

ORIGINAL RESEARCH

Clinical Outcomes Associated with Ectopic Pregnancy

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ABSTRACT

Background: Ectopic pregnancy present intricate challenges in reproductive health, requiring careful medical attention due to their unique clinical complexities and potential complications. This study aims to enhance our understanding of the incidence and clinical characteristics of patients presenting with ectopic pregnancy. **Methods:** A prospective study was conducted at Department of Obstetrics and Gynaecology, SMGS Hospital, GMC Jammu, from March 2020 to February 2021. The study included all cases of Ectopic pregnancy admitted in Emergency and those presenting at the Gynecology Outpatient Department. **Results:** The mean age of the studied patients was (26.1±4.29) years, ranging from 18 to 40 years, with the majority (56.9%) falling within the 20-24 age range. Parity distribution revealed nullipara (12.3%), para 1 (23.1%), para 2 (41.5%), para 3 (15.4%), and ≥ para 4 (7.7%). Abdominal pain was the predominant symptom (95.4%), followed by amenorrhea (83.1%), dizziness (78.5%), vaginal bleeding (49.2%), shock (21.5%), shoulder tip pain (13.8%), and diarrhea (4.6%). The majority of Ectopic pregnancy were located in the ampulla (61.5%), followed by the isthmus (21.5%). The most prevalent risk factor was a history of previous spontaneous abortion (75.4%), with pelvic inflammatory disease closely following as a significant risk factor (53.8%). Most of the patients were successfully managed with the help of salpingectomy. **Conclusion:** The predominant clinical presentation of abdominal pain and the common locations of Ectopic pregnancy in the ampulla and isthmus further underscore the need for vigilant awareness and tailored interventions in reproductive health.

Keywords: Ectopic pregnancy, Clinical presentation, risk factors, salpingectomy, ampulla region

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INTRODUCTION

Ectopic pregnancy pose a significant challenge in the realm of reproductive health, presenting unique clinical complexities and potential complications that demand vigilant medical attention. Characterized by the implantation of a fertilized egg outside the uterine cavity, most commonly within the fallopian tubes, Ectopic pregnancy can lead to a range of clinical outcomes with implications for both short-term and long-term maternal well-being. The incidence of ectopic pregnancy exhibits substantial variation both temporally and geographically. Notably, in Europe, the incidence underwent a noteworthy increase, rising from 11.2 to 18.8 per 1,000 pregnancies between 1976 and 1993.¹ A parallel trend was observed in the United States, where the prevalence of Ectopic pregnancy surged from 17,800 in 1970 to 88,400 in 1989.² In the United Kingdom, approximately 11,000 cases of ectopic pregnancy are reported annually, translating to an incidence rate of 11.5 per 1,000 pregnancies.³ Ectopic pregnancy stands as a notable contributor to morbidity in reproductive health,

although advancements in early detection and timely interventions have led to a considerable reduction in associated mortality rates over the years.^{3,4} Despite the absence of a precise etiological framework for Ectopic pregnancy, several identified causal factors play a pivotal role in understanding the origins of this obstetric condition. Key determinants include the integrity of the oviduct, inflammatory insults, the use of intrauterine devices, surgical manipulations, tubal ligations, salpingitis isthmica nodosa, exposure to diethylstilbestrol (DES), and induced abortions.^{5,6} Perturbations in the quality of the ovum and the hormonal environment, attributed to factors such as ovulation induction, in vitro fertilization, delayed ovulation, and transperitoneal ovum migration, can disturb the delicate balance, elevating the risk of Ectopic pregnancy.⁷

The management of ectopic pregnancy encompasses surgical, medical, or expectant approaches, with the choice tailored to individual patients based on their presentation, the severity of their condition, the appropriateness of treatment options, and, notably,

patient preference. Regardless of the selected mode of management, the critical factors include early diagnosis, prompt resuscitation, timely treatment, and comprehensive follow-up. Achieving early diagnosis of ectopic pregnancy poses a challenge and necessitates a high index of suspicion on the part of the treating physician. The present study aims to contribute to the understanding of the incidence and clinical profile of patients presenting with ectopic pregnancy. By shedding light on these aspects, the research seeks to enhance the knowledge base and inform clinical practices for improved detection and management of Ectopic pregnancy, ultimately optimizing patient outcomes.

METHODS

The present prospective study, encompassing all cases of Ectopic pregnancy, was conducted at Department of Obstetrics and Gynaecology, SMGS Hospital, GMC Jammu, from March 2020 to February 2021. The inclusion criteria comprised patients with Ectopic pregnancy admitted in Emergency and those presenting at the Gynecology Outpatient Department. A comprehensive approach was adopted, involving detailed history-taking, clinical examination, and urinary pregnancy testing for all patients suspected of having an ectopic pregnancy. In cases where ruptured ectopic pregnancy was suspected, USG guided paracentesis was performed. Patients with features such as adnexal mass and biochemical pregnancy

underwent transvaginal ultrasonography to assess parameters such as the localization of the gestational sac, size of the ectopic mass, presence of cardiac activity, and any evidence of free fluid in the pouch of Douglas.

The diagnosis of ectopic pregnancy was meticulously established, taking into account multiple factors, including history, clinical examination, urine pregnancy test, USG guided paracentesis, and ultrasound examination. Data analysis encompassed crucial factors such as parity, clinical presentation, risk factors, management strategies, and findings at laparotomy, providing a comprehensive foundation for drawing valid conclusions.

All patients received management in accordance with the hospital protocol and were diligently followed up until their discharge from the hospital. This rigorous methodology ensures the reliability and relevance of the study findings, contributing valuable insights into the clinical landscape of Ectopic pregnancy.

Statistical Methods: The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Statistical software SPSS (version 20.0) and Microsoft Excel were used to carry out the statistical analysis of data. Continuous variables were expressed as Mean \pm SD and categorical variables were summarized as percentages.

RESULTS

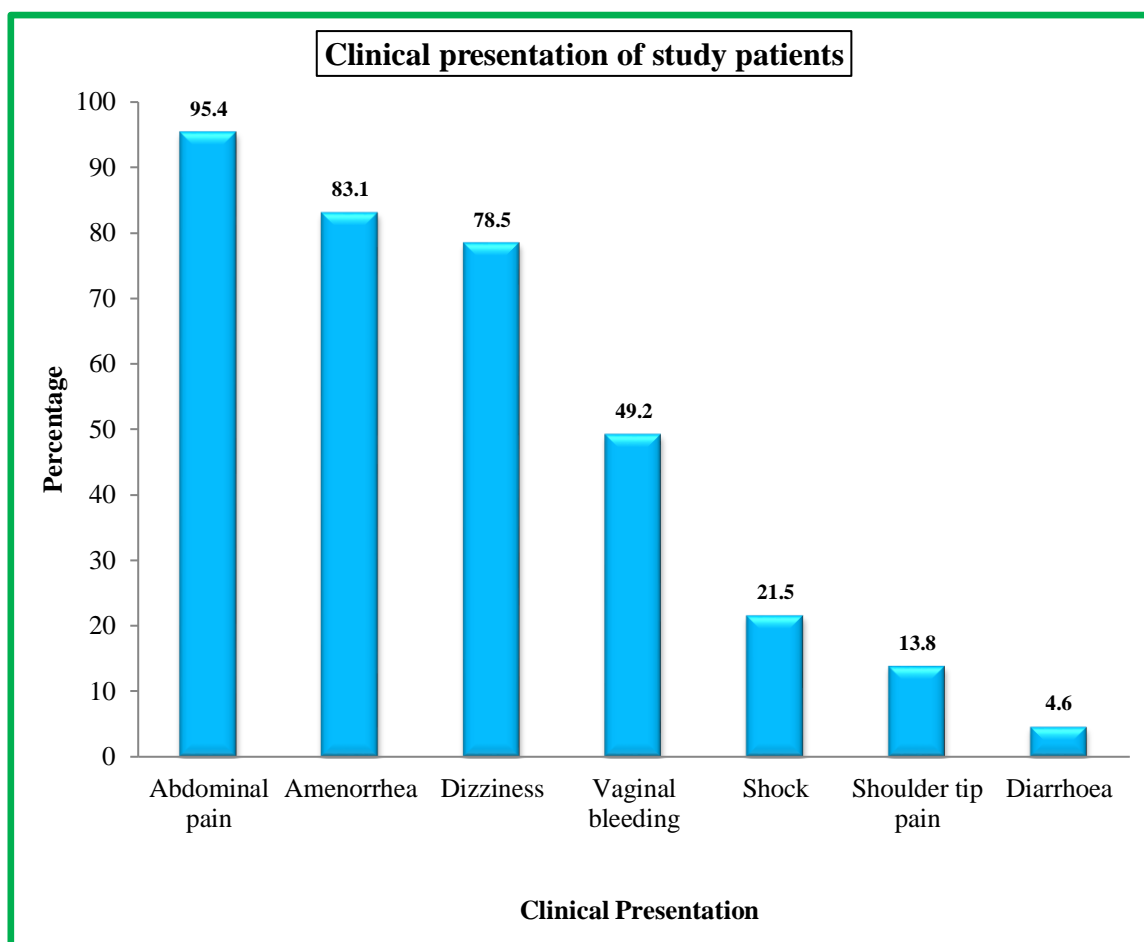
In this section, the results of the study will be described:

Variable	No.	%age	
Age (Years)	< 20	2	3.1
	20-24	37	56.9
	25-29	15	23.1
	30-34	8	12.3
	\geq 35	3	4.6
Parity	Nullipara	8	12.3
	Para 1	15	23.1
	Para 2	27	41.5
	Para 3	10	15.4
	\geq Para 4	5	7.7

Mean \pm SD (Range)=26.1 \pm 4.29 (18-40);

Table 1 provides an overview of the demographic characteristics of the study patients, encompassing a total of 65 individuals. The distribution of patients is presented based on two key variables: age and parity. In terms of age distribution, the majority of the study participants fall within the 20-24 age range, constituting 56.9% of the sample. Those aged 25-29 represent 23.1% of the cohort, while individuals aged <20, 30-34, and \geq 35 comprise 3.1%, 12.3%, and

4.6%, respectively. The mean age of studied patients were (26.1 \pm 4.29) years ranging from 18 to 40 years. The parity distribution of the study population is detailed as follows: nullipara (12.3%), para 1 (23.1%), para 2 (41.5%), para 3 (15.4%), and \geq para 4 (7.7%). These findings offer valuable insights into the demographic composition of the study group, providing a foundation for further analysis and interpretation in the context of the research objectives.



Among the 65 participants, abdominal pain was the most prevalent symptom, reported by 95.4% of the individuals. Amenorrhoea, characterized by the absence of menstrual periods, was noted in 83.1% of the patients. Dizziness was a common complaint,

affecting 78.5% of the study population, followed by vaginal bleeding, which was reported by 49.2% of the participants. A smaller percentage of patients experienced shock (21.5%), shoulder tip pain (13.8%), and diarrhea (4.6%).

Table 2: Site of ectopic pregnancy among study patients

Site	Number	Percentage
Ampulla	40	61.5
Isthmus	14	21.5
Fimbriae	6	9.2
Tubo-ovarian	2	3.1
Interstitial/cornual	2	3.1
Broad ligament	1	1.5
Total	65	100

Table 2 outlines the distribution of Ectopic pregnancy based on their site among the study patients. The majority of Ectopic pregnancy were located in the ampulla, accounting for 61.5% of the cases. The isthmus was the second most common site, comprising 21.5% of the cases. A smaller percentage of Ectopic pregnancy were found in the fimbriae (9.2%), tubo-ovarian region (3.1%), and

interstitial/cornual region (3.1%). Additionally, there was one case (1.5%) reported in the broad ligament. In total, the table includes data from 65 study patients, offering a comprehensive overview of the distribution of Ectopic pregnancy across different anatomical sites. This information is crucial for understanding the varied locations where Ectopic pregnancy may occur within the reproductive system.

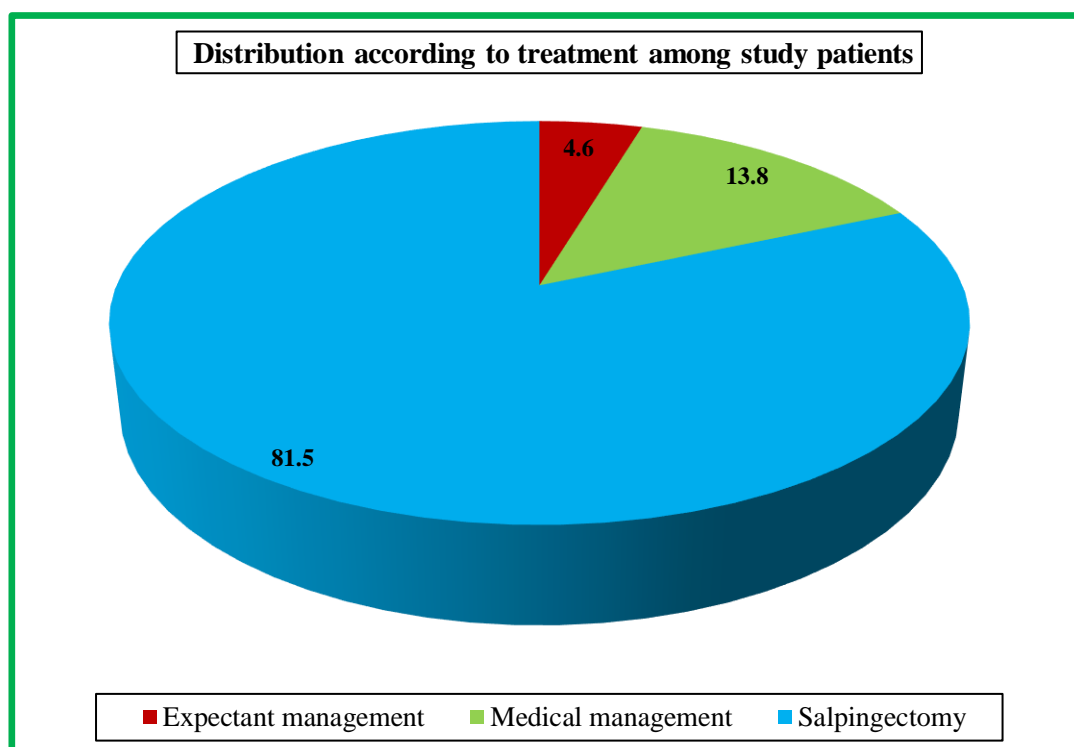
Table 3: Risk factors of ectopic pregnancy among study patients [n=65]

Risk factor	Number	Percentage
Previous spontaneous abortion	49	75.4
Pelvic inflammatory disease	35	53.8
Previous tubal surgery	15	23.1

Previous induced abortion	9	13.8
Intrauterine contraceptive device	5	7.7
Previous ectopic pregnancy	3	4.6

Table 3 provides insights into the risk factors associated with ectopic pregnancy among the study patients (n=65). The most prevalent risk factor observed was a history of previous spontaneous abortion, accounting for 75.4% of the cases. Following closely, pelvic inflammatory disease was identified as a significant risk factor in 53.8% of the

patients. Other notable risk factors included a history of previous tubal surgery (23.1%), previous induced abortion (13.8%), and the use of intrauterine contraceptive devices (7.7%). A smaller percentage of cases (4.6%) reported a history of a previous ectopic pregnancy.



The majority of patients underwent salpingectomy, representing 81.5% of the cases. Salpingectomy involves the surgical removal of the fallopian tube affected by the ectopic pregnancy. Medical management, which may include the administration of medications to terminate the ectopic pregnancy, was chosen for 13.8% of the patients. A smaller percentage of patients (4.6%) opted for expectant management, indicating a watchful waiting approach without immediate intervention.

DISCUSSION

Ectopic pregnancy poses a formidable threat to maternal health and demands a thorough understanding of its various facets for effective management. The present study was undertaken to shed light on the multifaceted dimensions of EP, encompassing its incidence, clinical presentation, risk factors, management modalities, and the subsequent outcomes experienced by affected patients. We conducted a comprehensive analysis of patient data, examining demographic, clinical, radiological, surgical, histopathological aspects, and follow-up information. A total of 65 women meeting inclusion

criteria provided written consent and were randomly included in the study. The study predominantly found patients aged 20-24, making up 56.9% of the sample. Those aged 25-29 constitute 23.1%, while individuals under 20, between 30-34, and those 35 and above make up 3.1%, 12.3%, and 4.6%, respectively. The mean age of the studied patients was 26.1 years (± 4.29), with an age range from 18 to 40 years. The age distribution of our study participants resonates with multiple studies, including studies by Nimonkar S et al, Sudha VS et al, and Malik et al.^{4,8,9} Notably, Nimonkar S et al reported that a significant proportion of their patients fell within the 25 to 30 years age group, comprising 43.9% of the total.⁴ Furthermore, 68% of their patients were between 20-30 years, mirroring the demographic profile observed in our study.⁴ Similarly, Malik et al's study highlighted the (20-24) age group as the most commonly affected by Ectopic pregnancy, with an average age of (27 \pm 3) years, a trend consistent with our findings.⁹ These concordant results reinforce the robustness and reliability of the observed age patterns across various studies. In our current study, we conducted an evaluation of patient distribution based on their parity.

The majority of our patients (41.5%) exhibited parity 2, followed by 23.1% with parity 1, 15.4% with parity 3, and 12.3% being nulliparous. This distribution closely aligns with the findings of Banotra et al, where the majority of patients (37.7%) were in their 2nd parity, followed by 24.5% and 15.1% with first and 3rd parity, respectively.¹⁰ Notably, both studies showed a consistent proportion of nulliparous patients at 12.3% and 13.2%, respectively. Furthermore, our results echo the observations made by Sindos et al, who reported in their study a positive association, albeit of borderline statistical significance, between ruptured Ectopic pregnancy and parity, particularly in the context of a previous history of ectopic pregnancy.¹¹ This reinforces the notion that parity may indeed play a role in the occurrence and severity of Ectopic pregnancy, emphasizing the importance of understanding these demographic factors in clinical assessments and interventions.

The evaluation of the clinical presentation of our study participants highlighted abdominal pain as the predominant symptom, reported by 95.4% of individuals. Amenorrhea, characterized by the absence of menstrual periods, was noted in 83.1% of patients, while dizziness affected 78.5% of the study population. Vaginal bleeding was reported by 49.2% of participants, and a smaller percentage experienced shock (21.5%), shoulder tip pain (13.8%), and diarrhea (4.6%). Our findings align with previous studies, including Nimonkar S et al, which identified abdominal pain and amenorrhea as the most prevalent symptoms in women with Ectopic pregnancy.^{4,12-14} It's worth noting that persistent and severe unilateral pain is often associated with Ectopic pregnancy, although unilateral pain may not always indicate ectopic pregnancy, as a prominent painful ovarian corpus luteum cyst can be common in early pregnancy. In Nimonkar's study, 58.8% of patients presented with abdominal pain, and 17.6% reported unscheduled scanty bleeding per vaginum, closely resembling the clinical presentation patterns observed in our study.⁴ Additionally, Sivalingam VN et al reported in their study that shoulder tip pain, syncope, and shock occurred in up to 20% of women, while abdominal tenderness was present in more than 75%, consistent with our study's observations.⁵ These consistent patterns reinforce the significance of recognizing these symptoms for early diagnosis and appropriate management of Ectopic pregnancy. In the examination of the site of Ectopic pregnancy, our study identified the ampulla as the predominant location, accounting for 61.5% of cases. The isthmus ranked as the second most common site, comprising 21.5% of cases, while a smaller percentage was found in the fimbriae (9.2%). These findings align with studies conducted by Malik et al and Sotubo et al, which reported the ampullary region of the fallopian tube as the most common site of ectopic pregnancy, followed by the isthmus.^{9,15} Additionally, Sivalingam VN et al reported in their study that over 98% of

Ectopic pregnancy implant in the Fallopian tube, with the ampullary region (70%), isthmus (12%), or fimbria (11.1%) being the primary sites, thus harmonizing with the results of our study.⁵ Indeed, while many cases of ectopic pregnancy may occur without identifiable risk factors, a prospective case-controlled study has demonstrated the value of increased awareness of ectopic pregnancy and knowledge of associated risk factors. This heightened awareness aids in identifying women at higher risk, enabling early and more accurate diagnosis.¹⁶ The evaluation of potential risk factors among women with Ectopic pregnancy unveiled a predominant association with a history of previous spontaneous abortion, accounting for 75.4% of cases. Following closely, pelvic inflammatory disease emerged as a significant risk factor in 53.8% of the patients. Other notable risk factors included a history of previous tubal surgery (23.1%), previous induced abortion (13.8%), and the use of intrauterine contraceptive devices (7.7%). A smaller percentage of cases (4.6%) reported a history of a previous ectopic pregnancy. Our findings align with contemporary literature, highlighting that a history of previous spontaneous abortion, pelvic inflammatory disease, history of tubal surgery, and previous induced abortion are the most common risk factors associated with Ectopic pregnancy.^{5,9,16} Consistent with our observations, Malik et al reported the associated risk factors of ectopic pregnancy in order of predominance as a history of spontaneous and induced previous abortion, history of pelvic inflammatory disease, and tubal surgery.⁹ Additionally, studies by Karaer A et al and Sivalingam VN identified the most common risk factors for Ectopic pregnancy as previous spontaneous abortion or induced abortion, previous tubal surgery, previous ectopic pregnancy, prior damage to the fallopian tube, and previous pelvic or abdominal surgery, as well as pelvic infection, aligning with the risk factors observed in the present study.^{5,16}

In the current landscape of growing outpatient diagnosis and management, it is crucial to remain cognizant of the risks associated with ruptured Ectopic pregnancy. Clear documentation of diagnostic and management strategies is imperative, encompassing clinical, sonographic, and biochemical assessments of the patient. In this study, the predominant intervention was salpingectomy, with 70.8% of patients undergoing the surgical removal of the affected fallopian tube. Medical management, involving medication to terminate the ectopic pregnancy, was chosen for 13.8% of patients. A smaller percentage (4.6%) opted for expectant management, a watchful waiting approach without immediate intervention. Comparatively, Nimonkar S et al reported in their study that 63.2% of patients underwent surgical procedures for management, while 14.3% were given medical management, aligning with our study's trends.⁴ Additionally, in a study by Malik et al, the most common surgical procedure performed

was salpingectomy (65.68%), consistent with our findings. They also reported the use of medical management and watchful expectant management in 10.78% of patients, and 4.8% respectively mirroring our results.⁹ These consistent patterns across studies highlight the prevalence of salpingectomy and the role of medical management in the treatment of Ectopic pregnancy.

CONCLUSION

Our study underscores the importance of maintaining a heightened awareness of the potential for Ectopic pregnancy, particularly in the reproductive age group. The study findings indicated that a noteworthy proportion of patients with a history of previous spontaneous abortion are at an elevated risk for Ectopic pregnancy, with pelvic inflammatory disease being the subsequent prevalent risk factor. The primary clinical manifestation observed among the study subjects was pain, and the most prevalent site of ectopic pregnancy was identified in the ampulla region of the fallopian tube. Notably, salpingectomy emerged as the predominant and successful management approach for the majority of patients. Delayed diagnosis may impede timely intervention, leading to potential serious health consequences. Therefore, heightened awareness and prompt evaluation are essential components in mitigating risks associated with Ectopic pregnancy in this demographic.

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