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A Retrospective Study of Ectopic Pregnancies in a Rural Tertiary Care Centre

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Abstract: ***Background: Medical professionals frequently encounter Ectopic Pregnancy (EP), a life - threatening emergency whose diagnosis is frequently missed. To avoid mortality and morbidity, every woman in the reproductive age group who exhibits lower abdominal pain or vaginal bleeding must be suspected of having an ectopic pregnancy. Materials and Methods: A retrospective study was done in the Department of Obstetrics and Gynecology of a rural tertiary care hospital at PES Institute of Medical Sciences and Research, Kuppam, AP, India. All patients who were diagnosed with ectopic pregnancy between January 2021 and December 2022in the Department of Obstetrics and Gynecology were included in the study. Results: During the two - year study period, among the 5273 pregnancies, 24 cases of ectopic pregnancy were detected, with an incidence of 4.55/1000 pregnancies. Most of the women were aged 25 - 30 years (41.66%), and 83.3% of women were multiparous. The two most prevalent risk factors were pelvic surgery in 13 cases (54.16%) followed by prior abortion in 10 cases (41.6%). Among pelvic surgery, 10 cases had undergone prior LSCS (41.6%), one case had undergone abdominal tubectomy (4.16%), one case had undergone salpingectomy for prior ruptured ectopic pregnancy (4.16%) and one case had undergone recanalization (4.16%). It was concluded in our study that as the number of pelvic surgeries increased, there is a subsequent increase in the risk of ectopic pregnancy. The traditional triad of lower abdominal pain, amenorrhea, and vaginal bleeding was present in 7 cases (29.16%). For all cases, urine pregnancy tests showed positive results (100 %).21 out of 24 (87.5%) were ectopic tubal pregnancies. Four patients (16.66%) benefited from medical management with methotrexate alone. Blood transfusion was necessary for 11 individuals (45.8%). There were no cases of mortality in the study. Conclusion: Identifying the risk factors, with a high suspicion index and a good clinical acumen aided with ultrasonography and early intervention can reduce the morbidity and mortality due to ectopic pregnancy.***

Keywords: Ectopic pregnancy, Amenorrhoea, Maternal mortality, Risk factors, Tubal pregnancy, Ultrasonography, Vaginal bleeding

1. Introduction

Ectopic pregnancy continues to remain an important cause of maternal morbidity and mortality. However as modern diagnostic methods now permit early diagnosis of most ectopic pregnancies, contemporary treatments are more conservative than in the past. The focus of attention has shifted from emergency surgery for the control of life - threatening hemorrhage to medical treatments which are aimed at avoiding surgery and preserving reproductive anatomy and thus retaining the potential for future fertility[1,2].

The modern management of ectopic pregnancy is one of medicine's greatest success stories. Ectopic pregnancy was first described in the 11th century and for centuries remained a fatal complication. The first documented unruptured ectopic pregnancy was detected during an autopsy of a female prisoner executed in Paris. It was not until 1884 when Robert Lawson Tait from London performed the first deliberate laparotomy to ligate the bleeding vessels and met with consequent success. Over subsequent years, the advent of aseptic techniques, anesthesia, antibiotics, and blood transfusions have combined to save the lives of many women. The impact of modern methods of diagnosis and treatment over the last 30 years has been tremendous, with a great reduction in adverse outcomes[3].

The incidence of ectopic pregnancy is approximately 1.5 to 2% of all pregnancies[4, 5, 6, 7]. The incidence increased dramatically by six fold between 1970 and 1992 but at the same time the risk of death decreased by almost 90%. The risk factors for ectopic pregnancy include; 10 fold for women with previous ectopic pregnancy, 3 fold for patients with documented tubal pathology, STIs, genital tuberculosis, in - utero DES exposure, smoking, alcohol consumption (>10g daily), early initiation of oral hormonal contraception, tubal ligation, tubal surgeries, post - operative pelvic adhesions, and IUCD use; infertile women and those who conceive with ART have a twofold increased risk.

2. Materials and Methods

This retrospective cohort study was carried out in Kuppam, Andhra Pradesh India, at a tertiary care medical teaching hospital. All women who had an ectopic pregnancy between 2021 and 2022 had their medical information retrieved. Notes on demographic information, parity, risk factors, clinical characteristics, modality of management, and the necessity for blood transfusion were scrutinized. The prevalence of ectopic pregnancy, risk factors, treatment modalities, mortality, and morbidity in these women were the primary outcome measures examined.

Statistical analysis:

The data were entered into MS Excel 2007 version and analyzed using SPSS version 21.

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3. Results

During 24 months study period, 5273 pregnancies were diagnosed, among which 24 pregnancies were extra - uterine. The incidence of ectopic pregnancy was 4.55/1000 pregnancies or 1 in 219 pregnancies. Most of the women were between the ages of 26 and 30. Prior abortion in 10 cases (41.6%) and pelvic surgery in 13 cases (54.16%) were the most prevalent risk factors. Out of this 10 women had a history of prior LSCS (41.6%), one woman underwent salpingectomy due to ruptured ectopic pregnancy (4.16%), one woman underwent abdominal tubectomy (4.16%) and one woman had a tubal recanalization (4.16%) among the ladies who underwent pelvic surgery. Another risk factor like a history of the pelvic inflammatory disease was noted in 6 women (25%)

Table 1: Shows the age distribution among the cases

Age in years	n=24	%
18 - 20 years	5	20.8
21 - 25 years	5	20.8
26 - 30 years	10	41.6
>30 years	4	16.6

Table 2: Shows the gravida status among the cases

Gravida Status	n=24	%
Primigravida	4	16.6
Multigravida	20	83.3

Table 3: Shows the risk factors and their distribution among the cases

Risk factor	n=24	%
Prior abortion	10	41.6
Prior pelvic surgeries	13	54.16
Prior LSCS	10	41.6
Prior ectopic pregnancy	1	4.16
Recanalization	1	4.16
Tubectomy	1	4.16
History of PID	6	25

Table 4: Shows the number of risk factors and their distribution in the study

Number of risk factors	n=24	%
Women with no risk factor	3	12.5
Women with single risk factor	8	33.3
Women with 2 risk factors	12	50
Women with >2 risk factors	1	4.16

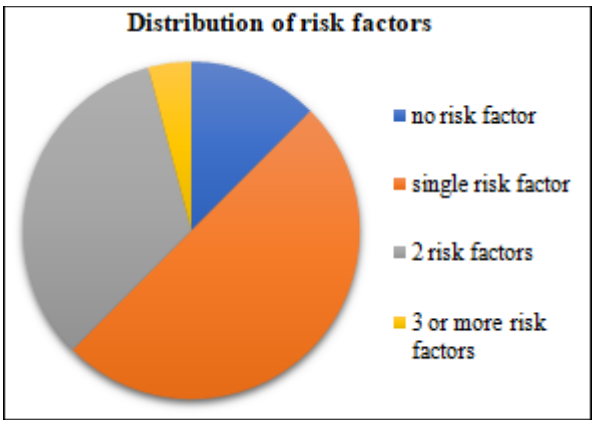

Figure 1: Depicts the distribution of risk factors among the cases

The classic triad of amenorrhoea, vaginal bleeding, and lower abdominal pain was present in 7 cases (29.16 %). The most common presentation was acute pain abdomen along with amenorrhea seen in 13 cases (54.16%).1 case presented with a period of amenorrhea followed by spotting per vaginum (4.16%). A spot urine pregnancy test was performed in all cases and was found to be positive in 100% of cases.

Table 5: Shows the symptoms and their distribution among the cases

Symptoms	n=24	%
Classic Triad	7	29.16
Amenorrhea only	2	8.3
Pain abdomen + amenorrhea	13	54.16
Vomiting + Pain abdomen	1	4.16
Spotting per vaginum + amenorrhea	1	4.16

A diagnosis of ectopic pregnancy was made on clinical findings aided with ultrasonography in 22 (91.6%) cases in our study.1 case had only amenorrhea with no other symptoms or signs, no risk factors, and was detected as ectopic pregnancy on ultrasonography alone. One case presented with amenorrhea and rising beta hCGtiters with a doubling time of 24 hours and ultrasonography showed no intrauterine or extra uterine gestational sac; this was diagnosed based on the doubling time of serum beta hCGtiters. The mean gestational age at diagnosis was 6.2 weeks.

Table 6: Depicting the diagnostic modality among the cases

Diagnostic modality	n=24	91.6
Clinical + ultrasound	22	4.16
Only ultrasound	1	4.16
Clinical + serum beta - HCGtiters	1	4.16

The site of ectopic pregnancy was Fallopian tubes in 20 cases (83.3%); Ampulla was the most common site of ectopic pregnancy, seen in 16 cases (66.6%) followed by isthmus in 2 cases (8.3%), 1 case of cornual ectopic (4.16%), 1 case of fimbrial ectopic (4.16%). Other sites include 1 scar ectopic pregnancy (4.16%), one case of Broad ligament ectopic pregnancy (4.16%), 1 case of rudimentary horn ectopic pregnancy (4.16%), and one case pregnancy of unknown location with rising beta hCGtiters and no visible extra uterine or intrauterine gestational sac.

Table 7: Depicts the site of ectopic pregnancy

Site of Ectopic pregnancy	n=24	%
Tubal	20	83.3
Broad Ligament	1	4.16
Rudimentary Horn	1	4.16
Scar ectopic	1	4.16
Unknown location	1	4.16

Table 8: Depicts the type of tubal ectopic pregnancy

Site of Tubal ectopic	20	%
Ampulla	16	66.6
Isthmus	2	8.3
Cornua	1	4.16
Fimbria	1	4.16

Out of 24 cases of ectopic pregnancy, 18 cases were ruptured ectopic pregnancies (75%) and 6 cases were

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unruptured ectopic pregnancies (25%).4 out of 6 cases (66.6%) of unruptured ectopic pregnancy were managed medically with single dose injection of methotrexate after ensuring compliance for follow - up.2 cases of unruptured ectopic pregnancy (33.3%) were unfit for medical management, underwent laparoscopic salpingectomy. In most cases of ruptured ectopic pregnancy, Laparotomy was the surgery of choice ie., in 17 cases (94.44%) and laparoscopic management was performed in 1 case (5.5%) of ruptured ectopic pregnancy.

Table 9: Shows the distribution of ruptured vs unruptured ectopic pregnancy cases

	n=24	%
Ruptured ectopic pregnancy	18	75
Unruptured ectopic pregnancy	6	25

Table 10: Shows the management modality among the unruptured ectopic pregnancy cases

Unruptured ectopic pregnancy	Total = 6	%
Medical management	4	66.6
Laparoscopic management	2	33.3

Table 11: Shows the management modality among the ruptured ectopic pregnancy cases

Ruptured ectopic pregnancy	Total=18	%
Laparotomy	17	94.4
Laparoscopy	1	5.5

Mean hemoglobin at admission was 9.1 g/dL.11 out of 24 women needed blood transfusion (45.8%). Out of 11 cases, 3 cases required 3 units of PRBC (Packed Red Blood Cells), 2 cases required 2 units of PRBC, and the remaining cases required 1 unit of PRBC. No deaths were recorded. Admission to intensive care unit was required due to hemodynamic instability in 2 cases. No cases of abdominal wound infectionwere noted during the follow - up.

4. Discussion

This is a retrospective study conducted on 24 cases of ectopic pregnancyadmitted in the Department of Obstetrics and Gynecology at PESIMSR, Kuppam, during the period of 24 Months from January 2021 to December 2022. The data was tabulated and analyzed in detail and the same was compared with statistics of various other studies.

In India, ectopic pregnancy causes 3.5 - 7.1% of maternal deaths[8, 11]. In our study, the incidence of EP was 0.45%. This is consistent with the vast majority of research conducted in underdeveloped nations, where the incidence ranged from 0.56 to 1.5%[4, 5, 6, 7, 8, 9, 10]. It is a substantial factor in first - trimester mortality. In 29.6% of our cases, the traditional triad of abdominal pain, amenorrhea, and vaginal bleeding was present. However, this is not often a presenting trait because other studies have found that this trio is present only in 28–95% of women.95.8% of our cases had a history of amenorrhea[4, 12, 13].

In our study, the mean gestational age at diagnosis was 6.2 weeks, although Khaleeque et al. reported a diagnosis at 6 weeks[14]. According to Singh et al., 52% of their cases lacked prior amenorrhea. Therefore history taking cannot be emphasized enough[4].

In our analysis, past abortion was the risk factor with the highest prevalence (41.6%), followed by pelvic surgery (8.3%). Similar to the current study, studies from other regions have found a high rate of prior abortions[4, 8, 1314, 15]. So irrespective of the sterilization status, a urine pregnancy test must be done and pregnancy must not be ruled out in women on such a pretext.

In the current study, the Fallopian tube accounted for 87.5% of ectopic pregnancy cases, which is nearly identical to Boueyer et al[19] (95.5%) and Smitha Singh et al[4] (96%). In 66.6% of the instances, the ampullary portion of the Fallopian tube was the region that was most frequently affected followed by isthmus at 8.3%. In 60% of instances, a left tubal pregnancy was found, compared to 40% of right tubal ectopic pregnancies compared to other studies which showed a right tubal pregnancy as more frequent in occurrence compared to the left side[4, 10, 18, 20].

6 cases out of 24 cases were unruptured, out of which 4 cases were medically managed with single dose methotrexate injection. All medically managed cases had a successful outcome. Out of 24 cases of ectopic pregnancy, 18 cases were ruptured ectopic pregnancies (75%) and 6 cases were unruptured ectopic pregnancies (25%).4 out of 6 cases (66.6%) of unruptured ectopic pregnancy were managed medically with single dose injection of methotrexate after ensuring compliance for follow - up.2 cases of unruptured ectopic pregnancy (33.3%) were unfit for medical management, underwent laparoscopic salpingectomy. In a ruptured ectopic pregnancy, Laparotomy was the surgery of choice in 17 cases (94.44%) and laparoscopic management was performed in 1 case (5.5%) of ruptured ectopic pregnancy.

In our study, it is observed that 11 cases received blood transfusions amounting to 45.8%. Out of the 11 cases, 3 cases required 3 units of packed red cells and 3 cases required 2 units and the remaining required 1 unit. From this finding, we opine that it can be made as a protocol to preserve at least three units of compatible blood while dealing with cases of ectopic pregnancy. Admission to intensive care unit was required due to hemodynamic instability in 2 cases, which later recovered with no mortality in the present study.

5. Conclusion

It was found in our study that the most significant etiological factor in ectopic pregnancies was a history of induced abortion and prior pelvic surgery. A thorough clinical examination aided with ultrasonography can help in the timely diagnosis of ectopic pregnancy. The most frequent finding in ultrasound is the presence of an adnexal mass, which is in addition to clinical signs rather than a replacement. Although there are many management alternatives, the best results come from managing ectopic pregnancy as soon as possible without any delay.

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