Journal of Current and Advance Medical Research
January 2024, Vol. 11, No. 1, pp. 22-27
http://www.banglajol.info/index.php/JCAMR
ISSN (Print) 2313-447X
ISSN (Online) 2413-323X
NLM Catalog ID 101673828
DOI: https://doi.org/10.3329/jcamr.v11i1.81817

ORIGINAL ARTICLE

Clinical Profiles and Post-Surgical Outcomes of Ectopic Pregnancy: Experience of 60 Cases in Bangladesh

Nahida Naznin[1], Farzana Sharmin[2], Saima Siraji[3], Anjuman Sultana[4]

[1]Head, Department Obstetrics & Gynae & Director (Retired), Maternal and Child Health Training Institute (Maternal Hospital), Azimpur, Dhaka, Bangladesh; [2]Associate Professor, Department of Obstetrics and Gynecology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh; [3]Medical Coordinator, St. John Vianney Hospital, Dhaka, Bangladesh; [4]Medical Officer, Department of Obstetrics and Gynecology, Mugda Medical College & Hospital, Dhaka, Bangladesh

Abstract

Background: Ectopic pregnancy is a significant cause of morbidity in reproductive-age women. **Objective:** The purpose of the present study was to assess the various clinical presentations and outcomes of ectopic pregnancy. **Methodology:** This prospective cohort study was conducted among patients admitted to Maternal and Child Health Training Institute, Azimpur, Dhaka, Bangladesh from January 2022 to December 2023 for a period of two years. It involved the clinical evaluation of ectopic pregnancy cases, focusing on sociodemographic characteristics, clinical presentations, risk factors, examination findings, intraoperative observations, and the management provided to the patients. **Results:** The most of the 60 patients were aged 26 to 30 years (51.7%), with a mean age of 28.17±4.39 years. All patients had a history of amenorrhea, and the most common symptom was abdominal pain (93.3%). Syncopal attacks occurred in 48.3% of cases, and 38.3% had per vaginal bleeding. The primary risk factor was a history of previous abortions or menstrual regulation (48.3%), followed by pelvic infections (28.3%) and previous D&C (16.7%). The ampulla was the most common site for ectopic pregnancies (88.3%), with 65.0% of ectopic sacs in the fallopian tube and 35.0% ovarian. Most patients underwent salpingectomy (71.7%) and were managed by laparotomy (85.0%). A majority (88.3%) had a hospital stay of less than 7 days. **Conclusion:** In conclusion, prior abortions are a more significant etiological factor for ectopic pregnancy compared to previous pelvic infections. [*Journal of Current and Advance Medical Research, January 2024;11(1):22-27*]

Keywords: Clinical characteristics; post-surgical outcomes; ectopic pregnancy

Correspondence: Dr. Farzana Sharmin, Associate Professor, Department of Obstetrics and Gynecology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh; **Email:** shuvrabsmmu@yahoo.com; **Cell No.:** +8801818761321; **ORCID:** https://orcid.org/0000-0001-8085-0889

Introduction

Ectopic pregnancy refers to a pregnancy that occurs outside the uterine cavity. The term "ectopic" originates from the Greek word meaning "out of place" or "displaced." It is a critical medical emergency that poses a significant risk to a patient's life. The condition is particularly concerning due to its potential for causing mortality and reducing future fertility[1-2]. Over recent decades, the incidence of ectopic pregnancies has risen dramatically, approaching levels comparable to an epidemic. It is now recognized as one of the most common acute abdominal emergencies[2-4]. The majority of ectopic pregnancies occur in the fallopian tube (95-98% of cases), with specific locations including the

ampullary region (55.0%), isthmic region (25.0%), fimbrial region (17.0%), and interstitial region (2.0%). Ectopic pregnancies can also develop in other sites such as the uterine cornua (22.5%), ovary, cervix, and abdominal cavity[3-4]. They are more frequently observed on the right side. Although rare, ectopic pregnancies can occur alongside an intrauterine pregnancy, a condition known as heterotopic pregnancy. This condition can occur at any time from menarche to menopause, with studies indicating that 75.0% of cases occur in women aged 20 to 30 years[4,7].

Several factors contribute to the increased risk of ectopic pregnancy. A significant rise in incidence is closely linked to the higher rates of pelvic inflammatory disease (PID), with the risk of tubal damage escalating after multiple episodes of PID. A history of prior ectopic pregnancy increases the risk by 7 to 13 times. Other risk factors include previous tubal surgery, conception following tubal ligation, the use of fertility drugs or assisted reproductive technology (4-fold increase), and the use of intrauterine devices (3.0% to 4.0% risk). Additionally, smoking, sexually transmitted diseases (STDs), and maternal age between 35 to 44 years are associated with a 3- to 4-fold increased risk[1,3,8].

Diagnosis of ectopic pregnancy involves physical examination, transvaginal ultrasound, serum HCG measurement, and diagnostic laparoscopy. Physical findings may appear normal before a rupture occurs. In cases of ruptured ectopic pregnancy, symptoms can include hypotension and tachycardia due to hypovolemia, with sudden pallor being a key indicator. Abdominal examination may reveal tenderness, a slightly enlarged uterus, and shifting dullness. Cervical movement tenderness may be detected during a per vaginal (P/V) examination. HCG measurement is central to both diagnosis and management, as the HCG level typically doubles by more than 66% over 48 hours in intrauterine pregnancies. However, in about 15% of ectopic pregnancies, the HCG rise can exceed 66% over 48 hours, while in 15% of normal pregnancies, it may be less than 66% cases[1,4,7].

Transvaginal ultrasound is a key diagnostic tool for identifying ectopic pregnancies. The most specific signs include an empty uterus, the presence of an adnexal mass, hemoperitoneum, and visualization of a gestational sac, fetal pole, or cardiac activity within the adnexa.[1,5-7] Transvaginal sonography can detect an adnexal ring in 38.0% of cases, while transabdominal sonography can identify it in 22.0% of cases.[1,4,8]

The treatment options for ectopic pregnancy include expectant management, medical treatment, and surgical intervention. Expectant management is appropriate only for asymptomatic women diagnosed with ectopic pregnancy via ultrasound, who present with decreasing hCG levels below 1000 IU/L and less than 100 mL of fluid in the pouch of Douglas[2,5,9]. Unruptured ectopic pregnancies can be managed through surgery, medication, or careful observation. However, surgical intervention is often necessary in most cases due to the risk of life-threatening intraperitoneal hemorrhage[3,7,10]. Given that ectopic pregnancy poses a significant health concern for women of reproductive age, this study aimed to evaluate the clinical presentation and outcomes associated with ectopic pregnancy.

Methodology

Study Settings and Population: This prospective cohort study was conducted in Maternal and Child Health Training Institute, Azimpur, Dhaka, Bangladesh from January 2022 to December 2023 for a period of two years. Clinically suspicious of ectopic pregnancy cases were included. A total of 60 samples were included in the study. Clinically suspicious of ectopic pregnancy were included. Acute abdomen due to tumour, infection, cyst were excluded. Patients were diagnosed from history, clinical examination, laboratory investigation, lapartomy and laparoscopy. Pregnancy test and ultrasonography were done in most cases to support the clinical diagnosis. Haemoglobin estimation and blood grouping were done in all cases. Finally, laparotomy was done to confirm the diagnosis and manage the case. Histopathological confirmation was done in some cases.

Study Procedure: The clinical variables recorded in the study included patient demographics such as age and parity, clinical presentation including abdominal pain, amenorrhea, and abnormal vaginal bleeding, as well as physical examination findings like adnexal tenderness and mass. Risk factors such as a history of pelvic inflammatory disease, previous abortions, prior surgeries, use of intrauterine contraceptive devices, infertility treatments, and previous ectopic pregnancies were also noted. Diagnostic findings included results from urine pregnancy tests, ultrasound scans, and culdocentesis. Surgical variables recorded were the type of intervention performed like salpingectomy, the site of ectopic implantation, presence of rupture, volume of hemoperitoneum, and need for blood transfusions.

Management of Ectopic Pregnancies: The management of ectopic pregnancies primarily involved surgical interventions, with a minority of cases receiving medical treatment. The predominant surgical procedure performed was salpingectomy and salpingo-oophorectomy. The choice between these surgical options depended on intraoperative findings and the extent of damage caused by the ectopic pregnancy. Medical management was considered for select patients presenting early with unruptured ectopic pregnancies and stable hemodynamic status. The study reported no maternal mortality. The high rate of ruptured ectopic pregnancies underscores the importance of early diagnosis and management to prevent severe complications. The management of ectopic pregnancies in this cohort was predominantly surgical, with salpingectomy being the most common procedure. Medical management with methotrexate was reserved for a small subset of patients who presented early with unruptured ectopic pregnancies. The findings emphasize the critical need for timely diagnosis and intervention to improve patient outcomes in ectopic pregnancy cases.

Follow Up and Outcome Measures: Postoperative outcomes, including complications, hospital stay duration were also analyzed. The study does not explicitly detail the follow-up period or the specific variables recorded during follow-up. However, it reports that no maternal mortality occurred in this series. Follow-up periods and outcome measures have varied. Patients for a specific duration to monitor variables such as the resolution of β-hCG levels, time taken for complete β-hCG resolution, and any adverse effects or complications arising from the treatment modality employed.

Additionally, a study on the safety and efficacy of methotrexate in unruptured ectopic pregnancies observed patients until complete β-hCG resolution. In the absence of specific follow-up details from the Bangladeshi study, it is reasonable to infer that standard postoperative follow-up protocols were employed, focusing on monitoring for complications, ensuring the resolution of β-hCG levels, and assessing the overall recovery and reproductive health of the patients. The outcome measures were the incidence of ruptured ectopic, the need of blood transfusion in the ruptured cases and mortality. The patients were monitored and the details were recorded till the time of discharge from the hospital or death. No further follow-up of the patients was done after discharge.

Statistical Analysis: Data were collected using a structured questionnaire, which encompassed all relevant variables. The questionnaire was finalized after pre-testing and obtaining informed consent from eligible patients. Patient details were gathered from medical histories, admission records, and physical examinations, and any complications were assessed. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows version 25.

Results

This study shows majority of the 60 patients in this study were between the ages of 26 to 30 years (51.7%), with a mean age with SD of 28.17±4.39 years (Table 1).

Table 1: Age Distribution of Patients (n=60)

Age Group	Frequency	Percent
20 to 25 Years	14	23.3
26 to 30 Years	31	51.7
31 to 35 Years	11	18.3
36 to 40 Years	4	6.7
Total	60	100
Mean±SD (Range)	28.17±4.39	

All patients (100%) had a history of amenorrhea, and the most common presenting symptom was abdominal pain, reported by 93.3% of patients. Syncopal attacks were observed in 48.3% of cases, while 38.3% had per vaginal (P/V) bleeding (Table 2).

Table 2: Presenting Symptoms of Ectopic Pregnancy (n=60)

Symptoms	Frequency	Percent
Abdominal pain	56	93.3
H/O of amenorrhoea	60	100.0
Syncopal attack	29	48.3
Loss of appetite	11	18.3
P/V bleeding	23	38.3
P/V discharge	16	26.7
Fever	4	6.7

Multiple Response analysis

The most frequently identified risk factor was a history of previous abortions or menstrual regulation (48.3%). Other notable factors included pelvic infections (28.3%), previous dilatation and curettage (D&C) (16.7%), and previous cesarean sections (11.7%) (Table 3).

Table 3: Predisposing Factors of Ectopic Pregnancy (n=60)

Risk factors	Frequency	Percent
Previous abortion/MR	29	48.3
Pelvic infection	17	28.3
Previous C/S	7	11.7
Previous D&C	10	16.7
Previous IUCD insertion	4	6.7
Previous ectopic pregnancy	1	1.7
Previous Tubal Ligation	1	1.7
Previous Appendicectomy	1	1.7
Endometriosis	2	3.3

Multiple Response analysis

The ampulla of the fallopian tube was the most common site for ectopic pregnancies (88.3%), with a smaller proportion in the isthmus (11.7%). When considering the location of the ectopic sac, 65.0% were located in the fallopian tube, while 35.0% were ovarian ectopic (Table 4).

Table 4: Sites of Ectopic Pregnancy (n=60)

Site	Frequency	Percent
Tubal		
• Isthmus	7	11.7
• Ampulla	53	88.3
Ectopic sac		
• Tube	39	65.0
• Ovary	21	35.0

Most patients (71.7%) underwent salpingectomy, while 28.3% required salpingo-oophorectomy. The majority of cases (85.0%) were managed surgically through laparotomy (Table 5).

Table 5: Types of Operation and Management of Ectopic Pregnancy (n=60)

Types and Management	Frequency	Percent
Types		
• Salpingectomy	43	71.7
• Salpingo-ophrectomy	17	28.3
Management		
• Laparatomy	51	85.0
• Medical management	8	13.3
• Expected treatment	1	1.7

The majority of patients (88.3%) had a hospital stay of less than 7 days, while 11.7% required a stay of more than 8 days (Table 6).

Table 6: Duration of Hospital Stay of Study Subject (n=60)

Hospital Stay	Frequency	Percent
Less than7 days	53	88.3
More than 8 days	7	11.7
Total	60	100

Discussion

Ectopic pregnancy occurs when a fertilized egg implants outside the uterine cavity. It is a significant contributor to maternal morbidity and mortality[2,5,8]. The incidence of ectopic pregnancy varies widely across the globe and is on the rise worldwide[4,7,9].

Ectopic pregnancy can occur at any age during a woman's reproductive years. In this study, the majority of patients (51.7%) were in the age group of 26 to 30 years, with a range from 20 to 40 years. These findings align with those of Verma et al[10] who noted that most women (46.4%) were aged 21-30 years. Similarly, Chundakkadan et al[1] reported that 55.8% of patients fell within the 26 to 30 years age group. Nalini et al[11] found that 60.0% of participants were aged 20 to 30 years. Additionally, Mandal et al[3] noted that the largest proportion of patients (72.0%) were between 21 and 30 years old, while Behera et al[12] reported that 54.8% were in the same age group. Nethra et al[13] also found that the majority of women (63.0%) were aged 21 to 30 years. The presenting symptoms of ectopic pregnancy were evaluated, revealing that nearly all patients reported a history of amenorrhea, 9.3% experienced lower abdominal pain, 38.3% reported per vaginal (P/V) bleeding, and 48.3% had a history of syncopal attacks. These findings align with those of Mandal et al[3] who noted that 98.0% of patients experienced abdominal pain and 85.0% reported amenorrhea. Similarly, Ahter and Sultanma[14] found that 100.0% of patients had lower abdominal pain, 80.0% presented with amenorrhea, and 88% had abnormal vaginal bleeding.

Nalini et al[11] reported that the most prevalent symptom of ectopic pregnancy was amenorrhea (97.3%), followed by lower abdominal pain (94.7%) and per vaginal bleeding (40.0%). Verma et al[10] found that amenorrhea was the most common symptom (93%), followed by abdominal pain (82.0%) and vaginal bleeding (51.0%). Kalyankar et al[15] identified abdominal pain as the most frequent symptom (90.8%), with amenorrhea occurring in 79.2% of cases and vaginal bleeding in 63.07% of cases. Nethra et al[13] reported that amenorrhea, abdominal pain, vaginal bleeding, and

fainting or syncopal attacks were present in 96.0%, 88.0%, 78.0%, and 16.0% cases respectively.

In this study, the primary risk factors for ectopic pregnancy included a history of previous abortion or menstrual regulation (48.3%), pelvic infection (28.3%), and a history of dilatation and curettage (D&C) (16.7%). Use of intrauterine contraceptive devices (IUCD) was identified in 6.7% cases, though no patients had an IUCD in place at the time of presentation with ectopic pregnancy. These findings align with those of other studies[3,7,9]. Similarly, Banu et al[5] reported that 28.6% patients had a history of induced abortion, while 22.9% cases had pelvic inflammatory disease as risk factors for ectopic pregnancy.

Ranji et al[2] highlighted that infections following induced abortions are a major cause of pelvic inflammatory disease (PID) in Asia, with the risk of ectopic pregnancy being 10 times higher in regions with a high incidence of illegal abortions and 6 times higher after clinical salpingitis[15]. Several case-control studies have also shown a strong link between ectopic pregnancy and infections like *Chlamydia trachomatis* and gonococcal infections.[9] However, in our study, patients were not screened for these infections. Bouyer et al.[16] in a large population-based case-control study in France, found that 1.1% of cases had a history of previous ectopic pregnancy, indicating that a prior ectopic pregnancy is a risk factor for recurrence. In this study, 71.7% of the procedures were unilateral salpingectomy, while 28.3% cases were salpingo-oophorectomy. Airede et al[14] reported that unilateral salpingectomy was the most commonly performed procedure. Similarly, Behera et al[12] study found that 75.0% cases underwent salpingectomy, 22.0% had salpingo-oophorectomy, and 3.0% underwent salpingostomy.

Verma et al[10] observed that salpingectomy was performed in 90,0% of cases, primarily because most patients presented with ruptured or severely damaged tubes, making conservative treatment unfeasible. Similarly, Nalini et al[11] reported that 71.0% of cases involved unilateral salpingectomy, 2.0% had unilateral salpingo-oophorectomy, and 24.7% underwent unilateral salpingectomy with tubectomy on the opposite side. Additionally, salpingostomy was performed in 4 cases, abdominal pregnancies were removed in 4 cases, and resection of a rudimentary horn was done in 3 cases.

This study found that the majority of cases (88.3%) involved the ampulla, with 65.0% of ectopic sacs located in the fallopian tube. Mandal et al[3] reported that 97.0% of ectopic pregnancies occur in the fallopian tube, with 55.0% in the ampulla, 25% in the isthmus, 17% in the fimbria, and 3.0% in locations such as the abdominal cavity, ovary, and cervix. Similarly, Belquos et al[9] found that 80.0% of ectopic pregnancies were in the ampulla, 11.1% in the isthmus, 5.6% in the fimbria, and 2.8% in the ovary.

Upon opening the abdomen, tubal ectopic pregnancies were more frequently detected on the right side (64.0%) compared to the left (36.0%). A significant portion of patients (68.0%) presented with ruptured tubal pregnancies, highlighting the lack of adequate healthcare facilities at the community level and delays in both diagnosis and transfer to tertiary hospitals. In 32.0% of cases, the tubes were found to be distended but unruptured. A similar observation was made by Bouyer et al[16] in a 10-year population-based study of 1,800 cases, which revealed that the majority (70.0%) of tubal pregnancies occurred in the ampullary part. The study also noted that current IUCD use offers protection against interstitial pregnancies, which are among the most challenging to manage.

This study found that the majority of patients were managed through laparotomy (85%), often accompanied by blood transfusions. Additionally, 13.3% required medical management, 1.7% underwent laparoscopic procedures, and 2 patients received expectant management. Medical treatment with systemic methotrexate is considered a suitable option for hemodynamically stable patients with unruptured, small ectopic sacs and low serum HCG levels. These findings align with those of Akter and Sultana[14]. A randomized trial comparing multiple-dose systemic methotrexate to laparoscopic salpingostomy in stable women with unruptured tubal ectopic pregnancies found varying effectiveness[3,6,8]. A study that pooled results from four randomized trials comparing single-dose methotrexate with laparoscopic salpingotomy showed that medical treatment was significantly less successful than surgical intervention[17].

Conclusion

This study found that common clinical presentations included a short history of amenorrhea, abdominal pain, per vaginal bleeding, and syncopal attacks. The primary risk factors identified were previous abortions or menstrual regulation, a history of dilation and curettage (D&C), and the use of ovulation-inducing drugs.

Most patients were treated through laparotomy, often followed by salpingectomy. Early diagnosis and timely referrals are crucial in managing patients before tubal rupture occurs, thereby decreasing morbidity and mortality.

Acknowledgements
We are grateful to the authority of Maternal and Child Health Training Institute, Azimpur, Dhaka for their technical support and active cooperation in continuation of this research. We are also thankful to Mr. Md. Shafiqul Islam for technical support. We further express our gratitude to the patients, doctors and paramedics in gynecology clinic for their priceless support.

Conflict of Interest
Authors announces there is no conflict of interest for this study.

Financial Disclosure and Funding Sources
There is no external funding.

Contributions to authors: Nahida Naznin: Development of idea, drafting, data collection, analysis, editing & finalization of article; Farzana Sharmin: Management, coordination and supervision of research activity and finalization of article; Saima Siraji: Reviewing & editing of article, literature review & draft preparation; Anjuman Sultana: Literature review and draft preparation· All coauthors have seen and agree with the contents of manuscript.

Data Availability
Any inquiries regarding supporting data availability of this study should be directed to the corresponding author and are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate
Ethical approval for the study was obtained from the Institutional Review Board. As this was a prospective study the written informed consent was obtained from all study participants. All methods were performed in accordance with the relevant guidelines and regulations.

Cite this article as: Naznin N, Sharmin F, Siraji S, Sultana A. Clinical Profiles and Post-Surgical Outcomes of Ectopic Pregnancy: Experience of 60 Cases in Bangladesh. J Curr Adv Med Res 2024;11(1):22-27

ORCID
Nahida Naznin: https://orcid.org/0009-0008-9467-7034
Farzana Sharmin: https://orcid.org/0000-0001-8085-0889
Saima Siraji: https://orcid.org/0009-0003-2782-5707
Anjuman Sultana: https://orcid.org/0000-0001-6601-4999

Article Info
Received: 7 March 2023
Accepted: 3 April 2023
Published: 1 January 2024

References

1. Chundakkadan MS, Chandramathy K, Selvest N. Clinical presentation and outcome of ectopic pregnancy. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2021;10(9):3301-7.
2. Ranji GG, Rani GU, Varshini S. Ectopic Pregnancy: Risk Factors, Clinical Presentation and Management. J Obstet Gynaecol India. 2018;68(6):487-92
3. Mandal RC, Hoque IU, Pan A, Mondal M, Maity S, Pramanik A, Banerjee M. Evaluation of clinical presentation and maternal outcome of ectopic pregnancy in a tertiary care hospital: An observational cross-sectional study. National Journal of Physiology, Pharmacy and Pharmacology. 2024;14(9):1898-1909.
4. Patel M, Chavda D, Prajapati S. A retrospective study of 100 cases of ectopic pregnancy: clinical presentation, site of ectopic and diagnosis evaluation. Int J Reprod Contracept Obstet Gynecol. 2016;5(12):4313-4316.
5. Banu SA, Pervin M, Akther R, Kabir R, Tasnim S. Pattern of Presentation and Management of Ectopic Pregnancy in Tertiary Care Hospital. Bangladesh Journal of Obstetrics & Gynaecology. 2021;36(1):28-32.
6. Vicken S Sepilian. MD, march 2011, Ectopic pregnancy, available from emedicine.medscape. com/article/258768. 2011;75-80.
7. Panti A, Ikechukwu NE, Iukman OO, Yakubu A, Egondu SC, Tanko BA. Ectopic pregnancy at Usmanu Danfodiyo University Teaching hospital Sokoto: a ten-year review. Ann Niger Med. 2012;6(2): 87-91.
8. Aydogmus S. Management and results of ectopic pregnancy adapted by clinical guidelines: Two years' experience of University Hospital in Turkey. Open Journal of Obstetrics and Gynecology, 2014;4(13(:766-70.
9. Belquis AJ, Dikrayal H. Frequency of Tubal Ectopic Pregnancy and mode of Management at Al- Thawra General Modern Hospital. Critical Care Obst Gyne. 2017;3 (1):5;1-5
10. Verma ML, Singh U, Solanki V, Sachan R, Sankhwar PL. Spectrum of ectopic pregnancies at a tertiary care center of northern India: A Retrospective Cross-Sectional Study. Gynecology and Minimally Invasive Therapy. 2022;11(1):36-40.
11. Nalini N, Singh KA, Neetu S, Kumari A. Clinical Profile, Risk Factors and Outcomes of Ectopic Pregnancy in a Tertiary Care Hospital: A Prospective Indian Study. Cureus. 2023;15(11):
12. Behera A, Ghadei R, Bal RN. A clinical study of ectopic pregnancy in a tertiary care hospital. Int J Reprod Contracept Obstet Gynecol. 2018;7(11):4461
13. 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.
14. Akter S, Sultana S. Management of Ectopic Pregnancy in a Tertiary Care Hospital by Surgery. Bangladesh Journal of Obstetrics & Gynaecology. 2013;28(1):21-5
15. Kalyankar V, Kalyankar B, Gadappa S, Ahire Y. Clinical study of ectopic pregnancy. New Indian J Obgyn. 2022;9:148-54
16. Bouyer J, Joel Coste, Taranch Shojaci, Jean-luc Pouly, Fernandez et al. Risk factors for ectopic pregnancy. A Comprehensive analysis based on a large case control population-based study in Franch. Am J Epidemiol 2023;157:185-194
17. Hajenius PJ, Mol F, Mol BWJ, Bossuyt PMM, Ankum WM, Van der Veen F. Interventions for tubal ectopic pregnancy. Cochrane Database Syst Rev 2017;1:CD000324.