

The Incidence, Pattern and Management Outcomes of Early Pregnancy Losses at the Ebonyi State University Teaching Hospital, Abakaliki

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Abstract

Background: Early pregnancy losses are a source of deep emotional trauma to any woman, her family and the attending Gynaecologist. This study evaluated the prevalence, pattern and management outcomes of such losses at a tertiary Health Institution.

Methods: Data of all women who suffered early pregnancy losses between 1st January, 2002 and 31st December, 2004, were reviewed in a descriptive study. Information obtained from their case notes which related to the early pregnancy event, their socio demographics, obstetric history and management outcomes were collated. Univariate analysis was performed and frequency tables and figures were constructed where appropriate.

Results: Early pregnancy losses comprised miscarriages, molar pregnancy and ectopic gestations accounted for 32.1% of all gynaecological admissions during the period. Miscarriages were the commonest diagnosis and incomplete abortion constituted the bulk of this. Women of all parities were involved but rate of loss increased down the socio economic class strata. Majority were unbooked. A maternal mortality rate of 1.8% attended all forms of early pregnancy losses during the period.

Conclusion: Early pregnancy loss constitutes a major gynaecological problem in our centre. Health care providers must institute prompt and appropriate clinical management for a good clinical outcome.

Key words: miscarriages, molar, ectopic, loss, Abakaliki

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Introduction

The World Health Organization [WHO] defines Early pregnancy loss as the termination of pregnancy before 20 weeks' gestation or below a fetal weight of 500 grams¹. For both the doctor and the patient, this loss is

upsetting and frustrating. The family suffers deep emotional pain. Unfortunately, early pregnancy loss is the most common complication of human gestation, occurring in at least 75% of all women trying to conceive. Most of these losses are unrecognized and occur before or with the next expected menses. Of those that are recognized, 15-20% is spontaneous abortions or ectopic pregnancies diagnosed after clinical recognition of pregnancy^{1,2}.

Traditionally, early pregnancy loss encompasses spontaneous miscarriages, ectopic gestations and the rarer molar pregnancies³, but recently most investigators agree that both ectopic and molar pregnancies should not be included in the definition² For this review however, all forms of early pregnancy losses are included.

Abortions occur at a rate of 114 cases per hour. Most studies quote a spontaneous miscarriage rate of 10-15%^{4,5}. The rate of miscarriages rises steadily up to the maternal age of 35 years and exponentially after 40 years⁶. In developing countries, abortions constitute about 25 to 30% of all gynaecological admissions^{7,8}.

The etiology of early pregnancy loss is varied and often controversial. More than one etiologic factor is often present. The most common causes of miscarriages include: Genetic abnormalities, Uterine anomalies including congenital and acquired defects, leiomyomas, incompetent cervix and Asherman syndrome. Others are autoimmune mediated, endocrine luteal phase deficiency, maternal medical disorders like diabetes mellitus and thyroid dysfunction. Infectious, haematologic and environmental factors make varying contributions⁸⁻¹⁵. The gestational age at the time of the spontaneous abortion can provide clues about the cause.

Ectopic pregnancy another major cause early pregnancy loss³ presents a major health problem for women of child bearing age.

It has been described in all segments of the fallopian tube, uterine cornua cervix, ovary and abdominal cavity¹⁶. The fallopian tube accounts for 95% of all these sites³. The incidence varies between institutions and countries. Grudzinskas³ in 1999 reported its incidence as between 11.2 to 20 per 1000 pregnancies. While the incidence is currently on the increase, concurrently the case fatality rate has decreased^{17,18}. The incidence in Nigeria ranges between 1.7% to 2.3%¹⁹. An incidence of 1.98% has been reported from our center²⁰.

The most local explanation for the increasing frequency of ectopic pregnancy is previous pelvic infection¹⁸. The relatively higher incidence in developing countries is thought to be related to the high incidence of pelvic inflammatory disease^{19,21}. Other aetiological factors are puerperal sepsis, Postabortal sepsis, appendicitis, use of intrauterine contraceptive devices, previous tubal surgeries including tubal ligation and reversal procedures²¹.

Molar pregnancy, a form of Gestational trophoblastic disease is of considerable interest, not only as a cause of early pregnancy wastage but also because of the malignant sequelae that are associated with a proportion of these moles²². The incidence of molar pregnancy varies worldwide. It occurs most frequently in the far East Asia^{3,22}. In Nigeria, the incidence ranges from 1 in 184 to 1 in 401 pregnancies^{23,24}. The cause of this disease is unknown, however, it is known to be associated with low socio economic status, high parity, nutritional deficiencies and a previous history of same²⁵. Also at increased risk are teenagers and women over 35 years of age, rising to 10 fold for those over 40 years²⁶. This review aimed at establishing the incidence of early pregnancy loss including spontaneous miscarriages {abortions}, ectopic gestation and molar pregnancies at the Ebonyi State University Teaching Hospital, South East Nigeria; documenting the relative contribution of the various types of early pregnancy loss and appraising the management modalities and outcomes of the early pregnancy losses at the centre.

Materials and Methods

This was a review of retrospective data on all patients who had early pregnancy losses between January 1st 2002 and December 31st 2004. They were traced via the gynaecological ward admissions register and their case records were retrieved from the central records department. Information extracted from the case notes included the early pregnancy loss event, their socio

biological characteristics, past obstetric history as well as their management modality and outcome of such management. These were collated on a spreadsheet designed for the study and subsequently fed into the computer. Data was analyzed using the epi info statistical software package version 3.3.2.(2005). Results were presented on Frequency tables and figures.

Results

The 223 patients with early pregnancy loss accounted for 32.1% of all gynaecological admissions during the period under review. The rate increased annually from 21.5% in 2002 to 27.4% and 37.9% in 2003 and 2004 respectively (table I). Abortion was the major form and made up 83.9% of early pregnancy losses, with ectopic gestation and molar pregnancy constituting 13.5% and 2.7% respectively (table II). It maintained this lead position throughout the 3-year period.

Incomplete miscarriage was the commonest diagnosis made in 67.3% of all miscarriages at presentation (table III). Missed abortion was next 14.4% while 18 patients (9.6%) were admitted with septic abortion following illicit abortion procured at peripheral medical/ 'quasi' health facilities. Eight patients each (4.3%) had inevitable and complete abortions respectively at presentation.

The socio demographic characteristics of the study population were examined in table III. Majority of the patients (59.2%) were aged between 20 years and 29 years. Adolescents and elderly expectant mothers constituted 4.9% and 4.5% respectively while those in their 4th decade of life accounted for 31.4%. Individually, the 20 to 29 years and 30 to 39 years age groups also accounted for majority of the cases in abortions and ectopic gestations in that order. The elderly mothers however, marginally had more abortions than their adolescent counterparts (5.3% versus 4.3%). More molar pregnancies were seen in the 30 to 39 years age bracket than the 20 to 29 years age group (66.7% and 33.3% respectively). In all cases, most of the patients were married with all being married in the molar gestation group.

An interesting feature was noted in the social class distribution. The rate of Early pregnancy losses was inversely proportional to the social class from 7.6% in class I to over 32% in women in the lower echelons of the social ladder. This relation was also mirrored in cases of miscarriages while no definite pattern was discerned in women with ectopic gestation. Fifty percent of molar pregnancies occurred in women in social class

1. Classes II, III and IV contributed 16.7% each while none belonged to class V.

Table IV shows that women of all parities suffered early pregnancy losses. Most were however of low parities, 1-2 and nulliparas accounting for 36% and 28% respectively. A little over 20% were grandmultiparas. This same distribution was noted in the miscarriages. Fifty percents of the molar pregnancies occurred in women of parity 1-2, while the other parities contributed 16.7% each. All the patients with molar gestation were booked while all the patients with ectopic pregnancies remained unbooked. Majority of the women with miscarriages were unbooked, 69.5%. All the molar pregnancies were 2nd trimester losses while 93.3% of the ectopic pregnancies were lost in the 1st trimester. Almost 60% of the miscarriages were in the 1st trimester. But for one woman who had a previous ectopic pregnancy and suffered an abortion during the review period, all cases of the 12.6% previous early pregnancy losses were due to abortions.

The management modalities and outcomes are displayed on table V. All patients with molar pregnancy had suction evacuation performed for them. Only one required prophylactic chemotherapy during her follow up and she died following reactions to the agents. This gave a mortality rate of 16.7% for the six cases of molar pregnancy managed.

One of the patients with ectopic pregnancy died before interventions could be instituted. Majority of them 96.4% had Laparotomy and partial Salpingectomy done with good outcome. Two had Laparotomy with ovariectomy and evacuation of abdominal pregnancy for ovarian and abdominal pregnancies respectively. They survived. Twenty-six of them were successfully transfused, some of them having intra operative autologous transfusion. The mortality rate for the 30 cases of ectopic pregnancy was 3.3%. Medical treatment of ectopic gestation was not undertaken in our centre.

No patient with incomplete abortion died during the period. They either had manual vacuum aspiration (32.5%) or evacuation of retained products of conception (67.5%) and were all discharged home in good conditions. Cases of missed abortions were all induced with either intravenous Oxytocin infusion 88.7% or vaginal misoprostol 33.3%. They all expelled and consequently had evacuation of retained products. No complications were recorded. All 18 patients with septic abortion were treated with broad spectrum antibiotics on admission, these were changed following

antibiogram and/or clinical response. Eight 44.4% subsequently underwent Laparotomy for complications. The rest were evacuated under antibiotic cover with the manual vacuum aspirator (22.2%) or had evacuation of retained products of conception in the theatre (33.3%). Over 72% of them were transfused. Two of those who underwent Laparotomy died from the complications they presented with and this gave a mortality rate of 10.7%. In all, four patients with early pregnancy losses in EBSUTH died during the review period, giving a mortality rate of 1.8%

Table I: annual rate of early pregnancy losses at ebsuth, abakaliki. 2002-2004

YEAR	TOTAL GYNAECOLOGICAL ADMISSIONS	EARLY PREG NANCY LOSS n	%
2002	93	20	21.5
2003	234	64	27.4
2004	367	139	37.9
TOTAL	694	223	32.1

Table II: Pattern Of Early Pregnancy Losses At Ebsuth, Abakaliki, 2002-2004

TYPE OF EARLY LOSS	NUMBER	%
Molar Pregnancy	6	2.7
Ectopic Pregnancy	30	13.4
Miscarriages	187	83.9
TOTAL	223	100.0

Table III: Socio Demographic Characteristics Of Patients Who Suffered Early Pregnancy Losses

PARAMETERS	MOLAR PREG. n	%	ECTOPIC PREG. n	%	ABORTIONS n	%	TOTAL n	%
Age (years)								
≤ 19	-	-	3	10.0	8	4.3	11	4.9
20-29	2	33.3	19	63.3	111	59.4	132	59.2
30-39	4	66.7	8	26.7	58	31.0	70	31.4
≥ 40	-	-	-	-	10	5.3	10	4.5
Marital status								
Married	6	100	17	56.7	135	72.2	158	70.9
Single	0	0	13	43.3	52	27.8	65	29.1
Social Class*								
I	3	50.0	2	6.7	12	6.4	17	7.6
II	1	16.7	1	3.3	19	10.2	21	9.4
III	1	16.7	9	30.0	41	21.9	51	22.9
IV	1	16.7	13	43.3	48	25.7	62	27.8
V	0	0.0	5	16.7	67	35.8	72	32.3

Table IV: Obstetric History Of Patients Who Had Early Pregnancy Losses

PARAMETERS	MOLAR PREG. n	%	ECTOPIC PREG. n	%	ABORTIONS n	%	TOTAL n	%
PARITY								
0	1	16.7	9	30.0	53	28.3	63	28.3
1-2	3	50.0	11	36.7	68	36.4	82	36.8
3-4	1	16.7	7	23.3	25	13.4	33	14.8
≥ 5	1	16.7	3	10.0	41	22.0	45	20.2
BOOKING STATUS								
BOOKED	6	100.0	0	0.0	62	33.2	68	30.5
UNBOOKED	0	0.0	30	100.0	125	66.8	155	69.5
GESTATIONAL AGE								
1 st Trimester	0	0.0	28	93.3	112	59.9	140	62.8
2 nd Trimester	6	100.0	2	6.7	75	40.1	83	37.2
PREVIOUS EARLY PREGNANCY LOSS	0	0.0	1	3.3	27	14.4	28	12.6

Table V: management modalities and outcomes of treatment of early pregnancy losses at ebsuth. 2002 2004

EARLY PREGNANCY LOSS	MANAGEMENT		OUTCOME (Maternal Death)	
	n	%	n	%
Molar Pregnancy n= 6				
Suction Evacuation	6	100.0	-	-
Prophylactic chemotherapy	1	16.7	1	16.7
Ectopic Pregnancy n= 30				
Salpingectomy	27	96.4	-	-
Laparotomy	2	6.7	-	-
Nil intervention	1	3.3	1	3.3
Transfusion	26	86.7	-	-
Medical/Conservative treatment	0	0.0	-	-
Incomplete Abortion n= 126				
Manual Vacuum Aspiration	41	32.5	-	-
ERPC*	85	67.5	-	-
Transfusion	33	26.2	-	-
Induced/Septic Abortion n= 18				
Laparotomy	8	44.4	2	10.7
Manual Vacuum Aspiration	4	22.2	-	-
ERPC*	6	33.3	-	-
Transfusion	13	72.2	-	-
Antibiotics	18	100.0	-	-
Missed Abortion n= 27				
Induction with Oxytocin	9	33.3	-	-
Induction with Misoprostol	18	66.7	-	-

*ERPC : Evacuation of Retained Products of Conception.

Discussion

The bed occupancy rate in the gynaecological ward of patients with early pregnancy loss of 32.1% in this study makes it the one of the commonest diagnosis on admission into the ward. Spontaneous miscarriages which accounted for almost 84% of the losses, alone was responsible for 26.9% of all gynaecological admissions. This compares with earlier findings at Benin City and Ibadan^{7,8} respectively. The steady increase throughout the three-year period under review means that early pregnancy loss remains of prime importance to the Gynaecologist. Most of these patients had incomplete abortion requiring urgent intervention to prevent maternal complications including shock from blood loss and sepsis.

Eighteen patients, 9.6% were admitted into the gynaecological ward with a diagnosis of septic abortion. Even though procurement of abortion is illegal in Nigeria, the incidence compares favourably with that in the United States of America where abortion can be legal²⁷. This restrictive law means that many terminations of pregnancy are carried out in unsafe environments by non Physicians in a greater proportion of cases²⁷. Presentation in the hospital only follows development of life threatening complications. Eight of these patients had to undergo Laparotomy for complications including uterine and gut perforations/lacerations. Two of them died, giving a case mortality rate of 10.7% for septic abortion in our centre.

Though majority of the patients were aged between 20 and 39 years, one limitation of this study was that it could not determine the relative proportion of patients with early pregnancy loss against the total expectant mothers in each age group. However, adolescents and elderly mothers (≥ 40 years) accounted for almost 5% each. These two groups are known to suffer adverse

fetal and maternal outcomes of pregnancy more than those in the 20 to 29 years age group considered the ideal obstetric age group²⁸. Nonetheless, neither of both groups presented with molar gestation said to be commoner in them²⁹

In tandem with spontaneous abortions, early pregnancy loss increased in frequency as the socio economic status of the patient declined. Women in the lower echelons had more ectopic pregnancies and abortions. Pelvic inflammatory disease, often a precursor to tubal damage with resultant ectopic gestation and infertility is known to be more prevalent in the poorer sections of the community³⁰. Contrary to the reported increased risk of molar pregnancy with poor social status²⁵, none of our patients belonged to social class V whereas, 50% were elitist.

Women between para 1 and 4 (inclusive) are said to have the best outcome of pregnancy³¹. Primigravidae and grandmultiparas are prone to several pregnancy complications including early pregnancy loss. In our series, the primigravidae and grandmultiparas suffered early pregnancy loss in 28.3% and 20.2% respectively. Unfortunately again, this study could not depict parity specific loss. As noted in literature, ectopic pregnancy was more prevalent among the multigravidae³². Expectedly, unbooked expectant mothers suffered a greater proportion of the loss. Effective antenatal care aims at health promotion, maternal education, screening for risks and management of illnesses/complications during pregnancy to ensure delivery of a healthy baby to a healthy mother³³. Unbooked mothers do not enjoy benefits of antenatal care and may therefore be more prone to pregnancy loss.

All cases of molar gestation aborted in the 2nd trimester while ectopic gestations mainly ended in the 1st trimester. The muscularis layer of the fallopian tube where the fetus is in 95% of the times, is so thin and can hardly support the gestation past 10 weeks of gestation³⁴. When implantation is in a rudimentary horn or the cervix and occasionally the cornua, the gestation may prolong into the 2nd trimester. Nevertheless, there may be a tubal abortion into the abdominal cavity, the pregnancy may or may not continue thereupon. In our series one of such pregnancy was documented, diagnosed at about 18 weeks and non viable. The gestational age at which a spontaneous abortion occurs may serve as a pointer to its aetiology. Loss due to chromosomal anomalies usually occur in up to 90% in the 1st trimester²⁹. Mullerian anomalies and cervical factors are well recognized causes of abortion after the

1st trimester^{2,29}. Twenty-seven of the twenty-eight patients with repeated early pregnancy loss had previous miscarriage. Only 4 of these had recurrent abortion defined as 3 or more consecutive spontaneous abortions. The aetiology of such recurrent loss is varied and not fully understood²⁹.

Suction evacuation was the treatment of choice in all cases of molar pregnancy under Oxytocin cover¹. This was completed with a gentle sharp curettage to ensure complete removal of any residual molar tissue³. These patients were followed up with serial evaluations of beta human chorionic gonadotrophins {B hCG} in the gynaecological clinic. One of such patients eventually required chemotherapy for rising hCG levels, six weeks after initial evacuation. She died following severe reaction to the cytotoxic therapy.

Over 96% of the patients with ectopic gestation underwent Laparotomy with Salpingectomy and this has been the classical surgical management of acute ectopic pregnancy^{3,29}. In cases of unruptured ectopics, conservative surgeries like linear Salpingostomy may be considered. In 1997, Yao and Tulandi³⁵ concluded from a literature review that salpingostomy had equal to or slightly better reproductive performance than salpingectomy; however, slightly higher recurrent ectopic pregnancy rates were noted in the salpingostomy group. Transfusion was successfully carried out in 26 of the patients. Autotransfusion was also done when no contra indication to it was present. One of the patients died from exsanguination from tubal rupture before definitive treatment could be instituted.

This death contributed 2.1% to the overall Maternal mortality ratio for our centre³⁶.

All cases of incomplete abortion were either had the retained products of conception evacuated in the main theatre or had manual vacuum aspiration in the minor theatre. Manual vacuum aspiration was preferred in cases where the fundal height was not more than 12 weeks size because of its advantages of proven efficacy, safety and less complications³⁷. Eight patients with septic abortion underwent Laparotomy and had uterine perforation and/or gut involvement. Twenty five percent of them died, giving a case fatality rate of 10.7%. In the maternal mortality review in our centre, septic abortion was responsible for 4.2% of maternal deaths³⁶.

Conclusion

Many women with early pregnancy disorders eventually suffer loss. This is a devastating event in their lives. Spontaneous miscarriages account for a great percentage of this loss. Some of the losses might be inevitable while some are preventable. Research into the aetiological and risk factors responsible for such loss may provide a rational basis for formulation of preventive strategies. Meanwhile, Gynaecologists must be prepared to manage emergencies attendant on early pregnancy disorders like acute ectopic gestation and septic abortion to minimize morbidity and mortality consequent upon them. The importance of empathy and social support for women with early pregnancy loss cannot be overemphasized.

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