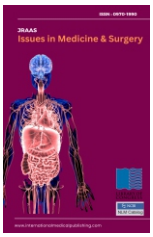
JRAAS
Special Issue in Medicine & Surgery
www.internationalmedicalpublishing.com



Research Article

Section: Obstetrics & Gynaecology

Outcome of Women Presenting with Ectopic Pregnancy & It's Management - A Case Series

Humera Sultana[1*], Narayani B H[1], Surekha S M[1] & Vinaya[1]

[1]Department of Obstetrics & Gynaecology, Koppal Institute of Medical Sciences, Karnataka, India

HIGHLIGHTS

- Tubal ectopic pregnancy predominated.
- Most cases presented after rupture.
- Surgery remained primary treatment.
- Delayed referral increased mortality risk.
- Early diagnosis improved outcomes.

Key Words:
Ectopic pregnancy
Tubal rupture
Hemoperitoneum
Salpingectomy
Maternal mortality

ABSTRACT

Introduction: Ectopic pregnancy is a potentially life-threatening condition characterized by implantation of the fertilized ovum outside the uterine cavity, most commonly in the fallopian tube. Its incidence has increased due to rising risk factors such as pelvic inflammatory disease, assisted reproductive techniques, and prior tubal surgeries. It contributes significantly to maternal morbidity and first-trimester mortality, often presenting with nonspecific symptoms that delay diagnosis and management. **Aims & Objectives:** To evaluate the clinical presentation, diagnosis, management strategies, intraoperative findings, maternal complications, and outcomes of ectopic pregnancy cases. **Material & Methods:** This retrospective case series was conducted at a tertiary care center from January 2025 to June 2025. A total of 12 cases diagnosed with ectopic pregnancy were included. Clinical presentation, diagnostic challenges, type of conception, site of ectopic implantation, management strategies, intraoperative findings, and maternal outcomes were analyzed. Ultrasonography and serum beta-hCG levels were used for diagnosis, and treatment decisions were based on clinical condition. **Results:** Most patients belonged to the 20–30-year age group. Spontaneous conception accounted for 10 cases, while 2 followed induced conception. The majority (11/12) were ruptured ectopic pregnancies, with significant hemoperitoneum in 6 cases requiring blood transfusion. Tubal ectopic pregnancy was the most common (10 cases), followed by one cervical and one cornual ectopic pregnancy. Surgical intervention was the mainstay of treatment, with salpingectomy performed in most cases. One case required hysterectomy due to severe bleeding, and there was one maternal mortality due to delayed referral and hypovolemic shock. **Conclusion:** Ectopic pregnancy remains a critical obstetric emergency with high morbidity and mortality. Early diagnosis using clinical suspicion, ultrasonography, and beta-hCG estimation is essential. Prompt surgical intervention in unstable patients is lifesaving. Multidisciplinary management and early referral play a crucial role in improving maternal outcomes.

*** Corresponding Author:** Humera Sultana, e-mail: humerasultana810@gmail.com
Article History: Received 30 March 2026; Received in Revised form 02 May 2026; Accepted 09 May 2026
How To Cite: Humera Sultana, Narayani B H, Surekha S M & Vinaya. Outcome of Women Presenting with Ectopic Pregnancy & It's Management - A Case Series. *JRAAS : Special Issue in Medicine & Surgery.* 2026;41(1):1-7. DOI: https://doi.org/10.71393/hpkpn973

INTRODUCTION

Ectopic pregnancy is a serious obstetric condition defined by implantation of a fertilized ovum outside the endometrial cavity, most commonly within the fallopian tube. It represents a significant cause of maternal morbidity and mortality, particularly during the first trimester of pregnancy. Despite advances in diagnostic modalities, ectopic pregnancy continues to pose a diagnostic and therapeutic challenge due to its variable clinical presentation and potential for rapid deterioration. The global incidence ranges from 1-2% of all pregnancies and has shown a rising trend over the past few decades, largely attributed to increasing prevalence of risk factors such as pelvic inflammatory disease, tubal surgeries, infertility treatments, and assisted reproductive technologies [1,2].

The fallopian tube is the most frequent site of ectopic implantation, accounting for approximately 90% of cases, while non-tubal ectopic pregnancies such as cervical, cornual, ovarian, and abdominal pregnancies are relatively rare but associated with higher morbidity. The pathophysiology involves impaired tubal transport of the fertilized ovum due to structural or functional damage, leading to its implantation at an abnormal site. Risk factors include previous ectopic pregnancy, tubal damage, pelvic infections, endometriosis, and prior sterilization procedures [3,4].

Clinically, ectopic pregnancy often presents with nonspecific symptoms such as abdominal pain, amenorrhea, and vaginal bleeding, which can mimic other gynecological conditions. This makes early diagnosis challenging. In many cases, rupture occurs before diagnosis, leading to hemoperitoneum, hypovolemic shock, and even death if not managed promptly. Transvaginal ultrasonography and quantitative serum beta-human chorionic gonadotropin (β-hCG) estimation are the cornerstone of diagnosis. However, even with these modalities, diagnostic dilemmas persist, particularly in early or atypical presentations [5,6].

Management of ectopic pregnancy depends on the clinical stability of the patient, size and location of the ectopic mass, and β-hCG levels. Options include expectant management, medical management with methotrexate, and surgical intervention. Surgical management remains the mainstay in cases of ruptured ectopic pregnancy or hemodynamic instability. Procedures such as salpingectomy and salpingostomy are commonly performed, while more radical surgeries like hysterectomy may be required in rare cases such as cervical ectopic pregnancy with uncontrolled bleeding [7,8].

The importance of early diagnosis cannot be overstated, as it allows for conservative management and preservation of fertility. Delayed diagnosis often results in complications such as rupture, massive intra-abdominal bleeding, need for blood transfusion, and increased risk of maternal mortality. Furthermore, ectopic pregnancy accounts for a significant proportion of maternal deaths in the first trimester, emphasizing the need for heightened clinical awareness [9,10].

Understanding patterns of presentation and outcomes in ectopic

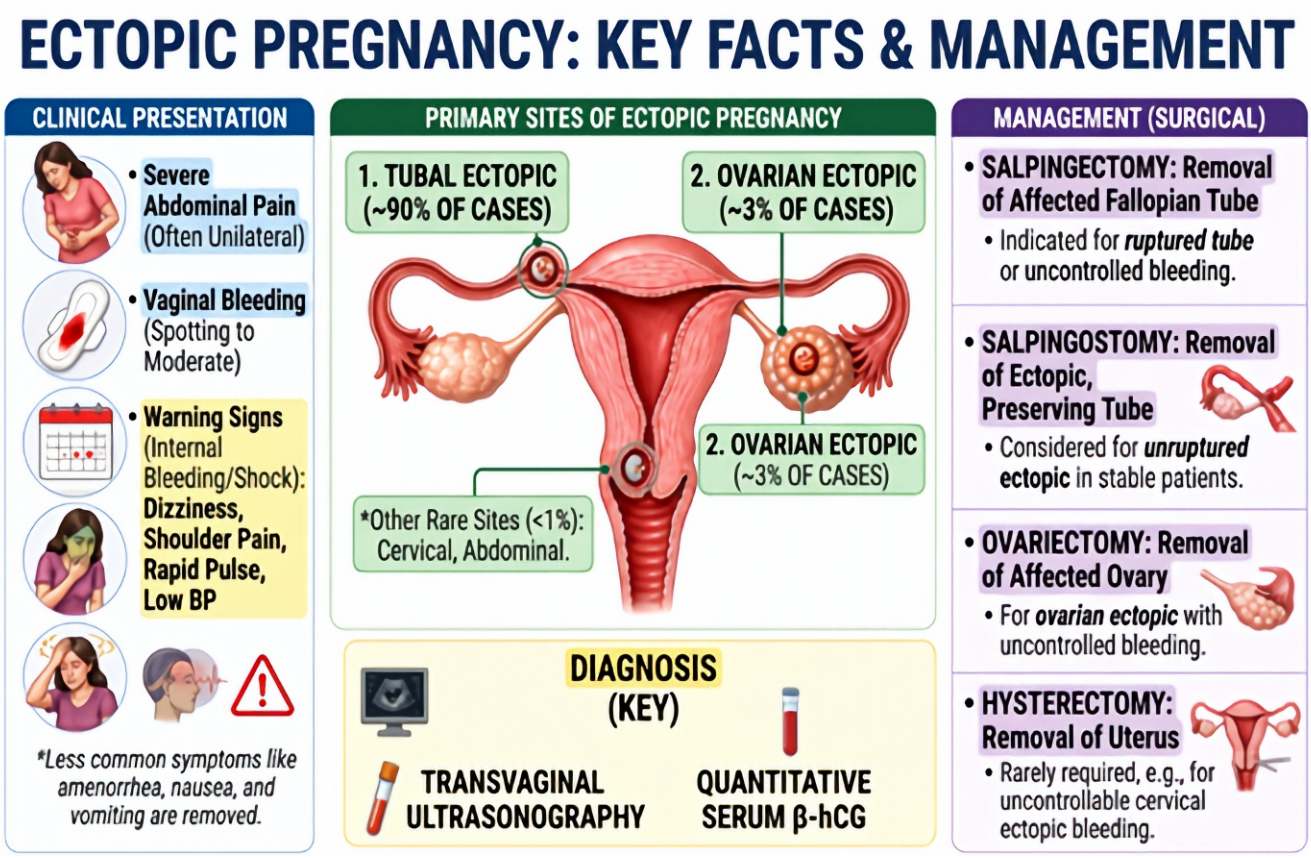


Figure 1: Clinical presentation, diagnostic approach, sites, and surgical management of ectopic pregnancy.

pregnancy is essential for developing effective management protocols and reducing morbidity and mortality. **Pacagnella RC, et. al; 2014,** underscored the role of multidisciplinary care and the need for improved referral systems, especially in resource limited settings where delayed presentation is common. Ultimately, this research contributes to the growing body of evidence aimed at enhancing clinical outcomes and ensuring safer maternal healthcare [11,12]. Clinical presentation, diagnosis, sites, and surgical management of ectopic pregnancy **(Figure 1)**.

This retrospective study aims to evaluate the fetomaternal outcomes in patients presenting with ectopic pregnancy at a tertiary care centre. It focuses on diagnostic challenges, clinical presentation, management strategies, and outcomes. Understanding these parameters is essential for improving early detection, optimizing management protocols, and reducing maternal morbidity and mortality associated with ectopic pregnancy.

MATERIALS & METHODS

This prospective observational study was conducted at a tertiary care centre, KIMS Koppal from January 2025 to June 2025. Ethical approval has been obtained from the Ethical Approval Committee of KIMS Koppal.

Study Population

The study population consisted of 12 women diagnosed with ectopic pregnancy over a six-month period at a tertiary care hospital. Most patients were in the reproductive age group of 20–30 years, with a small proportion above 35 years. The majority conceived spontaneously, while a few cases were associated with prior tubal procedures. Patients presented with varying clinical symptoms, and many were referred late with complications such as rupture and hemoperitoneum.

Data Analysis

Data were retrospectively analysed using hospital medical records, focusing on demographic details, clinical presentation, diagnostic methods, intraoperative findings, management strategies, and outcomes. Descriptive statistics were applied to summarize the findings. Variables such as age distribution, type of conception, rupture status, site of ectopic pregnancy, need for blood transfusion, and surgical interventions were evaluated. The results were expressed in proportions and percentages to identify patterns and clinical trends.

RESULTS

A total of 12 cases of ectopic pregnancy were analyzed. The majority of patients (83.3%) belonged to the 20–30 years age group, with most pregnancies occurring spontaneously (83.3 %). Diagnostic challenges were noted in several cases despite ultrasonography **(Table 1)**. In this study, half of the patients (6 out of 12, 50%) presented with significant hemoperitoneum requiring blood transfusion, while the remaining 6 cases (50 %) had absent or minimal hemoperitoneum. The majority of cases were diagnosed at a late stage, as evidenced by the high proportion of ruptured ectopic pregnancies, accounting for 11 cases (91.7%), whereas only 1 case (8.3%) was identified as unruptured ectopic pregnancy. These findings highlight the severity of presentation and the tendency for delayed diagnosis, contributing to increased morbidity and the need for urgent intervention **(Table 2)**. In this study, the most common site of ectopic pregnancy was the fallopian tube, accounting for 10 out of 12 cases (83.3%), highlighting its predominance as the typical location. In addition to tubal ectopics, one case (8.3%) of cervical ectopic pregnancy and one case (8.3%) of cornual ectopic pregnancy were observed. These findings indicate that although tubal ectopic pregnancy remains the most frequent presentation, rarer forms such as cervical and cornual ectopics also contribute to the overall burden and may pose additional diagnostic and management challenges **(Table 3)**. In this study, surgical management was the predominant mode of treatment, with salpingectomy performed in most cases (10 out of 12, 83.3%). One patient with cervical ectopic pregnancy required hysterectomy (8.3%) due to severe and uncontrolled bleeding, while another case of cornual ectopic pregnancy was managed with salpingostomy (8.3%). Medical management using methotrexate was attempted in one case (8.3%); however, it was unsuccessful, necessitating subsequent surgical intervention. These findings emphasize that most patients required operative management, largely due to late presentation and the high incidence of ruptured ectopic pregnancies **(Table 4)**. In this study, most patients had a favorable outcome, with 11 out of 12 cases (91.7%) recovering following appropriate management, while there was one mortality (8.3%), which was attributed to complications such as delayed presentation and associated hemodynamic instability. These findings highlight that although timely intervention can lead to successful recovery in most cases, ectopic pregnancy continues to carry a risk of significant morbidity and mortality, particularly when diagnosis and treatment are delayed **(Table 5)**. In this case series, most patients belonged to the 20–30 years age group and had spontaneous conception, with tubal ectopic pregnancy being the most common site. Most cases presented as ruptured ectopic pregnancies and were managed surgically with salpingectomy, with several patients requiring blood transfusion due to significant hemoperitoneum. A smaller proportion included induced conceptions in women above 35 years, with one cervical ectopic managed by hysterectomy and one cornual ectopic treated with salpingostomy. Almost all patients survived following appropriate intervention; however, one case of unruptured tubal ectopic pregnancy initially managed medically with methotrexate required subsequent surgical intervention and resulted in mortality, likely due to delayed progression and associated complications **(Table 6)**.

Table 1: Demographic and Conception Profile of Cases (n = 12)

Parameter	Findings	Number of Cases	Percentage (%)
Age Group	20–30 years	10	83.3%
	>35 years	2	16.7%
Mode of Conception	Spontaneous	10	83.3%
	Induced conception	2	16.7%
	Post recanalisation surgery	1	-
	Failed tubectomy	1	-

Table 2: Clinical Presentation and Severity

Parameter	Findings	Number of Cases	Percentage (%)
Hemoperitoneum	Present (requiring transfusion)	6	50%
	Absent/minimal	6	50%
Rupture Status	Ruptured ectopic	11	91.7%
	Unruptured ectopic	1	8.3%

Table 3: Site of Ectopic Pregnancy

Site	Number of Cases	Percentage (%)
Tubal ectopic	10	83.3%
Cervical ectopic	1	8.3%
Cornual ectopic	1	8.3%

Table 4: Management and Surgical Interventions

Management Type	Procedure	Number of Cases	Percentage (%)
Surgical Management	Salpingectomy	10	83.3%
	Hysterectomy (cervical ectopic)	1	8.3%
	Salpingostomy (cornual ectopic)	1	8.3%
Medical Management Attempted	Methotrexate (failed)	1	8.3%

Table 5: Outcome of Cases

Outcome	Number of Cases	Percentage (%)
Recovered	11	91.7%
Mortality	1	8.3%

Table 6: Summary of Individual Case Characteristics

Case No.	Age Group	Conception Type	Site	Rupture Status	Management	Blood Transfusion	Outcome
1	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	Yes	Survived
2	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	Yes	Survived
3	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	No	Survived
4	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	Yes	Survived
5	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	No	Survived
6	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	Yes	Survived
7	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	No	Survived
8	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	No	Survived
9	20–30	Spontaneous	Tubal	Ruptured	Salpingectomy	Yes	Survived
10	>35	Induced	Cervical	Ruptured	Hysterectomy	Yes	Survived
11	>35	Induced	Cornual	Ruptured	Salpingostomy	No	Survived
12	20–30	Spontaneous	Tubal	Unruptured	Surgery (failed MTX)	Yes	Mortality

DISCUSSION

The present study highlights the clinical profile, diagnostic challenges, and outcomes of ectopic pregnancies managed at a tertiary care centre. **Barnhart KT, et. al; 2006,** emphasized that ectopic pregnancy remains a major contributor to first-trimester maternal morbidity and mortality [13].

The majority of patients in this study belonged to the 20–30-year age group, reflecting the peak reproductive age. **Bhattacharya S, et. al; 2012,** indicated that ectopic pregnancy is more common among women in their reproductive years. A smaller proportion of cases occurred in women above 35 years, which may be associated with increased use of assisted reproductive techniques and prior tubal pathology [14].

Spontaneous conception was observed in most cases, while a minority followed induced conception, including post-tubal recanalization and failed sterilization. **March CM. 2020,** supported the notion that although assisted reproductive techniques increase the risk, ectopic pregnancies frequently occur even in the absence of identifiable risk factors [15].

A striking observation in this study was the high proportion of ruptured ectopic pregnancies (91.7%). This indicates delayed diagnosis and referral, which remains a significant concern in clinical practice. Rupture leads to hemoperitoneum and hemodynamic instability, necessitating emergency surgical intervention. In this study, half of the patients required blood transfusion, highlighting the severity of internal bleeding [16].

Tubal ectopic pregnancy was the most common type, accounting for over 80% of cases, which is consistent with global data. Rare forms such as cervical and cornual pregnancies were also observed. These atypical ectopic pregnancies are associated with higher risks of severe hemorrhage and often require more radical surgical interventions, as seen in the cervical ectopic case that required hysterectomy [17].

Surgical management was the primary mode of treatment in this study, with salpingectomy being the most commonly performed procedure. This is largely due to the high incidence of rupture and late presentation. Medical management with methotrexate was attempted in one unruptured case but failed, necessitating surgical intervention. This underscored the importance of careful patient selection for conservative management [18].

The mortality observed in this study was attributed to delayed referral and presentation in shock, emphasizing the need for early diagnosis and timely intervention. Ectopic pregnancy continues to account for a significant proportion of maternal deaths in the first trimester, particularly in resource-limited settings [19].

Li W, et. al; 2025, reinforced the importance of maintaining a high index of suspicion in women presenting with early pregnancy complications. Early use of transvaginal ultrasonography and serum β-hCG estimation can facilitate timely diagnosis. However, clinical judgment remains paramount, especially in emergency situations where imaging may be inconclusive [20].

Bashar MA, et. al; 2019, highlighted the need for improved awareness, early diagnosis, and prompt referral systems. Strengthening primary healthcare and ensuring availability of diagnostic facilities can significantly reduce complications. Multidisciplinary management and involvement of experienced surgeons are essential for improving maternal outcomes.

CONCLUSION

Ectopic pregnancy, including uncommon variants, remains a diagnostic challenge and a potentially life-threatening condition. It is a major cause of maternal mortality in the first trimester and continues to rise globally. Careful clinical assessment is essential, with investigations serving a supportive role. A high index of suspicion, along with early ultrasonography and serum beta-hCG estimation, aids in timely diagnosis. Atypical presentations and those beyond early gestation should be considered. Hemodynamic instability or hemoperitoneum necessitates prompt surgical intervention, and early diagnosis with a multidisciplinary approach significantly improves patient outcomes and survival rates.

LIMITATIONS & FUTURE PERSPECTIVES

The study's limitations include a single-centre setting, a relatively small sample size, and a short study duration, which may limit the broader applicability of the results. Future studies should incorporate multicentre designs with larger populations to enhance validity, assess long-term outcomes, and investigate advanced diagnostic and management approaches. Such efforts will improve overall patient care and help minimize complications.

CLINICAL SIGNIFICANCE

The clinical significance of this study lies in its potential to bridge the gap between research findings and practical healthcare applications. It emphasizes the importance of trans-lating scientific observations into meaningful improve-ments in patient care, diagnosis, and treatment outcomes. By highl-ighting real-world relevance, the study contributes to evidence-based medical practice and supports informed clinical decision-making. Ultimately, the findings aim to enhance patient quality of life, optimize therapeutic strategies, and promote better disease management in clinical settings.

ABBREVIATIONS

β-hCG: Beta Human Chorionic Gonadotropin
PID: Pelvic Inflammatory Disease
USG: Ultrasonography
hCG: Human Chorionic Gonadotropin
ART: Assisted Reproductive Techniques

AUTHOR INFORMATION

Dr. Humera Sultana:
Dr. Narayani B H:
Dr. Surekha S M:
Dr. Vinaya:

AUTHOR CONTRIBUTIONS

All authors significantly contributed to the study conception and design, data acquisition, or data analysis and interpretation. They participated in drafting the manuscript or critically revising it for important intellectual content, consented to its submission to the current journal, provided final approval for the version to be published, and accepted responsibility for all aspects of the work. Additionally, all authors meet the authorship criteria outlined by the International Committee of Medical Journal Editors (ICMJE) guidelines.

ACKNOWLEDGEMENT

The authors sincerely acknowledge the seniors of the Department of Obstetrics & Gynaecology, Koppal Institute of Medical Sciences, Karnataka, India. We are grateful to our institute for providing the necessary resources to carry out this work. We also extend our heartfelt thanks to our colleagues and technical staff for their valuable assistance during the study.

CONFLICT OF INTEREST

Authors declared that there is no conflict of interest.

FUNDING

None

ETHICAL APPROVAL & CONSENT TO PARTICIPATE

All necessary consent & approval was obtained by authors.

CONSENT FOR PUBLICATION

All necessary consent for publication was obtained by authors.

DATA AVAILABILITY

All data generated and analyzed are included within this research article. The datasets utilized and/or analyzed in this study can be obtained from the corresponding author upon a re-asonable request.

USE OF ARTIFICIAL INTELLIGENCE (AI) & LARGE LANGUAGE MODEL (LLM)

The authors confirm that no AI & LLM tools were used in thewriting or editing of the manuscript, and no images were altered or manipulated using AI & LLM.

AUTHOR'S NOTE

This article serves as an important educational tool for the scientific community, offering insights that may inspire future research diretions. However, they should not be relied upon independently when making treatment decisions or developing public health policies.

PUBLISHER'S NOTE

All statements made in this article are the sole responsibility of the authors & do not necessarily reflect the views of the publisher, editors, or reviewers. The journal maintains a neutral stance regarding jurisdictional claims in institutional affiliations presented in published work.

ARCHIVING INFORMATION

- zenodo
- Self-archiving on Google and Amazon Web Services (AWS) cloud servers, as well as on three dedicated in-house servers**MANAGING & PUBLISHING EDITOR**

Dr. Pooja Gaur[1,2]
Ph.D. & National Post-Doctoral Fellow in Medicinal Chemistry
[1]CSIR-Central Institute of Medicinal & Aromatic Plants, Lucknow, India
[2]CSIR-National Botanical Research Institute, Lucknow, India

HANDLING EDITOR

Dr. Dinesh Kumar Verma
Research Assistant Professor, School of Allied Health Sciences, Boise State University, Boise, Indiana, USA
e-mail: dineshkumarverma@boisestate.edu

REFERENCE

1. Fylstra DL. Ectopic pregnancy not within the (distal) fallopian tube: etiology, diagnosis, and treatment. Am J Obstet Gynecol. 2012;206(4):289-299. doi:10.1016/j.ajog.2011.10.864.
2. Abdelazim IA, AbuFaza M, Shikanova S, Karimova B. Diagnostic criteria and treatment modalities of ectopic pregnancies: a literature review. Reprod Health. 2021;13:1-12.
3. Parker VL, Srinivas M. Non-tubal ectopic pregnancy. Arch Gynecol Obstet. 2016;294(1):19-27. doi:10.1007/s00404-016-4069-y.
4. Hafner LM, Pelzer ES. Tubal damage, infertility and tubal ectopic pregnancy: Chlamydia trachomatis and other microbial aetiologies. In: Kamrava M, editor. Ectopic Pregnancy: Modern Diagnosis and Management. Rijeka: In Tech; 2011:1-42. doi:10.5772/16410.
5. Farren J, Al Wattar BH, Jurkovic D. The diagnosis and management of extrauterine and uterine ectopic pregnancy. Hum Reprod Update. 2026;32(1):1-32.
6. Marroncelli N, Ambrosini G, Errico A, Vinco S, Dalla Pozza E, Cogo G, et al. Is human chorionic gonadotropin a reliable marker for testicular germ cell tumor? New perspectives for a more accurate diagnosis. Cancers (Basel). 2025;17(14):1-28. doi:10.3390/cancers17142409.
7. Colombo GE, Leonardi M, Armour M, Di Somma H, Dinh T, da Silva Costa F, et al. Efficacy and safety of expectant management in the treatment of tubal ectopic pregnancy: a systematic review and meta-analysis. Hum Reprod Open.

2020;2020(4):1-11. doi:10.1093/hropen/hoaa044.

8. Ozcan MC, 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. doi:10.1016/j.jmig.2020.08.015.
9. Mansour HA. Infertility diagnosis and management. Beni Suef Univ J Basic Appl Sci. 2023;12(1):1-20. doi:10.1186/ s43088-023-00412-8.
10. Creanga AA, Shapiro-Mendoza CK, Bish CL, Zane S, Berg CJ, Callaghan WM. Trends in ectopic pregnancy mortality in the United States: 1980-2007. Obstet Gynecol. 2011;117(4):837-843. doi:10.1097/AOG.0b013e3182113c10.
11. Dabota BY. Management and outcome of ectopic pregnancy in developing countries. In: Ectopic Pregnancy: Modern Diagnosis and Management. Rijeka: InTech; 2011:1-29.
12. Pacagnella RC, Cecatti JG, Parpinelli MA, Sousa MH, Haddad SM, Costa ML, et al. Delays in receiving obstetric care and poor maternal outcomes: results from a national multicentre cross-sectional study. BMC Pregnancy Childbirth. 2014;14(1):1-15. doi:10.1186/1471-2393-14-159.
13. Barnhart KT, Sammel MD, Gracia CR, Chittams J, Hummel AC, Shaunik A. Risk factors for ectopic pregnancy in women with symptomatic first-trimester pregnancies. Fertil Steril. 2006; 86(1):233-235. doi:10.1016/j.fertnstert.2005.12.022.
14. Bhattacharya S, McLernon DJ, Lee AJ, Bhattacharya S. Reproductive outcomes following ectopic pregnancy: register-based retrospective cohort study. PLoS Med. 2012;9(6):1-9. doi:10.1371/journal.pmed.1001243.
15. March CM. Female tubal sterilization: traditional and research methods. In: The Handbook of Contraception: Evidence Based Practice Recommendations and Rationales. Cham: Springer International Publishing; 2020: 220-313.
16. Bezati S, Ventoulis I, Verras C, Boultadakis A, Bistola V, Sbyrakis N, et al. Major bleeding in the emergency department: a practical guide for optimal management. J Clin Med. 2025; 14(3):1-27. doi:10.3390/jcm14030784.
17. Alalade A, Mayers K, Abdulrahman G Jr, Oliver R, Odejinmi F. A twelve year analysis of non-tubal ectopic pregnancies: do the clinical manifestations and risk factor for these rare pregnancies differ from those of tubal pregnancies? Gynecol Surg. 2016; 13(2):103-109. doi:10.1007/s10397-015-0905-8.
18. Mohamed AA, Yosef AH, James C, Al-Hussaini TK, Bedaiwy MA, Amer SA. Ovarian reserve after salpingectomy: a systematic review and meta-analysis. Acta Obstet Gynecol Scand. 2017;96(7):795-803. doi:10.1111/aogs.13133.
19. Duru VC, Izuka EO, Enebe JT, Iloghalu EI, Ifezuoke TD, Nwagha UI. A re-evaluation of ectopic pregnancies in a resource-limited setting: a ten year review. Niger J Med. 2021;30(3):320-325. doi:10.4103/NJM.NJM_16_21.
20. Li W, Liu Z, Ma Y, Zhao T, Liu Y, Qin L, et al. Diagnostic value of colour Doppler ultrasound, serum β-hCG concentration, and progesterone concentration in ectopic pregnancy. Technol Health Care. 2025;33(2):789-796. doi:10.3233/THC-248043.
21. Bashar MA, Bhattacharya S, Tripathi S, Sharma N, Singh A. Strengthening primary health care through e-referral system. J Family Med Prim Care. 2019;8(4):1511-1513. doi:10.4103/jfmpc.jfmpc_151_19.

.