

## Ectopic Pregnancy: A Paradigm Shift

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### How to cite this article:

Purnima Jyothi Kondapaneni, Raparla Sri Sruthi, Y Annapoorna/Ectopic Pregnancy: A Paradigm Shift/Indian Journal of Obstetrics and Gynecology 2021;9(3):31-40.

### Abstract

**Background:** Ectopic pregnancy is a catastrophic and life-threatening condition and one of the commonest acute abdominal emergencies in day to day practice. The objectives of this present study were to know the incidence of ectopic pregnancy at the tertiary care center, evaluate age group, parity, and risk factors of ectopic pregnancy, and analyse clinical presentation, outcome, management, and associated morbidity and mortality with ectopic pregnancy.

**Methods:** It was a retrospective study done at GSL Medical College and General Hospital, Rajahmundry from 1st August 2019 to 31st July 2020. A total of 58 patients with ectopic pregnancy were analysed on clinical presentation, clinical findings, investigations, operative findings and outcome.

**Results:** A majority of women were in the age group of 22-32 years and most of them were multigravida. Commonest risk factors were previous history of abortion, tubal ligation and pelvic inflammatory disease.

Amenorrhoea and pain abdomen were the most common presenting symptoms. Ampulla of the fallopian tube was the commonest site for ectopic pregnancy. There were no maternal deaths and majority were discharged within seven days without serious morbidity.

**Conclusion:** Ectopic pregnancy still remains one of the major causes of maternal morbidity and mortality. With the use of better diagnostic modalities, ectopic pregnancies can be detected early, and referral in hemodynamically stable condition along with use of minimal access surgery or medical management not only reduces maternal morbidity but also preserves future fertility

**Keywords:** Ectopic pregnancy; Laparoscopy; Salpingostomy; Salpingotomy.

## Introduction

Ectopic pregnancy, implantation of a fertilized ovum outside the endometrial cavity, continues to be a major cause of mortality and morbidity in reproductive-age women. If undiagnosed or untreated, ectopic pregnancy may result in rupture of the fallopian tube and massive intraperitoneal haemorrhage, accounting for about 9% of maternal pregnancy-related deaths in this country.<sup>1</sup>

## Incidence

The incidence of Ectopic pregnancy varies with the population, but it has been accounted for 1-2% of all reported pregnancies.<sup>2</sup> The prevalence of ectopic pregnancy appears to be rising, in part because of earlier, more accurate diagnosis of pregnancies. Moreover an increased incidence of sexually transmitted infections, earlier diagnosis of pelvic inflammatory disease (PID) resulting in tubal damage but not complete blockage, and the rise in the occurrence of ectopic pregnancies resulting from assisted reproductive technologies may account for the overall increase.<sup>3</sup>

The incidence of heterotopic pregnancy is now 1:4000 in the general population and 1:100 in in vitro fertilization (IVF) pregnancies much higher than the originally described prevalence of 1:30,000 in the late 1940s.<sup>4</sup> This phenomenon may be due to the increasing use of ovulation induction drugs that increase the chance of twinning and may also cause hormonal fluctuations affecting tubal motility and also due to the invasive nature of ART. In recent years, since the development of high-resolution ultrasonography and the availability of techniques for the rapid measurement of serum hCG concentrations has improved early detection of tubal pregnancy, ectopic pregnancy related deaths have decreased.<sup>5</sup>

## Risk Factors

There is a strong association between ectopic pregnancy and conditions that are thought to impede the migration of the fertilized ovum into the uterus. They include damage to the fallopian tube from prior pelvic inflammatory disease, history of ectopic pregnancy, and previous tubal surgery, including previous tubal ligation. This same pathophysiologic mechanism of altered tubal integrity may be the cause of an increased number of ectopic pregnancies seen in patients with infertility or previous pelvic surgery. Endometriosis and its treatment have also been correlated to the development of tubal pregnancy.<sup>6</sup> The formation of pelvic and tubal adhesions caused due to endometriosis could result in abnormal tubal

function.

Abdominal surgeries may lead to intra-abdominal infection and scarring, which can secondarily result in obstruction of the fallopian tubes and subsequent infertility.<sup>7</sup>

Women with an intrauterine device (IUD) in place and those who have undergone tubal ligation are more likely to get an ectopic pregnancy than an intrauterine pregnancy if conception occurs.<sup>8</sup>

Embryo factors, for example those found in abnormal gestations, may lead to erroneous implantation at an ectopic site. molecular level factors, based on the theory that alterations in the molecular dialog between the implanting blastocyst and the site of implantation may make ectopic pregnancy more likely.<sup>9</sup>

A knowledge of the associated risk factors helps identify women at higher risk in order to facilitate early and more accurate diagnosis.<sup>4</sup>

Site of ectopic Almost all EPs occur in the fallopian tube (98.0%), the ampulla is the most common site of implantation (80.0%), followed by the isthmus (12.0%), fimbria (5.0%), cornua (2.0%), and interstitial (2.0-3.0%).<sup>10,11</sup>

## Clinical presentation

Clinical presentation may vary from simple pain abdomen to shock. Examination to be done carefully with possibility of ectopic pregnancy.

In addition, bimanual examination to be done carefully and gently because manual pressure occasionally results in rupture of the fragile ectopic mass.<sup>12</sup>

When these signs are obvious and the woman has a tendency of hypotension and tachycardia, immediate fluid reinfusion should be done for maintaining a sufficient volume flow through the circulation and surgical management to arrest the haemorrhage.<sup>13</sup>

## Diagnosis

### Ultrasonography

If the gestational sac is not visible on TVS after 5 weeks of gestation, all other findings should be carefully evaluated when tubal pregnancy is suspected. The presence of echogenic fluid was found in 28-56 % of women with tubal pregnancy. The echogenic appearance shows the condition of tubal pregnancy and correlates well with the surgical findings of hemoperitoneum. Most common finding of adnexal ectopic mass is visible as an inhomogeneous or a non-cystic adnexal mass sometimes known as the blob sign in approximately 60 % of cases.<sup>14</sup>

### Human Chorionic Gonadotropin

Management of the case depends on the clinical presentation, site of the ectopic and need for future reproductive function. Management can be medical well as surgical. Laparoscopic surgery is currently the gold standard.<sup>15</sup> If diagnosed early, at a clinically stable condition, the patient with an ectopic pregnancy is a likely candidate for either minimally invasive surgery (MIS) or medical therapy, with the potential benefit of fallopian tube conservation. HCG is used to differentiate between adnexal mass and ectopic pregnancy.

Laparotomy is done only for patients unfit for General Anaesthesia.

### Materials and Methods

It was a retrospective study conducted at GSL Medical College and General Hospital, Rajahmundry from 1st August 2019 to 31st July 2020. A total of 58 patients with ectopic pregnancy were analysed on clinical presentation, clinical findings, investigations, operative findings and outcome.

A total of 58 cases reported during this time with ectopic pregnancy and were admitted at our hospital through emergency or outpatient department.

The diagnosis of ectopic pregnancy was made mainly with history-taking, clinical physical examination, laboratory (urine pregnancy test/serum beta HCG), and radiological (ultrasound) investigations. These cases were traced through the registers kept in casualty, gynaecology wards and OT records. The labour room registers were used to determine the total number of deliveries during this period.

The information of each patient was obtained from their case records kept in the medical records department. All the relevant demographic data was analysed. Records were studied for a period of amenorrhea at the time of diagnosis, presenting complaints like pain abdomen, bleeding per vagina or acute abdomen. Predisposing high risk factors were also analysed. A documentation of urine pregnancy test done, BHCG was also done. Relevant ultrasound findings were also noted down. Treatment options offered and important intra operative findings were studied. All the information is entered in a pre-structured proforma. All the data was analysed by percentage method.

### Results

- In this study, maximum (72%) patients were in 22-32 yrs age group. 17% patients were in 32-40 year age group. 10% patients were less than 21yrs.

- In the present study, 72.4% were multigravida and 27.6% were primi gravida.
- Most patients presented at a gestational age between 6-8 weeks
- Longest gestational age at presentation was 10.3 weeks which was in rudimentary horn

**Table I:** Table depicting number of cases with ectopic pregnancy at different gestational ages:

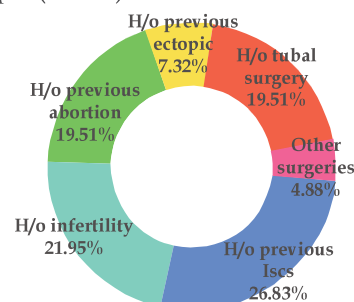
Period of gestation	Number	Percentage
<6	21	36.2%
6-8	30	51.7%
8-10	6	10.3%
>10	1	1.7%

- Classical triad of amenorrhea, abdominal pain and vaginal bleeding was seen in 13% cases. The most common presentation was pain abdomen, found in 45% patients while amenorrhea was present in 35% cases. 18% patients presented with bleeding per vagina, 3% patients presented with other complaints like giddiness, vomiting and fainting attacks.

**Table II:** Table depicting different clinical presentations of ectopic pregnancy:

		Percentage
Pain abdomen	51	96%
Amenorrhea	39	73.58%
Bleeding pv	20	37.73%
Others	3	5.66%

- In present study abdominal tenderness was present in 46% cases, cervical motion tenderness was found in 25%, forniceal tenderness in 20%, abdominal distention was present in 5% and adnexal mass in 3%.
- In present study, history of previous lscs (26.83%), and history of infertility (21.95%) were the commonest risk factors followed by history of previous abortion (19.51%), history of tubal surgery (19.51%) and history of previous ectopic (7.32%)



**Fig. 1:** Figure Showing Percentage of Cases having Different risk factors for Ectopic Pregnancy.

- In present study, most common site of ectopic pregnancy was ampullary (46%) followed by isthmus (41%), fimbrial (7%), ovarian (3.48%), rudimentary horn (2%) and heterotrophic (2%)
- In present study, unilateral salpingectomy was the most commonly performed procedure (71%), followed by Unilateral salpingectomy with tubal ligation of other side (7%), bilateral salpingectomy (5%), salpingostomy was done in 2 (3%), milking of tube was done in two patients (3%) while 6 (10%) patients were given medical management with monitoring after admission. Medical management failed in 3 cases who needed laparoscopy thereafter
- In present study, commonest finding was acute ruptured ectopic (80%), followed by unruptured (14%), tubal abortion (5%) and rudimentary horn (1%)
- In present study, 34% patients needed blood transfusion, only 3% patients needed massive blood transfusions.
- In present study, 89% patients were discharged within 7 days. Majority of these had undergone laparoscopic surgery. Only 11% patients required prolonged stay of more than 8 days.

## Discussion

In the present study, 72.4% were multigravida and 27.6% were primi gravida. Similar to the studies done by Archana Mehata et al, (81.25% and 18.75% respectively) and by Ishrat Zuber et al (78.57% and 21.43% respectively).<sup>23</sup>

The most common presentation was pain abdomen, found in 45% patients while amenorrhea was present in 35% cases, 18% patients presented with bleeding per vagina, 3% patients presented with other complaints like giddiness, vomiting and fainting attacks. According to study done by V.S. Sudha et al, pain abdomen was present in 82.4%, Amenorrhea was present in 78.5% and Bleeding pv in 63.3%. According to study done by Ishrat et al it was 89.22%, 92.85% and 36.34% respectively.<sup>22</sup>

In present study, history of previous lscs 26.83%, and history of infertility 21.95% were the commonest risk factors followed by history of previous abortion 19.51%, history of tubal surgery 19.51% and history of previous ectopic 7.32%. Similar to the studies done

by A. Ayaz et al (25% cases had history of treatment for infertility, 29.25% cases had history of previous abdominal & pelvic surgery, 22.7% had history of PID, 13.6% had history of IUCD use, 55.3% patients had history of Tubal rupture).<sup>24</sup> and also similar to the studies done by Gupta BK et al (30.23% cases had history of infertility, 9.32% had history of treatment for Infertility, 4.65% had previous history of Tubal surgery, 11.62% had previous history of PID, 52.5% had previous history of Tubal rupture).<sup>13</sup>

In present study, most common site of ectopic pregnancy was ampullary 46% followed by isthmus (41%), fimbrial (7%), ovarian (3.48%), rudimentary horn (2%) and heterotrophic (2%). Similar to the studies done by V.S. Sudha et al (13.15% cases had ectopic located at the interstitial part, 11.4% at Isthmus, 63.15% at Ampulla, 7.01% at Fimbria, 5.23% were Extratubal).<sup>22</sup>

In present study, unilateral salpingectomy was the most commonly performed procedure (71%), followed by Unilateral salpingectomy with tubal ligation of other side (7%), bilateral salpingectomy (5%), salpingostomy was done in 2 (3%), milking of tube was done in two patients (3%) while 6 (10%) patients were given medical management with monitoring after admission. According to a study by Azmat ali shah et al, 6.14% had successful medical management, 90.53% were treated by Salpingectomy on the affected side, 3.50% patients were treated with Salpingophorectomy.<sup>19</sup>

The incidence of ectopic pregnancy has increased since the last 20 years. Majority of woman (72%) in our study group belonged to the age group of 22-32 years, which is SIMILAR to the studies done by Samiya Mufti, et al (75.4%) Panchal D, et al (71.66%) and Rashmi.<sup>8,9</sup> According to study by Gaddagi, et al (70.2%) most of the women in India marry at an early age and complete their family at an early age. This age corresponds to the age of peak sexual activity and reproduction.

In the present study, majority of women with ectopic pregnancy were multi gravida (72.40%) This correlates with the studies done by Shraddha Shetty K, et al (83.8%) Panchal D, et al (81.66%) and Poonam, et al, (83.6%). The higher incidence in multigravida is probably due to previous miscarriages and infection resulting in tubal damage. This is correlating with the study done by Bhavna, et al 22.7% of the



cases with ectopic pregnancy.<sup>8,9</sup>

In our study group 8.33% of the women had history of previous ectopic pregnancy which is similar with the studies done by Dr Samiya Mulfti, et al (5.26%) and Uzma Shabab, et al (5%). There is increased risk of ectopic pregnancy with previous ectopic pregnancy because it reflects the underlying tubal pathology which is almost always bilateral.<sup>8</sup> In our study group, 19.51% of the women with ectopic pregnancy had previous tubal surgery which is similar with the studies done by Uzmashabab, et al (5%) and Shrestha, et al (5%). Improper surgical technique and formation of peri tubal fistulas may result in ectopic pregnancy. In postpartum period, edematous, congested and friable tube increases the chance of incomplete tubal occlusion resulting in ectopic implantation.

Urine pregnancy test was positive in 90.4% of the cases which correlated with the study done by Rashmi A Gaddagi, et al (97.3%) and WM Fageeh (96%).<sup>10,16</sup>

The most common presenting complaints were abdominal pain, amenorrhea and abnormal vaginal bleeding. Clinical signs includes abdominal tenderness, cervical excitation and adnexal tenderness. In Porwal Sanjayet al study, 87.5% reported with pain abdomen, bleeding per vagina encountered in 67.5% and 90% of cases had history of amenorrhea ranging from 6 weeks to 4 months<sup>17</sup> These features help in early diagnosis of ectopic pregnancies.

The urinary pregnancy test, serum  $\beta$ -hCG and ultrasound were the diagnostics tools used for diagnosis of ectopic pregnancy. Studies showed that Ultrasonography should be the initial investigation for symptomatic women in their first trimester; when the results are indeterminate, the serum  $\beta$  human chorionic gonadotropin concentration should be measured. Serial measurement of  $\beta$ -hCG and progesterone concentrations may be useful when the diagnosis remains unclear.

The most common site of ectopic pregnancy was in the ampulla(46% cases) of the fallopian tube<sup>18</sup> Ampullary part of the tube was commonly involved in most of the ectopic pregnancies in other studies.

Laproscopy and medical therapy have now

emerged as the widely used therapeutic modalities with great succession in terms of reduced morbidity, shorter hospital stay and conservation of fertility.<sup>21</sup> However choice depends on early identification of ectopic pregnancy and stable condition of patients.

No maternal mortality found in our study, similar with A, Abbas and H. Akram study.<sup>18</sup>

We have reviewed all the past published studies and made a consolidated analysis.

### *Annexure-1*

#### *Consolidated studies*

#### *Abbreviations:*

S & C	- State and country
SP	- Study Population
MA	- Mean Age
M	- Multigravida
P	- Primi
I	- Incidence
PA	- Pain Abdomen
AM	- Amenorrhea
B P/V	- Bleeding P/V
PEP	- Previous Ectopic Pregnancy
PAPS	- Previous Abdominopelvic surgery
PTS	- Previous tubal surgery
TR	- Tubal rupture
CM	- Conservative management
MM	- Medical management
SO	- Salpingostomy
SE	- Salpingectomy
SE with BTL	- Salpingectomy with Bilateral tubal ligation
SOE	- Salpingo oophorectomy
LS	- Laparoscopy
LO	- Laparotomy
In	- Interstitium
Is	- Isthmus
Am	- Ampulla
F	- Fimbriae
ET	- Extra tubal
REP	- Recurrent Ectopic Pregnancy
H/O I	- History of infections

Annexure 1

Consolidated studies: A consolidation of similar studies and their results.

1	TITLE OF THE PAPER	YEAR	S & C	SP	MA	M	P	PA	AM	IPM	SHOCH	PER	H/OI	PAP	PTS	H/OUC
2	Survival analysis of fertility after ectopic pregnancy	2011	Lille, France	328	28.5	NA	NA	NA	NA	NA	NA	6.00%	31%	NA	17%	NA
3	Sites of ectopic pregnancy: a 10 year population-based study of 1800 cases	2012	France	1800	15-45	NA	NA	NA	NA	NA	NA	11.6%	NA	NA	13.70%	NA
4	A retrospective study of ectopic pregnancy in a tertiary care centre	2017	UP, India	80	27	81.25	18.75	3%	100%	86%	95%	43%	5.25%	11.25%	12.50%	10.00%
5	Spectrum of ectopic pregnancy in tertiary care centre	2018	MP, India	42	25	78.57	21.43	1.63%	89.27%	91.85%	36.36%	4.76%	4.76%	7.14%	7.14%	14.28%
5	Ectopic pregnancy, clinical features, management and complications	2018	Maharashtra, India	14	30.57	71.43	28.57	1.17%	71.43%	28.57%	NA	NA	7.14	40.85	14.28%	NA
7	A retrospective study on ectopic pregnancy: a two year study	2016	Tamilnadu, India	218	25	81.58	18.42	0.81	82.4	78.5	63.3	8.33	7.01	NA	6.57	15.78
3	Clinical course of ectopic pregnancy: A single-center experience	2012	Saudi Arabia	44	28	57	48	0.58	88.6	93.2	77.3	6.8	NA	25.5	22.7	22.7
9	Analysis of two years cases of ectopic pregnancy	2017	Pakistan	45	28.98	68.7	31.3	0.65	52.22	66.67	40	22.22	4.44	22.22	6.67	NA
10	Clinical Analysis of Ectopic Pregnancies in a Tertiary Care Centre in Southern India: A Six-Year Retrospective Study	2016	Pondicherry, India	72	29.67	72.2	27.8	0.1	81.9	93.1	50	26.4	4.2	18.1	37.5	23.6
11	Risk factors for ectopic pregnancy in institutional study in a tertiary care hospital	2019	Odisha, India	104	27.5	75%	24%	NA	NA	NA	NA	6.7	24	18.2	22.1	11.5
12	A study of surgically managed ruptured ectopic pregnancies in a rural medical college hospital over a period of 5 years	2018	West Bengal, India	650	20-25	88.77	11.23	0.59	90.76	56.92	11.53	38.45	1.23	1.53	66.51	12.3
13	Study of diagnosis and management of ectopic pregnancy	2019	Gujarat, India	416	21-30	NA	58%	12.1	94	92	56	NA	NA	NA	NA	NA
14	A retrospective study on ectopic pregnancy in tertiary care hospital: a two-year study	2018	Rajasthan, India	64	20-30	77	16	0.35	93.75	82.81	51.56	28.12	9.37	7.81	10.93	29.68
15	A clinical study of ectopic pregnancy: a five-year institutional experience	2017	Karnataka, India	43	25-2	55.82	44.18	11.54	90.69	74.41	65.11	25.58	6.97	30.23	4.65	11.62

1	TITLE OF THE PAPER	YEA	TR	CM	MM	SO	SE	SE WITH BIT	SOE	MILKING	RADICAL	IS	LO	IN	IS	AM2	F	EI	REP
2	Survival analysis of fertility after ectopic pregnancy	2001	17%	55%															10.20%
	Sites of ectopic pregnancy: a 10 year population-based study of 1800 cases	2002	16%	52.50%										2.40%	12%	70%	11.10%	4.50%	11.40%
3	A retrospective study of ectopic pregnancy at a tertiary care centre	2017	55%	2.50%	3.75%	52.50%	35.00%	2.50%	1.25%	1.20%	90.70%	2.50%	15%	42.50%	3.75%	1.25%			
4	Spectrum of ectopic pregnancy in tertiary care centre	2018	26.19%	4.76%	40.47%	14.29%	26.19%	2.39%				7.14%	9.52%	45.23%	7.14%				
5	Ectopic pregnancy: clinical features, management and complications	2018	35.71	14.29						85.71		7.14%	57.14						21.42
6	A retrospective study on ectopic pregnancy: a two year study	2016	66.66	6.14	90.53%		3.50%			93.86		13.15	11.4	63.15	7.01	5.23			
7	Clinical course of ectopic pregnancy A single-center experience	2012	55.3	15.9	5.40%	89.10%				27.2	56.8	94.60%				4.5			
8	analysis of two years cases of ectopic pregnancy	2017	71.1										24.4	64.44	8.89	2.22			
9	Clinical Analysis of Ectopic Pregnancies in a Tertiary Care Centre in Southern India: A Six-Year Retrospective Study	2016												94.4					5.6
10	Risk factors for ectopic pregnancy: an institutional study in a tertiary care hospital	2019																	
11	A study of surgically managed ruptured ectopic pregnancies in a rural medical college hospital over a period of 5 years	2018	90.96	3.07	85.07		10					9.65	4.82	84.89	0.62	1.23			
12	Study of diagnosis and management of ectopic pregnancy	2019	92	8	54							54	36	90%					10
13	A retrospective study on ectopic pregnancy at tertiary care hospital: a two-year study	2018	65.62	79.68	17.1	9.37						6.25	12.5	48.43					3.12
14	A clinical study of ectopic pregnancy: a five-year institutional experience	2017	52.5	87.5	11.62							32.55	67.44	4.65	27.9	48.83	4.65		6.97



1	TITLE OF THE PAPER	YEA	S & C	SP	MA	M	P	I	PA	AM	BP/A	SHOCK	PER	H/OI	PAPS	PTS	H/OPII	H/OIUC
16	Ectopic pregnancy in a tertiary care centre of Jharkhand, India	2019	Jharkhand, India	90	20-30	87.2	12.2		98	80	69	53	6.6	17.7	13	15.5	7	2
17	Ectopic pregnancy: a comprehensive analysis risk factors and management	2016	Rajasthan India	80	21-30	85	15		88.25	71.25	57.5	13.75	5	7.5	18.75	11.25	25	10
18	Clinical presentation and outcome of ectopic pregnancies in a tertiary care rural hospital	2018	Haryana, India	40	27-85	87.5	12.5		95	90	57.5	37.5	7.5	10	20		20	
19	Clinical study of ectopic pregnancy at tertiary care center in Haryana, India	2019	Haryana, India	75	27-32	77.32	22.66	1.48	90.66	94.66	65	16	2.66	4	6.66	13.3	6.66	9.33
20	Risk factors of ectopic pregnancy: a study in a tertiary care centre	2017	Hyderabad, India	62	26-30	79	20.9						14.5	22.5	25.8	45.8	19.4	17.7
21	Ectopic pregnancy: one-year retrospective study on clinical, investigational and operative correlation in a tertiary care hospital	2017	Odisha, India	90	20-30	88.8	11.1	1.2	88	84	87		33.3	2.2	16.6	11	17.7	
22	Factors influencing fertility outcome after ectopic pregnancy: a descriptive observational study	2015	puducherry, India	64	23	76.6	23.4	0.2							42.1	6.2	14	
23	Feasibility of laparoscopy in management of ectopic pregnancy: experience from a tertiary care hospital	2018	New delhi, India	110	28-65								10.9	30.9	8.1	27.1	13.6	3.6
24	A clinical study of ectopic pregnancy	2016	Telangana, India	62	24	62	37	0.305556	80.2	70	46	42.8	6.45	4.83	8.06	12.9	25.8	
25	Study of ectopic pregnancy in a tertiary care centre	2017	Maharashtra, INDIA	102	21-25	56.86	43.14	0.184028	68.63	54.9	31.37	6.4	1.96	1.96	1.96	3.92	0.98	1.96
26	Clinical outcomes of ectopic pregnancy	2017	Haryana, India	102	27		15.68	1.056	95.09	80.39	52.94	23.52	2.94			26.46	54.9	4.9
27	A study of incidence, risk factors, clinical profile and management of 50 cases of ectopic pregnancy in a tertiary care teaching hospital	2017	Tamilnadu, India	50	27-1	70	30	0.6	90	98	68		2	8	14	6	40	12
28	Clinicosociodemographic profile of ruptured ectopic pregnancies at a tertiary care centre	2017	Uttar Pradesh, India	63	21-30	87.71	12.29	2.42	85.96		70.17	56.14	14.03				50.87	
29	Risk factors and management of ectopic pregnancy	2017	Karnataka, India	50	21-25	72	28		100	98	40				4	4	4	12
30	A clinical study of ectopic pregnancy in a tertiary care hospital	2018	Odisha, India	93	21-30	76.3	23.7	18/1000	96.8	68.8	31.2	21.5	4.3	16.1	19.3	24.7	5.3	



1	TITLE OF THE PAPER	YEA	TR	CM	MM	SO	SE	SE WITH BTL	SOE	MILKING	RADICAL	LS	LO	IN	IS	AM2	F	ET	REP	
16	Ectopic pregnancy in a tertiary care centre of Jharkhand, India	2019	100				76	11	13					98					2	
17	Ectopic pregnancy: a comprehensive analysis risk factors and management	2016	67.5				75		5	2.5				1.25	25	51.25	16.25		6.25	
18	Clinical presentation and outcome of ectopic pregnancies in a tertiary care rural hospital	2018	90		2.5		80		2.5			2.5	95	85					15	
19	Clinical study of ectopic pregnancy at tertiary care center in Haryana, India	2019			30.66							8	58.66							
20	Risk factors of ectopic pregnancy: a study in a tertiary care centre	2017														54.8	22.6			
21	Ectopic pregnancy: one-year retrospective study on clinical, investigational and operative correlation in a tertiary care hospital	2017	74.4				82.4		6.4					91.1					8.8	
22	Factors influencing fertility outcome after ectopic pregnancy: a descriptive observational study	2015				4.6	84.37			10.9				86	97				3	18.7
23	Feasibility of laparoscopy in management of ectopic pregnancy: experience from a tertiary care	2018	66.3		10	0.9	83.6		0.9			86.4	10.4	2.7	7.2	68.1	0.9		2.9	
24	A clinical study of ectopic pregnancy	2016	82.3			4.83	54.8	1935						2	238	70.96			1.6	
25	Study of ectopic pregnancy in a tertiary care centre	2017	63.92				52.94	2.94	20.59					2.94	26.48	62.74	2.94		4.9	
26	Clinical outcomes of ectopic pregnancy	2017	84.31			10.78	14.7	65.68	3.92					1.96	22.54	58.82	8.82		7.8	
27	A study of incidence, risk factors, clinical profile and management of 50 cases of ectopic pregnancy in a tertiary care teaching hospital	2017	86				96			2		6	94	2	8	78	4		8	
28	Clinicosociodemographic profile of ruptured ectopic pregnancies at a tertiary care centre	2017	90.4											3.5	35.09	56.16	1.75		3.5	
29	Risk factors and management of ectopic pregnancy	2017	66		6		78	14	4					15	15	38	24		6	
30	A clinical study of ectopic pregnancy in a tertiary care hospital	2018	100				82.8		2.1					6.5	16.1	51.6			3.2	

## Conclusion

Ectopic pregnancy still remains one of the major causes of maternal morbidity and mortality. With the use of better diagnostic modalities, ectopic pregnancies can be detected early and referral in hemodynamically stable condition along with use of minimal access surgery or medical management not only reduces maternal morbidity but also preserves future fertility

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