Original Article

Clinical Presentation and Management of Ectopic Pregnancy: A 10-Year Review at A Federal Teaching Hospital in The North-Western Nigeria

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ABSTRACT

Background: Ectopic pregnancy is a major cause of first trimester pregnancy loss and an important cause of maternal morbidity and mortality in developing countries where majority of the patients present late with ruptured variant. **Objectives:** To determine the prevalence, clinical presentation and management of ectopic pregnancy at the Federal Teaching Hospital Katsina (FTHK). **Methodology:** A retrospective study of ectopic pregnancies managed at the FTHK between January 1st, 2010 and December 31st, 2019. Data were extracted from the patients' case notes, collated and analysed using SPSS. **Result:** A total of 20,089 patients were managed for pregnancy related conditions and 182 cases were ectopic pregnancies putting the prevalence of ectopic gestation at 9/1,000 pregnancies. The mean age of the patients was 26.7±6.9 years and the highest frequency of ectopic pregnancy was seen in women between 21-25 years of age. The commonest presenting symptom was abdominal pain (95.3%). Most patients presented with ruptured ectopic pregnancy while 15.1% presented in shock. The commonest risk factor was pelvic inflammatory disease (PID). Fallopian tube (94.5%) was the main location of ectopic pregnancy and 92% of the patients had unilateral salpingectomy. There was 0.6% case fatality. **Conclusion:** The prevalence of ectopic pregnancy was relatively stable with high rate of ruptured ectopic pregnancy and radical tubal surgery.

Keywords:
Ectopic pregnancy
Laparotomy
PID
Salpingectomy.

INTRODUCTION

Ectopic pregnancy is the commonest cause of first trimester maternal death in developed countries and it follows complications of abortion in sub-Saharan Africa.[1,2] Ectopic pregnancy is defined as the implantation of an embryo in any location other than the endometrial cavity.[3] it results in significant morbidity for the mother and inevitable loss of pregnancy.[4,5] It is also an important cause of maternal mortality especially in developing countries where majority of the patients tends to

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present late with ruptured ectopic pregnancy and haemodynamic instability.

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. The incidence of ectopic pregnancy in United Kingdom was 11 per 1,000 pregnancies.[6] In India, a study quoted an incidence of 10.7 per 1,000 deliveries, [7] while in Ghana 7.9 per 1,000 deliveries has been reported.[4] In Nigeria, the reported incidence ranges between 8.6 to 27 per 1,000 deliveries (0.86-2.7%). [8-12]

Pelvic inflammatory disease usually due to Neisseria gonorrhoea or chlamydial trachomatis infection is regarded as an important aetiological factor for ectopic pregnancy[11], other risk factors include, previous ectopic gestation, pelvic surgeries, abortion and its complications, contraceptive use, and assisted reproductive techniques.[7,10,13]

Ectopic pregnancy can be diagnosed early with an un-ruptured variant while late diagnosis may result into ruptured ectopic pregnancy. The ruptured ectopic pregnancy can either present as an acute condition where there is complete tubal rupture or as chronic slow leaking ectopic in which there is an incomplete tubal rupture.[2.3,9]

The advent of quality ultrasound machines and early pregnancy clinic in developed countries has provided facilities for early diagnosis of ectopic pregnancy and prompt management. This also allow physicians to choose between several options of managements including conservative tubal surgeries, medical treatment and expectant management.[13,14] In Nigeria, more than 90% of patients still present late with ruptured variant of ectopic pregnancy which requires emergency radical surgery and thereby reducing the options of management.[8-12]

The importance of ectopic pregnancy in our environment lies in the fact that several studies have reported increasing incidence with late presentation and need for radical surgery. While the norms of early diagnosis and conservative treatment are higher in developed countries, we are still facing the challenges of late presentations and resultant radical surgery with associated severe maternal morbidity. This shows that, there are still more to be done in improving the outcome of this condition in our environment. This study therefore looked into the prevalence, the pattern of presentation, risk factors and the managements of ectopic pregnancy in our facility.

MATERIALS AND METHODS

This was a retrospective study of 182 cases of ectopic pregnancies managed at Federal Teaching Hospital Katsina (FTHK) between January 1st, 2010 and December 31st, 2019. Federal Teaching Hospital Katsina was formally Federal Medical Centre before it was upgraded in 2022. It serves as a referral centre for other hospital within the state, neighbouring states such as Kano, Zamfara and country like Niger Republic. Folders of patients managed for ectopic pregnancies during the period of review were retrieved through the medical record of the hospital and the information including socio-demographic characteristics, risk factors for ectopic pregnancy, clinical presentations, surgical procedures and other managements received were all extracted from the case notes. The total number of patients managed for pregnancy related condition (ectopic pregnancy, miscarriages, molar pregnancies and deliveries), were also extracted. The diagnosis of ectopic pregnancy was made by patient's clinical presentation, laboratory and radiological findings, as well as intraoperative findings.

Ethical Consideration

The approval to conduct the study was sought and obtained from the Ethical Research Committee of Federal Teaching Hospital Katsina

Data Analysis

Data were collated and analysed using the Statistical Package for Social Sciences (SPSS) version 26 for Windows. Analysis was carried out for descriptive statistics and illustrated as frequency and percentages for categorical variables. Mean and standard deviation were used for continuous variables and graph was used to demonstrate the yearly trend of ectopic pregnancy prevalence.

RESULTS

During the period of this review, a total of 20,089 patients were managed for pregnancy related

conditions and 182 of these patients had ectopic pregnancy. This put the prevalence of ectopic pregnancy at 9 per 1,000 pregnancies.

Table I. is showing the socio-demographic characteristics of the patients with ectopic pregnancy during the review period. The mean age of the women was 26.7 ± 6.9 years with the age ranges between 15-46 years. The peak age group was 21-25 years and it accounted for 35.2% of all cases of ectopic pregnancy. A very few per centage of the women were above 40 years.

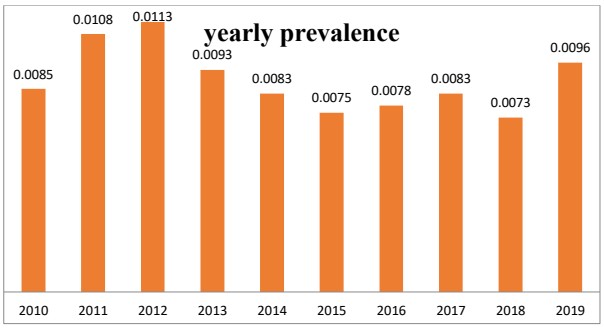

Figure I showed the yearly trend of the prevalence of ectopic pregnancy. The prevalence is relatively stable through the years, with undulating pattern.

Table 1 Socio-demographic Characteristics

Variable	**Frequency**	**Percentage (%)**
Age group		
≤ 20	27	14.8
21 - 25	64	35.2
25 - 30	48	26.4
31 - 35	15	8.2
36 - 40	21	11.5
≥ 41	7	3.9
Total	**188**	**100.0**
Parity		
0	55	30.2
1	33	18.1
2	29	15.9
3	24	13.2
4	19	10.4
≥ 5	22	12.2
Total	**188**	**100.0**
Marital Status		
Married	170	93.1
Single	12	6.6
Total	**188**	**100.0**

Majority of the patients 170 (93.4%) were married while only 12 (6.6%) were single. The highest frequency of ectopic pregnancy occurred among the nulliparous women which accounted for 55 (30.2%) of all cases. The occurrence of ectopic pregnancy decreased with parity down to a trough in women with 4 previous deliveries.

Table 2. Symptoms and signs of ectopic Pregnancy

Symptoms/signs**	**Frequency (n =182)**	**Percentage (%n)**
Abdominal Pain	173	95.3
Amenorrhoea	134	73.6
Vaginal Bleeding	112	61.3
Dizziness/fainting spell	89	49.1
Shoulder tip pain	19	10.4
Abdominal tenderness	170	93.4
Adnexal tenderness/ fullness	137	75.5
Shock	27	15.1

**more than one symptoms/signs, n= total numbers of ectopic pregnancy

Table 3. Identified risk factors

Risk factors	**frequency**	**percentage**
Pelvic inflammatory diseases	108	59.3
Contraceptives	20	11.0
No identifiable risk	19	10.4
Post-abortal / puerperal infection	16	8.8
Pelvic surgery	7	3.8
Previous Ectopic pregnancy	2	1.1
Total	**182**	**100.0**

Symptoms and signs of ectopic Pregnancy

The table below shows the symptoms and signs with which patients presented with and most patients had more than one symptom. Abdominal pain (95.3%), amenorrhoea (73.6%) and vaginal bleeding (61.3%) were the highest symptoms these women presented with. Most elicited physical sign was abdominal tenderness which was seen in 93.4% of the patients. This was followed by adnexal tenderness and fullness seen in 75.5%. Twenty-seven patients presented in shock.

Table VI. Management

Type of management	Frequency	(%)
Expectant	2	1.1
Medical	3	1.7
Surgical	176	97.2
Total	**181**	**100.0**
Surgical options		
Unilateral salpingectomy	162	92.0
Salpingo-oophorectomy	4	2.3
Excision of Abdominal ectopic	4	2.3
Oophorectomy	3	1.7
wedge resection	2	1.1
cornual resection	1	0.6
Total	**176**	**100.0**

Risk Factors for Ectopic Pregnancy

Table III is showing the various risk factors for ectopic gestation. The most implicated risk factor was pelvic inflammatory disease which accounted for 59.3% of all cases. This was followed by contraception that was identified in 11% of the patients. Nineteen patients had no identifiable risk factor. Other risk factors were as illustrated in the table below.

Locations And Management of Ectopic Pregnancy

The commonest site of ectopic pregnancy in this study was fallopian tube with 172 patients accounting for 94.5% of all cases. Other sites include the ovary with 2.7%, abdominal cavity with 2.2% and rudimentary uterine horn with 0.6%. There were 2 cases of heterotopic pregnancies involving fallopian tube and intrauterine gestation.

Out of the 182 patients managed, 176 had surgery, 3 patients had medical management with methotrexate and 2 patients had conservative management. There was one case of mortality giving a case fatality of 0.6%. One hundred and sixty-two patients had salpingectomy which was followed by excision of abdominal sac and salpingo-oophorectomy with 4 cases each. Other procedures were oophorectomy, wedge resections and cornual resection.

DISCUSSION

Ectopic pregnancy is an important cause of maternal morbidity and mortality in Nigeria and some studies have reported increasing incidence.[8,10,15] The prevalence of ectopic pregnancy in this study was 9 per 1,000 pregnancies. This was lower than the reported incidence in UK, USA and South Korean.[6,16,17] The lower rate of ectopic pregnancy reported in our study may be due to the late presentation of our women, since more than 90% of the patients only present when they have symptoms which in most cases the ectopic pregnancy would have ruptured. Therefore asymptomatic ectopic pregnancies that resolve spontaneously are not commonly seen in our facility. Another reason for this lower incidence may be due to the fact that most patients in our centre don't present for early pregnancy clinic and scan which could pick early ectopic pregnancy that can resolve spontaneously or can be managed conservatively.

Some studies done within the country reported higher incidence of ectopic pregnancy.[8,10,12,15] However, it is good to note that all of these studies reported these incidences per deliveries which could be lower when calculated per pregnancy events. A United State of America study however reported a prevalence of 7.6/1000 pregnancies between 2006 and 2010 which was lower than the findings in our study. [18] It is noted that the data for this study was collected from the emergency department which may correlate well with our study since all patients with ectopic pregnancies in our centre presented at the emergency unit of the hospital. The increase in the incidence of ectopic pregnancy in the developing countries may be due to increasing incidence of chronic pelvic inflammatory disease usually resulting from sexually transmitted disease; unsafe abortion and puerperal infection. [8,15,19]

The mean age of the patients in this study was 26.7±6.9 years and the highest frequency of ectopic pregnancy was observed in woman between 21-25 years of age. This was similar to previously reported study in Jos.[11] It is not surprising that this also corresponded to the peak age of women with pelvic inflammatory disease.[11,20] Majority of the patients with ectopic pregnancy in this study were married and this was not different from findings in previous studies.[4,7,9,21] Ectopic gestation is more

among the nulliparous women which was similar to some studies in the past.[8,15] The increase in the incidence and prevalence of ectopic pregnancy seen among these women is not surprising because major risk factors like pelvic inflammatory disease, sexually transmitted infection, infertility and induced abortion with post-abortal infection are more among this group of women.[3,22,23,24]

Abdominal pain and amenorrhoea constituted the major presenting complaints, which was comparable to some previous studies.[8,9,12,17,25] These symptoms should provide high index of suspicion of ectopic pregnancy among the women of child bearing age. The abdominal pain can be explained by the growing effect of the tubal gestation or generalized peritoneal irritation from haemorrhage in ruptured ectopic pregnancy. In developed countries, the incidence of ruptured ectopic pregnancy is lower since more patients presented with un-ruptured variant.[3,14] Amenorrhoea is also an important symptom as large percentage of patients presented with this symptom. Vaginal bleeding occurred in 61.3% of the patients and this may be due to decidual reaction interplay with oestrogen and progesterone withdrawal in ectopic pregnancy. Abdominal tenderness recorded in 93.4% of the patients was the most elicited sign while adnexal fullness and tenderness especially on the affected side, was recorded in about 75.5% of cases and was supported by other studies.[8,10,11,12]

Pelvic inflammatory disease was the most common risk factor identified in this study and similar findings were reported in other studies.[8,11,26] This is not surprising, since PID can cause tubal damage, tubo-peritoneal adhesion and even pelvic adhesion which will all increase the risk of infertility and ectopic pregnancy. Eleven percent of the patients had history of contraceptive use, most of which were emergency contraceptive pills and intrauterine devices. Though contraceptives use has been said to reduce incidence of ectopic pregnancy but in situation where pregnancy occur, it is more likely to be ectopic.[3,27] This can be explained based on the fact that intrauterine devices prevent intrauterine implantation of pregnancy thereby leading to tubal pregnancy. Also hormonal contraceptive distort the pregnancy hormone thus causing implantation outside uterus.[27,28]

Fallopian tubes were the most common location of ectopic pregnancy in our study and these were seen in more than 90% of the cases, the finding which can be explained by tubal damage, abnormal fallopian ciliary activity and some congenital anomalies occurring in the fallopian tube lining is similar to other reported findings.[3,8,9,10,12] Three (1.7%) of all the cases were ovarian ectopic gestation and there were 2 (1.1%) cases of heterotopic ectopic gestation. Heterotopic pregnancy is very rare and usually associated with assisted reproduction.[3,29] However, this was not so in this study as none of the 2 patients had assisted conception.

Over the years the therapy for ectopic gestation has evolved from radical procedure to conservative treatment in order to preserve fertility. Where patient present early, she can benefit from variety of management range from expectant management to conservative laparoscopy surgeries.[2,3,14,27] The agents used for the medical management of ectopic pregnancy include Methotrexate, Actinomycin-D and potassium chloride.[2,3,14,27,30] Only 3 patients benefited from medical treatment with methotrexate as most patients presented with ruptured ectopic pregnancy that occurred in 97.3% thus warranted the need for laparotomy.

Unilateral salpingectomy accounted for 92% of the surgical procedure during this period which was not surprising, since largest proportion of the patients presented with ruptured tubal ectopic pregnancy. This finding was comparable to other reported findings within the country. [11,12,16,30] Four (2.3%) of the patients had salpingo-ophorectomy. These were the patients whose ovary was involved in ectopic complex and in whose haemostasis was not achieved until excision of the ovary.

There was one case of maternal mortality during this study, giving a case fatality of 0.6% which was lower than reported fatality of between 1-4% in some studies in the country.[8,10,17] Studies done in Jos,[11] Enugu[25] and Umuahia[31] reported no mortality. This patient died of irreversible hypovolaemic shock 1 hour into admission.

CONCLUSION

The prevalence of ectopic pregnancy was relatively stable in this study; Pelvic inflammatory disease and contraception were the two most important identified risk factors. Most patients in this study presented with ruptured tubal pregnancy which had strong effect on their managements as large

proportion of these patients also had laparotomy with radical tubal surgery.

Strength

The prevalence of ectopic pregnancy in this study was per 1000 pregnancy, which is more evidence-based as compared to many other studies whose reference was number of deliveries.

Limitation

This was a centre based retrospective study, which was prone to misclassification bias.

Line of Future Research

A prospective study on early presentation, minimal invasive surgery and pregnancy outcome following management of ectopic pregnancy will go a long way in answering many research questions in our environment.

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There was no financial support to mention.

Conflict of Interest

The authors do not have conflict of interest to declare.

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Abbreviations:

FTHK = Federal Teaching Hospital Katsina**; PID** = Pelvic Inflammatory Disease**; SPSS** = Statistical Package for Social Sciences**; UK** = United Kingdom**; USA** = United State of America

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