

MANAGEMENT OUTCOME OF RUPTURED ECTOPIC PREGNANCY AT A SECONDARY LEVEL OF HEALTH CARE DELIVERY IN SOUTH-WEST, NIGERIA.

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ABSTRACT

Background

Ectopic pregnancy is a condition of high morbidity and mortality with an enormous threat to life. Therefore it is of immense gynaecological importance, particularly in the developing world, where the majority of patients present late with rupture and haemodynamic instability.

Objectives

The objectives of this study were to determine the incidence and analyze the clinical presentations, risk factors, sites of ectopic pregnancy and associated morbidity and mortality.

Methods

This was a retrospective review of records of patients managed as cases of ruptured ectopic pregnancy at Our Lady of Apostle (O.L.A) Catholic Hospital, Ibadan over a six-year period between January 1st 2010 and December 31st 2015.

Results

The incidence of ectopic pregnancy was 1.03% (65/6,342) of total deliveries, 2.9% (65/2280) of all gynaecological admissions and 13.5% (65/480) of gynaecological emergencies. Fifty-four case folders were analyzed. The leading symptom was pain 87.3% (47/54), followed by amenorrhoea 60.0% (32/54), while syncope attack and vaginal bleeding had 50.0% (27/54) and 36.4% (19/54) respectively. Pelvic infection was the leading risk factor of 57.4% (31/54) of the study population, followed by induced abortion 36.4% (19/54). Two patients had previous ectopic pregnancy; hence the recurrent rate was 3.7%. Tubal pregnancy accounted for 85% (46/54) while the abdominal and cornual gestation accounted for 2% (1/54) and 13% (7/54) respectively. All patients with tubal pregnancy had salpingectomy while those with cornual pregnancy had wedged resection. The diagnosis was missed in 18.2% (10/54) of patients. There was no record of maternal death.

Conclusion

The fact that all cases were ruptured and that pelvic infection and induced abortion were the major risk factors, efforts should be made to improve on early detection of ectopic pregnancy before rupture and prevent pelvic infection and induced abortion among the women of reproductive age.

Keywords: Ruptured ectopic pregnancy, secondary healthcare delivery, management outcome.

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INTRODUCTION

Ruptured ectopic pregnancy is a true gynaecological emergency, and it is the leading cause of maternal mortality in the first trimester of pregnancy.¹ While mortality from ectopic pregnancy has been on the decrease in the developed countries despite the increase in the incidence (which might be due to increase in the incidence of assisted reproductive techniques and pelvic inflammatory disease), it is not so in the developing countries, where it is a major cause of maternal mortality.² Case fatalities of 27.9 per 1000, and 37 per 1000 had been reported in Accra, Ghana and Lagos, Nigeria respectively.^{3,4}

It has been observed that pelvic inflammatory disease is the most common risk factor for ectopic pregnancy and early treatment of the disease does not necessarily prevent tubal damage mainly because of interference with the ciliary functions of the fallopian tube.^{5,6} The other reported risk factors include previous ectopic pregnancy, endometriosis, previous tubal surgery, infertility and infertility treatments.⁷ Previous caesarean sections, tubal spasm, congenital defects of the fallopian tube, psychological and emotional factors have also been implicated.⁷

More than 95% of ectopic pregnancies occur in the fallopian tube. The other sites include ovaries, cervix, caesarean scar, broad ligament and abdominal cavity.⁵ Combined intrauterine and extra-uterine pregnancy (heterotopic pregnancy) though rare in spontaneous pregnancies (1 in 3000-4000), has been recorded in up to 3% of pregnancies from assisted reproduction.⁵

Ectopic pregnancy could be asymptomatic, especially before rupture. When ruptured, symptoms could be acute

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or subacute. The most common symptoms are lower abdominal pain, period of amenorrhea, and vaginal bleeding. There may be general physical signs of haemodynamic instability, lower abdominal tenderness and guarding.^{8,9,10}

The serum beta- hCG is more reliable, being positive in virtually all cases of ectopic pregnancies and even before the missed period.¹⁰ Early diagnosis is crucial because it facilitates appropriate management options which could be medical (which entails different protocols involving methotrexate, potassium chloride, hyperosmolar glucose, dactinomycin, prostaglandins and mifepristone) or conservative surgical procedures such as salpingotomy and salpingostomy.^{8,10}

Patients in shock with intraperitoneal bleeding, which is the typical presentation in the tropics, laparotomy should be undertaken. In the subacute presentation of unruptured ectopic pregnancies, a transvaginal ultrasound is done or combined with a discriminatory zone serum beta- hCG titer are useful diagnostic aids.^{1,10} Direct visualization at laparoscopy and serum beta- hCG can be used also.⁸

Unless in a shocked or haemodynamically compromised patient, and in situations where surgical skill is not available, current surgical management of ectopic pregnancy involves laparoscopic salpingotomy or salpingostomy.^{11,12} Compared with salpingectomy, salpingostomy is associated with higher recurrent ectopic pregnancy and persistent trophoblast.¹² However, subsequent intrauterine pregnancy rates are similar {53% salpingostomy} vs {49.3% salpingectomy}.¹¹

In as much the management of ruptured ectopic pregnancy should be on the basis of emergency, it is, therefore, important to assess the management outcome of ruptured ectopic pregnancy at the secondary level of healthcare delivery, which is nearer to the majority of the populace and more likely to be the first contact compared to tertiary health centres, and its contribution to the reduction of morbidity and mortality from an ectopic pregnancy. So, these study aims were to determine the incidence, clinical presentations, risk factors, sites of ectopic pregnancy, associated morbidity and mortality, and treatment outcomes of ruptured ectopic pregnancy at a secondary level of health care delivery.

Methods

This is a retrospective descriptive study of all patients with ruptured ectopic pregnancy admitted and managed at Our Lady of Apostle (O.L.A) Catholic Hospital, Ibadan over a six-year period between January 1st 2010 and December 31st 2015. Records of patients were obtained from the operation register, gynaecological emergency records, ward register and case notes retrieved from the medical record department. These were studied for socio-demographic characteristics, risk factors from history and mode of presentation, details of surgery performed and intra-operative findings, blood treatment, post-operative course, length of hospital admission and complications.

All reviewed case notes were coded and analyzed. Confidentiality was guaranteed by not using the names of the clients in the analysis. Ethical clearance for the study was granted by O.L.A Catholic hospital ethical committee.

The data were recorded on a proforma designed for the study and entered into a computer with SPSS version 16 statistical package for analysis. The results are expressed in percentages, mean, pie and bar charts, table and standard deviation.

Results

Over the 6-year review, there were a total of 65 cases of ruptured ectopic pregnancies out of 6,342 deliveries, 2280 gynaecological admissions and 480 gynaecological emergencies, giving an incidence of 1.03% of total deliveries, 2.9% of all gynaecological admissions and 13.5% of gynaecological emergencies. During the period of study, there was no case of unruptured ectopic pregnancy. Only 54 case folders were available for data extraction and analysis. Their ages ranged from 19 to 42 years with mean age of 30.4 +_5.5 years. The peak age was 26-30 years, followed by 31-35 years. Ten of the 54 patients (18.5%) were more than 35 years old.

Using Olusanya et al. social class stratification based on husband's profession and woman's educational status.¹³ The majority, 53.7% (21/40) of the study population were of low socio class (class IV and V), while 29.6% (12/40) belonged to the middle class (class III) and 16.7% (7/40) were of high social class (class I and II), see Table 1. Sixty-four percent of the patients were multigravida, while others were primigravida. The parity ranged between 0 and 4. Only 29.6% (16/54) of the patients were nulliparous while the majority had a parous experience. The mean gestational age at presentations was 8.42+_1.99 weeks with a range of 5-13 weeks. Seventy-four percent of the patients were married while 26% (14/54) were single.

The associated risk factors in the study are shown in the Table 2. Pelvic infection was the leading risk factor of 57.4% (31/54) of the study population, followed by induced abortion 36.4% (19/54). Up to 16.7% (9/54) of the patients had no identifiable associated risk factor. Two out of 54 patients had a previous ectopic pregnancy. Hence the recurrent rate was 3.7%. The leading symptom was abdominal pain 87.3% (47/54), followed by amenorrhea 60.0% (32/54), while syncope attack and vaginal bleeding had 50.0% (27/54) and 36.4% (19/54) respectively.

The various sites of ectopic pregnancy in this study were shown in fig.1. Eighty-five percent of the cases were tubal pregnancy, while the abdominal and cornual gestation accounted for 2% (1/54) and 13% (7/54), respectively. Out of the 46 of tubal ectopic pregnancies, 87.0% (40/54) occurred in the ampulla, 8.7% (4/46) in the isthmus while 4.3% (2/46) at the fimbriae. Moreso, up to 54.3% (25/46) occurred in the right fallopian tube while 45.7% (21/46) in the left tube.

The treatment modality in all the patients involved emergency exploratory laparotomy. There was a case of laparotomy with the delivery of a pre-viable live fetus on account of secondary abdominal pregnancy. All patients with tubal pregnancy had salpingectomy while those with cornual pregnancy had cornual resection with ipsilateral salpingectomy, and 66.7% (36/54) of the patients were transfused on account of moderate to severe anaemia with haemodynamic instability. The diagnosis of ruptured

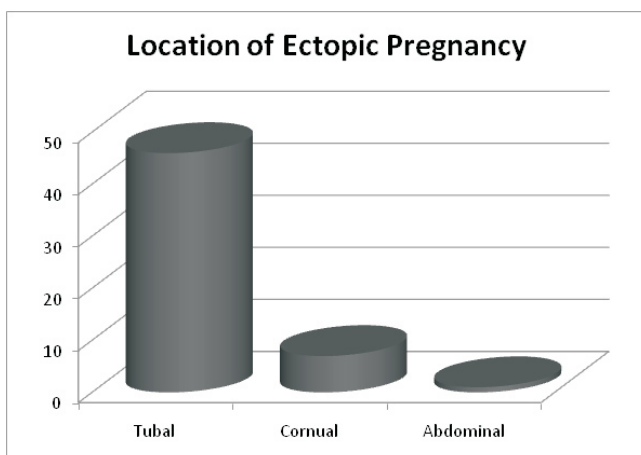
ectopic pregnancy was missed in 18.2% (10/54) of patients. However, the correct diagnosis was made at laparotomy. Almost all the patients were managed and discharged home within the first week of admission except one who had a post operative complication of vesico-cutaneous fistula (predisposing factors – two previous pelvic surgeries and was operated by a junior doctor on call). There was no record of maternal death.

Table 1: Socio-demographic characteristics of 54 patients with ruptured ectopic pregnancy

VARIABLES	NUMBER	PERCENTAGES
Age (years)		
<20	3	5.6
20-25	6	11.1
26-30	18	33.3
31-35	17	31.5
>35	10	18.5
Parity		
0	16	29.6
1	5	27.8
2	12	22.2
3	6	11.1
4+	5	9.3
Social Class		
Low	21	53.7
Middle	12	29.6
High	7	16.7
Marital Status		
Married	40	74
Single	14	26

Table 2: Identifiable Risk Factors (Some patients had multiple risk factors)

Identifiable Risk Factors	Frequency	Percentage in Total cases analyzed (54)
Pelvic infection	31	57.4
Induced abortion	20	36.4
Previous abdominopelvic surgery	11	20.0
Infertility	3	5.6
Previous ectopic pregnancy	2	3.7



Discussion

Ectopic pregnancy, especially when ruptured, is a life-threatening gynaecological emergency, more so in a resource-constrained setting like Nigeria that has very poor maternal health indices. The incidence of ectopic pregnancy found in our centre during the study period was 1.03%; this was consistent with the 1.02% and 1.2% reported in Ilorin and Ife respectively^{13,14}. It is, however, lower than the reports from other centres in the country^{3,13,15}. The incidence of 1.03% in this study, of which all were ruptured ectopic pregnancies, is higher than the reports from developed countries like Sweden and Finland^{16,17,18}. The unavailability of early pregnancy assessment unit at the centre and possibly poor health-seeking behaviours among the patients which are commonly seen in developing nations could contribute to higher rate of ruptured ectopic pregnancies found in this study, by lowering the chance of early diagnosis and treatment.¹⁹ The peak age incidence was amongst women in the age group of 26-30 years which corroborates with findings of Udigwe *et al.*²⁰ and Etuknwa *et al.*²¹ Although ectopic pregnancy is associated with advanced maternal age because it is believed that age is a variable which could act as a surrogate for other risk factors. The peak age incidence in this study corresponds to the part of reproductive age with possibility of peak sexual activity and consequently increased likelihood of pelvic inflammatory diseases as it was found by Vanamala *et al.* in their study in India on pelvic inflammatory disease and risk factors where the prevalence was found among the women between age 26 – 30 years.²² The incidence of ectopic pregnancy in the study was higher in the married patients 74% (40/54) which is similar to reports by Udigwe²⁰ and this may be due to the peculiarity of high polygamy rate in our environment which predisposes them to pelvic infections leading to tubal disease and consequently ectopic pregnancy.

A previous history of pelvic infection and induced abortion were major risk factors in our subjects. This finding is similar to reports from Enugu,²³ Ilorin,²⁴ and Benin,²⁵ all in Nigeria. This could be the result of tubal damage following pelvic infections and unsafe abortions.²⁶ The scarring following tubal damage could obstruct the embryo transport¹ with the consequent tubal implantation. Also, the prevalence of risky sexual behaviour in this part of the world, as well as sepsis following unsafe abortion as a result of restrictive abortion laws in Nigeria, could be a contributing factor. Nine out of fifty-four patients did not have any identifiable associated risk factor. It is evident that there may not be any identifiable risk factor in certain cases of ectopic pregnancy.⁶ In these women, the cause of ectopic pregnancy may be a dysfunction in the tubal smooth muscle activity.²⁷ Moreso, embryonic abnormalities have also been implicated in the attempt to explain the occurrence of ectopic pregnancy in the absence of identifiable pathology.²⁷

The symptoms of abdominal pain with amenorrhoea in any woman of the child bearing age should raise the suspicion of ectopic pregnancy. Abdominal pain similar to that of frank peritonitis is not unusual since all the patients presented with the ruptured variety of ectopic pregnancy, unlike in the developed countries where the unruptured

variety is more common.²⁸ In this study, the most common presenting complaint was abdominal pain, followed by amenorrhea, then vaginal bleeding. These findings correspond to the reports from Sokoto.²⁹ The vaginal bleeding was probably due to decidual reaction following fetal demise with estrogen and progesterone withdrawal.³⁰ The treatment modality in all the patients involved emergency exploratory laparotomy since all the cases were ruptured ectopic pregnancies with varying degree of haemoperitoneum. All patients with tubal pregnancy had salpingectomy while those with cornual pregnancy had cornual resection with ipsilateral salpingectomy. This management option for patients with ruptured tubal pregnancy was in line with the recommendations of the National Institute of Clinical Excellence that woman with such presentation of ectopic gestation should have a salpingectomy.³¹ In developing countries like Nigeria, where the majority of the patients present after rupture, emergency surgical interventions remain the mainstay of treatment,¹⁵ even though some scholars have recommended conservative surgeries for well-selected patients.³² The chance of intrauterine pregnancy after salpingectomy is about 50%.³³ Patients were not followed up for such outcome in this study; hence this could be an area for further study. The finding of 3.7% risk of recurrence among the study subjects who had a history of previous ectopic pregnancy, corresponds to reports from Abakaliki in Nigeria,³⁴ and further strengthens the reason for careful follow up of women with a history of previous ectopic pregnancy.³¹

The maternal mortality rate, as published by numerous hospital-based studies in Africa, lies between 1% and 3% of all cases of ectopic pregnancy.^{3,26,35} This figure may even represent an underestimation because, in developing countries, maternal deaths are frequently underreported, especially patients that died before arrival at the hospital.^{3,36} More than 10% of patients in Ile Ife Nigeria were also reported to have died from ruptured ectopic pregnancy due to missed diagnosis.³⁷ In this study, the diagnosis of ruptured ectopic pregnancy was missed in 18.2% (10/54) of patients; however, the correct diagnosis was made at laparotomy. Interestingly there was no recorded case fatality in our study. This reaffirmed the place of diagnostic laparotomy for highly suspected cases of ruptured ectopic pregnancy in the secondary health facilities where there is no access to urgent ultrasound scan or laparoscopy. Almost all the patient in the study were managed and discharged home within the first week of admission.

The limitations of this study include the retrospective data sourcing and a small number of available cases for analysis. Studies with larger sample sizes may be required for further clarification.

Conclusion and Recommendations

The fact that all cases were ruptured and that pelvic infection and induced abortion were the major risk factors, efforts should be made to improve on early detection of ectopic pregnancy before rupture and prevent pelvic infection and induced abortion among the women of reproductive age. Health education on the safer sex and promotion of family planning services, such as the use of

condoms and other contraceptives will help to prevent sexually transmitted infection and unwanted pregnancies, thereby reducing the incidence of pelvic infection and postabortal complications. Effort should also be made to ensure availability of well-equipped and functioning early pregnancy assessment unit at both secondary and tertiary health care centres across the country to enhance early detection of ectopic pregnancy before rupture.

Conflict of Interest

There is no conflict of interest.

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