ECTOPIC PREGNANCY

- It is implantation of the conceptus outside normal uterine cavity either outside the uterus(Fallopian tubes, ovary or abdominal cavity) or in abnormal position within the uterus(cornua or cervix).
- It is a major health problem & important cause of morbidity& mortality in women at reproductive age.

Epidemiology

- Incidence is 1-2% per number of pregnancies
- 95-97% of all ectopic pregnancies occur at the Fallopian tube &50% of them occur at the ampulla & only 2.5% occur at the interstitial part which is resposible for 20% of death due to rupture of ectopic gestation.
- Over the past 30 years ,the incidence increase in developed countries. This reflect increase in diagnosis due to improved diagnostic tests as many cases may resolve spontaneously without detection.

- However,the mortality rate from ectopic pregnancy has decreased but still high account for 13% of all maternal death.
- Heterotopic pregnancy mean simultaneous intrauterine&ectopic pregnancy.This is very rare but the incidence increases after IVF treatment into 1%

RISK FACTORS

1.The incidence increases with increase maternal age &the highest incidence between 35-44 years.

2.History of sexually transmitted diseases increase the incidence especially chlamydia & gonorrhea infection. Incidence higher in women with history of pelvic infection, multiple partners & early age of intercourse.

3.All methods of contraception decrease both intrauterine & extrauterine pregnancy but ectopic rate increase in women who get pregnant due contraception failure as tubal ligation or IUCD or progesterone contraception.

4.History of previous pelvic surgery especially tubal surgery, history of infertility & smoking all increase the incidence.

5.Women with previous ectopic have higher incidence& the risk of recurrence increases to 10%.

Pathophysiology

The oocyte fertilization take place in the Fallopian tube & then pass into the uterine cavity.

Mechanical & functional abnormalities of the tubes may lead to ectopic pregnancy.

The most important factor is damaged tubal mucosa & scarring due to chronic infection or previous surgery .

- Abnormal function of tubal smooth muscles in which oestrogen increases its activity & progesterone inhibit it .
- Increased oestrogen cause tubal spasm which block embryo transfer & this explain high rate of ectopic ovarian hyperstimulation.
- Progesterone only contraception cause tubal relaxation &if contraception fail , ectopic pregnancy may occur.

- After implantation ,the trophoblasts will penetrate the wall of the tube reaching the tubo-ovarian circulation&tube can not be distended ending with tubal rupture with acute intra-peritoneal haemorrhage.

  Ectopic gestation may abort at early stages or it may persist as chronic ectopic or gradually absorbed.

  Rarely , the fetus remain alive after rupture or abortion &secondary abdominal pregnancy may continue to variable time &very rarely reach term.

Cinical Presentation

- Presentation is very variable.It could be:

1.Acute presentation.

2.Subacute presentation which is diagnostic problem.

3.Chronic presentation accidently discovered.

- Most patient present with missed period , vaginal bleeding & pelvic pain.
- Vaginal bleeding usually mild & old brown in color.Sometime,passage of decidual cast misdiagnosed as abortion.In 10-20%of the cases,there is no bleeding.

- Pelvic pain usually in one iliac fossa but sometimes, it is bilateral.
- Shoulder pain may occur due to irritation of the diaphragm by blood.

- Acute presentation seen in ruptured ectopic with sever intraperitoneal haemorrhage.The patient present with sever abdominal pain, fainting, dizziness ,diarrhea , &vomiting.

- On examination, sever pallor , hypotension with rapid thready pulse may be found & it indicate shock state.
- Abdominal examination, sever tenderness& rigidity in case of rupture ectopic.
- Some times, the patient vital signs are normal with mild abdominal tenderness.
- Speculum& bimanual pelvic examination is of limited diagnostic value & may cause tubal rupture.

Diagnosis

The diagnostic problem is to differentiate between subacute ectopic pregnancy& early intrauterine pregnancy complications.

1. Pregnancy test: It is positive in 75%of ectopic. So,negative PT does not exclude ectopic.
2. Ultrasound:non-invasive important diagnostic tool. The findings depend on quality of ultrasound equipment & experience of the operator.

- There are two types of ultrasound:
- A.Transabdominal ultrasound.
- B.Transvaginal ultrasound which give clearer image of pelvic organs because there is no abdominal wall between the probe of the machine & the pelvic organs. Also, it doesn't need full bladder.

- The presence of extrauterine sac or adnexial mass indicate ectopic pregnancy.
- Presence of fluid in pouch of Douglas is non-specific sign of ectopic.

- In 10-20% of ectopic pregnancies,there is what is called pseudogestational sac in the uterus which is small collection of fluid surrounded by endometrial tissue and this may be missed as intrauterine pregnancy.

3.Serum human chorionic gonadotrophin (hCG):

Serial measurement of serum hCG level every two days with transvaginal ultrasound every 4 days is the most useful method of diagnosis of subacute ectopic pregnancy.

The discriminatory hCG level above which the gestational sac of intrauterine pregnancy should be seen by transvaginal ultrasound is 1000 IU/lit & if no intrauterine gestational sac is seen, it indicate ectopic pregnancy.

- In normal pregnancy (or threatened abortion),hCG level should be doubled every 1.5 day before 5 weeks & then every 2.5 days from 5-7 weeks of gestation.
- Abnormal slow rise in serum hCG level used to diagnose ectopic pregnancy while in miscarriage (failing pregnancy), serum hCG will decrease & half time of 24-36 hours.

4.Laparoscopy& uterine curettage :

These are old methods for diagnosis & of limited use nowadays.

Presence of placental villi by curettage indicate intrauterine pregnancy but this does not always exclude ectopic pregnancy which may abort from the tube into the uterine cavity.

Laparoscopy is now considered in a woman with hCG level above discriminatory level in the absence of intrauterine sac .Laparoscopy could be diagnostic & therapeutic.

5.Culdocentesis:

This is aspiration from POD transvaginally to detect haemoperitoneum .This old method was used before the wide availability of ultrasound but it may detect ruptured ectopic only.

TREATMENT

- It could be either:

1.Medical treatment:

It become popular treatment in which surgery will be avoided& manage as outpatient with preservation of fertility by preserving the Fallopian tube which is the commonest site of ectopic pregnancy.

Systemic methotrexate is an option of treatment in carefully selected patients.

Methotrexate is folic acid antagonist which inhibit DNA synthesis in trophoblastic cells.

- Methotrexate can be given as single i.m. injection or multiple fixed dose regimen. The dose calculated as 50mg/ square meter body surface area (75-90 mg)
- Contrindications for methotrexate treatment are:

1. Chronic liver , renal or haematological disorders.
2. Active infection.
3. Immunodeficiency.
4. Breast feeding.

- Criteria for treatment with methotrexate include:

1. Minimal clinical symptoms & haemodynamically stable patient.
2. Ultrasound showed no evidence of embryonic cardiac activity in the ectopic sac.
3. Size of the ectopic sac is less than 3.5 cm by ultrasound.
4. No evidence of haemoperitoneum by ultrasound.
5. Seum B-hCG level less than 3000 IU/lit.
6. No contraindications to the use of methotrexate.
7. Patient compliance with follow up visit to the hospital.
8. No intrauterine pregnancy on ultrasound scan.

- In clinical practice, ectopic pregnancies suitable for methotrexate treatment account about 25-30% of all ectopic pregnancy cases.
- There is studies to use methotrexate if hCG less than 5000 iu/L .Although it can be successful but this usually need longer duration for follow up, further doses of methotrexate & increased likelihood of surgical treatment.

- There is always risk of rupture of tubal rupture,so patient treated with methotrexate should be closely followed up with serum B-hCG which should be done on Day 4 & 7 after treatment.
- The level of B-hCG start to rise slightly before it start to fall& therefore , it is not done earlier than Day 4 .
- If the B-hCG not fall by 25% by Day 7, a repeat dose of methotrexate is given.
- Then, weekly testing until hCG is less than 25 IU/lit which usually take 4-5 weeks.
- Patient should use contraception for 3 months after methotrexate treatment because of its teratogenic effect.

- Side effects of methotrexate include nausea &vomiting stomatitis, conjunctivitis, photosensitive skin reaction, disturbance of hepatic & renal function & 2/3 of the patients suffer from non specific abdominal pain.

2.Surgical treatment:

Either through laparotomy or laparoscopy.

Laparotomy is indicated in case of acute presentation with shock state.

Operative laparoscopy is more in use as it is less invasive, less postoperative pain, shorter hospital stay & faster recovery.

- The surgical operation either salpingectomy (removal of the tubes) or salpingotomy (small linear opening of the tube & removal of the ectopic gestation& preservation of the tube).
- Salpingotomy has higher risk of intraoperative & postoperative bleeding & 10-15% risk of persistent trophoblastic tissue which need further surgical or medical treatment that's why it should be done only if patient desire further pregnancy & there is contralateral tube damage.

3.Expectant management:

Non-intervention management based on the finding that significant number of tubal pregnancy will resolve without any treatment.

It is free from side effects of methotrexate but not all patients are suitable for this type of treatment & strict criteria should be considered which are serum hCG should be less than 1500IU/lit & same ultrasound findings for medical treatment with regular monitoring of serum hCG for follow up.

- Non sensitized Rh –ve women with confirmed ectopic pregnancy should receive Anti D immunoglobulin 250 iu(50 microgm)

Future Effects of Ectopic Pregnancy

1. There increased risk of ectopic in a patient with recurrence rate of 10%.
2. Fertility will decrease in which possibility of intrauterine pregnancy is 50-70%.