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Treatment modalities of ectopic pregnancies in a tertiary care hospital

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Abstract

Background: Ectopic pregnancy is a leading cause of maternal morbidity and mortality, especially in developing countries. This condition, in which a fertilised egg implants outside the uterine cavity, necessitates prompt diagnosis and treatment to avoid life-threatening complications. The incidence, risk factors, clinical presentation, management strategies, and outcomes of ectopic pregnancies can vary greatly depending on demographic data, which consider clinical, and healthcare factors.

Aim: This research aims to investigate the clinical appearance, related risks, methods of management, and results of patients who have ectopic pregnancy.

Methods: Over the course of two years, a prospective observational study was conducted on 180 patients who had been diagnosed with ectopic pregnancy. Detailed patient histories, including demographics, risk factors, clinical presentations, and prior surgical or obstetric histories, were gathered. Patients were treated medically or surgically based on their condition. Statistical analysis was carried out using Microsoft Excel and SPSS Version 21.0, with statistical significance determined using the Student's t-test and Chi-square test.

Results: The incidence of ectopic pregnancy was 1.17%, with the highest prevalence among women aged 26-30 years. Most patients (41.6%) had hemoglobin levels between 7-9.9 gm%. Ampullary tubal pregnancy was the most common site of implantation (85%), and 81.1% of cases were ruptured. Unilateral salpingectomy was the most common surgical procedure (88.3%). Blood transfusion was required in 53.8% of cases, with a mortality rate of 1.6%.

Conclusion: Ectopic pregnancy remains a significant health concern with significant morbidity and mortality. Early diagnosis and management are critical for improving patient outcomes. Surgical intervention remains the primary treatment option, especially for ruptures.

Recommendations: Strengthening antenatal care, early ultrasound screening, and awareness about ectopic pregnancy risk factors among healthcare providers and patients are recommended to decrease the morbidity and mortality caused by ectopic pregnancies.

Keywords: Ectopic Pregnancy, Clinical Presentation, Risk Factors, Management Strategies, Obstetric Outcomes.

Introduction

Ectopic pregnancy is a critical obstetric condition characterized by a fertilised ovum is implanted outside of the uterine cavity, usually in the fallopian tubes. Ectopic pregnancies make up about 1-2% of all pregnancies worldwide, with significant variations depending on population demographics and healthcare access (1). This condition remains a major contributor to maternal morbidity and mortality, particularly in developing countries, where timely diagnosis and management can be challenging. Understanding the clinical presentation and associated risk factors is crucial for healthcare professionals to improve early detection and intervention (2).

Several risk factors for ectopic pregnancy have been discovered, including pelvic inflammatory disease (PID), prior ectopic pregnancies, history of infertility treatments like in vitro fertilization (IVF), smoking, and certain contraceptive methods such as intrauterine devices (IUDs). These risk factors vary in prevalence across different populations and are influenced by local cultural, social, and healthcare practices. The clinical presentation can also vary widely, from subtle symptoms to life-threatening hemorrhages, making the management of ectopic pregnancies complex and multifaceted (3,4).

Management strategies for ectopic pregnancies are diverse, ranging from conservative medical treatment to invasive surgical interventions. The final course for treatment depends upon variables like the patient's haemodynamic stability and gestational age, site of implantation, and whether the pregnancy is ruptured or unruptured. While medical management with methotrexate is effective in certain cases, surgical management, particularly salpingectomy, remains the cornerstone of treatment for most ruptured ectopic pregnancies. The decision-making process is often complex, requiring a multidisciplinary approach to optimize outcomes (5).

Given the varying presentations and outcomes associated with ectopic pregnancies, it is essential to explore these aspects within specific healthcare settings. There is a need for local data to understand the clinical profile, risk factors, and effectiveness of different management strategies. Such information can help formulate tailored guidelines and protocols that cater to the unique demographic and healthcare context of the region.

Methodology

Study Design and Setting:

This was a time-limited, hospital-based prospective observational study that ran from June 2022 to June 2024 in the Department of Obstetrics and Gynaecology at MKCG Medical College and Hospital, Berhampur.

Participants:

The study included 180 reproductive-aged women".who were diagnosed with ectopic pregnancy and admitted to the hospital during the study period. "Each participant presented to the outpatient department (OPD) or labor room" with clinical symptoms suggestive of an ectopic pregnancy, which was later confirmed through diagnostic testing.

Inclusion and Exclusion Criteria:

The study included all cases of ectopic pregnancy admitted within the previous two years. Women with confirmed intrauterine pregnancies and spontaneous abortions were excluded from the study.

Bias:

To minimize selection bias, all eligible patients diagnosed with ectopic pregnancy during the study period were included consecutively. Information bias was reduced by using a standardized proforma for data collection and by training medical personnel involved in data collection.

Variables:

The primary variables assessed in this study included demographic characteristics (age, residence, education, socioeconomic status), clinical presentation (missed periods, vaginal bleeding, abdominal pain), risk factors (smoking, pelvic inflammatory disease, previous ectopic pregnancies, use of intrauterine devices, sterilization, in vitro fertilization, previous cesarean section), and management strategies (medical or surgical intervention).

Data Collection:

Data were collected through structured interviews and clinical examinations of the

participants. Detailed histories, including demographic characteristics, risk factors, and clinical presentations, were recorded. All participants underwent thorough general and obstetrical examinations, and relevant investigations such as urine pregnancy tests (UPT), complete blood counts (CBC), ICTC, HbsAg, and ultrasonography (USG) were conducted.

Procedure:

Participants were managed according to their clinical condition with either medical or surgical interventions. Surgical techniques included salpingectomy, salpingo-oophorectomy, cornual repair, or hysterectomy, and the need for blood transfusion was recorded. Data on intraoperative findings, the site of ectopic pregnancy, and whether it was ruptured or unruptured were documented. Patients were followed until discharge or death, and all relevant data were recorded in a fixed proforma.

Statistical Analysis:

The statistical analysis was carried out via Microsoft Excel 2019, and data were imported to SPSS Version 21.0 (IBM, IL, Chicago).

Results

A prospective observational study was conducted in the Department of Obstetrics and Gynaecology, MKCG Medical College and Hospital, Berhampur, from June 2022 to June 2024 to evaluate the clinical presentation, risk factors, management strategies, and outcomes of ectopic pregnancies. During this period, a total of 15,350 pregnant women were admitted to the hospital, of which 180 cases were diagnosed with ectopic pregnancy, resulting in an incidence rate of 1.17%. Additionally, around 70 cases of unruptured and chronic ectopic pregnancies were lost to follow-up as they sought care in private hospitals under the BSKY scheme.

Table 1: Incidence of Ectopic Pregnancy

Category	Count	Percentage (%)
Ectopic Pregnancy	180	1.17%
Total Pregnancies	15,350	100%

Age Distribution of Subjects

The study observed a varied age distribution among patients diagnosed with ectopic pregnancy. The highest frequency was observed in the 26-30 years age group (31.2%), followed by the 31-35 years age group (27.3%).

Table 2: Age Distribution of Subjects (n=180)

Age Group (Years)	Frequency	Percentage (%)
<20	11	6.1%
21-25	48	26.6%
26-30	56	31.2%
31-35	49	27.3%
36-40	11	6.1%

Educational Distribution of Subjects

The majority of patients (46.2%) had secondary-level education, while 41.1% had only primary education. A smaller proportion had completed graduation (10.5%) or higher studies (2.2%).

Table 3: Educational Distribution of Subjects (n=180)

Education Level	Frequency	Percentage (%)
Primary	74	41.1%
Secondary	83	46.2%
Graduate	19	10.5%
Higher Studies	4	2.2%

Parity Distribution of Subjects

Most of the patients were multigravida (78.9%), with 37.3% being in their second pregnancy (G2), 30.5% in their third (G3), and 11.1% having four or more pregnancies (G4).

Table 4: Parity Distribution of Subjects (n=180)

Parity	Frequency	Percentage (%)
Primigravida (G1)	38	21.1%

Multigravida (G2)	67	37.3%
G3	55	30.5%
G4 and more	20	11.1%

Risk Factors Associated with Ectopic Pregnancy

The risk factors with the greatest prevalence identified were previous abortions (23.3%), history of pelvic inflammatory disease (18.3%), as well as a history of dilation and curettage(12.2%). Other factors included intrauterine device (IUD) use (7.7%), sterilization (10%), and abortifacient intake (11.1%).

Table 5: Risk Factors among Subjects (n=180)

Risk Factor	Frequency	Percentage (%)
Previous Abortions	42	23.3%
Smoking	5	2.7%
In Vitro Fertilization (IVF)	0	0%
Intrauterine Device (IUD)	14	7.7%
Sterilization	18	10%
Pelvic Inflammatory Disease (PID)	33	18.3%
Dilation and Curettage (D&C)	22	12.2%
Previous Ectopic	2	1.1%
Abortifacient Intake	20	11.1%

Presenting Complaints and Hemoglobin Levels

A significant majority (91.1%) of patients presented with abdominal pain, and 78.3% reported amenorrhea. Hemoglobin levels were also analyzed, with 41.6% of patients having levels between 7-9.9 gm%, and 5.5% presenting with levels below 4 gm%.

Table 6: Hemoglobin Levels among Subjects (n=180)

Hemoglobin Range (gm%)	Count	Percentage (%)
<4	10	5.5%
4-6.9	33	18.3%
7-9.9	75	41.6%
10-10.9	34	18.8%
>11	28	15.5%

Site of Implantation and Intraoperative Findings

The vast majority (85 percent) of ectopic pregnancies were found in the ampulla of the fallopian tube, with 81.1% presenting as ruptured on ultrasound. Surgical treatment was required in 95% of cases, with unilateral salpingectomy being the most common procedure (88.3%).

Table 7: Site of Ectopic Pregnancy Implantation (n=180)

Site of Implantation	Count	Percentage (%)
Tubal — Ampulla	153	85%
Tubal - Isthmus	15	8.3%
Tubal - Infundibulum	3	1.6%
Cornual	2	1.1%
Caesarean Scar	2	1.1%
Ovarian	4	2.2%
Heterotopic	1	0.5%

Table 8: Management and Intraoperative Findings of Ectopic Pregnancy (n=180)

Procedure or Treatment	Count	Percentage (%)
Unilateral Salpingoophorectomy	16	8.8%
Unilateral Salpingectomy	159	88.3%
Cornual Resection and Repair	2	1.1%
Hysterectomy	2	1.1%

Medical Management	1	0.5%
Hemoperitoneum <500ml	24	13.3%
Hemoperitoneum 500-1000ml	99	55%
Hemoperitoneum 1000-1500ml	40	22.3%
Hemoperitoneum >1500ml	17	9.4%
Laparoscopy	8	4.4%
Laparotomy	171	95%
Need for Blood Transfusion	97	53.8%
Mortality	3	1.6%

The study showed that the incidence of ectopic pregnancy was 1.17%. The majority of cases were diagnosed in women aged 26-30 years, with a significant proportion having secondary education. Most patients were multigravida, highlighting the need to consider previous pregnancy outcomes as a risk factor.

Abdominal pain was the most common presenting symptom, and a considerable number of patients presented with anemia, indicating the severity of the condition. Most ectopic pregnancies were located in the ampulla of the fallopian tube, and a high percentage were ruptured upon presentation, necessitating urgent surgical intervention. Blood transfusions were required in over half of the cases, and the mortality rate was 1.6%, reflecting the critical nature of timely diagnosis and intervention.

Discussion

Ectopic pregnancy is still a leading cause of maternal morbidity and mortality, particularly in the first trimester of pregnancy. Ectopic pregnancies account for nearly 10-15% of maternal deaths in the first trimester worldwide, emphasizing the importance of early detection and treatment. The incidence of ectopic pregnancy in this study was 1.17%, which is consistent with previous findings in similar settings. For example, Ritu Gupta et al. reported an incidence of 2.461 per 1000 deliveries in Rajasthan, while Deepali Kharat et al. observed an incidence of 0.76% in a Mumbai tertiary care hospital (6,7). Variations in incidence rates across regions may be due to differences in healthcare access, diagnostic capabilities, and documentation standards.

The age distribution of patients in this study showed that the majority belonged to the 26-30 years age group (31.2%), which aligns with the findings of Gandhari Basu et al., who reported 33.9% in the same age group . Deepali Kharat et al. also found that 62.9% of their patients were within the 26-30 years age group . This peak incidence among women aged 26-30 years could be attributed to reproductive health practices such as dilatation and curettage (D&C), previous abortions, and the use of intrauterine devices (IUDs), which are known risk factors for ectopic pregnancy (8)

Educational background and socio-economic status play a significant role in the health outcomes of patients with ectopic pregnancies. In this study, a majority of patients had only primary (41.1%) or secondary education (46.2%) and belonged to lower socio-economic groups. Gandhari Basu et al. and Deepali Kharat et al., found that 82.2% and 88.1% of their patients, respectively, belonged to the lower socio-economic class . These observations suggest that lack of awareness and poor access to healthcare facilities may contribute to the increased risk of ectopic pregnancy and delayed presentation

Regarding parity, 78.9% of the patients in this study were multiparous, which is similar to the results of other studies on ectopic pregnancy. Deepali Kharat et al. reported that 82.5% of their patients were multiparous , while Tahmina et al. found that 72.2% of patients in their study were multiparous . This high prevalence of multiparity among ectopic pregnancy patients may be linked to cumulative risk factors acquired over multiple pregnancies, such as pelvic inflammatory disease (PID), abortions, and the use of contraceptive devices.

Abdominal pain was the most common presenting symptom in this study, occurring in 91.1% of patients, followed by amenorrhoea (78.3%) and abnormal vaginal bleeding (63.3%). These findings are consistent with the results of studies by Mridula Srivastava et al., who discovered that 81% of patients presented with abdominal pain and 43% with vaginal bleeding. In a comparable manner Hassan et al. found that 70.97% of their patients had abdominal pain, while 51.16% and 25.81% had amenorrhoea and vaginal bleeding, respectively. In this study, 50% of patients experienced the classic triad of pain, bleeding, and amenorrhoea, compared to 76.5% in Deepali Kharat et al. as well as 40.3% in Tahmina et al. (9,10)

This study identified several risk factors for ectopic pregnancy, such as previous abortions (23.3%), D&C (12.2%), sterilization (10%), and IUD use (7.7%). These findings align with other studies, such as those by Mridula Srivastava et al., who reported a history of previous abortions in 23.4% of their patients , and Tahmina et al., who found that 36.1% of patients

had a history of abortion . The presence of PID was noted in 18.3% of patients, similar to the findings of Tahmina et al. (15.3%) and Deepali Kharat et al. (13.9%) . These risk factors contribute to the disruption of normal tubal function, which increases the likelihood of ectopic implantation.

Archana et al. reported ampullary implantation in 42.5% of patients , while studies by Deepali Kharat et al. reported ampullary implantation rates of 56% and 44.9%, respectively . Right-sided implantation was observed in 53.8% of cases, a finding similar to that of Mridula Srivastava et al., who reported right-sided implantation in 62% of cases(11)

In terms of management, surgical intervention was the primary approach, with 88.3% of patients undergoing unilateral salpingectomy, consistent with other studies where salpingectomy was the most common procedure . The need for surgical management is often necessitated by delayed presentation, ruptured ectopic pregnancy, and hemodynamic instability, all of which were prevalent. Complete 81.1% of cases were ruptured, reflecting the critical need for early diagnosis and intervention.

Three deaths (1.6%) were reported in this study, all of which were cases of ruptured tubal pregnancy presenting in shock. This finding emphasizes the importance of early diagnosis, timely referral, and effective management strategies to reduce mortality associated with ectopic pregnancies. The overall findings of this study highlight the need for increased awareness, improved healthcare access, and robust referral systems to prevent delays in diagnosis and treatment of ectopic pregnancies.

Conclusion

Ectopic pregnancy poses significant risks to maternal health and future fertility, particularly in women with risk factors such as pelvic inflammatory disease, IUD use, previous ectopic pregnancies, and a history of dilatation and curettage. Early diagnosis and timely intervention, including medical management when appropriate, are crucial in reducing surgical morbidity and preserving fertility. Raising awareness among patients and healthcare workers about the hazardous components and complications associated with ectopic pregnancy can lead to earlier detection, appropriate referrals, and better outcomes. Future research should focus on the long-term impact of ectopic pregnancy on fertility and subsequent pregnancies.

References

1. Abdulkareem TA, Eidan SM. Ectopic pregnancy: diagnosis, prevention and management. InObstetrics 2017 Dec 20. IntechOpen.
2. Liu X, Liu C, Peng Y. New advances in the causes and treatment of ectopic pregnancy: A review. MEDS Clinical Medicine. 2024 Jan 16;5(1):26-31.
3. Mazraani R. Pelvic inflammatory disease in women; improving diagnosis and better understanding the disease process (Doctoral dissertation).
4. Kaplan S, Kaplan E, Türkler C, Kırıcı P, Bülbül M. Recurrent ectopic pregnancy risk factors and clinical features: a case-control study in Turkey. Journal of Health Inequalities. 2021 Jun 1;7(1):57-62.
5. Mullany K, Minneci M, Monjazez R, C. Coiado O. Overview of ectopic pregnancy diagnosis, management, and innovation. Women's Health. 2023 Mar;19:17455057231160349.
6. Gupta R, Porwal S. Incidence, trends and risk factors for Ectopic Pregnancies in a tertiary care hospital of Rajasthan. JPBMS, 2012, 16(07).
7. Kharat D, Goswami Giri P, Fonseca M. A study of epidemiology of ectopic pregnancies in a tertiary care hospital of Mumbai, India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology.2017;6(9):3942.
8. Basu G, Roy J, Chatterjee C, Pal M. Epidemiology of ectopic pregnancy: A cross-sectional study in a sub urban teaching hospital of west Bengal. Asian Journal of Medical Sciences.2014;6(2)
9. 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(6):2485-90.

10. Tahmina S. Clinical Analysis of Ectopic Pregnancies in a Tertiary care Centre in southern India: A Six-year Retrospective study. JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH. 2016;.
11. . Mehta A, Jamal S, Goel N, Ahuja M. Aretro spctive study of ectopic pregnancy at a tertiary care centre. Int J Reprod Contracept Obstet Gy necol. 2017;6(12):5241-6.