

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20200358>

Original Research Article

A clinical study of ectopic pregnancy at a tertiary care centre in Telangana, India

Subha Ranjan Samantaray, Ipsita Mohapatra*, Achanta Vivekanada

Department of Obstetrics and Gynecology, Prathima Institute of Medical Sciences, Karimnagar, Telangana, India

Received: 25 November 2019

Revised: 27 December 2019

Accepted: 31 December 2019

***Correspondence:**

Dr. Ipsita Mohapatra,

E-mail: demurerosy@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Ectopic pregnancy (EP) is a life-threatening obstetrics emergency in early trimester, associated with a high morbidity and mortality if not timely intervened. High index of clinical suspicion is required for early diagnosis, specifically in women presenting with amenorrhoea, pain abdomen and vaginal bleeding. Aim of this study is to determine the incidence, risk factors, clinical presentation, management and outcome of ectopic pregnancy.

Methods: This retrospective observational study was conducted in the department of obstetrics and gynaecology, at Prathima institute of medical sciences, Telangana from July 2012 to June 2019, for a period of 7 years. A total of 53 cases of ectopic pregnancy were analyzed for parameters like age, gravidity, gestational age, risk factors, clinical presentation, management and morbidity.

Results: Incidence of ectopic pregnancy was 5.3 per thousand deliveries. Majority of cases were in age group of 20 to 25 years (52.8%) and were gravida 3 and above (68%). The commonest risk factors identified were history of previous pelvic surgeries (37.7%) followed by history of abortion (18.8%). Commonest symptoms were abdominal pain (90.6%), amenorrhoea (75.5%) and vaginal bleeding (47.2%). Only 41.5 % of cases had triad of symptoms. Fallopian tube (92.4%), specifically ampulla (62.3%) was the most frequent site affected. About 73.6% cases presented with ruptured tube. Surgery (94.3%) was the mainstay of therapy.

Conclusions: ectopic pregnancy is a life-threatening emergency, early diagnosis and treatment will improve the prognosis.

Keywords: Amenorrhoea, Ectopic pregnancy, Maternal mortality, Risk factors, Salpingectomy

INTRODUCTION

Ectopic pregnancy is the implantation of fertilized ovum outside the endometrial lining of uterine cavity.¹ It accounts for 0.5 to 1.5% of all first trimester pregnancies and 3% of all pregnancy related deaths.²⁻⁴ Prevalence of ectopic pregnancies reported to be as high as 18% among women presenting to emergency department with either first trimester vaginal bleeding, abdominal pain or both.⁵ Fallopian tube is considered as the most common site, accounting for 95% of all ectopic pregnancies and

remaining 5% of ectopic pregnancies are observed to be implanted in ovary, peritoneal cavity, cervix and prior caesarean section scar.¹

About 50% of women diagnosed with ectopic pregnancy do not have any known risk factors.⁵ Abnormal fallopian tube anatomy is considered as one of the important cause of ectopic pregnancy.¹ Risk factors commonly associated with ectopic pregnancy are previous ectopic pregnancy, tubal sterilization, tubal reconstructive surgery, prior pelvic surgeries, previous caesarean section, prior pelvic

inflammatory disease, IUCD, infertility, prior abortion, multiple sexual partners, smoking, advanced maternal age, endometriosis, exposure to DES in utero, history of TB, assisted reproduction technique etc.^{6,7} Symptoms and signs of ectopic pregnancy are often subtle or absent until and unless ruptured. Complete history, thorough clinical examination together with serial β hCG measurement and TVS are required to reach a precise diagnosis.⁸

Unruptured ectopic pregnancy diagnosed early in gestation can be successfully managed medically with methotrexate. However ruptured ectopic pregnancy is considered as a surgical emergency with increased risk of maternal morbidity and mortality. The hemodynamic status of woman with ruptured ectopic pregnancy may determine the route of surgery, either laparotomy or laparoscopy. The incidence of ectopic pregnancy was showing an increased trend whereas the incidence of ruptured ectopic pregnancy has declined in last decade. This is due to availability of better diagnostic tools like quantitative measurement of serum β hCG, trans vaginal sonography (TVS) and availability of minimal invasive surgery.⁹ Early diagnosis not only reduces the risk of tubal rupture but also allows more conservative treatment to be initiated.¹⁰

This retrospective study was done to determine the incidence of ectopic pregnancy, to evaluate the clinical features, risk factors, treatment, morbidity and mortality associated with ectopic pregnancy in a tertiary care centre.

METHODS

This retrospective observational study was conducted in the department of obstetrics and gynaecology, at Prathima Institute of Medical Sciences, Telangana from July 2012 to June 2019, for a period of 7 years. All cases of diagnosed ectopic pregnancy during this period were enrolled in the study. The case sheets of patients with ectopic pregnancies were traced through labour ward register, operation theatre register and medical record department. The information regarding demographic characteristics, risk factors, clinical symptoms and signs, diagnostic tools used, treatment provided as well as morbidity and mortality associated with ectopic pregnancies were obtained. Total number of deliveries during the study period was retrieved through labour ward register

Inclusion criteria

- All cases diagnosed with ectopic pregnancy clinically, biochemically, radiologically and/or by intraoperative findings were included in the study.

Exclusion criteria

- There are no exclusion criteria.

Statistical analysis

Data was collected, tabulated and analyzed using SPSS software 19.0. Categorical variables were expressed in frequency and percentage and continuous variables as Mean \pm SD.

RESULTS

During study period of 7 years total number of deliveries were 9891 and among them 53 numbers of ectopic pregnancies were diagnosed giving the incidence of ectopic pregnancies of 5.3/1000 deliveries. Most patients were in age group of 20-25 years (52.8%) with mean age group of 26.54 \pm 5.03 years (Table 1).

Table 1: Distribution of case according to age.

Age (in years)	Number of patients (n = 53)	%
< 20	2	3.8
20-25	28	52.8
26-30	11	20.8
31-35	8	15.1
> 35	4	7.5

Out of 53 patients 2 cases (3.8%) were primigravida, 15 cases (28.3%) were second gravida and 36 cases (67.9%) were gravida 3 or more (Table 2).

Table 2: Distribution of cases according to gravidity.

Gravidity	Number of patients (n = 53)	%
G ₁	2	3.8
G ₂	15	28.3
\geq G ₃	36	67.9

Table 3: Risk factors.

Risk factors	Number of cases	%
No risk factors	24	45
History of pelvic surgery	20	37.7
Caesarean section with/without tubectomy	10	18.8
Tubectomy	8	15
Recanalization	1	1.8
Others	1	1.8
Previous abortion	10	18.8
History of PID	5	9.4
History of infertility	2	3.8
IUCD use	2	3.8
Previous ectopic pregnancy	1	1.8
Some patients had more than one risk factors		

Majority of patients had no risk factors for ectopic pregnancy 24 (45%). The common risk factors observed in our study were history of previous pelvic surgeries (37.7%), history of previous abortion (18.8%), previous

history of pelvic inflammatory disease (9.4%), history of infertility (3.8%), and history of IUCD (3.8%). Some of the patients had more than one risk factors (Table 3).

Table 4: Clinical presentation.

Presentation	Number of cases (n = 53)	%
Abdominal pain	48	90.6
Amenorrhoea	40	75.5
Vaginal bleeding	25	47.2
Triad of symptoms	22	41.5
Abdominal tenderness	39	73.6
Adenexal tenderness	35	66
Cervical motion tenderness	33	62.3
Pallor	44	83
Shock (at admission)	13	24.5
Hemoperitoneum	44	83

In present study 41 cases (77.4%) were clinically diagnosed. Ultrasonography (transabdominal and/or transvaginal) further aided in reaching a diagnosis of ectopic pregnancy in another 22.6% of cases. The most frequent symptoms observed were abdominal pain (48 cases, 90.6%), amenorrhea (40 cases, 75.5%) and vaginal bleeding (25 cases, 47.2%). Triad of symptoms was observed in 41.5% of cases. On examination 83% of cases had pallor, 73.6% cases had abdominal tenderness, 62.3% of cases had cervical motion tenderness, and 66% of cases had adenexal tenderness. 13 cases (24.5%) were presented with shock at time of admission (Table 4).

Table 5: Site of ectopic gestation.

Site	Number of case (n = 53)	%
Fallopian tube	49	92.4
Ampullary	33	62.3
Isthemic	10	18.7
Fimbrial	4	7.5
Interstitial	2	3.8
Cornual	1	1.9
Caserean scar pregnancy	3	5.7
Side of tubal ectopic pregnancy		
Right side	35	71.4
Left side	14	28.6
Ruptured/unruptured		
Ruptured	39	73.6
Unruptured	14	26.4

A spot urine pregnancy test was performed in all cases and was found to be positive in all cases. The mean gestational age at time of diagnosis was 7 weeks (4-13 weeks). Tubal ectopic pregnancy was most common finding and was seen in 49 (92.4%) of cases. Typical site observed in our study was ampullary (33 cases, 62.3%). Other sites observed were rudimentary horn pregnancy (1 case, 1.9%), caesarean scar pregnancy (3 cases, 5.7%).

Among the cases of tubal ectopic pregnancy majority (35 cases, 71.4%) were observed in right side and 14 cases (28.6%) were observed in left side of fallopian tube (Table 5).

After evaluation management was planned. 4 cases were given single dose of methotrexate (50 mg/m²). Out of them 1 case was early scar ectopic pregnancy and three cases were early tubal ectopic pregnancy.

The criteria used for medical management were

- Who were hemodynamically stable
- Had gestational sac diameter <=3.5 cm
- With initial serum βhCG < 5000 mIU/ml
- No free fluid in pelvis
- No contraindications for methotrexate and
- Who are willing for regular follow-up.

Table 6: Management modalities.

Modalities	Number of cases (n = 53)	%
Medical management	3	5.7
Surgical management	50	94.3
Laparotomy	33	66
Laparoscopy	17	34
Salpingectomy	44	88
Salpingostomy	1	2
Conuostomy with myometrial closure	2	4
Cornual resection	1	2
Excision of caserean scar pregnancy	2	4

Table 7: Morbidity associated with ectopic pregnancy.

Morbidity	Number of cases (n = 53)	%
Mortality	0	0
Anemia	28	52.8
Blood transfusion	35	66
Febrile illness	8	15
Transfusion related acute lung injury	1	1.9
Wound infection	1	1.9

Out of four cases of medical management group, one case of tubal ectopic pregnancy developed severe abdominal pain on 4th day with hemoperitoneum reported by ultrasonography. Thus, diagnostic laparoscopy was planned. Ruptured left fallopian tube observed and managed with left salpingectomy. Remaining three cases were successfully managed with single dose of methotrexate. 50 cases were managed by surgery. Laparotomy was done for 33 (66%) of cases and laparoscopy for 17 (34%) of cases. Ruptured ectopic pregnancy was observed in 39 cases (73.6%) and 14

cases (26.4%) were unruptured. Hemoperitoneum was detected in 44 (83%) of cases. Unilateral salpingectomy was the most common procedure performed (44 cases, 88%). Other procedure done were salpingostomy in one case, laparoscopic cornuostomy with myometrial closure in two cases and excision of scar ectopic pregnancy was performed in two cases (Table 6).

Common morbidities observed in our study were anaemia (52.8%), multiple blood transfusions (66%), febrile illness (15%), transfusion related acute lung injury (1.9%) and wound infection (1.9%). No mortality was observed in our study. Average hospital stay was about 7.2 days (Table 7).

DISCUSSION

Prevalence of ectopic pregnancy accounts for 0.5-1.5% of all first trimester pregnancy in United State.^{2,3} Prevalence is much higher among women presenting to the emergency department with first trimester vaginal bleeding, abdominal pain or both and has been reported to be as high as 18%.⁵ In our study the incidence of ectopic pregnancy was 5.3 per thousand deliveries. Similar finding was observed in study conducted by Saraddha Setty K et al, Islam A et al and Yeasmin MS et al and they reported the incidence of 5.6, 6.5 and 7.4 per thousand deliveries respectively.¹¹⁻¹³

Majority of women in our study belong to age group of 20-30 years (73.6%) with mean age of 26.54±5.03 years. Comparable observation was reported by Chate MT et al (71%), Setty S et al (74.2%), Panda SR et al (70%), Gaddagi et al (70.2%). This finding coincides with peak age of human reproduction.^{11,14-16}

In the present study, majority of women are multi gravida (67.9%) followed by second gravida (28.3%) and primigravida (3.8%). Identical observation of high prevalence among multi gravida was reported by Gaddagi et al (62.2%), Sudha et al (81.58%), Saraddha Setty K et al (83.9%) and Panda SR et al (87.9%). This high prevalence of ectopic pregnancy among multigravida may be attributable to increased sexual life, increased incidence of pelvic inflammatory disease and use of contraceptive like IUCD.¹⁴

Most of the cases (45%) had no identifiable risk factors. Predominant risk factor observed in this study was prior pelvic surgeries (37.7%) followed by prior spontaneous or induced abortion (18.8%). Comparable result was observed in many Indian studies.^{7,17-19} Pelvic inflammatory disease observed in our study was 9.4% of cases, which is comparable with Srivastava and Giddagi.^{7,16} In contrast Panda SR et al, Kokate PH et al and Raman SV et al observed a comparably high incidence of pelvic inflammatory disease among patient with ectopic pregnancy.^{15,19,20} Abnormal fallopian tube anatomy is associated with abnormal transportation and implantation of fertilized ovum and thus considered as an

important cause of ectopic pregnancy.¹ Pelvic surgeries for sterilization, fertility restoration, prior tubal pregnancy and pelvic inflammatory disease cause distorted tubal anatomy, and hence increase the risk of ectopic pregnancy. Other risk factors recognized were history of infertility, previous history of IUCD insertion and previous history of ectopic pregnancy etc.

The commonest presenting symptoms were abdominal pain (90.6%), amenorrhoea (75.5%) and vaginal bleeding (47.2%) but the classical triad of symptoms was observed in only 41.5% of cases. These finding were in concordance with study by Gaddagi RA et al. Period of amenorrhoea was ranging from 4 weeks to 13 weeks with a mean of 7 weeks. Various signs observed were abdominal tenderness, adnexal tenderness, and cervical motion tenderness. About 24.5% of cases were presented with shock at time of admission similar to study by Tahmina et al (26.4%).

In our study clinical suspicion of ectopic pregnancy was made for 77.4% of cases based on various symptoms and signs alone. Trans abdominal and transvaginal ultrasonography confirmed the diagnosis and further added another 22.6% of cases. Spot urine test was performed in all cases of ectopic pregnancy and was found to be positive in all the cases. Early diagnosis is possible with high index of clinical suspicion. Every sexually active woman in reproductive age, who present with abdominal pain, amenorrhoea and vaginal bleeding should be screened for ectopic pregnancy. Specific attention should be given to women with known risk factors.²¹⁻²³ Ectopic pregnancy can be diagnosed with accuracy by combined use of urine pregnancy test, serum β hCG and transvaginal sonography. When the result is inconclusive, serial measurement of serum β hCG and progesterone helps to reach a diagnosis.²⁴

Maximum number of the patients (92.4%) in our study had tubal ectopic pregnancy, the commonest site was ampulla (62.3%). These findings correlated with study by Ishlam A et al, Gaddagi RA et al and Tahmina et al.^{12,16,17} In 10 years population-based study of 1800 cases of ectopic pregnancy, Bouyer et al reported 95.5% were tubal with most common site being ampulla (70%).²⁵

Studies reported right side of fallopian tube involvement more than left side.^{7,11-13,26} Authors observed right sided tubal ectopic pregnancy in 35 cases (71.4%), which was more than left tubal involvement (14 cases, 28.6%). Majority of cases were ruptured (39 cases, 73.6%) and had hemoperitoneum (44 cases, 83%) at time of diagnosis. Similar high incidence of ruptured ectopic pregnancy was reported by most of the Indian studies.^{6,7,11,15,19,20} High incidence of rupture may be due to delay in diagnosis and late referral to our centre.

After assessment, 3 cases were successfully managed medically with single dose of intramuscular methotrexate but majority of cases required surgery (94.3%).

Emergency laparotomy was the commonest mode of surgery (33 cases, 66%) due to acute presentation to emergency ward with rupture and hemoperitoneum. Unilateral salpingectomy (88%) was performed in most of the cases as a life saving measure. Medical and laparoscopic therapies are considered as better modality with high success rate in term of reduced morbidity, mortality and shorter hospital stay.²⁷ However the choice depends upon early diagnosis and stable condition of patient.²⁸ Surgical modality is still considered as the method of choice in our country.²⁹

Morbidity included anemia of various degree (52.8%), blood transfusion (66%), and febrile illness (15%). No maternal mortality was observed due to ectopic pregnancy in this study, consistent with other studies.^{6,11,13,17,19,30} Mean hospital stay was 7.2 days identical to as reported by Tahmina et al and Udigwe et al.^{17,31}

CONCLUSION

Ectopic pregnancy is a potentially life-threatening obstetric emergency in early trimester associated with high morbidity and mortality. Recognition of risk factors and high index of clinical suspicion in patients presented with classical symptoms of amenorrhoea, pain abdomen and vaginal bleeding in early trimester is essential to clinch the diagnosis before catastrophic rupture occurs and also timely intervention will improve the prognosis of patient in term of preservation of fertility, reducing morbidity and mortality.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

- Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Cashey BM et al. Williams obstetrics. 25th ed. United States of America. Mc Graw Hill Education; 2018;19:371-87.
- Hoover RN, Hyer M, Pfeiffer RM, Adam E, Bond B, Cheville AL, et al. Adverse health outcomes in women exposed in utero to diethylstilbestrol. N Engl J Med. 2011;365(14):1304-14.
- Stulberg DB, Cain LR, Dahlquist I, Lauderdale DS. Ectopic pregnancy rates and racial disparities in the Medicaid population, 2004-2008. Fertil Steril. 2014;102(6):1671-6.
- Creanga AA, Syverson C, Seed K, Callaghan WM. Pregnancy-related mortality in the United States, 2011-2013. Obstet Gynecol. 2017;130(2):366-73.
- Barnhart KT, Sammel MD, Gracia CR, Chittams J, Hummel AC, Shaunik A. Risk factors for ectopic pregnancy in women with symptomatic first-trimester pregnancies. Fertil Steril. 2006;86:36-43.
- Sudha VS, Delphine RT. A retrospective study on ectopic pregnancy: a two-year study. Int J Reprod Contracept Obstet Gynecol. 2016;5:4365-8.
- Shrivastava M, Parashar H, Modi JN. A clinical study of ectopic pregnancy in a tertiary care centre in central India. Int J Reprod Contracept Obstet Gynecol. 2017;6:2485-90.
- Crochet JR, Bastian LA, Chireau MV. "Does this woman have an ectopic pregnancy? the rational clinical examination systematic review". JAMA. 2013;309(16):1722-9.
- Timmerman D. Predictive model for early diagnosis of ectopic pregnancy. Verh K Acad Geneesk Belg. 2004;66(2):155-71.
- Barnhart KT. Clinical practice. Ectopic pregnancy. N Engl J Med. 2009;361(4):379-87.
- Shetty S, Shetty A. A clinical study of Ectopic pregnancies in a Tertiary care hospital of Mangalore, India. Inn J Med Health Sci. 2014;4(1):305-9.
- Islam A, Fawad A, Shah AA, Jadoon H, Sarwar I, Abbasi A. Analysis of two years cases of ectopic pregnancy. J Ayub Med Coll Abbottabad. 2017;29(1):65-7.
- Yeasmin M, Uddin M, Hassan E. A clinical study of ectopic pregnancies in a tertiary care hospital of chittagong, Bangladesh. Chattagram Maa-O-Sishu Hospital Medical College J. 2014;13(30):1-4.
- Chate MT, Chate B, Chate K. Clinical study of ectopic pregnancy. Int J Reprod Contracept Obstet Gynecol. 2017;6:3498-501.
- Panda SR, Rani A, Meena M. Clinico sociodemographic profile of ruptured ectopic pregnancies at a tertiary care centre. Int J Reprod Contracept Obstet Gynecol. 2017;6:1885-9.
- Gaddagi RA, Chandrashekhar AP. A clinical study of ectopic pregnancy. J Clin Diag Res. 2012;6(5):867-9.
- Tahmina S, Daniel M, Solomon P. Clinical analysis of ectopic pregnancy in tertiary care centre in south India: a six-year retrospective study. J Clin Diag Res. 2016;10(10):13-6.
- Singh S, Mahendra G, Vijaylaxmi S, Pukale RS. Clinical study of ectopic pregnancy in a rural setup: a two year survey. Natl J Med Res. 2014;4(1):37-9.
- Kokate PH, Kurude V, Ahire B. Clinical study of ectopic pregnancy at tertiary care centre in Mumbai. IJRMR. 2017;4(1):2163-5.
- Ramana SV, Padmaja G. Clinical study of ectopic pregnancy. Indian J Applied Res. 2015;5(4):494-6.
- Kirk E, Papageorghiou AT, Condous G, Tan L, Bora S, Bourne T. The diagnostic effectiveness of an initial transvaginal scan in detecting ectopic pregnancy. Hum Reprod. 2007;22:2824-8.
- Van Mello NM, Mol F, Opmeer BC, Ankum WM, Barnhar K, Coomarasamy A, et al. Diagnostic value of serum hCG on the outcome of pregnancy of unknown location: a systematic review and meta-analysis. Hum Reprod Update. 2012;18:603-17.

23. Tubal ectopic pregnancy. ACOG Practice Bulletin NO. 191. American College of Obstetrician and Gynaecologist. *Obstet Gynecol.* 2018;131:e65-77.
24. Murrey H, Baakdah H, Bardell T, Tulandi T. Diagnosis and treatment of ectopic pregnancy. *CMAJ.* 2005;173(8):905.
25. Bouyer J, Coste J, Fernandez H, Pouly JL, Job-Spira N. Site of ectopic pregnancy: a 10-year population-based study of 1800 cases. *Hum Reprod.* 2002;17(12):3224-30.
26. Igwegbe AO, Eleje GU, Okpala BC. An appraisal of management of ectopic pregnancy in a Nigerian Tertiary hospital. *Ann Med Health Sci Res.* 2013;3(2):166-70.
27. Jurkovic D. Ectopic pregnancy. In: Edmonds DK, editor. *Dew Hurst's textbook of Obstetrics and Gynecology.* 7th ed. USA: Blackwell Publishers; 2007.
28. Shah N, Khan NH. Ectopic pregnancy: presentation and risk factors. *J Coll Physicians Surg Pak.* 2005;15:535-8.
29. Chatterjee S, Dey S, Chowdhury RG, Ganguli D. Ectopic pregnancy in previously infertile women subsequent pregnancy outcome after laparoscopic management. *Al Ameen J Med Sci.* 2009;2(1):67-72.
30. Tuli AG, Goyal S, Livingston D, Kurian AS. Ectopic pregnancy: a five-year retrospective study in a tertiary care hospital. *Int J Reprod Contracept Obstet Gynecol.* 2015;4(5):1400-3.
31. Udigwe GO, Umeonihuh OS, Mbachu II. Ectopic pregnancy: a 5-year review of cases at Nnamdi Azikiwe University teaching hospital (NAUTH) Nnewi. *Niger Med J.* 2010;51(4):160.

Cite this article as: Samantaray SR, Mohapatra I, Vivekanada A. A clinical study of ectopic pregnancy at a tertiary care centre in Telangana, India. *Int J Reprod Contracept Obstet Gynecol* 2020;9:682-7.