

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20184489>

Original Research Article

## A clinical study of ectopic pregnancy in a tertiary care hospital

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**Received:** 20 August 2018

**Accepted:** 27 September 2018

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### ABSTRACT

**Background:** Ectopic pregnancy is a life-threatening emergency commonly encountered by medical practitioner. Diagnosis is frequently missed and should be considered in any women in the reproductive age group with abdominal pain or vaginal bleeding. The aim of the study is to assess the incidence, clinical presentation, risk factors, methods of diagnosis, treatment, outcome and complications.

**Methods:** This was a prospective study at S.C.B. Medical college from January to December 2017. Parameters like age, parity, gestational period, risk factors, clinical presentations, findings on ultrasonogram and at surgery with morbidities associated with diagnosed cases of ectopic pregnancy (n=93) were noted and analysed with SPSS-19 software.

**Results:** Incidence of ectopic pregnancy was 18/1000 deliveries. Maximum cases were in age group of 21 to 30 years (54.8 %) and parous (76.3%). Common risk factors were having history of abortions (46.2%), previous tubal sterilization (24.7%), having one or more caesarean section (17.2%) and h/o infertility (16.1%). Most common symptom was pain abdomen (96.8%). Commonest site was ampullo-isthmic region of tube and rupture was the commonest mode of presentation. All underwent laparotomy and unilateral salpingectomy was done in 86 % of cases. It contributed to 3.27 % of total maternal deaths.

**Conclusions:** Suspicion in high risk group can direct one to investigate and diagnose early, thereby reducing morbidity, mortality and improving the prospect of future fertility.

**Keywords:** Ampullo-isthmic region, Ectopic pregnancy, Laparotomy, Tubal sterilization, Unilateral salpingectomy

### INTRODUCTION

An ectopic pregnancy occurs when a fertilised ovum implants outside the normal uterine cavity.<sup>1</sup> It is one of the common causes of maternal morbidity and mortality in first trimester of pregnancy.<sup>2</sup> The incidence of ectopic pregnancy has been increasing over past 3 decades. Worldwide ectopic pregnancy complicates 1 to 2.0% of all pregnancies.<sup>3</sup>

Risk factors for ectopic pregnancies are previous ectopic pregnancy, PID, infertility, previous tubal and abdominal surgeries. Additionally, ectopic pregnancy risk is increased following failure of contraception in the current

cycle. In vitro fertilisation and embryo transfer also increase the risk of ectopic pregnancy in tubal factor infertility.<sup>4</sup> Knowledge of risk factors helps to anticipate the condition in high risk category and early diagnosis prior to any emergent situation.

The classic symptom triad of ectopic pregnancy is pain abdomen, amenorrhea, and vaginal bleeding.<sup>5</sup> Sensitive pregnancy testing, transvaginal ultrasonography and diagnostic laparoscopy have a major impact on early diagnosis of this condition. The hCG enzyme immunoassay, with a sensitivity of 25 mIU/mL, is an accurate screening test for detection of ectopic pregnancy which allows the diagnosis of pregnancy before direct

visualization by ultrasonography. The assay is positive in virtually all documented ectopic pregnancies. Evidence of an empty uterus, detection of adnexal masses and free peritoneal fluid, and adnexal ring are ultrasonographic signs of ectopic pregnancy.<sup>6</sup> Current trend is a conservative way of management of these pregnancies by chemotherapeutic agents or conservative surgical approaches.<sup>7,8</sup>

This study was undertaken at a tertiary teaching hospital to find out incidence, risk factors, presenting symptoms and management standards of ectopic pregnancy.

**METHODS**

This was a prospective study conducted in SCB Medical college O and G Department from January 2017 to December 2017. Out of 187 diagnosed cases of ectopic pregnancy 93 were selected at random. Patients presenting with pain abdomen, amenorrhea, vaginal bleeding were included in this study. Then culdocentesis and urine pregnancy test were carried out in hemodynamically unstable patients and those who were stable USG was done. Subsequently emergency laparotomy was done in hemodynamically unstable patients with provisional diagnosis of ruptured ectopic pregnancy. Only the cases of ectopic pregnancy confirmed by laparotomy were included in this study.

Patient characteristics like age, parity and risk factors for EP were noted. Mode of diagnosis, management modality, complications and need for blood transfusion were also recorded. The primary outcome measures studied were incidence of EP, their risk factors, mortality and morbidity in these women.

**Statistical analysis**

Data was entered in MS excel spreadsheet and analysed using SPSS software version 19.0. For categorical variables, data was compiled as frequency and percent. For continuous variables, data was calculated as mean±SD.

**RESULTS**

Total number of deliveries during present study period was 10071 and number of ectopic pregnancies was 187. Incidence of ectopic pregnancies during this period was 18 /1000 deliveries.

**Table 1: Age distribution.**

Age group (in years)	N (93)	%
18-20	04	4.3
21-30	51	54.8
31-40	35	37.6
>40	03	3.3

Table 1 shows that the incidence of ectopic pregnancy is higher in 21 to 30 years of age. Youngest age was 18 years and highest age limit was 42 years. Highest incidence in the age group of 21 to 30 years denotes the peak of the fertile period after marriageable age.

**Table 2: Parity.**

Parity	N (93)	%
Nulliparous	22	23.7
1	26	27.9
2	37	39.8
≥3	08	08.6

Table 2 shows that a major group of cases were of second parity (39.8%). Nulliparous women constitute 23.7 % of cases and 76.3 % were parous women. Adoption of contraceptive measures like IUCD, progesterone only pills, permanent tubal sterilisation might be contributing towards the higher incidence in parous women than nulliparous. On the other way round, those who were not using any type of contraception might be adopting unwanted pregnancy termination and subsequently developing subclinical pelvic inflammation which is a casual factor for tubal ectopic pregnancy.

**Table 3: Risk factors.**

Risk factors	N (93)	%
PID	05	05.3
Sterilisation (tubectomy)	23	24.7
H/O infertility	15	16.1
H/O abortion	43	46.2
Current contraception	03	03.2
CS	16	17.2
H/O ectopic pregnancy	04	04.3
Other abdominopelvic surgery	02	02.1

\*some had more than one risk factors.

Table 3 shows risk factors of ectopic pregnancy. In this study history of (h/o) previous abortion was found in 46.2% of cases. Out of 43 women having h/o abortion, 27 (62.7%) had induced it medically or surgically and 16 (37.3%) had spontaneous abortion. In the group of women having h/o induced abortion 12 had induced it for ≥2 times. Next common risk factors in the line were previous tubal sterilisation (24.7%), having caesarean section ≥1 time (17.2 %) and having h/o infertility (16.1%). History suggestive of PID was taken when all the three symptoms i.e., abdominal pain, fever, vaginal discharge were present. Only 5.3 % of women had PID according to this criteria.

**Table 4: Type of ectopic pregnancy.**

Type	N (93)	%
Chronic	15	16.1
Acute	78	83.9

Table 4 shows most of the cases presented as acute ectopic pregnancy 83.9% and 16.1% cases presented as chronic ectopic pregnancy. No unruptured ectopic pregnancy was there in the study period. Being a tertiary care center the acute cases with haemodynamic instability might have been referred from lower centers for better care.

**Table 5: Clinical presentation.**

Clinical presentation	N (93)	%
Amenorrhea	63	68.8
Pain abdomen	90	96.8
Bleeding P/V	29	31.2
Vomiting	25	26.9
Syncope	15	16.1
Shock	20	21.5
UPT positive	74	79.5
USG	32	34.4

Table 5 shows majority of women presented with pain abdomen (96.8%), amenorrhea (68.8%), bleeding p/v (31.2%). Many presented with vomiting (26.9%), syncopal attack (16.1%) and shock 21.5%. Urine pregnancy test (UPT) was positive in 69.9% cases. Therefore 31.2% of patients presented before the missed period. Pallor was a significant finding in 64.5 % of cases who required blood transfusion.

**Table 6: Site of ectopic pregnancy.**

Site of ectopic pregnancy	N (93)	%	
<b>Tube</b>			
Side	Right	47	50.5
	Left	41	44.1
Site	Ampulla	48	51.6
	Isthmus	15	16.1
	Interstitial	-	-
	cornual	06	6.5
Ovary	03	3.2	

Table 6 shows that right side tubal pregnancy is more common than left side. Most common site of ectopic pregnancy was in ampulla of fallopian tube 51.6%. Isthmic tubal pregnancy was seen in 16.1% and 6.5% cases had cornual pregnancy. Only 3.2 % had ovarian pregnancy.

**Table 7: Distribution according to different morbidities.**

Morbidities	N (93)	%
Shock	20	21.5
GA	28	30.1
BT	60	64.5
ICU admission	-	-

Table 7 shows blood transfusion was required in 60 (64.5%) cases. 20 (21.5%) women presented with shock. Total number of maternal deaths were 122 and 4 deaths

were caused due to ectopic pregnancy. So maternal mortality rate due to ectopic pregnancy was 3.27%.

**Table 8: Distribution according to modality of treatment.**

Treatment	N (93)	%	
Salpingectomy	U/L	77	82.8
	B/L	13	14.0
Salpinge-oophorectomy	2	2.1	
Oophorectomy	1	1.07	

Table 8 shows all patients underwent laparotomy. One had oophorectomy for ovarian pregnancy and two had salpingeooophorectomy for ovarian pregnancy along with adnexal adhesion. All but 2 of the cases treated with B/L salpingectomy had previous tubal sterilisation.

**DISCUSSION**

Incidence of ectopic study in present study is 18/1000 deliveries. In Saudi Arabia the frequency of ectopic pregnancy was 0.58% of deliveries.<sup>9</sup> The incidence of 1.1% of deliveries in a Nigerian study.<sup>10</sup> Frequency of ectopic pregnancy in Pakistan was 1.3% of total 3252 pregnancies.<sup>11</sup> The incidence of ectopic pregnancies of 7.4/1000 deliveries in Bangladesh.<sup>12</sup> In a study by Sethy S, incidence of ectopic pregnancy was 5.6/1000 deliveries in india.<sup>13</sup> In a study conducted by Gaddagi R and Chandrashekhar AP, the incidence was 1:399 pregnancies.<sup>14</sup> In Porwal S et al study, the incidence was 2.46 per thousand of deliveries.<sup>15</sup> The incidence of EP was 0.91% in a study by tahmina.<sup>16</sup> The increase in incidence is associated with rise in the incidence of sexually transmitted infections (STIs) and salpingitis, advances in assisted reproductive technology, tubal surgeries, female contraception and earlier diagnosis with more sensitive methods.

EP accounts for 3.5-7.1% of maternal mortality in India.<sup>17,18</sup> Maternal mortality in present study is 3.27%. More cases were seen between age group 21-30 years (54.8%) in present study which is similar to other studies conducted by Tuli AG et al, Spandana N et al.<sup>19,20</sup>

The most important cause of ectopic pregnancy is damage to the tubal mucosa may be due to infections, which could obstruct embryo transport due to scarring. In present study 46.2% had previous H/O abortions. In a study by Tuli AG et al, it was 28.5%.<sup>19</sup> In Asuri et al study PID accounts for 25.6% of ectopic pregnancy.<sup>21</sup> In Tahmina et al 15.3% and Porwal S et al it is 15.3% and 47.5% respectively.<sup>15,16</sup>

In present study H/O infertility was found in 16.1% which is comparable to other studies like 12.9% in Tuli AG et al study.<sup>19</sup> In present study 4% cases had previous H/O previous ectopic pregnancy. Shaista et al found an increased incidence of ectopic pregnancies (9%) in women with previous history of ectopic pregnancy.<sup>9</sup> In

AG Tuli et al, Asuri et al and N Spandana, it is 9%, 6.4%, 10% respectively.<sup>19-21</sup>

In the present study abdominal pain and amenorrhoea were present in 96.8% and 68.8% of cases respectively. Gaddagi et al observed that 89.2% presented with pain abdomen, 75.7 % with amenorrhoea and 43.2 % with spotting per vaginum. In present study all cases were managed surgically, and a salpingectomy was performed by laparotomy as present hospital is a tertiary level hospital and all patients referred were hemodynamically unstable. Most studies reported a similarly high rate of surgical management.<sup>14, 20, 21</sup>

## CONCLUSION

All patients in present study presented late following rupture or tubal abortion. so all patients underwent laparotomy and total salpingectomy. Hence there is a need of education and awareness creation among women of reproductive age regarding risk factors and early warning symptoms of ectopic pregnancy. High degree of suspicion on basis of risk factors at primary level of health care delivery system and early diagnosis with essential aids like transvaginal ultrasound and serial  $\beta$  hCG estimation, timely intervention in the form of medical and surgical treatment will help in reducing the morbidities like blood transfusion, exposure to general anaesthesia, laparotomy, consequences on future fertility and mortality associated with ectopic pregnancy and to improve the future reproductive outcome.

*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:** Behera A, Ghadei R, Bal RN. A clinical study of ectopic pregnancy in a tertiary care hospital. *Int J Reprod Contracept Obstet Gynecol* 2018;7:4461-4.