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Original Research Article

A Study to Evaluate the Incidence and Management of Ectopic Pregnancy

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Abstract:

Background: Ectopic pregnancy is a potentially life-threatening condition where the fertilized ovum implants outside the uterine cavity, leading to significant maternal morbidity and early pregnancy loss. Early diagnosis and appropriate management are crucial to prevent complications and preserve fertility.

Aim: To evaluate the incidence, clinical presentation, risk factors, and management outcomes of ectopic pregnancy.

Methodology: A hospital-based cross-sectional descriptive study was conducted for six months in Department of Obstetrics and Gynecology, Nalanda Medical College & Hospital, Patna, Bihar, India, including 80 reproductive-age women diagnosed with ectopic pregnancy. Data on demographics, symptoms, risk factors, site, treatment, and outcomes were collected through clinical examination, laboratory tests, and ultrasonography, and analyzed using SPSS.

Results: Most patients were aged 25–30 years (37.5%), multiparous (52.5%), and from rural areas (57.5%). Common symptoms were abdominal pain (92.5%), amenorrhea (90%), and vaginal bleeding (75%). Pelvic inflammatory disease (32.5%) was the leading risk factor. The ampullary region was the commonest site (57.5%). Surgical management predominated (70%), followed by medical (22.5%) and expectant (7.5%) treatment. Recovery without complications occurred in 85% and no maternal mortality was observed.

Conclusion: Ectopic pregnancy remains a major gynecological emergency; early diagnosis and timely individualized management significantly improve outcomes and reduce morbidity.

Keywords: Ectopic Pregnancy, Incidence, Risk Factors, Methotrexate, Surgical Management, Maternal Outcomes.

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Introduction

An ectopic pregnancy is one in which fertilized ovum implants to a place that is other than the normal uterine cavity [1]. Fertilization occurs in the fallopian tube under normal physiological conditions, and the developing blastocyst moves on to the uterine cavity and implants in the endometrial wall, usually either on the anterior or posterior wall of the uterus. Normal embryonic development and pregnancy continuation is only possible with successful intrauterine implantation. Nonetheless, in cases where implantation takes place outside of the uterine cavity, the pregnancy is non-viable and may pose life threatening to the mother.

Ectopic pregnancy is a significant cause of maternal morbidity and mortality, and fetal loss [2]. Even though there have been improvements in obstetric care, it still happens to be one of the major causes of maternal deaths in the first trimester of pregnancy in the world. The morbidity associated with it is a consequence of hemorrhage, implantation site rupture, and consequent hypovolemic shock. Since the extra-uterine tissues are not structurally strong enough to support the invasion of trophoblastic and placental development, the rupture ultimately takes place unless they are diagnosed at an early stage. Consequently, the combination of timely diagnosis and the management of acute cases is necessary in avoiding serious complications and maintaining a reproductive potential.

The Fallopian tube is the most common site of ectopic pregnancy, although it can also be located in a number of other extra-uterine sites. The other sites that may exist are the ovary, abdominal cavity, cervix, wide ligament, and the rudimentary horn of a bi-

cornuted uterus. About 95 percent of all ectopic pregnancies are as a result of tubal pregnancy. The implantation can be ampullary (55 percent), isthmic, fimbrial or interstitial in the fallopian tube. This is the ampullary region that is most common as it has a broader lumen and slower transportation of fertilized ovum therefore higher chances of abnormal implantation.

Ectopic pregnancy is a condition that is associated with several demographic and clinical variables. It is more prevalent in infertile women of lower socioeconomic groups and women with a past history of an ectopic pregnancy. These links imply that the damage of tubes, infections in the pelvis, lack of access to healthcare, and the timeliness of diagnosis can have a crucial role in the occurrence of the disease. Abnormal implantation patterns are also caused by prior tubal surgery, inflammatory disease of the pelvis, assisted reproductive methods, and contraceptive failures, but this is mainly caused by poor ovum transfer.

Ectopic pregnancy usually presents itself with pain in the lower part of the abdomen, delayed or irregular period, vaginal bleeding or brown discharge, and syncopal attack. [3-4] Mimic Early environment Early ectopic pregnancy can be confused with normal early pregnancy or threatened abortion, which is difficult to diagnose. Ruptured ectopic pregnancy on the other hand is an acute emergency which presents intense abdominal pain, pain in the tip of the shoulders, dizziness and appearance of shock. The symptoms also resemble most gynecological and gastrointestinal disorders, which makes an index of high suspicion necessary when treating women of reproductive age with abdominal pain and amenorrhea.

Early diagnosis and management is not only reducing the death but also morbidity. The ectopic pregnancy is diagnosed by meticulous physical examination, taking of a detailed history and serial 2hcg levels and ultrasonography (transvaginal is better than transabdominal), serum progesterone and direct observation laparoscopy [2]. Serial 2 -hCG can also be used to determine the development of pregnancy; an abnormal increase or stagnating levels means the possibility of extra-uterine implantation. Transvaginal ultrasonography is the most sensitive imaging modality, and it enables an adnexal mass, empty uterine cavity or free fluid in the pelvis to be seen. Laparoscopy is a diagnostic and treatment process used in cases where non-invasive measures are inconclusive.

In the past ten years, the ectopic pregnancy treatment approach has been changing the dramatic surgical approach (salpingectomy) to more conservative surgical or medicinal approach. Historically, the most common method of treatment was to remove the affected fallopian tube especially when it was on the verge of bursting. Nevertheless, in the current situation with the advancements in the diagnosis of the early pregnancy stage, most ectopic pregnancies can be diagnosed in the unruptured state. This innovation has seen more use of conservative management that focuses on conserving fertility.

Most of the nonsurgical conservative treatment has been successful in 80-90 percent of situations in which it is carefully chosen. An alternative to surgery is medical management, usually applied with methotrexate therapy, in hemodynamically stable patients with early unruptured ectopic pregnancy. Pregnant management can also be done in selective patients who experience a deterioration of 2-hcg levels that are suspected of spontaneous remission. Salpingectomy should not be used in cases of contralateral tube destruction as the removal of salpingostomy is more conservative compared to salpingectomy.

The management should be tailored in accordance with the clinical condition and future fertility needs of the woman [6]. The best management option, which includes expectancy care, outpatient drug, conservative or radical surgery will depend on several factors such as hemodynamic status of the patient, the size of ectopic, rates of 8 increased 9-hCG, and the reproductive desires of the patient. Patients are hemodynamically unstable and need to receive urgent surgery, but otherwise, fertility-saving treatments can be used.

Ectopic pregnancy is a serious issue of public health due to the high morbidity, possible mortality, and consequences of impaired fertility in the future. The enhanced diagnostic methods have decreased mortality, but they also demonstrated the necessity of the early detection of the risk factors and the need to manage them in a different way. It is imperative to understand the occurrence rate, clinical features and treatment results of a particular population to come up with effective clinical protocols and enhance patient prognosis.

This research intends to explore ectopic pregnancy cases with the aim of diagnosing them early and accurately, giving ectopic pregnancy fast and quality care and determining the risk factors in our situation. This paper will be an assessment of ectopic pregnancy incidence and management.

Methodology

Study Design: This was a hospital-based cross-sectional descriptive study conducted to evaluate the incidence, clinical presentation, risk factors, and management outcomes of ectopic pregnancy among patients admitted to the Department of Obstetrics and Gynecology. The study aimed to analyze patterns of presentation and different treatment modalities used in a tertiary care hospital setting.

Study Area: The study was carried out in the Department of Obstetrics and Gynecology, Nalanda Medical College & Hospital, Patna, Bihar, India.

Study Duration: The study was conducted over a period of six months from May 2025 to October 2025

Sample Size: A total of 80 patients diagnosed with ectopic pregnancy during the study period were included in the study. All consecutive cases meeting the inclusion criteria were selected to avoid sampling bias and to obtain a realistic estimation of incidence and management practices.

Study Population: The study population consisted of women in the reproductive age group presenting to the emergency department or outpatient department with clinical suspicion or confirmed diagnosis of ectopic pregnancy. These patients were evaluated, managed, and followed up during their hospital stay.

Data Collection: After obtaining informed written consent, each patient was interviewed using a predesigned and pre-tested proforma. Detailed information regarding sociodemographic characteristics, menstrual history, obstetric history, contraceptive history, infertility treatment, and risk factors such as pelvic inflammatory disease and previous pelvic surgery were recorded. A thorough general, abdominal, and pelvic examination was performed in all patients. Laboratory investigations including urine pregnancy test or serum beta-hCG estimation, hemoglobin estimation, and blood grouping were done in all cases. Ultrasonography (transabdominal or transvaginal) was performed to support clinical diagnosis. The final diagnosis was confirmed intraoperatively in surgical cases. Details of management, including medical treatment, surgical procedure, blood transfusion, complications, and outcome, were recorded. All data were entered into a structured data sheet.

Inclusion Criteria

- All women of reproductive age presenting with suspected or confirmed ectopic pregnancy
- Patients diagnosed by clinical examination, ultrasonography, or intraoperative findings
- Patients willing to participate and giving informed consent

Exclusion Criteria

- Patients in whom ectopic pregnancy was suspected clinically but ruled out intraoperatively
- Patients with incomplete records
- Patients not consenting to participate
- Heterotopic pregnancy cases (if confirmed intrauterine viable pregnancy continues)

Study Procedure: All patients presenting with symptoms suggestive of ectopic pregnancy such as amenorrhea, abdominal pain, and vaginal bleeding were admitted and evaluated. Hemodynamically unstable patients were immediately resuscitated. Detailed clinical history and examination were performed followed by pregnancy testing and ultrasonography. Based on clinical condition, beta-hCG levels, and ultrasound findings, management was planned. Stable patients fulfilling criteria were managed medically with methotrexate, while unstable patients or those with ruptured ectopic pregnancy underwent surgical management by laparoscopy or laparotomy. Expectant management was considered in selected stable cases. Patients were monitored until discharge and their outcomes were recorded.

Statistical Analysis: All collected data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) software. Quantitative variables were expressed as mean and standard deviation, while qualitative variables were presented as frequency and percentage. Chi-square test was applied for categorical variables and Student's t-test for continuous variables where appropriate. A p-value of less than 0.05 was considered statistically significant."

Result

Table 1 outlines the sociodemographic characteristics of 80 patients. The majority were aged 25–30 years (30 patients, 37.5%), followed by <25 years (22, 27.5%), 31–35 years (18, 22.5%), and >35 years (10, 12.5%). Most patients were from rural areas (46, 57.5%) compared to urban (34, 42.5%). Regarding parity, multiparous women formed the largest group (42, 52.5%), while nulliparous (20, 25%) and primiparous (18, 22.5%) constituted smaller proportions. Overall, ectopic pregnancy was more common among rural and multiparous women in the 25–30 year age group.

Table 1: Sociodemographic characteristics of patients (n = 80)

Variable	Category	Number	Percentage (%)
Age (years)	<25	22	27.5
	25–30	30	37.5
	31–35	18	22.5
	>35	10	12.5
Residence	Rural	46	57.5
	Urban	34	42.5
Parity	Nulliparous	20	25
	Primiparous	18	22.5
	Multiparous	42	52.5

Table 2 describes the clinical presentation and examination findings among 80 patients with ectopic pregnancy. The most common symptoms were abdominal pain (74 patients, 92.5%), amenorrhea (72, 90%), and vaginal bleeding (60, 75%), while syncopal attacks occurred in 12 patients (15%). On general examination, pallor was seen in 55 patients (68.75%) and shock in 14 (17.5%). Abdominal and pelvic findings included abdominal tenderness in 62 patients (77.5%) and cervical motion tenderness in 48 (60%). Hemodynamically, 58 patients (72.5%) were stable and 22 (27.5%) were unstable, indicating that most patients presented with typical symptoms but a notable proportion had compromised status.

Table 2: Clinical presentation and examination findings (n = 80)

Parameter	Finding	Number	Percentage (%)
Symptoms	Amenorrhea	72	90
	Abdominal pain	74	92.5
	Vaginal bleeding	60	75
	Syncopal attack	12	15
General examination	Pallor	55	68.75
	Shock	14	17.5
Abdominal/Pelvic signs	Abdominal tenderness	62	77.5
	Cervical motion tenderness	48	60
Hemodynamic status	Stable	58	72.5
	Unstable	22	27.5

Table 3 presents risk factors associated with ectopic pregnancy among 80 patients. The most frequent factor was pelvic inflammatory disease (26 cases, 32.5%), followed by previous abortion (24, 30%) and infertility treatment (18, 22.5%). Other contributors included IUCD use (14, 17.5%), previous pelvic surgery (12, 15%), and previous ectopic pregnancy (6, 7.5%). Overall, infection-related and reproductive history factors were the predominant risks identified.

Table 3: Risk factors associated with ectopic pregnancy (n = 80)

Risk Factor	Number	Percentage (%)
Previous abortion	24	30
Pelvic inflammatory disease	26	32.5
Infertility treatment	18	22.5
IUCD use	14	17.5
Previous pelvic surgery	12	15
Previous ectopic pregnancy	6	7.5

Table 4 shows the site of ectopic pregnancy and its management among 80 cases. The most common location was ampullary (46 cases, 57.5%), followed by isthmic (14, 17.5%), fimbrial (8, 10%), interstitial (6, 7.5%), ovarian (4, 5%), and abdominal (2, 2.5%) pregnancies. In terms of management, the majority underwent surgical treatment (56 patients, 70%), while 18 patients (22.5%) received medical therapy with methotrexate and 6 patients (7.5%) were managed expectantly. Overall, ampullary ectopic pregnancy predominated and surgery was the main treatment approach.

Table 4: Site of ectopic pregnancy and management (n = 80)

Parameter	Category	Number	Percentage (%)
Site of ectopic pregnancy	Ampullary	46	57.5
	Isthmic	14	17.5
	Fimbrial	8	10
	Interstitial	6	7.5
	Ovarian	4	5
	Abdominal	2	2.5
Management modality	Expectant	6	7.5
	Medical (Methotrexate)	18	22.5
	Surgical	56	70

Table 5 describes surgical details and outcomes. Among 56 surgeries, salpingectomy was the most common procedure (40 cases, 71.4%), followed by salpingostomy (10, 17.9%), oophorectomy (4, 7.1%), and cornual resection (2, 3.6%). Regarding outcomes among 80 patients, 34 (42.5%) required

blood transfusion, 10 (12.5%) developed post-operative complications, and 2 (2.5%) required ICU admission. The majority, 68 patients (85%), recovered without complications, and no maternal mortality (0%) was reported, indicating generally favorable surgical outcomes despite a considerable need for transfusion.

Table 5: Surgical details and outcome

A. Type of surgery (n = 56)		
Procedure	**Number**	**Percentage (%)**
Salpingectomy	40	71.4
Salpingostomy	10	17.9
Oophorectomy	4	7.1
Cornual resection	2	3.6
B. Blood transfusion & outcome (n = 80)		
Outcome	**Number**	**Percentage (%)**
Blood transfusion required	34	42.5
Post-operative complication	10	12.5
ICU admission	2	2.5
Recovered without complication	68	85
Maternal mortality	0	0

Discussion

Ectopic pregnancy may happen in the entire reproductive age group, and the current study also showed a definite focus on younger women as 65 percent of the patients were found to be below 30 years with the highest percentage being 25-30 years (37.5). It is similar to the results, as observed by Sadler (2000) [7] according to whom about 65 per cent of cases fell between 2635 years, but our data revealed a slightly younger peak age distribution. Such a higher age distribution of our population may be an indication of age of marriage and conception in developing countries. This socio-demographic explanation is further justified by the fact that rural patients (57.5% in our study) were the predominant patients in our study, unlike in many hospital-based Western studies, where urban predomination is more widely recorded".

On the aspect of parity, 52.5 percent of the women who had undergone multiple pregnancies in our study formed a parity; this is in line with the fact that accumulation of tubal damage increases with reproductive exposure. The previous research was of another trend; Cacciatore and Stenman (1990) [8] recorded larger percentages in para-0 (39.5) and para-1 (35.6) which implies that the proportionate contribution of early reproductive women in their population was relatively high. The disparity could be attributed to geographical variation in the use of contraceptive and untreated pelvic infection. According to our results, repeated pregnancies and infection may play a more significant role than nulliparity in low-resource settings.

Risk factor analysis indicated that the most prevalent one was pelvic inflammatory disease (PID) (32.5%), then previous abortion (30%), infertility treatment (22.5%), IUCD use (17.5%), previous pelvic surgery (15%), and previous ectopic pregnancy (7.5%). Pelvic infection was found in 26.25% and induced abortion was found in 17.5%, menstrual regulation was found in 16.25% and subfertility was found in 11.25% (ICMR Task Force, 1990) [9]. We thus show a heavier burden of the consequences of infections with damage than the previous Indian data and perhaps this indicates delayed treatment of genital infections. Another report (CDC, 1995) [10] recorded subfertility-related ectopic pregnancy in 4.59% of cases, compared to 22.5% of cases in our study and this suggests that the practice of assisted reproduction has been on the rise in recent years. There was an incidence of IUCD use of 17.5 percent in our patients (as compared to incidences of 17 percent in a study by Lawson et al. [11], which was similar but none of our patients arrived with the device in place.

Clinical manifestation in our case was classical, with abdominal pain (92.5%), amenorrhea (90%), and vaginal bleeding (75%). Attacks of syncopal were in 15%. According to Reece et al. (1983) [12], 96.25% had abdominal pains, 78.75% had amenorrhea, 53.75% vaginal bleeding, and 21.25% syncope. We have found that there are increased amenorrhea and vaginal bleeding with slight decreases in syncope. In our study, the pallor (68.75%) and shock (17.5) were significantly lower than the 45% rate of hypovolemic shock on the previous report because there was earlier diagnosis on account of better access to ultrasound. Our results showed hemodynamic stability in 72.5 percent of patients, which supports the importance of early diagnosis to minimize the severe manifestations.

Ampuular region was the most common implantation site (57.5%), then isthical (17.5%), fimbrial (10%), interstitial (7.5%), ovarian (5%), and abdominal (2.5%). This distribution is in line with the overall trend observed in tubal pregnancy guidelines (RCOG, 2004) [6] where ampullary implantation

occupies the largest number. The non-tubal sites were slightly higher in our study possibly because of the better imaging that revealed the rare types.

Patterns of management in our study revealed that 70% patients were treated surgically, 22.5% were treated with medical therapy and 7.5% were treated with expectancy management. The change in how they are managed, depending on their clinical stability, was described by Hajenius et al. [13] as surgery was mostly dominant in the late-presenting populations. We have a high surgical rate which is an indication of late presentation that is common in the rural setting. Salpingectomy was done in 71.4, salpingostomy in 17.9, oophorectomy in 7.1 and cornual resection in 3.6. Lozeau and Potter (2005) [14] reported unilateral salpingectomy in 71% and other tubal operations in 24% that was detailed to be very similar to our results. The similarity implies that even with the improvements in medical treatment, definitive surgery is dominant in case of rupture or far-reaching damage.

In our study, 42.5 percent of patients needed blood transfusion, which is a moderate rate of hemoperitoneum, although contrasting with older cases when severe shock was common. There were 12.5% postoperative complications, 2.5% ICU admission and unfortunately, no maternal mortality was registered. Previous literature has already documented high morbidity rates under the influence of the delayed diagnosis factor, with a major focus on the reduction of morbidity as a result of the timely intervention. Our series of cases where mortality is absent justifies the use of a combination of early ultrasound diagnosis and timely management.

All in all, our results indicate similar trends in epidemiology, and enhanced clinical stability at presentation and improved survival rates when compared to past studies conducted in the country and abroad. The unchanging nature of risk factors that cause infections and high rates of surgical intervention are some of the reasons why preventive reproductive health services, early diagnosis, and increased access to conservative medical care are necessary.

Conclusion

The current research concludes that ectopic pregnancy is a major reproductive gynecological emergency that occurs mostly in women in the reproductive age group with the multiparous and rural population being the worst affected. The typical triad of amenorrhea, abdominal pain, and vaginal bleeding was most commonly seen but, in most cases, there were signs of anemia and abdominal tenderness, with a significant proportion exhibiting hemodynamic instability which is an indicator of late diagnosis. The predisposing factors were identified as pelvic inflammatory disease, prior abortion, infertility treatment, contraceptive device use, and prior pelvic surgeries. Fallopian tube, especially the ampullary segment was found to be the most common area of implantation. Even though conservative and medical treatment could be applied in the selected stable cases, surgery was the most common treatment modality because of late presentation and rupture. The majority of the patients had an excellent outcome due to timely treatment, and the number of complications was comparatively low with no maternal death cases, which emphasizes the importance of a timely diagnosis, timely referral, and timely treatment to mitigate morbidity and optimization of outcomes in ectopic pregnancy.

References

1. Buragohain S, Doley R, Pegu B. Ectopic pregnancy: a clinical retrospective study. J Evolution Med Dent Sci. 2016 Jul 28;5(60):4171-.
2. GARMEL SH. Early pregnancy risk. Current Obstetrics and Gynecology; Diagnosis and Treatment. 2003:272-85.
3. ES J VS, Varghese MA, Yeldhos S, Baby A. Ectopic Pregnancy–An Overview. World Journal of Pharmaceutical Research. 2020 Feb 25;9(5).
4. Grudzinskas JG. Miscarriage, ectopic pregnancy and trophoblastic disease. Edmonds DK. Dewhurst's Textbook of Obstetrics and Gynaecology for Postgraduates. 6th Edition. Blackwell Science Ltd. 1999 Dec 23:61-75.
5. Verghese P. A study of the incidence, clinical presentation, risk factors and morbidity associated with ectopic pregnancy (Master's thesis, Rajiv Gandhi University of Health Sciences (India)).
6. Royal College of Obstetricians, Gynaecologists (Great Britain), Royal College of Obstetricians, Gynaecologists. Standards for Gynaecology: Report of a Working Party: June 2008. RCOG; 2008.
7. Sadler T.W. Ovulation to implantation, Biliminar germ disc, In: Langman's medical embryology, 8th edition, chapter-2, 3, Baltimore, willams and wilkins, 2000; 31-40.
8. Caccitore Tiitinen A and stenman DH. Normal early pregnancy: Serum HCG levels and vaginal ultrasound findings, Br, J Obstet. Gynaecol, 1990; 97: 899-903.
9. ICMR task force project. Multicentric case control study of ectopic pregnancy in India, J. obstet Gynaecol, India., 1990; 40: 425-430.
10. Ectopic pregnancy United states, 1990-1992. MMWR Morb Mortal WKly Rep., 1995; 44(3): 46- 8.
11. Lawson HW, Atrash HK, Saftlas AF, et al. Ectopic pregnancy in the United States, 1970-1986. MMWR CDC Surveill Summ, 1989; 38(2): 1-10.
12. Reece EA, Petrie RH, Sirmans MF, et al. Combined intrauterine and extrauterine gestations: a

review. Am J obstet Gynecol, 1983; 146(3): 323-30
13. Hajeninius PJ, Mol BW, Bossuyt PM, Ankum WM, Van Der veen F. Intervention for tubal ectopic pregnancy. Cochranne Database System Rev., 2000; 2: CD 000324.
14. ANNE-MARIE Lozeau, M.D., M.S. and Beth Potter, M.D. Diagnosis and Management of Ectopic pregnancy, American family Physician, November, 2005; 72: 9.