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

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ABSTRACT

Background: Early diagnosis of ectopic pregnancy (EP) presents a challenging problem and considered an emergency as it shows high mortality rates in developing countries and early detection and management is needed to prevent its related mortality and morbidity.

Aim: The aim of the 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.

Conclusion: EP represents a leading cause of morbidity and mortality for women of reproductive age. Timely diagnosis and management in early pregnancy units with the point of care ultrasonography can reduce the morbidity and mortality due to EP.

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

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]

We carried out this study was to evaluate all the cases of EP managed at a tertiary care center over a period of 1 year 4 months 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 study was approved by Institutional Ethical Committee. The case sheets of the patients with EP were traced through the labor ward and operation theater registers. The primary outcome measures studied were incidence of EP, their risk factors, mortality and morbidity in these women. Mode of diagnosis, management modality, complications and need for blood transfusion were also recorded. Data were entered into Microsoft Excel spreadsheet and analyzed using SPSS software version 20.0.

RESULTS

Our records showed that during the study period, 3873 pregnancies were diagnosed, among whom 42 pregnancies were EP. The incidence of EP was 1.08 or one in 92 pregnancies [Table 1].

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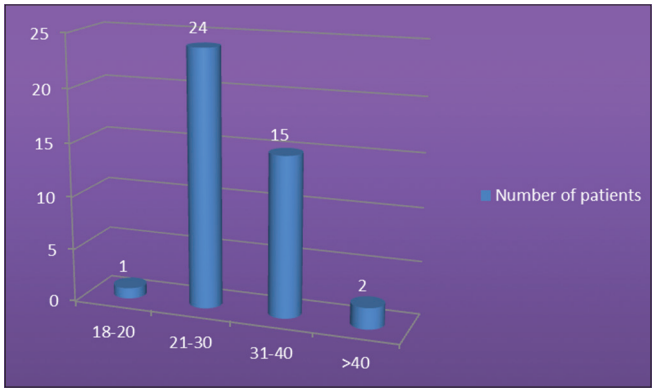
Majority of the women were aged between 21 and 30 years [Table 2 and Graph 1].

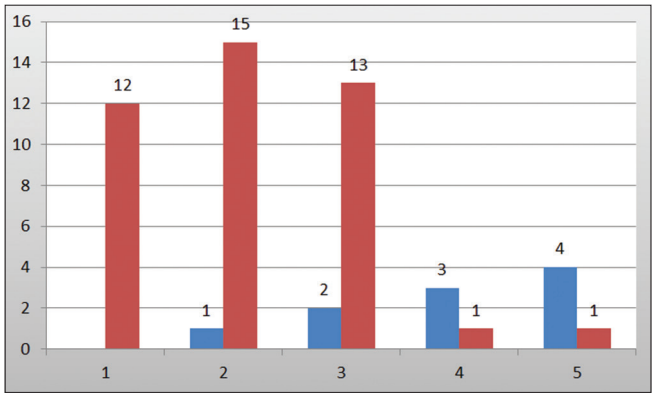
When parity of the women was recorded, most of them were P1 followed by P2 [Table 3 and Graph 2].

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 women had tubal recanalization [Table 4 and Graph 3].

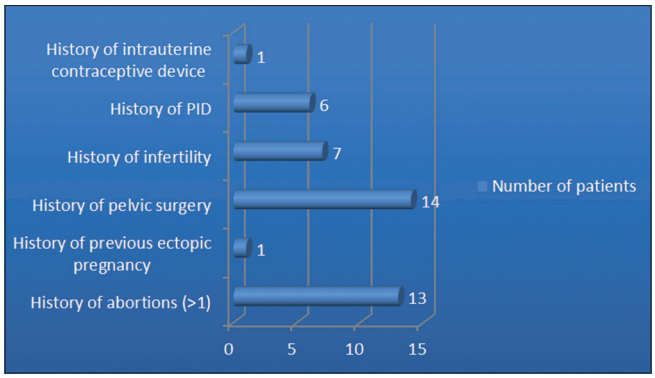
The classic triad of amenorrhea, vaginal bleeding, and lower abdominal pain was present in 17 (40.47%) cases. A history of preceding amenorrhea was present in 37 (88.09%) women [Tables 5 and 6: Graphs 4 and 5].



Graph 1: Distribution of patients according to age



Graph 2: Distribution of patients according to parity

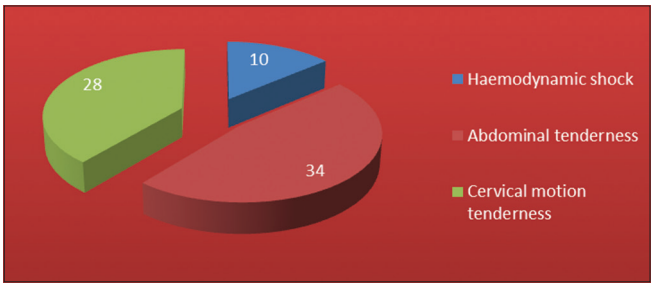


Graph 3: Distribution of the sample according to the risk factors

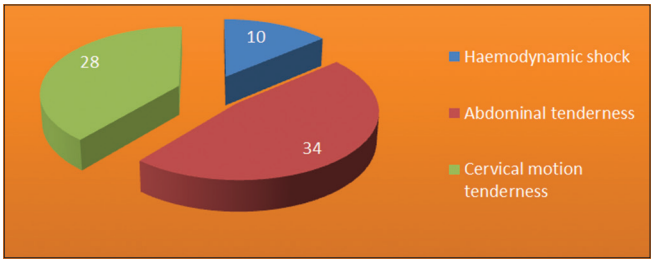
A diagnosis of EP was made on clinical findings alone in 26 (61.90%) women. However, ultrasonography (USG) was useful in making the diagnosis in 15 more cases. USG was inconclusive in one case, which needed a diagnostic laparoscopy to arrive at a diagnosis [Table 7 and Graph 6].

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].

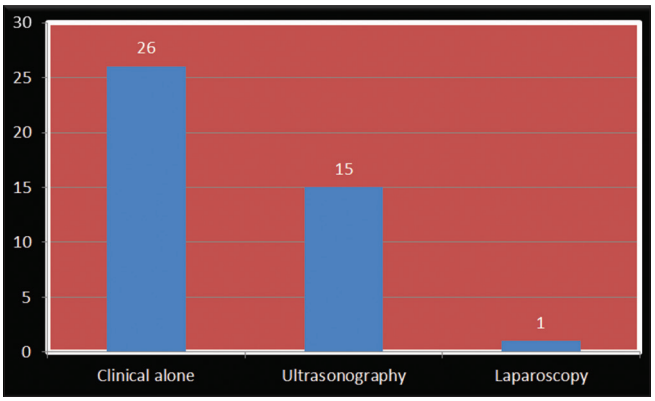
Nine (21.42%) women were managed medically with methotrexate. 6 of them had a single dose of methotrexate, while 3 needed a multiple-dose regimen. Two of the 9 women required surgery following failed medical management. Among the 35 women managed surgically among the 35 women managed surgically, 25 cases 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



Graph 4: Distribution of the sample according to symptoms



Graph 5: Distribution of the sample according to signs



Graph 6: Distribution of the sample according to diagnostic modality

Table 1: Incidence in present series

Case	Number
Total number of deliveries	3873
Number of EP	42

Incidence=1.08

Table 2: Distribution of patients according to age

Age in years	Number of patients (%)
18–20	1 (2.38)
21–30	24 (57.14)
31–40	15 (35.71)
>40	2 (4.76)

Table 3: Distribution of patients according to parity

Parity	Number of patients (%)
0	12 (28.57)
1	15 (35.71)
2	13 (30.95)
3	1 (2.38)
4	1 (2.38)

Table 4: Distribution of the sample according to the risk factors

Parity	Number of patients (%)
History of abortions (>1)	13 (30.95)
History of previous EP	1 (2.38)
History of pelvic surgery ((tubectomy and tubal recanalization))	14 (33.33)
History of infertility	7 (16.66)
History of PID	6 (14.28)
History of intrauterine contraceptive device	1 (2.38)

EP: Ectopic pregnancy, PID: Pelvic inflammatory disease

Table 5: Distribution of the sample according to symptoms

Symptoms	Number of patients (%)
Amenorrhea	37 (88.09)
Vaginal bleeding	22 (52.38)
Abdominal pain	29 (69.04)

Table 6: Distribution of the sample according to signs

Signs	Number of patients (%)
Hemodynamic shock	10 (23.80)
Abdominal tenderness	34 (80.95)
Cervical motion tenderness	28 (66.66)

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].

Table 7: Distribution of the sample according to diagnostic modality

Diagnostic modality	Number of patients (%)
Clinical alone	26 (61.90)
USG	15 (35.71)
Laparoscopy	1 (2.38)

USG: Ultrasonography

Table 8: Distribution of the sample according to Site of EP

Site	Number of patients (%)
Tubal	41 (97.62)
Cornual	1 (2.38)

Table 9: Morbidity following EP

Morbidity	Number of patients (%)
ICU admission	3 (7.14)
Wound infection	2 (4.76)
TRALI	1 (2.38)
Bowel injury	1 (2.38)
Atelectasis	1 (2.38)

TRALI: Transfusion-related acute lung injury, ICU: Incentive care unit, EP: Ectopic pregnancy

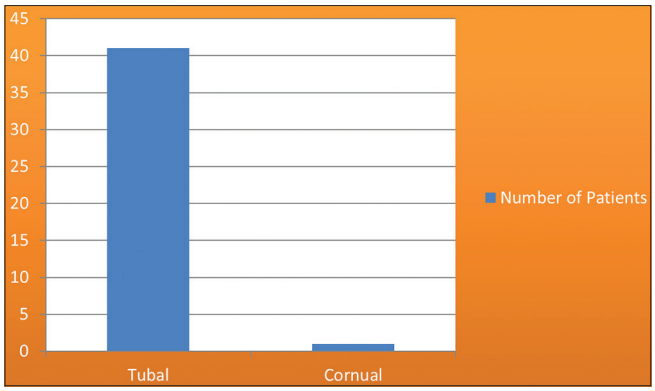
DISCUSSION

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]

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]

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 suspicion of an EP should be raised from the history of risk factors and triad of symptoms: Pain in lower abdomen, amenrrhea, 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.



Graph 7: Distribution of the sample according to site of ectopic pregnancy

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.[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.[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.[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 Indian subcontinent. This high prevalence has been attributed to high polygamy rates in Nigeria.[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.[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.[15,17,18] However, our findings were in contrast to Taheri *et al.* and van den Berg *et al.*[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 T.7 Skjeldestad FE reported occurrence of EP in Copper T-380A using women to be 0.20 per 1,000 women.[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 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.[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.[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.[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.[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.[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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