

## Ectopic pregnancy

### Definition

An ectopic pregnancy is a pregnancy outside the uterine cavity(1)

### Epidemiology

It occurs in approximately 1.5 to 2.0% of pregnancies and is potentially life-threatening(2). The rate of ectopic pregnancy is 11 per 1000 pregnancies, with a maternal mortality of 0.2 per 1000 estimated ectopic pregnancies (3).

### Pathology and sites of ectopic pregnancy

The most common of implantation is in the fallopian tube (approximately 97%)(4), although implantation can occur in the corna, cervix, ovary and abdominal cavity (see Figure 1(5)). Ectopic pregnancies in these more unusual sites are difficult to diagnose and are associated with high morbidity (2).

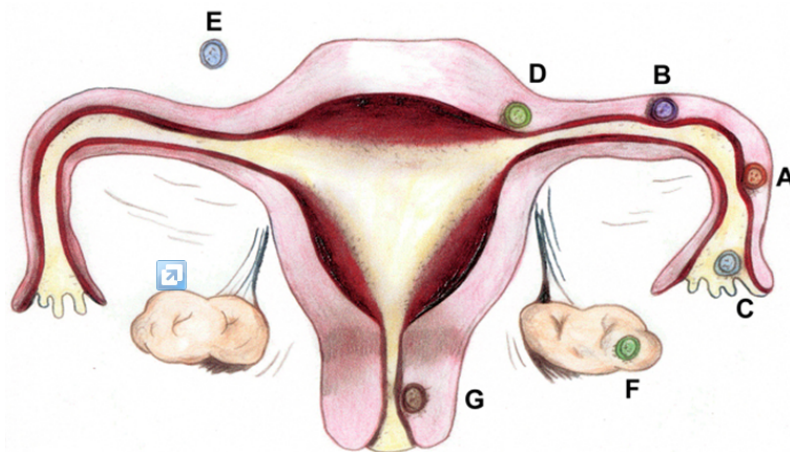


Figure 1(5): Sites and frequencies of ectopic pregnancy. By Donna M. Peretin, RN. (A) Ampullary, 80%; (B) Isthmic, 12%; (C) Fimbrial, 5%; (D) Cornual/Interstitial, 2%; (E) Abdominal, 1.4%; (F) Ovarian, 0.2%; and (G) Cervical, 0.2%

### Aetiology

Damaged fallopian tubes from prior tubal surgery or previous pelvic infection, previous ectopic pregnancies, and conception using assisted reproduction, are major risk factors for ectopic pregnancy (6,7). Although conception with an intrauterine device in place or after a tubal ligation is rare, an estimated 25 to 50% of such pregnancies are ectopic (2) Minor risk factors include cigarette smoking, being older than 35 years of age and having multiple sexual partners(5). However, for many women there are predisposing risk factors (8).

### Complications

- **Tubal rupture** with intra-abdominal bleeding and shock. The time of rupture depends on the site of implantation and usually occurs after 6 weeks (9)
- **Tubal infertility.** Approximately 60% of women who have had a previous ectopic pregnancy, are able to have a subsequent spontaneous intrauterine pregnancy (2)
- **Grief, anxiety, or depression** are experienced by many women following pregnancy loss(10)

### **Prognosis**

- If no medical treatment is given, spontaneous tubal abortion occurs in about 50% of ectopic pregnancies. The patient may not have any symptoms(9)
- Ectopic pregnancy is the leading cause of pregnancy-related death in the first trimester (11)
- The risk of ectopic pregnancy occurring again is 8–14% (9)

### **Clinical features**

The classic clinical triad of ectopic pregnancy is pain, amenorrhea, and vaginal bleeding; unfortunately, only about 50% of patients present with all 3 symptoms (5).

One study reviewing 147 cases found that 98.6% of patients present with abdominal pain, 74.1% with amenorrhea and 56.4% with irregular vaginal bleeding(12)

The pain, if present, is colicky in nature and unilateral and is often followed by scanty vaginal bleeding (1). Although patients often have amenorrhea for 4 -10 weeks, they may not be aware of pregnancy as the vaginal bleed may be interpreted as a period (1).

Patients may present with other symptoms common to early pregnancy, including nausea, breast fullness, fatigue, low abdominal pain, heavy cramping, and recent dyspareunia(5). Syncope and shoulder tip pain suggest intraperitoneal loss.

On examination, there is usually abdominal and often rebound tenderness and pelvic examination may reveal cervical excitation and/or tenderness in the adnexa. The uterus will be small for gestation and the cervical os will be closed(1). Patients may also have other symptoms if they are haemodynamically unstable.

Today, increasing numbers of women are diagnosed earlier and when they are asymptomatic, because of routine ultrasound(5).

### **Investigations**

A pregnancy test (urine hCG or beta-human chorionic gonadotropin) must be performed in any female patient of a reproductive age presenting with pain, bleeding or collapse regardless of which medical specialty she presents to. The test will be positive in ectopic pregnancy.

If an ectopic pregnancy is suspected from history and examination, the first step is to carry out a trans-vaginal ultrasound scan which may demonstrate:

- An intrauterine pregnancy.
- A definite or probable ectopic pregnancy.
- No pregnancy (intrauterine or ectopic) visible, (that is, a pregnancy of unknown location)(3).

A viable pregnancy can be seen from 5 weeks by transvaginal scan and the presence of an interuterine pregnancy almost always rules out ectopic pregnancy (13). N.B. This is not true for heterotrophic pregnancy, i.e. both intrauterine and extrauterine pregnancy. Thankfully, a heterotrophic pregnancy is very rare (estimated at 1 in 30,000 chance in spontaneous conception) (14).

If there the uterine cavity is empty or there is no definitive sign of an interuterine pregnancy (i.e. presence of yolk sac), the gestation is either too early (less than 5 weeks) or there has been a complete miscarriage or there is an ectopic pregnancy(1).

The next step to diagnose an ectopic pregnancy is a quantitative serum hCG.

Despite advances in ultrasound, an intrauterine pregnancy is not visible if the maternal level is less than 1000IU/l in a normal pregnancy(1). A minimum level of 1000 IU/L is needed to visualise the intrauterine gestational sac.

If an ectopic is suspected a repeat beta-hCG is performed 48hours later. In a normal pregnancy the level should rise by more than 66% in 48hours but in an ectopic pregnancy the beta-hCG will rise, but by less than 66%(13).

### **Management**

- **Ruptured ectopic pregnancy**

Patients in shock need resuscitation and immediate surgery (laparotomy or laparoscopy) to remove the affected tube (salpingectomy)(1)

- **Subacute ectopic pregnancy**

If the woman is haemodynamically stable, the options are surgical, medical, or conservative management. All women (except those who have had a salpingectomy) will be followed to ensure that serum hCG levels has reduced to non-pregnant levels (this may take up to 6 weeks)(3).

**Surgical management-** Laparoscopic surgery is usual, either salpingectomy or salpingotomy (incision into the Fallopian tube to remove ectopic). A salpingotomy is preferred if the contralateral tube appears abnormal at laparoscopy, to allow for future spontaneous conception (1). However, after salpingotomy, serial serum beta-hCG measurements are carried out to identify women who have persistent trophoblastic tissue in the Fallopian tube. In these cases, patients are given a single-dose intramuscular methotrexate(3)

**Medical management-** Methotrexate is most commonly used. There are certain requirements for its use: minimal symptoms, an absent fetal heartbeat, and a serum beta-hCG level of less than 3000 iU/L(3). Intramuscular methotrexate is given as a single dose. There remains a 7% chance of ruptured ectopic pregnancy with medical treatment, despite decreasing serum beta-hCG levels(3). There may be requirement for a second dose or surgery depending on the beta-hCG levels.

**Conservative treatment-** in some cases all that may be necessary is careful observation of the women e.g. if the ectopic is small and has not ruptured, if it is pregnancy of unknown location and the hCG levels are low(1)

**All non-sensitized rhesus-negative women should receive anti-D immunoglobulin after an ectopic pregnancy.**

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