

STUDY OF ECTOPIC PREGNANCY IN A TERTIARY CARE HOSPITAL

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Abstract

Background: Ectopic pregnancy (EP) is a potentially fatal condition in the first trimester of pregnancy. Immediate intervention is required to prevent maternal morbidity and mortality due to EP. The study investigated ectopic pregnancy's prevalence, clinical manifestation, risk factors, parity, gestational age, acute morbidity related, and management (medical and surgical). **Materials and Methods:** A cross-sectional study was performed with 125 women diagnosed with ectopic pregnancy who attended Tirunelveli medical college hospital between December 2019-September 2021. A semi-structured questionnaire was used to gather the information. After data collection, a physical examination was conducted, paying particular attention to vital signs, the abdomen, the vagina, the cervical excitation test, and, if necessary, the culdocentesis. **Results:** The incidence of ectopic pregnancy was 0.82%, and most (30%) patients were aged 25 to 29. The most common complaint was stomach discomfort (56.80%) and bleeding (55%). Most patients (43.2%) have moderate levels of anaemia. Stage three hypovolemic shock was present in about one-third of the patients, while cervical motion pain was 75%. Primiparous and multiparous participants reported 37.6% and 30.4%, and 25% had a history of prior abortion, followed by prior tubal ligations, failed sterilisations, and prior ectopic pregnancies. The ectopic pregnancy and diseases, including renal failure, ovarian cyst, thrombocytopenia, and COVID, were not significantly associated. **Conclusion:** A strong suspicion is required for the early identification of ectopic pregnancy due to the range of clinical manifestations and unusual presentations. The key to lowering maternal morbidity and maintaining future fertility is early diagnosis and referral.

INTRODUCTION

Ectopic pregnancy (EP) is a potentially fatal condition in the first trimester of pregnancy that occurs when the growing embryo has been placed somewhere other than the endometrium in the uterine cavity.^[1] According to estimates, it affects 1-2% of all pregnancies and is responsible for 6% of obstetric deaths in Australia, 75% of early pregnancy deaths, and 8% of all maternal deaths worldwide.^[2] Most hospital-based research.^[3] estimates that the incidence of EP is between 1 and 2%, and it has been rising over the past few decades. It may be possible that most patients do not experience the traditional trio of abdominal discomfort, amenorrhea, and vaginal bleeding. Women may report vague symptoms, such as being

unaware of an ongoing pregnancy or situation, or even may present with hemodynamic shock.

EP is thought to be a contributing factor in 3.5%–7.1% of maternal deaths in underdeveloped nations, including India; however, the percentage is unknown.^[4] A detailed clinical history, physical exam, and correlation with appropriate diagnostic procedures are critical for diagnosis and management. Immediate intervention is necessary to prevent maternal morbidity and mortality. In an EP, embryonic implantation occurs elsewhere than the uterus; the fallopian tube is the most typical location. An ectopic pregnancy can have catastrophic implications in a surgical emergency if not managed correctly and promptly.^[1,4-6]

Despite numerous important advances in ectopic pregnancy diagnosis, it continues to be a major cause of maternal morbidity and mortality. In the last few decades, there has been an increase in

ectopic pregnancies. An ectopic pregnancy that has ruptured is a true surgical emergency. One of the main factors contributing to maternal mortality in the first trimester and the cause of maternal deaths is ruptured ectopic pregnancy.^[5,6] The study investigated ectopic pregnancy's prevalence, clinical manifestation, risk factors, parity, gestational age, acute morbidity related, and management (medical and surgical).

MATERIALS AND METHODS

It was a cross-sectional study performed with all suspected cases of ectopic pregnancy in those who attended Tirunelveli medical college hospital between December 2019-September 2021. The sampling technique was convenient and included 125 women diagnosed with ectopic pregnancy. Written and informed consent was obtained from all the study participants. Institutional Human Ethics Committee approved the current study before the initiation of the study.

Inclusion criteria: Women diagnosed with ectopic pregnancy.

A semi-structured questionnaire was used to gather the information. A data collecting tool was used to conduct in-person interviews, get a thorough history, and perform a pertinent physical examination. The patient's history was carefully recorded. The history was obtained backwards if the patient was in shock.

After taking a history, a physical examination was conducted, paying particular attention to vital signs, the abdomen, the vagina, the cervical excitation test, and, if necessary, the culdocentesis. All patients had the fundamental evaluations, including haemoglobin, renal function testing, blood grouping and Rh typing, urine pregnancy testing, and

ultrasound examination. In the event of a questionable diagnosis, additional tests such as a Doppler study, a CT scan, and an MRI were ordered for the serum beta hCG.

All the data were gathered on a structural data form (sample included), and descriptive statistics were used to analyse them. Analysis was done on data about the patient's profile, risk factors, sterilisation status, use of other forms of contraception, presenting symptoms and signs, physical examination, ultrasound findings, types of treatment, postoperative morbidity, and length of hospital stay. Following surgery, the pathology section provided HPE data, and a final diagnosis was reached.

Statistical Analysis

Data were analysed using SPSS software, V.22. The mean and standard deviation were used in the descriptive analysis for quantitative variables. In contrast, frequency and proportion were used for categorical variables. The median and interquartile range (IQR) summarised non-normally distributed quantitative variables. Additionally, the data was displayed using relevant designs, such as pie and bar charts. By visually inspecting histograms and normality Q-Q plots, all quantitative variables were examined for normal distribution within each category of the explanatory variable. Additionally, the Shapiro-Wilk test was used to evaluate the normal distribution. The distribution was normal when the Shapiro-Wilk test's p-value was >0.05.

RESULTS

Incidence of Ectopic Pregnancy

The total live births during the study period were 15215, the number of ectopic pregnancies was 125, and the incidence was 8.2 per 1000 live births.

Table 1: Descriptive analysis of age group in the study population

Age Group	Frequency	Percentages
0 to 20	7	5.6%
21 to 24	26	20.8%
25 to 29	38	30.4%
30 to 34	37	29.6%
35 to 39	13	10.4%
≥40	4	3.2%

Among the study population, 30.4% of the age group was between 25 to 29, 29.6% of the age group was between 30 to 34, 20.8% of the age group was between 21 to 24 years, 10.4% of the age group was between 35 to 39 (Table 1).

Table 2: Descriptive analysis of clinical presentation in the study population

Clinical presentation	Frequency	Percentages
Abdominal Pain	71	56.8%
Bleeding PV	68	54.4%
Amenorrhea+ Abdominal Pain	59	47.2%
Amenorrhea Bleeding	58	46.4%
Amenorrhea+ Abdominal Pain+ Bleeding	18	14.4%
Anaemia		
Mild (9 to 10)	42	33.6%
Moderate (7 to 9)	54	43.2%
Severe anaemia (4 to 7)	25	20%
Very Severe (<4)	4	3.2%

Hypovolemic shock		
Moderate hypovolemic shock	36	28.8%
Severe hypovolemic shock	8	6.4%

Among the study population with clinical presentation, 56.8% of them had abdominal pain, 54.4% of them had bleeding per vagina, 47.2% of them had Amenorrhea+ Abdominal Pain, 46.4% of them had Amenorrhea Bleeding, 14.4% of them had Amenorrhea+ Abdominal Pain+ Bleeding. Of study participants with the severity of anaemia, 43.2% of them had Moderate (7 to 9), 33.6% of them had Mild, 20% of them had Severe anaemia (4 to 7), and 3.2% of them had Very Severe (<4). Of the study participants with hypovolemic shock, 28.8% had moderate hypovolemic shock, and 6.4% had severe (Table 2) Of study participants with Duration of gestation (in weeks), 11.2% were <5, 76% were between 5 to 8 weeks, 8% were between 9 to 11 weeks, and 4.80% were >11 weeks. 85.6% of the participant's membranes were ruptured, and 14.4% were Unruptured.

Table 3: Descriptive analysis of the site of ectopic pregnancy in the study population

Site	Frequency	Percentage
Ampulla	89	71.2%
Fimbrial end	5	4%
Isthmus	12	9.6%
Interstitial	9	7.2%
Cornua	7	5.6%
Scar site	2	1.6%

Of study participants with the site of ectopic pregnancy, 71.2% of them were ampulla, 9.6% of them were Isthmus, 7.2% of them were Interstitium, 5.6% of them were Cornua, 4% of them were Fimbrial end (Table 3).

Of study participants with parity, 37.6% were Primipara (those with one live child), 30.4% were Multipara, 20% were Primigravida, and 12% were Nullipara (previous abortions).

Of study participants with contraception, 8% of them had undergone Concurrent ST, 5.6% of them underwent puerperal sterilisation, 3.2% of them underwent TAT, 4.8% of them used IUCD, 2.4% of them underwent Laparoscopic sterilisation (LS), 0.8% used OC Pills, 0.8% used progesterone-only pills, and 1.6% were on Inj. Antara.

Table 4: Summary of risk factors in the study population

Risk factors	Frequency	Percentages
Previous H/o abortion	35	28%
Previous H/o ectopic	2	1.6%
Tubal surgeries	24	19.2%
Sterilisation Failure (LS+ TAT+ PS+ Concurrent ST)	23	18.4%
Recanalisation surgery	1	0.8%
H/o IUCD	6	4.8%
POP	1	0.8%
ANTARA	2	1.6%
H/o PID	1	0.8%
Genital Tuberculosis	2	1.6%
H/O ART	1	0.8%
OCP	1	0.8%

On study participants with risk factors, 28% of them had Previous H/o abortion, 19.2% of them had Tubal surgeries, 1.6% of them had Previous H/o ectopic, 19.2% had previous H/O tubal surgeries (18.4% of them had Sterilisation Failure, and 0.8% had undergone recanalisation surgery), 4.8% of them had IUCD, 1.6% had H/O genital TB, 0.8% of them had H/o PID, 0.8% were using OCPs, and 0.8% were using POPs (Table 4).

Table 5: Descriptive analysis of associated findings in the study population

Associated Findings	Frequency	Percentages
Acute renal failure	1	0.8%
Chocolate ovarian cyst	1	0.8%
Thrombocytopenia	1	0.8%
Covid positive	1	0.8%

Among the study population with associated findings, 0.8% had renal failure, 0.8% had Chocolate ovarian cysts, 0.8% had thrombocytopenia, and 0.8% were Covid-positive (Table 5). Among the study population with immediate morbidity, 66.4% had anaemia due to acute blood loss, 4% had Hypovolemic shock requiring mechanical ventilation, 2.4% had undergone hysterectomy, and 0.8% had Infertility.

Table 6: Descriptive analysis of outcome in the study population

Outcome	Frequency	Percentages
Medical	2	1.60%
Surgical	123	98.4%
Salpingectomy with ovarian cystectomy	1	0.80%
Salpingectomy	122	97.60%
Death	2	1.60%
Heterotopic Pregnancy	2	1.60%
Delivered an alive term: boy baby	1	0.80%
Undergone hysterectomy	1	0.80%

Among the study population with the outcome, 1.60% of them were medically managed, 98.4% of them were taken for laparotomy (97.6% of them had undergone salpingectomy, 0.80% of them had undergone salpingectomy with ovarian cystectomy), 1.60% of them died (one was covid related death), two patients had heterotopic pregnancy, one was surgically managed earlier and later delivered by labour naturalis, another patient undergone hysterectomy (Table 6).

DISCUSSION

In our study, the incidence of ectopic pregnancy was found to be 0.82%. Similar results were obtained in a study conducted by Panelli et al. and Chang et al., where the incidence ranged between 1-2%.^[7,8] In our study, the majority (30%) of the patients were aged 25 to 29. Hypotheses for this relation include the increased probability of exposure to most other risk factors with advancing age, increased chromosomal abnormalities in trophoblastic tissue, and age-related changes in tubal function, which will delay the ovum transport, resulting in tubal implantation.^[9] Most cases occur in the age group between 21- 30 years. This is the age group where the peak of sexual activity and reproduction occurs. Also, the chance of ectopic pregnancy is influenced by tubal defects.^[10,11]

The chance of ectopic pregnancy increases as a mother ages, with age above 35 being a major risk factor. From 1.4% of all pregnancies in women under 21 to 6.9% in women 44 years or older, the prevalence of ectopic pregnancy increased steadily with maternal age at conception.^[12] Most of the time, the traditional trio of abdominal discomfort, amenorrhea, and vaginal bleeding may not be present. Women may exhibit vague symptoms, such as being unaware of an ongoing pregnancy or even hemodynamic shock. But in our study, the most common complaint from patients was stomach discomfort (56.80%), which was followed by bleeding (55%) and amenorrhea with bleeding (47%), and these findings agree with those of Ranji et al.^[13]

Most of the patients in our study (43.2%) have moderate levels of anaemia, followed by the group with mild levels of anaemia (33.6%). Stage three hypovolemic shock was present in about one-third of the patients. The study by Tay et al., which revealed that ectopic pregnancy must be strongly suspected when there are signs of shock, provided

evidence in favour of this.^[14] The gestational age of nearly two-thirds (76%) of the patients is between five and eight weeks, with fewer than five weeks of gestation coming in second (11.6%). In our study, cervical motion pain was present in 75% of the patients. Similar findings were made by Tay et al. in their research, which indicated that 33% of the patients did not have cervical motion soreness and that up to 67% of cases had cervical motion tenderness reported. This was confirmed by Tay et al.'s findings, which showed that one-third of women with ectopic pregnancies exhibit no clinical symptoms.^[14]

Primiparous and multiparous participants comprised the bulk of the study's participants (37.6% and 30.4%, respectively). Primiparous women all have a single child. Similar findings were made in a study by Kirk et al.^[15] and Shetty et al.^[16], which discovered that more than half of the participants who experienced ectopic pregnancy were multiparous women. In addition, 73% of study participants did not utilise any form of contraception. Similar findings were reached in a study by Li Cheng et al., who discovered that most contraceptives were currently used to minimise the incidence of IUP and EP.^[17]

In our study, 25% of participants had a history of prior abortion, followed by prior tubal ligations, failed sterilisations, and prior ectopic pregnancies. The study by Shaikh et al., which discovered that the ectopic pregnant participants had a history of prior abortion in 20 (33%), prior surgery in 12 (20%), and were seen as common risk factors, validated this finding.^[18] It was shown that there was a correlation between the rising trend in cesarean sections and a higher risk of ectopic pregnancy.

In our study, ectopic pregnancy and diseases including renal failure, ovarian cyst, thrombocytopenia, and COVID were not significantly associated. Anaemia was to blame for more than two-thirds (67%) of the participants' morbidity, with hypovolemic shock (4%), which required artificial breathing and hysterectomy, coming in second. Compared to ectopic pregnancies that did not rupture, postoperative anaemia and fever were more frequent. The two most frequent procedures were salpingo-oophorectomy and total/partial salpingectomy. The open laparotomy procedure is the most popular method of treating ectopic pregnancies in developing nations. However, laparoscopic surgery and conservative

management are becoming more popular. In the study by Mufti et al., all surgical cases were managed using the open technique.^[19]

CONCLUSION

With the variety of clinical and atypical presentations of ectopic pregnancy, strong suspicion is necessary for its early diagnosis. Early diagnosis and referral are the key factors in reducing maternal morbidity and preserving future fertility. Due to the high incidence of tubal rupture in our system, community education must inform women to attend the health facilities as early as possible once they have symptoms.

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