



# ECTOPIC PREGNANCY

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## Abstract:

Diagnosis of ectopic pregnancy was frequently missed and raising trend incidence of ectopic pregnancies necessitates awareness about risk factors, resultant morbidity and mortality. Aim of the study was to determine the incidence, clinical presentation, risk factors, treatment and morbidity and mortality associated with ectopic pregnancy.

Retrospective analysis of ectopic pregnancy was done in Government Raja Mirasudhar Hospital from January 2014 to December 15. The following parameters: age, purity, gestational age, risk factors, clinical presentation, size of ectopic, diagnostic methods, mode of treatment and morbidity were noted.

## Key words:

- Amenorrhea
- Ectopic pregnancy
- Risk factors
- Salpingectomy
- Cramping
- Abdominal Pain
- Vaginal bleeding
- Tummy pain
- Shoulder pain
- Ovarian pregnancy
- Partial ovariectomy
- Primigravida

# ECTOPIC PREGNANCY

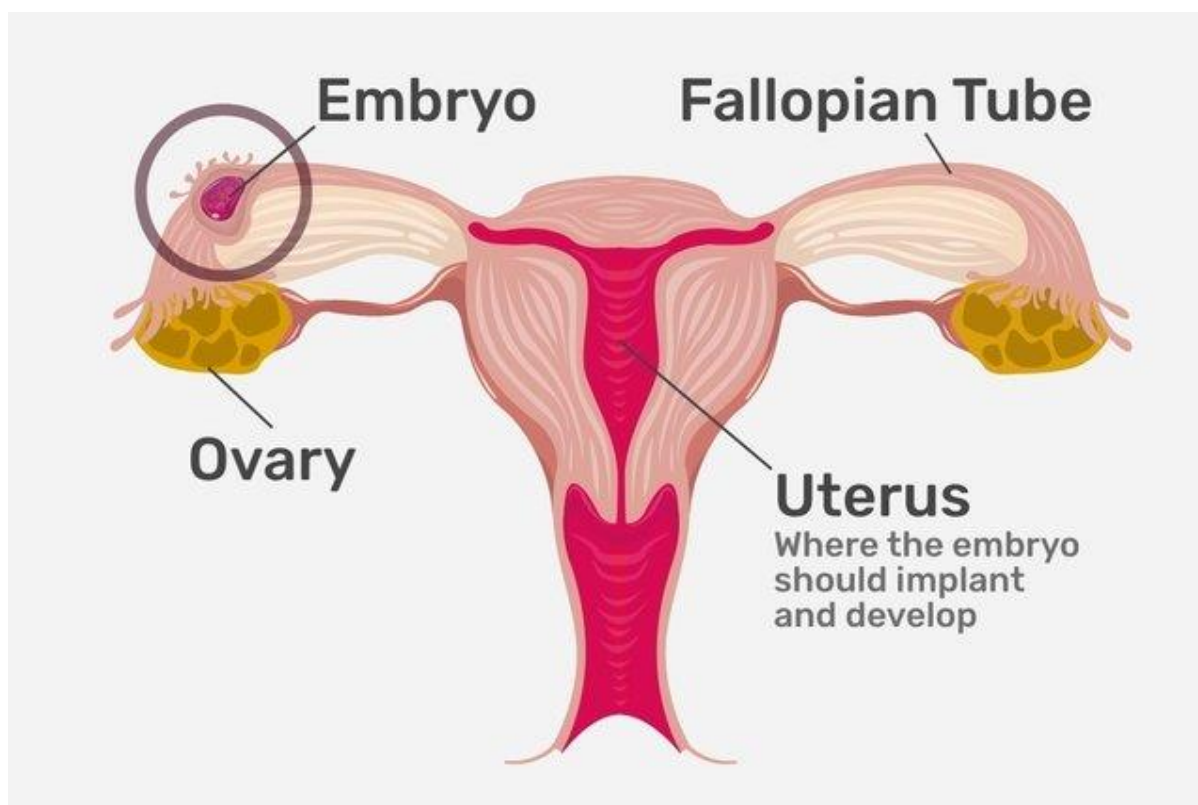
## INTRODUCTION

A pregnancy in which the fertilised egg implants outside the uterus. The fertilised egg can't survive outside the uterus. If left to grow, it may damage nearby organs and cause life-threatening loss of blood. Symptoms include pelvic pain and vaginal bleeding. To prevent complications, treatment is required. In the early stages, medication may be sufficient. Later stages require surgery.

## TYPES OF ECTOPIC PREGNANCY

1. Tubal Ectopic Pregnancy
2. Ovarian pregnancy
3. INTRA-abdominal pregnancy
4. Cervical pregnancy
5. Heterotopic pregnancy

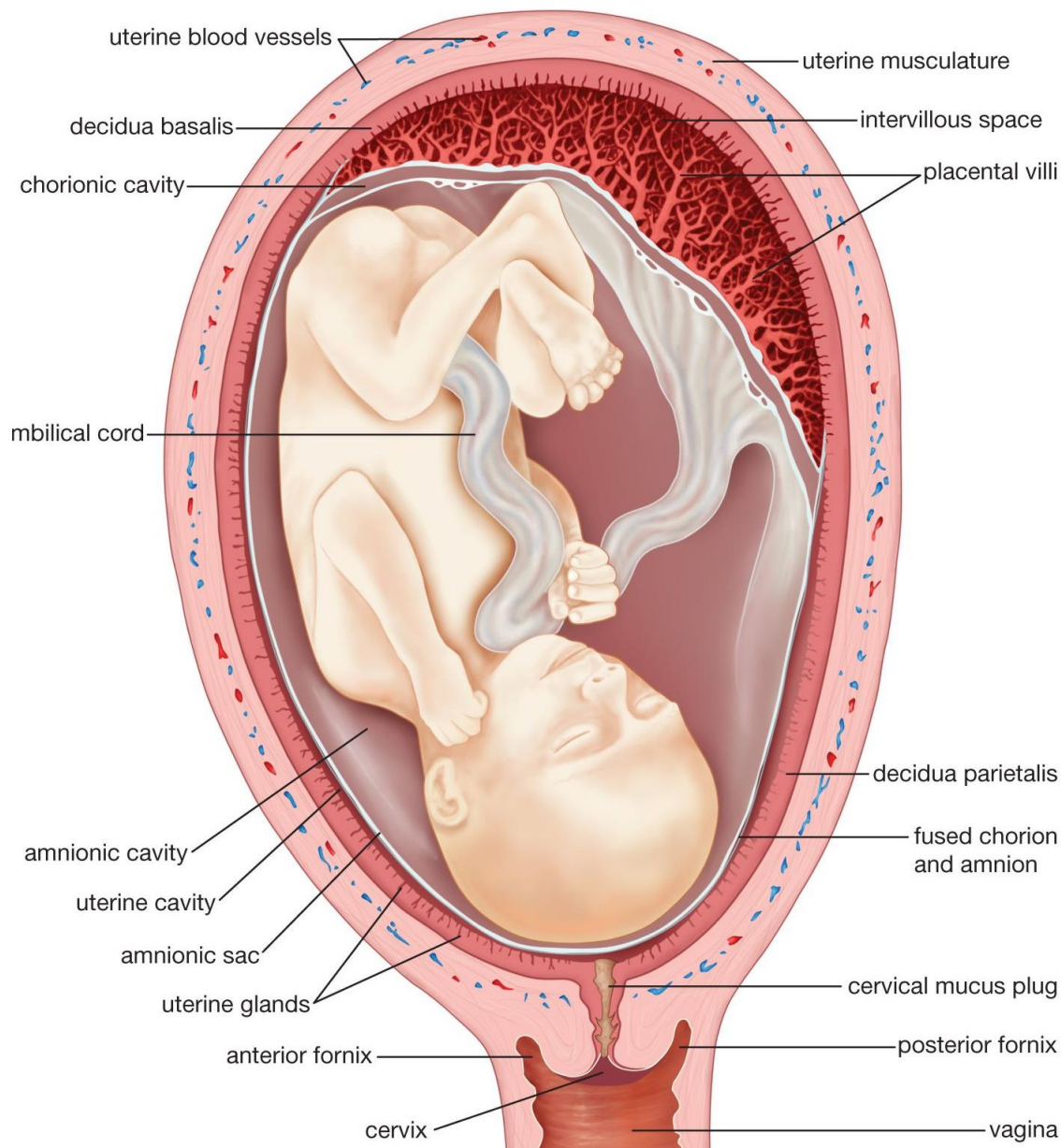
### 1. TUBAL ECTOPIC PREGNANCY:



A tubal pregnancy — the most common type of ectopic pregnancy — happens when a fertilized egg gets stuck on its way to the uterus, often because the fallopian tube is damaged by inflammation or is misshapen. Hormonal imbalances or abnormal development of the fertilized egg also might play a role.

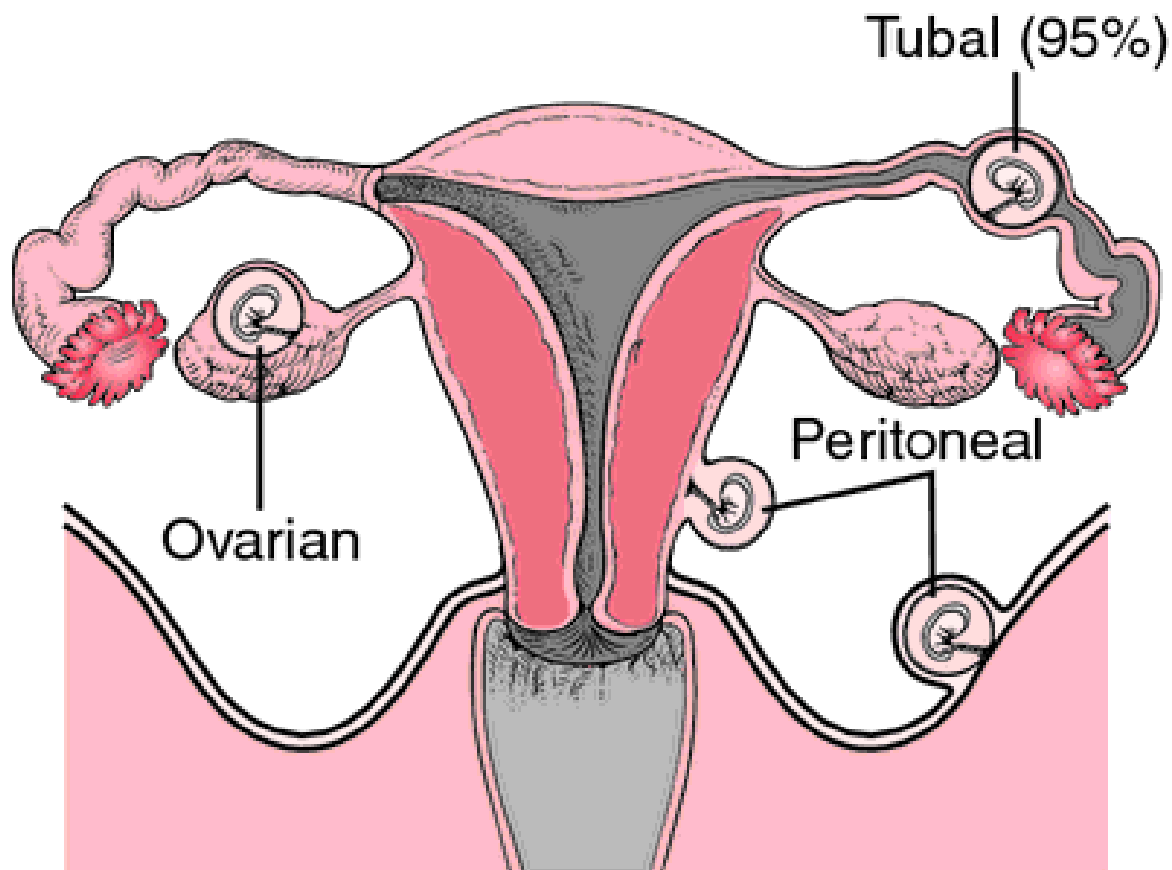
## 2. OVARIAN PREGNANCY

Ovarian pregnancy is a rare form of the non- tubal ectopic pregnancy. It ends with rupture before the end of the first trimester. One of the important risk factors for ovarian pregnancy is in the use of Intra uterine devices (IUD).



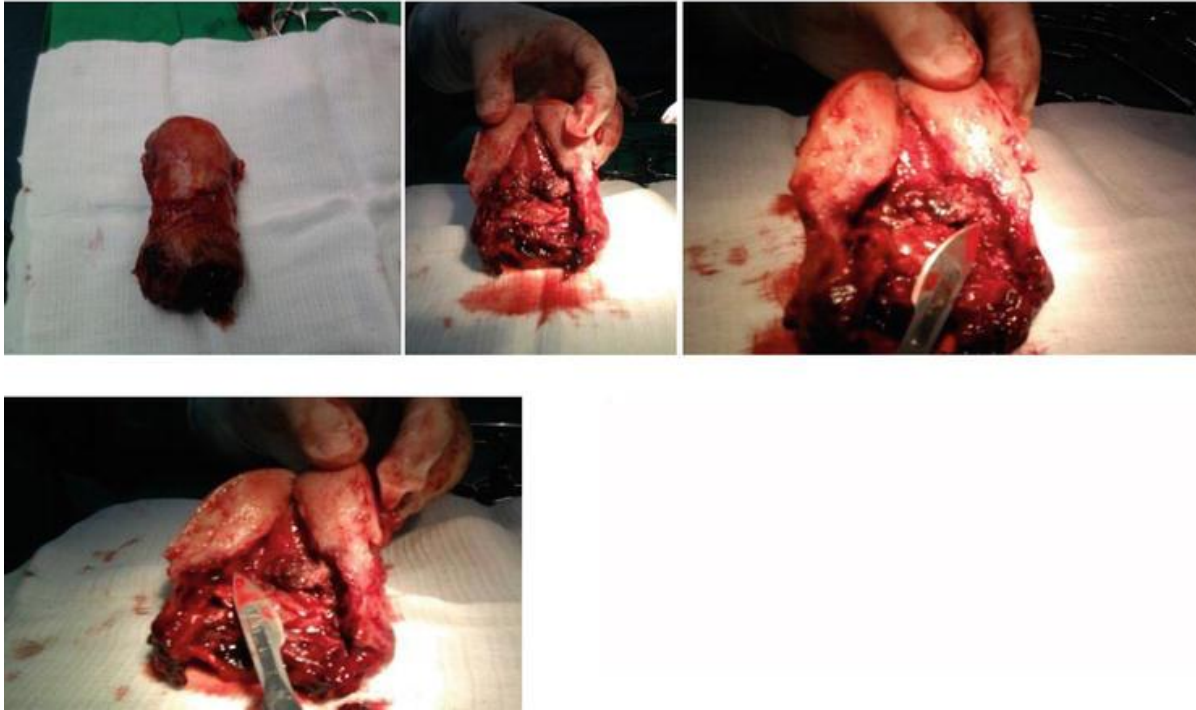
## 3.INTRA-ABDOMINAL PREGNACY

Abdominal pregnancy is defined as pregnancy anywhere within the peritoneal cavity exclusive of pregnancy exclusive of tubal, ovarian, or broad ligament location.



#### 4. CERVICAL PREGNANCY

Cervical pregnancy is a rare form of ectopic pregnancy in which the pregnancy implants in the lining of the endocervical canal. This entity accounts for less than 1 percent of ectopic pregnancies. Cervical ectopic pregnancy (CEP) is considered to be exceptionally rare, and it accounts for less than 1% of ectopic pregnancies. Its exact incidence is not yet known: some authors report from 1:978 to 1:50,000, and other authors report 0.1% of all EP estimating their incidence between 1:2500 and 1:98,000 pregnancies incidence is approximately 1 in 9000 pregnancies.



## CLINICAL DIAGNOSIS

The clinical diagnosis consists in the physical examination where a ballooned cervical canal and dilated cervix can be detected and hourglass-shaped uterus can be observed by internal examination.

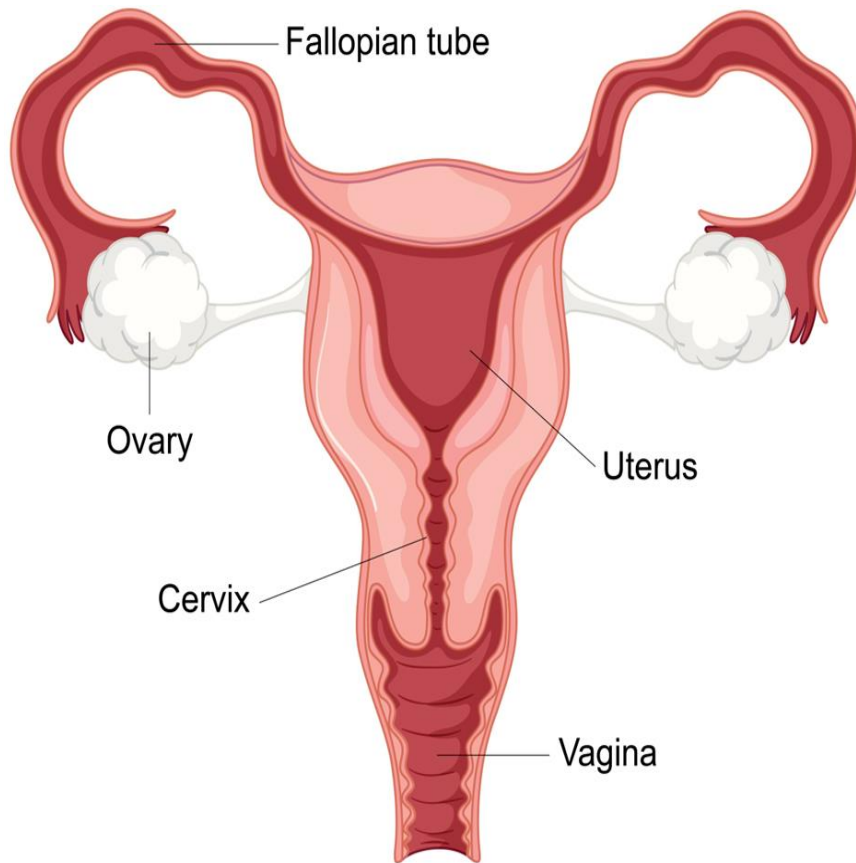
## Management

The classical treatment used to be total hysterectomy due to profuse bleeding. However some authors, eager to keep their nulliparous patients fertility, tried the conservative treatment of uterine curettage or local sutures.

## Medical treatment

The following drugs are used in the medical treatment:

1. Vasopressin
2. Actinomycin D and cyclophosphamide
3. Etoposide
4. Intra-amniotic and systemic methotrexate and potassium chloride with live embryo
5. Intramuscular methotrexate with dead embryo



## 5.HETEROTOPIC PREGNANCY

Heterotopic pregnancy is defined as the presence of multiple gestations, with one being present in the uterine cavity and the other outside the uterus, commonly in the fallopian tube uncommonly in the cervix or ovary. It was first reported in 1708 as an autopsy finding.

While heterotopic pregnancies carry an increased risk of miscarriage (particularly if a rupture is involved), around 67% of women are able to carry the intrauterine baby to term.

### Diagnosis

Quite simply, it is difficult for doctors to diagnose heterotopic pregnancy in its early stages. Women may have vaginal bleeding and cramping, but these are symptoms that can occur even in a normal pregnancy.

At the same time, it is easy to miss a heterotopic pregnancy during a routine ultrasound since the technician may only check the developing foetus in the uterus and not think to look beyond that. If there is a suspicion of a heterotopic pregnancy, it usually is only by week four or five that it can be confirmed or ruled out by ultrasound.

Until then, the pregnant person would need to be monitored closely with blood tests until a definitive diagnosis can be made. The same should apply to people who have undergone an assisted reproductive procedure if experiencing any of the above-listed symptoms.

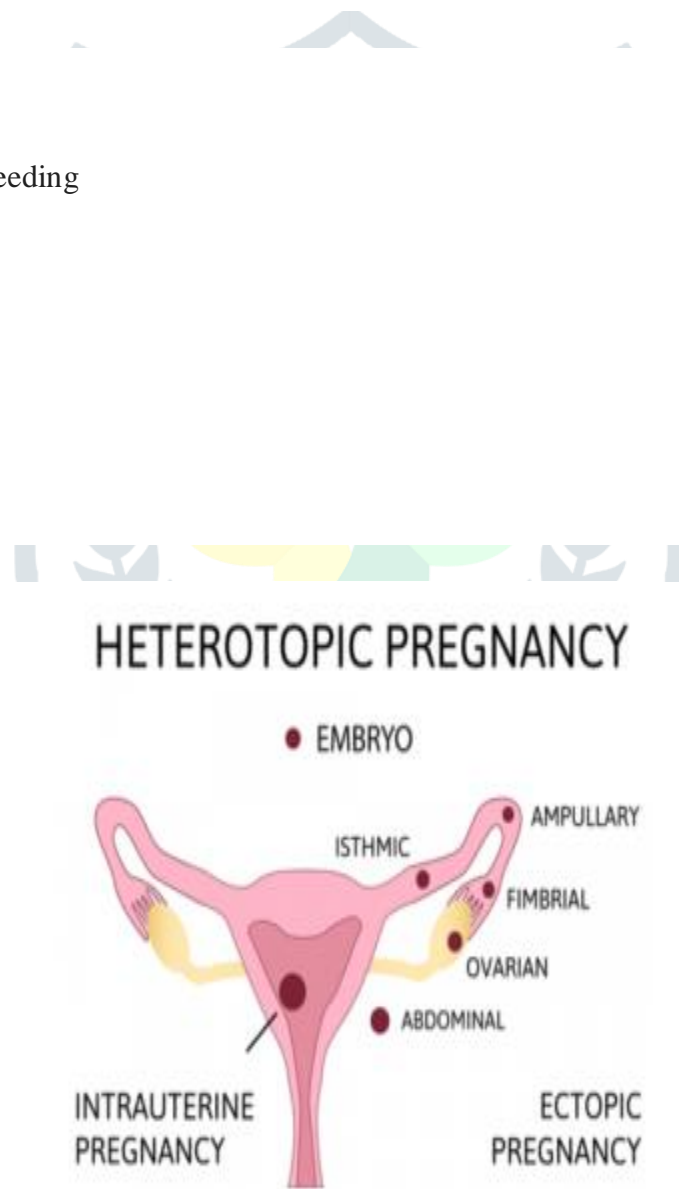
## Treatment

Any foetus located outside the uterus cannot survive, and its presence could cause potentially life-threatening bleeding in the mother if a tissue spontaneously ruptures. As a result, these pregnancies must be terminated.

## Symptoms of heterotopic pregnancy

A woman who is pregnant heterotopically may or may not have any symptoms. This is particularly alarming since half of these conceptions are only discovered after the fallopian tube ruptures. Some patients experience the following symptoms.

- Dizziness
- Bloating
- Abnormal vaginal bleeding
- Fainting
- Pain in the side
- Abnormal cramping
- Vomiting
- Pelvic pain
- Nausea



## ETIOLOGY

An ectopic pregnancy requires the occurrence of 2 events: fertilization of the ovum and abnormal implantation. Many risk factors affect both events; for example, a history of major tubal infection decreases fertility and increases abnormal implantation.

Multiple factors contribute to the relative risk of ectopic pregnancy. In theory, anything that hampers or delays the migration of the fertilized ovum (blastocyst) to the endometrial cavity can predispose a woman to ectopic gestation. The following risk factors have been linked to ectopic pregnancy:

- Tubal damage - Which can be the result of infections such as pelvic inflammatory disease (PID) or salpingitis (whether documented or not) or can result from abdominal surgery or tubal ligation or from maternal in utero diethyl stilbestrol (DES) exposure.
- History of previous ectopic pregnancy.
- Smoking - A risk factor in about one third of ectopic pregnancies; smoking may contribute to decreased tubal motility by damage to the ciliated cells in the fallopian tubes.
- Altered tubal motility - As mentioned, this can result from smoking, but it can also occur as the result of hormonal contraception; progesterone-only contraception and progesterone intrauterine devices (IUDs) have been associated with an increased risk of ectopic pregnancy.
- History of 2 or more years of infertility (whether treated or not) - Women using assisted reproduction seem to have a doubled risk of ectopic pregnancy (to 4%), although this is mostly due to the underlying infertility.
- History of multiple sexual partners.
- Maternal age - Although this is not an independent risk factor.
- The most logical explanation for the increasing frequency of ectopic pregnancy is previous pelvic infection; however, most patients presenting with an ectopic pregnancy have no identifiable risk factor.
- A 2009 literature review found 56 reported cases of ectopic pregnancy (by definition), dating back to 1937, after hysterectomy.

## Related Conditions and Diseases

- ✓ HIV in Pregnancy
- ✓ Pulmonary Disease and Pregnancy
- ✓ Kidney Disease and Pregnancy
- ✓ Vaccinations/Immunizations During Pregnancy
- ✓ Common Pregnancy Complaints and Questions
- ✓ Cardiovascular Disease and Pregnancy



## Causes

A tubal pregnancy — the most common type of ectopic pregnancy — happens when a fertilized egg gets stuck on its way to the uterus, often because the fallopian tube is damaged by inflammation or is misshapen. Hormonal imbalances or abnormal development of the fertilized egg also might play a role.

## Risk factors

Some things that make you more likely to have an ectopic pregnancy are:

- **Previous ectopic pregnancy.** If you've had this type of pregnancy before, you're more likely to have another.
- **Inflammation or infection.** Sexually transmitted infections, such as gonorrhea or chlamydia, can cause inflammation in the tubes and other nearby organs, and increase your risk of an ectopic pregnancy.
- **Fertility treatments.** Some research suggests that women who have in vitro fertilization (IVF) or similar treatments are more likely to have an ectopic pregnancy. Infertility itself may also raise your risk.
- **Tubal surgery.** Surgery to correct a closed or damaged fallopian tube can increase the risk of an ectopic pregnancy.
- **Choice of birth control.** The chance of getting pregnant while using an intrauterine device (IUD) is rare. However, if you do get pregnant with an intrauterine device (IUD) in place, it's more likely to be ectopic. Tubal ligation, a permanent method of birth control commonly known as "having your tubes tied," also raises your risk, if you become pregnant after this procedure.
- **Smoking.** Cigarette smoking just before you get pregnant can increase the risk of an ectopic pregnancy. The more you smoke, the greater the risk.

## Complications

An ectopic pregnancy can cause your fallopian tube to burst open. Without treatment, the ruptured tube can lead to life-threatening bleeding.

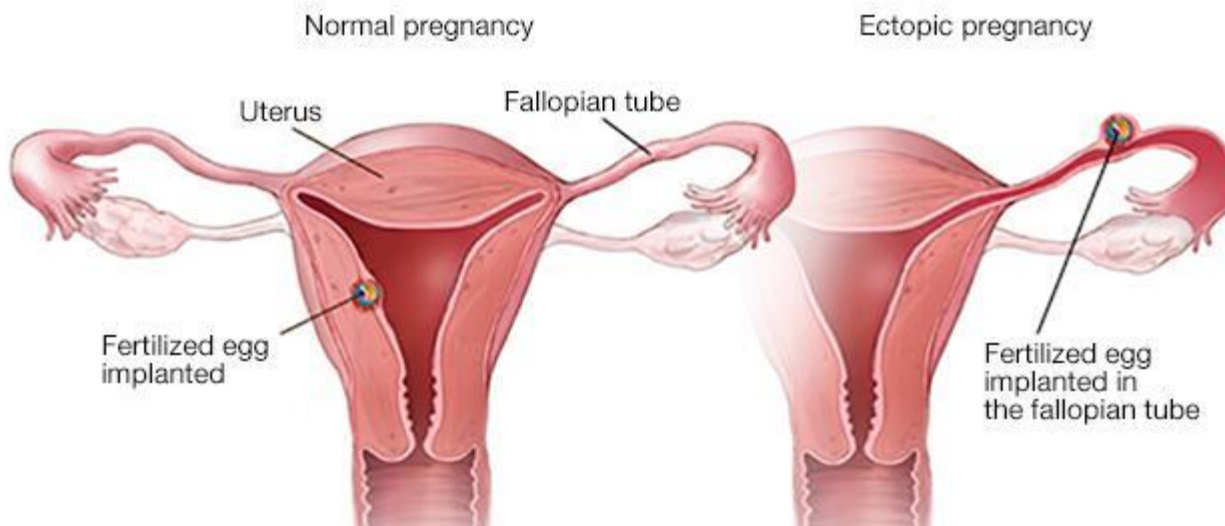
## Prevention

There's no way to prevent an ectopic pregnancy, but here are some ways to decrease your risk:

- Limiting the number of sexual partners and using a condom during sex helps to prevent sexually transmitted infections and may reduce the risk of pelvic inflammatory disease.
- Don't smoke. If you do, quit before you try to get pregnant.
- Pregnancy begins with a fertilized egg. Normally, the fertilized egg attaches to the lining of the uterus. An ectopic pregnancy occurs when a fertilized egg implants and grows outside the main cavity of the uterus.

- An ectopic pregnancy most often occurs in a fallopian tube, which carries eggs from the ovaries to the uterus. This type of ectopic pregnancy is called a tubal pregnancy. Sometimes, an ectopic pregnancy occurs in other areas of the body, such as the ovary, abdominal cavity or the lower part of the uterus (cervix), which connects to the vagina.

An ectopic pregnancy can't proceed normally. The fertilized egg can't survive, and the growing tissue may cause life-threatening bleeding, if left untreated.



## Ectopic pregnancy

In a healthy pregnancy, the fertilized egg attaches itself to the lining of the uterus. In an ectopic pregnancy, the egg attaches itself somewhere outside the uterus usually to the inside of a fallopian tube.

## Symptoms

- You may not notice any symptoms at first. However, some women who have an ectopic pregnancy have the usual early signs or symptoms of pregnancy — a missed period, breast tenderness and nausea.
- If you take a pregnancy test, the result will be positive. Still, an ectopic pregnancy can't continue as normal.
- As the fertilized egg grows in the improper place, signs and symptoms become more noticeable.

## Early warning of ectopic pregnancy

- ❖ Often, the first warning signs of an ectopic pregnancy are light vaginal bleeding and pelvic pain.
- ❖ If blood leaks from the fallopian tube, you may feel shoulder pain or an urge to have a bowel movement. Your specific symptoms depend on where the blood collects and which nerves are irritated.

## Emergency symptoms

If the fertilized egg continues to grow in the fallopian tube, it can cause the tube to rupture. Heavy bleeding inside the abdomen is likely. Symptoms of this life-threatening event include extreme light headedness, fainting and shock.

## DIAGNOSIS OF ECTOPIC PREGNANCY

### 7 Tests for Ectopic Pregnancy Diagnosis

Timely diagnosis of ectopic pregnancy diagnosis is crucial for prompt medical intervention. Early detection helps prevent complications, preserve fertility, and ensure the well-being of the patient.

Here is a list of common tests used in the ectopic pregnancy diagnosis:

1. Ultrasound scan

2. Transvaginal ultrasound

3. Blood tests (HCG levels)

4. Progesterone levels

5. Pelvic exam

6. Culdocentesis

7. Laparoscopy

### 1. Ultrasound Scan

- A non-invasive imaging technique using sound waves.
- Detects ectopic pregnancy and determines its location.
- Helps assess the condition of the fallopian tubes and surrounding structure.

<b>Ultrasound Scan</b>	<b>Details</b>
Also known as	Sonography
Purpose	Detect ectopic pregnancy, and assess fallopian tubes.
Sample	Non-invasive technique
Preparation	Full bladder
Procedure	Gel was applied to the skin, the probe was moved over the abdomen
Test Timing	20-30 minutes
Test price (INR)	1,000-3,000
Result value	Detailed images of pelvic organs
Normal value	Intrauterine pregnancy
Accuracy	High accuracy
Interpretation	Requires expert analysis of the ultrasound images

	and correlation with clinical findings
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Ultrasound scan, also known as sonography, detects ectopic pregnancy diagnosis, assesses location, and confirms in intrauterine pregnancy with high accuracy.

## 2. Transvaginal Ultrasound

- Utilizes a probe inserted into the vagina for a closer view of pelvic organs.
- Provides detailed images of the uterus, fallopian tubes, and ovaries.
- Helps identify ectopic pregnancies early and assess their location and viability.

Transvaginal Ultrasound	Details
As known as	Endo vaginal ultrasound
Purpose	Evaluate pelvic organs, detect ectopic pregnancy, assess fertility
Sample	None
Preparation	Empty bladder, undress waist down
Procedure	Insertion of probe into vagina, imaging of pelvic structures.
Test Timing	10-15 minutes
Test Price [INR]	1,000-5,000
Result Value	Visual image, measurements and observations
Normal Value	Based on the pregnancy stage
Accuracy	Precise internal visualization
Interpretation	Determination of pregnancy location, and identification of abnormalities.

Transvaginal ultra sound, or endo vaginal ultrasound, evaluates pelvic organs, detects ectopic pregnancy, and assesses fertility. It provides accurate imaging for ectopic pregnancy diagnosis and monitoring.

## 3. Blood Tests

- Measure human chorionic gonadotropin (HCG) levels.
- High HCG levels may indicate an ectopic pregnancy diagnosis.
- Serial HCG tests track changes and monitor pregnancy progression or potential complications.

Blood Test	Details
Also Known As	HCG blood tests
Purpose	Measure HCG levels
Sample	Blood sample
Preparation	None
Procedure	Blood draw from a vein
Test Timing	2-4 hours
Test Price (INR)	200-1,000
Result Value	Quantitative HCG levels
Normal Value	Based on the pregnancy stage
Accuracy	Reliable hormone measurement
Interpretation	Assess HCG trends and levels for pregnancy conformation or ectopic pregnancy diagnosis

Blood test, including HCG tests, accurately measure HCG levels to detect and monitor pregnancy, including ectopic pregnancy diagnosis, providing valuable diagnostic information.

## 4. progesterone levels

- Progesterone hormone helps maintain healthy pregnancy.
- Low progesterone levels may indicate an ectopic pregnancy diagnosis or a falling pregnancy.

Monitoring progesterone levels aids in diagnosing and managing ectopic pregnancies.

<b>Progesterone levels</b>	<b>Details</b>
Also Known As	Progesterone hormone test
Purpose	Assess progesterone levels
Sample	Blood sample
Preparation	None
Procedure	Blood draw from a vein
Test Timing	2-4 hours
Test Price (INR)	300-5,000
Result Value	Quantitative progesterone levels
Normal Value	Based on the pregnancy stage
Accuracy	Diagnostic hormone assessment
Interpretation	Evaluate progesterone levels in relation to pregnancy health and viability.

Progesterone level tests evaluate hormone levels to assess pregnancy health and viability. They provide important insights into early pregnancy stages.

## 5. Pelvic Exam

- Physical examination of the pelvic region by a healthcare provider.
- Helps identify signs such as tenderness or abnormal masses.
- Combined with other tests, aids in ectopic pregnancy diagnosis and assessing its severity.

<b>Pelvic Exam</b>	<b>Details</b>
As Known As	Gynecological exam
Purpose	Evaluate pelvic organs, detect abnormalities
Sample	None
Preparation	Empty bladder, undress waist down
Procedure	Physical examination of the pelvic region
Test Timing	5-10 minutes
Test Price (INR)	500-2,000
Result Value	Visual observations, palpation findings
Normal Value	Based on individual anatomy
Accuracy	Clinical evaluation accuracy
Interpretation	Identification of abnormalities, including signs of ectopic pregnancy

A pelvic exam, also known as a gynecological exam, assesses pelvic organs and detects abnormalities, including ectopic pregnancy, through a physical examinations.

## 6. Culdocentesis

- Involves inserting a needle into the space behind the vagina.
- Detects the presence of fluid, indicating a ruptured ectopic pregnancy diagnosis.
- Helps assess the severity of the condition and guides further treatment decisions.

<b>Culdocentesis</b>	<b>Details</b>
Also Known As	Posterior fornix aspiration
Purpose	Detect fluid indicating a ruptured ectopic pregnancy
Sample	Fluid from the cul-de-sac
Preparation	None

Procedure	Needle aspiration through posterior fornix
Test Timing	A few minutes to an hour
Test Price (INR)	1,500-3,5000
Result Value	Presence or absence of fluid
Normal Value	Absence of fluid
Accuracy	Fluid presence detection
Interpretation	Detect the presence of fluid in the cul-de-sac, indicating a ruptured ectopic pregnancy.

Culdocentesis, or posterior fornix aspiration, detects fluid in the cul-de-sac, indicating a ruptured ectopic pregnancy. It aids in prompt diagnosis and necessary medical intervention.

## 7. Laparoscopy

- Minimally invasive surgical procedure using a small camera and instruments.
- Allows direct visualization of the pelvic organs.
- Confirms the presence and location of an ectopic pregnancy, aiding in treatment planning.

Laparoscopy	Details
As Known As	Keyhole surgery
Purpose	Direct visualization of pelvic organs
Sample	None
Preparation	Fasting, anaesthesia
Procedure	Small incision, insertion of the laparoscope for internal examination.
Test Timing	30 minutes to a few hours
Test Price (INR)	20,000-50,000
Result Value	Direct visualization, potential tissue biopsy, or removal.
Normal Value	Depends on the specific condition.
Accuracy	Direct visual confirmation
Interpretation	Confirmation of ectopic pregnancy, assessment of pelvic conditions.

Laparoscopy, or keyhole surgery, enables direct visualization of pelvic organs, aiding in the conformation of ectopic pregnancy diagnosis and assessment of pelvic conditions with high accuracy.

## Ectopic Pregnancy Diagnosis Tests Overview

Test Name	Ultrasound scan	Transvaginal Ultrasound	Blood Tests
As Known As	Sonogram	Endo vaginal Ultrasound	HCG blood tests
Purpose	Imaging technique	Evaluate pelvic organs, detect ectopic pregnancy	Measure HCG levels



Sample	None	None	Blood sample
Preparation	Varies	Empty bladder, undress waist down	None
Procedure	Use of sound waves	Insertion of probe into vagina, imaging of pelvic structures	Blood drawn from a vein
Test Timing	20-30 minutes	10-15 minutes	2-4 hours
Test Price (INR)	500-3,000	1,000-5,000	200-1,000
Result Value	Detailed images of pelvic organs	Quantitative progesterone levels	Quantitative HCG levels
Normal Value	Varies	Varies	Based on the pregnancy stage
Accuracy	High	Precise internal visualization	Reliable hormone measurement
Interpretation	Assess abnormalities, pregnancy progress, and organ health.	Determine pregnancy location, and assess abnormalities.	Confirm pregnancy, and monitor HCG levels.

➤ Test price, range, and timing may vary as per location, lab type, and procedure.

Ultrasound scans including transvaginal ultrasound, and blood tests (HCG) are vital diagnostic tools for assessing pregnancy, detecting ectopic pregnancy diagnosis, and monitoring hormone levels with high accuracy.

## 7 Interesting Facts about Ectopic Pregnancy Diagnosis

1. Ectopic pregnancy diagnosis may involve serial HCG tests.
2. Blood tests can measure progesterone levels for ectopic pregnancy evaluation.
3. Transvaginal ultrasound provides detailed imaging of pelvic organs.
4. Culdocentesis detects fluid in the pelvic area, indicating a ruptured ectopic pregnancy.
5. Laparoscopy allows direct visualization and confirmation of ectopic pregnancy diagnosis.
6. Progesterone levels aid in diagnosing and managing ectopic pregnancies.
7. Pelvic exams help identify signs of ectopic pregnancy, such as tenderness or masses.

## TREATMENT OF ECTOPIC PREGNANCY

- An early ectopic pregnancy without unstable bleeding is most often treated with a medication called methotrexate, which stops cell growth and dissolves existing cells. The medication is given by injection. It's very important that the diagnosis of ectopic pregnancy is certain before receiving this treatment.

- A fertilized egg can't develop normally outside the uterus. To prevent life-threatening complications, the ectopic tissue needs to be removed. Depending on your symptoms and when the ectopic pregnancy is discovered, this may be done using medication, laparoscopic surgery or abdominal surgery.

## Medication

- An early ectopic pregnancy without unstable bleeding is most often treated with a medication called methotrexate, which stops cell growth and dissolves existing cells. The medication is given by injection. It's very important that the diagnosis of ectopic pregnancy is certain before receiving this treatment.
- After the injection, your doctor will order another human chorionic gonadotropin (HCG) test to determine how well treatment is working, and if you need more medication.

## Laparoscopic procedures

- ❖ Salpingostomy and salpingectomy are two laparoscopic surgeries used to treat some ectopic pregnancies. In these procedure, a small incision is made in the abdomen, near or in the navel. Next, your doctor uses a thin tube equipped with a camera lens and light (laparoscope) to view the tubal area.
- ❖ In a salpingostomy, the ectopic pregnancy is removed and the tube left to heal on its own. In a salpingectomy, the ectopic pregnancy and the tube are both removed. Which procedure you have depends on the amount of bleeding and damage and whether the tube has ruptured. Also a factor is whether your other fallopian tube is normal or shows signs of prior damage.

### Emergency surgery

If the ectopic pregnancy is causing heavy bleeding, you might need emergency surgery. This can be done laparoscopically or through an abdominal incision (laparotomy). In some cases, the fallopian tube can be saved. Typically, however, a ruptured tube must be removed.

## METHODS OF ECTOPIC PREGNANCY

There are two methods are used to treat a tubal ectopic pregnancy: medication and surgery. Treatment of a tubal ectopic pregnancy through medication works by preventing the cells in the pregnancy from growing. Medication can only be used for treatment in patients who are stable and whose ectopic pregnancy has not rupture.

### Conclusion:

- ✓ Ectopic pregnancy is still the leading cause of death in the first trimester of pregnancy.
- ✓ A high index of suspicion is required for an early diagnosis because sign and symptoms are not specific.
- ✓ Expectant management is suitable in a limited number of cases.
- ✓ Incidence of ectopic pregnancy is raising while maternal mortality from it is falling.
- ✓ Laparotomy should be done when in doubt.
- ✓ Carefully monitoring and proper counselling of patient is mandatory.

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