

ECTOPIC PREGNANCY IN A TEACHING HOSPITAL IN SOUTH EASTERN NIGERIA: A FIVE YEAR REVIEW

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ABSTRACT

Background: Ectopic Pregnancy still remains a deadly gynaecological emergency. It has been linked with increased maternal morbidity and mortality in early pregnancy especially in Sub-Saharan Africa.

OBJECTIVES

To determine the incidence, common risk factors, clinical presentations, treatment modalities and maternal outcome of ectopic pregnancies that presented in Nnamdi Azikiwe University Teaching Hospital over a five year period (January 2014 to December 2018)

MATERIALS AND METHODS

This is a retrospective study of all cases of ectopic pregnancy managed in the department of obstetrics and gynaecology, Nnamdi Azikiwe University Teaching Hospital, Nnewi between the period of January 2014 to December 2018. A total of 46 case folders were available out of 51 folders giving a retrieval rate of 90.2%. Data was obtained from the patient's case folders, theatre and labour ward registers. The data obtained were socio-demographic data, predisposing risk factors, clinical presentation, treatment options, intra-operative findings and the management outcomes.

RESULTS

During the period under review, there were a total of 5348 deliveries and 1033 gynecological admissions of which 51 women had a diagnosis of ectopic pregnancy and this accounted for 0.95% of all deliveries and 4.94% of all gynecological admissions. Of these cases only 46 folders were fully retrieved and analyzed giving a retrieval rate of 90.2%.

The peak age group was 26-30years accounting for 32.6% of the women who presented within the period of the study and 13 women were nulliparous accounting for 28.26%.

All the patients were symptomatic at presentation with all presenting with a history of amenorrhea. 97.83% presented with abdominal pain and 21 women (45.65) presented with a history of vaginal bleeding. Only 7 women (15.22%) had positive cervical excitation tenderness and only 5 women (10.87%) had shock.

A history of a previous miscarriage was the commonest associated risk factor accounting for 59.2%, with a history of previous sexually transmitted infection accounting for 30.6%.

Urine/blood pregnancy test and an ultrasound scan were utilized for diagnosis in all patients. There was no recorded case of maternal mortality within the review period and only two cases were diagnosed prior to rupture of which one was managed medically using intravenous methotrexate.

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CONCLUSION

The rate of ectopic pregnancy in Nnamdi Azikiwe University Teaching Hospital, Nnewi is relatively low, however it is still a big problem in the gynecological practice. Majority of patients presented late when rupture had already occurred. An improvement in the health seeking behavior of the people with a high index of suspicion on the doctor's part will greatly help in making a timely diagnosis and offering early treatment prior to rupture of the ectopic. This will subsequently lead to a decrease in the associated maternal morbidity and mortality associated with ectopic pregnancies.

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INTRODUCTION

Ectopic pregnancy can be defined as a pregnancy in which the fertilized ovum implants in any other location other than the endometrial lining of the uterus. Ectopic pregnancy is often a deadly emergency and is a principal cause of pregnancy related deaths in the first trimester¹. Apart from the fetal loss, maternal morbidity and mortality, ectopic pregnancy is also related with a danger of repeat ectopic pregnancy and ruin of subsequent fertility². It is a common cause of maternal morbidity and mortality especially in Africa. While the mortality rate from ectopic pregnancy has markedly reduced in developed countries despite the increase in occurrence, it remains a key cause of maternal mortality in

developing countries¹. Most often women in developing nations report late with the ruptured variety and with haemodynamic instability.

A bulk of all ectopic pregnancies develops in the fallopian tube accounting for more than 90%. The other possible locations would include the ovaries, uterine cervix, a previous caesarean scar, broad ligament and within the abdominal cavity⁴. An intra-uterine and extrauterine pregnancy co-existing (heterotopic pregnancy) is quite rare in spontaneous conception (1 in 3000-4000). However, a rate of 3% has been documented in assisted reproduction⁵.

Different circumstances have been linked to escalate the possible risk of a woman having ectopic pregnancy. These risk factors all follow a familiar pathway and this is usually through an interference with the ciliary movement of the fallopian tube^{6,7}. Pelvic inflammatory disease (PID) has been identified to be the often implicated risk factor for ectopic pregnancy and it's however, been documented that timely diagnosis and appropriate management of pelvic inflammatory disease does not totally prevent tubal damage⁷. Some other factors have been implicated and would include a positive history of previous ectopic pregnancy, endometriosis, and previous tubal surgery and also a positive history of infertility and infertility treatments⁸. Previous caesarean section, tubal spasm, congenital abnormalities of

fallopian tube are all implicated risk factors^{8,9}.

The management of ectopic pregnancy is majorly influenced by the patients' clinical status, the site of occurrence of the ectopic pregnancy, the parity/fertility wishes of the patient. The surgical option of management is currently the "gold standard"¹⁰ and could be offered in two (2) approaches - open laparotomy or a minimal access surgery. The surgical approach may be radical such as in salpingectomy or conservative such as in linear salpingotomy¹⁰. Medical option of management is also an accepted mode of management but requires a good patient selection. Systemic administration of methotrexate remains the most available option of medical management. Though, an ultrasound or laparoscopic guided injection of methotrexate into the gestational sac is a possible option of medical management and would achieve resolution in asymptomatic patients. This work reviewed patients with ectopic pregnancy in Nnamdi Azikiwe University Teaching Hospital, Nnewi with the aim of ascertaining the epidemiological, diagnostic and therapeutic modalities currently employed in the facility. It will also compare with trends in other facilities and advocate improvement in the diagnosis and management.

MATERIALS AND METHODS

This is a retrospective study of all the cases of ectopic pregnancies that was managed in Nnamdi Azikiwe University Teaching Hospital, Nnewi, over a five (5)

year period – January 2014 to December 2018. The case notes of the patients that presented to the hospital with ectopic pregnancy were sort for via the accident and emergency, gynecology ward, and theatre registers. The labour ward register was assessed to determine the total number of deliveries for the same period. However, only 46 case folders were available with complete information out of the total 51 patients that presented at the facility with ectopic pregnancy, giving a retrieval rate of 90.2%. Information on the biosocial data, the presenting signs and symptoms, the method used for diagnosis; location of the ectopic and treatment options offered, risk factors as well as related morbidity and mortality were obtained.

RESULTS

Over the five (5) year review window; there was a sum of 5348 deliveries and 1033 gynecological admissions. A total of 51 women presented with ectopic pregnancy accounting for 0.95% of all deliveries and 4.94% of all gynecological admissions in Nnamdi Azikiwe University Teaching Hospital, Nnewi. Out of the 51 cases, only 46 case files were retrieved and analyzed giving a retrieval rate of 90.2%.

All the patients ages varied between 21 to 40 years with the main affected age group being 26 -30 which accounted for 32.61% (15 patients). This was closely followed by the 21-25 years age group which accounted for 30.43% (14 patients). There was no patient below the age of 20years and only 3 patients

were above the age of 40 years (6.52%) as seen on Table 2.

Most of the women that reported with ectopic pregnancy in the period under review were nulliparous (had not achieved pregnancy prior to the index ectopic pregnancy) and they accounted for 28.26% (13 patients). 9 patients accounting for 19.57% were primiparous (had achieved a single pregnancy prior to the index ectopic pregnancy) and only 2 patients accounting for 4.35% were grand multiparous (had achieved at least 5 pregnancies irrespective of the outcome). The rest of the patients in the study were multiparous as seen in Table 3. The average gestational age of the patients at presentation was 7.4 weeks with a range of 5 - 10 weeks as seen in Table 4.

Out of the 46 patients under review, 31 patients (67.39%) were married and 13 were single accounting for 28.26%. Only 2 patients (4.35%) were divorced as at the period under review as seen in Table 5.

The typical presentation of amenorrhoea, vaginal bleeding and lower abdominal pain was present in 21 (45.65%) cases. Acute abdominal pain was the most frequent presenting complaint, seen in 45 women accounting for 97.83%. Although a history of preceding amenorrhoea was found in all the 46 women that presented within the period under review. The other symptoms at presentation were vomiting, dizziness and fainting spells. Cervical motion tenderness was elicited

on pelvic examination in 7 women (15.22%) as seen in Table 6.

At point urine pregnancy test was done for all women and was found to be affirmative in 100% cases. A diagnosis of ectopic pregnancy was made on clinical findings alone in all women. However, ultrasonography was employed to confirm diagnosis and also location of the ectopic.

Table 7 shows the identifiable risk factors seen in the patients that presented with ectopic pregnancy within the review period. The commonest associated risk factor was a positive history of previous abortions which accounted for 59.2% (29 women) of cases. This was followed by a positive history of previous sexually transmitted disease which was present in 15 women accounting for 30.6% of cases. 10 women (20.4%) had a history of previous abdomino-pelvic surgery and another 10 women (20.4%) had no identifiable risk factor. There were 3 women with a positive history of previous ectopic pregnancy which accounted for 6.1%.

Abdominal paracentesis with non-clothing blood, urine pregnancy test and ultrasound scans were majorly employed for the confirmation of diagnosis in the patients presenting with ruptured variety. However, only two (2) women were diagnosed before rupture of which both were managed medically by systemic administration of methotrexate.

42 women accounting for 91.3% of cases had their ectopic located in the

fallopian tube while in 3 women (6.5%) it was located in the ovary as seen in Table 8.

Table 8 shows that the commonest surgical procedure performed for the management of ectopic pregnancy in the population under review was salpingectomy which was done in 41 women accounting for 89.1% of

cases. Ovariectomy was done for 3 women accounting for 6.5% of cases within the review period. However, two women presented early and had a transvaginal ultrasound scan done with findings of unruptured ectopic pregnancy and was successfully managed using systemic methotrexate injection

TABLE 1: YEARLY DISTRIBUTION OF ECTOPIC PREGNANCIES.

YEAR	NO OF ECTOPIC	NO OF BIRTH	FREQUENCY
2014	8	981	0.82
2015	4	1099	0.36
2016	10	1121	0.89
2017	13	1008	1.29
2018	11	1139	0.97
TOTAL	46	4573	1.01

TABLE 2: AGE DISTRIBUTION OF PATIENTS

AGE(Years)	NO OF PATIENTS	PERCENTAGE (%)
0 - 20	0	00.00
21-25	14	30.43
26-30	15	32.61
31-35	9	19.57
36-40	5	10.87
>40	3	6.52
TOTAL	46	100

TABLE 3: PARITY DISTRIBUTION OF PATIENTS

PARITY	NO OF PATIENTS	PERCENTAGE (%)
0	13	28.26
1	9	19.57
2	8	17.39
3	9	19.57
4	5	10.87
>4	2	4.35
TOTAL	46	100

TABLE 4: PATIENTS DISTRIBUTION ACCORDING TO GESTATIONAL AGE

GESTATIONAL AGE	NO OF PATIENTS	PROPORTION
<5 weeks	11	23.91

5 – 10 weeks	29	63.04
11 – 15 weeks	6	13.04
TOTAL	46	100

TABLE 5: PATIENTS DISTRIBUTION BY MARITAL STATUS

Marital Status	No of Patients	Percentage (%)
Married	31	67.39
Single	13	28.26
Divorced	2	4.35
Widowed	0	0.0
TOTAL	46	100

TABLE 6: PATIENT DISTRIBUTION BY SIGNS & SYMPTOMS

Signs & Symptoms	No of Patients	Percentage (%)
Abdominal Pain	45	97.83
Abdominal Tenderness	46	100
Amenorrhea	46	100
Vaginal Bleeding	21	45.65
Dizziness	18	39.13
Fainting Spells	10	21.74
Tachycardia	8	17.39
Nausea/Vomiting	9	19.57
Cervical Excitation Tenderness	7	15.22
Shock	5	10.87
Shoulder Tip Pain	5	10.87

NB: Tachycardia – Heart Rate >100beats/minute

TABLE 7: PATIENTS DISTRIBUTION WITH REGARDS TO RISK FACTORS

Risk Factors	Frequency	Percentage (%)
Previous Abortion	29	59.2
Previous STD	15	30.6
Previous Abdomino-Pelvic Surgery	10	20.4
Age >35	8	17.4
Use of ART's	2	4.1
Use of Emergency Pills	2	4.1
Previous Ectopic	1	2.2
Unidentified	10	20.4

NB: Some Patients have more than one risk factors

TABLE 8: TREATMENT OPTIONS FOR ECTOPIC PREGNANCY

Procedure	Frequency	Percentage (%)
Salpingectomy	41	89.1
Oophorectomy(Unilateral)	3	6.5

Methotrexate	2	4.4
TOTAL	46	100.0

TABLE 9: TYPE OF ECTOPIC AT PRESENTATION

Nature	Frequency	Percentage (%)
Ruptured	37	80.43
Unruptured	2	4.34
Slowly leaking	7	15.22
TOTAL	33	100

TABLE 10: USE OF BLOOD/BLOOD PRODUCTS

Blood transfusion	Frequency	Percentage (%)
YES	39	84.8
NO	7	15.2
TOTAL	46	100

TABLE 11: OUTCOME OF MANAGEMENT

Maternal Outcome	Frequency	Percentage (%)
Alive	46	100
Dead	0	0.0
TOTAL	46	100

DISCUSSION

Ectopic pregnancy is an important gynecological emergency. The incidence of 0.95% of all deliveries and 4.94% of all gynecological admissions in this study is higher than that reported in other countries like Turkey and Germany^{11,12}. Nonetheless, an incidence of 1.1% was reported in United Kingdom¹³ which correlates with that reported in this study. An earlier study in same center reported an incidence of 1.3% of all deliveries and 6.5% of gynecological admissions¹. The incidence of ectopic pregnancy in our institution and other hospitals in developing countries could be as a result of the increase in rate of occurrence of chronic pelvic inflammatory disease, sexually

transmitted infections and a high rate of unsafe abortions owing to our abortion laws. Also, given that the Nnamdi Azikiwe University Teaching Hospital is a referral center for all peripheral clinics and maternity homes in the community, it is expected that the rates would be higher as most of the women whom would seek medical attention in these facilities would invariably be referred to our institution.

The peak age incidence of ectopic pregnancy in this study was amongst the age group of 26-30 years which correlates to the previous studies done in this centre by Udigwe et al¹ and also to another study done in India¹⁴.

Considering our community encourages women to get married in their early twenties and also given that most women in the age group of 21-25 years are still experimenting sexually. It is not entirely surprising that there is an increase incidence of ectopic pregnancy in this age group (21-25years). Also, the incidence of ectopic pregnancy in this study is higher in married women accounting for 77.39% which is similar to a study by Udigwe et al which reported an incidence of 77.8%. This could also be explained by the fact that our community encourages early marriages and also due to the fact that our community does not in essence abhor polygamy which could lead to an increased rate of sexually transmitted infections in our women and ultimately predispose them to tubal damages and ultimately ectopic pregnancy.

The most implicated risk factor that has been linked to ectopic pregnancy in this index study is a history of previous induced miscarriage which was present in 29 women accounting for 59.2%. A positive history of previous sexually transmitted disease was present in 15 women which accounted for 30.6% was a close follow up to a positive history of previous induced miscarriage. These findings were similar to a previous study reported in our institution done by Okafor et al¹⁵. It is also similar to another study done in Lafia, Nasarawa State¹⁶ and Gauteng, South Africa¹⁷. This may be due to tubal

damage that usually would occur following an episode of improperly managed sexually transmitted disease or from unsafe abortion mostly from surgical management. The scarring occurring from tubal damage usually would interfere with the embryo transport¹ and this would result in ectopic pregnancy especially following a improperly managed sexually transmitted infections and pelvic infections. Nonetheless, in the women that reported with ectopic pregnancy in the study period, 10 women which accounts for 20.4% did not have any identified risk factor. This signifies that tubal damage may not necessarily be present in some cases of ectopic pregnancy¹⁸. In some of these women the predisposing factor for ectopic pregnancy may be tubal smooth muscle activity dysfunction¹⁸. Also, an embryonic abnormality has not been ruled out as a possible risk factor in the existence of ectopic pregnancy in women without any tubal pathology¹⁸.

Ectopic pregnancy usually may occur with different signs and symptoms as seen in women who presented to our facility within the period of this study. The typical presentation of amenorrhea, abdominal pain and abnormal vaginal bleeding is currently still the most implicated presenting complaint as seen in this study. The findings of abdominal pain in any woman within the age of childbearing with amenorrhea should alert the care giver of the possibility

of an ectopic pregnancy. Most of the women with ectopic pregnancy who presented within the study period had a ruptured ectopic pregnancy and they accounted for 80.43% (37 women). This is unlike the findings in developed countries where a majority of these women present with un-ruptured ectopic pregnancy¹⁹. It is significant to understand that the abdominal pain found in women with ectopic pregnancy is not an indicator of the volume of blood lost and also could vary in intensity¹⁸.

Vaginal bleeding was found in 21 women which accounted for 45.65% of the women reviewed within the period of the research and this findings is similar to that of other studies within Nigeria²⁰ and in another study in the Volta Region, Ghana²¹. A few studies have shown that it is in about 10-20% of ectopic pregnancies, vaginal bleeding may be absent²². There's currently no specific sign or symptom that is pathognomic to ectopic pregnancy as many conditions such as a twisted ovarian tumor or a ruptured chocolate cyst may invariably mimic the findings in ectopic pregnancy²³. In another study in the United Kingdom, it was found that in a third of the women who presented with ectopic pregnancy, there was a missed diagnosis which invariably led to their demise²⁴. Similarly, more than 10% of women who presented within another study period in Ile Ife, Nigeria also were reported to have had a missed

diagnosis which also invariably led to their demise²⁵. The absence of vaginal bleeding has been considered to be the major contributor of late presentation and subsequent rupture of ectopic pregnancy.

In this study, most of the women who presented with ectopic pregnancy within the study period (97.8%) had surgical management. Salpingectomy was the most commonly performed surgical procedure in this study and was done in 89.1% of cases. A recent study documented that laparoscopic approach was not a better option when compared against laparotomy in reference to patency of tubes and intrauterine pregnancy rates²⁶. A couple other studies reported to have also had a high rate of surgical approach to the management of ectopic pregnancy^{1,3}. A recent study by Van der Berg et al reported a marked decrease in the percentage of ectopic pregnancy cases that were managed via the surgical approach over the last two decade from 50% to 27% in the United Kingdom²⁷. This has been credited to an establishment of an Early Pregnancy Assessment Unit (EPAU) where a diagnosis of ectopic pregnancy is likely to be in its early stage as opposed to a diagnosis in the late stage when rupture of the ectopic most likely would have occurred limiting the options of management to surgical approach only.

The two women who presented in the early stage with the un-ruptured

ectopic benefitted from medical management and were successfully managed using systemic administration of methotrexate following their diagnosis. The two women had identifiable risk factors.

In women with ectopic pregnancy, the fallopian tubes have been the most implicated site of occurrence. In this study, most of the women who presented within the study period had ectopic pregnancy occurring in their fallopian tube with ampulla being the most common site. This is similar to the findings in other studies such as a study done in Gauteng, South Africa¹⁷. In this index study, there were three cases with a diagnosis of suspected ovarian pregnancy out of a total of 5348 deliveries within the study period. However, the Spiegelberg's criteria was not followed in making diagnosis hence would be considered as a limitation for this study.

Tubal pregnancy may present in different forms - chronic, acute or acute-on-chronic. The chronic type is the most common presentation but the acute form is a lot more dramatic that it appears to receive more attention²⁸. During the period of study a majority of the patients who had ectopic pregnancy (80.43%) presented with tubal rupture, at a point when medical management could no longer be offered to them. Consequently, they all had surgical management. Not surprisingly, there was no case of combined tubal and

intrauterine pregnancy (heterotopic pregnancy). This is known to be a rare finding in spontaneously conceived pregnancies. However, since the inception of assisted reproductive technology, the incidence of heterotopic pregnancy seems to have dramatically increased to 1% in women that conceive using assisted reproductive technology²⁹.

Over time, the approach to ectopic pregnancy seems to have evolved from a radical surgical approach to a more conservative approach aimed at the preservation of fertility³⁰. The latest evolution in the management of ectopic pregnancy is medical management which involves the use of medical agents such as methotrexate, potassium chloride, actinomycin-D, the use of hyperosmolar glucose, prostaglandins and mifepristone²⁰. These medical options may be directly administered into the ectopic sac under ultrasound or laparoscopic guidance or in some cases systemically via oral, intramuscular or intravenous routes of administration. In this study only two patients accounting for 4.4% benefitted from medical management via intramuscular methotrexate administration thus reflecting a pattern of late presentation amongst women in our community.

This study was interesting given the successful management of the two women who presented with unruptured tubal ectopic pregnancy and were managed with systemic

injection of methotrexate as they met all the inclusion criteria's. Also, this study had limitations as it could not assess the fertility outcomes of these women that were managed for ectopic pregnancy. Hence, a further prospective longitudinal study is strongly advised to help identify the fertility outcome of these women with ectopic pregnancy.

In conclusion, ectopic pregnancy is still a key gynaecological problem in our community and it is linked with a high morbidity and mortality index. A very high index of suspicion is needed and also with the help of modern diagnostic techniques a timely diagnosis and appropriate management could be instituted. This would help markedly reduce the dangers of radical management. Also, awareness of family planning options within our women and timely intervention and treatment of sexually transmitted infections and pelvic infections will help to reduce the rise in ectopic pregnancy in our community and other developing countries at large.

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