

Ectopic Pregnancy; An Analysis of Prevalence and Clinical Magnitude

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Author's Contribution

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ABSTRACT

Objective: To determine the prevalence and clinical manifestations and symptoms associated with ectopic pregnancy

Methodology: This retrospective observational study was done at Pessi Hospital, I-12, Islamabad with collaboration of different Hospitals for the data collection. From October 2021 to September 2022. Patients of reproductive age presenting with symptoms suggestive of ectopic pregnancy and confirmed through diagnostic tests such as ultrasound, serum beta-hCG levels, or surgical findings were included. After taking demographic information including age, parity, gravidity, and reproductive history is collected for each patient, clinical data related to ectopic pregnancy diagnosis were recorded. Descriptive statistics are employed to summarize demographic characteristics, prevalence rates, and clinical pattern of ectopic pregnancy cases.

Results: Overall prevalence of ectopic pregnancy was found 1.4%. Overall mean age of the women was 33.39+5.48 years. Family history was positive among 36.1% of the cases. In terms to the clinical presentation of patients with ectopic pregnancy, pain and bleeding were most common clinical features, 91.80% and 79.40% respectively, followed by shock 4.5% and 18.0% had others multiple clinical features and 5.8% were asymptomatic.

Conclusion: In conclusion, ectopic pregnancy was observed at a rate of 1.4%, indicating its continued significance as a health concern. Pain and bleeding were observed to the most common clinical features.

Key words: Ectopic pregnancy, incidence, bleeding, abdominal pain

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Introduction

An ectopic pregnancy refers to any pregnancy that occurs outside of the usual implantation site within the endometrial cavity. Globally, ectopic pregnancy comprises 1-2% of all pregnancies and poses a significant risk of maternal morbidity and mortality.^{1,2} The risk factors for ectopic pregnancy are strongly associated with conditions that disrupt the typical functioning of fallopian tube transportation. It is believed that the extent of damage to the fallopian tube directly correlates with the likelihood of ectopic pregnancy occurrence.^{1,3} However, the prevalence of ectopic pregnancy can differ from one region to another. For instance, according to a study, ectopic pregnancy ruptures are the primary cause of

maternal mortality during the first trimester of pregnancy, with a rate ranging from 9% to 14%, and they account for an incidence of 5% to 10% of all rate of mortality associated to pregnancy.^{3,4} This issue is widespread in low- and middle-income nations, where most mothers arrive late after the onset of their illness, often experiencing hemodynamic instability and tubal rupture.^{5,6}

In the past three decades, the occurrence of ectopic pregnancy has tripled in many industrialized nations, with annual incidence rates ranging from 100 to 175 per 100,000 women aged 15 to 44.^{5,7} In Pakistan, various series have reported frequencies ranging from 1 in 112 to 1 in 130 pregnancies, although the precise figures remain unknown.^{8,9} Diagnosing an ectopic pregnancy can be challenging. A woman with an ectopic pregnancy may

experience some, all, or none of the following symptoms: pain of the abdomen pain, bleeding per vagina, shoulder tip pain and fainting.¹⁰ Upon initial examination, numerous women with an ectopic pregnancy may exhibit minimal or no symptoms. Unilateral pain in the iliac fossa is often indicative of an ectopic pregnancy, although bilateral pain is also frequent. During abdominal palpation, guarding, rigidity, and signs of peritonism may be observed.¹⁰ If the knees are drawn up, guarding may decrease as it relaxes the abdominal muscles. Through vaginal examination, tenderness on the affected adnexal side may be provoked by laterally manipulating the cervix.¹⁰ Ectopic pregnancy can manifest with a wide range of presentations, ranging from no symptoms to life-threatening conditions.¹¹ Because of prompt detection through quantitative beta hCG testing and transvaginal ultrasound, the incidence of ruptured ectopic pregnancies has decreased in developed nations. However, as these diagnostic methods are not universally accessible, ruptured ectopic pregnancies continue to contribute to morbidity and mortality in developing countries.⁸ Ectopic pregnancies frequently manifest as urgent emergencies with symptoms that can be misleading for diagnosis. This study was conducted to assess the prevalence and clinical significance of ectopic pregnancy. By elucidating the prevalence and clinical impact of ectopic pregnancy, this study contributes to a deeper understanding of this condition and informs strategies for its effective management and prevention.

Methodology

This retrospective observational study was conducted at Pessi Hospital, I-12, Islamabad with collaboration of different Hospitals for data collection. The study was done from October 2021 to September 2022. Patients of reproductive age who presented with symptoms suggestive of ectopic pregnancy and whose condition was confirmed through diagnostic tests such as ultrasound, serum beta-hCG levels, or surgical findings were included in the study. Patients whose ectopic pregnancy diagnosis is not confirmed through diagnostic tests, women who did not seek medical attention at the collaborating hospitals during the study period and patients with incomplete or missing medical records necessary for analysis were excluded. Demographic information, including age, parity, gravidity, and reproductive history, was collected for each patient. Clinical data related to the diagnosis of ectopic pregnancy were also recorded. Descriptive statistics were utilized using SPSS version 26, to summarize

demographic characteristics, prevalence rates, and the clinical presentation of ectopic pregnancy cases.

Results

Overall prevalence of ectopic pregnancy was found 1.4%. According to the demographic characteristics of 97 patients diagnosed with ectopic pregnancy, 42.3% patients were 18 to 30 years old, while 57.7% were aged 31 to 40 years with an overall mean age of 33.39 ± 5.48 years. In terms of gestational age, 27.8% were at 5 weeks, 40.2% at 6 weeks, and 32.0% were beyond 7 weeks. Regarding parity, 15.5% were nulliparous, 72.2% had parity 1 to 3, and 12.4% had more than 3 children. In terms of family history of ectopic pregnancy, 36.1% had a positive family history, while 63.9% had a negative family history. Table I

Table I: Demographic characteristics of the patients with ectopic pregnancy. (n=97)

Variable	N	%	
Age groups	18-30 years	41	42.3
	31-40 years	56	57.7
Gestational age	5 weeks	27	27.8
	6 weeks	39	40.2
	≥7 weeks	31	32.0
Parity	Nulliparous	15	15.5
	1-3	70	72.2
	>3	12	12.4
Family history of ectopic pregnancy	Positive	35	36.1
	Negative	62	63.9
	Total	97	100.0

In terms to the clinical presentation of patients with ectopic pregnancy, pain and bleeding were most common clinical features, 91.80% and 79.40% respectively, nausea and vomiting was in 43.7% of the cases followed by shock 4.5% and 18.0% had others multiple clinical features and 5.8% were asymptomatic. Figure 1.

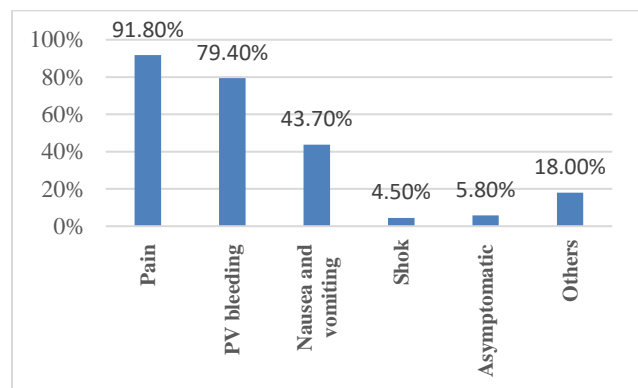


Figure 1. Clinical presentation of patients with ectopic pregnancy. (n=97)

Discussion

Ectopic pregnancy, a condition where the fertilized egg implants outside the uterus, poses significant clinical challenges due to its varied presentations and potential for life-threatening complications. This study aims to comprehensively analyze the prevalence and clinical significance of ectopic pregnancy and according to the demographic characteristics of 97 patients diagnosed with ectopic pregnancy, 42.3% patients were 18 to 30 years old, while 57.7% were aged 31 to 40 years with an overall mean age of 33.39 ± 5.48 years. In terms of gestational age, 27.8% were at 5 weeks, 40.2% at 6 weeks, and 32.0% were beyond 7 weeks. Regarding parity, 15.5% were nulliparous, 72.2% had parity 1 to 3, and 12.4% had more than 3 children. In the comparison of this study Suliman AA et al¹² reported that the 37.8% women were <20 years old and 30.5% were 20-25 years old, following by 53.7% of the patients were multiparous, and the majority presented with a gestational age between 6 and 7 weeks, accounting for 51.2%, with the subsequent highest presentation occurring between 8 and 9 weeks, at 32.9%.

Consistently Godria PP et al¹³ reported that the largest proportion of patients (62.16%) fell within the age range of 20-30 years and in terms of parity, 78.3% were multiparous and 21.62% were primiparous. In aligns to this study AFTAB A et al¹⁴ reported that the average age of the women with ectopic pregnancy was 26.83 ± 7.32 years, primiparous women were 49.5%, multiparous were 36.8% and grand multiparous women were 13.7%. like this study they also found mean gestational age as 5.83 ± 1.32 weeks.

In this study, 36.1% of the participants had a positive family history of ectopic pregnancy. This contrasts with the findings of Arain et al,¹⁵ who reported a lower rate of family history, with only 11.9% of their patients having a positive family history of ectopic pregnancy.

In this we observed the overall prevalence of ectopic pregnancy 1.4%. In comparison to our study, Sinha et al,¹⁶ observed a slightly lower prevalence of ectopic pregnancy, accounting for 0.52% of total deliveries, equivalent to 1 in every 193 deliveries. On the other hand, the study by Ranji GG et al¹⁷ documented 119 cases of ectopic pregnancies during their research period. This resulted in an incidence rate of 2.81 per 100 deliveries. Consistently Suliman AA et al¹² reported that the throughout the study period, a total of 4091 pregnant women presented at the hospital, out of which 82 were diagnosed with ectopic pregnancy.

Therefore, the incidence of ectopic pregnancies was approximately 2% among all pregnant women seen during the study.¹² In aligns to this study Nethra HS et al,¹⁸ documented that out of a total of 7200 pregnancies confirmed during their study period, 100 cases were diagnosed as ectopic pregnancies, resulting in an incidence rate of 1.38%. However, Sinha et al,¹⁹ reported a higher prevalence, with 239 out of 4359 pregnancies being diagnosed as ectopic pregnancies, resulting in a prevalence rate of 5.48%. The variation in prevalence of ectopic pregnancy may be attributed to various factors including differences in study populations, geographical locations, healthcare access, diagnostic methods, and criteria for diagnosing ectopic pregnancy.

In this study in term to the clinical presentation of patients with ectopic pregnancy, pain and bleeding were most common clinical features, 91.80% and 79.40% respectively, nausea and vomiting was in 43.7% of the cases followed by shock 4.5% and 18.0% had others multiple clinical features and 5.8% were asymptomatic. Consistently studies by the Rani S et al⁹ and Godria PP et al¹⁰ also found most common presenting features pain and vaginal bleeding. On the other hand, Andola S et al²⁰ reported that the combination of symptoms including amenorrhea, abdominal pain, and vaginal bleeding was present in 40.47% of patients. Amenorrhea followed by abdominal pain was the most frequent symptom sequence.

Additional symptoms such as nausea, vomiting, and syncopal attacks were noted in 14 out of 42 patients, representing 33.33% of the cases.²⁰ The clinical features may some vary according to nature of ectopic pregnancy, this study possess limited sample size and also some other limitations, however further large-scale research is needed to thoroughly investigate these factors and understand their impact on the prevalence of ectopic pregnancy.

Conclusion

In conclusion, study revealed an ectopic pregnancy rate of 1.4%, highlighting its ongoing significance as a health issue. Pain and vaginal bleeding emerged as the most prevalent clinical features associated with ectopic pregnancy. These findings underscore the importance of early detection and prompt medical intervention to mitigate potential complications and improve patient outcomes. Further research is warranted to explore additional factors influencing the prevalence and clinical presentation of ectopic pregnancy, thus enhancing our understanding and management of this condition.

References

- Mahajan N, Raina R, Sharma P. Risk Factors for Ectopic Pregnancy: A Case-Control Study in Tertiary Care Hospitals of Jammu and Kashmir. *Iberoam J Med*. 2021;3(4):293-299 <https://doi.org/10.53986/ibjm.2021.0048>
- Nitesh M, Bairwa R, Sharma S. Study of ectopic pregnancy in a tertiary care center. *Int J Reprod Contracept Obstet Gynecol*. 2020;9(1):212-5 <https://doi.org/10.18203/2320-1770.ijrcog20196022>
- Mullany K, Minneci M, Monjazeb R, C. Coiado O. Overview of ectopic pregnancy diagnosis, management, and innovation. *Women's Health*. 2023 Mar;19:17455057231160349. <https://doi.org/10.1177/17455057231160349>
- Houser M, Kandalaft N and Khati NJ. Ectopic pregnancy: a resident's guide to imaging findings and diagnostic pitfalls. *Emerg Radiol* 2022; 29(1): 161-172 <https://doi.org/10.1007/s10140-021-01974-7>
- Berhe ET, Kiros K, Hagos MG, Gesesew HA, Ward PR, Gebremeskel TG. Ectopic pregnancy in Tigray, Ethiopia: A cross-sectional survey of prevalence, management outcomes, and associated factors. *Journal of Pregnancy*. 2021 Nov 30;2021:1-8. <https://doi.org/10.1155/2021/4443117>
- Panti A., Tanko B. A., Yakubu A., Egondou S. C., Ikechukwu N. E., lukman O. O. Ectopic pregnancy at Usmanu Danfodiyo University Teaching Hospital Sokoto: a ten year review. *Annals of Nigerian Medicine* . 2012;6(2):p. 87 <https://doi.org/10.4103/0331-3131.108128>
- Coste J., Bouyer J., Ughetto S., et al. Ectopic pregnancy is again on the increase. Recent trends in the incidence of ectopic pregnancies in France (1992-2002) *Human Reproduction*. 2004;19(9):2014-2018. <https://doi.org/10.1093/humrep/deh399>
- Bibi S, Gul K, Bukhsh FM. Management of ectopic pregnancy. *J Surg Pakistan*. 2018;23 (4):150-3.
- Rani S, Goswami P, Rajpar F, Awan S, Gul F. Clinical Analysis of Ectopic Pregnancy in a Tertiary Care Hospitals. *J Liaquat Uni Med Health Sci*. 2019;18 (04):266-71 <https://doi.org/10.22442/ilumhs.191840640>
- Godria PP, Darda MG, Modi DA, Rami BD. A retrospective study on ectopic pregnancy: incidence, clinical presentation, risk factors, treatment and morbidity and mortality associated with ectopic pregnancy- one year study. *Int J Reprod Contracept Obstet Gynecol* 2023;12:1023-7 <https://doi.org/10.18203/2320-1770.ijrcog20230806>
- Ahirwar M, Singh P, Dohare R. Clinical study of ectopic pregnancy in tertiary care centre. *Trends Clin Med Sci*. 2023;309-18.
- Suliman AA, Ibrahim Ahmed HS, Adam Hammad KM, Youssef Alsiddig IJ, Elamin Abdelgader MA, et al. Ectopic Pregnancy Risk Factors Presentation and Management Outcomes. *Clin J Obstet Gynecol*. 2023; 6: 143-149 <https://doi.org/10.29328/journal.cjog.1001143>
- Godria PP, Darda MG, Modi DA, Rami BD. A retrospective study on ectopic pregnancy: incidence, clinical presentation, risk factors, treatment and morbidity and mortality associated with ectopic pregnancy- one year study. *Int J Reprod Contracept Obstet Gynecol* 2023;12:1023-7 <https://doi.org/10.18203/2320-1770.ijrcog20230806>
- AFTAB A, FAIYAZ M, FAHIM U, TABASSUM H, RAFIQUE S, HANIF A. Variance in clinical presentation of ectopic pregnancy. *Age (years)*. 2021;26:7-32. <https://doi.org/10.53350/pjmhs2115102845>
- Arain FR, Habib LA, Alharthi HA, Elsayed TH, Alhumaidi DA, Alharthi LA, Althobaiti MS. Appendectomy as a risk factor for ectopic pregnancy in Taif city. *World Fam. Med. J*. 2020 Nov 1;18(10):31-6.
- Sinha A, Sinha R. Prevalence, Clinical Features and Risk Factors of Ectopic Pregnancy in a Tertiary Care Hospital in Bangalore. *J Indian Med Assoc*. 2023;121(11):22-5.
- Ranji GG, Usha Rani G, Varshini S. Ectopic pregnancy: risk factors, clinical presentation and management. *J Obstet Gynaecol India* . 2018;68:487-92. <https://doi.org/10.1007/s13224-017-1075-3>
- Nethra HS, Praneetha K, Sreelatha S, Bhairi SS. A study on risk factors and clinical presentation of ectopic pregnancy. *The New Indian Journal of OBGYN*. 2018;4(2):146-9. <https://doi.org/10.21276/obgyn.2018.4.2.11>
- Sinha A, Sinha R. Prevalence, Clinical Features and Risk Factors of Ectopic Pregnancy in a Tertiary Care Hospital in Bangalore. *J Indian Med Assoc*. 2023;121(11):22-5.
- Andola S, Desai RM. Study of Risk factors and treatment modalities of ectopic pregnancy. *J Family Med Prim Care*. 2021;10(2):724-9. <https://doi.org/10.4103/ifmpc.ifmpc.1279.20>