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# Ectopic Pregnancy: A life threatening emergency

***Anita Madan,**Kushte Hasta Nitin,***Amarjeet Kaur,****N.S. Neki**

*****Assistant Professor,**Senior Resident, ***Junior Resident, Dept. of Obstetrics & Gynaecology, Govt. Medical College, Amritsar, India, 143001

****Professor of Medicine, Govt. Medical College/Guru Nanak Dev Hospital, Amritsar, India, 143001

Corresponding Author: **Dr. Anita Madan,** Assistant Professor, Dept. of Obstetrics & Gynaecology, Amritsar, India, 143001

E-mail:*dranitapuri@gmail.com*

**Abstract**

**Introduction:** Ectopic pregnancy is implantation of gestational sac outside the uterus[1]. Most common sites of ectopic pregnancy are fallopian tubes. Other sites include cervical, ovarian, abdominal and cesarean scar. Ectopic implantation occurs in 1 to 2 % of pregnancies and can occur in any sexually active women of reproductive age and is responsible for 10% of all pregnancy related deaths[2].Various risk factors have been identified that lead to ectopic pregnancy which include PID, previous ectopic pregnancy, previous tubal surgery, contraceptive use and IUCD.

**Objectives:** The objective of this study is to identify various risk factors, sites, complications, management and outcome of ectopic pregnancy.

**Material & Methods**: This was an observational study conducted on 36 patients of ectopic pregnancy in a tertiary care centre of Govt. Medical College, Amritsar.

**Results**: In our study, the commonest site of ectopic pregnancy was fallopian tubes (88.8%). Ampullary part accounted for 68.7% of all tubal pregnancies. Risk of ectopic increased with parity and highest risk was seen in multigravida(47.2%) . In most patients (52.7%) no risk factor was identified and there was history of PID in 22.2%. Most common management is surgical and salpingectomy was performed in 94.4% patients.

**Keywords:** Ectopic pregnancy, PID.

## Introduction

Ectopic pregnancy is potentially a life threatening condition and remains the leading cause of maternal death. Word “Ectopic” means “out of place” and was described for the first time in the 11th century. The incidence of ectopic pregnancy has increased during the last few years worldwide. The incidence is higher between 35 and 44 years[3]. It is 1-2% of all pregnancies and consequently it causes a serious health risk to pregnant women[4,5]. Ectopic pregnancy accounts for 31.9 pregnancy related deaths per 100,000 pregnancies in the United States[6].

Risk factors of ectopic pregnancy include age over 40 years, previous tubal surgery, previous ectopic pregnancy, PID and genital tuberculosis,

long term infertility, smoking, IUCD, progestin only pills, multiparity, previous abortions(spontaneous or induced). [7,8,9].

Clinical manifestations vary according to the site of ectopic pregnancy. Tubal pregnancy accounts for 97% of all ectopic pregnancies. Approximately, 80% of all ectopic pregnancies occur in ampulla, 12% in isthmic part, 5% in fimbrias, and 2% in interstitial part (cornual) of the fallopian tube. Ovarian, cervical and abdominal ectopic pregnancies account for 1%[10]. Presentation may range from asymptomatic to acute abdomen with hemodynamic shock. The classical clinical triad is of amenorrhea, vaginal bleeding and abdominal pain. But only 50% of patients present with all 3 symptoms. In one study abdominal pain was present in 98.6% of patients, amenorrhea in 74.1% and irregular vaginal bleeding in 56.4% [11]. Ectopic pregnancy is diagnosed by clinical presentation, beta hCG levels and ultrasonography. Combination of beta-hCG levels and transvaginal ultrasound has a sensitivity of 97% and specificity of 95% in the diagnosis of ectopic pregnancy[12]. Beta-hCG levels increase by 66% within 48hrs (confidence level 85%) in normal viable intrauterine pregnancy [13]. Rise less than this or falling values point towards failing pregnancy or ectopic gestation.

On ultrasonography ,complex adnexal mass or a solid mass can be seen. Free fluid in pouch of Douglas is another sign of ectopic pregnancy, but it is not pathognomic of ruptured ectopic. Presence of intraabdominal free fluid is more indicative of ruptured ectopic. The exact findings are to be correlated with beta-hCG levels. All viable intrauterine pregnancies can be visualized by TAS in patients with serum hCG levels higher than 6500mIU/ml. The discriminatory zones for TVS are between 1000 and 2000 mIU/ml. Absence of intrauterine gestational sac 38 days or more after the last menstrual period or 24 days after conception is the evidence of ectopic pregnancy [14].

Differential diagnosis includes corpus luteal cyst, endometrioma, hydrosalpinx, ovarian neoplasia(e.g dermoid cyst) or pedunculated myoma.

The treatment modalities of ectopic pregnancy are expectant management, medical and surgical treatment. Both medical and surgical management are effective, but the selection depends on clinical situation, beta-hcg levels, localization of ectopic pregnancy and diagnostic tools. Expectant management includes wait and watch policy. Medical management includes administration of methotrexate. Surgical management includes salpingostomy, salpingotomy, resection and anastomosis, milking of tubes and salpingectomy depending on the fertility status of the patient.

## Materials and Methods

This was an observational study conducted on 36 patients of ectopic pregnancy reporting in a tertiary heath care hospital of Govt. Medical College, Amritsar over a period of six months. All the patients with ectopic pregnancy were studied for risk factors, sites of ectopic pregnancy, management options, complications and outcome. Management options included expectant management, medical treatment and surgical treatment.

Following criteria were used for patient selection for management options.

### Inclusion criteria for expectant management:

1. Serum beta-hcg <1000 IU/L and fall on further tests.
2. Tubal pregnancy only.
3. No symptoms and signs of tubal rupture and hemoperitoneum on clinical examination and transvaginal ultrasonography.
4. Diameter of the ectopic mass not greater than 3.5 cm.

### Inclusion criteria for medical management:

1. Patient hemodynamically stable with no active bleeding or hemoperitoneum with minimal or no pain.
2. No contraindications to methotrexate.
3. Size of ectopic less than 3.5 cm.
4. Beta-hCG levels less than 1500 IU/L.
5. No cardiac activity on scan.

### Criteria for terminating medical management:

1. Hemodynamically unstable patient.
2. Ruptured ectopic.
3. Immunodeficiency/Active infection.
4. Blood disorder.
5. Chronic liver disease.
6. Active pulmonary disease.
7. Hepatic, renal or hematological dysfunction.

### Indications for laparotomy:

1. Hemodynamically unstable patient.
2. Contraindications to expectant and medical treatment.

All the results were calculated and compared with previous studies.

## Results

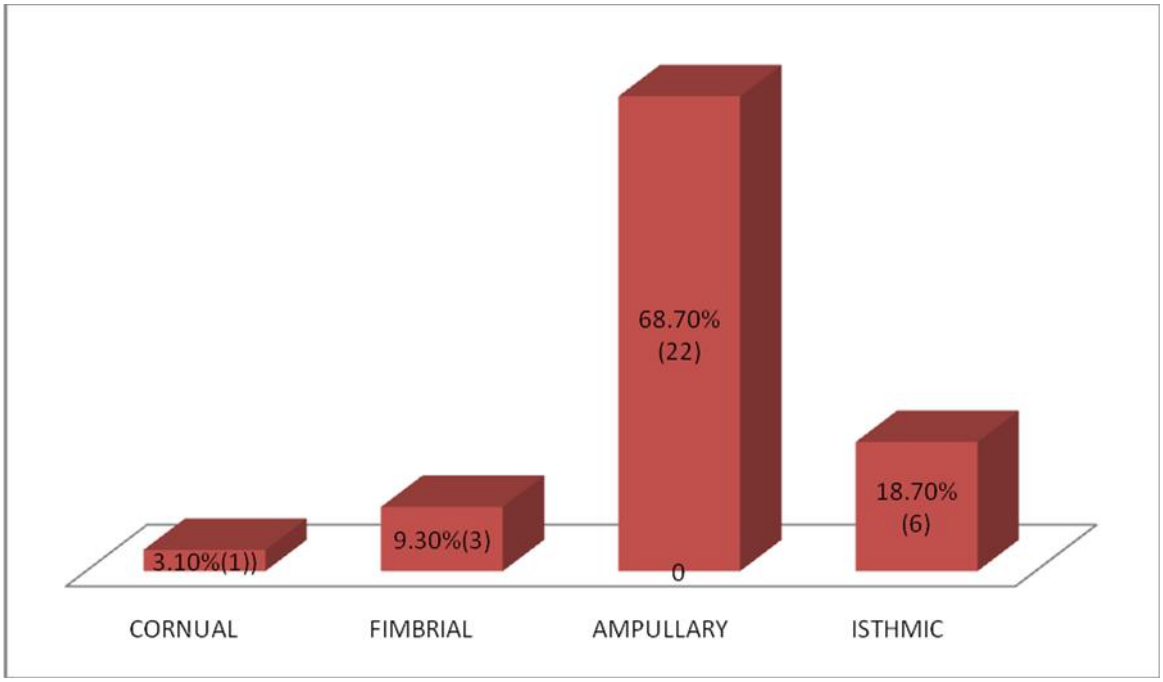
Total number of patients of ectopic pregnancy included in the study were 36. Incidence of ectopic pregnancy in our study was 5.1 per 1000 patients. Results showing sites of ectopic pregnancy, parity, risk factors, and management options are shown below.

**Table 1. Sites of ectopic pregnancy**

| Site of ectopic | No. of patients | Percentage |
|---|---|---|
| Tubal | 32 | 88.8% |
| Ovarian | 2 | 5.5% |
| Caesarean scar ectopic | 1 | 2.7% |
| Abdominal pregnancy | 1 | 2.7% |

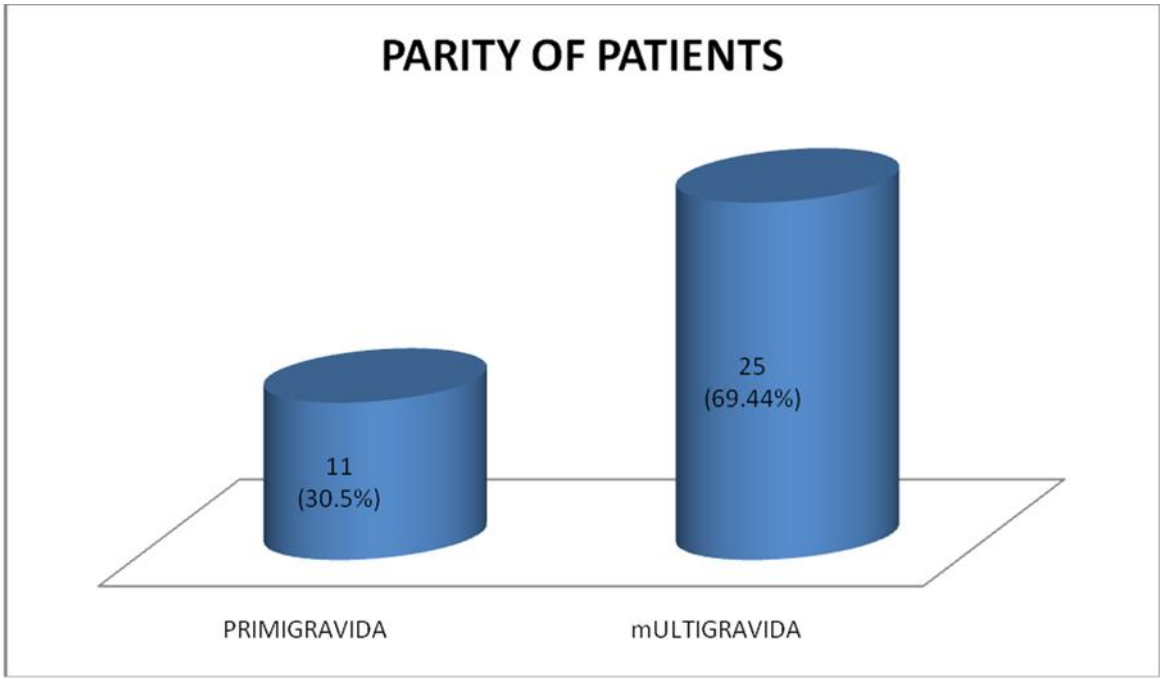
Out of total 36 patients, 32(88.8%) were tubal ectopics, 2(5.5%) were ovarian, 1(2.7%) was caesarean scar pregnancy and 1(2.7%) was abdominal pregnancy.

**Figure 1. Parts of tubes involved**



Out of 32 patients with tubal ectopics, 22(68.7%) were present in ampullary region, 6(18.7%) in isthmic region, 3(9.3%) in fimbrial region and 1(3.1%) in corneal region of tube.

**Figure 2. Parity of patients**



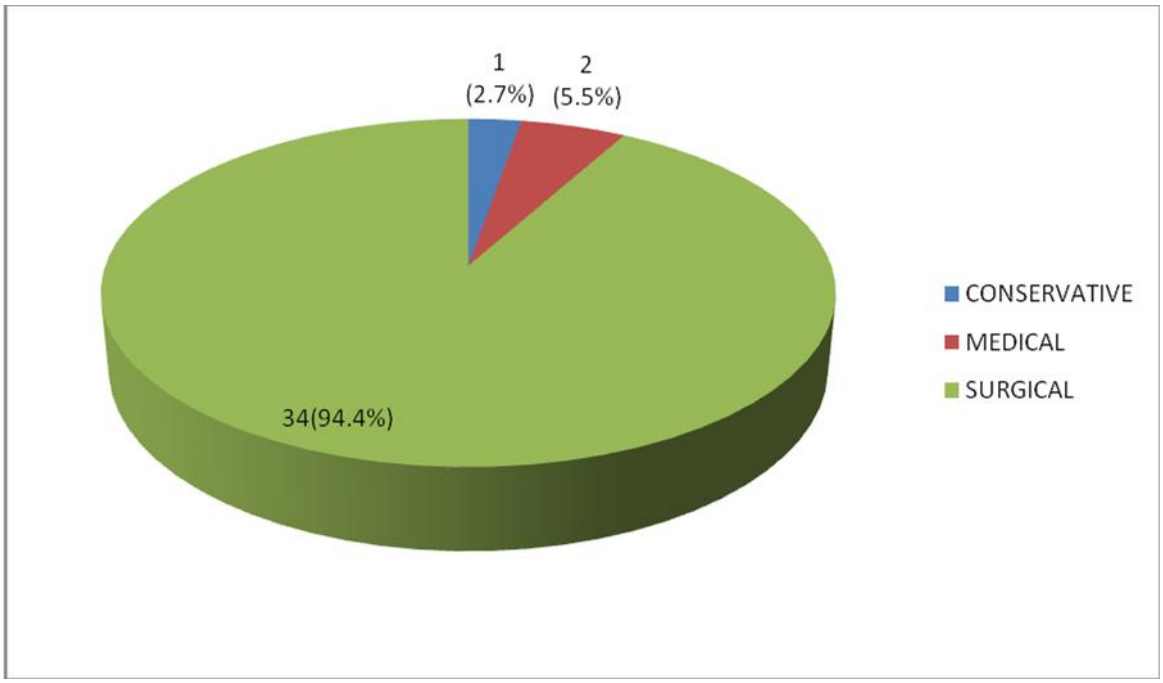

In our study, 11(30.5%) were primigravida and 25(69.44%) were multgravida.

**Table 2. Risk factors for ectopic pregnancy**

| Risk factor | No. of patients | Percentage |
|---|---|---|
| H/O PID | 8 | 22.2% |
| Previous tubal surgery/Tubectomy | 1 | 2.7% |
| Previous ectopic | 4 | 11.1% |
| IUCD | 2 | 5.5% |
| Infertility treatment | 2 | 5.5% |
| No identifiable risk factors | 19 | 52.7% |

Out of 36 patients with ectopic pregnancy, 8(22.2%) had history of PID, 1(2.7%) had previous tubal surgery, 4(11.1%) had previous history of ectopic pregnancy, 2(5.5%) were IUCD users, 2(5.5%) had previous infertility treatment and 19(52.7%) patients had no identifiable risk factor.

**Figure 3. Management options**




In the above figure it is shown that 34(94.4%) patients had surgical management, 2(5.5%) had medical management and 1(2.7%) was kept on conservative management.

**Table 3 Complications of ectopic pregnancy**

| Complication | No.of patients | Percentage |
|---|---|---|
| Ruptured | 16 | 44.4% |
| Shock | 14 | 38.8% |
| Massive BT transfusion(>4 BT) | 3 | 8.3% |
| ICU shifting | None | None |
| Death | None | None |

Out of 36 patients, 16(44.4%) were presented with ruptured ectopic, 14(38.85%) presented in shock, 3(8.3%) patients required massive blood transfusion. None patient in our study required ICU shifting and no patient died in this study.

## Discussion

Ectopic pregnancy is a common obstetrical disorder in the first trimester pregnancies which is an important cause of maternal morbidity and mortality. In our study most common site was fallopian tube (88.8%) followed by ovarian (5.5%), caesarean scar(2.7%) and abdominal pregnancy(2.7%). According to Tenore JL, 97% of the ectopic pregnancies occur in the fallopian tubes followed by ovary, cervix, cornua of uterus and abdominal cavity which is comparable to our study[15]. According to Jurkovie D, Cesarean scar is recently identified as nidus for ectopic pregnancy[16]. Fritz MA mentioned that ovarian ectopic pregnancy is a rare variant of ectopic implantation [17]. In our study also, only two patients had ovarian ectopic. According to Scutiero G and Odejinmi F, its incidence after natural conception ranges from 1 in 2000 to 1 in 60000 deliveries and accounts for 3% of all ectopic pregnancies [18,19]. Worldwide ectopic pregnancy contributing to maternal death is around 10 to 15%[15]. But in our study, no mortality occurred as ours is a tertiary care centre. Currently fourfold increase in the incidence of

ectopic pregnancy in the industrialized countries due to the advanced techniques for diagnosing early ectopic pregnancy and increased prevalence of pelvic inflammatory disease[20].

In our study, most of the patients (52.7%) had no identifiable risk factor and most common identifiable cause was pelvic infections (22.2%) followed by previous ectopic (11.1%), IUCD (5.5%), infertility treatment (5.5%) and previous tubal surgery (2.7%). Paavonen J, et al showed that women who become pregnant after having PID , about 10% had an ectopic pregnancy [21]. Rose IA et al[22] also reported in pelvic inflammatory disease, 9 fold increased risk of ectopic pregnancy and previous use of intrauterine device increased the risk almost four-fold. Veldhuis Hon et al observed the incidence of ectopic pregnancy in IUCD users was 6 to 11% per year [23]. Coste J et al observed the rate of contraceptive failure ectopic pregnancy mostly IUCD failure had decreased by 29% [24].

According to our study, multigravida (69.44%) are at highest risk followed by primigravida (30.5%).

According to Yadav ST et al, multiparous women were more prone to ectopic pregnancy (61.1%) although primigravida were also affected [25].

In our study, most common site of fallopian tube involvement was ampullary region(68.7%), followed by isthmic (18.7%), fimbrial (9.3%) and corneal (3.1%). Vyas PS[26] found 42.5% ectopic pregnancies in ampullary portion and 22.4% in isthmic portion of tube.

Most common procedure done was salpingectomy (94.4%) in our study . According to Dama S et al [27], 97.5% patients underwent salpingectomy. Shetty et al [28], also reported 90.3% rate of salpingectomy which is comparable to our study.

Impaired muscular function of the fallopian tube is seen in multiparous women . Loss of ciliary action due to prior infection, surgery, previous ectopic or tubal ligation can increase the risk of ectopic pregnancy in subsequent pregnancy[29].

## Conclusion

Ectopic pregnancy is one of the dreaded emergencies in obstetrics which requires early diagnosis and urgent management. Pelvic inflammatory disease (PID) is the most common & most preventable etiological factor. Ectopic pregnancy cannot be prevented but one can definitely work towards primordial prevention like promotion of safe sex practices, treatment of PID, quit smoking, careful infertility treatment, which are some of the modifiable risk factors. A good knowledge and expertise to tackle ectopic pregnancies other than tubal locations is very important. Though the morbidity and mortality is high, timely diagnosis and prompt management can reduce the catastrophy.

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