



RETROSPECTIVE ANALYTICAL STUDY OF ECTOPIC PREGNANCY IN A TERTIARY CARE CENTRE: A LIFE-THREATENING CLINICAL ENTITY

Obstetrics & Gynaecology

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ABSTRACT

Title Of The Study: "Retrospective Analytical Study of Ectopic Pregnancy in a Tertiary Care Centre: A Life-Threatening Clinical Entity"

Background: Ectopic pregnancy (EP) is the most common life threatening emergency in early pregnancy leading to significant maternal morbidity and mortality. The objective of the study was to determine the incidence, clinical features, risk factors, mode of diagnosis and treatment, associated morbidity and mortality with respect to EP.

Method: This is a retrospective analytical study conducted in the department of Obstetrics and Gynecology, Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, over a period of two years (July 2019 to June 2021). A total of 45 cases of EP were analyzed in detail for the above mentioned objectives.

Result: A total of 45 cases of EP were included in our study. Incidence of EP was 3.34%. Majority of EP belonged to the age group of 26-30 years (46.67%). Incidence of EP was more in the women with higher birth order (77.78%) than in primigravida. Majority of them had at least one risk factor, of which commonest was the history of PID (24.44%) and infertility treatment (24.44%). The classic triad of symptoms of EP was observed in 40% cases. Commonest site for tubal ectopic pregnancy was ampulla (26.67%). Amongst 42 cases of tubal pregnancies, 28 (66.67%) were ruptured. Out of 45 EP cases, 44 underwent surgery. Unilateral salpingectomy (by laparotomy) was the most common (62.22%) surgery performed. There was no maternal mortality in the present study.

Conclusion: Ectopic pregnancy is still a major challenge in obstetric and gynecological practice because of its bizarre clinical presentation. Early diagnosis and timely intervention not only reduces maternal morbidity and mortality but also preserves future fertility.

KEYWORDS

Ectopic pregnancy, Amenorrhea, Urine Pregnancy Test, Ultrasonography

INTRODUCTION:

An ectopic pregnancy (EP) is the pregnancy implanted outside the endometrial cavity. The incidence of EP is 1-2% in general population and 2-3% amongst the patients who have utilized artificial reproductive techniques. Unfortunately, it is still one of the leading causes of maternal mortality in 1st trimester and is also one of the important condition threatening fertility. However, the case fatality rate has decreased over recent years, suggesting that earlier diagnosis and treatment may have made an impact.¹ Few important risk factors for EP include previous ectopic pregnancy, tubal damage following surgery or infection, previous pelvic inflammatory disease (PID), infertility, assisted reproductive techniques, endometriosis, prior abdominal surgery, use of Intra-Uterine Device, age >35 years, tobacco smoking, non-white race and prior abortions. However, the majority of women have no identifiable risk factors.^{2,3,5}

Diagnosis is complicated by a wide spectrum of clinical presentation from asymptomatic cases to acute abdomen and hemodynamic shock. So, there must be a very high suspicion of EP especially in areas of high prevalence. Classic triad of amenorrhea, pain abdomen and vaginal bleeding should always be suspected to have EP.⁴ But this triad is seen only in about 50% of cases and most typical of a ruptured EP.⁷ Detailed history taking along with clinical examination and investigations like urine pregnancy test (UPT), serum beta HCG and pelvis ultrasound, play a vital role in diagnosis. Laparoscopy is the gold standard for the diagnosis of EP. EP can be managed expectantly, medically or surgically depending on the various factors like clinical presentation, beta HCG value, site/condition of EP and the availability of the resources.^{1,5,6}

The availability of sensitive beta HCG tests and high resolution ultrasound has resulted in early diagnosis and has decreased mortality rate significantly.² Dictum to early diagnosis and successful management is to 'THINK ECTOPIC' but also not to 'OVER THINK ECTOPIC'. Hence, in view of this challenging diagnosis the current study was undertaken to determine the incidence, clinical features, risk factors, mode of diagnosis and treatment, associated morbidity and mortality with respect to EP.

Objectives:

To determine the incidence, clinical features, risk factors, mode of diagnosis, mode of treatment, associated morbidity and mortality with respect to ectopic pregnancy.

MATERIALS & METHODS:

This retrospective analytical study was conducted in the department of Obstetrics and Gynecology, Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, over a period of two years (July 2019 to June 2021). It is a tertiary care center getting referrals from nearby cities and various other health care centers. A total of 45 cases of EP were reported during this time frame and were admitted at our centre through outpatient department or emergency department.

Inclusion Criteria:

All the diagnosed cases of EP admitted in the above mentioned study area during the study period with relevant information in the respective case records required for the study.

Exclusion Criteria: All cases of intrauterine pregnancies/ miscarriages

The study was done after obtaining the ethical approval. All the diagnosed cases of EP were enrolled in the study. Diagnosis of EP was made by detailed history, clinical examination, laboratory investigations (UPT and Serum beta HCG) and radiological investigations (Pelvis Ultrasound). The information regarding total number of EP and total number of deliveries in the study area during the study period were traced through OPD registers, labour-ward registers and OT registers. Information of the each case was obtained from their case record in the Medical Records Department. Records were studied for the details of demographic data, period of amenorrhea at the time of diagnosis, parity, clinical presentation, risk factors, mode of diagnosis and treatment, morbidity and mortality associated with EP. This information was recorded in the pre-structured proforma. The confidentiality and anonymity of the patient was maintained. The data was collected and entered in Microsoft Excel sheet. Further analysis was done using SPSS software version 21. Data was compiled mainly as percentage.

RESULTS:

In our study, which was conducted over a period of 2 years, total number of deliveries were 1346 (affected due to covid pandemic) and the total number of EP were 45. Hence, the incidence of EP was 3.34%. In the present study, majority of them belonged to the age group of 26-30 years (46.67%) (Table 1). Gravida 2 (28.89%) and Gravida 3 (28.89%)

%) accounted for maximum number of cases. (Figure 1).

Table 1: Distribution Of Cases According To Age

Age group (years)	No. of cases	Percentage (%)
<20	2	4
21-25	8	18
26-30	21	46.67
31-35	7	15.56
36-40	6	13.33
≥40	1	2.22
Total	45	100

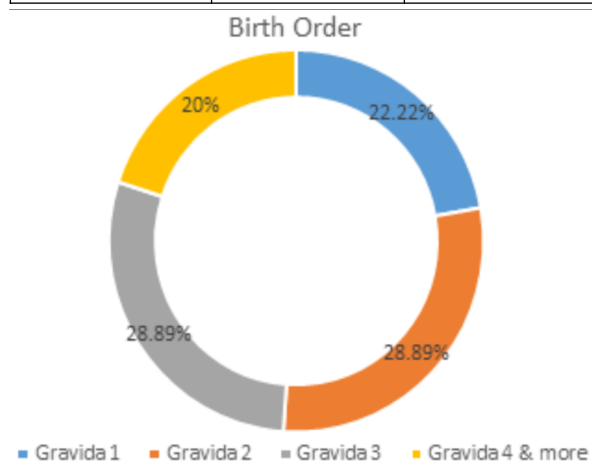


Figure 1: Distribution Of Cases According To Birth Order

Majority of EP were diagnosed at the gestational age of 6-8 weeks (44.44%) (Figure 2).

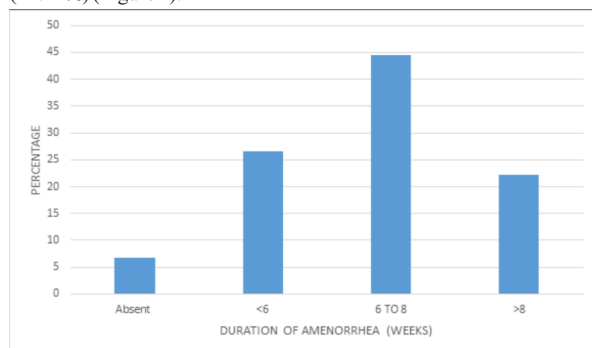


Figure 2: Duration Of Amenorrhea (weeks)

In our study, majority of them had at least one identifiable risk factor (Table 2). Amongst these, most common was the history of infertility treatment (24.44%) and PID (24.44%).

Table 2: Risk Factors

Risk factors	Number of cases	Percentage (%)
Previous spontaneous abortion	9	20
Previous termination of pregnancy (medical /surgical)	9	20
Previous ectopic pregnancy	2	4.44
Previous caesarean section	9	20
Previous partial salpingectomy	2	4.44
Laparoscopic Tubal Occlusion	3	6.67
Open sterilization	2	4.44
Tubal recanalization	3	6.67
History of Infertility treatment	11	24.44
History of PID	11	24.44
History of IUCD insertion	3	6.67
Endometriosis	1	2.22
Bicornuate Uterus	1	2.22

The classic triad of abdominal pain, amenorrhea and vaginal bleeding was observed in 40% cases. On examination, 80% had abdominal

tenderness and 31.11% women were in hemodynamic shock. UPT was positive in 93.3% of cases. Ultrasonography was conclusive in all the cases including cervical EP.

The commonest site of EP was the fallopian tube (93.33%), with ampulla being the most common site in fallopian tube (26.67%) (Figure 3). We had two cases of cervical pregnancy (4.44%) and one case of rudimentary horn pregnancy (2.22%). Out of 42 cases of tubal pregnancies, 28 (66.67%) were ruptured, 7 (16.67%) were unruptured, 5 (11.90%) were tubal abortion and 2 (4.76%) were chronic EP.

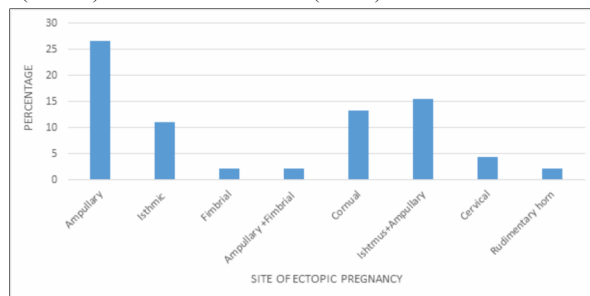


Figure 3: Distribution Of Cases According To The Site Of Ectopic Pregnancy

In our study, 44 (97.78%) cases underwent surgery and only 1 (2.22%) was managed medically. Salpingectomy by open method remained the mainstay of treatment (Table 3). One case of cervical ectopic was managed surgically (Uterine Artery Embolization with curettage) and the other was managed medically. Woman with rudimentary horn pregnancy underwent excision of the rudimentary horn with ipsilateral salpingectomy.

Table 3: Distribution Of Cases According To The Surgery Performed

Procedure	No. of cases	Percentage (%)
Unilateral salpingectomy	28	62.22
Bilateral salpingectomy	10	22.22
Unilateral salpingo-oophorectomy	1	2.22
Ipsilateral salpingectomy + Contralateral partial salpingectomy	1	2.22
Laparoscopic bilateral salpingectomy	2	4.44

Hemoperitoneum (intra-operatively) of <500mL was seen in 11 (24.44%) cases and >500ml in 25 (55.56%) cases. General anesthesia was used for surgery in 12 cases. As high as 51.11% of cases needed blood transfusion and 1 case needed ICU care in view of shock with respiratory failure after general anaesthesia during surgery. There was no maternal mortality in the current study.

DISCUSSION:

Ectopic pregnancy is a life threatening emergency in obstetrics and gynaecology. It is an important contributor to maternal morbidity and mortality and is one of the commonest causes of 1st trimester maternal deaths. In present study, the incidence is significantly higher at 3.34%, than most of the other studies in developing countries, where it ranges from 0.56-1.5%.¹

In the present study, majority of EP belonged to the age group of 26-30 years (46.67%). Similarly in the study by Mehta A et al, maximum incidence was observed between 25-29 years (43.75%).¹ Sudha VS et al reported that 42.98% of cases belonged to 20-25 years of age²; while Chate MT et al reported an incidence of 36.55% in age group of 21-25 years.³ S Tahmina et al also reported maximum incidence in age group of 25-30 years (51.39%).⁴

We observed maximum incidence of EP in women with higher birth order (gravida 2 or more) (77.78%) than in primigravida (22.22%). Woman with Gravida 4 or more (obstetric index) were found to have maximum EP in Mehta A et al study (41.25%).¹ Similar results were observed in Sudha VS et al and S Tahmina et al studies.^{2,3} Most of the EP were diagnosed at gestational age of 6-8 weeks (44.44%), which is similar to the observation made by Mehta A et al.¹

A detailed history taking is very important in all the cases of EP so that the underlying causative factor is established. Health education on

safer sex and provision of family planning services, such as condoms and other barrier contraceptives, will help prevent sexually transmitted infection and unwanted pregnancies, thereby reducing the incidence of PID and postabortal complications. There is a need to institute a mandatory ultrasound before termination of pregnancy. Unsupervised usage of MTP pill intake should be condemned. In the present study, majority of the patients had atleast one risk factor, of which commonest was history of PID(24.44%) and infertility treatment(24.44%). Similarly, the study by Mehta A et al had 66.25% cases with at least one risk factor for EP but previous abortion was the most common risk factor.¹ In the study by Sudha VS et al and Chate MT et al, infertility was most common risk factor and previous abortion in S Tahmina et al study.^{2,3,4} In present study, classic triad of symptoms was observed in 40% case and 93.33% cases presented with amenorrhea. Mehta A et al observed the classical triad in 71.25% cases.¹

Commonest site of tubal EP is the ampulla in present study(26.67%). According to Mehta A et al, the commonest site of EP was ampullary part of fallopian tube(42.5%).¹ Similar findings were noted in the study by Sudha VS et al and Chate MT et al.^{2,3} Out of 42 cases of tubal pregnancies, 66.67% were ruptured. Similar findings were noted by Mehta A et al i.e.55% showed a ruptured ectopic pregnancy.¹ Sudha VS et al, Chate MT et al and S Tahmina et al studies also showed similar findings.^{2,3,4}

In the present study, unilateral salpingectomy (by laparotomy) was done in 62.22% cases followed by bilateral salpingectomy in 22.22% cases. Mehta A et al reported that salpingectomy along with contralateral tubectomy was performed in 35% of the cases as their family was complete. Majority of the cases underwent open salpingectomy whereas only 1 case underwent laparoscopic salpingectomy.¹ In the study done by Sudha VS et al also, open salpingectomy was done in 90.52%.² Similarly in the study by Chate MT et al; unilateral salpingectomy (open) was done in about 75.26% cases.³

In developing countries majority of the patients are diagnosed after tubal rupture. Our centre being a tertiary referral centre, most of the cases came with ruptured ectopic pregnancies. It emphasizes that majority of the cases present late, either due to late diagnosis or because of delay in referral. It was observed that majority of the cases had to undergo a laparotomy, because of unstable condition at presentation. There was no mortality in the current study. Maternal mortality due to ectopic pregnancy is reported between 0% and 1.3% in various studies.¹ It is possible to prevent maternal mortality in low-resource countries by maintaining basic clinical and surgical skills. The limitation of our study is its retrospective nature. Setting up Early Pregnancy Assessment Units (EPAUs) has been shown to result in higher quality and cost-effective care and to have a positive effect on early pregnancy care in the UK.⁴ Future studies are required to evaluate usefulness of EPAUs and feasibility of setting them up in India.

CONCLUSION:

Ectopic pregnancy is still a major challenge in obstetrics and gynecological practice because of its bizarre clinical presentation. It can be diagnosed early by keeping a high index of suspicion. Common risk factors for EP must be identified. Use of transvaginal ultrasonography and human chorionic gonadotropin assay have revolutionised the management of EP and serve as valuable adjuncts to the early diagnosis and management. Mass education regarding safe abortion practices and post-abortion care should be promoted. Early diagnosis and timely intervention not only reduces maternal morbidity and mortality but also preserves future fertility.

Acknowledgement:

I gratefully acknowledge and express my sincere thanks to our Dean & the Head of the Department for permitting me to do this study and utilize the institutional facilities. I would also like to thank all the staff and PG's of OBG department who have helped me to complete the study.

Funding: No funding sources

Conflict Of Interest: None declared

Ethical Approval: The study was approved by Institutional Ethical Committee

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