

## ORIGINAL RESEARCH

# A Retrospective Teaching Hospital Based Study Of Clinical Profile Of Patients Presenting With Ectopic Pregnancy

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Received date: 23 January, 2023

Acceptance date: 12 February, 2023

### Abstract

Ectopic pregnancy is a global problem and is the most common life-threatening emergency in early pregnancy and its incidence is increasing especially due to various risk factors varying according to geography, literacy, religion, contraception practises and so on.

**Materials and methods:** This retrospective observational study was conducted in the Dept of OBG of a tertiary care centre of North India over a period of period of 2 years in 170 patients presenting with signs and symptoms of ecopic pregnancy. The data was compiled by using a predesigned structured proforma *and* retrieved data was tabulated and statistical differences in the distribution were tested using parametric and nonparametric statistical tests. All observations were discussed and compared with recent literature and final conclusions were derived.

**Results:** In this study, the maternal age ranged from 18 to 45 yrs with maximum incidence found in the age group 21-30 years. Nulliparous females along with second gravida (21-25 yrs and third gravidas(26-30yrs) constituted the majority of patients. About 3/4<sup>th</sup> of the patients belonged to the poor socioeconomic status More than 85% patients were found to have positive urine pregnancy tests. The most significant factors found to be associated with ectopic pregnancy were age >35yrs, history of PID/previous abortion/previous abdomino-pelvic surgeries followed by use of ovulation induction drugs, OCP /IUD use. The most common presenting symptoms of the patients were abdominal pain, bleeding per vaginum with history of amenorrhea with more than half of them eliciting pallor and few of them presenting with fever and features of hypovolemic shock. The most common surgeries performed in the present study were salpingectomy (unilateral/bilateral) with or without oophorectomy with more than half of the cases having manifestations of ruptured ectopic pregnancy with hemoperitoneum more than 500ml. Fortunately there was no mortality found in our study

**Conclusion** Ectopic pregnancy is a clinical condition which usually presents as a surgical catastrophe and very difficult to be differentiated from other surgical emergencies. A high index of suspicion along with screening of high risk cases and early referral from periphery can go a long way in reducing the morbidity and mortality.

**Keywords:** Ectopic Pregnancy, IUCD

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### Introduction

Ectopic pregnancy is a global problem and is the most common life-threatening emergency in early pregnancy leading to significant morbidity and fetal loss<sup>1</sup>. The rate of ectopic pregnancies has increased from 0.5% to 8% but there has been a decrease in maternal mortality during the past two decades<sup>1</sup>. Physicians should be sensitive to the fact that in the reproductive age group, any women presenting with pain in the lower abdomen, diagnosis of ectopic pregnancy should be entertained irrespective of the presence or absence of amenorrhoea, whether or not she has undergone sterilization. Diagnosis of ectopic pregnancy is frequently missed and rising trend in incidence of ectopic pregnancies necessitate

awareness about risk factors, resultant morbidity and mortality. Early diagnosis reduces the risk of tubal rupture and allows more conservative medical treatments to be employed<sup>3</sup>. This study was conducted in a tertiary care centre in India emphasizing the need of knowledge of the risk factors and clinical presentations of ectopic pregnancy in order to facilitate early and more accurate diagnosis and to decrease maternal mortality and morbidity and to substantiate the existing literature

### Methodology

This retrospective observational study was conducted in the Dept of OBG of a tertiary care centre of North India over a period of period of 2

years in 170 patients with signs and symptoms of ectopic pregnancy who fulfilled the inclusion criteria.

#### Inclusion criteria

- All the patients admitted with a diagnosis of ectopic pregnancy, either ruptured or unruptured.

#### Exclusion Criteria

- Patients diagnosed as having intrauterine pregnancy
- Patients with incomplete case records
- Patients who left against medical advise

The sampling method used was universal purposive sampling. The data was compiled by using a predesigned structured proforma including various variables like demographic data, maternal characteristics, present and past obstetrics history ,relevant points in history like history of PID (no. Of episodes), surgical history like tubal reconstructive surgery,previous ectopic pregnancy, infertility treatment,contraception practices, various clinical presentations haematological and radiological investigations ,modes of treatment and surgical details if patient underwent surgery. All the authors and co-authors were involved in the retrieval,

collection ,compilation , data analysis and final report making. The data was entered and analyzed using the statistical package for social sciences (SPSS Inc, Chicago, IL, USA), reference version. Detailed analysis and comparisons were done using simple descriptive statistics and presented as percentages in tables. Based on the normalcy of the data, the data was analysed using parametric and nonparametric statistical tests. Qualitative variables were represented using frequency(absolute/relative) and percentages. For quantitative variables such as age and duration of trauma, the data were represented using mean  $\pm$  standard deviation and range .Retrieved data was tabulated and statistical differences in the distribution was tested. P value<.05 and <.01 was considered significant and highly significant respectively..All observations were discussed and compared with recent literature and final conclusions were derived.

#### Results

**In this study,** The maternal age was from 18 to 45 yrs with the maximum incidence being found in the age group 21-30 years. The chi-square statistic was 71.3 and p value was 0.372144( Result is not significant at  $p < 0.05$ )

Age group(years)	Number of cases (%)
<20	22(12.9%)
21-25	69(40.6%)
26-30	41(24.2%)
31-35	13(7.6%)
>35	25(14.7%)
Total	170(100%)

**Table 1: Ectopic pregnancy in relation to age**

In the present study ,nulliparous females along with second gravida (21-25 yrs and third gravidas(26-30yrs) constituted the majority of patients. The chi-square statistic was 131.02 and p value was <001.( Result is significant at  $p < 0.05$ )

Age group (yrs)	PARITY				
	Nulliparous	1	2	3	4
15-20	12 (7%)	4(2.3%)	-	-	-
21-25	24(14%)	15 (8.6%)	33 (19.4%)	-	-
26-30	-	9(5.3%)	8(4.7%)	29 (17.1%)	5(2.9%)
31-35	-	-	7(4.1%)	7 (4.7%)	-
36-40	-	-	-	8(4.8%)	9(5.3%)
Total	36 (21%)	28(16.2%)	48(28.1%)	44 (26.6%)	14(8.1%)

**Table 2: Correlation of the sample by age and parity**

SES categories	No. Of cases	Percentage
Low	121	71.2
Medium	32	18.8
High	17	10
Total	170	100.0

**Table 3: Distribution of the cases by Socio-economic status**

In the study, about 3/4<sup>th</sup> of the patients belonged to the poor socioeconomic status .The chi-square statistic was 167.31 and p value was <001.( Result is significant at  $p < 0.05$ )

Interval	No. Of cases	Percentage
Nullipara	28	16.2
1-2 years	36	21
3-5 years	37	21.8
5 + years	69	41
Total	170	100.0

**Table 4: Table showing the interval between last pregnancy and ectopic pregnancy**

There was a linear correlation between the chance of ectopic pregnancy and time elapsed between last pregnancy and ectopic pregnancy with maximum incidence being found when the gap was more than 5 years. The chi-square statistic was 30.90 and p value was <0.01.

More than 85% patients were found to have positive urine pregnancy tests. (Table 5)

Urine Pregnancy test	Ruptured	Tubal abortion	Un-ruptured	misc	
Negative	9(5.2%)	3 (1.8%)	5(2.9%)	2(1.2%)	The chi-square statistic is 8.07 and p value is <0.001.
Positive	78 (45.9%)	23 (13.5%)	43 (25.3%)	7(4.1%)	The chi-square statistic is 99.305 and p value is <0.001.

**Table 5: Correlation of urine pregnancy test and peroperative condition of the tube**

In our study, the most significant factors found to be associated with ectopic pregnancy were age >35yrs, history of PID/previous abortion/previous abdomino-pelvic surgeries followed by use of ovulation induction drugs, OCP /IUD use. (TABLE-6,7,8) with respect to site of ectopic pregnancy and status of tubes at the time of surgery.

Risk factors	No. of cases	Percentage
Age>35 years	25	14.7
Tubal surgery/tubal ligation	10	5.9
PID	25	14.5
Previous abortion/MTP	23	13.5
Previous abdo-pelvic surgery/LSCS	23	13.5
Oral contraceptive pill use	15	8.6
Intrauterine device	16	9.3
Ovulation induction	19	11.8
Previous ectopic pregnancy	7	4.1
H/O tuberculosis	7	4.1

**Table 6: Table showing the Risk factors in ectopic pregnancy**

Risk factor	Ampullary	Isthmal	Interstitial	Others	The chi-square statistic	P Value
Age>35 years	22(12.9%)	1(0.6%)	1(0.6%)	1(0.6%)	70.56	<0.001.
Tubal surgery/tubal ligation	6 (3.5%)	1(0.6%)	2(1.2%)	1(0.6%)	9.067	<0.001.
PID	20(11.8%)	1(1.2%)	3(1.8%)	1(0.6%)	54.34	<0.001.
Previous abortion/MTP	16(9.4%)	3(1.8%)	2(1.2%)	2(1.2%)	32.64	<0.001.
Previous abdo-pelvic surgery/LSCS	17(10%)	2(1.2%)	3(1.8%)	1(0.6%)	39.54	<0.001.
Oral contraceptive pill use	11(7.2%)	2(1.2%)	1(0.6%)	1(0.6%)	25.155	<0.001.
Intrauterine device	10(6%)	2(2.4%)	3(1.8%)	1(0.6%)	16.667	<0.001.
Ovulation induction	11(7.8%)	3(1.8%)	3(1.8%)	2(1.2%)	16.889	<0.001.
Previous ectopic pregnancy	3(1.8%)	2(1.2%)	1(0.6%)	1(0.6%)	2.09	>0.05.
H/O tuberculosis	4(2.4%)	1(0.6%)	1(0.6%)	1(0.6%)	4.14	>0.05.

**Table 7: Distribution of the sample based on the site of ectopic pregnancy and risk factor**

Risk factor	Ruptured	Tubal abortion	Un-ruptured	misc	The Chi-Square Statistic	P Value
Age>35 years	14(8.4%)	4(2.3%)	6(3.6%)	1(0.6%)	19.78	0.000188
Tubal surgery/tubal ligation	5(3%)	1(0.6%)	3(1.8%)	1(0.6%)	5.887	>0.05
PID	16(9.6%)	2(1.2%)	7(4.1%)	1(0.6%)	28.9231	<0.001.
Previous abortion/MTP	12(7.2%)	3(1.8%)	7(4.1%)	1(0.6%)	16.40	<0.001.
Previous abdo-pelvic surgery/LSCS	10(6%)	5(3%)	7(4.1%)	1(0.6%)	10.248	<0.001.
Oral contraceptive pill use	8 (4.7%)	2(1.2%)	4(2.3%)	1(0.6%)	10.22	<0.001.
Intrauterine device	8 (4.7%)	3(1.8%)	4(2.3%)	1(0.6%)	8.67	<0.003.
Ovulation induction	9(5.4%)	4(2.3%)	5(3%)	1(0.6%)	9.83	0.0026
Previous ectopic pregnancy	2(1.2%)	1(0.6%)	3(1.8%)	1(0.6%)	2.095	0.553.
H/O tuberculosis	3(1.8%)	1(0.6%)	2(1.2%)	1(0.6%)	2.095	0.5528

Table 8: Distribution of the sample by Risk factors and condition of the tube

In the present study, the most common presenting symptoms of the patients were abdominal pain, bleeding per vaginum with history of amenorrhea with more than half of them eliciting pallor and few of them presenting with fever and features of hypovolemic shock. The distribution of the patients with respect to site of ectopic pregnancy and status of tubes at the time of surgery is given in (table 9,10)

Mode of presentation	Site				The Chi-Square Statistic	P-value
	Ampullary	Isthmal	Interstitial	Others		
Pain	68 (40.5%)	16 (9.6%)	3(1.8%)	4 (2.4%)	166.13	<0.001.
Bleeding per vaginum	72 (43.2%)	21(10.2%)	3(1.8%)	3(1.8%)	17.2	<0.001.
H/O amenorrhea	64 (38.1%)	8 (4.8%)	1(0.6%)	4 (2.4%)	186.65	<0.001.
Classic triad	24(14.4%)	4 (2.4%)	1(0.6%)	2(1.2%)	58.92	<0.001.
Pallor	89 (53.4%)	20 (12%)	4 (2.4%)	<b>6(3.6%)</b>	216.98	<0.001.
Shock	11 (6.6%)	1(0.6%)	1(0.6%)	<b>1(0.6%)</b>	28.5714	<0.001.
Fever	4 (2.4%)	<b>1(0.6%)</b>	1(0.6%)	<b>1(0.6%)</b>	5.143	<0.001.

Table 9: Distribution of the sample by Site of ectopic pregnancy and the mode of presentation

Mode of presentation	Ruptured	Tubal abortion	Un-ruptured	misc	The Chi-Square Statistic	P-value
Pain	55 (32.35%)	20(11.8%)	28 (16.5%)	5 (2.9%)	65.08	<0.001.
Bleeding per vaginum	59 (34.7%)	16 (9.4%)	37 (21.8%)	5 (2.9%)	77.892	<0.001.
H/O amenorrhea	37 (21.8%)	19 (11.2%)	30 (21.4%)	3(1.8%)	39.4757	<0.001.
Classic triad	16 (9.4%)	8(4.7%)	13(7.6%)	2(1.2%)	15.4188	<0.001.
Pallor	47 (27.7%)	17 (10.0%)	36 (21.2%)	6 (3.6%)	51.371	<0.001.
Shock	8(4.7%)	2(1.2%)	2(1.2%)	2(1.2%)	10.286	0.163
Fever	4 (2.4%)	4 (2.4%)	<b>3(1.8%)</b>	2(1.2%)	1.1282	>0.05

Table 10: Distribution of the sample by mode of presentation and the condition of the tube

In the present study, the most common clinical signs elicited in such patients were abdominal tenderness, distension and guarding. The distribution of the patients with respect to site of ectopic pregnancy and status of tubes at the time of surgery is given in (table 11,12)

Abdominal examination	Site of ectopic pregnancy				The Chi-Square Statistic	P-value
	Ampullary	Isthmal	Interstitial	Others		
Tenderness	89 (52.35%)	20 (11.7%)	3(1.8%)	4(2.4%)	96.65	<0.001.
Distension	17(10%)	5(2.9%)	1 (0.6%)	2(1.2%)	34.72	<0.001.
Guarding	29 (17.1%)	7(4.1%)	1(0.6%)	1(0.6%)	74.53	<0.001.

Table 11: Distribution of the sample by abdominal examination findings and the condition of the tube

Abdominal examination	Ruptured	Tubal abortion	Un- ruptured	misc	The Chi-Square Statistic	P -value
<b>Tenderness</b>	69 (40.6%)	21(12.35%)	37(21.8%)	7(4.1%)	84.81	<0.001.
<b>Distension</b>	22 (12.9%)	9 (5.3%)	9(5.3%)	2(1.2%)	26.54	<0.001.
<b>Guarding</b>	65 (38.3%)	17(10%)	27(15.9%)	6(3.5%)	91.49	<0.001.

**Table 12: Correlation of abdominal examination findings and the condition of the tube**

On per speculum and PV examinations, majority of the patients had bleeding with normal uterine size with half of the patients having cervical and forniceal tenderness with or without mass. (Table 12)

Physical examination findings	Present/absent	No. of cases (Percentage)
<b>Bleeding</b>	Absent	61(35.9%)
	Present	109(79.4%)
	<b>Total</b>	170(100%)
<b>Uterine size</b>	Normal	159(93.5%)
	Increased	11(6.5%)
	<b>Total</b>	170(100%)
<b>Cervical tenderness</b>	<b>Absent</b>	74(43.5%)
	<b>Present</b>	96(56.5%)
	<b>Total</b>	170(100%)
<b>Forniceal tenderness</b>	Absent	97(57%)
	Tenderness alone	19(11.2%)
	Tenderness with mass	54(31.8%)
	<b>Total</b>	170(100%)

**Table 13: Per speculum examination and PV findings**

The most common surgeries performed in the present surgery were salpingectomy (unilateral/bilateral) with or without oophorectomy with more than half of the cases having manifestations of ruptured ectopic pregnancy with hemoperitoneum more than 500ml. (Table 14)

Procedure	No. of cases	Percentage	The chi-square statistic is 37.583 and p value is <0.001.
Unilateral salpingectomy	121	71.2%	
Bilateral salpingectomy	19	11.2%	
Unilateral salpingo-oophorectomy	22	12.9%	
Salpingo-oophorectomy with contralateral tubectomy	8	4.7%	
Condition of the tube	No. of cases	Percentage	The chi-square statistic is 72.967 and p value is <0.001.
Ruptured	87	51.2%	
Un-ruptured	60	35.2%	
Tubal abortion	9	5.8%	
Hem peritoneum <500 ml	30	17.6%	
Hem peritoneum ≥500 ml	119	69.8%	

**Table 14: Condition of the fallopian tube on laparotomy**

In our study, more than 85% patients received more than 1 pint of blood transfusion with around 20% patients requiring ICU care. About 10-15% patients had wound complications and postoperative hospital stay of more than 7 days but fortunately there was no mortality found in our study. (Table 15)

Indicators	Number of cases	Percentage
Blood transfusion (≥1 pints)	147	86.5%
Post-operative hospital stay (>7 days)	26	15%
Post-operative wound complications	17	10
Require ICU admission	32	19.1
Require general anesthesia	82	48.1
Acute renal failure/MODS	00	00
Mortality	00	00

**Table 15: morbidity associated with ectopic pregnancy**

## Discussion

In this study, range of maternal age was from 18 to 45 yrs with maximum incidence in the age group 21-30 years (64.8%) which is comparable to study by Nitesh M<sup>4</sup>, et al (57.68%). In present study, average age of patients was  $29.1 \pm 5.42$ . with (16.1%) patients being primigravida and rest 40 (64.1%) were multigravida. Similar results were reported in the study carried out by Shaikh NB<sup>5</sup> et al (primi - 24.70% and multi - 70.30%). The incidence of nulliparous (21.1%) women having ectopic pregnancy was found to be similar compared to other studies such as those conducted by Priyadarshini B<sup>6</sup> et al (27%) UPT was done in 88.8% cases for confirmation which is comparable to study carried by Sivalingam VN<sup>7</sup>, et al (UPT - 87.1). In present study, H/O previous abortion/MTP found in 13.5% cases in contrast to study conducted by Shetty S,<sup>8</sup> et al. (32%). PID was found in 14% cases suggesting strong evidence that PID is responsible for the ectopic pregnancy but in the study done by Udigwe GO<sup>9</sup> et al, the incidence of PID as a risk factor was found to be 34.4% showing significant variability in incidence of PID. In present study, 9.3% cases were using an intrauterine device (IUD) as a method of contraception. Combining oral contraceptive pills and IUD, 17.9% cases had ectopic pregnancy which is comparable with Yakasai IA<sup>10</sup>, et al. (21.17%). Ovulation induction resulted in an incidence of ectopic pregnancy in around 11.8% cases comparable to results of the study conducted by Barnhart KT<sup>11</sup> et al (16.21%). History of past abdominal and pelvic surgeries including caesarean sections were responsible for 13.7% of ectopic pregnancies, a result similar to results reported by Rakhi, Mital PL,<sup>12</sup> et al. (17.05%). In present study, previous ectopic pregnancy was found in 4.1% with comparable results in study carried by Prasanna B,<sup>13</sup> et al. (4.95%) which is consistent with the hypothesis that patients with previous history of ectopic pregnancy have a high propensity for its recurrence. Tubal surgeries were carried out in 5.9% patients in present study which is much lower as compared to studies conducted by Saha PK<sup>14</sup>, et al. (40%). Most common presenting symptom was pain in abdomen which was seen in 63.7% cases followed by history of amenorrhea (56.4%), a finding similar to study conducted by Gaddagi RA<sup>15</sup> et al (pain = 80.6%, amenorrhea = 77.4%). Bleeding per vaginum was found in 68.8% cases which is similar to the study conducted by Singh S<sup>16</sup> et al. (64.36%). Classical triad of ectopic pregnancy was found in 53.84% cases, a finding comparable to the result reported by Asuri SS<sup>17</sup> et al. (60%). In the present study, the most common clinical signs elicited in such patients were abdominal tenderness, distension and guarding and 27 (8.4%) cases presented to the hospital in shock. On clinical examination, it was found that abdominal tenderness present in 78.8% cases which is consistent with a study carried out by Poonam<sup>18</sup> et al (70.3%). Abdominal distension was

found in 24.8% of patients. On abdominal palpation, abdominal mass was felt in 19.23% cases which is also seen in study carried out by Yadav A<sup>19</sup> et al (16.2%). On per speculum and PV examinations, majority of the patients had bleeding with normal uterine size with half of the patients having cervical and forniceal tenderness with or without mass. Cervical motion tenderness was elicited in 56.5% cases which is comparable with study conducted by Jurkovic D<sup>20</sup> et al (75.7%). Adnexal mass was found in 67.30% cases which is comparable with study done by Creanga A<sup>21</sup> et al (70.3%). The most common surgeries performed in the present study were salpingectomy (unilateral/bilateral) with or without oophorectomy with more than half of the cases having manifestations of ruptured ectopic pregnancy with hemoperitoneum more than 500ml. In the present study, salpingectomies were done in 84.4% cases which is similar to the incidence found in the study carried out by Kirk E<sup>22</sup> et al (89.10%).

Salphingo-oophorectomy needed to be done in 17.6% cases which is comparable to the results of the study by Divyesh P<sup>23</sup>, et al. (12.8%). Most of the patients had ruptured ectopic (51.2%) pregnancy which is consistent with studies from Wedderburn CJ<sup>24</sup>, et al. (58.9%). The incidence of unruptured ectopic was found to be 35.2%, an observation similar to the one found in the study carried out by (7.7%). 17.6% of cases had hemoperitoneum less than 500 ml and 69.8% cases had hemoperitoneum more than 500 ml similar to study carried out by Wakankar R<sup>25</sup>. et al. In our study, more than 85% patients received more than 1 pint of blood transfusion. About 10-15% patients had wound complications and postoperative hospital stay of more than 7 days but fortunately there was no mortality found in our study. 86.5% patients required blood transfusion in intra or post-operative period which is comparable to study carried by Khan B,<sup>26</sup> et al. (94.4%). Post-operative wound infection was found in 10% cases which is less compared to study by Ranji GG<sup>27</sup> et al. (25%).

15% patients were discharged after a  $\geq 7$  days stay. Fortunately, no mortality was reported in our study. About 19.1% cases required ICU care, an incidence similar to the one reported by Majhi AK<sup>28</sup>, et al.

**Funding:** No funding sources

**Conflict of interest:** None declared

## Conclusion

There has been a sharp increase in detection rates of ectopic pregnancies due to ready availability of hormonal tests, transvaginal sonography and laparoscopy but unfortunately most of the cases are operated as an emergency cases due to delay in diagnosis and late referral from periphery. Ectopic pregnancy should be suspected in a woman of reproductive age presenting with the triad of pain in abdomen, amenorrhea and vaginal bleed irrespective of the status of tubal ligation. An high index of

suspicion along with screening of high-risk cases, early diagnosis and intervention and timely referral from periphery can go a long way in reducing the morbidity and mortality in such cases.

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