

## Clinicopathological Study of Tubal Ectopic Gestation in a Tertiary Care Centre

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Received: 26-08-2022 / Revised: 25-09-2022 / Accepted: 10-10-2022

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Conflict of interest: Nil

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### Abstract

**Background:** Implantation of fertilized ovum at an aberrant site outside the uterus is termed as ectopic gestation. More than 95% of ectopic gestation occurs in fallopian tube and has a multifactorial pathogenesis with numerous contributing risk factors. This study was undertaken to assess the clinical presentation and predisposing risk factors of tubal ectopic gestation.

**Methods:** This was a retrospective study conducted in a tertiary care centre, for a period of three years, from October 2017 to September 2020, in the department of pathology. All cases of tubal ectopic gestation confirmed by histopathology were included in the study. Demographic data, clinical presentation and data regarding the predisposing risk factors of tubal ectopic gestation were collected from the medical records.

**Results:** The study includes a total of 88 cases that are confirmed by histopathological analysis. Majority of the cases were in the age group of 26 to 30 years. Pain abdomen was the most common clinical presentation followed by bleeding per vagina. The highest incidence of tubal ectopic gestation is among nulliparous women followed by women with para 1 and para 2 status. Pelvic inflammatory disease, previous history of caesarean section followed by previous history of other pelvic surgeries, abortion, bilateral tubal ligation (recanalized), and infertility treatment are the most common risk factors.

**Conclusion:** Identification of risk factors helps the clinician to conduct a precise workup which aids in early diagnosis of tubal ectopic gestation. Thus, a timely intervention can reduce the morbidity and mortality associated with tubal ectopic gestation.

**Keywords:** Abortion; Cesarean section; Ectopic pregnancy; Fallopian tubes; Pelvic inflammatory disease

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### Introduction

Implantation of fertilized ovum at an aberrant site outside the uterus is termed ectopic gestation. 95% of ectopic gestations occur in the fallopian tube. Ruptured tubal gestation

contributes to 10-20% of all maternal deaths. Also, a fourfold increase in the incidence of tubal ectopic gestation has been noted in the last two decades.

Ectopic tubal gestation has multifactorial pathogenesis with numerous contributing risk factors. Amenorrhoea, bleeding per vagina, and pain abdomen constitute the triad of symptoms. But this is observed only in 50% of cases. Sometimes women might be unaware of the pregnancy and can even present in hemodynamic shock. Hence the diagnosis of tubal ectopic gestation is dependent on risk factor assessment as well. [1,2]

This study is conducted to assess the clinical presentation and predisposing risk factors of tubal ectopic gestation, which aids in early diagnosis and prevention of tubal rupture.

### Materials and Method:

This was a retrospective study conducted over a period of three years, from October 2017 to September 2020 in Department of pathology after obtaining ethical clearance.

**Inclusion criteria:** All cases diagnosed as ectopic tubal gestation by histopathological analysis are included in the study.

**Exclusion criteria:** Cases without histopathological findings of tubal ectopic gestation are excluded from the study.

The specimens are fixed in 10% formalin, and sections were obtained from the dilated part of the tube, blood clots, and from the part of the tube closer to the lesion. Tissue is

processed and Hematoxylin and eosin-stained slides were prepared. Histopathological analysis was performed. The diagnosis of tubal ectopic gestation was confirmed by histopathological analysis in these cases. Cases without histopathological evidence of tubal ectopic gestation are excluded from the study.

Relevant clinical details like age, parity, and presenting symptoms of the cases included are recorded. Further, details regarding the presence of risk factors of tubal ectopic gestation were obtained from the medical records. Each case was analyzed for the presence of risk factors such as pelvic inflammatory disease (PID), previous pelvic surgeries, cesarean sections, abortion, dilatation and curettage procedure, and contraceptive use.

**Statistical analysis:** All the data obtained were compiled in Microsoft Excel 2021, and data analysis was done based on frequency and percentage. Further, the demographic data was correlated with the risk factor assessment data.

### Results:

This study on ectopic tubal gestation comprises of a total of 88 cases. Majority of the cases (n=29, 33%) were in the age group of 26 to 30 years with a mean age of 29.5 years. Figure 1 depicts the age distribution.

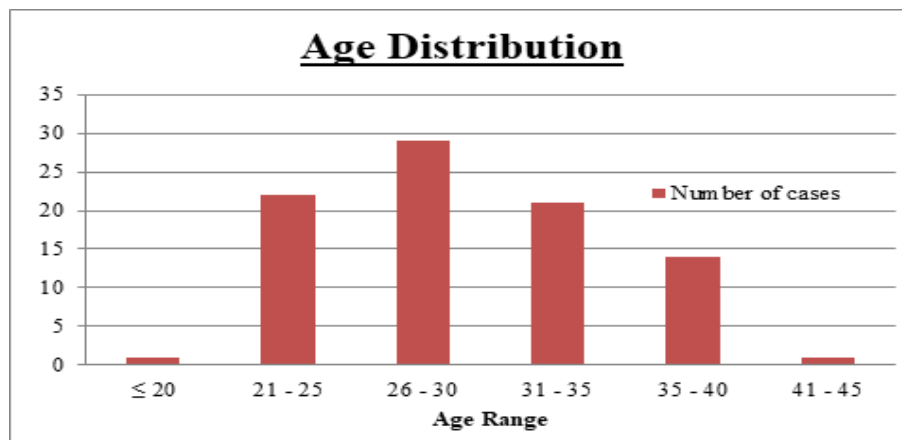


Figure 1: Age distribution

Most common clinical presentation was pain abdomen (n=61, 69%) followed by vaginal bleeding (n=18, 20%) and amenorrhoea (n=8, 9%). Ectopic tubal gestation was identified during a routine ultrasound scan in 1% of the cases. Left sided lesions were found in 51% (n=15) of the cases.

Nulliparous (n=28, 32%) and women with para 1 status (n=27, 31%) are at a high risk of

developing tubal ectopic gestation followed by women in para 2 status (n=25, 28%). Figure 2 depicts the parity status of the study group. Based on the current study, highest incidence of tubal ectopic gestation is noted in women in the age group of 26 –30 years with a para 1 status. Figure 3 depicts the parity status based on the age range in the study group.

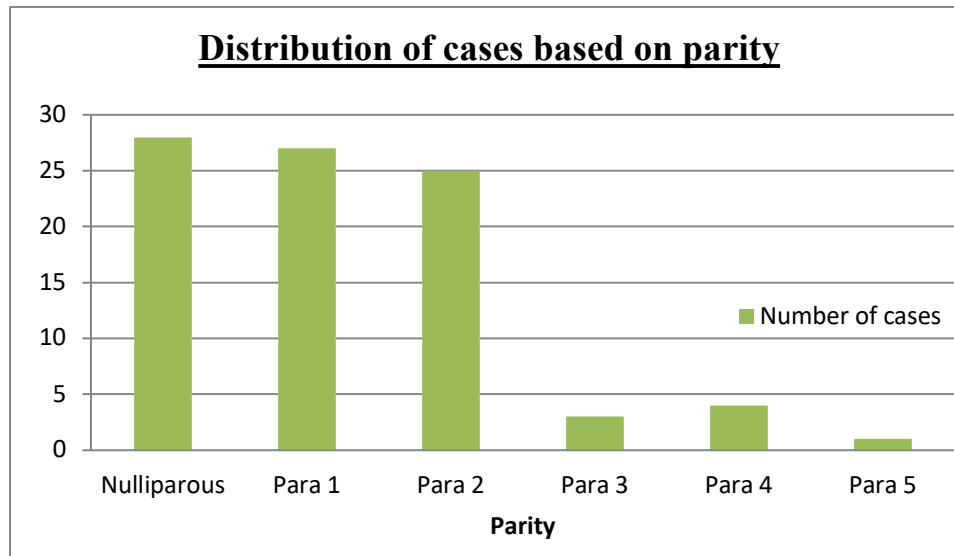


Figure 2: Distribution of cases based on parity

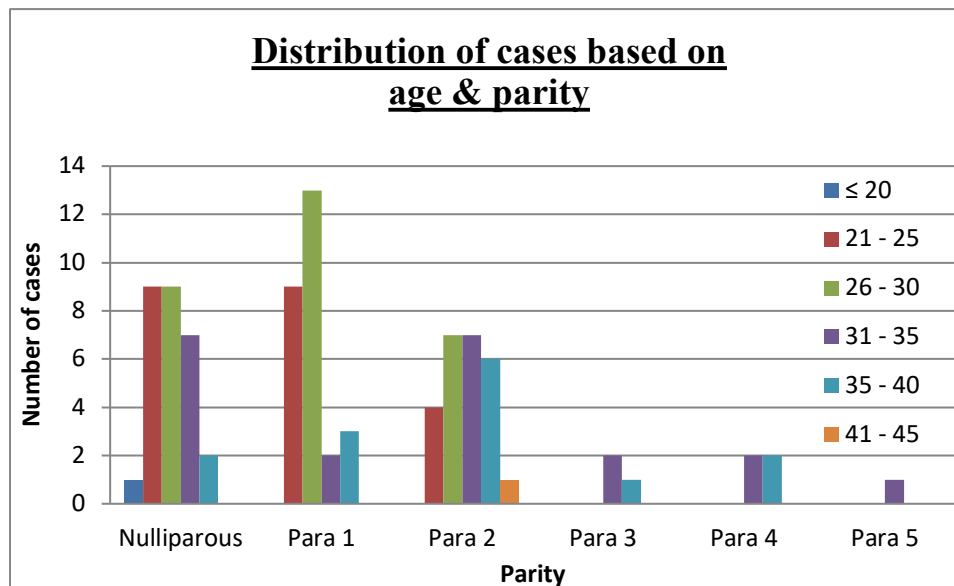
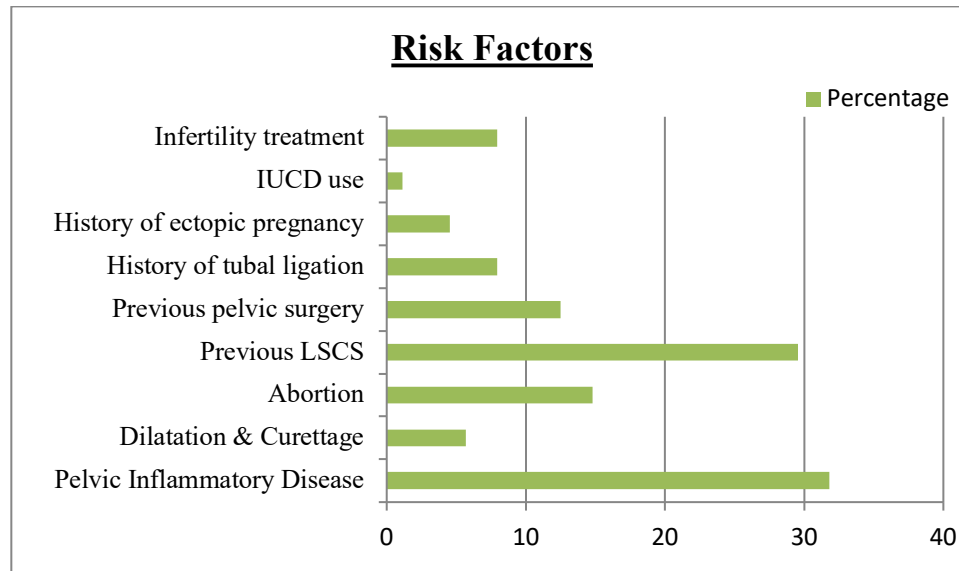


Figure 3: Distribution of cases based on age and parity

PID (n=28, 32%) and previous cesarean sections (n=26, 28%) followed by previous history of other pelvic surgeries, abortion, bilateral tubal ligation (recanalization), and infertility treatment are

the most common risk factors. Figure 4 depicts the risk factors of tubal ectopic gestation in the study group.



**Figure 4: Risk factor assessment**

Tubal ectopic gestation developed in 7 cases (8%), who underwent bilateral tubal ligation. They belong to the age group of 31-40 years. Another 7 cases (8%), who were on treatment for infertility, developed tubal ectopic gestation. Majority of them were in the age group of 35-40 years.

#### **Discussion:**

Tubal ectopic gestation is one of the obstetric emergencies at early pregnancy. The incidence of it has increased in the last few decades. This might be due to the increase in tubal infection or pelvic procedures. [2]

In the current study majority of the cases were in the age group of 26-30 years (32%). Similar observation is noted in studies by Gorva A et al (60%) and Mufti S et al (55%). The reason for this age predilection may account to the maximum fertile period. [2-4]

51% of the lesions were right sided in the present study. Similarly, Bembde et al (70%) and Nair L et al (52%) observed more right sided lesions. A study by Fukuda M et al concluded that frequency of ovulation and fertility potential of oocytes from right ovary

are more compared to left ovary. This may be possible reason for frequent right sided tubal ectopic gestations. [1,5,6]

In the present study pain abdomen was the most common clinical presentation (69%) followed by vaginal bleeding. A study by Yadav DP et al also had similar findings. The classical triad of amenorrhoea, vaginal bleeding and pain abdomen are observed in 9% of the cases only, in this study. All these cases were noted to have a tubal rupture. Jani RS et al observed the triad in 28% cases. Hence, it's to be noted that majority of the cases of tubal ectopic gestation will not present with the classic triad. Also there is a high chance of tubal rupture in those cases that presents with the classic triad. [7,8]

According to the current study nulliparous (32%) and women with para 1 status (31%) are at high risk of developing ectopic tubal gestation. Similar observations were made by Tahmina S et al (nulliparous- 28%, para 1 – 35%) and Chitra B et al (nulliparous- 21%, para 1- 42%). It was noted that many of these patients have a reduced reproductive capacity and they have conceived after a period of time.

PID or tubal infections can be the root cause in these cases. [2,9]

In the current study maximum incidence of tubal ectopic gestation is found in women of para 1 status in the age group of 26-30 years. Hence it's advisable to consider a possibility of ectopic gestation in patients of this age group, and parity status, presenting with pain abdomen.

In the current study PID (32%) and previous cesarean sections (30%) followed by previous history of other pelvic surgeries (13%), abortion, bilateral tubal ligation, and infertility treatment are the most common risk factors. Similar findings are observed by Kulkarni M et al and Chitra B et al. Thahmina S et al. observed that previous history of abortion(36%) and pelvic surgeries including cesarean sections (36%) are the most common risk factors. [2,9,10]

PID is a polymicrobial infectious and an inflammatory disease affecting the upper female genital tract including the uterus, tubes and related pelvic organs. Studies revealed that patient develops tubal occlusion and adhesions within the pelvis after multiple episodes of infection. Hence PID increases the chance of developing tubal ectopic gestation. [11]

In the current study, the second most common risk factor is previous history of cesarean section. According to Bowman ZS et al, two or three prior cesarean deliveries are associated with a risk of ectopic gestation. Hence multiple cesarean sections can be considered as a risk factor for ectopic gestation. It's advisable to consider vaginal birth after cesarean (VBAC) prior to elective repeat cesarean section.

In the current study 15% cases have a prior history of abortion. According to Verhoeve HR et al, an increased risk of tubal pathology contributing to ectopic tubal gestation, is observed in subfertile women who have a prior history of induced abortion. [12]

6% cases in the current study underwent dilation and curettage previously. Few studies

points out that, after this procedure, there is an increased risk of developing post-partum hemorrhage, spontaneous abortion, preterm rupture of membranes, incompetent cervix and ectopic gestation in future. [13]

In the current study, 8% cases had undergone prior bilateral tubal ligation. According to Drakopoulose P et al, spontaneous gestation after sterilization is more likely to be ectopic. Hence it's recommended that, any women in reproductive age group, presenting with pain abdomen, irrespective of the sterilization status, undergo a urine pregnancy test. [14]

8% cases in the current study developed ectopic tubal gestation while they were undergoing infertility treatment. According to Patil M, the chance of developing ectopic tubal gestation is higher in patients undergoing infertility treatment compared to spontaneous pregnancies. In these cases, early prediction of pregnancy with  $\beta$ -hCG and transvaginal sonography is required. Thus fallopian tube rupture can be avoided. [15,16]

### Conclusion:

Identification of risk factors helps the clinician to conduct a precise workup which aids in early diagnosis of tubal ectopic gestation. This ensures a timely intervention with which a subsequent tubal rupture can be prevented. Hence knowledge about the risk factors helps to reduce the morbidity and mortality associated with tubal ectopic gestation.

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