

**Clinical analysis of ectopic pregnancies in a tertiary care centre****Leena S Kamat<sup>1</sup>, Sneha G S<sup>2\*</sup>, Gururaj Bangari<sup>3</sup>, Ramesh Kumar R<sup>4</sup>**<sup>1</sup>*Associate Professor, Department of OBG, SDM College of Medical Science and Hospital, Sattur, Dharwad, Karnataka, India*<sup>2</sup>*Assistant Professor, Department of OBG, SDM College of Medical Science and Hospital, Sattur, Dharwad, Karnataka, India*<sup>3</sup>*Assistant Professor, Department of Radiology, SDM College of Medical Science and Hospital, Sattur, Dharwad, Karnataka, India*<sup>4</sup>*Professor, Department of OBG, SDM College of Medical Science and Hospital, Sattur, Dharwad, Karnataka, India***Received: 18-08-2021 / Revised: 12-09-2021 / Accepted: 02-11-2021****Abstract**

**Background:** An ectopic pregnancy occurs when a fertilized egg grows outside of the uterus. Almost all ectopic pregnancies more than 90% occur in a fallopian tube. As the pregnancy grows, it can cause the tube to rupture. A rupture can cause major internal bleeding. **Objectives:** to determine the incidence, clinical features, risk factors, treatment and outcomes associated with ectopic pregnancy in a tertiary level teaching hospital. **Methods:** The data was collected from the medical records section of the hospital. There were 162 cases of ectopic pregnancy diagnosed and treated in the hospital in the study period. **Results:** 40 patients with history of previous miscarriage had ectopic pregnancies (24.69%). Past history of undergoing lower segment caesarean section was observed in 35 patients (21.60%). Eight (4.9%) out of 162 patients had prior history of ectopic pregnancy. Prior history of tubectomy was seen in 21 (12.9%) patients. The triad of symptoms i.e. amenorrhoea, pain abdomen and per vaginal bleeding was found in only 53 patients (32.7%). The most common site of ectopic pregnancy was ampullary 110 (67.9%) followed by isthmic in 33 (20.3). Other rare sites of ectopic pregnancy noted in our study were 3 (1.8%) cases of caesarean scar pregnancy, one (0.6%) case of cervical pregnancy and 3 (1.8%) cases of ovarian pregnancies. 142 patients (87.65%) were primarily treated with various surgical procedures. Of these, 80 patients (49.38%) were treated with various open procedures, and 62 patients (38.2%) were treated with laparoscopic procedures. Of the 20 patients (12.34%) treated medically, 10 patients (6.17%) failed to respond to the treatment and had to undergo surgical procedure later. Anaemia was the most common complication and was seen in 57 patients (35.1%). **Conclusion:** Prevention of ectopic pregnancy is difficult because only few of the risk factors are modifiable. Tubal pathology carries the highest risks and pelvic inflammatory diseases plays a major role in tubal adhesions and obstruction. Physicians and patients awareness about the possibility and risk of extra and intra uterine gestation following all methods of sterilization is necessary.

**Keywords:** ectopic pregnancy, caesarean, fallopian tube, tubectomy, adhesions

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**Introduction**

Ectopic pregnancy is the most common acute emergency attended by the gynecologists in day to day practice, the incidence being 1% to 2% [1]. The incidence has been increasing for the past few years and currently, it is about two to three times higher than what it was 20 or 25 years ago [2].

Ectopic pregnancy has always challenged the ingenuity of the obstetrician by its bizarre clinical picture. The condition can mimic practically each and every gynecological condition as well as many surgical emergencies. It may also lead to maternal morbidity and mortality if not attended timely.

Blood loss is the major cause (about 85%) of death in ectopic pregnancies, apart from infections and anesthetic complications. Misdiagnosis leading to delayed treatment contributed to about half of deaths [2].

The increase in incidence of ectopic pregnancy in the past few decades is thought to be due to two factors: -1) Increased incidence of salpingitis usually due to a sexually transmitted disease (STD), such as Chlamydia or gonorrhoea, and 2) Improved ability to detect ectopic pregnancy. A woman with two prior ectopic pregnancies has a 10 to 16 fold increase chance of another [3].

An accurate history and physical examination and its correlation to the modern diagnostic technology are important in the diagnosis. To diagnose ectopic pregnancy we must be "ectopic minded". Despite rising incidence, the related morbidity and mortality is declining in the developed countries due to well organized health – care delivery system, due to early recognition and treatment. The contribution of ectopic pregnancy to maternal mortality in India is not precisely known, with data from few studies indicating 3.5 to 7.1 % [4].

We conducted this retrospective study of ectopic pregnancy in our hospital to evaluate the risk factors and to study the varying clinical presentations.

Hence the objective of this retrospective study was to determine the incidence, clinical features, risk factors, treatment and outcomes associated with ectopic pregnancy in a tertiary level teaching hospital.

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### Material and Methods

A retrospective observational study was conducted at Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital, Dharwad, Karnataka India, after obtaining permission from institute's ethical committee.

### Inclusion criteria

All women diagnosed to have ectopic pregnancy in reproductive age group of 15 to 44 years, by clinical examination and ultrasonography, and have undergone appropriate treatment in the our institution, were included in the study. All cases of ectopic pregnancies which presented to our institution between June 2014 and June 2019, which satisfied the inclusion criteria, were included in the study.

The data was collected from the medical records section of the hospital. There were 162 cases of ectopic pregnancy diagnosed and treated in the hospital in the study period. All the data regarding clinical history, risk factors, findings of general physical examination, systemic examination and bimanual examination findings were collected. Serum beta HCG levels and Ultrasound findings of all the patients were also collected. The details of the non-operative treatment, the surgical procedures which the patient underwent and the intra operative findings were collected. Clinical notes of the postoperative period and outpatient follow-up notes were also assessed to see for any complications.

### Results

The total number of deliveries at Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital during the study period was 22,737. Of these, the total number of ectopic pregnancies was 162. Hence, incidence is 7 per 1000 deliveries.

### Patient Demography

The maximum number of ectopic pregnancies occurred between the age group of 26 years to 30 years (39.5%). The youngest patient was 19 years old and oldest was 42 years of age. Highest incidence found in multiparous (75%) patients.

### Risk factors

40 patients with history of previous miscarriage had ectopic pregnancies (24.69%). Past history of undergoing lower segment caesarean section was observed in 35 patients (21.60%). Eight (4.9%) out of 162 patients had prior history of ectopic pregnancy. Prior history of tubectomy was seen in 21 (12.9%) patients.

### Presenting complaints

The most common presenting complaint was amenorrhoea which was seen in 132 patients (81.48%). The other common symptoms were pain abdomen in 116 patients (71.6%) and bleeding per vagina in 98 patients (60.49%). 31 patients (19.3%) presented with syncopal attacks, and 15 patients (9.3%) were brought to hospital in a state of hypovolemic shock. The triad of symptoms i.e. amenorrhoea, pain abdomen and per vaginal bleeding was found in only 53 patients (32.7%).

### Investigation findings

Urine pregnancy test was positive in 161 patients. All patients underwent ultrasonography of the abdomen and pelvis. The scans were done by the experienced obstetric faculties of our institution. Ruptured ectopic pregnancy was found in 74 (45.6%) of patients. The most common site of ectopic pregnancy was ampullary 110 (67.9%) followed by isthmic in 33 (20.3%) and fimbrial 9 patients (5.5%). Other rare sites of ectopic pregnancy noted in our study were 3 (1.8%) cases of caesarean scar pregnancy, one (0.6%) case of cervical pregnancy and 3 (1.8%) cases of ovarian pregnancies. Ectopic pregnancy was common on right side in our study. Chronic ectopic pregnancy was noted in 11 cases (6.7%).

### Treatment

Surgical method was the most common modality of treatment. 142 patients (87.65%) were primarily treated with various surgical procedures. Of these, 80 patients (49.38%) were treated with various open procedures, and 62 patients (38.2%) were treated with laparoscopic procedures. Of the 20 patients (12.34%) treated medically, 10 patients (6.17%) failed to respond to the treatment and had to undergo surgical procedure later. Blood transfusion was done in 24.07% of patients.

Out of 3 caesarean scar pregnancy two treated with medical management, one with locally administered potassium chloride injection into the sac under ultrasound guidance. All 3 cases of ovarian ectopic pregnancies were treated surgically.

### Post-operative complications

Anaemia was the most common complication and was seen in 57 patients (35.1%). The other complications were urinary tract infection in 25 patients (15.4%), fever in 20 patients (12.3%), and infection in 8 patients (4.9%). No mortality was noted in our study.

**Table 1: Age wise distribution of cases**

Age	Numbers of cases	Percentage
15-20	08	4.9%
21-25	34	20.98%
26-30	64	39.5%
31-35	39	24.07%
36-40	15	9.2%
>41	02	1.2%

**Table 2: Risk factors wise distribution of cases**

Risk actors	Numbers of cases	Percentage
TUBECTOMY	21	12.9%
PID	13	8.0%
INFERTILITY	22	13.5%
H/O ECTOPIC	8	4.9%
IUCD	8	4.9%
WDPV	31	19.1%
H/O Abortion	40	24.69%
H/O LSCS	35	21.60%

**Table 3: Mode of presentation distribution of cases**

Mode of presentation	Numbers of cases	Percentage
AMENORRHOEA	132	81.48%
BLEEDING PER VAGINA	98	60.49%
PAIN ABDOMEN	116	71.6%

SYNCOPE ATTACKS	31	19.1%
Shock	15	9.25%

**Table 4: Site of ectopic pregnancy**

Site of ectopic pregnancy	Numbers of cases	Percentage
AMPULLA	110	67.9%
ISTHMI	33	20.3%
FIMBRIA	9	5.5%
CORNUAL	3	1.85%
OVARY	3	1.85%
CERVICAL	1	0.6%
CAESAREAN SCAR	3	1.8%

**Table 5: Procedure wise distribution of cases**

Procedure	Number of cases	Percentage
Unilateral salpingectomy (open)	31	19.1%
Bilateral salpingectomy (open)	18	11.1%
U/L salpingo-oophorectomy	1	0.6%
Salpingectomy with contra lateral tubal ligation	20	12.3%
Open salpingostomy	4	2.4%
Laparoscopic unilateral salpingectomy	44	27.1%
Laparoscopic salpingostomy	2	1.2%
Laparoscopic bilateral salpingectomy	15	9.25%
Laparoscopic ovariectomy	1	0.6%
Dilatation and curettage		
Segmental isthmus resection	1	0.6%
Medical management	20	12.3%
Cornual excision	3	1.8%
hysterectomy	1	0.6%
D&C	1	0.6%

**Table 6: Post operative morbidity**

Post-operative morbidity	Number of cases	Percentage
Anemia	57	35.1%
Fever	20	12.3%
Sepsis	8	4.9%
Urinary tract infection	25	15.4%

## Discussion

Ectopic pregnancy is implantation of fertilized oocyte outside the normal uterine cavity. The commonest site of ectopic pregnancy is the fallopian tube (97%). Other sites include cornual (2%), abdominal (1.4%) and ovarian/cervical pregnancy (0.2 %). Despite significant reduction in the mortality rates, ectopic pregnancy continues to be the leading cause of maternal deaths in first trimester. Ruptured ectopic pregnancy accounts for 3.5% to 7.1% of all maternal deaths in India [4]. The incidence of ectopic pregnancy in our study was 7 per 1000 deliveries. The key to successful management is having high index of suspicion, identifying risk factors early and prompt diagnosis using serum beta HCG and Transvaginal ultrasound and appropriate management.

The classical triad of ectopic pregnancy as described pain, amenorrhoea and bleeding was found only in 53 (32.7%) of patients in our study. A study by Jani R et al, where 50 cases of tubal ectopic pregnancy was carried out in Ahmedabad the classic triad was found in only 28% of cases [5]. In our study, amenorrhoea was noted in 81% of cases.

In our study the incidence of ectopic pregnancy was higher in women having at least one child (75%) and those with previous miscarriage (24.69%). In our study 63.6% of women had risk factors for having ectopic pregnancy. 21.60% of women had past history of lower segment caesarean section. Recurrence of ectopic pregnancy was noted in 4.9%. A study by S Tahmina et al where they critically analyzed 72 ectopic pregnancies found that 66.7% had at least one causative risk factor [4].

In our study 12.9% had prior history of pelvic surgery that is tubectomy, history of Caesarean section was observed in 21.60% and

24.69% of women had history of prior miscarriages. Similar correlation was observed in study conducted by S Tahmina et al where 33.6% had prior history of caesarean section and 36% had prior history of miscarriages. A study by Singh et al in Karnataka where 25 cases of ectopic pregnancies were analyzed. They found tubal surgery was the commonest risk factor accounting to 40% [1]. A study by J P Shah et al where they reported 13 cases of ectopic pregnancy following tubal ligation out of 287 ectopic pregnancies. They also suggested caution and meticulous techniques to avoid failure. Physicians and patients awareness about the possibility and risk of extra and intra uterine gestation following all methods of sterilization is necessary.

A study conducted in a tertiary care centre at Mumbai by Deepali Kharat et al on 192 cases of ectopic pregnancy found higher incidence of ectopic pregnancy among those with history of pelvic inflammatory disease (13.9%) [7]. In our study the incidence was 8%. Similar retrospective study conducted in Rajasthan by Ritu Gupta et al observed that 47.5% had past history of pelvic inflammatory disease.

The commonest site of ectopic pregnancy in our study was ampullary portion of the tube (67.9%) followed by isthmus (20.3%). A study conducted by Priti S Vyas study conducted at Mumbai found higher incidence of ampullary ectopic pregnancy 42.5% and isthmus in 22.4% [8].

The commonest surgical procedure performed in our study was unilateral salpingectomy (27.1%). With the wide availability of laparoscopy the management of ectopic pregnancies has improved drastically. Laparoscopy allows for a shorter hospital stay and early recovery as well as decreases the risk of adhesion formation.

During our study period we diagnosed 3 cases of ovarian ectopic pregnancies, which were managed surgically. The incidence in our study was 1.8%. Ovarian pregnancy is the other rare form of ectopic pregnancy, which ends with the rupture before the first trimester. One of the important risk factor for ovarian pregnancy is the use of intrauterine contraceptive devices[9]. However in our study there was no history of usage of intra uterine contraceptive device. With increasing trend in caesarean sections the number of caesarean scar pregnancies is also on the rise. Scar ectopic pregnancy is the rarest form of ectopic pregnancy and has been increasingly diagnosed all over the world. This is life threatening form of abnormal implantation of embryo within the myometrium and fibrous tissues in a previous scar on the uterus, especially following caesarean section. The early and accurate diagnosis with timely management can prevent pregnancy complications such as haemorrhage, uterine rupture, and can preserve fertility[10]. The incidence of scar ectopic pregnancy being 1 in 2000 pregnancies[11]. During our study period we were observed 3 cases of caesarean scar pregnancy (1.8%). In our study there were no cases of sepsis, burst abdomen as well as maternal mortality. This shows that with wide availability of ultrasound many cases are getting diagnosed before the rupture as well as early and prompt referral to tertiary care centres and timely management at these centres is helping in this aspect.

#### Conclusion

Prevention of ectopic pregnancy is difficult because only few of the risk factors are modifiable. Tubal pathology carries the highest risks and pelvic inflammatory diseases plays a major role in tubal adhesions and obstruction. Chlamydial infections constitute nearly half of PID cases. In our study we found slightly increased incidence of ectopic pregnancy in parous women and in those with previous miscarriage and tubectomy. The pathology may be tubal damage which increases the risk. Thus efforts should be made to screen high risk asymptomatic women for pelvic inflammatory diseases as well to be vigilant in people with prior history of any pelvic surgery.

With the increasing use of ultrasound in first trimester many of the ectopic pregnancies are getting diagnosed before the rupture. Hence many a times we can offer medical management, especially in patients desirous of future child bearing.

**Conflict of Interest: Nil Source of support: Nil**

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