



## A STUDY ON ECTOPIC PREGNANCY IN TERTIARY CARE HOSPITAL

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**ABSTRACT**

**INTRODUCTION** Ectopic pregnancy is the most life threatening emergency in pregnancy leading to maternal death. In developed countries ectopic pregnancy management has revolutionized by the laparoscopic availability, effective medical therapy and advanced diagnostic technology provides early diagnosis, future fertility conservation, less hospital stay and less surgical morbidity. **AIM OF THE STUDY** The Purpose of this study is to do a detailed analysis of the following aspects of ectopic pregnancy over a particular time period in a tertiary care centre to determine the clinical features, risk factors, incidence, morbidity and mortality of ectopic pregnancy. **MATERIALS AND METHODS** Prospective observational study This will be a prospective study done from January 2019 – December 2019 conducted in a tertiary care centre namely KAPV GOVT medical college, Trichy.

**SAMPLE SIZE:**

- This study will be done on 50 patients

**STUDY DESIGN**

- Prospective observational study

**STUDY PLACE**

K.A.P.V. Govt. Medical College & M.G.M.G.H, TRICHY. **PERIOD OF STUDY** JANUARY 2021 - DECEMBER 2021 **CONCLUSION** Early diagnosis is the key factor in reducing morbidity and preserving the future fertility. Early diagnosis is must for medical management of ectopic pregnancy.

**KEYWORDS :** Ectopic pregnancy, morbidity, mortality, early diagnosis, medical management

**INTRODUCTION**

Ectopic pregnancy is the most life threatening emergency in pregnancy leading to maternal death. The word ectopic pregnancy is originated from Greek : 'EX' and 'TOPOS' that means "out of place". It is defined as any intra and extra uterine gestation in which the fertilized ovum implants at an aberrant site which is inconducive for growth and development.

Several risk factors for ectopic pregnancy has been identified including PID, smoking during the period of conception, previous ectopic pregnancy, tubal surgery, infertility, induction of ovulation , usage of intra uterine device and sexually transmitted diseases<sup>(8)(9)</sup>. Tubal abnormality prevents the transport of fertilized zygote to the uterus and the fallopian tube (97%) is the most common site of ectopic implantation. Other sites (3%) of ectopic are the ovary, cervix, horn of uterus, previous cesarean scar and the abdomen.

Global incidence of ectopic pregnancy has been increased due to increased incidence of salpingitis (sexually transmitted infections), ovulation induction and tubal surgeries. Incidence of ectopic pregnancy is varying between different countries and from place to place in a same country. Porwal Sanjay et al study in India shows the incidence of ectopic pregnancy is 2.46 per thousand of deliveries<sup>(7)</sup>. The study conducted by Shraddha Shetty K<sup>(1)</sup> et al in India shows the incidence is 5.6 per thousand deliveries. Incidence in US and UK is around 0.3 – 0.5%, in Ghana it is around 4% of deliveries and in Nigeria 2.1% of deliveries.

Developed countries are having fourfold increase in the occurrence of ectopic pregnancy that is from 0.3 % to 1.2 %. The rise in the occurrence is mainly due to the availability of advanced diagnosing technology and increase in the prevalence of PID and assisted reproductive techniques.

In India like developing countries most of the cases are presenting with tubal rupture and hemodynamically unstable condition, that's why in developing countries the most important risk factor of first trimester maternal mortality and morbidity is ectopic pregnancy.

Though the maternal mortality has been decreased ,the study by Arpita N et al has been proved that ectopic pregnancy contributes 7.1% of maternal death is due to ectopic in India. The mortality rate is higher because of its detection difficulty and massive hemorrhage due to rupture at these sites .In developed countries ectopic pregnancy

management has revolutionized by the laparoscopic availability ,effective medical therapy and advanced diagnostic technology provides early diagnosis ,future fertility conservation ,less hospital stay and less surgical morbidity.

**AIM OF THE STUDY**

The purpose of this study is to do a detailed analysis of the following aspects of ectopic pregnancy over a particular time period in a tertiary care centre to determine the clinical features, risk factors, incidence, morbidity and mortality of ectopic pregnancy.

**OBJECTIVES**

1. To study the clinical presentation of ectopic pregnancy.
2. To study the risk factors causing ectopic pregnancies.
3. To know about the distribution among age group, parity and sterilisation status
4. To study about the sensitivity and specificity of clinical features such as abdominal pain, bleeding per vaginum and amenorrhea in diagnosing ectopic pregnancy.
5. To analyse the positive and the negative predictive values of the clinical features.
6. To study the sensitivity and the specificity of cervical motion tenderness test among the suspects.
7. To know about the sensitivity and specificity of urine pregnancy test, culdocentesis and the ultrasound features among the suspects.
8. To study the significance of Beta HCG as a deciding factor in surgical and medical management.
9. To study about the application of medical management criteria in unruptured ectopic pregnancies.
10. To study the immediate mortality and morbidity associated with ectopic pregnancy.

**MATERIALS AND METHODS****Prospective observational study**

This will be a prospective study done from January 2021 – December 2021 conducted in a tertiary care centre namely KAPV Govt Medical college Trichy.

**STUDY PROTOCOL:**

- Detailed present and previous obstetrics history would be sort out in patients presenting with ectopic pregnancy in all age group
- Vitals pulse rate and blood pressure would be monitored
- Per speculum per abdomen and per vaginal examination would be done

- Usg abdomen and pelvis would be done to determine the site of pregnancy
- Intra operative findings would be noted .Specimen will be sent for histopathological examination.

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**PERIOD OF STUDY**

JANUARY 2021 - DECEMBER 2021

**STATISTICAL ANALYSIS**

PLAN SPSS SOFTWARE

**INCLUSION CRITERIA**

All patients diagnosed with ectopic pregnancy by clinical examination, ultrasound examination and beta HCG estimation were included in the study in all age group.

**EXCLUSION CRITERIA**

- All intrauterine pregnancy
- Incomplete /threatened abortion

**RESULTS**

**Table 1: Age distribution of the study subjects (n=50)**

Age group	Frequency	Percent
<20 years	1	2.0
21 to 25 years	12	24.0
26 to 30 years	14	28.0
31 to 35 years	14	28.0
>35 years	9	18.0
Total	50	100.0

Mean age ± S.D = 29.78 ± 5.28 years

Minimum age: 19 years Maximum age: 40 years

**Comments:** Majority of the subjects were in 26 to 35 years age group followed by 21 to 25 years.

**Table 2: Distribution of study subjects according to parity (n=50)**

Parity	Frequency	Percent
Primi	13	26.0
2 <sup>nd</sup> Gravida	8	16.0
3 <sup>rd</sup> Gravida	16	32.0
4 <sup>th</sup> Gravida	9	18.0
5 <sup>th</sup> Gravida and above	4	8.0
Total	50	100.0

**Comments:** About 50% of the subjects were 3rd or 4th Gravida followed by 26% of primigravida. In total, ectopic pregnancies were much common in multigravida (74%).

**Table 3: Distribution of study subjects according to previous mode of delivery (n=50)**

Previous mode of delivery	Frequency	Percent
Not applicable	16	32
Previous normal vaginal delivery	22	44
Previous LSCS	12	24
Total	50	100.0

**Comments:** About 44% of the subjects had delivered vaginally in the previous pregnancy while 24% had delivered through LSCS.

**Table 4: Distribution of study subjects according to period of amenorrhea (n=50)**

Period of amenorrhea	Frequency	Percent
5 weeks	3	6.0

6 to 8 weeks	29	58.0
9 to 11 weeks	17	34.0
>11 weeks	1	2.0
Total	50	100.0

**Comments:** More than half of the subjects (58%) had 6 to 8 weeks of amenorrhea followed by roughly one-third (34%) having 9 to 11 weeks of amenorrhea

**Table 5: Distribution according to urine pregnancy test (n=50)**

Urine pregnancy test	Frequency	Percent
Positive	39	78.0
Weakly Positive	11	22.0
Total	50	100.0

**Comments:** Roughly three-fourth (78%) of the patients had a positive urine pregnancy test followed by weakly positive result in 22%.

**Table 6: Distribution according to possible risk factors for ectopic pregnancy (n=50)**

Possible risk factors*	Frequency	Percent
Previous history of Abortion	15	30.0
Tubal surgery/ Tubal Recanalization	10	20.0
Pelvic inflammatory disease (PID)	7	14.0
Previous LSCS	6	12.0
Oral contraceptive pills	3	6.0
Copper-T IUCD	3	6.0
Bicornuate uterus	1	2.0
Assisted Reproductive Technology (ART)	1	2.0
Previous history of ectopic	1	2.0
No apparent risk factor	10	20.0

\*Not mutually exclusive

**Comments:** Previous history of abortion was the commonest factor followed by history of tubal surgery or tubal recanalization and pelvic inflammatory disease

**Table 7: Distribution according to sterilization status (n=50)**

Sterilization (Tubectomy)	Frequency	Percent
Done	10	20.0
Not done	40	80.0
Total	50	100.0

**Comments:** Only 20% of the patients underwent sterilization

**Table 8: Distribution according to method of sterilization (n=50)**

Method of sterilization	Frequency	Percent
Puerperal sterilization	4	40.0
Laparoscopic sterilization	1	10.0
Concurrent sterilization	2	20.0
Transabdominal tubectomy	3	30.0
Total	10	100.0

**Comments:** Only 8% of the patients underwent puerperal sterilization followed by 6% of transabdominal tubectomy

**Table 9: Distribution according to clinical presentation (n=50)**

Clinical symptoms	Frequency	Percent
Amenorrhea + Lower abdominal pain	6	12.0
Amenorrhea + Lower abdominal pain + Bleeding per vaginum	44	88.0
Total	50	100.0

**Comments:** The commonest presentation is the classical triad of ectopic pregnancy which presented in 88% of the patients as a combination of amenorrhea, lower abdominal pain and bleeding per vaginum.

**Table 10: Distribution according to haemorrhagic shock (n=50)**

Haemorrhagic shock	Frequency	Percent
Present	4	8.0
No shock	46	92.0
Total	50	100.0

**Comments:** The haemorrhagic or hypovolemic shock was present in 8% of the patients because of a ruptured ectopic pregnancy.

**Table 11: Distribution according to findings of abdominal examination (n=50)**

Abdominal examination	Frequency	Percent
Tenderness only	44	88.0
Tenderness with abdominal distension	5	10.0
Abdominal distension with guarding and rigidity	1	2.0
Total	50	100.0

**Comments:** The commonest finding in per abdomen examination was tenderness which was present in almost all patients with or without distension.

**Table 12: Distribution according to findings of per vaginal examination (n=50)**

Vaginal examination	Frequency	Percent
Forniceal tenderness only	5	10.0
Forniceal fullness only	1	2.0
Both Forniceal tenderness and fullness	44	88.0
Total	50	100.0

**Comments:** The commonest finding in per vaginal examination was forniceal tenderness with fornicial fullness which was present in 88%.

**Table 13: Distribution according to findings of cervical excitation test or cervical motion tenderness (n=50)**

Cervical motion tenderness	Frequency	Percent
Present	44	88.0
Absent	6	12.0
Total	50	100.0

**Comments:** Majority of the study subjects had cervical motion tenderness (88%).

**Table 14: Distribution according to findings of culdocentesis (n=50)**

Culdocentesis	Frequency	Percent
Positive	38	76.0
Negative	12	24.0
Total	50	100.0

**Comments:** Roughly three-fourth of the study subjects had a positive culdocentesis (76%) which may indicate hemoperitoneum due to a ruptured ectopic pregnancy.

**Table 15: Distribution according to levels of serum β-HCG (n=50)**

β-HCG level (mIU/ml)	Frequency	Percent
Not done	46	92.0
4375	1	2.0
4650	1	2.0
9486	1	2.0
22184	1	2.0
Total	50	100.0

**Comments:** Estimation of serum β-HCG was done in only 4 patients out of whom 2 patients had a level between 1000 to 5000 while 1 patient had a level between 6000 to 10000. One patient had a much higher level of serum β-HCG level (above 20000).

**Table 16: Distribution according to USG findings (n=50)**

USG finding	Frequency	Percent
Empty Uterus, adnexal mass with free fluid	42	84.0
Empty Uterus, adnexal mass only	2	4.0

Empty Uterus, adnexal mass with massive hemoperitoneum	1	2.0
Empty Uterus, Gestational sac in cervix with free fluid	1	2.0
Empty Uterus, adnexal mass with fetal pole and FHR and free fluid	1	2.0
Single live intra-uterine gestation, adnexal mass with free fluid	1	2.0
Empty Uterus, adnexal mass, uterine cavity separate from placenta and fetus	1	2.0
Fetal pole at the LSCS scar in lower uterine cavity with myometrial thinning at the scar site	1	2.0
Total	50	100.0

**Comments:** The commonest finding was empty uterine cavity and adnexal mass with free fluid (84%).

**Table 17: Distribution according to the side of ectopic pregnancy (n=50)**

Side of ectopic	Frequency	Percent
Right side	24	48.0
Left side	23	46.0
Not applicable	3	6.0
Total	50	100.0

**Comments:** In our study the occurrence of ectopic pregnancy was almost equal in both sides (48% vs 46%).

**Table 18: Medical management of ectopic pregnancy (n=50)**

Medical management	Frequency	Percent
Not applicable	47	94.0
Inj.Methotrexate only	1	2.0
Inj.Methotrexate with manual vacuum aspiration (MVA)	1	2.0
Failed Medical management	1	2.0
Total	50	100.0

**Comments:** Medical management of ectopic pregnancy was tried in 3 patients out of whom medical management failed in one patient.

**Table 19: Management of ectopic pregnancy (n=50)**

Management	Frequency	Percent
Partial Salpingectomy	22	44.0
Salpingectomy	13	26.0
Partial Salpingectomy with tubectomy	3	6.0
Partial Salpingectomy with oophorectomy	2	4.0
Partial Salpingectomy (Rt) with Salpingectomy (Lt)	1	2.0
Partial Salpingectomy with Copper-T removal	1	2.0
Salpingo-oophorectomy	1	2.0
Salpingo-oophorectomy with Fimbriectomy	1	2.0
Subtotal hysterectomy	1	2.0
Rudimentary horn excision	1	2.0
Lap. Resection of tubal ectopic	1	2.0
Evacuation of abdominal pregnancy with salpingectomy	1	2.0
Medical management	2	4.0
Total	50	100.0

**Comments:** The commonest surgery was Partial Salpingectomy in 44% and Salpingectomy in 26%.

**Table 20: Distribution according to the rupture of ectopic pregnancy (n=50)**

Rupture of ectopic	Frequency	Percent
Ruptured	43	86.0
Un-ruptured	6	12.0

Tubal abortion	1	2.0
Total	50	100.0

**Comments:** In our study, majority of ectopic pregnancies were ruptured on presentation (86%).

**Table 21: Distribution according to site of ectopic pregnancy (n=50)**

Site of ectopic	Frequency	Percent
Ampulla	33	66.0
Isthmus	8	16.0
Fimbriae	2	4.0
Ovary	2	4.0
Cornua	1	2.0
Cervix	1	2.0
Rudimentary horn	1	2.0
Previous LSCS scar	1	2.0
Abdomen	1	2.0
Total	50	100.0

**Comments:** In our study, majority of ectopic pregnancies were in ampulla (66%) followed by isthmus (16%).

**Table 22: Distribution according to the level of Hemo-peritoneum (n=50)**

Hemo-peritoneum	Frequency	Percent
0 to 500 ml	31	62.0
501 to 1000 ml	15	30.0
1001 to 1500 ml	1	2.0
No Hemo-peritoneum	3	6.0
Total	50	100.0

**Comments:** In our study, majority of subjects had a hemo-peritoneum level of less than 500 ml followed by 30% having between 500ml to 1000ml.

**Table 23: Transfusion of blood products (n=50)**

Blood products	Units transfused	Frequency	Percent
Packed cell only (PC)	1 unit	23	46.0
	2 units	15	30.0
	3 units	1	2.0
	Sub-total	39	78.0
Whole blood only (WB)	1 unit	2	4.0
	2 units	1	2.0
	Sub-total	3	6.0
Packed cell + Fresh frozen plasma (FFP)	1 PC + 2 FFP	1	2.0
	2 PC + 2 FFP	2	4.0
	2 PC + 4 FFP	2	4.0
	3 PC + 4 FFP	1	4.0
	Sub-total	6	12.0
Packed cell + Whole blood + Fresh frozen plasma (FFP)	2 PC + 1 WB + 4 FFP	1	2.0
No transfusion needed	1	2.0	
Total		50	100.0

**Comments:** In our study, majority of subjects (78%) were transfused with packed cells followed by a combination of packed cells and fresh frozen plasma (FFP) in 12% and whole blood in 6%.

**Table 24: Distribution according to the need for ICU care (n=50)**

Duration of ICU care	Frequency	Percent
Needed for 1 day	38	76.0
Needed for 2 days	7	14.0
Not needed	5	10.0
Total	50	100.0

**Comments:** Majority of subjects in our study needed ICU care for 1 day (76%) while 14% needed intensive care for 2 days.

**Table 25: Distribution according to post-operative complications (n=50)**

Post-operative complications	Frequency	Percent
Fever	5	10.0
Paralytic ileus	3	6.0
Wound infection	1	2.0
No complications	41	82.0
Total	50	100.0

**Comments:** Only 18% of subjects had some complications and the most common was fever in 10% followed by paralytic ileus in 6%.

**Table 26: Distribution according to histopathology report (n=50)**

Histopathology report	Frequency	Percent
Ectopic pregnancy	49	98.0
Ectopic pregnancy with ovarian cyst	1	2.0
Total	50	100.0

**Comments:** Ectopic pregnancy was confirmed by histopathology report in all subjects.

**DISCUSSION**

- This is the prospective study done from January 2021 – December 2021 conducted in a tertiary care centre namely KAPV Govt medical college Trichy among 50 cases.
- In my study most of the patients were in the age group of 26 – 35 years (56%).
- The similar study was done by Mufti et al and Smita singh et al, they were also stated that the commonest age group being affected is 21 to 30 years[3][2]. This shows the age related tubal changes will increase the chances of ectopic pregnancy.
- According to parity in my study about 74% of the subjects were multigravida followed by primigravida (26%).
- In study of Sharaddha settee et al and Lakshmi karki et al the results were similar to my study[1][4]. 61% were multiparous in Lakshmi karki et al studies.[4]
- In my studies, those multiparous women were interrogated for the details regarding the previous mode of delivery, the results were 44% among previous normal delivery with previous history of abortion and 24% were among previous C-section.
- Tang BD et al and panti A et al studies stated the clinical picture of ectopic to be, 5-8 weeks of amenorrhoea contributed to 54.3% [5][6]. In my studies, 58% had 6-8 weeks of amenorrhoea, one third 34% had 9-11 weeks of amenorrhoea.
- The Urine pregnancy test is the common bed side clinical test used to confirm the diagnosis of ectopic pregnancy 78% had strongly positive, 22% had weakly positive.
- Among the risk factors involved in the etiology of ectopic pregnancy 30% had previous history of abortion, 20% had tubal surgery/ tubal recanalization, PID being 14%.
- The contraceptive usage in the risk factors of ectopic pregnancy OCP 6%, Bicornuate uterus 2%, 12% in previous LSCS, according shradha k et al and studies by Gupta R PorwalS the similar risk factors were quoted, in the study population involving Mangalore and Rajasthan[1][7].
- Sterilisation failure had a 20% contribution to the risk factors involving ectopic pregnancy, Puerperal sterilisation 40% and Transabdominal tubectomy 30%.
- The commonest clinical presentation of ectopic pregnancy being the classical triad of ectopic pregnancy, amenorrhoea, abdominal pain and bleeding PV being 88%. In porwal sanjay et al 90% of cases had amenorrhoea and 87% of the cases had abdominal pain[7].
- The most dreaded complication of ectopic pregnancy being the hypovolemic shock, 8% of the patients presented with hypovolemic shock.
- The commonest clinical signs elicited, 80% had abdominal tenderness, 10% abdominal distension, 2% guarding and rigidity.
- Per vaginal examination showed 88% had forniceal tenderness with fullness, 2% had forniceal fullness and 10% forniceal tenderness only, cervical motion tenderness was 88%.
- The cases suspected with ectopic pregnancy was subjected to culdocentesis, 76% the findings was positive. The serum Beta HCG was not done for 92% of the cases, only for the cases who are hemodynamically stable, with unruptured ectopic beta HCG was done. 2 patients had level between 1000 to 5000, one patient had a level between 6000 to 10000. One patient had a higher level of above 20000.

- Ultrasound examination revealed 84% had empty uterus, adnexal mass with free fluid, 4% had empty uterus, adnexal mass. 2% had empty uterus, adnexal mass and massive hemoperitoneum. 2% of cases had cervical pregnancy, fetal heart rate was present in 4% of cases, 2% of abdominal pregnancy and 2% of LSCS scar pregnancy.
- My study analysed the side of ectopic pregnancy was almost equal in both sides 48% right side, 46% left side.
- The cases admitted in our centre, most of the cases were subjected to surgical management, only in 3 cases medical management was tried, in which one case had failed medical management.
- The cases which presented as ruptured ectopic was 86%, unruptured ectopic was 12% and tubal abortion was 1%. The cases subjected to laparotomy, the site for tubal ectopic was studied 66% was located in the ampulla of the tube, 16% isthmus, fimbriae 4%, ovary 4%, cornua 2%, cervix 2%, rudimentary 2%, previous LSCS 2%, abdomen pregnancy 2%.samiya mafti et al study quoted that all the cases were subjected to laparotomy[3].In my study 2% of case laparoscopic resection of ectopic was done. In the cases which were subjected to laparotomy 44% had partial salpingectomy, 26% had salpingectomy, partial salpingectomy with tubectomy in 6%, partial salpingectomy with oophorectomy in 4%, partial salpingectomy with copper T removal 2%, salpingo-oophorectomy 2%, salpingo-oophorectomy with fimbriectomy 2%, subtotal hysterectomy 2%, Rudimentary horn excision 2%, abdominal pregnancy evacuation with salpingectomy 2%, Medical management 4%.
- Replacement with blood and blood products is the important step in management of ectopic pregnancy, 78% was transfused with packed cells followed by combination of packed cells and fresh frozen plasma 12% and whole blood was given 6%. Duration of ICU stay for ectopic pregnancy 76% for 1 day, 14% needed for 2 days, 10% of cases did not need ICU stay.
- 82% cases had no complications, 10% cases had fever, 3% paralytic ileus, wound infection in 1% of case.
- Histopathology confirmed ectopic pregnancy in 98% of cases, 2% of ovarian cyst was concomitant with ectopic pregnancy.

## CONCLUSION

Ectopic pregnancy, presents in a varied manner, strong suspicion and sound clinical knowledge is required for diagnosis. UPT and ultrasound should be advised to all women in reproductive age group presenting with abdominal pain and bleeding PV with or without amenorrhoea. Sterilisation failure is reported in cases of ectopic pregnancy, women of reproductive age group are advised to report in case of missed periods. Ultrasound is the gold standard diagnostic tool in ectopic pregnancy. UPT and USG equipment should be available in all primary health care and gynaecological units. Early diagnosis is the key factor in reducing morbidity and preserving the future fertility. Early diagnosis is must for medical management of ectopic pregnancy.

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