

Ectopic Pregnancy Presentation and Management in Tertiary Care Hospital: A Retrospective Study

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ABSTRACT

Background: An ectopic pregnancy is characterized by the implantation of the fertilized ovum occurring outside the confines of the uterine cavity. This form of obstetric emergency is the most severe during the first trimester of pregnancy.

Methods: A retrospective analysis was executed at our tertiary medical institution from January 2023 to January 2024. This study collected data on all ectopic patients admitted to the hospital data were collected for this study.

Results: Thirty-one cases were recorded, with an incidence of 4.2 per 1000 deliveries. A substantial proportion of cases involved individuals aged between 20 and 30 years, with notable risk factors including a history of cesarean section and sterilization procedures. The predominant symptom was found to be abdominal pain (90.32%), and the classic triad was present in 41.93% of cases. Most study subjects exhibited tenderness in the adnexal and cervical areas, while 19.35% presented with acute shock. The most frequently encountered type of ectopic pregnancy was the right-sided ampullary tubal ectopic, with 67.7% of cases in a ruptured state. Among 64.5% of cases in the study population, salpingectomy was the mainstay treatment. Non-surgical management was successful in 6.4% of cases, and no fatalities or admissions to the intensive care unit were reported.

Conclusion: Many of the cases observed in this investigation were found to be in a ruptured state, thereby precluding the possibility of conservative management approaches. With an increase in the rate of caesarean section, a known risk factor, the ectopic pregnancy incidence may unintentionally rise.

Key-words: Ectopic, Ectopic pregnancy, Management, Pain pregnancy, Risk, Ruptured

INTRODUCTION

The terminology "ectopic" is derived from the Greek term "ektos," which translates to "out of place." The global incidence of ectopic pregnancy is on the rise. A ruptured ectopic pregnancy poses a considerable risk to life and necessitates immediate suspicion and intervention.

Consequently, it remains a principal factor contributing to maternal mortality and morbidity within the first trimester, accounting for approximately 10 to 15% of all maternal fatalities ^[1].

The prevalence of ectopic pregnancy among women presenting with first-trimester bleeding, pain, or a combination thereof is estimated to be between 6 and 16% in the United States ^[2]. The incidence of ectopic pregnancy in India has been documented as ranging from 1-3%, according to Sefogah *et al.* ^[3], with 3.5-7.1% of maternal deaths being attributed to ectopic pregnancies ^[3,4]. The prevalence of ectopic pregnancy varies in different regions of India. Studies conducted in Assam, North India, and Eastern India provide insights into this variation. In Assam, the incidence of ectopic

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pregnancy was 1 in 228.5 pregnancies, with common risk factors being pelvic infection, infertility, contraception, and previous Dilation and evacuation [5].

In North India, the incidence was 1.521%, with significant risk factors including a history of miscarriage, pelvic surgery, tubal surgery, and tubal ligation [6]. Eastern India reported an incidence of 13.03/1000 deliveries, with common risk factors being previous cesarean section and pelvic inflammatory disease [4]. In South India, a study conducted in Bengaluru reported an incidence of 4.25% over 18 months [7]. These studies underscore the regional variations in the prevalence of ectopic pregnancy and the associated risk factors across diverse regions in India while also highlighting the considerable burden that ectopic pregnancies impose in the country, thereby underscoring the critical need for early diagnosis and effective management strategies to mitigate maternal morbidity and mortality. Further research and awareness of local trends are crucial for the efficient management of ectopic pregnancies in India.

MATERIALS AND METHODS

This was a retrospective study in our hospital, and one year of data was collected from hospital records after obtaining institutional ethical clearance from the committee (Ref No. JJMMC/IEC-14-2024). Additionally, data regarding the overall count of deliveries within the specified study period was extracted from the records maintained in the labor ward.

Patient histories were meticulously documented using specialized proforma. These records encompassed details such as age, presenting complaints, menstrual and obstetrical history, past pelvic surgeries, pelvic infections, contraceptive practices, and other recognized risk factors. Physical examination, gynecological assessments, and diagnostic investigations with data from reports were collected. Data of the cases diagnosed with ectopic pregnancy based on histopathological validation who were admitted for medical intervention during the designated study timeframe were included in the study and cases of heterotopic pregnancy were excluded from the study.

Patients demonstrating clinical indicators of ruptured ectopic pregnancy or presenting in a state of shock received immediate resuscitation and were subsequently referred for emergency laparotomy. Following the surgical intervention, postoperative care involved

additional blood transfusions. For individuals with stable, unruptured ectopic cases not deemed suitable for medical or expectant management, the predominant approach involved laparotomy, particularly in cases where the likelihood of adhesions was anticipated.

Statistical Analysis- The data were recorded in an Excel sheet, and statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) software.

RESULTS

In the present study, 31 cases of ectopic pregnancy were encountered out of 7347 deliveries in our study period, giving an incidence of 4.2 per 1,000 deliveries. The mean age was 29.16±4.8 years, ranging from 18 to 39 years. The distribution of the study population based on age revealed that a significant proportion (51.6%) belonged to the reproductive age category of 21–30 years. Most of the subjects had gravid-3 (35.5%), and a history of abortion was found to be 22.6% in our study population (Table 1).

Table 1: Demographic profile

Parameter	N	%
Age (years)		
< 21	2	6.5
21 - 30	16	51.6
30 - 35	12	38.7
> 35	1	3.2
Gravid		
0	3	9.7
1	3	9.7
2	8	25.8
3	11	35.5
>3	6	19.4
Abortion		
0	24	77.4
1	6	19.3
2	1	3.3

Table 2 describes the various signs and symptoms exhibited by study cases. A classic triad consisting of amenorrhea, abdominal pain, and vaginal bleeding was identified in merely 41.93% of the women surveyed. Abdominal pain emerged as the most prevalent symptom (90.32%), followed by occurrences of

amenorrhea and vaginal bleeding. Clinically, cervical motion tenderness was detected in 80.64% of the women. At the same time, pallor and adnexal tenderness were also observed as common signs, with six women presenting in acute shock during the emergency assessment.

Table 2: Clinical signs and symptoms.

Parameter	N	%
Clinical presentation		
Amenorrhea	17	54.83
Abdominal pain	28	90.32
Vaginal bleeding	16	51.61
Classical triad	13	41.93
Clinical signs		
Pallor	20	64.51
Abdominal tenderness	18	58.06
Adnexal tenderness	20	64.51
Cervical motion tenderness	25	80.64
Acute shock	6	19.35

Different preoperative findings were also noted down through USG findings. According to the reports, most of the subjects showed the presence of ruptured ectopic pregnancies (67.74%) followed by chronic, unruptured and tubal abortion (Table 3).

Table 3: Pre-operative USG findings and Laterality.

Parameter	N	%
USG findings		
Ruptured ectopic	21	67.7
Unruptured	4	12.9
Tubal abortion	1	3.2
Chronic ectopic	5	16.2
Laterality of ectopic pregnancies		
Left	15	48.4
Right	16	51.6

More than half of the ectopic gestations were localized within the ampulla of the fallopian tube (62.1%), with isthmic pregnancies being the second most frequently observed. Our study identified only a single case of ovarian pregnancy, as presented in Table 4.

Table 4: Site of ectopic

Site of ectopic pregnancy (N=31)	N (%)	Subgroup	N (%)	% Out of total
Fallopian tube	29 (93.6)	Ampulla	18 (62.1)	58.1
		Cornual	1 (3.4)	3.2
		Fimbriae	3 (10.4)	9.7
		Isthmus	7 (24.14)	22.6
Ovary	1 (3.2)			
Caesarean scar	1 (3.2)			

Previous C-sections and sterilisation are found to be major risk factors for ectopic pregnancy in our study population (Table 5). It was observed that 90.3% of the subjects suffered from anemia. Moreover, 83.9% of the individuals had received a blood transfusion before surgery. The general recuperation process proceeded without any noteworthy incidents. Notably, no instances of mortality were recorded, and the necessity for Intensive Care Unit (ICU) admission was absent within our study cohort (Table 5).

Table 5: Risk Factor and Morbidity

Variables	N	%
Risk factors		
Previous LSCS	10	32.25
Previous sterilisation	8	25.8
History of other surgeries	1	3.2
History of PID	6	19.35
Previous ectopic	1	3.22
Previous abortion	7	22.6
Unidentified	6	19.35
Morbidity		
Anemia	28	90.3
Blood transfusion	26	83.9

Out of 31 cases, two cases were medically managed using methotrexate, 29 cases were managed by surgical approach, whereas many cases underwent salpingectomy (64.6%) and 29% were treated with saphingo-oophorectomy (Table 6).

Table 6: Treatment modality

Treatment modality	N	%
Non-surgical	2	6.4
Radical surgery		
Salpingectomy	20	64.6
Salphingo oophorectomy	9	29

DISCUSSION

Misdiagnosis or delays in the timely management of ectopic pregnancies can result in dire consequences, remaining a significant contributor to maternal mortality in early pregnancy, accounting for 3.5–7.1% of such fatalities in India [8,9]. The incidence of ectopic pregnancy has significantly escalated over the preceding decade, likely because of advancements in diagnostic techniques and a heightened utilization of assisted reproductive technologies. In our analysis, we documented an incidence rate of 4.2 per 1000 deliveries.

Regarding demographic characteristics, the age group distribution in our study remained consistent, with women aged 21–30 being the most affected. This finding is consistent with results from nearly all contemporary research conducted in India [10–13]. However, conversely, certain studies have indicated a trend of increasing incidence of ectopic pregnancy correlated with advancing age [14–17].

Gravida, denoting the cumulative number of pregnancies a female has experienced, constitutes a critical determinant correlated with the risk of ectopic pregnancy. Empirical evidence has demonstrated that an elevated gravidity (quantitative measure of pregnancies) is associated with an augmented likelihood of ectopic pregnancy occurrence. In particular, variables such as gravidity exceeding 2 and parity of 3 or more have been recognized as contributory risk factors for ectopic gestation [18,19]. In our specific investigation, the observed trend deviates as parous women emerged as the demographic group presenting more frequently with ectopic pregnancies. This disparity underscores the complexity of factors influencing ectopic pregnancy occurrences, showcasing the need for nuanced consideration of diverse population characteristics in understanding this reproductive health phenomenon.

The common presenting symptom was abdominal pain, which emerged as the predominant symptom in 90.32% of cases. However, it is inherently vague, consistent with the published studies of Samantaray *et al.* [4] and Godria

et al. [18]. Clinical manifestations indicative of a ruptured ectopic pregnancy encompassed a patient exhibiting pallor in varying stages of shock, alongside abdominal tenderness, distension, guarding, and the per vaginal identification of an adnexal mass or fullness, in conjunction with pronounced cervical motion tenderness. Considering that a substantial fraction of ectopic pregnancy instance was found to be ruptured, the most frequently observed clinical indicators included pallor, adnexal and abdominal tenderness, as well as cervical motion tenderness, which was noted in 80.64% of cases. Acute shock with exsanguinations was evident in 19.35% of the cases, comparable to Samantaray *et al.* study [4].

Based on the trans-abdominal and transvaginal ultrasonography, in our study, 51.6% of the cases had ectopic pregnancy on the right side as well as many of the cases presented with ruptured ectopic, which is like Samantaray *et al.* [4] and Barik *et al.* study [11]. The high incidence of rupture may be due to delay in diagnosis and late referral [19]. The anatomical locations of ectopic pregnancies in our cohort conformed to anticipated distributions, with the ampulla representing the predominant site in 62.06% of cases, consistent with investigations conducted by Wakankar *et al.* (53.84%) and Archana *et al.* (55%) [20,21]. Rarely interstitial and cornual ectopic pregnancies were detected, whereas ovarian pregnancies were the least prevalent, constituting merely 3.2% of instances.

Upon thorough examination of various risk factors associated with ectopic pregnancy, it was discerned that the most frequently encountered factor was previous pelvic surgery, with lower segment cesarean section (LSCS) emerging as the most linked risk factor [20,22]. Divergent findings from alternative studies suggest that prior abortion is the principal risk factor [23,24], whereas, in our investigation, 22.6% of the population reported a history of abortion. Pelvic Inflammatory Disease (PID), an acknowledged risk factor, was identified in a moderate 19.4% of women in our study.

Studies have shown that PID contributes to a substantial percentage of ectopic pregnancies, with percentages ranging from 30 to 61.3% [25,26]. Furthermore, the presence of PID increases the likelihood of developing ectopic pregnancy, as indicated by higher risks of preterm labor and ectopic pregnancy in patients with PID compared to those without PID. Significantly, a positive

urinary pregnancy test in a vasectomized female should incite immediate suspicion of ectopic pregnancy, a circumstance observed in 14% of women in this research who had previously undergone tubal sterilization.

As our institution serves as a referral center covering a broad catchment area, a considerable number of cases were referred in a ruptured state, highlighting challenges in early ectopic pregnancy diagnosis at peripheral locations. Out of 4 unruptured ectopic pregnancies, two cases opted for nonsurgical management, while the majority underwent laparotomy. In our investigation, salpingectomy was performed in 64.6% of cases, while salpingo-oophorectomy was necessitated in 29% of instances, the majority of which involved tubo-ovarian masses. However, in most studies, salpingectomy percentage is very high compared to our study [4,18].

There was not a single case of mortality in our study. 26 out of 31 women (83.9%) required blood transfusion, comparable to the finding of Wakanker *et al.* where 84.61% required transfusion [20]. The elevated incidence of ruptured ectopic cases may elucidate the substantial requirement for blood transfusion within our study population.

CONCLUSIONS

Ectopic pregnancy is still one of the major causes of first-trimester hospital admission, morbidity, and mortality—most cases presented with pain abdomen and bleeding per vaginum (pv). Clinical signs of shock are present in most cases, too. The high degree of suspicion and early intervention may stay for successful management. The progression of diagnostic methodologies about ectopic gestation is markedly augmenting prospective management protocols, with an emphasis on prompt identification and minimally invasive therapeutic alternatives. Such advancements are transforming clinical methodologies and enhancing patient prognoses.

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