



# **Obstetrics and Gynecology**

## **Ectopic pregnancy**

**University Of Fallujah**  
**College Of Medicine**

**Lecture : 1**

**Stage : 5th Year**

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**Department: obstetrics and Gynecology**

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## **Learning objectives**

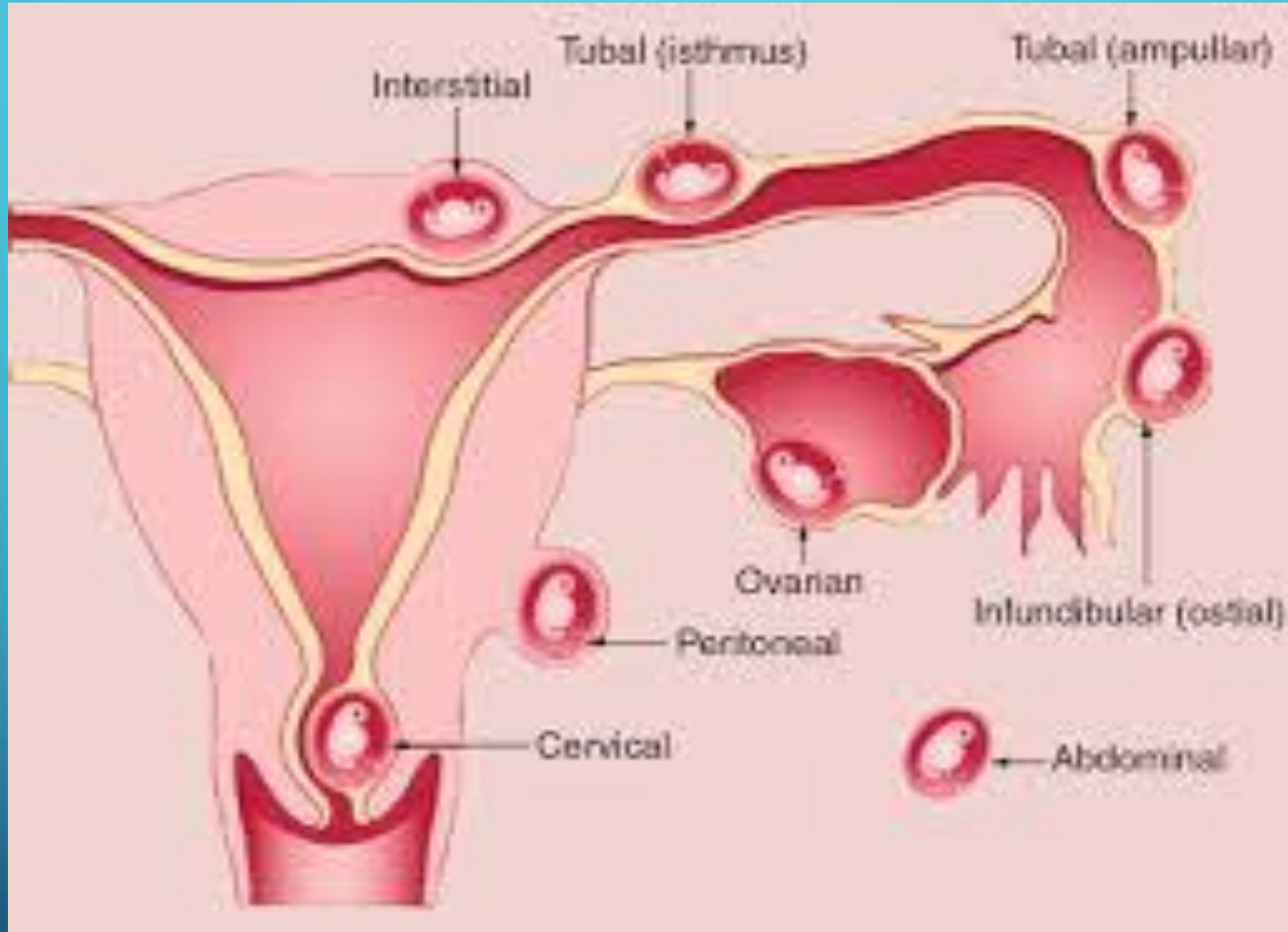
1. Define ectopic pregnancy and identified the main risk factors.
2. Explain the clinical and laparotomy criteria for the diagnosis of ectopic pregnancy.
3. Know the different plans of managemants.

# **Ectopic pregnancy**

## **Definition**

Defined as the implantation of a pregnancy outside the normal uterine cavity. Over 98% implant in the fallopian tube (Ampullary ectopic, which represent 70% of all tubal ectopic). Rarely, ectopic pregnancies can implant in the interstitium of the tube, ovary, cervix, abdominal cavity or in caesarean section scars.

A heterotopic pregnancy is the simultaneous development of two pregnancies, one within and one outside the uterine cavity.



## **Incidence**

One in 80 pregnancies are ectopic. They account for 9–13% of maternal deaths in the Western world and 10–30% in low resource countries. The incidence of a heterotopic pregnancy in the general population is low (1:25,000–30,000), but significantly higher after in-vitro fertilization (IVF) treatment (1%) due to the transfer of two blastocysts.

## **Aetiological factors for ectopic pregnancy**

- ❖ Fallopian tube damage due to pelvic inflammatory diseases (e.g. Chlamydia/Gonorrhoea).
- ❖ Previous ectopic pregnancy.
- ❖ Previous tubal surgery.
- ❖ Functional alterations in the Fallopian tube due to smoking and increased maternal age.
- ❖ Previous abdominal surgery (e.g. appendicectomy, caesarean section)
- ❖ Subfertility, IVF.
- ❖ Use of intrauterine contraceptive devices
- ❖ Endometriosis.
- ❖ Conception on oral contraceptive/morning after pill.

## Clinical presentation

- ❖ The majority of patients with an EP present with a subacute clinical picture of amenorrhea, abdominal pain and/or vaginal bleeding in early pregnancy.
- ❖ Rarely, patients present very acutely with rupture of the EP and massive intraperitoneal bleeding (shock, hypotension and tachycardia). The free blood in the peritoneal cavity can cause diaphragmatic irritation and shoulder tip pain.
- ❖ The diagnosis of ruptured EP is usually clear as they present with signs of an acute abdomen and hypovolaemic shock with a positive PT. It is, however, important to be aware that it is common for women to experience bleeding or abdominal pain with a viable intrauterine pregnancy.

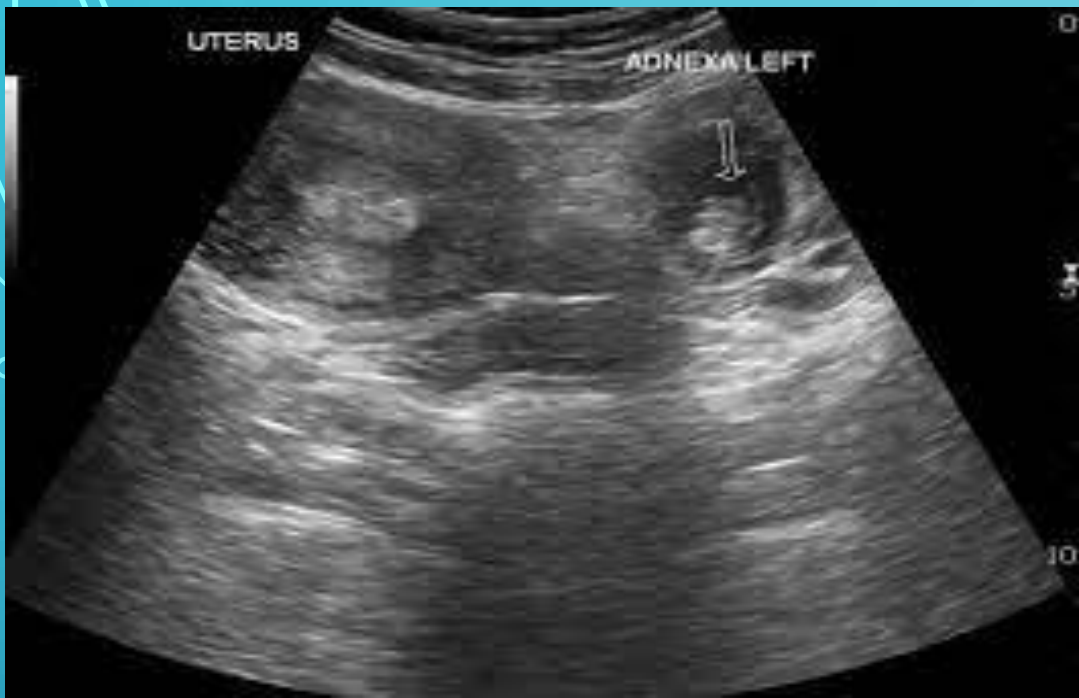
## Investigations

**TVUSS:** With the use of transabdominal ultrasound, direct visualization of ectopic pregnancy is rarely possible. Identification of an intrauterine pregnancy (intrauterine gestation sac, yolk sac +/- fetal pole) on TVUSS effectively excludes the possibility of an EP in most patients except in those patients with rare heterotopic pregnancy.

## **A TVUSS in ectopic pregnancy showing:**

1. An empty uterus.
2. Adnexal mass has a sensitivity of 90% and specificity of 95% in the diagnosis of EP.
3. The presence of moderate to significant free fluid during TVUSS is suggestive of a ruptured EP.
4. Pseudosac: In women with ectopic pregnancy, bleeding within the uterine cavity may resemble an early intrauterine pregnancy. The distinction between a pseudosac and a true gestational sac may be difficult on transabdominal scan. Therefore a transvaginal scan should be performed.

True gestational sac is round shape surrounded by double decidual layers, while the pseudosac is ovoid and may change shape during examination and has a single layer.



## **Serum HCG:**

- ❖ The serum HCG level almost doubles every 48 hours in a normally developing intrauterine pregnancy.
- ❖ In patients with EP, the rise of HCG is often suboptimal.
- ❖ With the use of transabdominal ultrasound, a normal pregnancy could be seen in most cases when serum HCG exceeds 6500 IU/L. With transvaginal ultrasound, this threshold can be lowered to 1000 IU/L.
- ❖ These observations have helped to introduce the concept of 'discriminatory hCG zone' above which a normal intrauterine pregnancy should be detectable on ultrasound scan.

## **Progesterone:**

- ❖ Progesterone production from the corpus luteum is dependent on the slope of HCG increase in early pregnancy. As a result, serum progesterone levels will respond quickly to any decrease in hCG production.
- ❖ Measurement of progesterone therefore used as a bioassay of early pregnancy viability. Serum progesterone below 20 nmol/L reflects fast decreasing hCG levels and can be used to diagnose spontaneously resolving pregnancies. Progesterone levels above 60 nmol/L indicate a normal increase in HCG levels, but values between 20 and 60 nmol/L are strongly associated with abnormal pregnancies.
- ❖ In clinical practice serum progesterone measurements are particularly useful in women with a non diagnostic ultrasound scan.

**Haemoglobin and 'Group and Save'** (or cross-match if patient is severely compromised).

**Surgery:** traditionally, the diagnosis of ectopic pregnancy made at surgery (laparoscopy or laparotomy) and confirmed on histological examination following salpingectomy.

## Management

### 1. Expectant management

Expectant management based on the assumption that a significant proportion of all EPs will resolve without any treatment. The patient requires serial HCG measurements until levels are undetectable.

This option is suitable for patients who are:

- ❖ Haemodynamically stable and asymptomatic
- ❖ No evidence of embryonic cardiac activity.
- ❖ Size of ectopic less than 5 cm.
- ❖ No evidence of haematoperitoneum on US.
- ❖ HCG titer less than 1500 IU/L.

## Medical management

Intramuscular methotrexate is a treatment option for patients with:

- ❖ Minimal symptoms.
- ❖ An adnexal mass < 40 mm in diameter.
- ❖ Serum HCG concentration under 3,000 IU/l.

- ❑ Methotrexate is a folic acid antagonist that inhibits deoxyribonucleic acid (DNA) synthesis, particularly affecting trophoblastic cell. The dose of methotrexate calculated based on the patient's body surface area and is 50 mg/m<sup>2</sup>.
- ❑ After methotrexate treatment, serum HCG usually routinely measured on days 4, 7 and 11, then weekly, thereafter until undetectable (levels need to fall by 15% between day 4 and 7, and continue to fall with treatment).

## **The contraindications to medical treatment include:**

- 1. Chronic liver, renal or hematological disorder.**
- 2. Active infection.**
- 3. Immunodeficiency.**
- 4. Breastfeeding.**

## **Side effects of methotrexate**

Stomatitis, conjunctivitis, gastrointestinal upset and photosensitive skin reaction, and about two-thirds of patients will suffer from non-specific abdominal pain.

It is important to advise women to avoid sexual intercourse during treatment and to avoid conceiving for 3 months after methotrexate treatment because of the risk of teratogenicity. It is also important to advise them to avoid alcohol and prolonged exposure to sunlight during treatments.

## **Surgical management**

The standard surgical treatment approach is laparoscopy. Laparotomy reserved for severely compromised patients or where there are no endoscopic facilities.

The operation of choice is:

- ❖ Salpingectomy: removal of the fallopian tube and the EP within.
- ❖ Salpingostomy: a small opening can be made over the site of the EP and the EP extracted via this opening.



Salpingostomy is recommended only if the contralateral tube is absent or visibly damaged, and it is associated with a higher rate of subsequent EP.

Pregnancy rates subsequently remain high if the contralateral tube is normal because the oocyte picked up by the ipsilateral or contralateral tube.

## **Anti-D administration with early pregnancy bleeding**

- ❑ Rhesus isoimmunization can occur after early pregnancy problems and there are some circumstances where women who are rhesus negative require anti-D prophylaxis.
- ❑ All rhesus-negative women who have a surgical procedure to manage an EP or miscarriage should be offered anti-D immunoglobulin at a dose of 50 µg (250 IU) as soon as possible and within 72 hours of the surgery.
- ❑ A Kleihauer test is not needed to quantify fetomaternal haemorrhage in the first trimester of pregnancy.
- ❑ Anti-D is not required for threatened, incomplete or complete natural miscarriage.
- ❑ Anti-D may not be required after the medical management of miscarriage or EP but guidelines differ, and prophylaxis is often given.

