A clinical analysis of ectopic pregnancies in a tertiary care hospital in Hyderabad

L. Pranathi1*, Y. Madhavi2

1Associate Professor, Department of Gynaecology and Obstetric, ESIC Medical College, Sanathnagar, Hyderabad, Telangana, India, 2Professor, Department of Gynaecology and Obstetric, ESIC Medical College, Sanathnagar, Hyderabad, Telangana, India

We carried out this study was to evaluate all the cases of EP managed at a tertiary care center over a period of one year and four months, from May 2016 to September 2017 and to determine the incidence, risk factors, clinical presentation, management, and morbidity associated with EP.

MATERIALS AND METHODS
We carried a retrospective study on 42 patients with ectopic pregnancies at ESIC Medical college, Sanathnagar, Hyderabad, Telangana State from May 2016 to September 2017. The primary outcome measures studied were the incidence of EP, their risk factors, mortality, and morbidity in these women.

RESULTS
The incidence of EP was 1.08. Majority of the women were aged 21–30 years. The most common risk factors were previous abortion (30.95%) and pelvic surgery (33.33%). The classic triad of amenorrhea, vaginal bleeding, and lower abdominal pain was present in 17 (40.47%) cases. A history of preceding amenorrhea was present in 37 (88.09%) women.

INTRODUCTION
An ectopic pregnancy (EP) is one in which the fertilized ovum becomes implanted in a site other than the normal uterine cavity. The incidence of EP is around 1–2% in most hospital based studies, 10 times higher in developing countries than those reported in developed countries.[1-3]

The classic triad of amenorrhea, abdominal pain, and vaginal bleeding is not seen in majority of cases. Studies have shown mortality rates of 3.5–7.1% due to EP. However, there is no disorder in obstetrics and gynecology which presents so many diagnostic pitfalls and alleys. Majority of patients exhibit a wide variety of symptoms and mimic many other diseases affecting the abdominal organs.[4,5]

EP is the fifth common cause of maternal mortality according to the most recent triennial report and most common cause of death in the first trimester, hence, there is a need for prompt diagnosis and accurate treatment.[6-8]

Even though women with EP usually have no identifiable risk factors, a knowledge of the associated risk factors helps identify women at higher risk of EP to facilitate early and more accurate diagnosis.[9-12]

Key words: Amenorrhea, ectopic pregnancy, maternal mortality, ultrasonography, vaginal bleeding

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Majority of the women were aged between 21 and 30 years [Table 2 and Graph 1].

When parity of the women was recorded, most of them were P1 followed by P2 [Table 3 and Graph 2].

The most common risk factors were previous abortion (30.95%) and pelvic surgery (33.33%). Among the women who underwent pelvic surgery, 10 women had undergone tubectomy, and one woman had tubal recanalization [Table 4 and Graph 3].

The classic triad of amenorrhea, vaginal bleeding, and lower abdominal pain was present in 17 (40.47%) cases. A history of preceding amenorrhea was present in 37 (88.09%) women [Tables 5 and 6: Graphs 4 and 5].

A diagnosis of EP was made on clinical findings alone in 26 (61.90%) women. However, ultrasonography (USG) was useful in making the diagnosis in 15 more cases. USG was inconclusive in one case, which needed a diagnostic laparoscopy to arrive at a diagnosis [Table 7 and Graph 6].

The mean gestational age at diagnosis was 7.3 weeks. The site of EP was fallopian tubes in 39 cases (92.85%) [Table 8 and Graph 7].

Nine (21.42%) women were managed medically with methotrexate. 6 of them had a single dose of methotrexate, while 3 needed a multiple-dose regimen. Two of the 9 women required surgery following failed medical management. Among the 35 women managed surgically among the 35 women managed surgically, 25 cases underwent laparoscopic surgery and 10 laparotomy. 30 were ruptured at the time of diagnosis, with haemoperitoneum seen intraoperatively, 30 were ruptured at the time of diagnosis, with hemoperitoneum seen intraoperatively. Mean hemoglobin at admission was 9.4 ±1.7 g/dL. More than half of the women needed a blood transfusion (54.9%), and one woman had transfusion-related acute lung injury (TRALI). Mean duration of hospital stay was 6.3 ± 2.6 days. No deaths
were noted. Admission to intensive care unit was required either due to hemodynamic instability or due to complications such as atelectasis and TRALI. Abdominal wound infection was seen in two cases [Table 9].

**DISCUSSION**

EP means a pregnancy that develops outside the uterus, usually in one of the fallopian tubes, but might also occur in the cervix, ovary or the abdominal cavity. The increasing incidence of this condition is concerning because of an associated increase in pregnancy-related morbidity and mortality rates during the first trimester in women of childbearing age.\[1,6-8\]

Studies have shown that EP leads to 3.5–7.1% of maternal mortality in India.\[8,9\] We found an incidence of 1.08% EP in our study. Our results are in agreement with few other studies from developing countries where incidence ranged from 0.56 to 1.5%.\[7,14-17\] This high incidence rates should alert gynecologists in general and effort should be done in early identification of EP and timely referral to a higher center is vital to reduce mortality and morbidity, especially in the first trimester.

The incidence of EP is on the rise. It is thought to be related to increasing maternal age, tubal surgery, pelvic inflammatory disease (PID), practice of induced abortion, assisted reproductive techniques and perhaps more importantly increased ability to accurately ascertain the condition.\[13\] Studies have shown that EP leads to 3.5–7.1% of maternal mortality in India.\[8,9\] We found an incidence of 1.08% EP in our study. Our results are in agreement with few other studies from developing countries where incidence ranged from 0.56 to 1.5%.\[7,14-17\]

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The suspicion of an EP should be raised from the history of risk factors and triad of symptoms: Pain in lower abdomen, amenorrhea, and vaginal bleeding. The classic triad was present in 17 (40.47%) cases. Tahmina et al. found the triad of symptoms in 40.3% of their cases. Other similar studies have reported this triad to be present in 28–95% women, clearly indicating that this is not a presenting feature in most cases. We found a history of preceding amenorrhea in 37 (88.09%) women.
Tahmina et al. found amenorrhea in 93.1% of their cases. Singh et al. reported that 52% of their cases did not have preceding amenorrhea.\textsuperscript{[1,14,18,19]}

The mean gestational age at diagnosis in our study was 7.3 weeks. Tahmina et al. found it to be 7.1 weeks, while Khaleeque et al. reported 6 weeks at diagnosis.\textsuperscript{[1,15]}

We found that among the risk factors, previous abortion (30.95%) and pelvic surgery (33.33%) were common. Tahmina et al. found previous pelvic surgery (37.5%), followed by previous abortions (36.1%) as their risk factors. However, most of the studies reported previous abortions as risk factors.\textsuperscript{[14,15,18]} The reason for previous pelvic surgery being the most common risk factor in our study could be attributed to the high cesarean section and tubal sterilization rates in our state.

History of PID was seen in 14.28% of our patients, similar to that reported by Singh et al. and Mufti et al. in their studies. However, studies from Nigeria reported very high incidence of PID when compared to studies from India and South Asian countries. This high prevalence has been attributed to high polygamy rates in Nigeria.\textsuperscript{[14,18-20]} In our study there was no incidence of unknown pregnancy and cervical pregnancy.

Studies have shown that majority of EP cases can be diagnosed clinically, but 38.10% would have been not diagnosed or missed in our study. Tahmina et al. could diagnose 61.10% cases clinically and would have missed the diagnosis in 38.9% of their cases. USG was useful in diagnosing most of these cases, and this procedure may not require gynecologic specialists as physicians after obtaining USG training can perform ultrasonography.\textsuperscript{[1]}

Most of the cases (83.33%) were managed surgically, and a salpingectomy was performed. Most studies reported a similarly high rate of surgical management.\textsuperscript{[15,17,18]} However, our findings were in contrast to Taheri et al. and van den Berg et al.\textsuperscript{[21,22]} This was attributed to the establishment of early pregnancy assessment units where EP is likely to be diagnosed at an early stage when medical management is still possible.

We found one case of EP (2.38%) incidence who gave a history of using Copper T-380A. Shraddha Shetty et al found an incidence of 6.4% EP in women who used copper T7 Skjeldedestad FE reported occurrence of EP in Copper T-380A using women to be 0.20 per 1,000 women.\textsuperscript{[23]}

The most common site of EP in our study was the fallopian tubes (92.85%). Tahmina et al. found EP fallopian tubes in 94.4% cases. In developing countries, the majority of patients are diagnosed after tubal rupture. We found 75% of the women who had ruptured ectopic pregnancies and presented with a hemoperitoneum, few other studies reported 70–100% of EP ruptured at diagnosis, mostly due to late referrals.\textsuperscript{[1,6,18-20]}

More than half of the women needed a blood transfusion (54.9%), and one woman had transfusion-related acute lung injury. Tahmina et al. and Udigwe et al. found 59.7% and 94.4% women needed blood transfusion, respectively.\textsuperscript{[1,18]}

Mean duration of hospital stay in our study was 6.3 ± 2.6 days. However, Tahmina et al. found the mean duration of hospital stay to be 6.6 ± 2.9 days. Udigwe et al. similarly reported that 94.4% of their patients had a hospital stay of <8 days, while 5.6% of the women needed prolonged hospitalization up to 14 days.\textsuperscript{[1,18]}

There were no deaths due to EP during the period of our study, similar to Tahmina et al. Many studies reported that maternal mortality due to EP was mostly due to hemorrhage following rupture of the EP due to delayed referrals and diagnosis. Prevention and treatment of PID and encouraging women to undergo an early transvaginal USG to confirm the location of pregnancy is likely to prevent late diagnosis and initiation of early treatment.\textsuperscript{[1,18-20]}

USG being the mainstay for evaluating EP, its availability at the point of care will also help the majority of patients by allowing safe and timely discharge of patients presenting to emergency departments with clinical suspicion of an EP. Future studies should also concentrate on markers to differentiate between intrauterine and ectopic pregnancies such as placental growth factor.\textsuperscript{[23]}

**Limitations**

We found the following limitations in our study

1. This is a single hospital based study and cannot be correlated with general population.
2. Limited duration of the study and small sample size.
3. Its retrospective nature.
4. Could not estimate the duration of delay in diagnosis and referral and its effect on morbidity.

**CONCLUSION**

The present study showed an incidence of 1.08% EP. Majority of EP cases can be diagnosed clinically, but USG is a useful tool in detection of EP. Timely diagnosis and management can reduce the morbidity and mortality due to EP and improve the future reproductive outcome.

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