphamide and Adriamycin.

Radiotherapy such as whole abdominal radiation and use of radioactive colloids has been used for lower stage epithelial cancers. Intra-peritoneal gold and phosphorous has also been used with good results. However the inability to deliver effective dosage of radiotherapy to the upper abdomen without damaging the liver or kidneys have limited the use of radiotherapy (1,5).

In refractory cancer of ovary several second line chemotherapy have been recommended. This include hormonal trials and the use of multi-agent chemotherapy, which has improved the response and survival of this parents Intra peritoneal chemotherapy has also been used in such patients (7).

Survival depends on the age of the patients, grade and stage of the tumor. It also depends on the biological activity of the tumor and also on host resistance. Whether bilateral or unilateral, the well-differentiated tumor has a better prognosis. Mucinous tumors especially those in stage 1 are usually unilateral and extra ovarian extension at presentation is less common. However, chemotherapy is less effective for mucinous carcinoma than for other ovarian epithelial malignant tumor (1).

Following treatment, with pulse therapy every 3 weeks for 5 days for 12, courses a second look procedure has been the commonest accepted procedure. A second look operation is indicated when an inoperable tumor responds remarkably to adjuvant chemotherapy such that the surgery becomes visible. It is also to evaluate the status of the tumor after numerous courses of chemotherapy. However 2<sup>nd</sup> look operation doesn't influence the 5-year survival rate (1,8). The patient presented did not have 2<sup>nd</sup> look operation since the tumor was resected in the first operation.

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## **GYNECOLOGY CASE NO. 2**

### **SEXUAL ASSAULT: EXAMINATION UNDER ANAESTHESIA AND REPAIR**

#### **OF A 3<sup>rd</sup> DEGREE PERINEAL TEAR.**

**NAME:** C. W.  
**AGE:** 5yrs.  
**IP. No.** 0560770.  
**DOA:** 21/1/99.  
**DOD:** 24/1/99.

#### **Presenting complaint:**

The patient presented after having been sexually assaulted about 5 hours ago.

#### **History of presenting complaint:**

She was well until the day of admission when as she was coming from school she was accosted and sexually assaulted by a person who she didn't know. Her mother who was expecting her from school at 3 p.m. got worried when she didn't go back home at that time. She went looking for her and at 4.30 p.m., she found her on a dumpsite with her clothes soaked with blood. The child was found crying and confused. She said a man took her to his house and put her on the floor removed her under pants and sexually assaulted her and then took her to the dumpsite. She was noted to have bled a lot vaginally initially but by the time of arrival to the hospital the bleeding had stopped. Prior to being brought to hospital the dirty cloths were changed for clean ones.

#### **Obstetrics and Gynecological history:**

This was not contributory. She had not attained menarche and had never had sexual intercourse.

#### **Past medical history:**

She had been admitted at KNH with burns in 1995. There was no other prior admission.

**Family and Social History.**

She was a first born in a family of three siblings. She was a second of a twin delivery. She stayed with her mother who was single. They used to stay in Korogocho. There was no chronic illness in the family. She was a nursery school student.

**Examination:****General condition.**

She was a young girl in fair general condition. She had a clean dress which was not torn or blood stained. Her panty had blood stains but was also not torn. She was apprehensive, afebrile, and not pale.

She had a pulse rate of 110 per minute, blood pressure of 100/60mmHg, respiration rate of 20 per minute and a temperature of 36<sup>0</sup>c.

**Central nervous System:**

She was apprehensive but not confused. She had no neurological deficit.

**Cardiovascular and respiratory systems:**

These were normal.

**Abdomen:**

The abdomen was not distended and moved with respiration. She had no palpable mass. There were no bruises seen.

**Perineal and vaginal examination:**

She had a brownish blood tinged vaginal discharge. There were obvious perineal tears. Further examination was deferred to be done under general anesthesia.

**Impression:**

An impression sexual assault in a 5years old was made.



**Management:**

The patient was prepared for examination under anesthesia. An intra venous drip of normal saline was started. The child's mother was informed about the mode of management and she gave an informed consent. She was premedicated with atropine 30 minutes before she was taken to theatre.

In theatre she was put under general anesthesia and a high vaginal swab was taken for spermatozoa, culture and sensitivity. Vulva vaginal toilet was done and she was aseptically catheterized. On inspection the perineum was found to have caked blood and was indurated with obvious perineal tears.

**Pelvic examination:****Speculum**

The perineum was stained with dried blood. Using a nasal speculum, the vaginal wall were noted to have bilateral tears which had extended to the anal sphincter with disruption of the perineal body. There was a lot of tissue devitalization. The hymen was torn posteriorly and the tags were erythematous.

**Digital Examination:**

Using the small finger a tear was felt on each side of the vaginal walls involving the anal mucosa with disruption of the perineal body. The hymen had a tear on the posterior aspect. There was no active bleeding noted.

**Done:**

The edges of the tear were refreshed and all the devitalized tissues removed. The anal mucosa was approximated and repaired from above downwards. The anal sphincter was then repaired. The vaginal wall were then repaired in layers and haemostasis achieved. Finally the perineal skin was sutured. General anesthesia was reversed.

**Post operative care:**

She was observed every half-hour until she was fully awake then four hourly. She was started on 1 M.U crystalline penicillin, 40mg gentamycin and 250mg flagyl parentally and was advised on daily sitz baths. She did well and was discharged on 24-1 1999 through the gynecologic out patient clinic.

**Investigations:**

26/1/99:

Baseline investigations

Packed cell volume-36%

HVS -Normal but bloodstained. No spermatozoa and no growth was obtained.

ELISA- Negative

26/1/99: VDRL- Negative

**Follow-up:**

2/2/99-

The child was seen at the gynecological out patient clinic. She was said to be incontinent of stool. She was examined and perineal hygiene was advised.

17/5/99:

She was reviewed again and she complained of perianal pain although this time there was no soilage and no discharge. She also had no dysuria. She had attended school during the last month of the first term and although she was afraid the first few days the fear had disappeared as the mother was taking her to school and collecting her after school. She had done poorly during the end of term examinations as she had missed classes most the whole of February. No nightmares were reported. She was also playing well with the other children.

17-5 1999:

Repeat ELISA-Negative.

Repeat VDRL-Negative

26/10/99:

She still complained of chronic perianal pain. She was sometimes unable to go to school due to the pain. During the night she had been sleeping well with no nightmares. She was examined and found to have breakage of the perineal tear. She was referred to the pediatric surgeon for review.

11/11/99:

The pediatric surgeon who made a diagnosis of a partially broken down 3rd degree perineal tear saw her. She was booked for repair on 10-12-99. She was admitted and prepared for perineorrhaphy after an informed consent was gotten from the mother and baseline Haemogram and urea and electrolytes were found normal.

**Perineorrhaphy:**

The patient was put under general anesthesia, vulva and vaginal toilet was done and she was catheterized.

Examination under anesthesia showed a third degree perineal tear with a torn perineal body and internal anal sphincter.

**Repair:**

The edges of the tear were refreshed after nerve stimulation. The anal mucosa was repaired followed by the anal sphincter. The posterior vaginal wall was then repaired followed by the closure of the skin. General anesthesia was then reversed. She did well and was discharged through the surgical out patient clinic on 13-12 1999. She however never turned up.

## **DISCUSSION:**

Presented is a 5-year-old victim of sexual assault as a result of which she sustained severe perineal injuries.

Sexual assault is defined as manual, genital or oral contact with the genitalia of a victim without consent (1). Rape is an act of sexual intimacy performed by one person upon another without mutual consent either by force, by threat of force, or by the inability of the victim to give appropriate consent (3). Our patient fitted into these definitions since she was a victim of genital contact without her consent. She was also a minor and there was no way she could have given consent. Sexual assault may be perpetrated by strangers or by individuals known to the victim and can be associated with molestation, battering, rape or incest (1,2). In the United States of America (USA), rape is classified as a violent crime whose definition varies from state to state. (3,4). Legal statutes may categorize sexual assault as forcible, statutory, attempted carnal knowledge of a juvenile or a crime against nature. Legal codes may categorize rape according to the anatomic site of assault (e.g. anal, oral or vaginal) and according to the degree of penetration as none, slight or full penetration (3).

In general rape is one of the most rapidly growing of all violent crime. Estimates of rape reported in the USA are between 20-50%. It is thought that it forms one of the most under-reported violent crimes (2, 3). The incidence of child sexual abuse is also difficult to estimate. It is claimed that up to 10% of child abuse is sexual in nature and in the USA it is estimated that over 336,000 children are sexually abused every year. If adults are interviewed, 1/3 of all women and 1/8 of all men have been sexually abused in childhood (2).

In Kenya as in Africa and rest of the world there has been an escalation of sexual abuse especially of minors with serious consequence. The true incidence is unknown due to the fact that most of the victims fear disclosing the assault to avoid stigmatization. The way the victims are handled by relatives, friends, police and health workers also contributes to this under-reporting (1). The mother found our patient in a dumpsite where she had been dumped after being sexually assaulted by a stranger and brought her to hospital.

Rapists usually choose victims who seem vulnerable like young girls who are alone. Other victims are women who are small in size or are elderly, un-accompanied, intoxicated or disabled (3). However no age group is exempt from risk and no sex is exempt. In a rape treatment center in USA, 34% of victims were shown to be under 16 years of age with an age range of female victims from a 2 month old baby girl to a 93 year old woman. It was also found that 5% of the victims in this center were male (4). It has been shown that 2% of all rape victims in USA occur in pregnant women with a 1/3 of this taking place after the 20 week of gestation (5). In Kenya, a retrospective study done in a private hospital in Nairobi showed that out of 37 rape victims 86.6% were less than 30 years old (1). Approximately 45% of rapist are below 25 years and most are repeat offenders and average more than 10 rapes before being apprehended and may be hard drug user (2). The patient presented was a young girl who was alone and therefore was very vulnerable.

There is increased vulnerability to rape of amongst young females. The poor and also the single are also vulnerable. The characteristics of the family of the abused child include those that are socially deprived, those families with parents who consume alcohol excessively, socially isolated parents and those with unsatisfactory family surroundings like overcrowding. The mentally or physically handicapped are also at a risk (9). Our patient was from a single parent, they used to stay in a slum area.

There are two basic forms of sexual assault in children. The first one involves sexual assault by a stranger. Enticement, coercion or use of physical force achieves this. In Kenya, a study showed that 73.4% of rape victims never knew the rapist (1). The second form of sexual assault involves a relative. This may fall into a relationship like a father/daughter, mother/ son or father/ son sexual relationship. A close relative may also perpetrate sexual assault of this type. A stranger assaulted the child presented. The victim's primary response during the sexual assault is one of survival and most victims will relate that they were afraid their assailant might kill them. The effects of sexual abuse are severe and include physical and psychological trauma which is usually serious and sometimes fatal (2,3).

Aggressive sexual activity or sexual abuse may cause perineal or genital tears. More than 50% of women who seek medical care after rape have some genital or perineal injury. Injuries sustained during a rape incidence are variable in extent and type and may range from minor lacerations to severe injuries (10). Our patient had severe injuries, which involved a 3<sup>rd</sup> degree perineal tear with disruption of the anal sphincter and the perineal body.

Psychological trauma involves the victim as well as the family of the victim. The immediate and long-term psychiatric trauma to victims of any sort of sexual assault is variable but profound and of long duration. (3). Two phases of rape trauma syndrome have been recognized. The immediate or acute phase lasts hours or days and may paralyze the individual mechanisms of coping. Victims may have a complete loss of emotional control. The victim appears disorganized, complains of physical symptoms and exhibits fear, mood swings, irritability, anger, guilt, depression, loss of concentration and flashbacks. The second phase is the reorganization phase. It involves long term adjustments and may contain flash backs or nightmares and phobia of sexual intercourse. Patients may also have a complete change of life style. This phase may be made difficult and prolonged if infections or pregnancy sets in. It may last months or years (2). Young victims however have been shown to do relatively well. This is more so if she has supportive parents (10). Although our patient had fear of going to school at first she was supported by the mother who even went to the extent of taking and collecting her from school. The child adjusted well. No nightmares were reported. However she needed long follow-up but she absconded from follow-up.

Infection with sexually transmitted diseases may occur. It has been shown that infection with Neisseria Gonorrhoea has an incidence of 2.5-13% after an incidence of sexual assault (1,2,7). The situation has been made worse by the AIDS pandemic where rape victims have been infected with HIV though the incidence is still not known (2). These victims are also likely to become pregnant if they are in their reproductive years. Hence competent people should see rape victims as soon as possible with treatment provided against all the possible sequels. They should also have long term follow-up. The initial investigations in the patient presented revealed no infections.

The Obstetrician Gynecologist should offer understanding and emotional support to the rape victims in the initial phase. He/she should offer medical care for infections and manage any injuries sustained and should be non-judgmental and sensitive. Thus it is the responsibility of the physician caring for the rape victim to treat injuries. He should also test and offer prophylaxis treatment for infections, prevent and treat pregnancies if they occur. He should also offer referral options to counselors and psychiatrists, as well as produce evidence documentation of sexual contact, injuries sustained and information that can identify the offender (2). It is unfortunate that most of rape victims are not referred to counselors in Kenya and a policy for the management of rape victims needs to be formulated.

A thorough descriptive history should be taken and the victim should be allowed to tell the story without interference. Documentation as to where, and when the assault occurred should be made. Any trauma inflicted on the assaulting person should be sort since this may help in identifying assaulting person. Activities performed after the assault (e.g. bathing) must also be documented. A gynecological history to evaluate the risk of getting pregnant must be taken.

A meticulous physical examination must be made in order to document location, nature and extent of external trauma and if possible these should be photographed. The general demeanor, general condition, cloths worn and any stains seen should be noted. In cases of minors examination under general anesthesia is preferable. Meticulous inspection of the perineum and vulva for ecchymosis, abrasions and lacerations is made and diagrams made. The vaginal walls and fornices are inspected for trauma. The examiner must be gentle and thorough and non judgmental since these are people who have already lost their esteem and indeed most victims relate that they found their exposure to the emergency room and its personnel as traumatic as when they were assaulted (2,3,4). The patient presented was examined under anaesthesia, as she was a minor.

Vaginal secretions from which a wet mount, a gram stain or Wright stain or a Pap smear to identify spermatozoa is made. These secretions are also used to test for acid

phosphates. Pubic hair washing and fingernail scrapping may also help to identify the assaulter (2,5).

A pathologist should also analyze attire intimately associated with the area of assault. A VDRL, HIV and a high vaginal swab are taken initially and subsequently for follow up. It should be noted that rape not only consists of forced vaginal intercourse but also anal or oral and specimen should thus be collected in this area if there is any complaints of oral or anal assault (1, 2,3). A high vaginal swab, a VDRL and Elisa for HIV were done for the patient presented. The dress and panties had been changed in our patient before being brought to hospital.

Treatment of physical injuries sustained at time of assault should be initiated immediately. Exploration of the genital injuries is best done and repaired under general anaesthesia. Our patient had sustained a third degree perineal tear.

Repair of 3rd degree perineal tear can be carried out immediately the injury is sustained; it can also be done as a secondary procedure 10-14 days after injury if the original injury breaks up. It can also be carried out after at least 6 weeks have elapsed after the injury. It has been shown that repair during the 1<sup>st</sup> instance or after at least 6 months carries the best prognosis (11,12). The delay of at least 6 months allows adequate blood supply to the margins and return of optimum viable perineal tissues. Our patient had an immediate repair, which broke down. This was most likely due to the amount of devitalized tissue encountered. However repair after 9 months was successful probably due to return of blood supply and also presence of optimum perineal tissue.

There are basically 3 methods of repair of 3<sup>rd</sup> degree perineal tears (12):

- The standard or the layer method
- The warren flap method procedure and
- The Noble operation.

The standard procedure consists of dissecting the vagina free from the rectum and identifying the ends of the anal sphincter. The tissues are then sutured together in the following order,



\*Rectal and anal mucosa from above downwards

- Anal sphincter
- Vaginal wall from above down wards
- Levator ani muscles
- Superficial perineal muscles and
- Perineal skin.

The Warren flap is good where the standard procedure has failed ( 11,12).

The patient should also have medical prophylaxis for prevention of sexually transmitted infections and pregnancy. Medical care for this victims should not only be directed towards the obvious physical trauma but should also offer prevention of STI and pregnancies as well as psycho therapy and counseling (2,3,8). Proper follow up is also paramount for continuous management of complications and for psychological support. The patient presented was followed up in the gynecologic out patient clinic. A break down of the perineal tear was noted which the paediatric surgeon successfully managed.

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## **GYNECOLOGY CASE NO. 3**

### **PRIMARY GENITAL PROLAPSE: TRANS-VAGINAL HYSTERECTOMY.**

**Name:** S. N.  
**IP. No.** 0507517.  
**Age:** 46yrs.  
**DOA:** 9-6-1998  
**DOD:** 3-7-1998

#### **Presenting Illness:**

The patient presented with pain on passing urine and stool and a sensation of something passing through the vagina for a month.

#### **History of presenting illness:**

She was well until a month prior to admission when she developed a feeling of a mass passing through the vagina. The mass was becoming more prominent on straining in stool but reduced itself there after. This was accompanied with pain in passing stool and urine.

#### **Obstetrics and Gynecologic history:**

She was para 7+2. She had two spontaneous abortions in 1980 and 81 for which no evacuation was done. Her last delivery was in 1983. All her deliveries were by spontaneous vertex delivery. She reported no difficulty during her deliveries. She had no history of operative vaginal delivery. All her children are alive and normal.

Her last menstrual period was on 1-6-1998.

She had periods after every 28days that lasted 4-5 days. They were regular with no abnormalities.

She had been on intra uterine contraceptive device for 3 years up 1978. She had bilateral tubal ligation in 1985.

#### **Past Medical and surgical history:**

This was none contributory.

**Family and social history:**

She was married and stayed with her family in Kawangware. She was a businesswoman who did not smoke or take alcohol. There was no chronic illness in the family.

**Physical examination:****General:**

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

Vital signs: Temp.-36.6, BP.-110/70, PR.-76, RR.-20.

**Abdominal Examination:**

The abdomen was not distended and moved with respiration. There were no masses were palpable.

**Pelvic Examination:**

Speculum examination revealed normal external genitalia. The vaginal walls looked healthy. The cervix was seen prolapsing into the middle third of the vagina and on coughing it would descent further into the vagina but did not reach the introitus. There was no abnormal discharge and the cervix had no ulcer. On the left lateral position and using a Sims speculum the anterior and posterior wall of the vagina were inspected and no abnormalities were seen. No cystocele or rectocele was noted.

**Digital examination:**

On digital examination, the vaginal walls felt smooth with no masses palpable. The cervix could be felt in the middle 1/3 of the vagina. Her uterus felt bulky and equivalent to a 12 weeks gestation. The adnexia were normal.

**Other systems:**

These were essentially normal.

**Diagnosis:**

A diagnosis of primary uterine prolapse was made (grade 1).

**Management:****Investigations:**

15-5-1998:

Barium Enema: Normal colonic investigation.

12-6-1998:

Haemogram -13.5g/dl.

U/E. - Na.-134mmol/l, K.-3.9mmol/l, Creat.-71Umol/l.

Ultra Sound: Uterus was bulky. A fibroid was visualized, approximately 6cm in diameter. The adnexia was normal.

16-6-1998:

Pap smear-Inflammatory smear with bacteria colonies. Metaplastic and Endocervical cells seen. No abnormal cells seen so essentially a normal Pap smear (CIN 0).

23-6-1998:

Elisa for HIV- Negative.

Blood group- O negative.

29-6-1998:

Haemogram- 12.2g/dl

After she was explained to about her illness and the need for a total vaginal hysterectomy, she gave an informed consent for the operation. Two units of blood were grouped and cross-matched. She was starved from midnight on the day of the operation, an enema was given in the morning and half hour before theatre she was premedicated with 0.6mg of atropine sulphate and 50mg of pethidine.

**Total Vaginal Hysterectomy:**

On the operating table, general anaesthesia was administered. She was placed in lithotomy position. Vulva and vaginal toilet was done. She was then draped. The bladder was catheterized and clear urine was obtained.

Examination under anaesthesia confirmed the earlier findings.

The cervix was held with tenaculum and gentle traction exerted downwards. The junction of the vagina and the cervix was infiltrated with 1-% (1: 1000) adrenaline solution. A circumferential incision was made round the cervix at cervico-vaginal junction, and the bladder deflected upwards away from the cervix by blunt dissection. Posteriorly the cul-de-sac was identified and incised with a single strike of the knife.

The cardinal ligaments were identified double clamped and transfixed with No 1 catgut bilaterally. Both the uterine vessels were identified and double clamped and ligated. The uterus was then pulled easily into the vagina. The broad ligaments containing the fallopian tubes and ovarian vessels were double clamped and ligated bilaterally. The round ligament were also clamped and ligated. The uterus was then easily delivered. The ovaries were spared. The vault was suspended using the utero sacral cardinal ligaments after closure of the peritoneum. The vaginal vault was packed with betadine soaked gauze and the general anaesthesia reversed. The specimen was taken for histology.

**Post operative:**

She was observed routinely as described in the introduction.

She was put on intravenous fluids of normal saline alternating with 5% dextrose every 4 hours for 24 hours. She relieved 50mg of pethidine every 4 hours, crystalline penicillin 2m.u. 6 hourly and gentamycin 80mg every 8 hourly for 24 hours. She was then started on 1 ibuprofen 400g 8 hourly and Amoxycilin 500mg 8 hourly orally for 5 days.

Continuous urinary bladder drainage was maintained for 72 hours and then the catheter was removed. A check haemoglobin on the 3<sup>rd</sup> post-operative day was 12g/dl. She was discharged on the 5<sup>th</sup> day to attend gynecology outpatient clinic after 6 weeks.

**Follow-up:**

She was reviewed in the gynecologic out patient clinic after 6 weeks. She had no gynecological problem. However she had developed hemorrhoids and she was referred to the general surgical outpatient clinic where she was booked for haemorrhoidectomy.

**Histology:**

Gross:

13-8-1998:

Total hysterectomy specimen with a fundal height of 10cm. Ovaries and tubes not included. Small fibroid of 1cm seen.

Microscopy:

Normal endometrium and myometrium with no pathology noted



## DISCUSSION.

Pelvic support comes from varied structures including the uro-genetal diaphragm, the pubourethral ligaments, the levator and muscles, the cardinal and the uteral sacral ligament and the endocervical fascia. (1, 2). Genital prolapse results if these supportive structures are weak. It refers to the descent of the vagina and uterus. Uterovaginal prolapse refers to the descent of the cervix and uterus along the axis of the vagina canal and in extreme degrees the vagina becomes completely telescoped with the cervix occupying a position outside the vagina. Uterine prolapse is commonly associated with an enterocele, rectocele and vaginal prolapse (1, 2, 3). Uterine prolapse is a common and disabling condition. It is more common in developed world and is said to be rare in East African communities. (4). The patient presented had only a primary uterine prolapse with no accompanying enterocele, cystocele or rectocele.

Uterine prolapse is common in multiparous white women (2). In East Africa it has also been found to be common amongst the elderly grand multi para. It has been found that over 95% of genital prolapse occur in multiparous women.(4). In Nigeria it has been found that 51.4% of patients with genital prolapse are either premenopausal or menopausal and most were of higher purity (5). The patient presented was a grand multipara.

The most common predisposing factor is injury sustained during the stress of childbirth, which stretches and tears the pelvic support. Hence progressive results of childbirth injury to the endopelvic fascia (and its condensations, the uteral sacro and cardinal ligaments) and muscle especially the levator ani and those of the perineal body seems to be the major factors involved in causing uterine prolapse. This is commonly seen in middle aged and elderly women who have had vaginal delivery (2, 3). Uterine prolapse may also result from pelvic tumors, sacral nerve disorders, diabetic neuropathy, caudal anaesthetic accidents are pre-sacral tumors. Obesity, asthma, chronic bronchitis are as well as well ascitis and large ovarian or uterine tumors have also been associated with uterine prolapse (1). Another rare cause of uterine prolapse is congenital inherent weakness of the endopelvic fascia support of the uterus and vagina. This type of prolapse

may be seen even in virginal women or in children (1, 2, 3). The only predisposing factor in the patient presented was multiple vaginal deliveries.

Three degrees of uterine prolapse are recognized. In first degree prolapse the descent of the uterus is slight but the cervix remains in the vagina while in second degree there is descent to the extent that the cervix projects through the vulvae when the woman is straining or standing. In the third degree also known as complete procidentia, the entire uterus prolapses outside the vulva. The whole vagina or at least its anterior wall is inverted. This is the rarest degree of genital prolapse (1,3). The patient presented had first degree uterine prolapse.

Clinical presentation depends on the degree of prolapse. Few symptoms are elicited with first degree prolapse while symptoms become more apparent with 2<sup>nd</sup> and 3<sup>rd</sup> degree. The characteristic and commonest symptoms is a sensation of something coming down the vagina (5,6). In most cases the patient reports relief on lying down. Other symptoms may include a dragging sensation and discomfort in the low abdomen and back pains. The patient may have difficulty in emptying the bladder or may have incontinence of urine. Others may have difficulty in passing stool. The signs are also variable depending on the degree of prolapse. In first degree prolapse the cervix is palpable as a firm in the lower 1/3 of vagina. While in 2<sup>nd</sup> and 3<sup>rd</sup> degrees it may be visible and may be seen protruding through the introitus. In cases of severe prolapse both the cervix and uterus project through the introitus and the vagina is completely everted. This large mass will have ulceration and easily bleeding or is infected (1, 2, 3). Our patient presented with a feeling of something coming out of the vagina.

The commonest type of prolapse is 2<sup>nd</sup> degree (5,6). It is important to differentiate this condition from an elongation of the cervix. The distinction is made since in cervical elongation the vaginal fornices are in their place and level and the anterior and posterior vaginal wall are well supported and the uterus corpus remains relatively high even with straining. There is also little or no cystocele or enterocele. Other differentials include cervical tumor (2).

There are three ways of managing this problem. The emergency management is reserved for that patient with moderate to severe prolapse becomes pregnant and the rapidly enlarging uterus becomes incarcerated within the true pelvis. This calls for immediate replacement and the patient to remain in bed till the uterus is large enough to prevent re-occurrence, a complication of which may include urinary obstruct leading to anuria and uremia (2).

Several types of pessaries have been devised for the palliative management of uterine prolapse when surgical treatment is contraindicated or as a temporally measure for 1<sup>st</sup> to 2<sup>nd</sup> degree prolapse to allow time for surgery. In post menopausal women as administration of estrogen will improve the tissue tone and facilitate correction of atrophic areas. A pessary is also indicated in pregnancy, post partum or when patient contemplates child bearing in the near future (2, 3, 7).

The definitive of management of the uterine prolapse is operative which is curative. Vaginal hysterectomy with repair of the pelvic floor is carried out if there is no desire for future pregnancy. If the woman needs to have further reproduction, a Manchester operation is done, (1, 2, 7). In K.N.H., Mwalali showed that of all patients with uterine prolapse 63.3% had vaginal hysterectomy and only 24.5% had a Manchester operation (6). In Nigeria, a study showed that 51.6% of a group of 213 patients had vaginal hysterectomy and pelvic floor repair, 46.0% had Manchester repair while anterior and posterior corpporrhaphy was done in only 2.4% of patients with uterine prolapse (5). Hence vaginal hysterectomy is still the commonest operation performed for uterine prolapse (5,6).

The patient presented had total vaginal hysterectomy with strengthening of the vaginal vault by approximating the utero sacral and broad ligaments pedicles and tightening of the pubocervical fascia.

Vaginal hysterectomy has a low mortality and morbidity compared to total abdominal hysterectomy and allows for strengthening of the pelvic floor at the same sitting. However compared to Manchester operation, it is said to have a higher complications rate of vault haematomas and thromboemboliism and it carries with it a higher risk of shortening the vagina (2,3). In Kenya Mwalali, showed a sepsis rate of 20.4% following

TVH (6) while in Nigeria, a UTI rate of 35.7%, a vault hematoma rate of 12.7% and bronchopneumonia rate of 5.2% had been found. A mortality rate of 0.46% was found due to severe haemorrhagic shock (5). The patient presented recovered well with no complications.

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Chapter 38 pg. 95, 1997.

## **GYNECOLOGY CASE NO. 4**

### **OBSTETRIC VESICO VAGINAL FISTULA: SUCCESSFUL REPAIR.**

**NAME** : A. M.  
**AGE** : 22 YEARS  
**IPNO** : 0490057  
**DOA** : 19/5/98  
**DOD** : 26/6/98  
**PARITY** : PARA 1+0

#### **Presenting complaint:**

The patient presented with one-year history of urinary incontinence.

#### **History of presenting complaint:**

She was well until one year prior to admission when she developed urinary incontinence. The patient had prolonged labour. She had laboured for 3 days at home then she went to Thika Hospital for delivery. In Thika hospital she laboured for 2 more days before a decision was made and an emergency caesarian section was then done. No urinary catheter was retained and a week after the operation she started leaking urine. Since then urine has been coming out of the vagina continuously. She was seen in Matuu hospital and referred to Thika hospital where a diagnosis of vesico vagina fistula was made. She was hence referred to Kenyatta National Hospital for repair. She was seen in the Gynecology outpatient clinic from where she was admitted for repair.

#### **Obstetric and gynecology history:**

She was para 1+0. Last delivery was in 8/9/97 through caesarian section. She delivered a fresh still birth male whose weight was 4 kg.

Her last menstrual period was on 4/5/98. She had menstrual periods after every 21 days, which lasted for 3 days. Her menstrual periods were regular. Her menarche was at 14 years.

She had never been on any contraception. She had had no sexual intercourse since she developed the above problem.

**Past medical history:**

This was not significant.

**Family and social history:**

She was single and unemployed. She used to stay with an elder sister in Juja. She did not smoke or take alcohol. There was no chronic illness in the family.

**Systemic enquiry:**

There was no abnormality elicited. She never developed any leg weakness or difficulty in walking after the deliver.

**Physical examination:**

She was in fair general condition and short statured. She was not pale or febrile. She had no oedema, jaundice or lymphadenopathy. She had a blood pressure of 120/60MmHg, pulse rate of 76 per minute, respiratory rate of 20 per minute and a temperature of 37<sup>0</sup>c.

**Abdominal examination:**

The abdomen was not distended and moved with respiration. She had a sub umbilical midline scar. There were no masses palpable.

**Pelvic examination:****Speculum:**

In the left lateral position and using a Sims speculum the perineum and vulva was noted to have extensive excoriation. There was a fistula seen on the anterior vaginal wall about 1cm from the cervix, which was 2 cm in diameter. It was about 3.5 cm from the urethra. Urine could be seen dribbling from the fistula. The posterior vaginal wall was normal. There was no urethral involvement.

A digital examination confirmed above finding. Also fibrosis was felt all round the fistula. The posterior wall felt normal. The cervix was closed and the uterus was not enlarged.



**Musculo- skeletal system:**

This was essentially normal with a normal muscle bulk, power, tone and reflexes.

**Other systems:**

The other systems were essentially normal.

**Diagnosis:**

A diagnosis of a **Juxta cervical vesico vaginal fistula** was made.

**Management:**

She was counseled about the diagnosis and she gave an informed consent to undergo examination under anaesthesia, cystoscopy and repair.

**Investigations:**

20/5/98

Haemogram: Hb-11.7g/dl, WBC-  $7 \times 10^9/l$ , platelets –  $344 \times 10^9/l$

Liver function test – normal

Urea and electrolytes:           Na+   - 145 Mmol/l  
  K+    - 4.2 Mmol/l  
  BUN   - 4 Mmol/l

12/6/98

Haemogram –                       Hb     - 13.2g/dl  
  WBC   -  $4.8 \times 10^9/l$

**Procedure:**

The patient was prepared for theatre as described in the introduction. The previous night she was given an enema. She was starved from midnight and an enema repeated in the morning. She was pre-medicated with atropine sulphate 0.6mg and pethidine 50mg half-hour before theatre. In theatre general anaesthesia was given. The patient was put in lithotomy position and the legs were supported with stirrups. The perineum and vulva were scrubbed and draped.

A speculum examination revealed a juxta cervical vesico-vaginal fistula about a centimeter from the cervix, which was approximately 2x4 cm. Urine could be seen dribbling from the defect.

A cystoscopy was done which revealed normal urethral mucosa and a normal urethral meatus. There was normal trabeculation on the bladder wall. A fistula was visible on the posterior bladder wall near the trigone and below the inter urethral ridge. The ureteric openings were normal and urine was seen spurting from them after a test dose of 80mg of intravenous frusemide.

She was positioned in the knee chest position, which the surgeon felt comfortable with, vulvo vaginal toilet was done and she was draped. The labia were stitched to the inner thighs. A medial lateral episiotomy was done to increase the exposure. The fistula was exposed using an Auvard speculum. Jungle juice (adrenaline and lignocaine in normal saline) was infiltrated around the fistula. A circumferential incision was made all around the fistula and the bladder mobilized from the vaginal walls. The fistula edges were exposed and the vaginal wall undermined and mobilized. Using vicryl No 4/0 an interrupted stitch was applied to close the bladder. This was an inverting stitch. A second layer was applied all starting from the lateral ends towards the midline. Good bites were taken to allow broad adaptation. The vaginal wall was then stitched with one layer of everting stitch to avoid cross union between the bladder and the vaginal mucosa. A catheter was left insitu and a dye test revealed no leakage. Then the episiotomy was repaired. Gauze soaked in betadine was left in the vagina for 24 hours General anaesthesia was reversed.

#### **Post operation management:**

Routine post operation management was instituted as described in the introduction. Vital sign were to be observed half hourly for two hours, then four hourly. An intravenous drip of normal saline alternating with 5% dextrose 500mls every 3 hours for the first 24 hours was started. Analgesia was provided with intramuscular pethidine 100mg every 8 hours for 24 hours then ibuprofen 400mg 8 hourly for one week.

After 24 hours she was allowed to take fluids orally and she was encouraged to take at least 4000mls every day. The vaginal gauze was removed after 24 hours. She was to remain in bed for five days.

Strict instructions were given that the catheter should freely drain all the time. If the catheter got blocked it was to be flushed with 5mls of water for injection .If still blocked, then it was to be changed and ballooned with 4 mls. She improved and the catheter kept draining. On the 14<sup>th</sup> day a dye test was done which was negative. The catheter was removed and patient sent home through the physiotherapy clinic for perineal and bladder exercises. She was also given instructions to continue taking a lot of water. She was also advised not to have coitus for at least 4 months. She was counseled that she would need an elective caesarian section in her next delivery. She was to be seen in gynecologic outpatient clinic after one month.

**Follow-up:**

She was seen in the gynecologic outpatient clinic. She had no leakage of urine and had no complaint. The above instructions were again stressed and she was discharged from the clinic but advised on early booking during her next pregnancy.

## **Discussion:**

Marion Sims first described the obstetrical causes and preventive measures for vesical vaginal fistula in 1852, although fistulae have been known since time immemorial. He is also credited with introducing the vaginal approach to repair in knee chest or Sims positions (1).

The causes of urinary tract injuries which leads to fistula formation include Obstetric and non Obstetric causes. They include: -

- \*Pressure necrosis due to compression between the presenting part and the pubic symphysis during labour.
- \*Injuries during operations such as caesarian section, hysterectomy and anterior colporrhaphy.
- \*Direct trauma during operative vaginal deliveries especially when this on already devitalized tissue as a result of prolonged labour.
- \*Radiotherapy especially in the treatment of cancer of the cervix.
- \*Infections like lymphagranuloma venerum (LGV), tuberculosis and schistosomiasis are rare causes of urinary fistulae.
- \*Pelvic malignancies.

The patient presented had a fistula developing due to pressure necrosis.

In developing countries, the most common causes of urinary fistulae are obstetric related (3). It is usually associated with lack of or poor antenatal care and inadequate delivery services. At Kenyatta National Hospital, 87.1% of all urinary fistulae have been found in young women (18-24 years) and the fistulae had been shown to occur during the first or second delivery (3,4). Our patient was para 1+0 and she was 22 years.

Obstructed labour is the commonest cause of obstetric fistula and is most often due to contracted pelvis. In the developing world, poor nutrition and untreated infection in childhood and adolescence have been implicated in skeletal stunting. Another implicated reason is that most of women who develop fistulae start child bearing early before adequate growth of the pelvis (3). The patient presented had obstructed labour lasting for 5 days before any intervention.

During normal labour, the urinary bladder is pushed upwards and the bladder neck and the urethra are all compressed between the symphysis pubis and the presenting part. In obstructed labour, the interposing tissues become devitalized due to ischaemia secondary to prolonged compression. The sloughing off of these devitalized tissues leads to vesicovaginal fistula. It has been found that this occurs between the second and tenth day post delivery (3). The patient presented developed a fistula on the 7<sup>th</sup> day.

Direct trauma during delivery may lead to development of fistula immediately after delivery. This occurs more easily when the tissues have already been devitalized by pressure necrosis. The trauma could result from vacuum extraction, craniotomy, and symphysiotomy or at caesarian section (3).

Urinary vaginal fistula unlike other forms of urinary incontinence is diagnosed by continuous leakage of urine. On pelvic examination there may be excoriation of the perineal skin. On speculum examination the fistula can often be visualized. Our patient presented with all the above.

When the fistula is small, introduction of methylene blue dye into the bladder with vaginally placed tampons will help in its diagnosis. The dye will stain the tampon and this suggests a fistula. Intravenous injection of indigo carmine dye can also be used. An intravenous urogram is essential to rule out concurrent ureteric fistula. Cystoscopy has also been used to assess the urethra, the bladder and where the fistula is situated and also assess the ureteric openings (1,2,3). Our patient did not need a dye test, as the diagnosis was obvious. However a cystoscopy was performed.

Efficient obstetric care is paramount in the prevention of obstetrical fistula. Timely diagnosis of obstructed labour and its management forms the basis for reduction of this debilitating condition. Patients who have obstructed labour should have continuous bladder irrigation. This should be continued for 10-14 days. It helps the tissues to recover and even small fistulas have been shown to close with this management (2,3).

Antibiotics should also be started on these patients. It is unfortunate that the patient presented had no catheter even after having obstructed labour.

Examination under anaesthesia can be done either at a different sitting before the operation on pre-operatively. This helps to assess the site and size of fistula as well as the tissue mobility. It helps the surgeon also make a decision on the route and position of repair. A cystoscopy is also done where possible (3). Our patient was done above two investigations.

For almost all fistulas, the position of choice is the exaggerated lithotomy position and the route of choice is the vagina. Some surgeons advocate other positions like the knee chest position (8). Our patient was operated in the knee chest position, which was the surgeon's choice.

The principles of repair include good exposure. The fistula is mobilized and any fibrotic tissue excised. All fascial tissue must be left on the bladder wall as the vaginal wall is mobilized. Accurate closure of the bladder defect in 2 layers without tension is essential. The bladder repair is covered with flaps of intact vaginal wall if possible (1,3,6). After repair of the fistula, continuous urinary bladder drainage must be ensured with a catheter for at least 14 days. Adequate hydration enough to bring urine production to at least 4000mls every 24 hours is paramount. This helps in prevention of infection and also prevention of catheter blockage (8). A catheter specimen of urine for culture and sensitivity is done on the 3<sup>rd</sup> day (1,3). Our patient was well hydrated and was encouraged to take at least 4 liters of fluid every day. Continuous bladder was ensured and she was given prophylactic antibiotics.

Repair of the fistula is not attempted usually before 6 weeks have elapsed. This allows for inflammation to subside, necrotic tissue to slough off, residue sepsis to subside and tissue planes to re establish. During this time the general health of the patient is improved, and vulva dermatitis is treated with topical creams and antibiotics. Simple antiseptic barrier creams such as zinc oxide and castor oil is used to prevent excoriation (3).

Pre operative investigations (full haemogram, urea and electrolyte, catheter urine specimen for culture and sensitivity). An intravenous urography is usually done but was not done in this patient as it was felt that a cystoscopy was adequate. The route of repair depends on position of fistula, size, structures involved and degree of fixity to the tissue (3). The routes could be transperitoneal, transvessical or transvaginal. In Kenyatta National Hospital the commonest fistula is juxta cervical followed by mid vaginal (5). Our patient juxta cervical vaginal fistula.

After 14 days, dye test is performed and if no leakage is seen then the catheter is removed. Bladder exercises are started and the patient is advised on no coitus for at least 3 months. She is advised to have an elective caesarian section during her future pregnancy.

Success rate is variable. At Kenyatta National Hospital success rate of 85.7% have been reported for mid vaginal fistulae and 72.6% for juxta cervical fistula (4). However, Orwenyo reported an overall success rate of 60.5%. A successful repair is characterized by complete continence during the day and at night when the bladder is holding a minimum of 170ml of urine (7,8). The prognosis will depend on the location and size of the fistula, the amount of tissue loss, the amount of scar tissue, the age of the patient and accessibility of the site. It also depends on the surgeon's experience, preoperative care, surgical technique and the quality of postoperative care. It is possible to close the fistula at first attempt in 85-90% of patients with an incontinence rate of 11% in the closed fistula. Our patient had a successful repair and total continence.

Urinary fistula has a lot of psychosocial and sexual impact (3). It has also been shown that this woman has a high perinatal mortality. Still birth rates of 63.7 to 80.4% have been found in Kenya. Usually these women do not have periods due to what is thought is a hypothalmo-pituitary dysfunction (4,5). Our patient had not had sexual intercourse after development of the fistula but she was getting regular periods.

Postoperative complications include difficulties in bladder drainage, incontinence, bladder hemorrhage and vaginal bleeding. Failure of the repair and ureteric obstructions may also occur (8). Our patient did not have any of the above complications.

Provision of acceptable, accessible and available maternity care, training of adequate number of health personnel capable of diagnosis and management of obstructed labour remains the key to prevention of obstetric fistulae.



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