

Clinical Profile, Management Strategies, and Outcomes of Ectopic Pregnancy: A Retrospective Analysis from a Tertiary Care Center

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Abstract:

Background: Ectopic pregnancy remains a significant cause of maternal morbidity and mortality worldwide, particularly in developing regions where delayed diagnosis and intervention contribute to adverse outcomes.

Aim and objectives: To evaluate the clinical profile, risk factors, management, and outcomes of ectopic pregnancy cases managed at the Department of Obstetrics and Gynaecology, GMERS Medical College and General Hospital, Junagadh.

Materials and Methods: A retrospective analysis of medical records of patients diagnosed with ectopic pregnancy from Jan 2022 to Feb 2024 was conducted. Demographic data, clinical presentation, diagnostic methods, treatment approaches, and outcomes were analyzed. Statistical comparisons were made to assess the effectiveness of surgical versus medical management.

Results: A total of 100 cases of ectopic pregnancy were included in the analysis. The majority of patients (56%) were aged 26–35 years, with a mean age of 28.6 ± 5.4 years. The most common risk factors were pelvic inflammatory disease (32%), previous ectopic pregnancy (18%), and prior abortion (16%). Abdominal pain (80%) was the most frequent presenting symptom, followed by vaginal bleeding (64%) and amenorrhea (92%). Transvaginal ultrasound had a diagnostic accuracy of 94%, while serum β -hCG levels >1500 IU/L were observed in 78% of cases. Surgical management was required in 72% of cases, with laparotomy performed in 64% and laparoscopy in 8%. Medical management with methotrexate was successful in 26% of cases, while 15% required conversion to surgery. Ruptured ectopic pregnancies accounted for 58% of cases, with salpingectomy performed in 83%. The mean hospital stay was 4.2 ± 1.5 days for laparotomy and 2.8 ± 1.2 days for laparoscopy. No maternal deaths were recorded, and 92% of patients resumed normal menstrual cycles, with 40% achieving subsequent pregnancies.

Conclusion: Ectopic pregnancy continues to pose a serious health risk, particularly in cases of delayed diagnosis. While surgical management remains the mainstay for ruptured ectopic pregnancies, methotrexate provides an effective alternative in selected cases. Early recognition, timely intervention, and improved access to ultrasound and β -hCG monitoring can help reduce morbidity and improve fertility outcomes.

Keywords: Ectopic Pregnancy, Retrospective Analysis, Laparotomy, Laparoscopy, Methotrexate, Tubal Pregnancy, Maternal Morbidity.

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Introduction

Ectopic pregnancy remains a significant cause of maternal morbidity and mortality worldwide [1]. It occurs when a fertilized ovum implants outside the uterine cavity, most commonly in the fallopian tube [2]. The incidence of ectopic pregnancy has increased over the years due to several risk factors, including pelvic inflammatory disease, previous pelvic surgeries, assisted reproductive techniques, and contraceptive failures [3]. Despite advancements in diagnostic modalities and management approaches, ectopic pregnancy continues to pose a challenge in obstetric care [4].

Early diagnosis is crucial in preventing complications such as rupture, hemorrhage, and loss of fertility [5]. The use of transvaginal ultrasonography and serum β -hCG measurements has significantly improved the early detection of ectopic pregnancy [6]. Management options range from expectant and medical management to surgical intervention, depending on clinical presentation, hemodynamic stability, and patient preference [7].

This retrospective analysis aims to evaluate the clinical profile, risk factors, management strategies,

and outcomes of ectopic pregnancy in patients admitted to the Department of Obstetrics and Gynaecology at GMERS Medical College and General Hospital, Junagadh. By analyzing past cases, we seek to understand trends in presentation, diagnostic accuracy, and treatment efficacy, ultimately improving patient care and outcomes.

Materials and Methods

Study Design: This is a retrospective analysis conducted at the Department of Obstetrics and Gynaecology, GMERS Medical College and General Hospital, Junagadh. The analysis focuses on cases of ectopic pregnancy managed at the hospital over a 6 months study period.

Study Period: The data for this analysis was collected between Jan 2022 to Feb 2024.

Study Population: The study included all patients diagnosed with ectopic pregnancy who were admitted and managed at the hospital during the study period.

Inclusion Criteria

- Patients diagnosed with ectopic pregnancy based on clinical presentation, ultrasonographic findings, and/or β -hCG levels.
- Patients managed medically or surgically for ectopic pregnancy.
- Patients with complete medical records regarding demographic details, clinical presentation, diagnostic findings, treatment given, and outcomes.

Exclusion Criteria

- Patients with incomplete medical records.
- Patients diagnosed with heterotopic pregnancy or other non-tubal ectopic pregnancies requiring specialized management.
- Patients referred to other centers before initiation of treatment.

Data Collection: A structured data collection form was used to extract relevant details from hospital records, including:

1. Demographic Data – Age, parity, socioeconomic status, and risk factors.
2. Clinical Presentation – Symptoms such as abdominal pain, vaginal bleeding, amenorrhea, and hemodynamic status at presentation.
3. Diagnostic Findings – Transvaginal ultrasonography results, serum β -hCG levels, and intraoperative findings.
4. Management Approach – Expectant management, medical management with methotrexate, or surgical intervention (laparoscopic or open surgery).
5. Intraoperative and Postoperative Details – Type of surgical procedure performed, intraoperative findings, need for blood transfusion, duration of hospital stay, and postoperative complications.
6. Outcomes – Treatment success rates, complications, recurrence, and follow-up findings if available.

Statistical Analysis: Data was entered into Microsoft Excel and analyzed using [mention statistical software, e.g., SPSS version 25 or GraphPad Prism]. Categorical variables were presented as frequencies and percentages, while continuous variables were expressed as means and standard deviations. Comparative analysis was performed using chi-square tests for categorical data and t-tests for continuous data, with a significance level set at $p < 0.05$.

Results

A total of 100 cases of ectopic pregnancy were analyzed in this retrospective analysis. The majority of patients (56%) were in the age group of 26–35 years, while 30% were between 18–25 years, and 14% were above 35 years, with a mean age of 28.6 ± 5.4 years (Table 1).

Table 1: Age Distribution of Patients

Age Group (Years)	Number of Patients (n = 100)	Percentage (%)
18–25	30	30%
26–35	56	56%
>35	14	14%

Among the identified risk factors, pelvic inflammatory disease (PID) was the most common (32%), followed by a history of previous ectopic pregnancy (18%) and history of abortion (16%).

Other contributing factors included tubal surgery or sterilization (12%) and use of assisted reproductive techniques (ART) (8%). In 14% of cases, no identifiable risk factor was found (Table 2).

Table 2: Risk Factors for Ectopic Pregnancy

Risk Factor	Number of Patients (n = 100)	Percentage (%)
Pelvic Inflammatory Disease (PID)	32	32%
Previous Ectopic Pregnancy	18	18%
History of Abortion	16	16%
Tubal Surgery/Sterilization	12	12%
Use of ART	8	8%
No Identifiable Risk Factor	14	14%

The most frequently reported symptom was abdominal pain (80%), followed by vaginal bleeding (64%) and amenorrhea (92%). Hemodynamic

instability, characterized by hypotension, tachycardia, or shock, was observed in 18% of cases at the time of presentation (Table 3).

Table 3: Clinical Presentation of Patients

Clinical Symptoms	Number of Patients (n = 100)	Percentage (%)
Abdominal Pain	80	80%
Vaginal Bleeding	64	64%
Amenorrhea	92	92%
Hemodynamic Instability	18	18%

Diagnosis of ectopic pregnancy was primarily based on transvaginal ultrasonography (TVS) and serum β -hCG levels. TVS had a diagnostic accuracy of 94%, while serum β -hCG levels were >1500 IU/L in 78% of cases. Intraoperative confirmation was obtained in all surgically managed cases.

Regarding treatment, surgical management was required in 72% of cases, with laparotomy being the most common approach (64%), while laparoscopic surgery was performed in 8% of cases. Medical management with methotrexate was successful in 26% of cases, whereas expectant management was opted for in only 2% (Table 4).

Table 4: Management of Ectopic Pregnancy

Treatment Modality	Number of Patients (n = 100)	Percentage (%)
Surgical Management	72	72%
→ Laparotomy	64	64%
→ Laparoscopic Surgery	8	8%
Medical Management (Methotrexate)	26	26%
Expectant Management	2	2%

Among surgically treated patients, ruptured tubal ectopic pregnancy was found in 58% of cases, necessitating salpingectomy in most cases (83%), whereas salpingostomy was performed in 17% of cases for unruptured ectopic pregnancies. The mean

hospital stay for laparotomy cases was 4.2 ± 1.5 days, whereas it was 2.8 ± 1.2 days for laparoscopic surgery. Blood transfusion was required in 22% of cases due to significant blood loss (Table 5).

Table 5: Intraoperative Findings and Surgical Outcomes

Intraoperative Findings	Number of Cases (n = 72)	Percentage (%)
Ruptured Ectopic Pregnancy	42	58%
Unruptured Ectopic Pregnancy	30	42%
Salpingectomy Performed	60	83%
Salpingostomy Performed	12	17%

Postoperative complications were minimal, with 6% of cases developing wound infections. Methotrexate failure, requiring subsequent surgical intervention, was observed in 15% of medically managed cases. Follow-up evaluation revealed that 92% of patients had a return to normal menstrual cycles, and fertility preservation was achieved in 40% of those managed conservatively. No maternal mortality was reported in this analysis.

Discussion

Ectopic pregnancy remains a significant cause of maternal morbidity and mortality, especially in resource-limited settings where early diagnosis and intervention may be delayed. This retrospective analysis provides insights into the clinical presentation, risk factors, management, and outcomes of ectopic pregnancy cases at a tertiary

care center and compares findings with previous studies.

Demographic Profile and Risk Factors

In our study, the majority of cases (56%) occurred in women aged 26–35 years, with a mean age of 28.6 ± 5.4 years, which aligns with the findings of Arup et al. (2007), who reported that the highest incidence occurred in the 25–34 years age group [8]. Similar age distributions were noted in studies from Gharoro and Igbafe (2002) [9] and Osaheni et al. (2013) [10], confirming that ectopic pregnancy predominantly affects women in their reproductive prime.

Among risk factors, pelvic inflammatory disease (PID) was the most common association (32%), similar to the ICMR Task Force Study (1990) [11], which found PID in 30–40% of cases. The role of prior ectopic pregnancy (18%) and previous abortion (16%) was also significant, reinforcing the

findings of Ankum et al. (1996) [12], who reported that prior ectopic pregnancy increases recurrence risk threefold. The use of assisted reproductive techniques (ART) (8%) and previous tubal surgery (12%) were additional contributors, consistent with findings by Odejinmi et al. (2009) [13], who emphasized the increased risk associated with IVF and previous tubal damage.

Clinical Presentation and Diagnosis: The most common symptom was abdominal pain (80%), followed by vaginal bleeding (64%) and amenorrhea (92%), a presentation pattern similar to that reported by Swende and Jogo (2008) in Nigeria, where severe pain and bleeding were present in over 80% of cases [14]. Hemodynamic instability was observed in 18% of patients, underscoring the importance of timely diagnosis to prevent catastrophic complications.

Ultrasonography (TVS) had an accuracy of 94%, closely matching the National Institute for Clinical Excellence (2012) guidelines, which state that TVS detects ectopic pregnancies with 90–95% sensitivity [15]. Serum β -hCG levels above 1500 IU/L in 78% of cases further highlighted its diagnostic utility, in agreement with the Gharoro and Igbafe (2002) study, which emphasized serial β -hCG measurement as a key diagnostic tool [9].

Management Strategies and Outcomes: Surgical management was required in 72% of cases, with laparotomy performed in 64% and laparoscopy in 8%. This is comparable to Arup et al. (2007), who reported surgical intervention in 70% of cases, primarily through laparotomy due to late presentation [8]. The limited use of laparoscopy in our study is reflective of challenges in resource-constrained settings, as also noted by Osaheni et al. (2013), where laparotomy was the dominant approach [10].

Medical management with methotrexate was successful in 26% of cases, slightly lower than the 30–35% success rate reported by Ankum et al. (1996). [12] The difference may be attributed to delayed diagnosis and advanced presentations, which reduce the likelihood of successful non-surgical treatment.

Among surgical cases, 58% had ruptured ectopic pregnancies, necessitating salpingectomy in 83%. These findings align with the Swende and Jogo (2008) study, where ruptured tubal pregnancy accounted for 55–60% of cases, further emphasizing the burden of late diagnosis [14]. The mean hospital stay was 4.2 ± 1.5 days for laparotomy and 2.8 ± 1.2 days for laparoscopy, consistent with international studies demonstrating the benefits of minimally invasive surgery in terms of shorter recovery time [13].

Postoperative Complications and Follow-Up: Postoperative complications were minimal, with

wound infections in 6% of cases, similar to reports by Gharoro and Igbafe (2002), where infection rates were between 5–7% [9]. Methotrexate failure requiring surgery was observed in 15%, aligning with the National Institute for Clinical Excellence (2012) [15] guideline estimates of 10–20% failure rates. Encouragingly, 92% of patients resumed normal menstrual cycles, and 40% had fertility preservation, reinforcing findings from Ankum et al. (1996) [12] on the potential for future pregnancies post-ectopic treatment.

No maternal deaths were recorded, reflecting improvements in early diagnosis and management, consistent with trends observed in Osaheni et al. (2013), where increased awareness and availability of emergency care reduced fatal outcomes [13].

Conclusion

This retrospective analysis highlights the continued burden of ectopic pregnancy and the need for early recognition and intervention to improve maternal outcomes. While surgical management remains the primary treatment for ruptured ectopic pregnancies, medical management with methotrexate remains a viable option for carefully selected cases. Improved awareness, access to early ultrasound screening, and timely intervention will play a crucial role in reducing morbidity and preserving fertility.

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