

## RISK FACTORS AND CLINICAL INSIGHTS IN ECTOPIC PREGNANCY: A RETROSPECTIVE STUDY

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### ABSTRACT

**Background:** Ectopic pregnancy (EP) is a life-threatening condition and a leading cause of maternal mortality in the first trimester. Late presentation, associated risk factors, and inadequate management often result in severe complications. **Aim:** To assess the clinical presentation, risk factors, and surgical management of ectopic pregnancy in a tertiary care hospital in South India. **Materials and Methods:** A retrospective study was conducted on 65 women diagnosed with ectopic pregnancy over one year. Clinical presentation, risk factors, and surgical outcomes were analyzed using descriptive statistics. **Results:** Ruptured ectopic pregnancy was observed in 94% of cases, with the ampullary region being the most common site (72%). Abdominal pain (57%) and vaginal bleeding (54%) were predominant symptoms. Risk factors included prior abortion (18%) and tubectomy (11%). Salpingectomy was the primary surgical intervention, and blood transfusions were required in 98% of cases. **Conclusion:** Early diagnosis, timely intervention, and addressing modifiable risk factors are crucial to improving outcomes in ectopic pregnancy.

## INTRODUCTION

Ectopic pregnancy (EP) is a potentially life-threatening condition and remains the leading cause of maternal mortality during the first trimester of pregnancy. It occurs when a fertilized egg implants outside the uterine cavity, most commonly in the fallopian tube, accounting for 95% of cases. Other less common sites include the cervix, uterine scar, and cesarean scar. The global prevalence of EP is estimated to range between 1% and 2% of all pregnancies, with its incidence rising over recent decades due to increased cases of pelvic surgeries, tubal infections, and ovulation induction.<sup>[1-3]</sup>

EP contributes significantly to maternal morbidity and mortality, responsible for 3.5% to 7.1% of pregnancy-related deaths in India and up to 8% of all maternal deaths worldwide.<sup>[4-6]</sup> Despite this, advancements in diagnostic techniques and management strategies have reduced the rates of tubal rupture and associated fatalities. Symptoms of EP can vary, often presenting with lower abdominal pain, vaginal bleeding, and amenorrhea, though some patients may present atypically or even with hemodynamic instability.<sup>[7]</sup>

Identified risk factors for EP include pelvic inflammatory disease, sexually transmitted infections, tubal surgery, endometriosis, and the use of intrauterine devices. These conditions compromise tubal function and contribute to abnormal

implantation.<sup>[3,8,9]</sup> Prompt and accurate diagnosis, using a combination of clinical history, physical examination, and imaging, is crucial to preventing severe complications such as tubal rupture and internal hemorrhage, which necessitate emergency intervention.

Management of EP includes both medical and surgical approaches, with laparotomy and laparoscopy being the primary surgical methods and methotrexate as a common medical therapy.<sup>[10]</sup> This study assess the risk factors, clinical presentation, and management of ectopic pregnancy in a South Indian center.

## MATERIALS AND METHODS

This retrospective study was conducted over one year in the Department of Obstetrics and Gynecology at Government Ramanathapuram Medical College, Tamil Nadu. A total of 65 women diagnosed with ectopic pregnancy were included.

Detailed clinical histories were collected, documenting demographic details, obstetric history, parity, history of abortion, prior tubectomy, and pelvic inflammatory disease (PID). Presenting complaints such as amenorrhea, abdominal pain, and vaginal bleeding were recorded. Physical examination included vital signs, general examination, abdominal palpation for tenderness and masses, and per speculum and bimanual

examinations for uterine size, cervical motion tenderness, and adnexal masses.

Diagnostic investigations included urine pregnancy tests (UPT), Serum B HCG (in very early pregnancies and high-resolution transvaginal ultrasonography (TVS), which confirmed ruptured or unruptured ectopic pregnancies and the presence of fluid in the peritoneum. Emergency laparotomy was performed in cases of ruptured ectopic pregnancy, with surgical procedures including salpingectomy, salpingo-oophorectomy.

Data on clinical presentation, risk factors, diagnostic findings, treatment modalities, and outcomes were collected and analyzed using descriptive statistics.

## RESULTS

The mean age of participants was  $27.42 \pm 3.28$  years, indicating a consistent age range within the study population. Among the participants, the majority (51%) were second parity, followed by 38% with multiparity, and 11% with primigravida. The most common clinical presentations included abdominal pain (57%), bleeding per vagina (54%), and a combination of amenorrhea with abdominal pain (48%). Additionally, 95% of the patients presented with anemia, while hypovolemic shock was observed in 35% of cases.

The analysis of risk factors revealed that a history of abortion was the most common (18%), followed by a history of tubectomy (11%), pelvic inflammatory disease (6%), and previous lower segment cesarean section (8%). Regarding the site of ectopic pregnancies, the ampulla was the most frequently affected location (72%), followed by the isthmus (9%), interstitium (8%), cornua (6%), fimbrial end (3%), and scar site (2%).

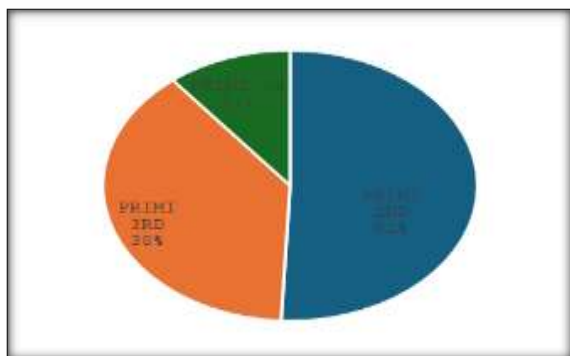


Figure 1: Distribution of parity

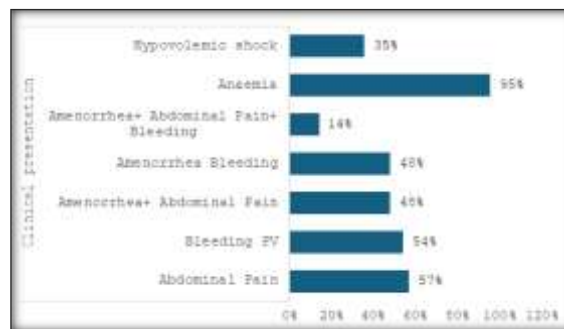


Figure 2: Distribution of Clinical presentations

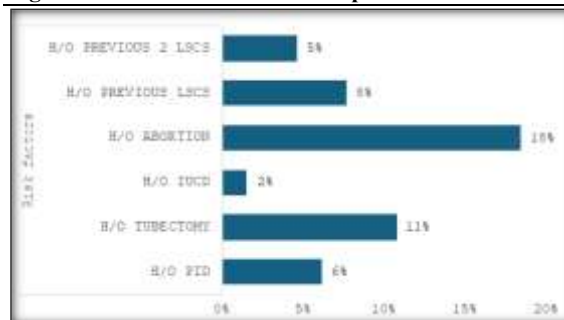


Figure 3: Distribution of Risk factors

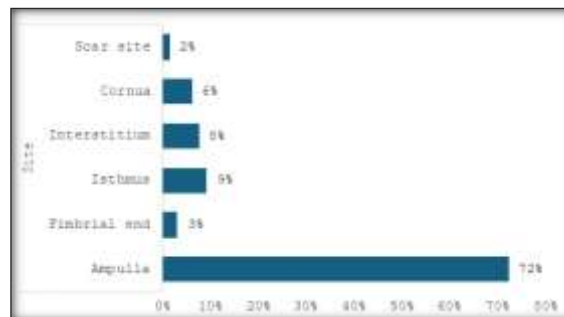


Figure 4: Distribution of Site

Among the study participants, ultrasonographic (USG) findings revealed that 94% had ruptured ectopic pregnancies, with 94% also showing fluid in the peritoneum, while only 6% were diagnosed with unruptured ectopic pregnancies. During laparotomy, 91% of cases were confirmed as ruptured, 6% as unruptured, and 3% presented as tubal abortions.

Surgical interventions included right salpingectomy in 29% of cases, right salpingo-oophorectomy in 26%, left salpingectomy in 25%, left salpingo-oophorectomy in 9%, bilateral salpingectomy in 5%, left fimbriectomy in 5%, and right fimbriectomy in 1%. Blood transfusion was required in 98% of patients, with only 2% not needing transfusion.

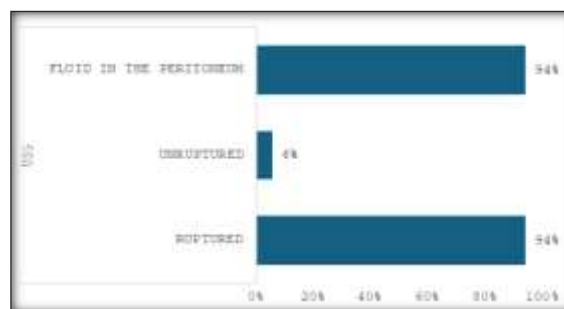
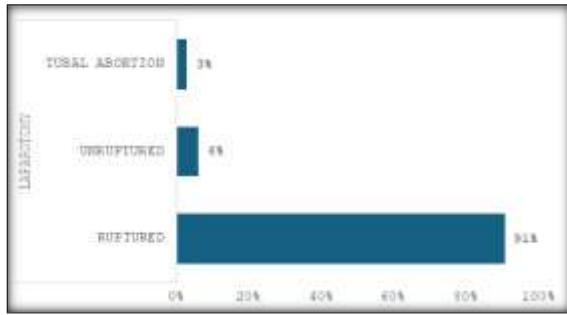
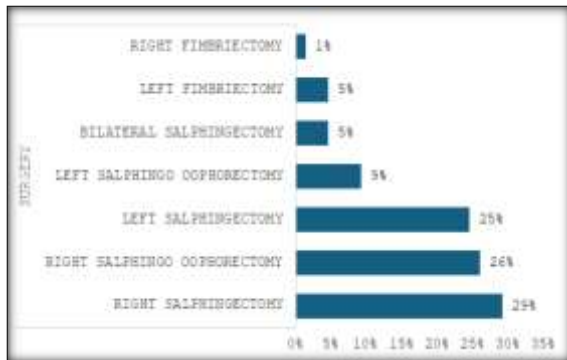


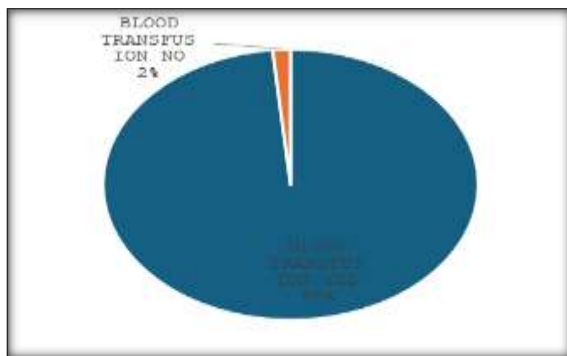
Figure 5: Distribution of USG findings



**Figure 6: Distribution of Laparotomy findings**



**Figure 7: Distribution of Procedures done**



**Figure 8: Distribution of Blood transfusion**

## DISCUSSION

This study highlights the clinical presentations, risk factors, and management strategies for ectopic pregnancy (EP) in a tertiary care hospital in South India. The high incidence of ruptured ectopic pregnancies (94%) observed in this study underscores the late presentation of patients, likely due to delayed referrals. Similar findings have been reported by Tay et al., where advanced presentations with ruptured cases were associated with increased morbidity. Hypovolemic shock was observed in 35% of cases, consistent with studies emphasizing its role as a critical clinical manifestation.<sup>[11]</sup>

The majority of EP cases in this study occurred in the ampullary region (72%), followed by the isthmus (9%) and interstitial sites (8%). These findings align with previous research, where tubal locations are the most common sites of implantation failure. The most frequent clinical complaints were abdominal pain (57%) and vaginal bleeding (54%), followed by

amenorrhea combined with other symptoms. These symptoms were consistent with patterns observed in Ranji et al., who also highlighted the importance of early clinical suspicion to reduce morbidity.<sup>[12]</sup>

Risk factors included prior abortions (18%), tubectomy (11%), and pelvic inflammatory disease (6%). A significant proportion of patients also had a history of multiple pregnancies, indicating the influence of parity on EP risk. These findings align with studies by Shaikh et al. and Seo et al., which reported similar risk profiles in patients with EP.<sup>[13,14]</sup> Surgical intervention was the primary treatment modality, with salpingectomy being the most common procedure. Blood transfusions were required in 98% of cases, reflecting the severe blood loss associated with ruptured EP. Open laparotomy remains the preferred Emergency surgical approach in resource-limited settings, although laparoscopic techniques are also being performed in stable patients.

Efficient management, early diagnosis, and prompt surgical intervention are critical to reducing morbidity and mortality associated with EP. Preventive measures targeting modifiable risk factors, such as PID and induced abortions, could further reduce EP incidence in this population.

## CONCLUSION

This study highlights the high incidence of ruptured ectopic pregnancies, with the ampullary region being the most common site. Abdominal pain and vaginal bleeding were the predominant symptoms, and risk factors like prior abortions and tubectomy were significant. Surgical management, mainly salpingectomy, and blood transfusions played a critical role in patient survival. However in early unruptured asymptomatic patients Medical management is also equally effective. Emphasizing early diagnosis, efficient referrals, and prevention of modifiable risk factors is essential to reduce morbidity and improve outcomes in ectopic pregnancy cases.

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