



Ectopic Pregnancy: A Major Occurring Problem

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ABSTRACT

Ectopic pregnancy occurs when the fetus implants outside the uterus or to an abnormal portion of the uterus. It is the result of flaw in the reproductive physiology that allows the fetus to implant outside the endometrial cavity. This leads to the death of the fetus. Ectopic pregnancy is the main cause of maternal death in early pregnancy. Nearly 0.25-2.0% of pregnancies are ectopic. 0.91% of pregnant women were reported with ectopic pregnancy in a study done at tertiary care hospital in South India. Medication: If the fallopian tube has not ruptured medication alone can help the situation. Methotrexate, a folic acid antagonist which inhibits DNA synthesis and cell replication is used. The mechanism of action is to kill cytotrophoblast cell that dividing rapidly at the fallopian tube which then the body spontaneously reabsorbs. Laparoscopy is done for pregnant women with extensive bleeding, or poor visualization of the pelvis. Women with the history of ectopic pregnancy should have an early diagnosis. Women with any infections or pelvic inflammatory diseases should get regular checkups. Laparoscopy is the gold standard surgical treatment for ectopic pregnancy in those women with ruptured fallopian tube.

Keywords: Methotrexate, laparoscopy, cytotrophoblast, fetus, implant.

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INTRODUCTION

Ectopic pregnancy occurs when the fetus implants outside the uterus or to an abnormal portion of the uterus¹. It is the result of flaw in the reproductive physiology that allows the fetus to implant outside the endometrial cavity. This leads to the death of the fetus. Without timely diagnosis and treatment, it can become a life-threatening situation².

Ectopic pregnancy is the main cause of maternal death in early pregnancy. Nearly 0.25-2.0% of pregnancies are ectopic. 0.91% of pregnant women were reported with ectopic pregnancy in a study done at tertiary care hospital in South India³. Women who have ectopic pregnancy are at risk for another such pregnancy and also for future infertility⁴.

Uterus is the only place where the embryo can grow into fetus. Most ectopic pregnancies occur in fallopian tube, rarely in the ovary or in the cervix⁵. So based on the place where the fetus was implanted different types of ectopic pregnancies can occur. Two types of ectopic pregnancies: Tubal pregnancy, non-tubal pregnancy, Heterotopic pregnancy⁶. The infrequency of the implantation sites

makes the study of treatment difficult. Advances in the ultrasound technology have provided the capability to visualize the ectopic pregnancy at its earlier stages⁷.

Ectopic pregnancy is the major clinical problem all over the world. United states has nearly 75,000 cases per year⁸. Around 1-2% of pregnancies are ectopic and this is the reason for 3-4% of pregnancy related deaths, because the symptoms of the ectopic pregnancy will develop in the late weeks of the pregnancy⁹.

Signs and Symptoms

Early signs include¹⁰:

- Vaginal bleeding
- Pelvic pain
- Stomach upset
- Dizziness
- Weakness
- Pain on one side of the body
- Abdominal cramps

Ectopic pregnancy can result in fallopian tube to rupture. This cause emergency symptoms which include:

- Heavy vaginal bleeding
- Fainting
- Shoulder pain
- Hypotension



- Rectal pressure

Symptoms of an ectopic pregnancy may develop in early weeks i.e., in week 4 or may develop in late weeks i.e., week 12 of the pregnancy. More commonly seen in between the week 6-9⁹.

Risk Factors^{11,12}:

- Previous ectopic pregnancy
- Prior fallopian tube surgery
- Sexually transmitted infections
- Pelvic inflammatory diseases
- Endometriosis
- History of infertility
- Induced conception cycle
- Intrauterine device usage
- Prior caesarean section
- Multi sexual partner
- Fertility surgery

Some other factors include ¹³:

- Cigarette smoking
- Age older than 35 years
- Using in vitro fertilization (IVF)

Most of the women with ectopic pregnancy do not have known risk factors. Sexually active women should be very careful and alert to changes in their body, especially if they experience any symptoms of ectopic pregnancy ¹⁴.

Causes ⁶

The causes of ectopic pregnancy are not always understandable. But the following conditions may cause ectopic pregnancy:

1. Inflammation and scarring of the fallopian tube due to any previous infection or the surgery.
2. Hormonal factors
3. Birth defects
4. Genetic abnormalities
5. Any condition that affects the fallopian tube or the reproductive organs.

Types of Ectopic Pregnancy

Ectopic pregnancy can be categorized into ¹⁵:

- ✓ Tubal pregnancy
- ✓ Non tubal ectopic pregnancy
- ✓ Heterotopic pregnancy

Tubal pregnancy: It occurs when the egg has implanted in the fallopian tube. This is the most common type and majority of the ectopic pregnancies are tubal pregnancies.

Non-tubal ectopic pregnancy: When the egg implants in the part other than fallopian tube cause non tubal ectopic pregnancy. Only 2% of ectopic pregnancies are non-tubal pregnancies. Egg implants in the ovary, cervix, intra-abdominal region.

Heterotopic pregnancy: This is the rare case, where one fertilized egg implants inside the uterus and other implants outside the structure. The ectopic pregnancy often discovered before the intra-uterine pregnancy mainly due to pain.

Based on the site of implantation i.e., inside or outside the tube ectopic pregnancy can be further divided into⁶:

1. **Interstitial ectopic pregnancy:** It occurs when implantation of fetus takes place in the interstitial segment of the fallopian tube.
2. **Cervical ectopic pregnancy:** It occurs when the fetus implants in the endocervical canal.
3. **Cesarean scar ectopic pregnancy:** It occurs when the fetus implants in the anterior lower uterine segment at the site of the cesarean scar. Early diagnosis of this pregnancy is essential because of the risk for the uterine rupture and uncontrollable hemorrhage.
4. **Intramural ectopic pregnancy:** In this case the gestational sac is located in the uterine wall and is completely surrounded by the myometrium and separates from the endometrial cavity.
5. **Ovarian ectopic pregnancy:** It results when a fertilized ovum remains in the ovary itself. An echogenic wall is another sign with an ovarian ectopic pregnancy.
6. **Abdominal ectopic pregnancy:** It occurs when the fetus implants in the peritoneal cavity. Implantation occurs anywhere in the abdomen; it can be on the peritoneal surface or in the abdominal viscera.
7. **Unilateral twin tubal ectopic pregnancy:** It refers to concurrent unilateral ectopic implantation of two embryos in the fallopian tube. In twin ectopic pregnancy, ultrasound shows an empty uterine cavity and an adnexal mass with two embryonic poles.

Diagnosis

1. **Physical examination**
2. **Laboratory investigations: beta HCG levels**

Serum b-hCG levels can be useful in determining if the current pregnancy is likely to be in an ectopic location. In a normal pregnant woman, the b-hCG levels rise for the first 4 weeks, then followed by a slower rise until 10 weeks.



Decreasing b-hcg levels suggest a failing pregnancy but this do not indicate its location¹⁶.

The normal b-hcg levels in serum is 5 IU/L and in urine is 20-50 IU/L.

3. Use of progesterone measurement

Progesterone levels are stable and independent of gestational age in the first trimester.

Pregnant women with progesterone levels above 22ng/ml will have a high likelihood of intrauterine pregnancy. And those with levels of 5 ng/ml or less will likely to have an ectopic pregnancy¹⁷.

4. Ultrasound

- **A transvaginal ultrasound** will show the exact location of the fetus. For this test a wand like is used. This device is placed into the vagina which passes the sound waves and creates an image uterus, ovaries, and fallopian tube.
- **Abdominal ultrasound** is also used in which an ultrasound wand is rolled over the belly¹⁸.

Treatment

Medication: If the fallopian tube has not ruptured medication alone can help the situation. **Methotrexate**, a folic acid antagonist which inhibits DNA synthesis and cell replication is used. The mechanism of action is to kill cytotrophoblast cell that dividing rapidly at the fallopian tube which then the body spontaneously reabsorbs¹⁹.

To use methotrexate the b-hcg levels should be monitored. Success rates of methotrexate decreases as the initial b-hcg concentration increases. Although there is no absolute b-hcg levels at which treatment is contraindicated.

So, it is recommended that pregnant women with initial b-hcg levels greater than 2000 IU/ml be undergo surgery rather than medical treatment²⁰.

Surgery: Laparoscopy is done for pregnant women with extensive bleeding, or poor visualization of the pelvis.

Two laparoscopic techniques are available for treating ectopic pregnancies.

- **Salpingectomy:** The fallopian tube containing ectopic pregnancy is removed
- **Salpingotomy:** After the removal of ectopic pregnancy the affected fallopian tube is preserved¹⁶.

CONCLUSION

- ✓ Ectopic pregnancy cannot be diagnosed in the early stages of pregnancy. So, all sexually active women with history of lower abdominal pain and vaginal bleeding should be referred to the hospital.
- ✓ Ultrasonography and serum b-hcg levels should be monitored in the early stages of pregnancy.

- ✓ Women with the history of ectopic pregnancy should have an early diagnosis.
- ✓ Women with any infections or pelvic inflammatory diseases should get regular checkups.
- ✓ Laparoscopy is the gold standard surgical treatment for ectopic pregnancy in those women with ruptured fallopian tube.

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