

# A Comprehensive Study on the Risk Factors of Tubal Ectopic Pregnancy in a Tertiary Care Centre

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**Abstract:** Introduction: An ectopic pregnancy occurs when a fertilized ovum implants at a site outside the uterine cavity. The most common location is within the fallopian tube and the condition can be life threatening due to risks of tubal rupture and hemorrhage. Unless more cases are diagnosed at an early stage, it is difficult to reduce mortality and provide fertility preserving management. Aims and objectives: To analyze various risk factors associated with ectopic pregnancies. Methodology: This is an observational prospective study done over a period of 6 months in the dept of obstetrics and gynecology at MDM Hospital attached to Dr. SN Medical College, Jodhpur. This study included 100 cases of tubal ectopic pregnancy. Results: Most common age group in which ectopic pregnancy were found was between 26 - 30 years age residing in rural area. Most patient were multigravida. Most common risk factor was found to be h/o previous LSCS followed by abortions and tubal surgery. Conclusion: Most cases in this study were received in ruptured condition, rendering conservative management impossible. With global increase in cesarean section rate, the ectopic incidence may inadvertently rise, which is an alarming concern. Awareness of the local trends of ectopic pregnancy, it's risk factors and diverse clinical presentation is of paramount importance for providing efficient management.

**Keywords:** ectopic pregnancy, risk factors, previous LSCS, Assisted reproductive technologies

## 1. Introduction

Ectopic pregnancy, derived from the Greek word \*ektopos\* meaning "out of place, " is a potentially life - threatening condition where a fertilized egg implants outside the uterine cavity.<sup>1</sup> The majority of ectopic pregnancies, approximately 97%, occur in the fallopian tubes, with the ampullary segment being the most common site.<sup>2,3</sup> However, rare cases also occur in the ovaries, cervix, abdominal cavity, and caesarean scars. Women of reproductive age, especially those presenting with lower abdominal pain and vaginal bleeding, are commonly suspected of having ectopic pregnancies, though some cases remain asymptomatic until hemodynamic instability occurs.<sup>4</sup> Despite advances in diagnosis and treatment, ectopic pregnancy remains a significant cause of maternal morbidity and mortality, particularly in low - resource settings. Early diagnosis and management are crucial in preventing adverse outcomes. The incidence of ectopic pregnancy varies worldwide, with a rate of approximately 0.91% in South India. Specific types of ectopic pregnancies, such as caesarean scar and interstitial pregnancies, are associated with higher rates of morbidity and mortality due to increased risk of hemorrhage.<sup>5, 6</sup>

Risk factors for ectopic pregnancy include advanced maternal age, a history of pelvic infections, tubal surgeries, and the use of assisted reproductive technologies. With the availability of modern diagnostic tools such as transvaginal ultrasound and serial  $\beta$  - hCG measurements, early recognition, and appropriate management have reduced morbidity and mortality in developed nations. However, surgery remains the primary treatment modality in many developing countries, where emergency interventions are often required due to late presentations and tubal rupture.<sup>5, 7 - 8</sup>

This study aims to review the risk factors associated with ectopic pregnancy. By identifying the contributing factors and improving early diagnosis, healthcare providers can ensure timely referral to tertiary care centres, minimizing complications and improving patient outcomes.

## 2. Materials and Methods

This observational, prospective study was conducted at MDM Hospital, Jodhpur, from January to July 2024. The study included 100 women diagnosed with ectopic pregnancy, confirmed through transvaginal ultrasonography and  $\beta$  - hCG levels. Patients were managed surgically or medically based on clinical presentation and diagnostic findings.

### Study Population

The inclusion criteria for the study were all patients diagnosed with tubal ectopic pregnancies confirmed via transvaginal ultrasound. Women who had previously received treatment for ectopic pregnancy and women with other co - morbidities were excluded from the study.

### Data Collection and Variables

Data on demographics (age, obstetric history, sterilization status), clinical presentation, diagnostic findings, and management outcomes were collected using a structured proforma. Statistical analysis was conducted using SPSS software, with Fisher's exact test, chi - square test, and Mann - Whitney U - test used to assess correlations between variables.

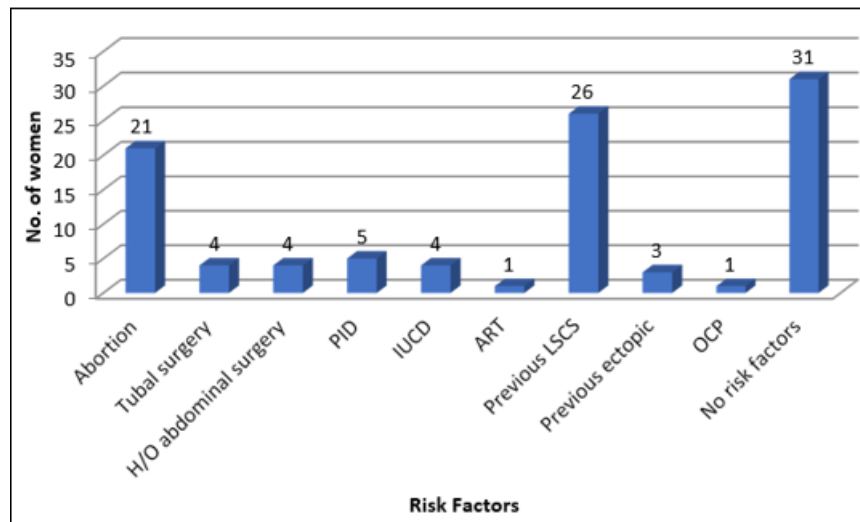
### 3. Results

#### Risk Factors

The most common risk factor was previous caesarean section (26%), followed by a history of abortion (21%). Other risk factors included pelvic inflammatory disease (PID), tubal surgery, IUCD use, and previous ectopic pregnancies. Interestingly, 31% of cases had no identifiable risk factors (Table 7) (Fig 6).

**Table 7:** Summarizes the risk factors present in the study population.

Risk factors	No. of women	Percentage
Abortion	21	21
Tubal surgery	4	4
H/O abdominal surgery	4	4
PID	5	5
IUCD	4	4
ART	1	1
Previous LSCS	26	26
Previous ectopic	3	3
OCP	1	1
No risk factors	31	31
Total	100	100



**Figure 6:** Bar chart summarizes the risk factors present in the study population

### 4. Discussion

This study provides a comprehensive analysis of risk factors associated with ectopic pregnancies. This study suggests the need for increased healthcare resources and awareness programs, particularly in rural populations, to address risk factors like pelvic inflammatory disease (PID) and unsafe abortions. The study identifies key risk factors for ectopic pregnancy, including previous lower - segment caesarean section (LSCS) and a history of abortions, consistent with other research.<sup>10-13</sup> Prior caesarean deliveries are known to contribute to ectopic pregnancies due to adhesions and endometriosis, as noted by Barik S. et al. (2020).<sup>9</sup> The role of LSCS in increasing the risk due to the formation of adhesions and infections highlights the importance of careful surgical techniques and post - operative care.<sup>14</sup> Similarly, unsafe abortions increase the risk of infection, leading to tubal damage and ectopic implantation. The identification of pelvic inflammatory disease (5%) as a contributing factor, though lower in this study than in others, underscores the role of

infections in tubal motility impairment.<sup>15, 16</sup> Assisted reproductive technologies (ART) such as in vitro fertilization (IVF) increase the risk of ectopic pregnancies due to the manipulation of embryos and the potential for abnormal implantation outside the uterus.<sup>17</sup> Interestingly, 31% of patients in this study had no identifiable risk factors, highlighting the importance of maintaining a high index of suspicion in women of reproductive age, even in the absence of known risk factors.

### 5. Conclusion

Ectopic pregnancy remains a significant cause of maternal morbidity in India, particularly in rural settings where access to healthcare is limited. This study highlights the risk factors of ectopic pregnancy for early diagnosis. Increased awareness, prompt referral, and improved access to diagnostic facilities are essential to reducing the burden of ectopic pregnancies in resource - limited settings.



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