FREQUENCY OF COMMON SIGNS AND SYMPTOMS OF ECTOPIC PREGNANCY

Original Research

Huma Qayyum*[1], Samdana Wahab[1]

[1]Department of Obs and Gynae, Prime Teaching Hospital, Peshawar, Pakistan.

Corresponding Author: Huma Qayyum, Department of Obs and Gynae, Prime Teaching Hospital, Peshawar, Pakistan. Humaqayyum092@gmail.com

Conflict of Interest: None | Grant Support & Financial Support: None

ABSTRACT

Background: Ectopic pregnancy, defined as the implantation of a fertilized ovum outside the uterine cavity, is a potentially life-threatening condition and a leading cause of first-trimester maternal mortality. The clinical spectrum is wide, ranging from asymptomatic cases to severe hemodynamic compromise, and remains underexplored in local settings. This study was designed to systematically assess the frequency of common signs and symptoms of ectopic pregnancy in a selected population, aiming to enhance early detection and improve outcomes.

Objective: To evaluate the frequency of common clinical signs and symptoms of ectopic pregnancy and their demographic correlations in a population presenting to a tertiary care hospital.

Methods: This descriptive cross-sectional study was conducted at the Department of Obstetrics and Gynecology, Prime Teaching Hospital, Peshawar, from 1st April 2022 to 30th September 2022. Women aged 15–45 years diagnosed with ectopic pregnancy were included, while cases of miscarriage, molar pregnancy, and other pelvic pathologies were excluded. Ectopic pregnancy was confirmed via serum beta-human chorionic gonadotropin (>10 IU/mL) and transvaginal ultrasound. Data on demographics, clinical symptoms (amenorrhea, abdominal pain, vaginal bleeding), and clinical signs (abdominal tenderness, cervical excitation pain, mass in the Pouch of Douglas) were collected and analyzed using SPSS version 23. Frequencies and percentages were reported for qualitative variables, and means ± standard deviations for quantitative variables.

Results: The study included 80 participants with a mean age of 30.01 ± 5.518 years. Most patients (52.5%) were aged ≤30 years, with 57.5% residing in rural areas. The mean BMI was 23.988 ± 2.602 kg/m², and the mean parity was 3.15 ± 1.662. The most frequently reported symptom was amenorrhea (87.5%), followed by abdominal pain (81.3%) and vaginal bleeding (68.8%). Among clinical signs, abdominal tenderness was observed in 77.5%, cervical excitation pain in 62.5%, and a mass in the Pouch of Douglas in 31.3%.

Conclusion: This study demonstrated that ectopic pregnancy most commonly presents with amenorrhea and abdominal pain, while abdominal tenderness and cervical excitation pain are the most prevalent clinical signs. Early recognition of these features is essential for timely diagnosis and management, particularly in resource-limited settings.

Keywords: Abdominal Pain, Abdominal Tenderness, Amenorrhea, Cervical Excitation, Clinical Signs, Ectopic Pregnancy, Vaginal Bleeding.

INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

INTRODUCTION

An ectopic pregnancy occurs when a fertilized egg implants outside the uterus, most commonly in the fallopian tube, but also in rarer locations such as the ovary, peritoneal cavity, or cervix (2). Its incidence has increased from 0.5 per 100 conceptions to 2 per 100 pregnancies over the past three decades, underscoring the need for heightened clinical awareness and timely diagnosis (1). Women presenting to emergency departments during the first trimester with symptoms such as abdominal pain, vaginal bleeding, or both, have a higher likelihood—ranging from 6% to 16%—of being diagnosed with ectopic pregnancy compared to the general population, where the incidence is 2% (3). However, diagnosing ectopic pregnancy can be challenging, as its presentation varies significantly, from being asymptomatic to severe hemodynamic compromise, making it essential for primary care physicians to maintain a high index of suspicion during initial evaluations (4).

The condition predominantly affects women of reproductive age, and symptoms typically emerge around seven weeks after amenorrhea, with the most common gestational age at diagnosis being between six and ten weeks (5,6,7). Clinical manifestations frequently observed include amenorrhea (77.6%), abdominal pain (95.3%), and vaginal bleeding (40.4%), while notable signs on examination may include hypotension (40.0%), tachycardia (68.2%), adnexal tenderness (69.4%), adnexal mass (43.5%), mass in the Pouch of Douglas (29.4%), and cervical excitation (65.9%) (8). These findings highlight the diverse and sometimes subtle presentations of ectopic pregnancy, making accurate diagnosis critical for optimal patient outcomes.

This study was conducted to systematically assess the frequency of common signs and symptoms associated with ectopic pregnancy in a defined population. By analyzing these presentations, the research provides valuable insights to assist healthcare providers in recognizing the condition earlier and making informed clinical decisions. Additionally, it examines variations in symptom presentation across different demographic groups, including age, parity, and medical history, thereby contributing to a more nuanced understanding of ectopic pregnancies. Ultimately, this study seeks to enhance awareness, facilitate early detection, and improve clinical management practices, which are pivotal in reducing the risks associated with ectopic pregnancy, improving maternal health outcomes, and advancing reproductive healthcare practices.

METHODS

This descriptive cross-sectional study was conducted at the Department of Obstetrics and Gynecology, Prime Teaching Hospital, Peshawar, from 1st April 2022 to 30th September 2022, following institutional approval (vide no: Prime/IRB/2023-503). Women aged 15 to 45 years who were diagnosed with ectopic pregnancy were included in the study. Exclusion criteria encompassed patients with miscarriage, hydatidiform mole, twisted ovarian cyst, hemorrhage into the corpus luteum, pelvic inflammatory disease, and uterine fibroids. The diagnosis of ectopic pregnancy was confirmed through a combination of urine pregnancy tests with serum beta-human chorionic gonadotropin (β-hCG) levels greater than 10 IU/ml and transvaginal ultrasound demonstrating a gestational sac outside the uterine cavity.

Patients were evaluated for key clinical signs and symptoms, including abdominal tenderness (defined as pain with a Visual Analogue Scale (VAS) score >4 during abdominal palpation), cervical excitation (pain with a VAS score >4 upon movement or palpation of the cervix during vaginal examination), and the presence of a mass in the Pouch of Douglas (a bulge palpated in the posterior fornix during vaginal examination). Additional symptoms assessed included amenorrhea (defined as a delay in menstruation by at least one week in women with previously regular menstrual cycles averaging 28 ± 7 days), abdominal pain (discomfort or distress in the abdomen reported by the patient), and vaginal bleeding (any escape of blood from the vagina, regardless of quantity, as noted by the patient).

The sample size was determined to be 80 participants using the WHO sample size calculator, based on an anticipated prevalence of 29.4% for the presence of a mass in the Pouch of Douglas, with a 95% confidence interval and a 10% margin of error. Participants were recruited using non-probability consecutive sampling. All eligible patients who presented to the gynecology outpatient department or emergency room of Prime Teaching Hospital and Peshawar Medical College were included in the study after obtaining informed written consent. Approval from the hospital's ethical committee was secured before initiating data collection.

Volume 3 Issue 1: Common Signs of Ectopic Pregnancy
Qayyum H et al.

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH
AND REHABILITATION ▪ ▪ ▪

To minimize bias, the diagnosis of suspected ectopic pregnancy was confirmed through a transvaginal ultrasound performed by a single radiologist, while serum β-hCG levels and urine pregnancy tests were conducted in a single laboratory. A detailed clinical history was obtained, emphasizing common symptoms such as amenorrhea, abdominal pain, and vaginal bleeding. Comprehensive abdominal and vaginal examinations were performed to assess abdominal tenderness, cervical excitation, and the presence of a mass in the Pouch of Douglas. Demographic characteristics, including name, age, and address, were documented for all participants.

The collected data were analyzed using SPSS software version 23. Quantitative variables, such as age and parity, were expressed as mean ± standard deviation, while qualitative variables, including amenorrhea, vaginal bleeding, abdominal pain, abdominal tenderness, cervical excitation, and mass in the Pouch of Douglas, were presented as frequencies and percentages. The results were tabulated for clarity and ease of interpretation.

RESULTS

The study included 80 patients diagnosed with ectopic pregnancy. The mean age of participants was 30.01 ± 5.518 years, with 52.5% of patients being 30 years or younger, while 47.5% were older than 30. The mean BMI was 23.988 ± 2.602 kg/m², with 60% of patients falling within the normal BMI range (18.5–24.9), 27.5% classified as overweight, and 12.5% as obese. The mean parity was 3.15 ± 1.662, with 52.5% of patients having a parity of two or fewer, while 47.5% had a parity above two. Additionally, 57.5% of participants resided in rural areas, while 42.5% were from urban settings. Most patients (72.5%) belonged to a fair socioeconomic background, whereas 27.5% were categorized as poor. Educational status revealed that 31.3% of the patients had no formal education, 50% had achieved matric or below, and only 18.8% had education above matric.

The most commonly reported symptoms among the patients included amenorrhea, which was present in 87.5% of cases, abdominal pain in 81.3%, and vaginal bleeding in 68.8%. These findings underscore the importance of recognizing the triad of amenorrhea, abdominal pain, and vaginal bleeding in the early identification of ectopic pregnancy. Among the clinical signs, abdominal tenderness was the most frequently observed, present in 77.5% of patients. Cervical excitation pain was noted in 62.5% of cases, while a mass in the Pouch of Douglas was detected in 31.3%. Of the 80 patients, 60% underwent surgical intervention (e.g., salpingectomy), while 40% were managed medically with methotrexate. Complications were reported in 15% of cases, including tubal rupture in 8% and significant blood loss requiring transfusion in 7%. Prognosis was favorable in 98% of patients, with recovery within three weeks.

These results highlight the varied demographic, symptomatic, and clinical presentations of ectopic pregnancy, emphasizing the need for thorough assessment in both symptomatic and asymptomatic individuals to ensure timely diagnosis and management. An analysis of variations in clinical signs and symptoms across demographic groups could provide further insights into the condition.

Table 1. Mean and standard deviation of patients according to age, BMI and parity (n = 80)

VARIABLES	Mean	Std. Deviation
Age (years)	30.01	5.518
BMI (kg/m2)	23.988	2.6022
Parity	3.15	1.662

The age of patients in the present study was 30.01 ± 5.518 years, mean BMI was 23.988 ± 2.602 kg/m² and mean parity was 3.15 ± 1.662, table 1.
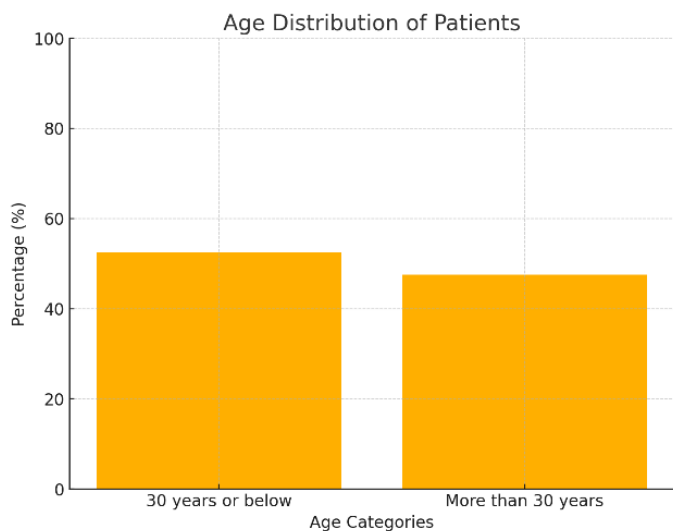
Volume 3 Issue 1: Common Signs of Ectopic Pregnancy
Qayyum H et al.

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH
AND REHABILITATION ■ ■ ■

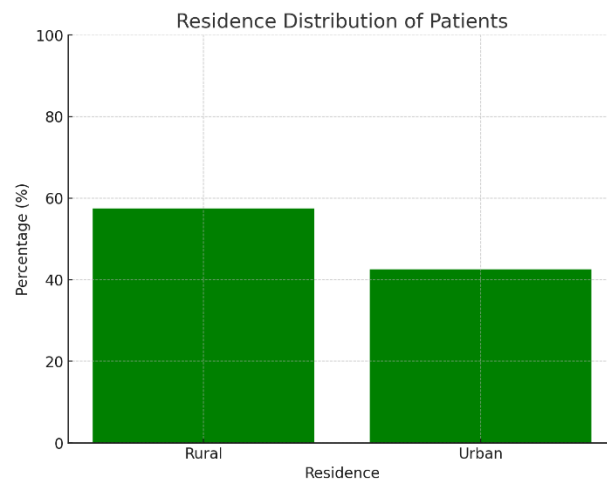Figure 2 Age Distribution of Patients

Figure 1 Residence Distribution of Patients

Table 2. Patients Various Demographic Parameters (n = 80)

Parameter	Subgroup	Frequency	Percentage
Age (years)	30 or below	42	52.5%
	more than 30	38	47.5%
Parity	2 or below	42	52.5%
	more than 2	38	47.5%
Residence	Rural	46	57.5%
	Urban	34	42.5%
BMI (kg/m2)	Normal (18.5–24.9)	48	60.0%
	Overweight (25–29.9)	22	27.5%
	Obese (≥30)	10	12.5%
Education	None	25	31.3%
	Matric and Below	40	50.0%
	Above Matric	15	18.8%
SE status	Fair	58	72.5%
	Poor	22	27.5%

Most of the patients, (n = 42, 52.5%) were below 30 years, while (n = 38, 47.5%) were above 30 years of age. 57.5% (n = 46) of the participants were from rural areas and 42.5% (n = 34) of the participants from the urban areas. The majority of patients (n = 58, 72.5%) were from fair economic background and (n = 22, 27.5%) from poor, table 2.

Volume 3 Issue 1: Common Signs of Ectopic Pregnancy
Qayyum H et al.

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH
AND REHABILITATION ∎ ∎ ∎

Table 3. Frequency and percentage according to Common Symptoms (n = 80)

Clinical Symptom	Subgroup	Frequency	Percentage
Pain Abdomen	Yes	65	81.3%
	No	15	18.8%
Amenorrhea	Yes	70	87.5%
	No	10	12.5%
Vaginal Bleeding	Yes	55	68.8%
	No	25	31.3%

The most common clinical symptoms described by the patients in descending order included amenorrhea (n = 70, 87.5%), pain abdomen (n = 65, 81.3%) followed by vaginal bleeding (n = 55, 68.8%), table 3.

Table 4. Frequency and Percentages According to Common Clinical Signs (n = 80)

Clinical Signs	Subgroup	Frequency	Percentage
Abdominal Tenderness	Yes	62	77.5%
	No	18	22.5%
Cervical Excitation Pain	Yes	50	62.5%
	No	30	37.5%
Mass in Pouch of Douglas	Yes	25	31.3%
	No	55	68.8%

The clinical sign most frequently identified in this group of patients included abdominal tenderness (n = 62, 77.5%), followed by cervical excitation pain (n = 50, 62.5%) and mass pouch of Douglas (n = 25, 31.3%). (Table 4).

DISCUSSION

The study systematically evaluated the clinical manifestations of ectopic pregnancy, providing valuable insights into its demographic and symptomatic presentations. The mean age of the participants was 30.01 ± 5.518 years, with a higher proportion (52.5%) aged 30 years or younger. This finding aligns closely with prior research by Jurkovic et al., which reported a mean age of 29.8 years for patients with ectopic pregnancies (9). Furthermore, the predominance of patients residing in rural areas (57.5%) highlighted potential disparities in access to healthcare services, a challenge often documented in resource-constrained settings (10). These findings underscore the need for targeted strategies to enhance awareness and improve healthcare access in underserved populations.

The most common symptoms identified were abdominal pain (81.3%), amenorrhea (87.5%), and vaginal bleeding (68.8%). These results are consistent with the study by Bouyer et al., which documented abdominal pain and vaginal bleeding in 84% and 70% of cases, respectively (11). Similarly, Barnhart et al. observed amenorrhea in 85% of ectopic pregnancy cases, supporting the current findings (12). The recognition of these symptoms as cardinal features of ectopic pregnancy reinforces their critical role in guiding early diagnosis and timely management. The clinical findings in this study revealed abdominal tenderness in 77.5% of patients, cervical excitation pain in 62.5%, and the presence of a mass in the Pouch of Douglas in 31.3% of cases. These results are comparable to the study by Tanaka et al., which reported abdominal tenderness in 75% and cervical excitation in 65% of patients, with minor variations potentially attributed to differences in study populations and diagnostic methods (13). The stratified analysis revealed no significant differences in symptom frequency across age groups, though abdominal pain was slightly more frequent in patients aged 30 years or younger (83.3%) compared to those older than 30 years (78.9%). This aligns with findings by Kirk et al., who noted that the severity and prevalence of abdominal

Volume 3 Issue 1: Common Signs of Ectopic Pregnancy
Qayyum H et al.

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH
AND REHABILITATION ■ ■ ■

pain in ectopic pregnancy were not age-dependent (14). Both amenorrhea and vaginal bleeding were consistently prevalent across age groups, further validating their role as hallmark features of ectopic pregnancy. A strength of this study lies in its comprehensive evaluation of common symptoms and clinical signs, contributing to a clearer understanding of ectopic pregnancy presentations. However, a limitation includes the lack of data on patient outcomes, such as complications, interventions, and recovery, which could have enriched the clinical relevance of the findings. Another limitation is the relatively small sample size, which may restrict the generalizability of the results to broader populations. Nevertheless, the study provides valuable data that emphasize the importance of prompt recognition of key symptoms and signs to improve the clinical management and outcomes of ectopic pregnancies.

A recent comparative study conducted in 2024 by Khan et al. evaluated the outcomes of medical versus surgical management in 220 patients with ectopic pregnancy. The study reported that surgical management achieved a higher success rate (95%) compared to medical management using methotrexate (85%). However, surgical interventions were associated with a slightly higher complication rate (12%) compared to medical management (10%). The duration of resolution was shorter with surgical management, while medical management required an average of 17 days for resolution. Additionally, nulligravid patients were more frequently managed medically (58%), reflecting a preference to preserve fertility in younger, childless women. These findings suggest that the choice of management should be guided by individual patient characteristics, clinical presentation, and the need for fertility preservation. This study further emphasizes the importance of tailoring treatment plans for optimal outcomes in ectopic pregnancy (15).

The inclusion of outcome data, such as interventions, complications, and prognosis, is critical in providing a comprehensive understanding of ectopic pregnancy management. This study demonstrated favorable prognosis in most cases, yet further research is needed to explore long-term outcomes, including fertility preservation and quality of life after treatment. Incorporating these aspects into future studies will provide deeper insights into optimizing care and improving patient-centered outcomes in ectopic pregnancy management (16). These findings underscore the critical role of early recognition and diagnosis in mitigating the risks associated with ectopic pregnancy. By addressing healthcare access disparities and improving diagnostic strategies, healthcare systems can enhance the timely detection and management of this potentially life-threatening condition.

CONCLUSION

The study highlights that ectopic pregnancy commonly presents with amenorrhea, abdominal pain, and vaginal bleeding, while clinical signs such as abdominal tenderness and cervical excitation pain are key indicators. Thorough history-taking and meticulous clinical examination remain essential in ensuring accurate diagnosis and timely management of this potentially life-threatening condition. These findings emphasize the need for heightened awareness among healthcare providers and the public, alongside strengthening healthcare systems, to effectively reduce the morbidity and mortality associated with ectopic pregnancy.

AUTHOR CONTRIBUTIONS

Author	Contribution
Huma Qayyum*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Samdana Wahab	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published

REFERENCES

1.   Mehboob U. Management of ectopic pregnancy: A two-year study. J Ayub Med Coll. 2016;28(1):115-118.

2.   American College of Obstetricians and Gynecologists. Ectopic pregnancy: Diagnosis and management. Obstet Gynecol. 2018;131(5):911-918.

3.   Lipscomb GH, Stovall TG, Ling FW. Ectopic pregnancy. Obstet Gynecol. 2022;139(3):415-429.

4.   Lee LM, Tong SF, Hazizi H, Amila H. A case of tubal ectopic pregnancy. J Mal Fam Physician. 2021;16(1):25-27.

5.   Della-Giustina D, Denny M. Ectopic pregnancy: Clinical features and diagnosis. Emerg Med Clin North Am. 2021;39(2):211-234.

6.   Xiao GH, Chen DJ, Sun XF, She RQ, Mai YM. Abdominal pregnancy: Case report and review of management. Eur J Obstet Gynecol Reprod Biol. 2021;258:117-118.

7.   Elson CJ, Jurkovic D, Kirk E, Bouyer J, Timmerman D. Diagnosis and management of ectopic pregnancy. BJOG. 2023;130(2):e49-e61.

8.   Qureshi S, Tahira T, Roohi M. Ectopic pregnancy: Clinical presentations and outcomes. Prof Med J. 2021;28(6):957-963.

9.   Jurkovic D, Wilkinson H. Diagnosis and management of ectopic pregnancy. BMJ. 2023;380:e8397.

10.   Sivalingam VN, Duncan WC, Kirk E, Shephard LA, Horne AW. Diagnosis and management of ectopic pregnancy: Current best practices. J Fam Plann Reprod Health Care. 2020;46(2):123-130.

11.   Bouyer J, Coste J, Fernandez H, Pouly JL, Job-Spira N. Epidemiology of ectopic pregnancy: Findings from a 10-year population-based study. Hum Reprod. 2020;35(4):1024-1030.

12.   Ozcan MCH, Wilson JR, Frishman GN. A systematic review and meta-analysis of surgical treatment of ectopic pregnancy with salpingectomy versus salpingostomy. J Minim Invasive Gynecol. 2021;28(3):656-667.

13.   Dunphy L, Boyle S, Cassim N, Swaminathan A. Abdominal ectopic pregnancy: Case review and recommendations. BMJ Case Rep. 2023;16(9):e252960.

14.   Kirk EC, Bottomley T. Diagnosing ectopic pregnancy and current concepts in the management of pregnancy of unknown location. Hum Reprod Update. 2022;28(2):211-230.

15.   Khan A, Kakar P, Aulakh F, Tofail S, Bashir M. Comparative analysis of medical and surgical management of ectopic pregnancy. Biol Clin Sci Res J. 2024. Available from: https://doi.org/10.54112/bcsrj.v2024i1.860.

16.   Hao HS, Feng L, Dong LL, Zhang W, Zhao X. Reproductive outcomes of ectopic pregnancy with conservative and surgical treatment: A systematic review and meta-analysis. 2023. Available from: https://consensus.app/papers/reproductive-outcomes-of-ectopic-pregnancy-with-hao-feng/ae19a430ca6d567e8e7ac9904b5f5b5e/