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A Six-Year Review of Ruptured Ectopic Pregnancies at the Olabisi Onabanjo University Teaching Hospital, Sagamu

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Abstract

Background: Ectopic pregnancy is a major complication of early pregnancy and is a common reason for gynaecological emergency admissions. The ruptured variety accompanied by profuse intra-abdominal haemorrhage is one of the leading causes of maternal mortality in the developing countries.

Objective: To describe the local epidemiology of ruptured ectopic pregnancy at the Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu.

Methods: This was a retrospective study of ruptured ectopic pregnancies managed at OOUTH between January 2009 and December 2014. The case records were retrieved from the medical records department. Other relevant information were obtained from the operating theatre registers and pathology department records for statistical analysis.

Results: Sixty-two cases of ruptured ectopic pregnancies were identified out of 2,875 gynaecological admissions and 2,360 deliveries over the specified period. The incidence of ruptured ectopic pregnancies was 1 in 38 deliveries and prevalence of 2.2% of all gynaecological admissions. About 90.7% of the patients studied belonged to the active reproductive age group (21 – 35 years) while 58.0% were of low parity (Para 0 – 1).

The leading symptoms included abdominal pain (95.2%) and amenorrhoea (83.9%). The fallopian tubes were the sites of implantation in 96.8% of the cases. There were no cases of heterotopic or cervical pregnancy. All the patients had laparotomy and salpingectomy (partial/total) was the commonest procedure undertaken (79.0%). Anaemia was the most frequent postoperative complication (69.4%), and only one death was recorded (case fatality rate of 1.6%).

Conclusion: Ruptured ectopic pregnancy contributed to maternal morbidity and mortality at the study centre. Most of the common predisposing factors in this setting are preventable.

Keywords: Ectopic pregnancy, Gynaecological emergency, Laparotomy, Maternal mortality, Salpingectomy.

Introduction

Ectopic pregnancy occurs when the fertilised ovum implants at a site other than the endometrium of the uterus. [1, 2] It is a major gynaecological condition with significant adverse health implications. It is one of the major surgical emergencies in gynaecology, particularly in the developing part of the world due to late diagnosis. Pelvic Inflammatory Disease (P.I.D) arising from sexually transmitted diseases (STDs) and other genital tract infections are common predisposing factors. [3-5]

Ectopic pregnancy is the most frequent life-threatening surgical emergency in gynaecology especially in the tropics where most patients present with the ruptured variety of the condition. Therefore, it is an important cause of maternal morbidity and mortality in the first trimester of pregnancy, accounting for almost

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10% of all maternal deaths.[5] Ectopic pregnancy is frequently associated with maternal morbidities and mortality.[3, 5, 6] It has been estimated that less than half of the affected women are likely to conceive again and only a third can expect to produce a live child.[1, 2] In addition, there is a 1 in 20 chance of a repeat ectopic pregnancy in the other fallopian tube.[5] The incidence rates of the disease vary among different populations but have been reported to be on the increase.[1, 7, 8] In developing countries, the incidence ranges from 0.5% to 3% per total deliveries reported from different countries.[7, 8] Studies have reported 0.01% incidence in the United Kingdom (UK),[1] 0.64% in the United States of America (USA),[2] 0.58% in Saudi Arabia,[8] 0.41% to 1.5% in Guinea,[9] and 0.79% in Cameroon,[10] Within Nigeria, incidence rates of 1.05% had been reported in Ile-Ife,[11] 3.1% in Sagamu,[12] 1.17% in Kano,[13] 1.02% in Ilorin,[14] and 3.89% in Lagos,[15] The incidence rates of ectopic pregnancies had been observed to be on the rise globally with a higher proportion in the developing world.[3, 5, 7, 8] The higher incidence in developing countries may be related to the higher incidence of pelvic infections[4, 12, 16, 17] and following post-abortal and puerperal sepsis. In the developing countries, the condition commonly presents with the ruptured variety contrary to reports from the developed world with consequent higher case fatality rates in developing countries.[18, 19] The increasing sophistication in diagnostic methods has led to the rising rate of diagnosis of unruptured ectopic pregnancies. This may translate to increase in incidence, especially in the developed countries.[16, 20] This trend also allows conservative management of cases, thereby preserving the tubal function. It has also led to new approaches to the management, which has produced encouraging results with the restoration of tubal patency in over 80% in some cases.[1, 2, 15, 20 - 22] The case fatality rates in ectopic pregnancies vary from 0.05% in the United States[2] to 8.6% in Guinea.[9] The variability in outlook is mainly due to delay in management with unfavourable effects. The health burden of ectopic pregnancy is heavier in the tropics where most cases present late with the ruptured variety with compromised haemodynamic state thus, increasing maternal morbidity and mortality. The last study of ruptured ectopic pregnancies in Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu was done about 12 years ago over a period of eight years.

The present study was carried out to determine a more recent local epidemiology of ruptured ectopic pregnancies at the OOUTH, Sagamu, Nigeria. These findings may provide data which could be used to devise interventions which would reduce morbidity and mortality.

Methods

This retrospective study of ruptured ectopic pregnancies managed at the Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria, covered the period between January 2009 and December 2014. The case records of all the patients were retrieved from the Medical Records Department. Other relevant information were obtained from the operating theatre registers and pathology department records. All the retrieved cases were included in the analysis.Data obtained from the records included age, parity, presenting complaints, previous medical/surgical history, site of the ectopic pregnancy, the type of surgical procedure and the complications recorded in each patient. Simple descriptive statistics was applied in the analysis of the data.

Ethical consideration: It was a retrospective study of hospital records. Permission to access the records without revealing the individual patients' identity was obtained from the Department of Health Information Management.

Results

There were 2,360 deliveries and 2,875 gynaecological admissions in the hospital over the study period. There were 62 cases of ruptured ectopic pregnancies and none of the unruptured ectopic pregnancy during the study period.

Therefore, ectopic pregnancy constituted about 2.2% of all gynaecological admissions in this hospital with an incidence rate of 1 in 38 deliveries as shown in Table I. There was no significant change in the annual prevalence rates

over the period. Table II shows the distribution of the patients according to age groups and parity. The age varied between 18 and 44 years with the peak in the 31-35 years age group (40.32%) and the least contribution from the extremes of reproductive age. The parity ranged between 0 and 5, but most cases (36; 58.06%) occurred among Para 0-1 women while women with Para 4 and above formed 19.36% of the cases.

Table I: Annual prevalence rates of Ectopic Pregnancies (2009-2014)

Year	Total Number of Births	Number of Ectopic Pregnancies	Prevalence Rate (%)
2009	375	11	2.93
2010	420	7	1.62
2011	200	5	2.50
2012	440	11	2.50
2013	450	9	2.00
2014	475	19	4.00
Total	2360	62	2.63

Table II: Distribution of 62 women with ruptured ectopic pregnancies according to age group and parity

Age	Groups	Frequencies	Percentages
	16-20	4	6.45
	21-25	9	14.52
	26-30	16	25.81
	31-35	25	40.32
	36-40	6	9.68
	>40	2	3.22
Parity			
	0	15	24.19
	1	21	33.87
	2	9	14.52
	3	5	8.06
	4	9	14.52
	>4	3	4.84

Table III shows the main symptoms at presentation and the relevant past medical/surgical history. The commonest symptom was abdominal pain (95.16%) followed by amenorrhoea (83.87%), abnormal vaginal bleeding (69.35%) and dizziness or fainting attacks (54.84%). Twenty-five patients volunteered the history of previous induced abortions while pelvic inflammatory diseases or adhesions noted at previous surgeries were documented for 22 (35.48%) patients. Three women (4.84%) had previous ectopic pregnancies, two women (3.23%) had a preceding history of intrauterine contraceptive device use while secondary infertility was reported by 8.06% women. Table IV reveals the types of ectopic pregnancies encountered and the surgical procedures performed. Tubal gestation occurred in 96.78% of cases while only one (1.61%) case of abdominal cavity was found (gestational age of which was not documented). Of the tubal gestations, the ampulla was the commonest site (91.94%) while the isthmus was involved in 3.23% of cases. Partial salpingectomy was performed in 70.97% cases while laparotomy and delivery of a dead fetus were performed in the only woman with abdominal pregnancy.

Table III: Clinical presentation in ruptured ectopic pregnancies (clinical features and relevant past medical history)

Parameters		Frequencies	Percentages
Clinical features			
	Abdominal pain	59	95.16
	Amenorrhoea	52	83.87
	Abnormal vaginal bleeding	43	69.35
	Dizziness and fainting attacks	34	54.84
	Diarrhoea and vomiting	30	48.39
	Hypovolaemic shock	26	41.94
Past Medical History			
	Previous induced abortion	25	40.32
	Pelvic Inflammatory Disease	18	29.03
	Secondary Infertility	5	8.06
	Previous abdominopelvic Surgery/Caesarean section	4	6.45
	Previous ectopic pregnancy	3	4.84
	Contraceptive practice (IUCD)	2	3.23

The pattern of maternal morbidities showed post-operative complications. Forty-three (69.35%) had post-operative anaemia (Packed Cell Volume <30% despite blood transfusion). Wound sepsis occurred in 8 (12.90%) cases while pyrexia and urinary tract infection occurred in 12 (19.35%) and 7 (11.29%) respectively. One maternal death occurred with the case fatality rate of 1.61%. The death occurred before surgery, possibly, from hypovolaemic shock and late arrival.

Table IV: Sites of ectopic pregnancies and the types of surgical procedures

Characteristics		Frequencies	Percentages
Sites of ectopic pregnancies			
Tubal		60	96.78
	Ampullary	57	91.94
	Isthmic	2	3.23
	Fimbrial	1	1.61
Cornual		1	1.61
Abdominal		1	1.61
Types of surgical procedures			
	UPS	44	70.97
	SO	8	12.90
	UTS	5	8.07
	LS	3	4.84
	CRR	1	1.61
	Laparotomy	1	1.61

UPS – Unilateral Partial Salpingectomy; SO– Salpingo-oophorectomy
UTS – Unilateral Total Salpingectomy; LS– Linear Salpingostomy
CRR – Cornual resection and repair

Discussion

Ectopic gestation is a significant health hazard among women of reproductive age in Nigeria. The present study showed that the incidence of ruptured ectopic pregnancy remained high in the environment; thus, making ruptured ectopic pregnancy the most common gynaecological emergency in the hospital setting. [10 - 12, 15] The prevalence of ruptured ectopic pregnancy in the present study was 2.63%. This is higher than the 0.64% reported for the western countries. [2, 6, 20] It is greater than the 1.68% and 1.05% reported for Benin City and Ile-Ife, both within Nigeria, respectively. [3, 11]

However, a prevalence rate of 3.1% was earlier reported in Sagamu. [12] The difference in the prevalence rates from the same centre may be attributed to the respective denominator used; in the earlier study, the number of births was used. [12] There have been great variations in the denominators (delivery or birth) used to determine the prevalence rates in the previous studies. In a delivery, there could be many births as in the case of multiple gestations; indeed, the south-west sub-region of Nigeria has the highest incidence of multiple pregnancy. The high prevalence rate recorded in the present study is not unexpected due to the high prevalence of pelvic inflammatory disease, post-abortal sepsis and puerperal sepsis. [3, 4, 15]

The picture is quite different in the northern part of the country, where prevalence rate of 1.17% had been reported, [13] the reason being the relatively lower prevalence of pelvic inflammatory disease and the higher number of hospital deliveries. [13, 14] The 31-35 years age group was mostly affected as observed in the present study, as they constituted the bulk of women in the reproductive age range. This conforms to the previous findings. [3,11,12] However, there were two patients aged above 40 years in the present study and this underscores the declining fertility in this age group.Women of low parity (Para 0 to 2) also formed another high-risk group constituting 72.58% in the present study. The number of nulliparous women with ruptured ectopic pregnancy in the present study was higher than most of the frequencies previously reported from other centres. [3,14,17,19] There was history of induced abortion in 40.32% of the patients in the present study. This, coupled with women with a history of pelvic inflammatory disease, represent a high burden of pelvic infections in this environment. Therefore, this subset of women constitutes a major at-risk group for ectopic pregnancy. [1 - 5] From the present study, previous pelvic surgery, previous ectopic gestation and use of intrauterine contraceptive device did not appear to contribute in any major way to the prevalence of ectopic pregnancy. This differs from previous reports, [4, 12]

where prior pelvic surgery, previous pelvic inflammatory disease and current use of intrauterine device appeared to have the strongest association with observed increased incidence of ectopic pregnancy. The reason adduced for this disparity is the high proportion of the women of low parity in this study, in whom the use of intrauterine devices has been reported to be relatively low in this environment. [23]The most common presenting complaint in the present study was abdominal pain similar to the findings of other workers. [1, 2, 3, 12] In addition, the ampulla was the commonest site of ectopic gestation in the present study in agreement with previous findings all over the world. Abdominal pregnancy and corneal ectopic pregnancy were rarely encountered in the present study. Partial salpingectomy was the commonest surgical operation performed in agreement with the findings of other workers. [3, 5, 7, 9, 12]Anaemia was the commonest post-operative complication in the present study and it was recorded in most of the patients despite blood transfusion during surgery. This is not surprising as most of the patients with ruptured ectopic pregnancies presented late in hospitals following massive blood loss, features of shock and severe anaemia due to chronic haemorrhage from ruptured ectopic pregnancy. [12]

The only maternal death recorded was in a patient who presented in severe shock and in whom efforts at resuscitation failed before the planned surgical intervention. The post-mortem examination confirmed hypovolaemic shock from exsanguination as the cause of death. The case fatality rate of 1.6% recorded in the present study showed an increase compared to the finding of 0.96% in the earlier work conducted at the same centre. The difference can be attributed to the difference in population size. [12] There is no doubt that the hospital policy of giving patients with ruptured ectopic pregnancies priority over the other main surgeries and shortened decision-operation interval will further contribute immensely to the lowering of the case fatality rate recorded in the present study.

There were no unruptured cases of ectopic pregnancies during the study period, apparently because of late referral from the lower tiers of care coupled with faulty laparoscope at the study centre. The inability to conduct laparoscopic studies on the women with suspected ectopic pregnancies made room for missing unruptured cases of ectopic pregnancy, albeit trans-abdominal ultrasound scan facility (trans-abdominal) was available.

Conclusion

Ruptured ectopic pregnancy remains a cause of maternal morbidity and mortality in the Sagamu. The society necessarily requires a well-designed health education programme towards the reduction of the incidence of unsafe abortion as well as better utilisation of well-structured family planning counselling services, especially with regards to the barrier methods. The risks associated with ruptured ectopic pregnancy can be eliminated by early diagnosis; sometimes over diagnosis and prompt surgical intervention with attention to haemostasis, liberal blood transfusion and use of chemotherapeutic agents where necessary (Unruptured variety). Efforts at reducing the incidence of ectopic pregnancy in our environment are therefore directed toward early recognition and treatment of sexually transmitted diseases, post-abortal and puerperal sepsis, effective contraception, liberalisation of abortion laws and effective maternal care services. Gentle tissue handling and peritoneal lavage using physiological solution will go a long way in reducing postoperative adhesion formation that could predispose to ectopic pregnancy. These will also improve fertility in patients with previous ectopic pregnancy. Early diagnosis with modern technology using laparoscopy, pelvic ultrasound and quantitative serum B-hCG and prompt referral would further reduce the incidence of this condition.

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