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### ECTOPIC PREGNANCY – AN OVERVIEW

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#### ABSTRACT

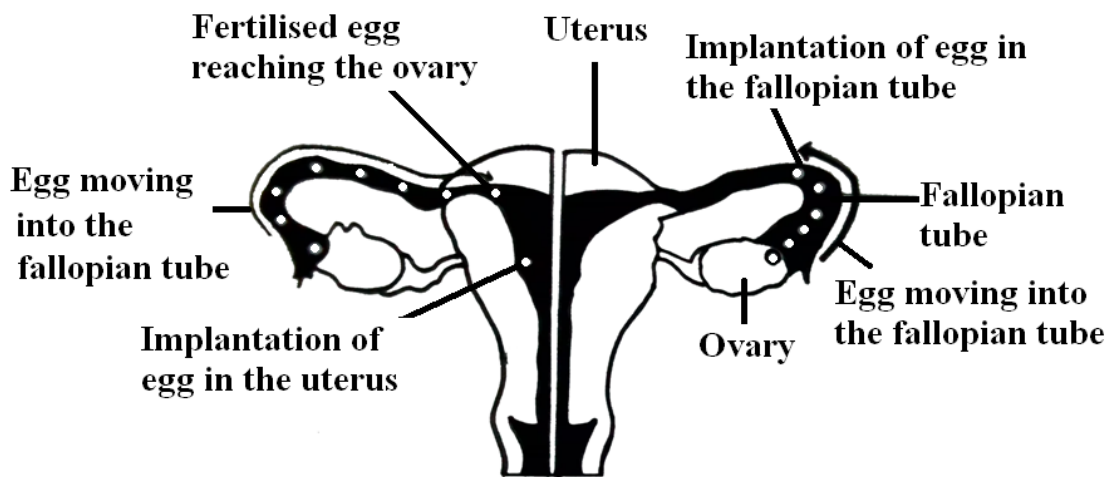
Pregnancy is the state of carrying a baby by a female. It is known to occur within the gestational sac of the uterus. Apart from the gestational sac, pregnancy can occur even in other locations inside the body such as the fallopian tubes, ovary, fimbriae, abdomen etc. Pregnancy occurring in any location within the body apart from the gestational sac is termed as ectopic pregnancy. It is a rare condition where the persistence and further development of fetus is rarely possible. Ectopic pregnancy is found to be the most common cause of pregnancy-related deaths in the first trimester of pregnancy. Associated with various risk factors, it shows abdominal pain, amenorrhea and vaginal bleeding as major symptoms. It becomes a challenge for the doctors to diagnose it in time and manage it. By far, much diagnostic approaches and treatment options have not been developed. However, the life of the pregnant woman and her chances of acquiring another pregnancy in a healthy way can be preserved.

**Keywords:** Ectopic pregnancy, Ultrasonography, Laproscopy, Laparotomy.

#### INTRODUCTION

The phenomenon of carrying a developing embryo or fetus within the female body is termed as Pregnancy. It is also called gravidity or gestation. The human gestation period is usually around 40 weeks. It is divided into three trimesters. Each trimester is of three months duration. <sup>[1]</sup> First trimester includes the initial 13 weeks after conception during which the embryo rapidly develops and forms almost completely. Second

trimester includes the next 13 weeks during which physical symptoms of pregnancy are identified within the mother. Third trimester includes the rest of the weeks. In normal pregnancy, the embryo gets implanted in the gestational sac present in the uterus <sup>[2]</sup>. But in some unfortunate females it gets implanted in parts other than the gestational sac mostly in the fallopian tubes. This is termed as “ECTOPIC PREGNANCY”. <sup>[3]</sup>



**NORMAL PREGNANCY**

**ECTOPIC PREGNANCY**

**Fig.1: Egg implantation illustration in case of normal pregnancy and ectopic pregnancy**

Usually in a mature female few days before every menstrual cycle the ovary releases an ovum. This ovum passes into the fallopian tubes through fimbriae. Then it moves towards the uterus. While moving towards the uterus if the ovum doesn't encounter a sperm the ovum gets discharged in the menstrual flow, if it encounters a sperm it fuses to form an egg then the egg gets implanted in the uterus.. But sometimes the egg gets struck within the fallopian tubes or any other part while descending to uterus resulting in an ectopic pregnancy and the embryo continues to grow as a fetus there itself causing damage to the implanted area.<sup>[4]</sup>

The incidence of ectopic pregnancy is found to be approximately 2% of all pregnancies.<sup>[5]</sup> A study showed 13 out of 666 ectopic pregnancies were recurrent cases, 10 out of 13 patients were second repeat ectopic and 3 patients were third repeat ectopic pregnancies. 5 out of 13 patients had miscarriages after previous ectopic pregnancies<sup>[6]</sup> and uterine curettage (removal of uterine tissue or uterine lining) was performed to all of these patients after miscarriages.<sup>[7]</sup>

Abdominal pain is the most common clinical manifestation of ectopic pregnancy and around

50% of patients present with symptoms of amenorrhea and vaginal bleeding. These three symptoms, i.e., abdominal pain, amenorrhea and vaginal bleeding are considered a clinical triad in diagnosing ectopic pregnancy. Painful fetal movements, weakness, vomiting, fever, syncope and cardiac arrest are also seen in few patients.<sup>[8]</sup>

There are various risk factors associated with ectopic pregnancy. They can be categorized as major, moderate and minor risk factors. Major risk factors include previous ectopic pregnancy, tubal surgery, and exposure of the uterus to synthetic form of estrogen like diethylstilbestrol. Moderate risk factors include genital infections such as gonorrhoea, Chlamydia, pelvic inflammatory disease, Salpingitis (inflammation of fallopian tubes),<sup>[10]</sup> smoking, multiple sexual partners. Minor risk factors include previous pelvic surgery, previous abdominal surgery, vaginal douching.<sup>[8]</sup> Other risk factors include difficulty with fertility, use of fertility drugs, and use of intra uterine devices as contraceptives, unsuccessful tubal ligation, and conception at the age of greater than 35 years.<sup>[3], [9]</sup> Based on the location, ectopic pregnancy is of following types

## TUBAL PREGNANCY

It is characterised by implantation of egg within the fallopian tubes. An increase in the ciliated cells of fallopian tubes are noted. It includes the following types

### Ampullary pregnancy

It occurs in the upper part of the fallopian tube. It's occurrence is found to be 80%

### Isthmic pregnancy

It occurs in the lower part of the fallopian tube. It's occurrence is observed as 12%

### Fimbrial pregnancy

In this type, the embryo implants in the fimbriae and it accounts for 5% of all cases

### Cornual/ interstitial pregnancy

The embryo localises in the uterus but outside the gestational cavity. It constitutes 2% of all cases

## NON-TUBAL PREGNANCY

It involves egg implantation in places other than fallopian tubes and its associated parts. It includes the following types:

### Abdominal pregnancy

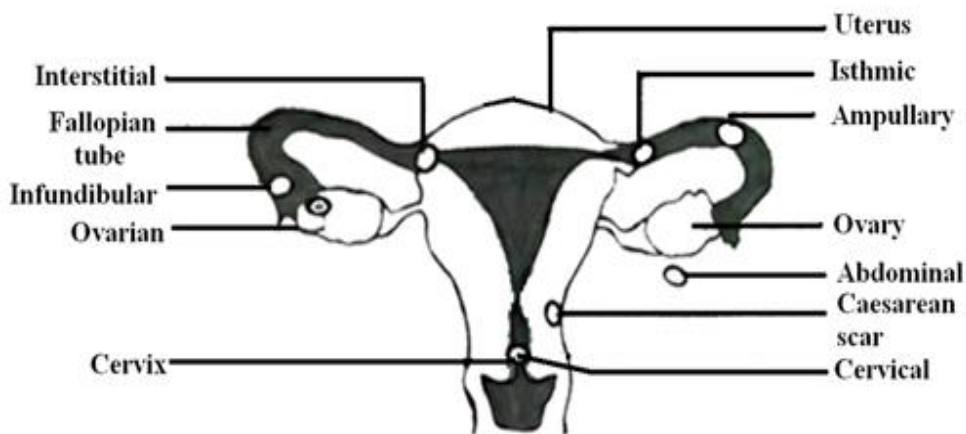
Embryo implantation occurs in the abdomen within the intestines. This type accounts for 1.4%

### Ovarian pregnancy

The embryo remains attached to the ovary or gets implanted within the ovary. This kind accounts for 0.2% of all cases

### Cervical pregnancy

Embryo gets implanted in the cervix region. 0.2% of all ectopic pregnancy cases are of this kind. <sup>[11],[12]</sup>



TYPES AND LOCATIONS OF ECTOPIC PREGNANCY

Fig 2: Different locations where an egg can get implanted

## DIAGNOSIS

Ectopic pregnancy can be diagnosed by pelvic examination, serum beta HCG levels,

ultrasonography and laparoscopy. <sup>[13]</sup> A pelvic examination is usually done when a woman is a pregnant and is suspected to have an infection or

has pelvic pain and lower back pain. <sup>[14]</sup> When a woman is suffering from ectopic pregnancy, pelvic examination reveals slightly enlarged and soft uterus, difficulty differentiation of palpated adnexal mass from ipsilateral ovary and presence of uterine contents in the vagina. <sup>[15]</sup> HCG (human chorionic gonadotropin) is a hormone that is secreted during pregnancy whose evaluation serves as one of the screening tests for finding birth defects. During pregnancy, cells of the developing placenta release HCG into the blood whose levels double every 2-3 days thus resulting in elevated HCG levels indicating healthy pregnancy. <sup>[16]</sup> Ectopic pregnancy can result in decreased HCG levels (may show increased levels also based on its location). <sup>[17]</sup> However an ultrasonography is required for its further confirmation as healthy pregnancies sometimes can show low HCG levels. It can be accessed by a blood test soon after conception. Whereas a urine test serves to access HCG levels few days after conception. A transvaginal ultrasonography is done to find the location of the pregnancy. Under normal circumstances of pregnancy, six weeks after the last menstrual period, the embryo is visible in the uterus in ultrasonography. If there are no signs of an embryo or a fetus in the uterus but there are elevated levels of HCG in serum, it indicates an ectopic pregnancy. <sup>[18]</sup> Laparoscopy is a surgical procedure in which a fiber-optic instrument is inserted through the abdominal wall to view the organs in the abdomen. It helps to visually diagnose and treat an ectopic pregnancy. But usually it is possible only after the 5th week of gestation. <sup>[19], [20]</sup>

## TREATMENT

In most cases of ectopic pregnancy, treatment refers to saving the mother and terminating the pregnancy. Methotrexate is the only drug available for the treatment of ectopic pregnancy. It is actually used to treat cancers. It interferes with the growth of cells. Any abnormal growth of cells within the body is regarded as tumor. Hence, ectopic pregnancy is also considered as a tumor and methotrexate is given. Based upon the progression of the ectopic pregnancy, methotrexate treatment

may prevent the destruction of fallopian tubes and facilitate the absorption of pregnancy tissue by the body itself resulting in pregnancy termination. Methotrexate treatment can be done when the serum HCG levels are low i.e., less than 5000 and when the embryo has no heart activity. <sup>[21]</sup>

When HCG levels are very high associated with bleeding, surgery becomes the best treatment option for the removal of ectopic pregnancy. Abdominal rigidity, involuntary guarding, severe tenderness and evidence of hypovolaemic shock are the signs suggesting surgical emergency. Laparoscopy or another surgical process called Celiotomy is used for the removal of ectopic pregnancy. If the embryo alone is removed it is termed Salpingostomy, and if the affected tube is removed it is called Salpingectomy. Celiotomy is a surgical procedure involving a large incision through the abdominal wall to gain access into the abdominal cavity. It is also known as Laparotomy. <sup>[22]</sup>

## CONCLUSION

Ectopic pregnancy is a rare condition which occurs in areas other than the usual gestational sac of the uterus. Its incidence is 2% out of all pregnancies. Abdominal pain remains the predominant symptom along with absence of menses and vaginal bleeding. Various kinds of ectopic pregnancies have been identified along with various risk factors causing them. Its diagnosis is difficult for its proper treatment. Until a proper diagnosis is attained it becomes late. Treatment in majority of the cases only protects the mother and pregnancy termination becomes the only choice. There are very few cases of ectopic pregnancies where the fetus have been saved and delivered properly. The chances of developing an ectopic pregnancy once again can be prevented by managing the risk factors. Though there is high chances of developing a normal and healthy pregnancy usually 3 months later the ectopic pregnancy, it results in temporary grief to the parents. Better diagnostic approaches and treatments are yet to be developed to decrease both mother and fetal mortality rates resulting from ectopic pregnancy.

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