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Ectopic pregnancy at Usmanu Danfodiyo University Teaching Hospital Sokoto: A ten year review

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ABSTRACT

Background: Ectopic pregnancy continues to be a life threatening gynaecological emergency.

Objective: To determine the incidence, pattern of presentation and management of ectopic pregnancy in UDUTH Sokoto.

Materials and Methods: This is a retrospective study of cases of ectopic pregnancy managed in the gynaecological unit of UDUTH from 1st January 2002 to 31st December 2011.

Results: During the period, there was a total of 20,095 deliveries and 7,254 gynaecological admissions in the centre. Two hundred and ninety eight (298) patients had ectopic pregnancy accounting for 1.5% of all deliveries and 4.1% of all gynaecological admissions. Most of the affected patients were young nulliparous women. Abdominal pain, amenorrhoea, vaginal bleeding and cervical excitation tenderness were the most common clinical features amongst patients. The ampulla of the fallopian tube was the commonest site of implantation (59.7%) and majority of the cases (70.1%) were already ruptured at the time of presentation. The main mode of treatment was unilateral salpingectomy (76.3%) However, 3.8% of the patients benefited from medical treatment using methotrexate. The case fatality rate was 1.4%.

Conclusion: The rate of ectopic pregnancy in the centre is relatively high. Majority of the patients presented late with the ruptured variety. Improvement in health seeking behaviour among our populace coupled with high index of suspicion and use of modern diagnostic techniques by the clinicians will assist in early diagnosis and treatment prior to tubal rupture which will ultimately lead to reduction in maternal morbidity and mortality associated with the condition.

Key words: Ectopic pregnancy, late presentation, Sokoto

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INTRODUCTION

Ectopic pregnancy is a pregnancy in which the fertilized ovum implants in any location other than the endometrial lining of the uterus.^[1] Ectopic pregnancy is a common life threatening emergency in pregnancy and the leading cause of pregnancy deaths in the first trimester.^[2,3] It results in significant morbidity for the mother and inevitable loss of the pregnancy.^[4] Ectopic pregnancy is an important cause of maternal morbidity and mortality especially in developing countries where

majority of the patients tend to present late with ruptured form and haemodynamic compromise. 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.^[4,6-10]

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 devices, progesterone only pills, previous tubal ectopic, previous tubal surgeries, previous abortions and assisted reproductive techniques.^[11] The importance of ectopic pregnancy in our environment lies in the fact that while the trend of early diagnosis and conservative treatment is prevalent

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in developed countries we are still challenged by late presentations with ruptured form of the ectopic pregnancy in more than 80% of cases.^[11,12]

This study was undertaken to determine the incidence, the pattern of presentation and management of ectopic pregnancy at Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto.

MATERIALS AND METHODS

The case records of all the patients with ectopic pregnancy who were managed at Usmanu Danfodiyo University Teaching Hospital, Sokoto, between 1st January 2002 and 31st December 2011 were reviewed. However, only 211 case folders were available with complete information for the study, giving a retrieval rate of 71%. The following were analyzed in all the cases: Biological and social characteristics (such as age, parity, and marital status), history of contraception, clinical presentation on admission, finding at laparotomy and the type of treatment offered. The gynaecological admissions and records of the total births within the period were also retrieved. All 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. Ethical approval was obtained from the ethical committee of the hospital to conduct the study. Statistical analysis was performed using the EPI info version 2005. The level of significance was at $p < 0.05$.

RESULT

During the 10 year review period, there were a total of 20,095 deliveries, 7,254 gynaecological admissions and 298 ectopic pregnancies were recorded [Table 1]. This gives an ectopic pregnancy incidence of 1.5% of total deliveries and 4.1% of gynaecological admissions. Only 211 case folders were available for data extraction and analysis. The age of the patients ranged from 16 - 40 years with a mean age of 26.8 ± 5.0 years. The peak age group was 26-30 years, which accounted for 36.0% of cases [Table 2]. The parity distribution of the cases with

ectopic pregnancy, ranged from 0-9. Majority, 59(27.9%) were nulliparous women. Most of the patients (86.7%) were Para 0 to 5. Majority, 163(77.3%) were married at the time of the ectopic pregnancy while 45(21.3%) were single.

The presenting complaints were extremely variable [Table 3] Abdominal pain (96.7%); amenorrhoea (79.6%) and vaginal bleeding (63.5%) were the most frequent symptoms. The most common physical finding was abdominal tenderness (88.2%) while Positive abdominal paracentesis/culdocentesis was obtained in 74 patients (35.2%). Majority of the patients, 176 (83.4%) were not on any contraception at the time of ectopic pregnancy. Eight patients were on injectable and post coital pills respectively, seven patients were on combine pills and condom while five patients used intrauterine devices respectively. One hundred and twenty eight patients (60.4%) had pelvic adhesions at surgery while in 60 patients (28.9%) had a history of previous pelvic infection [Table 4].

The commonest site of location of the ectopic pregnancy was in the ampulla of the fallopian tube, 126 (59.7%). Other sites of location included isthmus 45(21.3%), cornus 15(7.1%), fimbrial end 13(6.2%), abdominal cavity 6(2.8%) and ovary 6 (2.8%). Most of the cases were either ruptured, 148(70.1%), or slowly leaking tubal ectopic pregnancy 41(19.4%). Unruptured tubal ectopic pregnancy was seen in 14 (6.6%). Three patients (1.4%) had a combined intrauterine and tubal (heterotopic) pregnancy.

Unilateral salpingectomy was the most frequently performed surgical procedure, 161(76.3%). The left salpingectomy (92) was more than right salpingectomy (69). Other methods of treatments included unilateral salpingoophorectomy 13(6.7%), bilateral salpingoophorectomy 9(4.3%), Cornual resection 15(7.1%) Eight patients (3.8%) benefited from methotrexate therapy.

There were three maternal deaths resulting in a case fatality rate of 1.4%. One died three days after surgery

Table 1: Yearly trend of ectopic pregnancy in Usmanu Danfodio University Teaching Hospital

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
No of ectopic Pregnancy	10	14	18	19	13	18	22	25	29	43	211
Total no of Gynae Adms	606	608	769	738	785	786	713	733	740	776	7254
Total births	709	1136	1705	1780	2181	2338	2013	2464	2591	3178	20095
Ratio of ectopic to total birth	1.41	1.23	1.06	1.07	0.60	0.76	1.09	1.01	1.11	1.35	1.05
Ratio of ectopic to gynae Adms	1.65	2.30	2.34	2.57	1.66	2.29	3.08	3.41	3.91	5.54	2.91

Table 2: The Socio-demographic characteristics of the patients

Variable	No. of patients	Percentage
Age (years)		
< 16	–	–
16-20	26	12.3
21-25	72	34.1
26-30	76	36.0
31-35	32	15.2
36-40	5	2.4
>40	–	–
Total	211	100
Marital Status		
Married	163	77.3
Single	45	21.3
Divorced	3	1.4
Total	211	100
Parity		
0	59	27.9
1	34	16.1
2	35	16.6
3	27	12.8
4	28	13.3
≥5	28	13.3
Total	211	100

Table 4: Identifiable risk factors

Risk Factor	No. of Patients	Percentage
Pelvic adhesion at operation	128	60.7
History of previous pelvic infection	60	28.9
No documented risk	42	19.9
History of infertility	40	19.0
History of induced abortion	19	9.0
Previous ectopic	9	4.3
Previous pelvic surgery	9	4.3

NB: some patients had multiple risk factors.

on account of pulmonary embolism. The other patients died few hours after surgery from pulmonary oedema which was due to fluid overload.

DISCUSSION

The incidence of ectopic pregnancy in this study was 1.5% of total deliveries which is comparable to similar studies.^[4,6-10] There is increasing incidence of ectopic pregnancy in developing countries probably due to increasing prevalence of chronic pelvic inflammatory disease as a consequence of pelvic infections from sexually transmitted infections, unsafe abortion and puerperal infections.^[11-13]

The peak age incidence was amongst women in the age group of 26-30 years which corroborates with findings of Udigwe *et al.*^[3] and Etuknwa *et al.*^[9] The relatively high frequency of ectopic gestation in the age group 16 – 35 years was not surprising since this corresponds to

Table 3: Clinical features of ectopic pregnancy in Usmanu Danfodio University Teaching Hospital

Variable	No. of patients	Percentage
Symptoms		
Abdominal pain	204	96.7
Amenorrhoea	168	79.6
Vaginal Bleeding	134	63.5
Dizziness or Fainting	83	39.3
Vomiting	41	19.4
Physical Findings		
Abdominal Tenderness	186	88.2
Cervical Excitation Tenderness	175	82.9
Adnexal Tenderness	152	72.0
Pallor	136	64.5
Positive Paracentesis/ culdocentesis	74	35.1
Hypovolaemic Shock	72	34.1
Fulness in the pouch of Douglas	68	32.2

the age of reproduction and peak sexual activity. The incidence of ectopic pregnancy in the study was higher in the married patients (77.7%) which corroborates with (77.8%) reported by Udigwe^[3] however, Etuknwa^[9] reported a preponderance of single women. This can be attributed to the peculiarity of high polygamy rate in our environment which predisposes them to pelvic infections leading to tubal disease and ectopic pregnancy.

The parity range in this series was similar to that of other workers.^[3,9,10] The preponderance of ectopic pregnancy in the first three pregnancy [Table 2] is not surprising as this may be explainable by the fact that major risk factors of multiple sex partners, previous sexually transmitted infections and abortions precede the ectopic in a cause effect relationship.^[3] Majority of the patients (83.4%) were not using any form of contraception at the time of the ectopic pregnancy and this is in keeping with a World Health Organization (WHO) study which revealed that women who used contraception were less likely to have ectopic pregnancy when compared with their opposite counterpart.^[14] However, if a woman who is using minipill, or intrauterine device (IUD) or postcoital pill becomes pregnant, the chances of that pregnancy being ectopic are increased.^[15] This is because it is thought that IUD reduces intrauterine gestations by 99.5% and tubal implantation by 95% but has no effect on ovarian pregnancies,^[15] thus accounting for the relative increase in tubal and ovarian pregnancies in IUD users.

Abdominal pain was the most common symptom in this study [Table 3]. This symptom should raise the suspicion of ectopic pregnancy in any woman in the

childbearing age with amenorrhoea. Abdominal pain akin to that of frank peritonitis is not unusual since most of the patients present with the ruptured variety of ectopic pregnancy (96.7% in this study) unlike in the developed countries where the unruptured variety is more common.^[16] A large proportion of the patients (79.6%) in this study presented with a history of amenorrhoea and this is comparable to 76.5% reported in Libya.^[17] The vaginal bleeding that occurred in 63.5% of cases was probably due to decidual separation following fetal demise with estrogen and progesterone withdrawal.^[18]

Abdominal tenderness was the most common sign in this study. It was elicited in 88.2% of cases; while cervical excitation tenderness especially on the affected side featured in 82.9% of cases. This is in conformity with an earlier report by other workers.^[18] Culdocentesis, which was used to aid diagnosis in this series, was considered positive following aspiration of dark non-clotted blood.^[18,19] This procedure though controversial, (because it is unreliable in early unruptured or slow leaking cases and may give false positive in many acute disorders simulating ectopic pregnancy), was a useful diagnostic tool in this study.

Pelvic inflammatory disease has been incriminated in the aetiology of ectopic pregnancy in majority of cases.^[2-10] In this review 60.7% of patients had macroscopic evidence of pelvic adhesions though histological confirmation of salpingitis was not done. A past history of induced abortion was elicited in 9.0% of the cases [Table 4]. This procedure is often complicated by intrauterine and tubal infection in our environment since it is most often carried out by non-medical or inadequately trained personnel as the abortion law is restrictive.^[20] The most frequent site of ectopic pregnancy in this study was in the fallopian tube (59.7%). This finding is similar to reports from previous authors.^[4-13] The reason for this might be explained by the findings of an earlier study,^[21] which revealed that all the biopsies from patients with ectopic pregnancies or a history of ectopic pregnancy showed a marked degree of deciliation. It was further explained that loss of ciliated cells from the ampulla may decrease the efficiency of ovum transport, leading to delay in the ovum entering the isthmus and subsequently the uterine cavity. This could result in tubal implantation of the embryo after the trophoblast is formed.

Tubal pregnancy can present as a chronic, acute or acute on chronic illness. The first type is much more common

but the acute form is so dramatic that it tends to receive more attention.^[11] In this review most of the patients 70.1%, presented with tubal rupture when conservative management could no longer be offered. Consequently, they had surgical treatment. Interestingly, three of the cases were a combined tubal and intrauterine pregnancy (heterotopic pregnancy). One of them eventually delivered a live female baby at term. This is known to be a rare phenomenon in spontaneously conceived pregnancies. However, since the advent of assisted reproductive technology, the incidence of heterotopic pregnancy has dramatically increased to 1% in women that conceive by this technique.^[22]

The most frequently performed operative procedure in this study was unilateral salpingectomy (76.3%). Comparatively only 6.7% of the patients had salpingo-oophorectomy. This is probably because Jeffcoate's postulate,^[18] that removal of ipsilateral ovary doubles the chances of subsequent pregnancy because ovulation must then take place from the contralateral ovary, which still has an oviduct, is no longer popular. The only indication for the removal of ipsilateral ovary along with the tube is when it is diseased or involved in 'ectopic complex', in which haemostasis is best achieved by excising it.

Over the years, however, the therapy for ectopic gestation has evolved from a radical procedure to conservative treatment aimed at the preservation of fertility.^[13] The most recent development in the treatment of ectopic pregnancy is the use of agents such as methotrexate, actinomycin-D, potassium chloride, hyperosmolar glucose, prostaglandins and mifepristone.^[8] These agent may be directly injected into the ectopic sac or in some cases systemically *via* the oral, intramuscular or intravenous routes. In this study only eight patients (3.8%) benefited from medical treatment with intramuscular methotrexate thus reflecting a pattern of late presentation amongst our population. Three maternal deaths were recorded in this study, giving a case fatality rate of 1.4% which was consistent with that reported from previous studies.^[3-7]

CONCLUSION

In conclusion, ectopic pregnancy still remains a major gynaecological problem associated with considerable morbidity and mortality. A high index of suspicion and use of modern diagnostic techniques will assist in early diagnosis obviating the need for radical treatment. In addition, promotion of family planning and prompt

diagnosis/adequate treatment of pelvic infections will help to reduce ectopic pregnancy rate in our environment.

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