

# Sociodemographic Attribute and Clinical Outcomes of Ectopic Pregnancy Managed in a Tertiary Hospital in Southern Nigeria

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**Abstract:** The most frequent gynaecological emergency is ectopic pregnancy, and it has high rates of maternal morbidity and mortality particularly when intervention is delayed. This study focused on the socio-demographic attributes and clinical outcomes of patients managed for ectopic pregnancy at the University of Benin Teaching Hospital (UBTH), Benin City, Nigeria. All cases of ectopic pregnancy in UBTH from January 2017 to December 2019 were retrospectively studied. Information on their presentation, clinical management and outcomes of treatment were retrieved from the hospital records library, ward registers, departmental computerized data set and theatre records. The data was analyzed using SPSS version 22. There were 6738 deliveries, 2365 gynaecological admissions and 141 cases of ectopic pregnancy in the period under review. Ectopic pregnancy (EP) constituted 2.1% of all deliveries and 5.97% of all gynaecological admissions. The peak age of incidence was 25 – 29 years. The majority of the patients (58.2%) were single and they were mostly undergraduates (41.8%). The majority (81.6%) presented with ruptured ectopic pregnancy. Shock was the commonest presentation (59.1%), and 60.1% had a blood transfusion. Salpingectomy was the mainstay of treatment (86.3%). For the unruptured cases selected for medical management, the success rate was 84.2%. Ectopic pregnancy is a common gynaecological emergency and still poses a major challenge due to late presentation. Previous induced abortion and pelvic inflammatory disease are the major risk factors for EP. Increasing awareness of prevention, early presentation, and risk of morbidity and mortality will help to reduce this scourge.

**Keywords:** Ectopic Pregnancy, Gynaecological Emergency, Salpingectomy, Blood Transfusion, Risk Factors

## 1. Introduction

An ectopic pregnancy (EP) is a complication of early pregnancy in which the blastocyst implants anywhere outside the endometrial cavity of the uterus [1-4]. It contributes significantly to maternal mortality and morbidity as well as foetal wastage [5]. Over 98% of EP occurs in the Fallopian tube [2]. The interstitium of the tube, the ovary, the cervix, the abdominal cavity, or Caesarean section scars are additional but less common locations where EP can arise [1-4]. Heterotopic pregnancy is the simultaneous development of two pregnancies, one within and the other outside the uterine cavity [6, 7]. Etiologically in vitro

fertilization results in 1 in 100 heterotopic pregnancies, which is more frequent than naturally occurring conception, which results in 1 in 4000 to 30,000 pregnancies [6, 7]. Globally, the prevalence of EP, a common gynaecological emergency, is rising. The increased use of antibiotics in pelvic inflammatory disease allows tubal patency but causes luminal damage, the use of assisted reproductive technology, and higher tubal surgery rates could all be contributing factors [4, 8].

EP affects 0.25 to 2% of all pregnancies worldwide [8]. According to the Centers for Disease Control and Prevention, the incidence in the United States increased from 4.5/1000 in 1970 to 19.7/1000 in 1992 [8, 9]. Between 1976 and 1993, a

similar study in Norway found an increase in the incidence of 1.4 to 2.2% [10]. In Ghana, the incidence rate was 2.05% [11]. In Nigeria, studies in Abuja, Nnewi, and Benin City revealed a 2.7%, 6.5%, and 1.67% incidence, respectively [12-14].

There are numerous risk factors connected to EP. These include pelvic inflammatory disease, history of previous ectopic pregnancy; intrauterine contraceptive device (IUCD); history of infertility; progesterone-only contraceptive or sterilization failure. Others are multiple sexual partners, in vitro fertilization, previous pelvic surgery, increased maternal age, cigarette smoking and in utero diethylstilbestrol exposure [2-8, 15, 16].

Patients with EP usually present with a history of amenorrhea, abdominal pain with or without vaginal bleeding, nausea, vomiting, diarrhoea, dizziness and fainting spell(s). Clinical signs include tachycardia, hypotension, abdominal tenderness, cervical excitation tenderness and adnexal tenderness. It's critical to keep in mind that how the disease progresses affects how EP presents [1-4]. Diagnosis is usually clinical. Biochemical tests (which include pregnancy tests and progesterone assay), ultrasound scans and laparoscopy are also useful [2-5]. Management can be expectant, medical or surgical with active resuscitation where necessary. The approach to management depends on the clinical features at presentation.

This study was conducted to explore patient-specific characteristics that may affect the clinical outcome as well as to document any trends in ectopic pregnancy occurrence. It is anticipated that the findings would highlight the clinical and social aspects of EP.

The primary aim of this study was to determine the socio-demographic attributes and clinical outcomes of cases of ectopic pregnancies in UBTH, Benin City, Nigeria.

## 2. Methods

This study was carried out at the University of Benin Teaching Hospital (UBTH), Benin City, Nigeria. UBTH is located along Benin - Lagos Expressway, Ugbowo, Benin City, the capital of Edo state, located in the South-South geopolitical zone.

UBTH is a multi-discipline tertiary health institution located in the state capital. This hospital serves as a major referral centre for Edo, Delta, Ondo, Kogi States and other parts of the country. Patients are usually referred from general hospitals, government-owned health centres, private medical centres, other departments in the hospital and sometimes from self-referral. The department of Obstetrics and Gynaecology has a gynaecology ward with a 40-bed capacity. Patients are admitted through the gynaecology emergency unit, clinics or the hospital emergency unit.

A descriptive retrospective study of patients managed for ectopic pregnancy in UBTH between 1st January 2017 and 31st December 2019. Relevant information was retrieved from the departmental computerized data set, theatre, hospital records library, and gynaecology ward records. All women

diagnosed with ectopic pregnancy were included. Information was extracted from the records using a self-designed pro forma that included details on sociodemographic characteristics, parity, risk factors, clinical status at presentation, modality of management, and the number of blood transfusions. The statistical analysis was done using Statistical Package for Social Sciences (SPSS) version 23. The descriptive statistics of numbers and percentages were done and presented using tables and charts.

The approval for the study was obtained from the research and ethics Committee of the University of Benin Teaching Hospital, Benin City.

## 3. Results

During the study period, 6,738 births were recorded, 141 cases of ectopic pregnancies were managed, and the total number of gynaecological admissions was 2,365 patients. Hence the incidence of EP was 2.1% of all births and 5.96% of gynaecological admissions.

*Table 1. Sociodemographic distribution.*

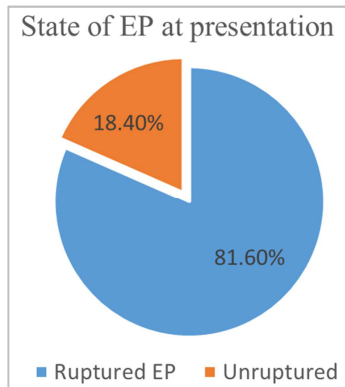
Variable	Frequency	Percent (%)
AGE		
<19	2	1.4
20 – 24	19	13.5
25 – 29	48	34.0
30 – 34	44	31.2
≥35	28	19.9
Mean (S.D) = 29.7 ± 5.3		
PARITY		
P 0	107	75.9
P1-2	28	19.9
P3-4	6	14.2
P ≥5	0	0
MARITAL STATUS		
Single	82	58.2
Married	58	41.1
Divorced	1	0.7
ETHNICITY		
Benin	51	36.2
Esan	29	20.6
Igbo	25	17.7
Ika	20	14.2
Others	16	11.3
OCCUPATION		
Housewife/applicant	13	9.2
Student	59	41.8
Trader	21	14.9
Skilled Labour	30	21.3
Civil Servant	9	6.4
Professional	9	6.4
RELIGION		
Christian	137	97.2
Muslim	4	2.8
LEVEL OF EDUCATION		
Primary	16	11.3
Secondary	72	51.1
Tertiary	53	37.6

\*Efik, Gwari, Hausa, Igala, Igbira, Kalabari, Yoruba

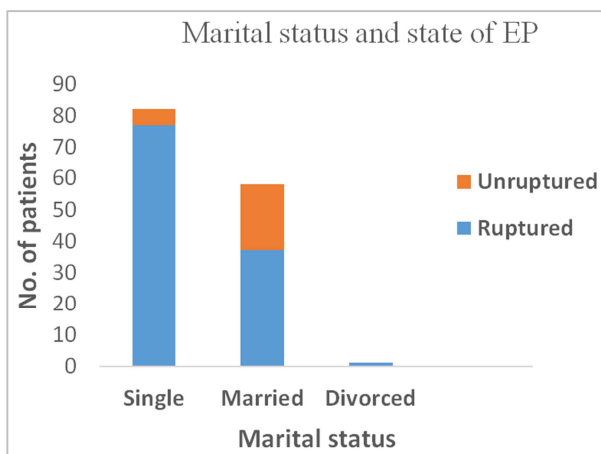
**Table 2.** Identified risk factors.

Variable	Frequency	Percent
Previous induced termination of pregnancy	62	44
Previous pelvic inflammatory disease	43	30.5
Use of progesterone contraceptive	12	8.5
Assisted reproductive technology	5	3.5
Multiple sexual partners	4	2.8
Previous ectopic pregnancy	4	2.8
No identifiable risk	32	22.7

NB: there can be multiple risks in one individual

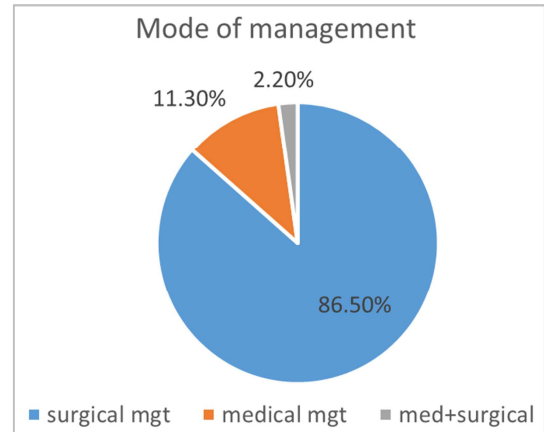
**Figure 1.** Clinical state at presentation.

At presentation; a total of 115 (81.6%) patients had ruptured EP while 26 (18.4%) were unruptured ectopics.

**Figure 2.** Comparing marital status and presentation of EP.

Of the ruptured ectopic gestations, 68/115 (59.1%) were in shock and needed aggressive resuscitation while the remaining 47/115 (40.9%) were not in shock.

58% of the patients were single women (82/141), of which 77/141 (93.9 percent) had ruptured ectopic pregnancies and accounted for 67 percent (77/115) of all ruptured ectopic gestations. Married women made up 58/141 (41.1%) of the population, of which 37/58 (63.8%) had ruptured ectopic pregnancies, accounting for 32.2 percent (37/115) of all ruptured ectopic pregnancies and 80.8% of un-ruptured ectopic pregnancies. In this study, there was just one divorcee who reported, and she was ruptured, making up 0.8 percent of ruptured EP.

**Figure 3.** Mode of management.

Of the 141 patients, 122 (86.5%) received surgical treatment (laparotomy with salpingectomy), 16 (11.3%) received only medical treatment, and 3 (2.2%) failed medical treatment and required surgery.

**Table 3.** Blood transfusion.

No of pints transfused	Frequency	Percent
None	56	39.7
1-2 pints	28	20
3-4 pints	37	26.2
≥ 5 pints	5	3.5
Autologous blood transfusion	15	10.6

## 4. Discussion

Ectopic pregnancy was found in 2.1% of all births and accounted for 5.97% of all gynaecological admissions. This is consistent with the global incidence of 0.25-2% [6, 8], as well as studies conducted in Lagos, Port Harcourt, and Abuja, Nigeria, which found incidences of 2.31%, 2.4%, and 2.7%, respectively [12, 17, 18]. However, the incidence increased from 1.68% as reported by Gharoro et al in Benin 2006 [14], which has also been a global trend [1, 3, 8].

Unlike previous research that found an increase in the incidence of ectopic pregnancy with maternal age [3, 4], this study found the highest incidence among women aged 25-29 years, with a mean age of 29.7 +/- 5.3 years. This could be due to a decrease in the age of coitarche, the influence of education, and sex exposure. It was, however, comparable to a recent study in Port Harcourt with a peak age of 24-29 years [17] and Lagos with a mean age of 29.5 +/- 5.7 years [19].

Unmarried women made up 58% of the cases, while married women made up 41.2%. This could be because singles are more likely than married people to have multiple sexual partners and suffer from the consequences of sexually transmitted diseases. This is consistent with the findings of Ugboma et al. [17], who found that the unmarried had the highest incidence. However, this differs from the findings of Panti et al. [24], who found that 77.3% were married. This could be due to early marriage in northern Nigeria, as well as the fact that this study area is in the city and within the

university campus community.

Nulliparous women constituted 75.9%. This may be because most of the women were unmarried and in their 20s. This is also in keeping with other studies which showed the highest incidence in nulliparas [14, 19].

Approximately 8 in 10 were nulliparous women (75.9%). This could be because the majority of the women were single and in their twenties. This is consistent with previous research, which found the highest incidence in nulliparas [14, 19].

Previously induced termination of pregnancy was the most common risk factor for EP in this study. This likely operates by increasing the risk of pelvic inflammatory diseases, particularly with unsafe abortions, which is another independent risk factor for EP. This observation is consistent with the report by Ugboma *et al* [17]. Though the history of multiple sexual partners was low in this study compared to studies done in Nnewi and Port Harcourt, which reported 35.5% and 30.2%, respectively [13, 17], it is possible that the patients in the current study did not volunteer the information about the number of sexual partners, or that specific inquiries were not made or documented, given that the diagnosis was frequently straightforward. In vitro fertilization, previous ectopic pregnancy, and the use of progesterone-only contraceptives were also identified as risk factors. These findings were also consistent with those of other authors [14, 17-25].

The majority of the women in this study had ruptured ectopic pregnancy, which is consistent with the findings of Akaba *et al* [12]. This could be due to the woman attempting to terminate an unwanted pregnancy that is outside the uterine cavity, allowing for a period in which an ongoing pregnancy is unexpected. The logical consequence would be a delay in presenting to the medical facilities until rupture occurs. Delays could also have resulted from seeking self-medication, and some women may not have realized they were pregnant. Furthermore, being unmarried was associated with ruptured EP, whereas married women appeared to be protected. This can be explained by the possibility that being unmarried results in a delay in seeking appropriate treatment. This finding is consistent with the findings of Aziken *et al.* [22], who found that 80.1% of married women had an unruptured ectopic at the time of presentation.

The management of these patients was determined by their clinical state at the time of presentation. Whereas 86.3% were managed surgically, with most requiring salpingectomy and only a few requiring metroplasty, 19 of the 26 unruptured cases met medical management criteria, with 84.2% success. This showed an improvement in the medical management success rate compared to a previous study in our hospital by Aziken *et al.* [22] which reported a success rate of 76.9%. This improvement could be attributed to earlier presentation in the subset of women with unruptured EP, improved diagnostic capacity, and strict patient selection criteria.

During the treatment of the patients, 60.3% required blood transfusions, with 10.6% receiving autologous blood transfusions. This was consistent with the findings of Ugboma *et al.* [17], who found that more than 60% of patients received blood transfusions. During the study period, there was no

record of maternal mortality from EP, which is likely due to heightened clinical suspicion for EP combined with the availability of prompt surgical intervention and blood transfusion service.

Data on certain risk factors, such as multiple sexual exposures, could not be obtained in this study, nor could patients be followed up on for risk of recurrence and future fertility performance. This is a significant flaw in retrospective study design. In future studies in this area of interest, a community-based longitudinal study will most likely provide the needed answers.

## 5. Conclusion

Ectopic pregnancy remains a major contributor to maternal mortality in developing countries like Nigeria. Ectopic pregnancy does not increase with increasing maternal age and is more commoner in single and nullipara women. Previous induced abortion is the most common aetiology of ectopic pregnancy others include, in vitro fertilization previous ectopic pregnancy and progesterone only contraceptives. Ruptured ectopic pregnancy is the most common mode of presentation. Salpingectomy was the preferred means of treatment while medical treatment had a success rate of 84.2%. Overall 6 in every 10 patients in the study had blood transfusion.

Early presentation for prompt intervention will promote improved clinical outcomes. Lifestyle modification, use of barrier contraceptives, avoiding multiple sexual partners, and prompt treatment of sexually transmitted diseases could help reduce the risk of ectopic pregnancy. The need exists for increased awareness about the causes, prevention and management of ectopic pregnancy among single undergraduates.

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