International Journal of Reproduction, Contraception, Obstetrics and Gynecology
*Dixit SS et al. Int J Reprod Contracept Obstet Gynecol. 2025 May;14(5):1516-1519*
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20251234

**Original Research Article**

# A retrospective study on management of ectopic pregnancy in tertiary care hospital in Puducherry

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**Received:** 04 March 2025
**Revised:** 04 April 2025
**Accepted:** 05 April 2025

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## ABSTRACT

**Background:** Ectopic pregnancy is a common cause of maternal morbidity and mortality in the 1st trimester of pregnancy; without timely diagnosis and intervention, ruptured ectopic pregnancy can become a life-threatening condition. This study aimed to give baseline indices on the incidence, clinical presentation, risk factors, and the management of cases of ectopic pregnancy presented in Sri Venkateshwara Medical College and Research Center, Puducherry.
**Methods:** This was a 2-year retrospective study of patients who were diagnosed with ectopic pregnancy between January 1st, 2021, and December 31st, 2022.
**Results:** During the study period 24 cases of ectopic pregnancies were diagnosed out of nearly 2000 reported pregnancies. It accounts for about 1.2% of ectopic pregnancies among all pregnancies. The modal age ranges between 18 to 35 years, Incidence of about 37% cases noted in nulliparous women and 67% indicated in multiparous women. The commonest presenting complaints were lower abdominal pain and amenorrhea, and the commonest identified risk factor is a previous history of ectopic pregnancy and a previous history of pelvic inflammatory disease. Other risk factors were previous history of infertility, previous history of tubectomy, and IUCD usage. Out of 24 ectopic pregnancy cases, 6 cases were managed conservatively by medical management and the other 18 underwent surgical management. Among these 18 cases, 3 patients presented with rupture ectopic and were managed by emergency laparotomy.
**Conclusions:** Ruptured ectopic pregnancy is a major cause of maternal morbidity and early pregnancy loss, hence widespread advocacy on prompt diagnosis and early intervention is much needed.

**Keywords:** Ectopic pregnancy, Laparotomy, Salpingectomy

## INTRODUCTION

Ectopic pregnancy (EP) is the leading cause of maternal death in early pregnancy with a rate of 1%–2% and an incidence of 2-5% of all pregnancies by artificial reproductive techniques.[1] Ectopic pregnancy is the implantation of a fertilized egg outside the uterine cavity. The most common ectopic site of implantation (97%) is the fallopian tube.[2] The remaining 3% of ectopic pregnancies are implanted in the cervix, ovary, peritoneal cavity, or uterine scars.[3] A growing ectopic pregnancy in any location can cause the tissue to become vascular, friable, and eventually rupture resulting in internal bleeding.[4] This situation can be life-threatening and needs to be treated as a medical emergency.[5]

The incidence of ectopic pregnancy among all pregnancies is about 0.25-2.0%.[1] Indian studies have found an incidence of ectopic pregnancies ranging from 1-2%.[6] Women with an EP may have nonspecific symptoms such as lower abdominal pain and vaginal bleeding, often presenting clinically similar to appendicitis, urinary

calculi, early pregnancy loss, or trauma. Women with this presentation in the first trimester have an EP prevalence in emergency departments as high as 18%, which can be easily misdiagnosed as the previously described clinical mimics.[7]

Half of patients diagnosed with an EP have no known risk factors. Risk factors include prior EP, damage to fallopian tubes, prior pelvic surgery, complications from ascending pelvic infection, prior fallopian tube surgery or pathology, infertility, smoking, age greater than 35 years old, pelvic inflammatory disease, endometriosis, pregnancy that occurs with an intrauterine device (IUD) in place, or use of ART.[9,10] Individuals with IUDs are at lower risk for EP than individuals who do not use contraception; however, 53% of pregnancies that occur in patients with IUDs are ectopic.[11]

Diagnostic tests for ectopic pregnancy include a urine pregnancy test; ultrasonography; beta-hCG measurement; and, occasionally, diagnostic curettage. In the past, some physicians have used serum progesterone levels as well.[7] Ultrasonography is the diagnostic test of choice, with limitations largely based on availability and the gestational age of the pregnancy. Patients with suspected or confirmed ectopic pregnancy who exhibit signs and symptoms of ruptured ectopic pregnancy should be emergently transferred for surgical intervention.[4] If the ectopic pregnancy has been diagnosed, the patient is deemed clinically stable, and the affected fallopian tube has not ruptured, treatment options include medical management with intramuscular methotrexate or surgical management with salpingotomy (removal of the ectopic pregnancy while leaving the fallopian tube in place) or salpingectomy (removal of part or all of the affected).

### *Objective*

The current study aimed to give baseline indices on the incidence, clinical presentation, risk factors, and the management of cases of ectopic pregnancy that are presented in Sri Venkateshwara Medical College and Research Center, Puducherry.

## METHODS

This was a retrospective study carried out at the department of obstetrics and gynecology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Puducherry. All cases of ectopic pregnancy who presented to SVMCH over 2 years (January 1st, 2021 to December 31st 2022) were included in the study. Data were collected retrospectively from hospital medical records and analyzed using Microsoft Excel. Data includes age, parity, presenting complaints, associated risk factors, USG findings, beta HCG values, and the mode of treatment. Patients were diagnosed with ectopic pregnancy based on history, examination, and investigations. They were treated by one of the following treatment modalities. Patients presenting with hemodynamic shock, having β-hCG levels >2000 mIU/ml, or those suspected to have ruptured tubal pregnancies were treated with immediate laparotomy. Patients who were minimally symptomatic with β-hCG <3000 mIU/ml, pregnancy diameter <4 cm, nonviable pregnancy, and no signs of rupture were treated with methotrexate injection in a dose of 1 mg/kg body weight. In patients with more than 10 to 15% fall of β-hCG level did not occur in 48 hours or the size of the mass further increased after 7 days, a second dose of intramuscular injection of methotrexate was administered.

Patients with intact tubal pregnancy, who were hemodynamically stable with contraindication to methotrexate were planned for laparotomy and proceeded with salpingectomy. Contraindications include leukopenia, thrombocytopenia, or elevated serum liver enzymes or creatinine.

## RESULTS

In this current study, we observed a total of 24 cases of ectopic pregnancy were diagnosed from 2000 pregnancies reported. This gives an incidence of 1.2%. The patients age ranged between 18 to 32 years. Women in the age group between 20-25 years (46%) were observed more among the study group with a mean age of 27.8 years (Table 1).

**Table 1: Distribution of age among study group.**

| Age (in years) | Frequency | Percentage |
|---|---|---|
| **<20** | 3 | 12.5 |
| **20-25** | 11 | 46 |
| **26-30** | 6 | 25 |
| **30-35** | 4 | 16.5 |
| **Total** | 24 | 100 |
| **Mean age** | 27.8±3.26 | |

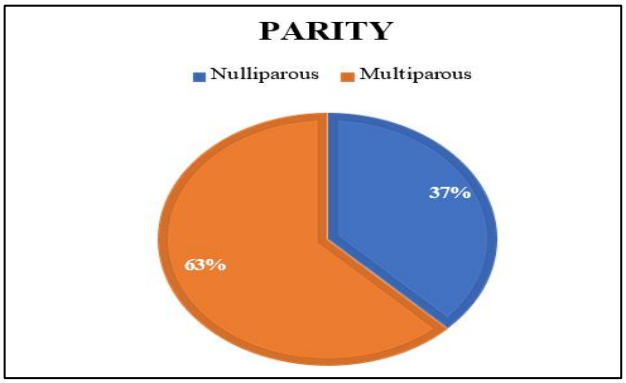


**Figure 1: Distribution of parity among study group.**

Among 24 women with ectopic pregnancy, 15 (63%) of them were multiparous and 9 (37%) were nulliparous (Figure 2). Most of the women presented with complaints of abdominal pain (63%) followed by bleeding per vaginum (41%) and amenorrhea (87%) (Table 2). Regarding the site most common ectopic site of implantation in our study was the right fallopian tube 14

cases (58%), left fallopian tube 8 cases (34%), ovaries 2 cases (8%), and abdominal pregnancy nil (0%) (Table 3).

**Table 2: Distribution of symptoms among the study group.**

| Symptoms | Frequency | Percentage |
|---|---|---|
| **Abdominal pain** | 15 | 63 |
| **Amenorrhea** | 21 | 87.5 |
| **Bleeding per vaginum** | 10 | 41 |

**Table 3: Distribution of sites among the study group.**

| Sites of ectopic pregnancy | Frequency | Percentage |
|---|---|---|
| **Right fallopian tube** | 14 | 58 |
| **Left fallopian tube** | 8 | 34 |
| **Ovaries** | 2 | 8 |
| **Abdominal** | nil | 0 |
| **Total** | 24 | 100 |

Most of the patients were treated with surgical management 18 cases (75%) which included salpingectomy 13 cases (54%), emergency explorative laparotomy in view ruptured ectopic 3 cases (13%), ovarian wedge resection 2 cases (8%) and 6 cases (25%) with medical management with methotrexate (Table 3).

## DISCUSSION

The present study investigated the outcomes of incidence and management of ectopic pregnancy in patients who attended the department of obstetrics and gynecology, Sri Venkateshwaraa Medical College Hospital and Research Centre. The current study reported the incidence of ectopic pregnancy at 1.2% among 2000 pregnancies and most of the cases presented with complaints of abdominal pain followed by irregular bleeding per vaginum and a period of amenorrhea.

The classic triad of abdominal pain, amenorrhea, and vaginal bleeding should always alert the clinician to evaluate for an ectopic pregnancy. Unfortunately, the diagnosis may be quite challenging because the presentation of an ectopic pregnancy can vary significantly. Our study reported that patients who presented with ectopic pregnancy with abdominal pain were 63%, amenorrhea 87.5%, and irregular vaginal bleeding 41%. Abdominal tenderness (97.3%) and adnexal tenderness (98%) were the most common physical findings.[12,13]

In this study, the common ectopic site of implantation was the right fallopian tube (58%), left fallopian tube (34%), ovaries (8%), and abdominal (0%). The most common location for an ectopic pregnancy is in the fallopian tube. Other less common sites include the abdomen, ovary, cervix, and the interstitial portion of the fallopian tube. Earlier studies reported, over 95% occurred in the fallopian tube in the following locations: ampulla (70%), isthmus (12%), fimbria (11.1%), and interstitium/cornua (2.4%). The remaining sites of ectopic pregnancies were ovarian (3.2%), abdominal (1.3%), and cervical (<1%).[14]

In this current study, most of the cases were treated with surgical management such as salpingectomy (62%), exploratory laparotomy (13%), and 25% of the cases with medical management with methotrexate. Management of ectopic pregnancy depends on the hemodynamic stability of the patient, the hCG levels, as well as the size of the ectopic pregnancy, and the presence of fetal cardiac activity. After the diagnosis is made, several factors influence the decision to treat an ectopic pregnancy medically or surgically. If the patient is unstable, then immediate surgical treatment via laparotomy or laparoscopy is necessary .[15]

In the past, laparotomy with salpingectomy was considered the gold standard, but with the availability of minimally invasive technology and increasing physician skill, laparoscopy is now the treatment of choice. intramuscular (i.m.) MTX injection is the current standard for the medical management of EPs. MTX, a folate antagonist, inhibits rapid cell division, consequently resulting in EP termination. [14,15]

The study has few limitations. The study only included patients who sought treatment at the tertiary care center, which may not reflect the overall population. Cases referred from peripheral hospitals may represent more severe complications. Findings may not apply to other regions with different healthcare infrastructure and patient demographics. Puducherry's healthcare access and population characteristics may differ from other parts of India, limiting external validity.

## CONCLUSION

Ectopic pregnancy is still a major life-threatening emergency with its attendant maternal morbidity and mortality. It is a public health issue as the risk factors include poorly treated sexually transmitted infections and pelvic inflammatory diseases. Poor health-seeking behaviour is apparent as most of the patients presented late after rupture of the ectopic pregnancy. Ignorance, poverty, and illiteracy compound the problem. Health education, safer sex practices, early diagnosis, and management are much needed.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Dixit SS, Hiremath PB, Saranya S, Ammulu S. A retrospective study on management of ectopic pregnancy in tertiary care hospital in Puducherry. Int J Reprod Contracept Obstet Gynecol 2025;14:1516-9.