GYNAECOLOGY LONG COMMENTARY

TO DETERMINE THE MORBIDITY PATTERN AMONGST PATIENTS PRESENTING WITH INCOMPLETE ABORTION AT KENYATTA NATIONAL HOSPITAL.

SUMMARY

This was a prospective descriptive study to determine morbidity pattern among patients presenting with incomplete abortion at Kenyatta National Hospital. During the study period (1st February to 31st March 2000) there was a total of 893 acute gynaecologic admissions of which 352 (41.8%) had incomplete abortions. A total of 250 (71%) were interviewed for this study. Majority (57%) of the study population patients was below 24 years with a mean age of 20-24 years. Of the study population, 50.8% had attained primary school education while 35.2% had attained secondary school education. Over 50% were not employed and over 70% were in no gainful employment. In this study 64.1% of the patients were married while 23.3% had never been married. Patients' whom the current abortion was their first pregnancy were 75 (30%) whereas 50% had one previous viable delivery. There were 43 (17.8%) patients who admitted induction of abortion. Of the whole study population 171 (68.4%) patients had some complications while only 79 (31.6%) did not have any.

In this study 107 patients (42.8%) were clinically pale. These were assessed for the degree of blood loss using a packed cell volume assessment. It was found that 57 (53.3%) were mildly anaemic, 26 (24.3%) were moderately anaemic, while 24 (22.4%) were severely anaemic to require blood transfusion. However only 18 of the severely anaemic patients got blood due to lack of blood in our hospital.

Septic incomplete abortion was found in 26% of the patients most of whom presented with foul smelling vaginal discharge, adnexial and abdominal tenderness. Few patients presented with elevated temperature. Post-abortal sepsis was found to be commonest in those patients aged between 20-29 years. This was found to be statistically significant. Although the difference did not reach any statistical significance, those women with low

socio-economic status had a higher occurrence of sepsis. A statistically significant difference was found when the prevalence of post abortion sepsis in the single women was compared to those who were married. Those who were single had a higher prevalence of post abortion sepsis. It was also highest among patients with one previous delivery (28.8%) followed by those who were primigravidas (23.8%). However these differences were not statistically significant. Those patients who admitted induction of abortion had more sepsis compared to those who said the abortion was spontaneous. This difference was found to be statistically significant. The prevalence of post abortal sepsis increased as the gestation age increased from 18.6% in those aborting below 12 weeks gestation to 44.4% in those whose abortion occurred after 22 weeks. This difference was statistically significant.

Genital injury was found in 18.4% of all patients and injuries ranged from cervical, vaginal laceration to uterine perforation and gut injury. The commonest injuries were cervical lacerations (79.6%). These injuries were commonest amongst patients who had reported induced abortion (46.3%) although 18% of those who denied induction had injuries. This difference was statistically significant. No statistical difference was found when genital injury prevalence was compared among different ages. However the highest percent of genital injuries were found in those below 29 years (59%). Although genital injuries were found in both married and single patients, the single women had a higher prevalence. This difference was found to be statistically significant.

In study the mortality was low. There were two maternal deaths amongst these patients, one with induced abortion and another one who was suspected to have had induced abortion. It was concluded that abortion still remains a major acute gynaecology emergency at Kenyatta National Hospital and that despite the restrictive abortion laws a significant number of them are still clandestinely performed. There is a high morbidity risk especially among patients presenting with induced abortion, those who are below 24 years, single women and also those of poor socio-economic status. Recommendations were made to target these groups of women in health education on incomplete abortions, timely health seeking behavior to avoid excessive blood loss and safe family planning methods to avoid unwanted pregnancy.

INTRODUCTION (LITERATURE REVIEW)

Abortion is defined as termination of pregnancy by any means before foetal viability. Traditionally, abortion refers to termination of pregnancy before the 28th week of gestation [1,2]. In modern medical terms and due to advancement of neonatal care it has been re-defined as a birth process terminating before the twentieth week or expulsion of a foetus weighing less than 500 grams [1,2,3]. This is the most common cause of vaginal bleeding in early pregnancy occurring in 20% of pregnant women. It may be threatened, inevitable, incomplete, or complete [1,2,3,4]. Threatened abortion usually occurs at gestations of between 6-20 weeks and is self limiting in 50% of the cases. In the other 50% it usually proceeds to inevitable abortion. A patient with threatened abortion experiences worsening abdominal pains and per vaginal bleeding and the cervical os becomes dilated. This may eventually lead to a complete abortion whereby the entire products of conception are passed out and bleeding subsides. It may also lead to incomplete abortion in which some products of conception are passed out while some remain in the uterus. These patients may have torrential bleeding and infection may set in leading to major morbidity as well as mortality [5]. Such patients need immediate evacuation of the uterus in order to avoid hypotensive collapse as well as septic abortion. Missed abortion occurs when pregnancy undergoes spontaneous fetal demise but such patients do not demonstrate abnormal bleeding or abdominal pains. The signs of pregnancy recede or disappear [1,5].

Abortion could be spontaneous as well as induced. Though its true incidence is unknown spontaneous abortion is thought to contribute to 15-40% of pregnancy wastage with 75% occurring before 16 weeks and 62% occurring before twelve weeks [1,4,5,6].

Induced abortion could be legal where abortion has been made legal. In countries where abortion is illegal, termination of pregnancy is only allowed if the life of the pregnant woman is endangered by the pregnancy. In Kenya abortion is illegal unless the above condition is fulfilled.

INCIDENCE:

Stigmatization and secrecy on the part of some women account for the fact that many abortions are not reported. Moreover some pregnancy loses may occur spontaneously very early in pregnancy without the woman being aware that she was pregnant. On the other

hand women especially those worried about a state of childlessness may interpret some minor menstrual upset as representing an abortion. However the rate of spontaneous abortions is estimated to be between 15- 40%[2,3,5]. Due to the secrecy involved in illegal elective termination of pregnancy it is very difficult to know the incidence of induced abortion in Kenya. However, abortion remains the commonest gynaecological problem with the majority of acute gynaecology beds occupied by post abortal patients. In the late sixties abortion was found to account for 10% of the total admissions at K.N.H. and 44% of gynaecological admissions [7]. Aggarwal et al in their study on epidemiology of induced abortion at K.N.H. found that abortion cases accounted for 60% of all gynaecological admissions with 62.3% having some signs of interference [8]. Fomulu in his study found that abortion accounted for 51% of all acute gynaecological admissions [9]. This type of high bed occupancy has also been found in other countries [10,11].

MECHANISM OF SPONTANEOUS ABORTION:

Regardless of the primary cause, the precipitating cause of an abortion is regressive decidual change resulting in necrosis and haemorrhage with subsequent separation of the placenta. In most instances the pathological changes are secondary to foetal death occurring 6 weeks prior to expulsion of the abortus. Following foetal death, there is progressive deterioration of placenta function and a reduction in steroid production, which thus fails to maintain the integrity of the decidual. The uterus becomes increasingly irritated and eventually labour is initiated. In early pregnancy the uterine attachments are tenuous and in the course of labour, the fetal sac and the decidual are usually extruded intact up to and until the fourteenth week of gestation. Portions of the villous structure may be torn from the uterus wall and expelled but some Chorionic tissue usually remains adherent which leads to incomplete abortion.[6]

ETIOLOGICAL FACTORS:

Spontaneous abortion has been attributed to a large number of etiological factors. This will usually depend on the gestation age of the pregnancy [3]. Eighty percent occurs before 12 weeks and the rate decreases as gestation progresses [1]. Abnormal conceptus, which could be, attributed to chromosomal, structural or genetic factor forms a major component of early pregnancy loss. These are called foetal factors, which lead to abnormal Zygote

development with either an abnormal number of chromosomes (anaeploidy) or abnormal development with a normal chromosomal component (Euploidy)(1,2,5,6).

Maternal factors are usually associated with euploidy spontaneous abortion. These include; immunological disorders either autoimmune as in antiphospholipid antibodies disorders like lupus anticoagulant or alloimmune mechanisms as in HLA factors where there is failure to synthesize blocking antibodies. Other maternal factors include uterine abnormalities, which could be acquired or congenital maternal diseases and infections, toxins and trauma [1,2,5,6].

Induced abortion can be done legally as in cases where the life of the mother is in jeopardized by the pregnancy. In some countries, liberal abortion laws have been made and a woman has a choice to electively terminate her pregnancy in a hospital. However in Kenya abortion is illegal. Many ways have been used to achieve clandestine induction of abortion which include-intra-uterine instrumentation with such items like hair pins knitting needles etc. It could also be achieved by the dilatation of the cervix or by intra-uterine injection of fluid [3]. The danger in these types of procedures lies in the fact that they are usually done by the pregnant woman herself, friends or untrained medical practitioners under conditions which lack sterility and this usually leads to introduction of sepsis, perforation of the uterus, haemorrhage and tears of the genitalia [3,10,17]. Thus this type of abortion leads to much morbidity like haemorrhage, shock, renal failure, peritonitis and septicaemia which lead to fatal outcomes [3].

COMPLICATIONS:

The Safe Motherhood Initiative (13) aims to reduce the tragic and unnecessary high death rate that pregnancy and childbirth have on women around the world. It was launched in 1987 and its aim was to reduce maternal mortality by half by the year 2000. Studies done at Kenyatta National Hospital have shown that abortion related deaths account for 80% of maternal death (17). In order to achieve the goals of safe motherhood, its programs need to address abortion-related morbidity and mortality. This can be by improving the treatment of abortion complications, decentralizing safe abortion services as well as providing post abortion family planning [12].

Thus safe motherhood should imply pregnancy, childbirth and pueparium free of morbidity and mortality. It is noteworthy that many women in developing countries who survive pregnancy, child birth and pueparium suffer serious morbidity such as childlessness as in septic abortion and urinary fistulae that many a time must bitterly wish that they had died [13].

Abortion carries with it potential for severe maternal morbidity, which if not managed appropriately usually leads to either severe long-term complications like infertility or death. This can occur in both spontaneous and induced abortions. However the complications are more common and severe in cases of induced abortion especially in countries like Kenya where abortion is illegal and many women with unwanted pregnancy result to back street abortionists. Among the immediate complications, haemorrhage, sepsis and genital trauma have been shown to be very common. In 1979 it was found that 18.2% of post abortion cases were complicated by sepsis [9]. In a study on contraceptive use among women admitted with abortion at Kenyatta National Hospital, Ojwang et al found that 82.5% had incomplete abortion while 11.6% had septic abortion and 1.2% had incomplete abortion and haemorrhagic shock [14].

In a review of abortions at Kenyatta National Hospital, Aggarwal et al found that among a group of 1424 abortion patients 16% had sepsis. They found that 90.6% of these patients with sepsis had pyrexia. Of all these patients with sepsis, only 9.8% admitted interference with the pregnancy. In this septic abortion group 38.4% were anaemic, 15.1% were in shock while 17% needed blood transfusion [15]. Khehar et al in a review of septic abortion showed a rate of 23.6% of sepsis in patients presenting with abortion [7].

Elsewhere incomplete abortion has also been shown to be a major contributor to maternal morbidity (10). Thus in a 13 year review of maternal mortality at the University college of Benin teaching hospital abortion was found to be amongst the three major causes of maternal mortality. It was shown that a total of 35.2% of all abortions were induced with the young inexperienced school girl being the main victim and these accounting for 91.2% of the deaths. The complications noted in this series of maternal deaths were sepsis including tetanus, septicaemia, peritonitis, pelvic abscess, endotoxic shock, haemorrhage

and injuries to vital organs [10]. In Egypt a study done in the hospitals showed that abortion accounted for 19% of all admissions and 37% of the patients had incomplete abortion. It was also shown that 14% of these patients presented with excessive vaginal bleeding while 5% showed signs of sepsis and 1% had genital trauma [16].

RATIONALE

Abortion remains a major cause of maternal morbidity and mortality in Kenya just like in the rest of the world. Deaths from abortions arise from abortion related morbidity. These morbidity's are amenable to treatment if realized early and appropriate management instituted and these would lower the mortality related to abortions. Therefore it was found necessary to determine the pattern of morbidity among patients presenting with incomplete abortion at Kenyatta National Hospital.

BROAD OBJECTIVE:

To determine the morbidity pattern amongst patients presenting with incomplete abortion at Kenyatta National hospital.

SPECIFIC OBJECTIVES:

a)   To determine the prevalence of incomplete abortion in Kenyatta National Hospital.

b)   To determine the type of morbidity's experienced by these patients.

c)   Determine the contributing factors to this morbidity.

RESEARCH DESIGN:

This was a prospective descriptive study.

STUDY POPULATION:

This comprised of all women admitted in acute gynaecology ward with clinically recognizable incomplete abortion within from 1sr February to 31st March 2000. They were recruited on admission. Verbal consent was obtained after the nature and purpose of the study was explained to the patients.

SAMPLE SIZE:

In this study the rate of complication in patients with incomplete abortion is assumed to be 20%. In this view the sample size required to give a 95% confidence interval of width 5% is:

where p is the estimated prevalence

$$Z = 1.96$$

$$n = \frac{P(1-P)Z^2}{d^2}$$

$$n = \frac{20(80)3.842}{25}$$

$$=250$$

MATERIALS AND METHODS:

Abortion in this study was taken as termination of pregnancy below 28 weeks gestation.

All patients admitted with a diagnosis of incomplete abortion in February and March were first given information about the nature and purpose of the study. History was taken to elicit demographic characteristics, past obstetric and gynaecological history as well as events of the current pregnancy. The patients were then taken to the procedure room for a physical examination to establish incomplete abortion. This included a general examination, an abdominal examination to include uterine size and any presence of tenderness or guarding. A speculum pelvic examination was then undertaken to check for any genital injuries.

A digital pelvic examination for cervical dilatation, presence of products of conception, adnexial tenderness, characteristic of any vaginal discharge. Those then confirmed to have incomplete abortion and who gave consent were then recruited for the study. Two hundred and fifty patients with incomplete abortion were recruited for the study. Manual vacuum aspiration was then done. Blood for packed cell volume was taken to check the degree of anaemia in those patients who were clinically pale. This was due to financial difficulties such that not all the sample population could be done a packed cell volume assessment. This information was then entered into an investigator-administered questionnaire and analyzed using a statistical package (SPSS).

DEFINATIONS:

Abortion:

For the purpose of this study abortion was taken as termination of pregnancy at below 28 weeks gestation.

Incomplete abortion:

Abortion where part of the products of conception have been passed out but some have been retained.

Septic incomplete abortion.

For this study septic incomplete abortion was diagnosed in any patient presenting with incomplete abortion with either two of the following

- ♦ Temperature $\geq 37.5°C$.
- ♦ Adnexial tenderness with or without abdominal tenderness.
- ♦ Foul smelling vaginal discharge (products of conceptions).

However for this study the presence of foul smelling product of conception alone qualified one to septic abortion.

Anaemia:

To assess blood loss pallor was clinically assessed in the conjunctiva, tongue and palms. Those patients who were clinically pale had a packed cell volume (PCV) done. They were then divided into mildly anaemic (PCV between 27-30%), moderately anaemic (PCV between 16-27%) and severely anaemic (PCV < 15%).

INCLUSION CRITERIA:

All women with clinically recognizable incomplete abortion as per the definition who consented to participate.

EXCLUSION CRITERIA:

Women with any other type of abortion. Those women who did not consent were also excluded.

STUDY PERIOD:

This study was carried out between 1st February to 31 March 2000.

DATA COLLECTION:

Investigator administered questionnaire technique.

VARIABLES:

1) Personal data

2) Social demographic data

3) Past obstetrical performance

4) Type(s) of morbidity encountered.

DATA COLLECTION AND PROCESSING:

All patients admitted with a diagnosis of incomplete abortion were examined after consent was obtained. Only those who were confirmed to have incomplete abortion on history and examination were recruited. Data was collected then collected and entered into a data collection sheet. It was then processed using SPSS statistical package.

ETHICAL CONSIDERATION:

Informed verbal consent was sought from the subjects. Questionnaires did not bear the patients' name to ensue confidentiality. Ethical clearance was obtained from the Kenyatta Hospital Ethical and Research Committee. All information gathered was treated confidentially.

ADMINISTRATION:

The principal investigator was charged with the following:

a) All operations of the study.

b) Recruiting the study subjects with the assistance of the nurse at the admission desk.

c) Ensure appropriate data was entered in the questionnaire by checking the questionnaires at the end of the day.

d) Data analysis with the assistance of a medical statistician.

CONSTRAINTS:

There were financial difficulties since this project was not funded. Hence it was difficult to do a packed cell volume for all the patients other than for those who were clinically pale due to costs. It was also found to do laboratory confirmatory test for septic abortion. It was also found that most of the patients could not remember the time frame and neither could they know the treatment offered at referring facilities and so these questions were not analyzed.

RESULTS:

TABLE I: PREVALENCE OF INCOMPLETE ABORTION

Total No. of admission (1st Feb – 31st March)	893
Total No. of incomplete abortion	352
% incomplete abortion	41.8

Table 1 shows the total number of admissions in the acute gynaecology ward in relation to the number of incomplete abortions admitted during the same period. Out of 893 acute gynaecology admissions, 352 (41.8%) had incomplete abortion. Of the 250 patients recruited for this study, only 80 (32%) had passed through another health facility. Of these 80 patients, 52 (65%) had not been given any treatment at the referring facility while only 27 (35%) of the patients who had passed through another health facility had been offered some treatment.

TABLE II: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Age (years)	n	%
<20	30	12
20-24	112	45
25-29	58	23.3
30-34	30	12
>34	19	7.6
Education	**n**	**%**
None	8	3.2
Primary	127	50.8
Secondary	88	35.2
College	22	8.8
University	5	2.0
Employment	**n**	**%**
None	134	52.3
Self-employed	50	20.6
Casual worker	55	22.6
Skilled worker	11	4.5
Marital Status	**n**	**%**
Single	80	32.3
Married	159	64.1
Divorced / Separated	7	2.8
Widowed	2	0.8
Residence	**n**	**%**
Urban	226	9.6
Rural	24	90.4

Fifty seven percent (57%) of the patients in the study population were below 24 years and 45% were in the age's 20-24 years. The mean age was 24.795 with a median of 24.0. The range was 16 to 40 years.

Education status ranged from 8 (3.2%) with no formal education to 5 (2%) who had attained University education. However the majority of patients in the study population had attained some primary school education (50.8%). Those who had attained secondary school education were 35.2%. The mean number of years of formal education was 9.327.

Majority of the patients (52.3%) were in no gainful employment. Forty three (43%) were either in casual employment or were self-employed, with very few patients 4.5% being in skilled labour. Married women formed the largest proportion of patients in the study (64.1%), while single women comprised 32.3% of the study subjects. There were only a few (2.8%) divorced, widowed or separated patients. Most(90.4%) of all the patients were urban dwellers.

TABLE III: OBSTETRIC PERFORMANCE

Past Viable Deliveries		
	n	%
1-2	114	50
3-4	32	14
Greater or equal to 5	2	0.9
Abortions	**n**	**%**
1	43	17.2
2	6	2.9
Greater or equal to 3	9	4.3
Antecedent pregnancy	**n**	**%**
Normal life birth	125	50
Still birth/neonatal death	7	2.8
Abortions	43	17.2
Gestation age (completed weeks)		
Gestation	n	%
<12	102	42.1
12-22	126	54.2
>22	22	3.7

Table III shows the past obstetric performance of the study population. Fifty percent (50%) of the patients in study population had 1 or 2 previous viable deliveries with 32.0% of the whole population having had one previous viable delivery. The maximum number of past viable deliveries was 5. For most of the patients (72.2%), this was their first abortion. Those with one previous abortion were 20.6%. Nine (4.3%) of the patients had 3 prior abortions or more. There was one patient who had 9 previous abortions.

In 75 patients (30%) this was their first pregnancy. For 50%, the antecedent pregnancy was a life birth who was alive and well, while for 17.2% of the women the antecedent pregnancy was an abortion.

Only 3.7% of the patients in this study had abortion occurring after 22 weeks, while 54.2% of the study population had abortion occurring at between 12 and 22 weeks.

TABLE IV: TYPE OF ABORTION.

Abortion Type	n	%
Spontaneous	207	82.8
Induced	43	17.2

In this study an attempt was made to determine whether an abortion was induced or spontaneous only by asking the patient to describe how the abortion started. As shown in the table above, 207 (82.8%) said it had started spontaneously. Most of the patients who reported induced abortion were aged below 24 years. Majority (51.3%) were aged between 20-24 years. The mean age of those with induced abortion was 22.9 years compared to a mean of 24.8 years in those who reported spontaneous abortion. This difference was statistically significant ($p = 0.0141$).

Of those patients who reported having an induced abortion, 51.2% had primary education or less and 34.9% had secondary education. Majority (74.4%) of those accepting termination of pregnancy were single women.

TABLE V: SEPTIC ABORTION

Sepsis	n	%
Present	65	26
Absent	185	74

Out of all the 250 patients 65 (26%) had signs of septic incomplete abortion as defined in the study methods. Adnexial or abdominal tenderness was found in 46 (18.4%) of the patients, whereas 63 (25.2%) had fowl smelling vaginal discharge. Only 11 (4.6%) of the patients had temperature above 37.5°C. However most of the patients presented with a combination of adnexial tenderness and foul smelling vaginal discharge. Majority (58.1%) of the patients with induced incomplete abortion had adnexial or abdominal tenderness compared to only 36.4% of those patients who reported spontaneous abortion. There difference was found to be statistically significant (P = 0.00856).

TABLE VI: PALLOR DISTRIBUTION FOR THE STUDY POPULATION

Pallor	n	%
Present	107	42.8
Absent	143	57.2

Table VI shows pallor distribution. One hundred and seven (42.8%) of the population study had some degree of pallor, while 143 (57.2%) were not clinically pale.

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TABLE VII: SEVERITY OF ANAEMIA IN PATIENTS WHO WERE CLINICALLY PALE

Degree	n	%
Mild (PCV 21-30%)	57	53.3
Moderate (PCV 16-21%)	26	24.3
Severe (PCV <15%)	24	22.4
Total	107	100

Of the 107 patient who were clinically pale, 57 (53.3%) were mildly anaemic as assessed by packed cell volume. Twenty six (24.3%) were moderately anaemic while 24 (22.4%) were severely anaemic. Only 18 of the severely anaemic patients were managed to be transfused despite blood being requested for all. Majority was transfused only one unit while two needed four units. All the mildly and moderately anemic patients were put on haematinic, which they had to buy as these were not available. Of the 6 severely anaemic patients who were unable to get blood, they were discharged home on haematinics.

TABLE VIII: PRESENCE OF GENITAL TRAUMA

Genital trauma	n	%
Present	38	18.4
Absent	212	81.6

All the patients in this study group were examined for genital injuries. It was found that 38 (18.4%) patients had some form of genital injury while 212 (81.6%) had no injuries. Of those patients who indicated that they had an induced abortion, 46.3% had genital injury compared to 18% of those patients who indicated that their abortion had started spontaneously. This difference was found to be statistically significant (P< 0.001). Of the 38 patients with genital injuries, 79.6% (30) had cervical lacerations, 10.2% (4) had

both cervical and vaginal lacerations, 7.2% (3) had perforated uterus and 1(2.8%) had a second degree perineal tear that was repaired under local anaesthesia. Most of the vaginal and cervical tears and lacerations were minor and needed no stitching. Only one cervical tear needed stitching under general anaesthesia. For uterine perforation, a laparotomy and repair of the perforation was. None of the patient required hysterectomy.

TABLE IX: POST ABORTAL SEPSIS DISTRIBUTION BY SOCIO-DEMOGRAPHIC CHARACTERISTS

Age (Years)	Post-abortal sepsis				
	Present		Absent		
	n	%	n	%	
<20	4	13.3	26	86.7	
20-24	32	28.6	80	71.4	
25-29	19	32.8	39	67.2	P=0.01576
30-34	5	26.7	22	73.3	
>34	4	10.5	17	89.5	
Education	n	%	n	%	
None/Primary	37	27.4	98	72.6	
Secondary	23	26.1	65	73.9	P=0.55761
College/University	3	11.1	24	88.9	
Employment	n	%	n	%	
None	31	24.4	96	75.6	
Self-employed	15	30.0	35	70.0	P=0.12829
Casual worker	18	32.7	37	67.3	
Skilled worker	0	0	11	100	
Marital Status	n	%	n	%	
Single	25	31.3	54	68.8	
Married	33	20.8	126	79.2	P=0.02266
Divorced/Separated/Widowed	5	55.6	4	44.4	

Table IX shows the distribution of post-abortal sepsis by-socio-demographic characteristics. Post-abortal sepsis was lowest at the extreme of ages. The highest prevalence of post-abortal sepsis was found in patients who were between 25-29 (32.5%) and in those between 20-24years (28.6%). This difference was statistically significant (p = 0.01576).

Of all the single women, the prevalence of post-abortal sepsis was 34.1% compared to only 20.8% in the married women. This difference was statistically significant (p = 0.02266).

Those women with no formal education or who had attained only primary school education had a sepsis prevalence of 27.4% with the rate gradually decreasing to 26.1% and 11.1% in those who had attained secondary school education and those with post secondary education respectively. The casual worker had the highest prevalence of sepsis (32.7%) followed by self-employed women who had a prevalence sepsis of 24.4%.

TABLE X: GENITAL INJURY DISTRIBUTION BY SOCIO-DEMOGRAPHIC CHARACTERISTICS

Age (Years)	Genital Injury				
	Present		Absent		
	n	%	n	%	
<20	6	20.2	24	80.0	
20-24	19	17.0	93	83.0	
25-29	7	12.1	51	87.9	P=0.21951
30-34	6	20.0	24	80.0	
>34	0	0	19	100.0	
Education	n	%	n	%	
None/Primary	18	13.3	117	86.7	
Secondary	14	17.1	74	82.9	P=0.80549
College/University	6	22.2	21	87.8	
Employment	n	%	n	%	
None	19	15.8	108	84.2	
Self-employed	5	11.1	45	88.9	P=0.45726
Casual Worker	12	22.2	33	77.8	
Skilled Worker	1	9.1	10	89.9	
Marital Status	n	%	n	%	
Single	28	36.4	51	63.6	
Married	8	5.4	151	94.6	P=<0.001
Divorced/Separated/Widowed	2	22.2	7	77.8	

Table X shows distribution of genital injuries by socio-demographic characteristics. The prevalence of genital injury tended to decrease with age. Of those aged below 20 years, 20.0% had genital injuries compared to 17.0% and 12.0% of those aged 20-24 years and 25-29 years respectively. A rise in the trend was seen in those between 30-34 years, while there was no genital injury in those above 34 years. These differences were not statistically significant.

It was also found that genital injuries were commonest amongst single women (36.4%) and decreased to only 5.4% of all the married women. This difference was statistically significant (p < 0.001).

Genital injury affected all education strata with 13.3% of those having primary school education having injury compared to 17.1% and 22.2% of women with secondary and post secondary education respectively.

TABLE XI: GENITAL INJURIES DISTRIBUTION BY PAST OBSTETRIC PERFORMANCE

Viable Pregnancy	Genital Injury				
	Present		Absent		
	n	%	n	%	
1	14	19.4	57	80.6	P=0.72895
2	4	8.1	35	91.9	
Greater or equal to 3	5	14.7	29	85.3	
Antecedent Pregnancy	n	%	n	%	
Life birth	22	19.3	122	80.7	P=0.08437
Abortion	0	0	41	100	
Still birth/Neonatal death	1	14.3	6	85.7	

Table XI shows the distribution of genital injuries by past obstetric performance. Of the patients who had one previous viable delivery genital injury occurred in 19.4%, compared to 17.1% of those who had no previous viable delivery. Of those patients who had 2 viable deliveries, genital injury occurred in 8.1% while in those with 3 or more previous viable delivery injuries occurred in 14.7% of them. There was no statistical difference.

When the outcome of the antecedent pregnancy was analyzed, 22 (19.3%) of all patients whose antecedent pregnancy was a live birth with a normal neonatal period had genital injuries. Of 7 patients whose antecedent pregnancy was a neonatal death or stillbirth

only one (14.1%) had genital injury. Of 41 patients whose antecedent pregnancy was as abortion, none of them had genital injuries. These differences were not statistically significant.

TABLE XII: POST-ABORTAL SEPSIS DISTRIBUTION BY GESTATIONAL AGE AND TYPE OF ABORTION AS REPORTED BY THE PATIENT

Gestational age (weeks)	Post abortal sepsis				
	Present		Absent		
	n	%	n	%	
<12	19	18.6	83	46.6	
12-22	41	31.3	90	50.6	**P=0.04308**
>22	4	44.4	5	2.8	
Type of abortion as reported	n	%	n	%	
Spontaneous	49	25.1	146	74.9	**P=0.031749**
Induced	14	32.6	29	67.4	

Table XII shows distribution of post-abortal sepsis by gestational age and type of abortion. The post abortion sepsis increased as gestation age advanced with those whose abortion occurred below 12 weeks having a post abortion rate of 18.6%, those aborting at 12-22 weeks having a rate of 31.3% and those whose abortion occurred after 22 weeks having a rate of 44.4%. This difference was statistically significant (p = 0.04308).

In 195 patients who said the abortion started spontaneously, sepsis was found in 25.1% of them compared 32.6% amongst patients who admitted an induction. This difference was statistically significant (p = 0.03175)

TABLE XIII: GENITAL INJURY DISTRIBUTION BY GESTATIONAL AGE AND TYPE OF ABORTION.

Gestation age (weeks)	Genital injury				
	Present		Absent		
	n	%	n	%	
<12	10	10.3	92	89.7	
12-22	25	20.5	106	79.5	P=0.1125
>22	2	3.7	7	77.8	
Type of abortion as reported	n	%	n	%	
Spontaneous	18	9.9	177	90.1	P<0.001
Induced	19	43.6	24	57.7	

Table XIII shows the distribution of genital injury by the gestational age and type of abortion as reported by the patient. Those patients whose abortion occurred at a gestation age of between 12-22 weeks had the highest prevalence of genital injuries (20.5%) compared to 10.3% and 3.7% of patients whose abortion occurred at a gestation age of less than 12 weeks and more than 22 weeks respectively. However, this difference was not statistically significant.

Of the 43 patients who reported induced abortion, 43.6% had genital injuries compared to 9.9% of patients of patient who reported spontaneous abortion. This difference was statistically significant ($p < 0.001$).

TABLE XIV: POST-EVACUATION COMPLICATIONS

Complication	n
Post abortion deep venous thrombosis	2
Pelvic abscess	4
Death	2

There were only 8 patients who had immediate post manual vacuum aspiration complications. Two (2) of the patients developed post abortion DVT, 4 (50%) had pelvic abscess. There were 2 maternal deaths which gave a mortality of 0.8% of the total study population. Treatment for the two patients with post abortion deep vein thrombosis was with intravenous heparin during the acute phase, heparin was then converted to warfarin after the acute phase. Pelvic abscesses were treated with broad-spectrum antibiotics in combination with laparotomy and drainage.

DISCUSSION:

During the study period, 41.8% of all admissions to the acute gynecology ward were due to incomplete abortion. Others have found this type of prevalence of incomplete abortion in the same hospital (7,9,14).

The mean age of the patients in this study was 24.8 years. The median was 24 years. The age ranged from 16 years to 40 years. These compares well with what have been found by others among patients presenting with incomplete abortions in Kenyatta National Hospital [7,9,18]. The modal age was 20-24 years. Others have also found this modal age group in patients with incomplete [19,20,23].

Education varied widely with 8 patients (3.2%) having no formal education and 5 (2%) having post secondary education. Majority of the patients had some primary education (50.8%) while those with secondary education were 35.2%. These compared well with a study done among post abortal patient in 8 hospitals in Kenya where it was found that 50 (52%) of these patient had primary education [28]. The education distribution in the sample population compared well with the Kenya Demographic and Health survey of 1998 [21]. However, in a study done among post abortal patients in Egypt, it was found that the mean age was 27.4 years and unlike in Kenya, majority of these patients (61%) had no formal education [22].

Majority of the patients were unemployed (52.3%). Of the unemployed patients, 7.2% were students while the rest were composed of housewives mostly. There were 22.6% casual workers and 20.6% self-employed women. Hence majority of women admitted in this hospital with incomplete abortion are likely to have no reliable source of income. Others (18,24) have also found this. In the Kenya Demographic and Survey (1998), it was shown that most of Kenyan women are in no reliable employment and up to 48% are unemployed [21]. Most of those women admitted with incomplete abortion in this study were married (64.1%) while 32.3% were single and only 3.6% were divorced, separated or widowed. Other studies have found almost the same marital status distribution amongst patients presenting with incomplete

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abortion in the same hospital [17,18,24]. The KDHS (1998) showed that 30% of Kenyan women have never been married and 59% are married and only 9% are widowed or divorced [21]. These fits well with our sample population as had also been found by Mutsumi [25]. Most of the patients admitted with incomplete abortion (90.4%) in this study were from an urban set up.

Half (50%) of the patients in this study had a normal live birth delivery in the antecedent pregnancy. In 30% of the study population, the index abortion was their first pregnancy. Only in 17.2% had the antecedent pregnancy been an abortion. Others have found this type of antecedent pregnancy history in Nairobi [19]. The number of primipara patients compared well with that of 40% found in an Ethiopian population presenting with incomplete abortion [20].

Of all the patients in this study 50% had one or two previous viable delivery. Mutsumi had also found this in a recent study in the same type of patient's [25]. Only 14% of the patients had 3 or 4 previous viable deliveries while 0.9% had more than 4 deliveries. Of those with a previous abortion, 43 (17.2%) had one previous abortion, 6 (2.9%) had 2 previous abortion while 9 (4.3%) had had 3 or more previous abortion. In her study Mutungi [24] found that 85.1% of the study population were para 2 and below which compares well with this study. However, unlike in what she found the percentage of patients in this study whose index pregnancy was the first was low.

Most of the abortions in this study occurred at between 12-22 weeks of gestation (54.2%). These agrees with another study done in Nairobi where it was found that abortion is more common at-16-19 weeks [19]. Those abortions occurring at less than 12 weeks gestation accounted for 42.1% while there were very few occurring after 22 weeks.

In this study 43 (17.8%) of the patients admitted induction of the abortion. Most of these patients were below 24 years with 51.2% of those induced patients being 20-24 years. The mean age for these patients was 22.9 years compared to 24.8 years in those patients reporting as spontaneous abortion. This difference was statistically significant (p=0.0141) meaning that

younger women admitted at Kenyatta National Hospital with incomplete abortion are likely to induced abortion than the older women.

Majority of these 43 patients (51.2%) who had induced abortion had primary education while 34.9% had secondary education. Therefore even if all education levels were affected by induced abortion, most of patients with induced abortion had only primary school education. Out of the 43 patients admitting induction of abortion, only 10 of then (23.3%) were students. Thus although the number of students were few, out of 18 students in the whole sample population, 55.5% accepted having an induced abortion. The induction rate of approximately 17.6% of the total population had been found by others(15,24,19). Aggarwal et al [15] had found an induction rate of 16%, Mutungi [24] found a rate of 17.6% while Rqgo et al [19] found that 15.7% of their patients had induced abortion. However, others have found very high rates in the same hospital [26]. In other parts of the world like Egypt and Mexico induced abortion rates of between 4% and 17% have been found respectively [22,27].

Most studies are in agreement that induced abortion is more common in the single unemployed young women [19,22,24,26,30] and majority have only primary or secondary school education as was found in this study.

The World Health Organization [32] has recognized that the major life threatening complications resulting from unsafe abortion are haemorrhage, infection and injury to the genital tract and internal organs. Retained products of conception, toxic reaction of chemicals and drugs used may add to complications among these women [32].

Many of patients with incomplete abortion have been found to present with various degrees of haemorrhage [18,19]. In this study pallor was used to gauge the degree of haemorrhage. It was found that 42.8% of the study population were clinically pale at admission. Those patients who were clinically pale had a packed cell volume assessment in order to assess the degree of pallor. Out of these clinically pale patients, 53.3% were mildly anaemic, 24.3% were moderately anaemic and 22.4% were severely anaemic to need blood transfusion. The number with severe

anaemia to warrant blood transfusion was slightly higher than that found in Egypt [22] but was higher than that found in a Kenyan study done in 8 hospitals on incomplete abortion, where it was found that a total of 7.2% had severe anaemia [28]. In this study, it was also found that the number of patients with anaemia increased with the number of past viable deliveries and abortions with the least numbers occurring in those with no previous abortions or deliveries. It also increased as the age of the patients advanced, with those below 20 years having the least (40%), compared to 56.7% of those between 30-34 years. Across the education groups, those patients with low education of primary and below had the highest levels of 55.3% compared to only 42.7% of those with secondary education and above. However none of this differences were statistically significant.

Post abortal sepsis is one of the major cause of maternal morbidity and mortality. In Kenya it has been shown that it accounts for up to 22.2% of all maternal deaths [29]. In the Rift Valley Provincial Hospital, 8% of maternal deaths have been attributed to post-abortal sepsis [31]. This is also the situation in other countries like Nigeria [10].

Septic incomplete abortion presents with elevated temperature, adnexia and abdominal tenderness and or foul smelling vaginal discharge in addition to incomplete abortion [2,3,4]. In severe cases of septic incomplete abortion a patient may present with pelvic abscess, peritonitis and septic shock. Some patients have even presented with tetanus especially after induced abortion (10). In this study 26% of all patients had symptoms and signs of septic incomplete abortion. Four point four percent (4.4%) of all patients had elevated temperature while 25% of all the patients had foul smelling vaginal discharge and 18.4% had adnexial or abdominal tenderness. In earlier studies post abortion sepsis rates in the same hospital ranged between 16-24% [7,9,16]. The least post abortal sepsis rate reported in the same hospital was 5.4% [26].

Septic incomplete abortion in this study was found to be most common in those patients with one previous viable delivery (27.4%). Sepsis decreased as the number of previous deliveries increased. It was also found that sepsis decreased as the number of previous abortions

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increased. Of those patients with one previous abortion 20.9% of them had sepsis as compared to 12.5% of those with 3 or more previous abortions. Those with a live birth antecedent pregnancy had sepsis in 28.3% of them followed by those whose antecedent pregnancy was an abortion (20.9%). However these differences were not statistically significant meaning that the past obstetric performance does not influence the occurrence of post-abortal sepsis.

Post abortal sepsis was highest among women aged below 30 years. They accounted for 74.7% of all post abortal sepsis cases. This high prevalence among patients aged below 30 years had also been found in one earlier study in post abortal sepsis patient's [7]. Post abortal sepsis was commonest among patients aged 25-29 years and was lowest at the extremes of age. A statistically significant difference was found, meaning that patients aged between 25-29 year are at a higher chance of presenting septic incomplete abortion.

Of those patients with no formal education or only primary education, 28.3% had sepsis while 26.1% and 22.7% of secondary and post secondary education patients respectively had post abortal sepsis. No statistical difference was found, meaning that post-abortal sepsis transcends all education levels. None of the patients in skilled employment had any sepsis, whereas 32.7% of casual employment patients had sepsis. However, a lower number of self-employed (30%) and none-employed patients (24.4%) had post abortal sepsis. When these differences were compared, no statistical difference was found.

More women with post abortion sepsis were not married. It was found that 31.3% of patients who were single had post-abortal sepsis as compared to only 20.8% among the married group. This difference was statistically significant. Others have found this trend, with single women having a higher incidence of post abortal sepsis than married women [7,15,17,18,19].

A statistically significant difference was found when sepsis in patients who reported induced abortion was compared to that in those who said their abortion was spontaneous. The former had more sepsis than the later. It has also been found by others that induced abortion patients

have a statistically significant post abortion sepsis than those with spontaneous abortion [7,19,28].
In this study the young women with poor socio-economic status and who are single were likely
to develop post abortal sepsis. It was also found that induced abortion patients had more post
abortion sepsis.

In this study the few patients having abortion after 22 weeks had a sepsis rate of 44.4% while
those whose abortion was at 12-22 weeks contributed to 31.3% of all abortions sepsis. Those
whose abortion occurred at less than 12 weeks were the least amongst patients with abortion
sepsis (18.6%). This difference was statistically significant. It means that since most of
patients presenting at Kenyatta National Hospital abort at between 12-22 weeks, many are
therefore likely to present with post abortion sepsis.

Injury to the external or internal genital organs is a common complication especially in
abortions illegally induced. -Intra-abdominal organs have also been injured in this type of
complication. It is one of the main causes of morbidity and mortality in post abortion patient's
[10]. In this study 38 patients who represented 18.4% of the whole study population had various
types of genital injuries. Majority of the injuries were cervical lacerations (79.6%) and a
combination of cervical and vaginal lacerations 7.4%. There were two patients with uterine
perforations. One of these was complicated by perforation of the small gut. There was one
patient with a deep perineal tear.

Among those patients who admitted that they had induced abortion, 46.3% had signs of genital
injury compared to 9.9% of those reporting spontaneous abortion. This difference was highly
significant. In those patients who had indicated that they had a spontaneous abortion, 18% had
genital injury, meaning that patients still fear accepting induction of abortion. These figures of
genital injuries are much higher than those found by others in Kenya [19]. This may mean that
induced abortion is on the rise in the country. It may also mean that as was the case in South
Africa before reform of abortion laws (30), under our strict abortion laws, clandestine abortion
becomes the only option in unwanted pregnancy.

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Genital injury was more common among the younger ages. The number of patients with genital injuries was inversely proportional to age. The highest genital injuries were found among those aged less than 20 years (20%) compared to 17% and 21.1% in those aged between 20-24 and 25-29 years respectively. There was no genital injury noted in patient above 34 years, though those between 30-34 had genital injury of 20%. These differences were not statistically significant, meaning that genital injury and therefore induced abortions in this study population affected all age groups. However the higher percentages of genital injuries found in the younger age agrees with other studies in Kenya where it was found that the younger woman is more likely to have induction of an unwanted pregnancy than the older women (28). In South Africa, it has also been found that the women below 20 years of age are at a greater risk of genital injury during clandestine abortion due to the method used [30].

Genital injury in this study was highest amongst the single women (36.4%) compared to 5.4% of married women. This difference was statistically significant. This means that at Kenyatta National Hospital just as in other places, the single woman is likely to have an induced abortion than the married one when faced with an unwanted pregnancy [23]. However induction of abortion affects all women irrespective of marital status. Genital injuries increased with the level of education from 13.3% for those with primary school education to 22.2% amongst those with post secondary education. This agrees with a study done in 8 hospital in Kenya where it was found that induction of abortion increases with increased education levels [28]. The casual worker and those with no employment had a higher percentage of injury when compared to those who were self-employed or in skilled employment.

In this study patients who had a previous abortions in general were unlikely to have genital trauma. Out of 55 patients with a history of a previous abortion only 3 (7.1%) had genital trauma and none of those whose antecedent pregnancy was an abortion had genital injury. Out of those patients with one previous viable delivery 19.4% had trauma compared with only 12.5% of patients with more than one previous viable deliveries. The primipara had 17.1% of genital injuries. Hence, in this study, genital injuries were found to be common in those patients who were para 1 and below. This had been also found by others [23]. In this study

however there was no statistically significant difference when genital injuries were compared with the past obstetrical performance.

Although trauma to the genital organs occurred with all gestational ages, it was commonest in women whose abortion occurred at 12-22 weeks (20.5%) reducing by half (10.3%) in those women whose abortion occurred at less than 12 weeks and was rare in those whose abortion occurred after 22 weeks (3.7%). This means that most of induction of pregnancy in Kenya could be occurring after the first trimester as was found by others [19].

The situation of morbidity in these patients is compounded by the occurrence of multiple complications especially in those who had had an induced abortion. It was found that 11.4% of all patients presented with anaemia and sepsis, while 2.4% had anaemia with genital trauma, 2.4% had genital trauma and sepsis. Anaemia, sepsis and genital trauma occurred in 5.2% of all patients.

Majority of these patients (239), which represented 94.8%, were managed with manual vacuum aspiration (MVA) while 8 of them had manual removal of placenta and evacuation under general anesthesia. There were 2 laparotomies done in the study population due to perforated uterus. One patient died before any procedure could be done. Immediate post evacuation was quite rare occurring in 3.5% of all patients. Majority of these had vomiting as was found by others [26]. The average hospital stay was one day for most patients proving that manual vacuum aspiration is a safe method and also minimizes hospital stay [26]. It was found that 210 (84%) were discharged within 48 hours and out of these 111 (44.4%) were discharged within 12 to 24 hours whereas 64 (25.6%) were discharged within less than 12 hours.

Out of all the patients in this study group, 2 developed post abortal pelvic abscess and peritonitis. All the patients who developed pelvic abscess had admitted induction of abortion while one of those with deep venous thrombosis had admitted induction. In the whole study group there were 2 maternal deaths, one of these had admitted induced abortion and had uterine

perforation while the other one was suspected of induction and died a few hours post admission before any procedure was done.

CONCLUSIONS:

1. Incomplete abortion and its complications remain one of the major acute gynaecologic problems in Kenyatta National Hospital.

2. Majority of the patients presenting with incomplete abortion at Kenyatta National Hospital have complications.

3. More than quarter of the population presenting with incomplete abortion at Kenyatta National Hospital has sepsis. It is more common among those patients with induced abortion. It is also common in women below 24 years of age who are single and have lower education and socio-economic status.

4. Many patients admitted with incomplete abortion at Kenyatta National Hospital have pallor due to blood loss out which majority have mild pale with almost an equal number of the rest having moderate and severe anaemia.

5. Genital injuries account for almost a fifth of all post abortal complications. Almost 50% of patients with induced incomplete abortions present with genital injuries. It is common in young women below 24 years, single and with poor socio-economic status.

6. Despite restrictive abortion laws in the country, induced abortion is common. It accounts for almost a fifth of patients admitted with incomplete abortion. Since most induced abortion is done clandestinely, these patients are at a high risk of developing complications especially post abortal sepsis and genital injuries.

RECOMMENDATIONS:

1. The hospital should be served with enough supplies especially haematinics; antibiotics, intravenous fluids and blood to manage post abortion complications. Post abortion services should be offered in the hospital 24 hours and should be subsidized so that patients do not delay at home before seeking help.

2. It should be realized that most patients presenting with complications of incomplete abortion are of primary school and secondary level. Family life education should therefore be started at the primary school.

3. Low socio-economic women like the casual worker, single women especially those below 20- 24 years with one previous delivery should be recognized as high-risk groups in the development of incomplete abortion related complications. Therefore special counseling and family planning programs should be started for them just as those in place for adolescents.

4. A study should be conducted in the hospital to determine the distribution of psychological morbidity and the long-term complications of incomplete abortion amongst patients presenting with incomplete abortion.

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OBSTETRICS LONG COMMENTARY QUESTIONNAIRE

ID NUMBER ☐☐☐

A. BASE LINE CHARACTERISTICS:

1: AGE ☐☐

2: Marital status:
       1. married.
       2. single.
       3. separated/divorced.
       4. windowed. ☐

3: Education level:
       1. none.
       2. primary.
       3. secondary.
       4. college.
       5. university. ☐

4: Number of years in formal education._____

5: Occupation: ☐
       1. unemployed.
       2. self employed.
       3. casual labourer.
       4. professional.

B. PAST OBSTETRICAL AND GYNAECOLOGICAL HISTORY.

7. Age at menarche._____

8. Pattern of menstrual cycles._____

9. Contraceptive use.
       1. yes(specify)._____ ☐
       2. no.

10.Have you ever been pregnant before.
       1. yes. ☐
       2. no.

11. If yes list the pregnancy and the out comes in chronological order as per the table below.

Year	Place of ANC	Gestation at delivery/abortion	Place of delivery	Fetal outcome	Complication if any

C. CURRENT PREGNANCY.

12. What is date of your last normal menstrual period._____

13. What is the gestation by dates_____

14. Did you attend ante natal clinic.
     1. yes.
     2. no (reason)_____

15. If yes fill the following information as per the table below.

Date	Place of ANC	Gestation by dates	Complication if any	Invetigation	Treatment

D. EVENTS DURING LABOUR

16. Were you booked to deliver in K.N.H.
    1. yes.
    2. no.

17. If not were you referred or not.
    1. yes.
    2. no.

18. If referred fill the table below.

Place of referral	Diagnosis	Reason for referral

19. Fill the table below as per the guide lines.

Duration of labour at home	Duration of labour at referring place	Duration of labour at KNH	Total hours in labour

20. Condition of mother at admission.
    1. good.
    2. poor.

21. Stage of labour.
    1. first stage.
    2. second stage.
    3. third stage.

22. State of the foetal heart rate at admission.

    1. Present(rate)_____.
    2. Absent.

23. Liqour Characteristic
    1. Meconium stained
    2. Non-meconium stained

24. Indicate the working diagnosis at
    admission._____

25. What was the mode of delivery.
         1. SVD
         2. Breech
         3. Vacuum Extraction
         4. Caesarean Section

26. What was the immediate foetal out come.
         1. M.S.B.
         2. F.S.B.
         3. Live birth.

27. If live birth Apgar score at 5 minutes_____

28. If alive
       1. to the ward with the mother.
       2. admitted to the N.B.U.(Give reason for the
          admission).

29. Any complication noted in the mother while in the ward.
       1. Yes (specify)
       2. No

30. foetal outcome after 7 days.
       1. Alive
       2. Dead

31. Maternal out come.
   1. Discharged
   2. Dead

32. Duration of hospital stay in days._____

GYNAECOLOGY LONG COMMENTARY DATA COLLECTION SHEET.
ID NUMBER: ☐☐☐

A. PERSONAL CHARACTERISTICS.

I. Age in completed years.   ☐☐

2. Level of education.   ☐
            1. none.
            2. primary.
            3. secondary.
            4. college.
            5. university.

3. Number of years in formal education_____.

4. Employment: ☐
            1. none.
            2. self employed.
            3. casual worker.
            4. skilled worker(specify).

5. Estate of residence:_____

6. Marital status: ☐
            1. single.
            2. married.
            3. divorced/ separated.
            4. widowed.

7. Spouse employment where applicable: ☐
            1. none.
            2. self employed.
            3. casual worker.
            4. skilled worker(specify).

B. OBSTETRIC AND GYNAECOLOGICAL HISTORY.

8. Age at menarche._____

9. Menstrual cycles.   ☐
            1. regular.
            2. irregular.

10. Contraceptive use.
            1. Yes(specify).
            2. No   ☐

11. Number of deliveries above 28 completed weeks of
gestation._____

12. Number of deliveries below 28 completed weeks of gestation._____

13. Antecedent pregnancy:

        1. normal life birth.
        2. still birth.
        3. neonatal death.
        4. abortion.

C. CURRENT PREGNANCY.

14. L.M.P_____Gestation in completed weeks ____.

15. Ante natal clinic attendance if any.
        1. started.
        2. not started.

D. EVENTS PRECEDING THE ABORTION:

16. How did it start._____

17. Were you referred to K.N.H.
        1. Yes.
        2. No if 2 go to 20

18. If yes how many hours did you take from start of symptoms to arrival at the referring facility._____

19. Did you get any treatment in the referring facility.
        1. Yes.(specify)
        2. No (why)

20. Time received at casualty records._____

21. Time seen by doctor in casualty._____

22. Time received in the ward._____

23. Time clerked by,
        1. intern.
        2. resident.
        3. specialist.

E. PHYSICAL EXAMINATION.

24. General condition.
    1. good.
    2. fair.   ☐
    3. poor.

25. Vital signs_____

26. Clinical anaemia.   ☐
    1. present.
    2. absent.

27. If clinically anaemic P.C.V_____

28. What is the uterine size?._____

29 Any abdominal tenderness or guarding
    1. Yes   ☐
    2. No

30. Character of vaginal discharge   ☐
    1. Fowl smelling
    2. Not fowl smelling

31. Any adnexial tenderness?
    1. Yes   ☐
    2. No

32. Any genital trauma?
    1. Yes (specify)   ☐
    2. No

33. Indicate the working diagnosis_____

F. TREATMENT OFFERED:

34. Surgical.   ☐
    1. M.V.A.
    2. D.C. under G.A.
    3. laparotomy + - M.V.A.

35. Medical

Drug   Duration (days)

36. Any post operation complications.

     1. None
     2. Yes.[describe]

37. Date and time of discharge._____

38. Date and time of death._____

39. Discharge instructions.
     1. none given.
     2. given.[specify] eg drugs,
       counselling, G.O.P.C.