

## Ectopic Pregnancy: Reasons for the High Tubal Rupture Rates in a Nigerian Population

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### Abstract

**Context:** Nigeria has a high incidence of ruptured ectopic pregnancy. Identification of predisposing factors will help reduce morbidity and mortality

**Aim:** To determine the reasons for the high incidence of ruptured ectopic pregnancy.

**Methods:** All cases of ectopic pregnancies managed at Wesley Guild Hospital, Ilesha, Nigeria, between January 2004 and December 2008 were the subjects of this study.

The case notes were reviewed to obtain information on the socio demographic characteristics of the patients, clinical history and operative findings.

**Results:** Of the 1,048 gynaecological admissions during the study period 98(9.4%) were for ectopic pregnancy out of which 76(96.2%) were ruptured. The mean age of the patients was 28.3 years (SD=5.1), majority (82.3%) were married and 68.4% have had one or more previous deliveries. Amenorrhea was present in 66(83.5%). Abdominal pain (98.0%), dizziness (62.0%) and vaginal bleeding (44.3%) were the commonest symptoms. Only 30 (38.0%) presented to any medical facility within 24 hours of the onset of symptoms. The ectopic was tubal in 67(84.8%), abdominal in one and could not be specified in 11. Of the tubal pregnancies ampulla (49.3%), cornual (25.4%) and isthmus (15.0%) were the commonest sites. All patients had laparotomy and salpingectomy. There was no maternal death.

**Conclusion:** In our community ectopic pregnancy tends to occur more often in parous women and are more commonly located in the isthmio cornual part of the tube. Besides, majority of our women present late making them more vulnerable to ruptured ectopic pregnancy.

**Key Words:** Ectopic, Pregnancy, Complications, Presentation.

### Introduction

Ectopic pregnancy is a major cause of maternal morbidity and mortality. It is responsible for more than 70% of maternal deaths in the first trimester and up to 50% of all maternal deaths due to haemorrhage<sup>1,2</sup>. The incidence is increasing mainly due to an increase in the incidence of pelvic inflammatory disease and better diagnostic techniques. The incidence has increased from the traditionally quoted rate of 1 to 1.6 per 100 pregnancies in the Western world<sup>3</sup>.

With the advent of transvaginal ultrasound and quantitative human chorionic gonadotropin, the diagnosis and management of ectopic pregnancy has been revolutionized. Most cases are now diagnosed early enough for patients to benefit from conservative management resulting in reduced morbidity and mortality and preservation of fertility. In developed countries where these facilities are available, and patients

usually present early, mortality from ectopic pregnancy has reduced substantially to less than 3 per 10,000 deliveries.<sup>1</sup> In sub-Saharan African however most cases present in a collapsed state and in shock from rupture of the ectopic pregnancy. Consequently mortality remains high in these region being still more than 300 per 10,000 deliveries<sup>4</sup>.

A recent study from Vilnius<sup>5</sup> reported an ectopic pregnancy rupture rate of 29% despite non availability of transvaginal ultrasound and human chronic gonadotrophin. On the other hand most reports from sub-Saharan Africa still has an ectopic rupture rate above 90%<sup>7,8</sup>. It has been speculated that women who presented

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**Table 1:** Socio-Demographic Characteristics of Patients With Ectopic Pregnancy at Wesley Guild Hospital, Ilesha Nigeria. January 2004 to December 2008.

Parameter	No (%)
<b>1. Age (years)</b>	
<20	2(2.5)
20-24	17(21.5)
25-34	45(57.0)
35-40.	15(19.0)
<b>2. Occupation (n=75)</b>	
Students/Apprentice	13(17.3)
Artisans/petty traders	48(64.0)
Civil servants	12(16.0)
Farmer	2(2.7)
<b>3. Marital Status</b>	
Single	14(17.7)
Married	65(82.3)
<b>4. Contraception Usage (n=77)</b>	
Never used	62(80.5)
Ever used	15(19.5)
Pill	6(40.0)
Injectables	4(26.7)
Emergency	3(20.0)
IUCD	2(13.3)
<b>5. Parity</b>	
0	25(31.7)
1-4	49(62.0)
>5	5(6.3)

with ruptured ectopic pregnancy usually have had warning symptoms that have been ignored. Rupture of the tubal pregnancies in these circumstances may be due to delay in presentation. On the contrary a recent study on the time and risk of ruptured pregnancy by Bickell et al<sup>8</sup> suggest that some patients are predisposed to early rupture and subsequent acute abdomen.

It is therefore unclear whether the high rate of tubal rupture in our population is due to the peculiar socio demographic characteristics, late presentation or poor diagnostic facilities. Many previous studies from Nigeria have addressed the incidence of morbidity and mortality from ectopic pregnancy<sup>9,10</sup>, however we are unaware of any study that have looked into the reasons of the high tubal rupture rate in our population. The purpose of this study is to analyse the

presentation patterns and diagnostic tools in patients with ectopic pregnancy in our centre with a view to identifying the reasons for a high incidence of tubal rupture in our population

### Materials and Methods

All cases of ectopic pregnancies managed at the Wesley Guild Hospital, Ilesha, Nigeria, between January 2004 and December 2008 were the subjects of this study. The hospital is a tertiary teaching Hospital of Obafemi Awolowo University Ile-Ife, Nigeria. The case records of these patients were obtained from the gynecological wards and the theatre registers. The case note were retrieved and reviewed to obtain information on the socio demographic characteristics of the patients, gynecological history, gestational age, time and type of the presenting complaints, where and when treatment were first sought, clinical findings on

**Table 2:** Duration and Type of Presenting Symptoms in Patients with Ectopic Pregnancy

<b>Parameter</b>	<b>No (%)</b>
<b>1. Symptoms and signs <sup>+</sup></b>	
Abdominal pain	78(98.7)
Amennorrhoea	66(83.5)
Dizziness	49(62.0)
Abnormal Vaginal Bleeding	35(44.3)
Pallor	74(93.7)
Shock	30(38.0)
Cervical Motion Tenderness	64(81.0)
<b>2. Amenorrhoe <sup>++</sup></b>	
<9	44(68.8)
9-12	13(20.3)
>12	7(10.9)
<b>3. Patient time (days).</b>	
<1	30(38.0)
2-4	23(29.1)
5-7	14(17.7)
>7	12(15.2).

<sup>+</sup>Some patients have more than one symptom.

<sup>++</sup>2 patients were unsure of dates.

admission, method of diagnosis, mode of treatments, intra operative findings, need for blood transfusion and duration of hospital stay. Data was analyzed using SPSS version 11.

Diagnosis of ectopic pregnancy was based on clinical methods and confirmed surgically, as quantitative b-hCG estimation, transvaginal ultrasound and sometimes laparoscopy were not available during the study period. Patient time is as defined by Bickel et al.<sup>8</sup> This is the period between the time a patient first noticed abnormal symptoms and the time she was first seen in a medical facility. Delay in presentation is said to have occurred if this period exceeds 24 hours.

#### Results

There were 1,048 gynecological admissions during the study period out of which 98(94%) were for ectopic pregnancies. Nineteen case noted could not be retrieved; the 79 patients (80.6%) whose case notes were found were the subjects of this study. The mean age of the patients was 28.3 years (SD=5.1) with a minimum

age of 18 years and maximum of 40 years. Majority (82.3%) were married and 68.4% have had one or more previous deliveries. Sixty two (80.5%) of the patients have never used contraception. Table 1 showed the details of the socio-demographic characteristics of the patients.

Amenorrhoea was reported by 66(83.5%) of the patients. The mean duration of amenorrhoea was 8.2 weeks (SD=2.8), with a minimum of 5 weeks and maximum of 20 weeks. Abdominal pain was the most common presenting symptom. It was present in all except one patient (98.7%) and was the first symptom in 84.8%. Sixty two percent of the patients presented with dizziness and more than a third (37.9%) were in shock at presentation. The typical triad of amenorrhoea, abdominal pain, and abnormal vaginal bleeding were present in only 28(35.4%) of the patients. Table 2 shows details of the presenting symptom.

The average patient time was 4.68 days with a minimum 0.02 day (30 min) and maximum of 30 days. Only 30 patients (38.0%) presented to any

medical facility within 24 hours of experiencing the first abnormal symptom. Nine of these patients who presented early were delayed by more than 12 hours (before diagnosis were made in our centre) due to wrong diagnosis at first consultation. Hence there was delay in diagnosis in 58 patients, 49 (84.5%) of these was due to late presentation and 9 (15.5%) was due to initial wrong diagnosis. A total of 32 (40.5%) of the cases were wrongly diagnosed at the first place of consultation. Nine of these misdiagnosis occurred in our centre given a misdiagnosis rate of 11.4% at our centre. The ectopic pregnancy was ruptured in 76(96.2%) of the 79 cases. The location of the ectopic pregnancy was tubal in 67(84.8%) patients, abdominal in one and was not specified in 11 cases. In 8 of those cases it could not be specified because, the uterus, tubes and ovaries on the affected side were matted together. Of the 67 tubal pregnancies, the ampular was the commonest (49.3%) location followed by the interstitial region (25.4%). Table 4 shows details of the location and site of the EP and operative findings.

All patients had laprotomy. Salpingectomy was performed in 73 (92.4%) patients while 6 had salpingo oophorectomy. The mean haemoperitoneum was 1.9litres (SD=0.78) with a maximum of 3.5litres. The contra lateral tube was grossly abnormal in 20(25.3%) of the cases.

#### Discussion

The peculiar socio demographic characteristics of our women with ectopic pregnancies, late presentation and disproportionate high percentage of isthmocornual ectopics are the adverse factors that make them more vulnerable to high rate of ruptured ectopic pregnancy.

This a hospital based retrospective study. It may therefore not be a true reflection of the picture of ectopic pregnancy in the general population. Population based study is however impracticable in our setting as there was no central registration of pregnancy complication similar to what obtains in some developed countries<sup>11</sup>. Comparative studies were also not feasible due to a very small number of unruptured ectopic in this series as in all others from other centers in Nigeria.<sup>6,7</sup> However a large percentage of ectopic pregnancy will eventually report in hospitals as only few cases resolve spontaneously.<sup>12</sup> Hospital based study is therefore a good proxy for population study. We were able to recover more than 80% of the case notes for analysis and hence our study will be useful in providing information on the socio-demographic characteristics of patients with ectopic and other relevant information on site and type of ectopics that may predispose our patients to rupture of the ectopic.

With a rate of 2.6 per 100 deliveries and 9.4% of

**Table 3:** Location of Tubal Ectopic and Operative Findings.

<b>Parameter</b>	<b>No (%)</b>
<b>1. Site of Tubal ectopic (n=67)</b>	
Ampulla	33(49.3)
Cornual/ inserstitial	17(25.4)
Isthmus	10(15.0)
Fimbrial.	7(10.4)
<b>2. Haemoperitoneum (mls)</b>	
<1000	8(10.1)
1000-2000	49(62.0)
>2000	22(27.9)

total gynecological admissions, the incidence of ectopic pregnancy in our setting is considerably higher than the 1% of total deliveries reported from similar hospital based data in other countries.<sup>13,14</sup> It is however similar to reported incidences from other parts of Nigeria.<sup>6,15</sup> The high incidence in our society may be due to a high prevalence of pelvic and sexually transmitted infections in our population<sup>16</sup>.

In this study 96.2% of the cases of ectopic pregnancy were ruptured at presentation. This is similar to reported rupture rates from other parts of Nigeria. Igberase et al from Eku in South South Nigeria reported a rupture rate of 95.3%<sup>6</sup>, Swende and Jogo from Makurdi, North central Nigeria found a rupture rate of 94.6%.<sup>7</sup> These rates are however much higher than the 18 to 30% reported from other centers, even those without sophisticated diagnostic facility<sup>11</sup>.

Many previous studies have revealed the predisposing factors to ruptured ectopic pregnancy. These studies confirmed the increased risk of rupture in older women with one or more previous deliveries and those whose ectopic is sited in the isthmo cornual region of the tube. In this study more than a third of the patients were in the third decade of life or older and majority (68.4%) have had one or more deliveries. Besides a disproportionately large percentage (40.3%) of the ectopic pregnancies were in the isthmio-cornual portion of the tube. This is much higher than the expected 2% for cornual ectopics<sup>17,18</sup>.

Most previous studies did not analyze the time of presentation in hospital. The study by Bickell et al<sup>8</sup> however showed that although the risk of rupture is highest within 48 hours of symptom onset, the risk persists and remains at 2.5% per 24 hours of untreated symptom. The risk of rupture therefore increases the longer a patient takes to present after the onset of symptom. More than 80% of our patients presented later than 24 hours after the onset of symptoms and 62.0% presented later than 48 hours. This further explains why majority of the patients have

ruptured before presentation. The high incidence of late presentation is a paradox when one considers the fact that the first abnormal symptom was abdominal pain in 98.7% of the cases. It may be due to a possible high pain threshold among our women or to restricted accessibility to medical care owing to financial constraints. They unfortunately are ignorant of the ominous implication of the symptom. There is therefore a need for a large scale public enlightenment programme to educate people on the significance of abnormal symptoms in early pregnancy.

This study further confirms the severe morbidity from rupture ectopic pregnancy. Almost 90% of the patient had haemoperitoneum of more than one liter and 38% were admitted in shock. Although there were no maternal deaths, these patients are indeed near miss maternal deaths. It is also possible that many cases resulted in sudden maternal deaths at home without reaching the hospital. In a recent American study, sudden death was the presenting scenario in 75% of non preventable ectopic pregnancy<sup>19</sup>. In Nigeria a recent autopsy study of maternal deaths revealed that haemorrhagic shock from ruptured ectopic was the most common cause of direct maternal deaths<sup>20</sup>.

The most obvious implication of this study for policy and client care is the need for public enlightenment programmes to educate the people on the dangers of abdominal pains and or bleeding in early pregnancy and the importance of reporting early in hospital. A misdiagnosis rate of 40.5% in this series was unacceptably high considering that almost all patients had abdominal pain at presentation. Even in our centre, which is a teaching hospital, a wrong diagnosis was made in 11% of the cases at presentation, similar to an earlier report from the same centre almost a decade ago<sup>11</sup>. Clinicians should therefore be reminded of the need to always consider ectopic in any woman of reproductive age group with abdominal pain and or vaginal bleeding with or without amenorrhoea.

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