

ECTOPIC PREGNANCY AT THE UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL- A TEN YEAR REVIEW

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ABSTRACT

Background: Ectopic pregnancy is a common surgical emergency in gynaecology especially in the tropics where the patients usually present with the ruptured variety with the attendant peritoneal flooding and its clinical consequences.

Objectives: To determine the incidence, demographic characteristics, risk factors, clinical features, treatment, and outcomes of patients with ectopic pregnancy in our center.

Methods: A descriptive study of ectopic pregnancy seen at the University of Maiduguri Teaching Hospital from January 1995 to December 2004.

Results: A total of 136 cases of ectopic pregnancies occurred during this period. With the 15,120 deliveries that occurred during the same period, the overall incidence of ectopic pregnancy was 0.9/1000 deliveries (0.9%). Majority of the patients (69.8%) were between 21 to 30 years of age, 57.4% were para 1 to 4 and 86.0% were married. The duration of amenorrhoea ranged between 2 to 14 weeks with a mean of 6.9 weeks and 58.1% of the patient had a period of amenorrhoea of 5- 8weeks. There were no historical risk factors for ectopic gestation in 30.1% of the patients but abortion, infertility, PID and previous ectopic pregnancy were found to be major risk factors. Lower abdominal pain (92.6%) was the commonest symptom and cervical excitation tenderness (51.5%) the commonest sign. The initial diagnosis was missed in 31.6% of the cases. In 69.8% the implantation site was the ampulla and the ectopic pregnancy was ruptured in 68.9% of the patients. All the patients were managed by laparotomy and the 57.4% of the patients that were transfused, were given homologous blood. There was a statistically significant association between blood transfusion and the initial packed cell volume (PCV) and the amount of haemoperitoneum found at operation. There was no maternal death and of 12 patients (8.1%) that developed complications, 8 (66.7%) had wound infection.

Conclusion: As absent of risk factors does not in any way exclude the possibility of ectopic pregnancy as shown in this review, keeping high index of suspicion is vital in its diagnosis. Education of the populace especially women on ectopic and training and retraining of health care personnel in the management of this gynaecological emergency will reduce its occurrence and improve its management.

Key words: *Ectopic pregnancy, Risk factors, Management, Outcome.*

INTRODUCTION

An ectopic pregnancy is one sited outside the normal nidation site within the uterine cavity. The commonest site for ectopic gestation is the fallopian tube but implantation in the abdominal cavity, ovary, cervix, broad ligament and else where has been recorded.¹ Ectopic pregnancy continues to be one of the surgical emergencies in gynaecology especially in the tropics where patients usually present with the ruptured variety with the attendant peritoneal flooding and its clinical consequences.²

The incidence of ectopic pregnancy varies geographically; 1 per 150-200 conceptions in the united states, 1 per 300 deliveries in the United Kingdom, 1 per 24.4 deliveries in Ghana and 23.1/1000 deliveries in Nigeria.^{1,3,4} Whatever the incidence quoted, there is no doubt that it is on the rise.¹ This rising incidence was attributable to the rising incidence of pelvic inflammatory disease and the efficacy of modern antibiotics in its treatment which leaves the affected tube partially blocked as opposed to full blockage that normally occur if there was

no treatment.⁵

Ectopic pregnancy seems peculiar to the human species, although it is uncertain why, since anatomically the genital tract is similar to that of higher primates.¹ The invasive property of human trophoblast may be responsible for this and pelvic inflammatory disease, so often a precursor to ectopic gestation seems to be a condition confined to humans.¹ Pelvic inflammatory disease, tubal surgery, other abdominal and pelvic surgeries were said to alter tubal integrity and thus impede the migration of the fertilized ovum to the uterus thereby increasing the risk of ectopic pregnancy.⁶ For the same reason, patient with previous ectopic pregnancy and infertility are at an increase risk. Previous induced abortion, use of intrauterine contraceptive device, progestogen contraceptives, congenital tubal defects and smoking were all associated with high risk of ectopic pregnancy.^{3,5,7} In spite of these described risk factors less than 50% of women with ectopic pregnancy actually give a history of such risk factors and 40-50% of women with ectopic pregnancy are

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misdiagnosed on their initial emergency department visits.⁵

Lawson Tait first described the life saving procedure of salpingectomy by laparotomy in 1884.⁸ In developed countries the management of ectopic pregnancy has dramatically changed, with less radical operation performed with laparoscopy and medical therapy being increasingly utilized.⁹ This is made possible because majority of the patients there are diagnosed early with the help of high resolution ultrasound scan and improved chemical detection of beta subunit of human chorionic gonadotrophin (B-hCG).¹⁰ In developing countries like Nigeria, Salpingectomy by laparotomy is still the major treatment offered to patients as majority of the diagnosis are made late when tubal rupture must have occurred. This is due to ignorance, poverty, difficulty in transportation and lack of adequate health services.¹¹

The purpose of this review was to determine the incidence, risk factors, clinical profile, and management received by the patients with a view to find possible ways of reducing the incidence and hence morbidity and mortality associated with ectopic pregnancy in our environment.

MATERIALS AND METHODS

The records of patients with ectopic pregnancy from January, 1995 to December, 2004 at University of Maiduguri Teaching Hospital (UMTH) were reviewed. Data were collected on the age, parity, marital status, risk factors, clinical profile, initial diagnosis, type of surgical treatment offered, findings at surgery, blood transfusion and complications. To determine the significance of false positive diagnosis of ectopic pregnancy, patients found to have other conditions at laparotomy done because of a diagnosis of ectopic pregnancy were also included. All patients were managed by laparotomy. Cases of ectopic pregnancy outside the fallopian tubes were excluded.

Information was obtained from the patients' case records, theater and gynaecology ward records. The data were presented as numbers and percentages. $P \leq 0.05$ was considered significant. The software SPSS version 11 (SPSS, Chicago, IL, USA) was used for the statistical analysis.

RESULTS

During the study period there were 15, 120 deliveries and 136 cases of ectopic pregnancy giving an incidence of 9/1000 deliveries (0.9%). The demographic characteristics of the patients are shown in table 1. The age of the patients ranged between 16-42 years with a mean age of 27.49 ± 4.32 years. Sixty patients (44.1%) were in the age bracket 26-

30 years. Seventy eight patients (57.4%) were para 1-4, forty one (30.1%) nulliparous and 17 (12.5%) grandmultiparous. Eighteen patients (13.2%) were unmarried (single).

Table 2 showed the duration of amenorrhoea in the study population which ranged between 2-14 weeks with a mean of 6.90 ± 1.24 weeks. Seventy nine (79) patients (58.1%) were amenorrhoeic for 5-8 weeks and only 11.0% (15 patients) had a period of amenorrhoea exceeding 12 weeks. Table 3 depicts the identified risk factors and the clinical profile of the patients in the study population. Forty one patients (30.1%) had no identifiable risk factor, 19.9% had previous spontaneous abortion, 15.4% pelvic inflammatory disease, 12.5% induced abortion and 7.4% previous ectopic pregnancy. Lower abdominal pain was the commonest presenting symptom (92.6%) followed by vaginal bleeding (52.2%). Seventy patients (51.5%) had cervical excitation tenderness and fifty three (39%) lower abdominal tenderness. Seventy seven patients (56.6%) had pulse rate of 100 and above and in 19.1% of the patients the systolic blood pressure was ≤ 90 mmhg. The packed cell volume (PCV) in the study population ranged between 10 - 44% with a mean of $27.10 \pm 7.9\%$. Fifty-two patients (38.2%) had a PCV of $> 30\%$ while nine patients (6.6%) had a PCV of 10-15%. The initial diagnosis was not ectopic pregnancy in 31.6% of the cases but abortion (9.6%), appendicitis (6.6%), pelvic inflammatory disease (5.9%), ovarian cyst (2.2%) and normal pregnancy (2.2%). Ultrasound scan showed adnexal mass in 22.8% of the patients peritoneal collection in 6.6% and a combination of adnexal mass and peritoneal collection in 23.5% of the patient albeit not done in 36% of the patients.

The findings at laparotomy and the surgical technique used in the management of the patients is shown in table 4. In 81 patients (68.9%) the implantation site was the ampulla and the ectopic was ruptured in the same proportion of the patients (68.9%). The contralateral tube was macroscopically diseased in 43.4% of the cases and pelvic adhesion was found in 41.9% of the patients. In 33.8% the amount of haemoperitoneum encountered was 1001-2000ml and in 9.6% > 2000 ml. Seventy-one patients (61.2%) were managed with total salpingectomy and 38.8% with partial salpingectomy.

Overall 57.4% of the patients had blood transfusion and in 20.6% of the patients 3 or more units of blood were transfused. Eleven patients (8.1%) had surgical complications of which eight had wound infection and one disseminated intravascular coagulation, one shock and one intestinal obstruction. There was no maternal death.

Table 1: Demographic characteristics of the study population

CHARACTERISTICS	NUMBER	PERCENTAGE
AGE (YRS)		
16-20	10	7.4
21-25	35	25.7
26-30	60	44.1
31-35	23	16.9
36-40	7	5.1
40-45	1	0.7
Total	136	100
PARITY		
0	41	30.1
1-4	78	57.4
≥5	17	12.5
Total	136	100
MARITAL STATUS		
Married	117	86.0
Single	18	13.2
Divorced	1	0.7
Total	136	100

Table 2: Duration of amenorrhoea of the study group

DURATION (WKS)	NUMBER	PERCENTAGE
1-4	35	25.7
5-8	79	58.1
9-12	7	5.1
>12	15	11.0
TOTAL	136	100

Table 3: Risk factors and clinical profiles of the study population

RISK FACTORS	NUMBER	PERCENTAGE
Prev. spont. Abortion	27	19.9
Infertility	21	15.4
PID	17	12.5
Induced abortion	17	12.5
Previous ectopic preg.	10	7.4
Progestegins use	5	3.7
Other abdominal surgeries	4	2.9
IUCD use	3	2.2
Tubal surgery	2	1.5
Nil	41	30.1
SYMPTOMS		
Lower abdominal pain	126	92.6
PV bleeding	71	52.2
Fainting	22	16.2
Dysuria/frequency	13	9.6
Vomiting	10	7.4
Fever	7	5.1
CLINICAL SIGNS		
CET	70	51.5
Lower abdo. Tenderness	53	39.0
Full POD	30	22.1
Adnexal tenderness	28	20.6
Adnexal mass	23	16.9

Key; PID=pelvic inflammatory disease. IUCD=intrauterine contraceptive device. CET=cervical excitation tenderness.

TABLE 4: Findings of laparotomy and surgical technique

SITE OF IMPLANATION	NUMBER	PERCENTAGE
Ampulla	81	69.8
Isthmus	19	16.3
Infundibulum	16	13.8
CONDITION OF THE GESTATION		
Ruptured	80	68.9
Slowly leaking	26	22.4
Unruptured	10	8.6
CONDITION OF CONTRA-LAT. TUBE		
Normal	77	56.6
Abnormal	59	43.4
PRESENCE OF PELVIC ADHESION		
Yes	57	41.9
No	79	58.1
HAEMOPERITONIUM (mls)		
Nil	29	21.3
<500	12	8.8
500-1000	36	26.5
1001-2000	46	33.8
>2000	13	9.6
SURGICAL TECHNIQUE		
Total salpingectomy	71	61.2
Partial salpingectomy	45	38.8
Resection and Anastomosis	1	0.9

DISCUSSION

The incidence of ectopic pregnancy of 9/1000 deliveries (0.9%) found in this review is lower than the 23.1/1000 deliveries reported from Lagos in Southern Nigeria,⁴ 1.4% reported from Kaduna Northern Nigeria² and 1 in 24.4 deliveries reported from Ghana¹² but higher than the 0.27% reported from Enugu, Eastern Nigeria.¹³ What is responsible for this lower rate cannot be elucidated but the cultural norm of early marriage in the study environment which by extrapolation means less exposure to some of the risk factors for ectopic pregnancy could be a possibility. The higher frequency of ectopic of 69.8% in patient within the age bracket 21-30 years was similar to findings of the Lagos study⁴ and probably reflects the fact that it is the most sexually active age group and the 54.7% of the patients being para 1 to 4 might be a reflection of these age group. The 30.1% of the patients being nulliparous is noteworthy as it marks the beginning of the individual reproductive career which may flag off reproductive failure.¹⁴ Like was found in other studies^{2,4,15} majority of the patients in this review (86.0%) were married.

Majority of the patients (58.1%) had amenorrhoea for 5 to 8 weeks representing the period required for the growing

gestation to distend the tube and cause symptoms.

The major risk factors of ectopic pregnancy identified in this study were previous abortions, infertility, and previous ectopic gestation and this was similar to those reported from others studies in the same country,^{4,11,14} other developing countries^{12,13,16} and a developed country.¹⁷ Absence of a risk factor does not in anyway exclude the occurrence of ectopic pregnancy. In fact less than 50% of women with ectopic pregnancy will give a history of pre existing condition considered to be a risk factor for the development of ectopic pregnancy.⁵ In this review 30.1% of the patient did not have any identifiable risk factor historically.

The symptoms and signs of ectopic pregnancy will vary depending on the stage of development of the ectopic pregnancy and the amount of intraperitoneal bleeding that has occurred. Abdominal pain is more common in the acute presentation whereas vaginal bleeding occurs frequently in chronic cases.¹ Abdominal pain akin to that of frank peritonitis is not unusual since most of the patients present with the ruptured variety in developing countries.² Abdominal pain and vaginal bleeding were the commonest presenting symptoms in this review similar to the findings of other studies.^{2,18,19} Cervical excitation tenderness and lower abdominal tenderness were found to be the common clinical signs.

Similar to the findings of another study¹⁹ only 1.5% of the patients presented in profound shock (systolic Bp \leq 60 mmhg) but majority of the patients (56.6%) had signs of haemodynamic compromise (pulse rate \geq 100).

Ectopic pregnancy may occasionally be very difficult to diagnose at initial presentation. The initial diagnosis was not ectopic pregnancy in 30.1% of the patient in this review, which was higher than the 10% reported from another study.²⁰ Most of this misdiagnosis was from the peripheral centers from where these patients were referred after a failure of the instituted management of the presumed diagnosed condition.

In the workup of the patients, ultrasound scanning (transabdominal in most cases), abdominal paracentesis and pregnancy test were utilized in addition to the clinical evaluation. Because of the nature of the patients state only one or two of these test were performed as in 36% of the patients ultrasound scan was not done and pregnancy test and abdominal paracentesis were not done in 75% and 53.7% of the cases respectively. Pregnancy test may not be positive as was the case in eight patients in this review because the trophoblast in patients with ectopic gestation may not produce enough hCG to be detected in the urine.¹ Coldocentesis was also said to be more sensitive compare to abdominal paracentesis in the diagnosis of ruptured ectopic pregnancy. Although ultrasound scan was found to be promising in the diagnosis of ectopic pregnancy especially when a strong suspicion was established by clinical evaluation,²¹ ultrasound scan was normal in 14 patients in

this study but ectopic gestation was found at laparotomy in all of them. Among patients that had USS, majority (62%) had adnexal mass with or without peritoneal collection, similar to an earlier study in the same hospital.²²

As found in other studies in the same country^{2,14,18} and other parts of Africa^{10,16} majority of the ectopic pregnancies in this review (68.9%) were ruptured compared to 18% reported from the a developed country²³ and in consistence to these 79.7% of the patients had haemoperitoneum. The high level of rupture in developing countries was said to be due to the delay in the diagnosis because of socio-cultural and organizational reasons.^{3,16} As was variously reported,^{1,3,23} the most frequent site of the ectopic in this review was the ampulla (69.8%).

Because of the peculiarity of our environment where even the tertiary centers are not adequately equipped compared to those in the developed world and the nature of our patients (majority having ruptured damaged tubes), salpingectomy by laparotomy remains the widely offered management in patients with ectopic pregnancy. Majority of the patient in this review (99.1%) were managed by salpingectomy at laparotomy. The remaining one patient who had resection and anastomosis was found to have unruptured ectopic in the isthmic region with grossly normal looking distal ends of the tube. Evidence of previous pelvic infection (abnormal contralateral tube 43.4% and pelvic adhesion = 41.9%) found in this study was higher than reported in another study in the same country.¹¹

Twice as many ectopic pregnancies are suspected as actually occur and similar to a report from united Kingdom²⁴ in 20 patients (14.9%) the diagnosis was wrong as no ectopic was found at laparotomy. Nineteen (19) of these patients had ultrasound scan reports suggestive of ectopic gestation (peritoneal collection, adnexal mass or both) and in the other one patient pregnancy test was consistently positive despite normal ultrasound findings. Seven of the patients were found to have ovarian cysts and one each with tubo- ovarian abscess, hydrosalpinx, pelvic tuberculosis, toxic enterocolitis, frozen pelvis and normal pregnancy.

Similar to a report from Ghana²⁵ all the patients requiring blood transfusion in this study were given homologous blood and no autotransfusion was done in contrast to the report of some studies in Nigeria.^{11,14,18} In developing countries like Nigeria where only HIV antibody screening is performed to clear a blood for transfusion, there is the possibility of transfusing a HIV positive blood from a patients in the window period who do not develop the antibodies but whose blood is infectious.

No maternal death occurred in this review and similar to another report in Nigeria.¹⁸ Only 11(8.1%) of the patients had complications out of which eight had wound infection.

CONCLUSION AND RECOMMENDATION

Ectopic pregnancy remains an important clinical problem

in Nigeria and a proportion of the patients are misdiagnosed especially in peripheral centers which contributes to the delay in instituting management with its attendant consequences. To improve the management of this common gynaecological emergency the following are recommended.

1. There should be mass education of the populace especially women in the reproductive age group and adolescents on the signs and symptoms of ectopic pregnancy with emphasis on early presentation to the hospital when they occur.
2. Training and retraining health care providers especially those at the peripheral centers in the early detection of ectopic pregnancy and its management with early referral in situation where it cannot be handled because of lack of

expertise or facilities.

3. Maintenance of high index of suspicion and appropriate use of transvaginal ultrasound scanning instead of the abdominal scanning; coldosentesis instead of abdominal paracentesis will go a long way in reducing both the misdiagnosis and error in the diagnosis that were found to be significantly common in this review.
4. Appropriate use of autotransfusion and as recommended¹⁸ leaving the haemoperitoneum in the peritoneal cavity after the surgery so that the blood can be absorbed in selected cases may reduce the need for homologous blood transfusion with its potential dangers. In addition provision of standard homologous blood screening (PCR) will make it safer.

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