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Clinical Profile and Management of Ectopic Pregnancy: A Cross-Sectional Study in a Tertiary Care Hospital

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ABSTRACT

Background: Ectopic pregnancy (EP) is a life-threatening condition where a fertilized ovum implants outside the uterine cavity. Prompt diagnosis and management are essential to reduce morbidity and mortality. This study aimed to assess the clinical profile and management outcomes of ectopic pregnancies in a tertiary care setting.

Methods: A hospital-based cross-sectional observational study was conducted at NSCB Medical College, Jabalpur, from August 2022 to August 2023. A total of 107 women diagnosed with ectopic pregnancy by clinical and ultrasonographic evaluation were included. Data on demographics, risk factors, clinical presentation, site of implantation, management strategies, and outcomes were analyzed using SPSS version 21.

Results: Most patients were aged 21–25 years (41.1%) and from lower socio-economic status (49.5%). The leading symptoms were amenorrhea (88.8%) and abdominal pain (81.3%). Tubal ectopic pregnancy was the most common (90.65%), with the ampullary region most frequently involved (80.3%). The majority were managed surgically by laparotomy (90.7%), while a small number underwent laparoscopy (7.4%) or received medical treatment (1.9%). Post-operative complications included anemia (59.8%), shock (37.4%), and blood transfusion (53.3%). No maternal mortality was reported.

Conclusion: Ectopic pregnancy primarily affects young, reproductive-age women, often from lower socio-economic backgrounds. Early symptoms and prompt diagnosis enable timely surgical intervention, predominantly through laparotomy. Although post-operative complications were frequent, mortality was avoided with appropriate care. Strengthening early detection and awareness can further improve outcomes in high-risk populations.

Key-words: Ectopic pregnancy, Clinical profile, Laparotomy, Ampullary ectopic, Risk factors, Surgical management, Reproductive health

INTRODUCTION

"When one is called to a case of this kind, it is his duty to look upon his unhappy patient as inevitably doomed to die, unless he can by some active measure wrest her from the grave already yawning for her." – John Parry.

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Access this article online https://iijls.com/ Ectopic pregnancy (EP) is a potentially life-threatening condition that occurs when a fertilized egg implants outside the uterine cavity, most commonly in the fallopian tube ^[1]. It is a major cause of maternal morbidity and mortality in the first trimester, especially in developing countries where diagnostic and treatment facilities may be delayed or inaccessible. The incidence of EP ranges from 0.91% to 2.3% in India and shows variation based on diagnostic awareness and reporting accuracy ^[2,3].

Several well-established risk factors predispose women to EP. These include a history of pelvic inflammatory disease (PID), previous abortions, prior ectopic pregnancies, tubal or pelvic surgeries, and the use of intrauterine contraceptive devices (IUCDs)^[4,5]. PID is considered a major contributing factor as it leads to scarring and distortion of the fallopian tubes, affecting the normal transit of the fertilized ovum ^[6]. Similarly, tubal reconstructive surgeries or sterilization procedures increase the chances of implantation in abnormal locations ^[7]. Infertility treatments and assisted reproductive technologies have also been associated with a rise in non-tubal ectopic pregnancies ^[8].

Advances in diagnostic technologies have transformed the clinical approach to EP. Quantitative serum betahuman chorionic gonadotropin (β -HCG) levels and highresolution transvaginal ultrasonography (TVS) have made early diagnosis feasible, reducing the risk of tubal rupture and allowing for conservative management in select cases ^[6,9]. An abnormal rise in β -HCG, coupled with the absence of an intrauterine gestational sac on TVS, strongly suggests the presence of an ectopic gestation ^[9]. However, in many cases, especially in low-resource or rural areas, diagnosis is delayed until complications like tubal rupture and hemoperitoneum occur, necessitating emergency surgical intervention.

Despite significant improvements in early detection, EP continues to be a diagnostic challenge due to its variable presentation. Classic symptoms such as amenorrhea, abdominal pain, and vaginal bleeding are not always present or may mimic other gynecological or gastrointestinal conditions. Moreover, some cases remain asymptomatic until rupture, further complicating timely intervention ^[10].

The importance of early identification, prompt referral, and appropriate management strategies cannot be overstated, as they are key to improving outcomes and preserving fertility in affected women. This study seeks to explore the clinical profile, risk factors, presentation, and management outcomes of ectopic pregnancies in women attending a tertiary care center, thereby contributing valuable data to guide future clinical practices and preventive strategies. The objective of this study is to assess the clinical profile and management outcomes of ectopic pregnancies at a tertiary care hospital.

MATERIALS AND METHODS

Research design- This hospital-based cross-sectional observational study was conducted in the Department of Obstetrics and Gynecology at Netaji Subhash Chandra Bose Medical College and Hospital, Jabalpur, Madhya Pradesh. A total of 107 ectopic pregnancy cases were recorded during the one-year study duration.

Detailed demographic data, clinical history, physical examination findings, and investigations including β -HCG levels and imaging studies were documented using a structured proforma. The diagnosis was confirmed by transvaginal sonography. Management strategies were categorized into surgical (laparotomy or laparoscopy) and medical (methotrexate therapy). Post-treatment complications and follow-up data were recorded.

Inclusion Criteria- All women diagnosed clinically and confirmed by imaging (transvaginal ultrasonography) as ectopic pregnancy during the study period from 1 August 2022, to 31 August 2023, at NSCB Medical College, Jabalpur, were included in the study after obtaining informed consent.

Exclusion Criteria- Women who were not pregnant or who refused to provide consent for participation were excluded from the study.

Statistical Analysis- Data entry was performed using Microsoft Excel and analysis was carried out using SPSS version 21. Categorical variables were summarized as frequencies and percentages.

Ethical Approval- Ethical clearance was obtained from the Institutional Ethics Committee of NSCB Medical College and Hospital, Jabalpur. Informed written consent was obtained from all participants before enrollment in the study.

RESULTS

Table 1 shows the distribution of study participants by age, gestational age, and socio-economic status. Most participants are between 21-25 years old, and nearly half come from a lower socio-economic background. Most participants are also in the early stages of pregnancy.

This diversity in age, socio-economic status, and gestational age can make the study's findings more generalizable. However, the higher representation of

participants from lower socio-economic backgrounds may indicate a need for more attention to this group.

Table 1: Age, Gestational Age & Socio-Economic Status
Distribution of Study Participants

Age Group (years)	Number (%)	
18–20	5 (4.7%)	
21–25	44 (41.1%)	
26–30	28 (26.2%)	
31–35	20 (18.7%)	
>35	10 (9.3%)	
Socio-economic Status		
Lower	53 (49.5%)	
Middle	38 (35.5%)	
Upper	16 (15%)	
Gestational Age (weeks)		
<6	48 (44.8%)	
6–8	29 (27.1%)	
8–10	18 (16.8%)	
>10	12 (11.2%)	

Table 3 shows the parity distribution and risk factors of the study participants. Most participants have had one or two previous births, indicating that the study population is largely composed of women with some reproductive experience. Nulliparous women make up 26.2% of the participants, while 18.7% have had three or more previous births, suggesting that the study population also includes women with varying levels of reproductive history.

The high prevalence of Pelvic Inflammatory Disease (44%) and Tubal Surgery (35.5%) among the participants suggests that these conditions may be significant risk factors for the outcomes being studied. The presence of Prior Abortion, Previous Ectopic Pregnancy, and IUCD Use also highlights the importance of considering these factors in the analysis. Overall, the distribution of risk factors among the participants suggests that the study population is at risk for various reproductive health issues, and the findings of the study may have implications for the management and prevention of these conditions.

Table 2: Parity Distribution of Study Participants

Parity	Number (%)	
Nulliparous	28 (26.2%)	
Para 1	32 (29.9%)	
Para 2	27 (25.2%)	
Para ≥3	20 (18.7%)	
Risk Factors		
Pelvic Inflammatory Disease	47 (44%)	
Prior Abortion	9 (8.4%)	
Tubal Surgery	38 (35.5%)	
Previous Ectopic Pregnancy	7 (6.5%)	
IUCD Use	6 (5.6%)	

The study reveals that most participants (83.2%) presented with symptoms for less than 24 hours, indicating prompt seeking of medical attention. The clinical presentation is dominated by amenorrhea (88.8%), abdominal pain (81.3%), and vaginal bleeding (47.7%). These findings suggest that the participants are likely experiencing reproductive health issues, and the symptoms are consistent with potential gynecological or obstetric conditions. The high frequency of amenorrhea and abdominal pain highlights the importance of considering these symptoms in the diagnosis and management of the underlying conditions.

Table 3: Duration of Symptoms

Duration	Number (%)	
<24 hours	89 (83.2%)	
>24 hours	24 hours 18 (16.8%)	
Clinical Presentation		
Amenorrhea	95 (88.8%)	
Abdominal Pain	l Pain 87 (81.3%)	
Vaginal Bleeding	51 (47.7%)	

The study shows that most ectopic pregnancies (90.65%) were in the tubal region, with a significant proportion (80.3%) occurring in the ampullary region of the tube. Ovarian and abdominal ectopic pregnancies were less common, accounting for 5.6% and 3.73% of cases, respectively. The high frequency of tubal ectopic pregnancies, particularly in the ampullary region, highlights the importance of this location in the diagnosis

and management of ectopic pregnancies. The findings also suggest that tubal rupture is a significant concern, and prompt intervention may be necessary to prevent complications (Table 4).

Ectopic Pregnancy	Number (%)	
Tubal	97 (90.65%)	
Ovarian	6 (5.6%)	
Abdominal	4 (3.73%)	
Tubal Rupture		
Ampullary	86 (80.3%)	
Isthmic	9 (8.4%)	
Fimbrial	7 (6.5%)	
Interstitial	5 (4.6%)	

The study shows that most cases (90.7%) were managed through laparotomy, a surgical approach, while laparoscopy was used in 7.4% of cases, and medical management with methotrexate was used in 1.9% of cases. Post-operative complications were common, with anemia (59.8%), shock (37.4%), and need for blood transfusion (53.3%) being notable concerns. ICU admission was required in 37.4% of cases. Despite these complications, there were no reported mortalities, suggesting effective management and care. The findings highlight the importance of surgical intervention in managing ectopic pregnancies and the need for careful post-operative care to minimize complications (Table 5).

Management	Number (%)	
Laparotomy	97 (90.7%)	
Laparoscopy	8 (7.4%)	
Medical Management (Methotrexate)	2 (1.9%)	
Post Operative Complication		
Anemia	64 (59.8%)	
Shock	40 (37.4%)	
ICU Admission	40 (37.4%)	
Blood Transfusion	57 (53.3%)	
Mortality	0 (0%)	

DISCUSSION

Ectopic pregnancy continues to be a significant cause of maternal morbidity and a leading emergency in early pregnancy, especially in developing countries. The incidence in our study was 0.78%, which aligns with other regional studies conducted in tertiary care settings in India, reporting incidence rates between 0.5% and 2% ^[11].

Most patients in our study were between 21 and 25 years of age, like the findings by Sharma *et al.* who reported that the highest frequency of EP occurred in young reproductive-age women ^[11]. The predominance in this age group is likely due to peak fertility and high sexual activity during this phase of life.

Classical symptoms—amenorrhea (88.8%), abdominal pain (81.3%), and vaginal bleeding (47.7%)—were prevalent, correlating well with results from Verma et al. who emphasized these as the most frequent triad in EP presentation ^[12]. Notably, our study showed early healthcare-seeking behavior, with 83.2% presenting within 24 hours of symptom onset, which may reflect increased awareness and availability of emergency obstetric services.

Regarding risk factors, the most common were Pelvic Inflammatory Disease (44%) and tubal surgery (35.5%). These have consistently been implicated in literature as primary contributors to altered tubal motility and anatomy, predisposing women to ectopic gestation ^[13]. Additionally, prior abortion, previous EP, and IUCD use were present in a smaller fraction, again matching the observations of similar studies in India ^[12].

Tubal pregnancies, particularly in the ampullary region (80.3%), dominated the anatomical sites of implantation. These findings agree with a retrospective study by Kaur et al., who also reported ampullary pregnancies as the most frequent due to delayed ovum transport in compromised tubes ^[14].

Surgical management, especially via laparotomy (90.7%), was the principal treatment modality. Though laparoscopy offers benefits in stable cases, it remains underutilized in many government setups due to logistical limitations, as previously noted by Gupta et al. ^[15]. Only a small percentage of cases were eligible for medical management with methotrexate, likely due to delayed presentation or large adnexal masses, a challenge echoed in other Indian cohort studies ^[16].

Post-operative anemia (59.8%), shock (37.4%), and ICU admission (37.4%) were significant complications, yet no maternal mortality was recorded, reflecting effective intra-operative and critical care protocols. These results affirm that with timely surgical intervention, even complicated EP cases can achieve favorable outcomes.

Our findings reinforce the need for improved community awareness, earlier diagnosis through first-trimester ultrasonography, and the wider availability of laparoscopic services in peripheral centers to reduce the burden of EP and preserve maternal health.

CONCLUSIONS

Ectopic pregnancy remains a serious obstetric emergency with significant morbidity but is largely preventable with timely diagnosis and management. The present study highlights that young woman of reproductive age, particularly those with prior pelvic infections or tubal surgeries, are at higher risk. Classical symptoms such as amenorrhea and abdominal pain should prompt early evaluation using transvaginal ultrasonography and β -HCG levels. Most cases in our setting required emergency surgical intervention due to late presentation, emphasizing the need for early detection and community awareness. Despite high rates of post-operative complications, favorable outcomes without maternal mortality were achieved with timely surgical care and supportive management. Strengthening diagnostic infrastructure at the primary care level and increasing awareness among women can further reduce the burden of ectopic pregnancy and its complications.

CONTRIBUTION OF AUTHORS

Research concept- Swati Singh, Sakshi Mishra Research design- Swati Singh, Sakshi Mishra Supervision- Archana Singh Materials- Sakshi Mishra, Kirti Patel Data collection- Swati Singh, Sakshi Mishra, Kirti Patel Data analysis and Interpretation- Jagmohan Singh Dhakar

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Writing article- Sakshi Mishra, Kirti Patel

Critical review- Archana Singh

Article editing- Swati Singh, Sakshi Mishra, Kirti Patel Final approval- Archana Singh

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