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Ectopic Pregnancy: A 10 Year Review in a Tertiary Hospital in South-South, Nigeria

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Authors' contributions

All authors made substantial contributions to the conceptualization, design, data collection, analysis of data, manuscript writing and review of the final draft of the manuscript.

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ABSTRACT

Background: Ectopic pregnancy continues to be a life threatening gynaecological emergency. In the past decade morbidity and mortality has decreased dramatically but the incidence is rising worldwide.
Objective: To determine the incidence, pattern of presentation, diagnosis and management of ectopic pregnancy at the Federal Medical Centre, Yenagoa, Bayelsa state, Nigeria.
Materials and Methods: This is a retrospective descriptive study of cases of ectopic pregnancy managed from 1st of January 2008 to 31st of December 2017.
Results: During the period, a total of 12,000 deliveries were recorded. 300 patients had ectopic gestation accounting for 2.5% of all deliveries. The mean age was 27.78 +/- 5.2 years.
The presenting complaints varied extremely with abdominal pain (97.7%) being the most frequent. A large proportion of patients (50.3%) presented with past history of induced abortion. Diagnosis was made solely on clinical findings in 49% of cases.
Surgical management was the most frequent method of management (99.3%). Only 2 patients (0.7%) benefited from methotrexate therapy. Approximately 79% had blood transfusion. There were 10 maternal deaths giving a case fatality rate of 3.3%.

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Conclusion: Ectopic pregnancy is still a major health problem amongst women of reproductive age presenting to the gynaecology unit of the Federal Medical Centre, Yenagoa. Majority of patients present late, making tubal conservative treatment inappropriate. Case fatality rate in this study shows that ectopic pregnancy is still a significant cause of maternal mortality in our environment.

Keywords: Ectopic pregnancy; incidence; presentation; diagnosis; management.

1. INTRODUCTION

Ectopic pregnancy is a pregnancy in which the fertilized ovum implants in any other location other than the endometrial lining of the uterus [1]. Ectopic pregnancy is a life threatening emergency in early pregnancy and the leading cause of pregnancy related death in 1st trimester accounting for about 4-10% of all pregnancy related deaths [2,3]. It results in maternal morbidity and mortality and inevitable loss of pregnancy. The morbidity and mortality from ectopic pregnancy has decreased dramatically, mainly because of early diagnosis with ultrasound scan and hCG levels and subsequent treatment before rupture [4]. However the incidence has been on the rise due to higher incidence of pelvic inflammatory disease, use of assisted reproductive technology and higher rates of tubal sterilization [4]. Ectopic pregnancy still remains a major cause of maternal mortality especially in developing countries where majority of cases present late with the ruptured form of ectopic pregnancy.

The incidence of ectopic pregnancy varies from country to country and within the same geographical region depending on the risk factors in the population concerned.[5] In Nigeria the incidence ranges between 1.2-2.7% of deliveries [5-12]. Pelvic inflammatory disease usually due to gonococcal or chlamydial infection is regarded as the most important aetiological factor. Other risk factors include the use of intrauterine contraceptive device, progesterone only pills, previous tubal ectopic, previous tubal surgeries, previous abortions and assisted reproductive techniques [11,13].

Greater than 95% of ectopic pregnancy occur in the fallopian tube [4]. The other sites include the ovaries, cervix, caesarean scar, broad ligament and abdominal cavity. Combined intra-uterine and extra uterine pregnancy (heterotopic pregnancy) also exists, though rare in spontaneous pregnancies (1 in 30,000-40,000) has been recorded in up to 3% of pregnancies from assisted reproduction [4,11].

In majority of cases, surgery is the mode of treatment [13]. The surgical treatment may either be an open laparotomy or laparoscopy depending on surgeons skill, availability of equipment and clinical state of the patient [4,13]. The management of ectopic pregnancy has been revolutionized over the past few decades. This has resulted in several non-surgical options to what had once thought to be a solely surgically treatable condition. An early diagnosis can be made with transvaginal ultrasound scan and qualitative serum B hCG. This increases the chances of success of medical treatment and minimizes its morbidity, mortality and financial burden [13].

The importance of ectopic pregnancy in our environment lies in the fact that while the trend of early diagnosis and conservative treatment is prevalent in developed countries we are still challenged by late presentation with ruptured form of ectopic pregnancy in more than 80% of cases [14]. This study was undertaken to determine the incidence, the pattern of presentation, diagnosis and management of ectopic pregnancy at the Federal Medical Centre Yenagoa, Bayelsa State.

2. MATERIALS AND METHODS

This was a retrospective study of ectopic pregnancies at the Federal Medical Centre, Yenagoa from the 1st of January 2008 to 31st of December 2017. The case notes of the patients with ectopic Pregnancy were retrieved from the records department of the hospital. The labour ward register was used to ascertain the total number of deliveries for the same period. The total number of cases retrieved were 300 and the following were analyzed in all the cases: Demographic and social characteristics (such as age, parity, gestational age and level of education), risk factors, clinical presentation on admission, laboratory and radiological investigations on admission, type of treatment, findings at laparotomy, duration of stay in the hospital and outcome. All the cases that were diagnosed and managed for ectopic pregnancy were included in the study. The case folders

without complete information were excluded from the analysis. Data entry and Statistical analysis was performed using statistical package for social science (SPSS for windows version 22.0 SPSS Inc, Chicago, USA). The level of significance was at $P < 0.05$.

3. RESULTS

In the 10 year review period, there were a total of 12,000 deliveries and 300 ectopic gestations. This gives an incidence of 2.5% of total deliveries. The Mean age was 27.78 +/- 5.2 years and ranged between 15 and 41 years. Higher proportions (36.7%) were nulliparous women. Multiparous, primiparous and grand multiparous women accounted for 31.0%, 23.7% and 8.7% of cases respectively. About 70% of them had secondary level of education.

The presenting complaints varied extremely [Table 1]. Abdominal pain (97.7%), amenorrhoea (73.7%), vaginal bleeding (68%), fainting attacks (38%) and abdominal swelling (15%) were the most frequent symptoms. A large proportion of patients (50.3%) in the study presented with past history of induced abortion. Previous pelvic inflammatory disease, previous spontaneous miscarriage and previous caesarean section were other associated risk factors patients presented with in this study with 26%, 6.0% and 5.3% respectively [Table 2].

Table 1. Clinical presentation (symptoms)

Symptoms	Number of patients	Percentage [%]
Abdominal Pain	293	97.7
Amenorrhoea	221	73.7
Vaginal Bleeding	204	68.0
Fainting Attack	114	38.0
Abdominal Swelling	45	15.0

Table 2. Identifiable risk factors among the study population

Risk factors	Frequency	Percentage [%]
Induced Abortion	151	50.3
Spontaneous Miscarriage	18	6.0
Pelvic Inflammatory Disease	78	26.0
Previous Caeserean Section	16	5.3

Majority of the patients 259 (86.3%) were pale while only 10 patients (3.3%) were icteric. Hypovolaemic shock was present in 171 (57.0%) of cases. Other physical findings were abdominal tenderness 294 (98.7%), abdominal distention 136 (45.3%), rebound tenderness 216 (72.0%) and positive fluid thrill/shifting dullness 140 (46.7%). A large proportion 230 (76.7%) of these cases had significant fluid in the pouch of douglas and 87 (29.0%) had a palpable adnexal mass [Table 3].

Table 3. Clinical presentations (signs)

Signs	Number of patients	Percentage [%]
Palor	259	86.3
Jaundice	10	3.3
Shock	171	57.0
Abdominal Distension	136	45.3
Abdominal Tenderness	296	98.7
Rebound Tenderness	216	72.0
Ascites	140	46.7
Fluid in pouch of Douglas	230	76.7
Palpable Adnexal Mass	87	29.0

Among the 300 cases of ectopic pregnancy, 286 cases (95.3%) had a positive pregnancy test, 2 cases (0.7%) had a negative pregnancy test and 12 patients (4.0%) did not have a documented pregnancy test. Majority of these patients 147 (49%) were diagnosed through clinical physical examination. Seventeen (5.7%) of the cases were diagnosed through ultrasonography. One Hundred and Thirty Six cases (45.3%) were diagnosed using both clinical physical examination and ultrasonography [Table 4].

Table 4. Investigation/diagnosis

	Frequency	Percentage [%]
Pregnancy Test		
Positive	286	95.3
Negative	2	0.7
Not done	12	4.0
Diagnosis		
USS Diagnosis	17	5.7
Clinical Diagnosis	147	49.0
Both	136	45.3

Surgical management was the most frequent method of management 298 (99.3%) and transverse suprapubic incision was the most frequently used abdominal incision 182 (60.7%). Only 2 patients (0.7%) benefited from methotrexate therapy. Intraoperative findings of a grossly normal contralateral fallopian tube was noted in 215 (71.7%) of cases and majority of the patients 236 (78.7%) had blood transfusion [Table 5].

Minimum and maximum duration of admission were 2 days and 18 days respectively with a mean duration of 6.45 +/- 1.93 days. There were 10 maternal deaths resulting in a case fatality rate of 3.3%

Table 5. Management and intra-op findings

	Frequency	Percentage [%]
Mode of management		
Medical	2	0.7
Surgical	298	99.3
Types of abdominal incision		
Midline extended	4	1.4
Midline subumbilical	114	38.0
Transverse suprapubic	182	60.7
Gross appearance of contralateral tube		
Normal	217	72.4
Abnormal	83	27.7
Blood transfusion		
No transfusion	64	21.3
1 to 5 units	236	78.7

4. DISCUSSION

The rate of ectopic pregnancy has followed an increasing trend during the last three decades throughout the world [14]. Globally, the reasons for this rising trend are thought to include early diagnosis of cases that would otherwise have resolved due to availability of more sensitive methods such as hormonal tests, transvaginal ultrasound scan and laparoscopy [14]. The incidence of 2.5% in our centre is similar to 2.7% reported by Akaba et al in Abuja and 2.3% reported in Benin by Oronsaye et al[2] but higher than 1.3% reported by Udigwe et al in Nnewi [14].

The mean age of ectopic pregnancy in this study was 27.78 +/- 5.2 years with a range of 15 – 41 years. This was similar to the mean age of 29.8 +/- 5.6 years with a range between 16 – 45 years reported in Ibadan by Bello et al. [15]. Akaba et al also reported a mean age of 26.74 +/- 4.56 years [2]. This was not surprising, considering that this is the age of reproduction and peak sexual activity. Majority (70%) of cases had secondary education as their highest educational attainment. This was similar to findings reported in Nnewi and Sokoto by Udigwe et al. and Panti et al. respectively [14, 16].

The highest incidence of ectopic pregnancy was noted amongst nulliparous women, which was in conformity with findings from some other Nigerian studies [15,16]. This may be because most young unmarried people with unintended pregnancies often procure unsafe abortions, which leads to tubal damage and subsequently predispose them to having ectopic pregnancy in future pregnancies. The relatively high occurrence of ectopic pregnancy among nulliparous women may also be explained by the increase in the use of ovulation induction drugs which are risk factors for ectopic pregnancies.

Abdominal pain was the most common symptom in this study. This is similar to the findings in Abuja by Akaba et al. [2], Ibadan by Bello et al. [15] and in Sokoto by Panti et al. [16]. This symptom should raise a suspicion of ectopic pregnancy in women of reproductive age group, especially in the face of amenorrhoea and features of anaemia. Majority (73.7%) of the patients in this study presented with a history of amenorrhoea. This was compatible with 79.6% reported in Sokoto [16]. The vaginal bleeding that occurred in 68% of cases was probably due to decidual separation following fetal demise with estrogen and progesterone withdrawal. This was similar to 65.38% reported from a study in NDUTH, Okolobiri [17], but less than 87.8% reported in Portharcourt [18].

A high frequency of history of abortions in women with ectopic pregnancy has been reported [19]. In this study 50.3% of cases have had one or more induced abortions. This was higher than the value reported in Abuja, Ilorin and Benin which were 19.8%, 14.79% and 22.0% respectively [2]. Although pelvic inflammatory disease has been incriminated in the aetiology of majority of cases of ectopic pregnancy, it was only implicated in 26% of cases in this study. This was less than the 60.7%, 41.2% and 43.13% reported by Panti et

al. [16], Akaba et al. [2] and Khan et al. [20]. The risk factors frequently cited from different studies [2,14,15,16,21] in Nigeria for ectopic pregnancy have not changed over the last few decades. These include induced abortions, pelvic infections and abdominal surgeries among others. An improved approach of post abortion care, sex education in secondary schools with emphasis on genital disease prevention and prompt and adequate management of pelvic inflammatory disease will go a long way in reducing the incidence of ectopic pregnancy [21].

Abdominal tenderness was the most common sign in this study. It was elicited in 98.7% of cases; while rebound tenderness was elicited in 72.0% of cases.

Diagnosis was made solely on clinical findings in 140 (46.7%) of cases, which was similar to 40.14% observed in Ilorin and 36.72% observed in Abuja, Nigeria [2]. However, the use of abdominal ultrasound scan in 53.3% was however higher than 15.3% observed in Ife and lower than 63.3% observed in Abuja [2].

In our study, 59.2% of the women presented in shock on admission. This was higher than 12.87% reported by Yakassai et al. [22] but lower than 74.11% gotten from a similar study in Nigeria [20].

Generally, once ectopic pregnancy is diagnosed, treatment will follow one of the three options: These are expectant management, medical management with methotrexate or surgical management. Expectant management is rarely adopted considering that small propotion of patients meet the required criteria [23]. In our study, 99.3% patients had surgical treatment of ectopic pregnancy while 0.7% had medical treatment. This is similar to 95% and 5% for surgical and medical treatment observed by a study in Pakistan [20]. The reason for this high rate of surgical intervention was because almost all the patients presented with ruptured ectopic pregnancy thereby making tubal conservative surgery inappropriate. This is however in contrast to the developed countries where conservative treatment by minimal access surgery or medical means is the main treatment modality [24]. Majority (60.7%) of the patients that had surgical intervention had transverse suprapubic incision and intraoperative findings showed that 72.1% had a grossly normal contralateral fallopian tube.

There were 10 maternal deaths (3%) during the 10 year period of this report. This is higher than 0.6% and 1.4% maternal mortality rate reported by khan et al. [20] and Panti et al. [16] respectively but lower than 5.9% reported by Awojobi et al. [20].

The study result showed that majority of the patients presented late with ruptured ectopic gestation thereby making tubal conservative treatment inappropriate. This has a far reaching implication in our environment where there is high premium on child bearing. Early presentation, prompt diagnosis and treatment will significantly reduce morbidity and mortality associated with ectopic gestation.

5. CONCLUSION

Ectopic pregnancy still remains a major gynaecological problem associated with appreciable maternal morbidity and mortality. A high prevalence of unsafe abortion and pelvic inflammatory disease results in high incidence of ectopic pregnancy. Most of the patients presented with ruptured ectopic pregnancy and surgical management remained an important method of treatment. Emphasis should be on prevention and early detection so as to reduce mortality and also give patients opportunities for tubal conservative treatment.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

Ethical approval was obtained from the ethical committee of the hospital to conduct the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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