DISORDERS OF EARLY PREGNANCY

There are three main causes of early pregnancy disorders which are:

1. **spontaneous miscarriage .**
2. **ectopic pregnancies.**
3. **gestational trophoblastic disorders (GTDs) which is less common.**

Gynaecological complications, such as cervicitis,cervical polyp or cancer may present with similar symptoms and should be considered in the differential diagnosis.

The classical symptom triad for early pregnancy disorders include:

1-Amenorrhea.

2- Lower abdominal pain.

3-Vaginal bleeding.

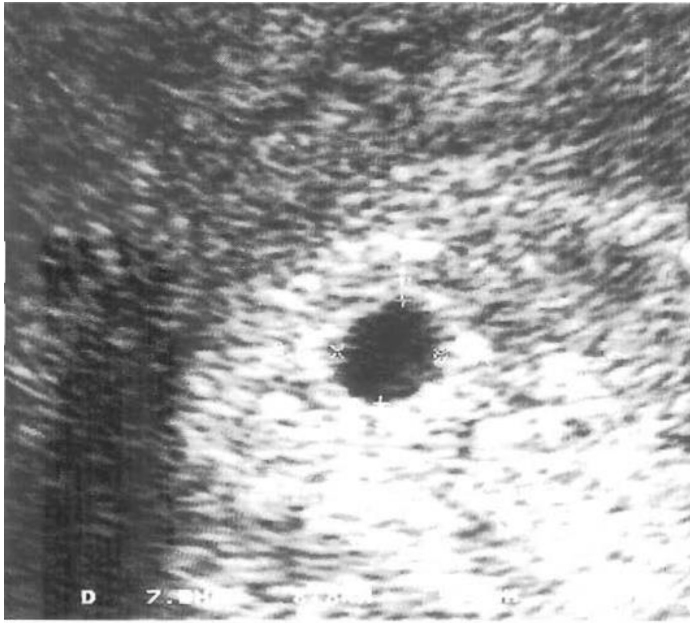
However, these are not specific & should

first confirm pregnancy detection of human chorionic gonadotrophin (hCG) in the patient's urine or plasma.

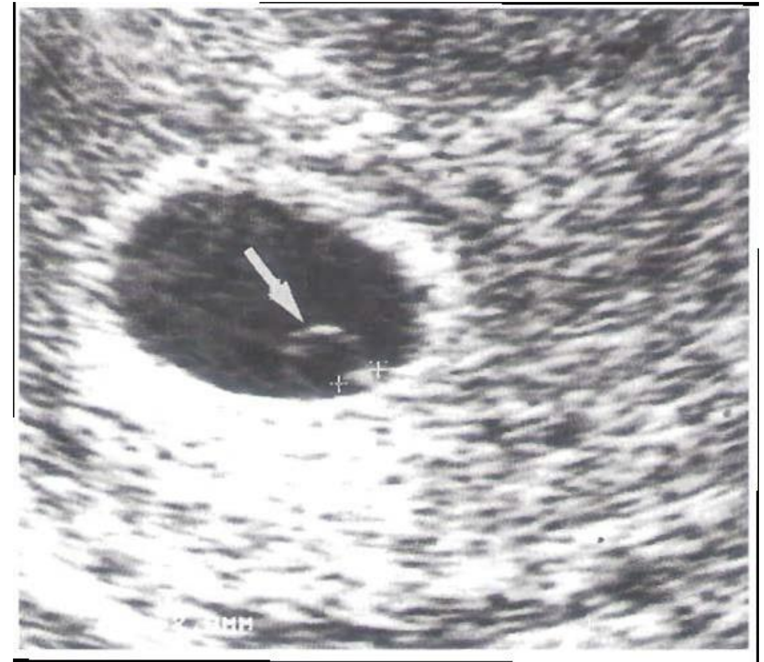
- Urine pregnancy test can be positive using rapid dipstick test 14 days after ovulation(detection limit of 50 iu/L) while measurement of hCG in plasma is more accurate & able to detect pregnancy 6-7days after ovulation (detection limit of 0.1-0.3iu/L)

- The gestational sac can be seen by transvaginal ultrasound 4.3-4.6 weeks from the onset of last menstrual cycle when it is 2-4 mm.Abdominal ultrasound can detect gestational sac 5 weeks post menstruation.

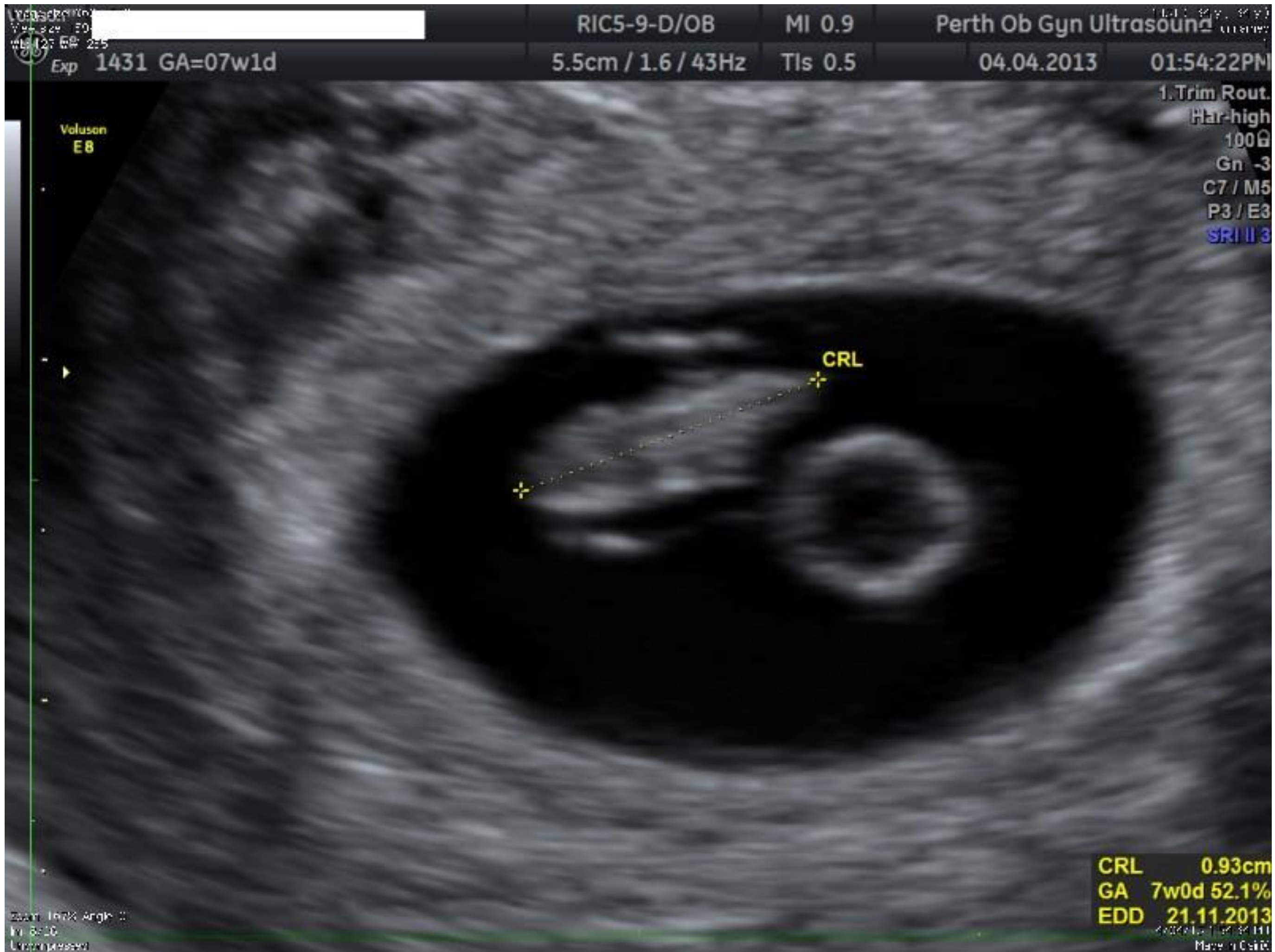
- Then ,yolk sac become visible inside the gestational sac when it reaches 8 mm.
- Demonstration of yolk sac indicates a true gestational sac thus excluding possibility of pseudosac seen in ectopic pregnancy.



Transvaginal ultrasound of a gestational sac at 4 weeks' gestation



Transvaginal ultrasound of a normal 5-week pregnancy [CRL] = 2 mm) and the secondary yolk sac (arrow).



RIC5-9-D/OB
MI 0.9
Perth Ob Gyn Ultrasound
Exp 1431 GA=07w1d
5.5cm / 1.6 / 43Hz
TIs 0.5
04.04.2013
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Voluson E8
1.Trim Rout.
Har-high
Gn -3
C7 / M5
P3 / E3
CRL
CRL 0.93cm
GA 7w0d 52.1%
EDD 21.11.2013

Miscarriage

- Miscarriage or abortion defined as pregnancy spontaneously ends at or before 24 weeks of gestation i.e. before the fetus reaching a viable gestational age.
- WHO define miscarriage as pregnancy termination prior to 20 weeks of gestation or a fetus born weighing less than 500 gm.

- Miscarriage is the commonest complication in pregnancy.
- Incidence of spontaneous miscarriage is 15-20% of all pregnancies.
- The incidence is higher in early pregnancy reaching 25% at 5-6 weeks & decrease to 10% at 8 weeks.
- The incidence of pregnancy loss decreases if viable fetus seen by ultrasound.
- More than 80% of spontaneous abortions occur in the first 12 weeks of pregnancy.

Risk Factors for Miscarriage

1-Advanced maternal age:the risk is twice in 40 years old women.

Increased paternal age also shown to increase the rate of miscarriage.

2-Chronic maternal illness .

3-Cigarette smoking/cocaine & alcohol.

4-Pregnancy with intrauterine contraceptive device

5-Maternal infection.

6-Previous history of miscarriage: the incidence increase to 25-30% if the woman has previous 3 abortions.

7-Fibroid&congenital uterine abnormalities.

Aetiology of Miscarriage

1- Abnormalities of the conceptus: This is the most important cause. It could be:

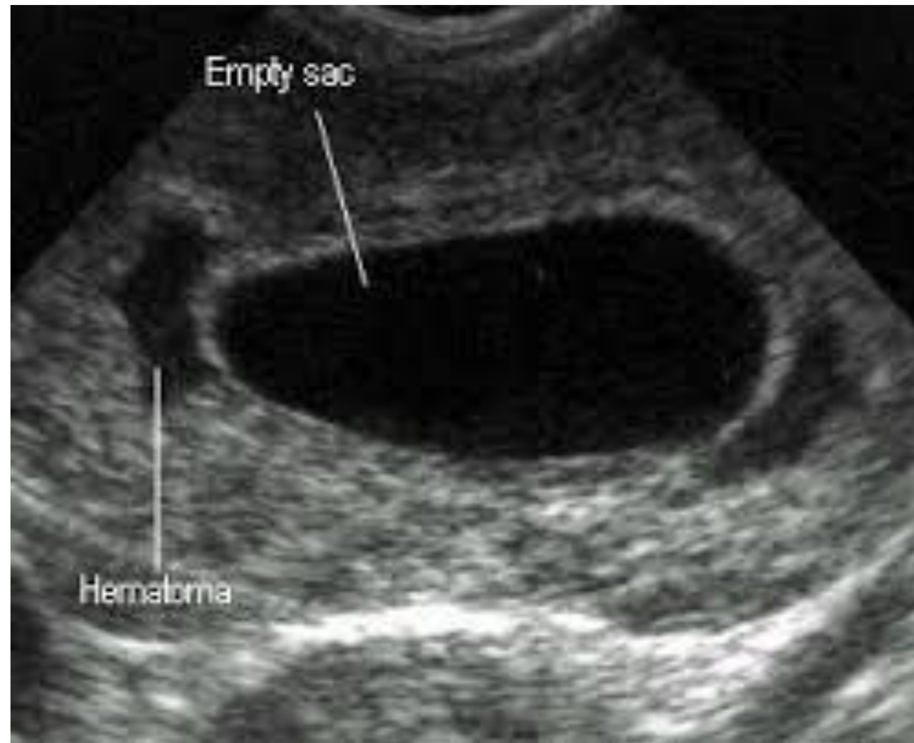
I. Chromosomal abnormalities.

II. Structural abnormalities.

III. Gene defects (absence of specific enzyme).

- About 50-60% of all abortions are associated with chromosomal abnormalities & the incidence is higher in early pregnancy reaching to 90%.
- It may present as an embryonic pregnancy or called blighted ovum which means an empty gestational sac of more than 20mm because the fetus has not developed beyond a small clump of cells.

- The most common chromosomal abnormality is autosomal triosomy followed by triploidies & monosomy & all are increased with increased maternal age.


Empty sac
Hematoma

- Structural abnormalities like neural tube defects.
- Genetic causes : it mean single gene defect & it is difficult to determine it’s true incidence.
- Chromosomal abnormalities in the sperm associated with abortion.

2.Endocrine causes:

Diabetes,hypothyroidism(thyroid autoantibodies associated with increased abortion rate),polycystic ovary syndrome & luteal phase deficiency.

Luteal phase deficiency: The corpus luteum is essential for pregnancy during the first 8 weeks as it is the main source of progesterone.If corpus luteum produce insufficient amount of progesterone before the placenta is formed & this will lead to inadequate development of the decidua & then abortion.

3.Uterine abnormalities:

Uterine septa,bicornuate uterus & Asherman’s syndrome which is intrauterine adhesions following vigorous curettage. Also cervical incompetence which cause second trimester abortion or preterm labour.

Uterine fibroid (submucosal)especially if they are large & multiple increase miscarriage rate.

4.Infections: They are uncommon cause of abortion.

It could be fetal or maternal.

Various causative organisms can increase the risk of abortion like Salmonella typhi, malaria, brucella, toxoplasmosis,Mycoplasma hominis, CMV, Chlamydia trachomatis,Ureaplama urealyticus ,Listeriosis & influenza.

- Acute maternal disease such as pyelitis or any toxic illness with high fever can stimulate uterine contractions causing abortion.

5.Drugs&Chemical agents :

Drugs like anaesthetic drugs increase miscarriage rate.

Tobacco, environmental toxines like pesticides, lead, murcury, formadehyde & benzene all increase miscarriage rate.

Oral combined contraceptive pills or spermicides are not associated with increase miscarriage rate but if pregnancy occurs due to IUCD failure. There is increased risk of abortion especially septic abortion.

6.Immunological disorders:

Antiphospholipid syndrome & thrombophilia * these may cause recurrent abortions.

7.Psychological causes.

Clinical varieties

- Clinical types of abortions are:

1. Threatened abortion.
2. Inevitable miscarriage.
3. Incomplete abortion.
4. Complete abortion.
5. Missed abortion.
6. Recurrent abortion.
7. Septic abortion.

Threatened Abortion

- It is mild vaginal bleeding with no or mild abdominal pain occurring at or before 24 weeks of gestation.
- On speculum examination, the cervix is closed.
- Diagnosis clinically & by ultrasound which show intrauterine gestational sac with yolk sac with or without fetal pole & cardiac activity.

- Vaginal ultrasound can detect fetal heart activity at 6-7 weeks of gestation.
- Even if abortion does not follow early pregnancy bleeding, the fetus has increased risk of preterm labour,low birth weight& increased perinatal mortality rate& also increased maternal risk of antepartum haemorrhage, manual removal of placenta & C sections.

Inevitable Abortion

- There is abdominal cramps(pain more sever) with heavy bleeding some times with clots & there is rupture of membrane & the cervix get opened which mean certainly abortion will follow i.e. impending abortion but the conceptus not yet expelled.
- Inevitable abortion will progress into either complete or incomplete abortion.

Incomplete Abortion

- It means incomplete expulsion of fetal & placental tissues.
- The patient present with abdominal cramps & sever vaginal bleeding with passage of clots & tissue.
- Vaginal examination show open cervix with or without product of conception at the os.
- Ultrasound will show retained product of conception.

Missed Abortion

- It means retention of dead embryo or fetus before 24 weeks of gestation without clinical symptoms of expulsion.
- Often the patient has bleeding which may be light & chronic or there may be no vaginal bleeding.
- The cervix is closed.
- Symptoms of early pregnancy like nausea & vomiting & breast changes disappear.
- Some women have no symptoms except persistent amenorrhea.
- Uterus cease to enlarge & may even become smaller.
- Diagnosis by ultrasound.
- Vaginal ultrasound can detect fetal heart activity as early as 6 weeks.

- It include anembryonic pregnancy(Blighted ovum) which is explained by early death & resorption of the embryo.
- Rarely ,serious coagulation defect may develop due to DIC resulting in hypofibrinogenemia.

Recurrent Abortion

- It is defined as 3 or more consecutive spontaneous abortions.

Septic Abortion

- It is associated with increased maternal death.
- Uterine infection may occur at any stage of abortion due to ascending infection & blood clots & necrotic tissues provide excellent culture media.
- It is associated with criminal induced abortion.
- It may complicate spontaneous abortion or delay in evacuation of the uterus or delay in seeking medical help.

- The infection usually with mixed organisms such as aerobes like E.coli,staph. & strept. & anaerobes like clostridia & bacteroid.
- The patient usually has abdominal pain with persistent vaginal bleeding some times offensive vaginal discharge.
- The clinical signs are fever, increase PR & lower abdominal pain.

- The condition may be complicated by septicemia ,septic shock & renal failure. It may also progress into chronic pelvic infection & infertility.

Differential Diagnosis of Miscarriage

1. Ectopic pregnancy.
2. Molar pregnancy.
3. Local causes: e.g. cervical erosion ,polyp ,ca.

Management

- History :
- There is amenorrhoea followed by vaginal bleeding with lower abdominal pain & positive pregnancy test.
- Gestational should be assessed.
- Maternal age, medical disorders & previous history of abortion is important.

- Examination:
- Measurement of vital signs Bp & PR.
- Assessing signs of anaemia(palm of the hand & conjunctiva) to assess amount of blood loss.
- Uterus may be smaller than gestational age.
- Speculum vaginal examination to see if the cervix is open or not & also to exclude other incidental causes of bleeding such as cervicitis or polyp.

- Investigations:

1.Blood group& Rh typing.

2.Complete blood count.

3.ultrasoud:

It is very important to ensure intrauterine gestational sac & viability of the fetus. If gestational sac smaller than calculated gestational age, wrong date should be kept in mind.

4.Serum hCG & progesterone level:

These not routinely done but are important in differentiation of ectopic pregnancy.

In normal pregnancy B-hCG level increase by more than 65% within 48hrs.

Progesterone level of less than 5ng/ml associate with unhealthy pregnancy while a level more than 25ng/ml associate with alive pregnancy.

Treatment

- Threatened abortion:

1. Assurance of the mother especially if the fetus is viable.
2. Advice for bed rest until bleeding stop.
3. Folic acid supplementation & AntiD if there is Rh incompatibility.
4. Repeat ultrasound examination after 7 days.

- Inevitable abortion:
- If bleeding is heavy with cramps:

1.I.v. line with i.v.fluid & preparing blood.

2.Analgesia such pethidine.

3.Ergometrin 0.5mg i.v. or i.m. can be given if bleeding is sever or during evacuation of the uterus.

Treatment could be surgical, expectant or medical.

- Surgical evacuation under anesthesia called curettage.
- Expectant management & medical when the patient is haemodynamically stable.
- AntiD should be given if there is Rh- incompatibility.

- Incomplete abortion:

1. Assess of the patient vital signs & i.v. line with i.v.fluid with preparation of blood.
2. Ergometrin 0.5 mg i.v. or i.m. to decrease blood loss.
3. Removal of tissues i.e. products of conception if felt at the cervix.
4. If hypovolemic shock, blood should be given.

Surgical evacuation is needed in most of the cases as vaginal bleeding usually sever.

Expectant management may be used if retained product is less than 15mm size waiting for resorption & hemodynamically stable patient.

- Missed abortion:
- Before starting treatment, serum fibrinogen should be checked as there is risk of DIC (disseminated intravascular coagulation) probably caused by thromboplastin released from the chorionic tissue to the maternal circulation leading to DIC & thus hypofibrinogenemia . If this occur, fresh blood should be prepared & heparin should be given to correct the condition.

- Spontaneous abortion may follow missed abortion but there is risk of DIC if left for more than month beside psychological impact on the patient.

- If the uterus size less than 12wks of gestation, treatment either:

  1.Surgical treatment by dilatation & suction curettage(D&C) under anesthesia.

  This may be complicated by uterine perforation or cervical tear which can be prevented by cervical preparation using prostaglandin.

2.Medical treatment : either by:

a.Prostaglandin analogue

e.g.Misoprostol(cytotec): 400- 800 Mg can be given orally or vaginally with success rate of complete evacuation if given vaginally is only 50%.

b.Progesterone antagonist

Mifepristone(RU 486) 400 Mg orally.

If given in combination with prostaglandin analogue ,success rate increase to 90%.

- Complication of medical treatment include longer time for evacuation (may reach few days) & possible failure of complete evacuation.

- If the uterus size more than 12 wks, surgical evacuation should not be tried & evacuation achieved by medical method by intravaginal prostaglandin & i.v. syntocinon infusion. Other methods for induction of abortion include extra-amniotic prostaglandin or normal saline.

- Septic abortion:

1.Blood & cervical swab should be sent for culture &sensitivity.

2.Parenteral antibiotics should be started without waiting for the result of culture & sensitivity .I.v. cephalosporine plus metronidazole.

If bleeding not sever,evacuation best postponed 24hrs after antibiotic treatment.

RECURRENT MISCARRIAGE

- It is defined as 3 or more consecutive pregnancy loss before viability(24 weeks of gestation)

Epidemiology

- About 15% of all pregnancies end with miscarriage but recurrent miscarriage affect 1-2% of women of reproductive age.

Causes

1. Immunological causes:

Antiphospholipid syndrome has a prevalence of 15% in women with first trimester recurrent abortion. Anticardiolipin or lupus anticoagulant antibodies cause vascular thrombosis & placental infarcts which may lead recurrent miscarriage.

Other immunological factors include presence of antithyroid antibodies & the mechanism is either autoimmune or mild thyroid insufficiency.

2.Genetic factors:

Parental chromosomal abnormalities found in 2% of women with recurrent miscarriage. The most common is balanced reciprocal translocation of the couple with risk of conceiving future embryo with unbalanced translocation.

3.Anatomic factors:

It could be congenital like septate, bicornuate or arcuate uterus or acquired like cervical weakness which usually associated with second trimester abortion or preterm labour. Also fibroid if submucous in location may associate with recurrent pregnancy loss. Other acquired cause is intrauterine adhesion (Asherman syndrome)

4.Endocrine factors:

There is an association between polycystic ovary syndrome & recurrent miscarriage.

The possible mechanism for this is hyperandrogenism & insulin resistance.

Other endocrine disorders are poorly controlled diabetes & thyroid disorders.

5.Prothrombotic factors:

Antiphospholipid syndrme is also consider as prothrombotic factor. Other thrombophilias like protein C resistance & protein S deficiency have significant association with recurrent miscarriage.

6.Idiopathic recurrent miscarriage.

MANAGEMENT

- Investigations may include:

1. Screening for anticardiolipin & aniphospholipid antibodies.
2. Thyroid function test& antithyroid antibodies.
3. Hysterosalpingography to look for anatomic abnormalities of the uterus.
4. Parental karyotyping.

- Treatment of recurrent miscarriage is challenging & the following may be offered:

1. Tender care with reassurance & psychological support & regular scan is helpful.
2. Antiphospholipid syndrome may be treated with low dose aspirin or unfractionated low molecular heparin or both. Also prednisolone & i.v. immunoglobulin has been used with limited benefit.

- Empirical treatment with aspirin for women with recurrent abortion is common but no evidence of improvement if used in all women with recurrent miscarriage.

3. Progesterone :

It is needed for successful early pregnancy but many studies showed that progesterone supplementation does not significantly reduce the risk of miscarriage.

4. Cervical weakness can be treated by cervical cerclage.

Induced Abortion

Therapeutic abortion – termination of pregnancy before time of fetal viability for the purpose of safe guarding the health of the mother e.g. heart disease, renal failure,invasive Ca of cervix or breast ca or having a lethal abnormality.

A certificate of opinion is given consultant &obstetrician.

Elective (voluntary) abortion is the interruption of pregnancy before viability at request of the women but not for reason of impaired maternal health or fetal disease(This is NOT allowed).