PLABABLE

GEMS

VERSION 5.7

OBSTETRICS

Antiphospholipid Syndrome

Presentation

- Vascular thrombosis (arterial or venous)
- 3 or more unexplained consecutive miscarriages before 10 weeks of gestation
- One or more second-trimester miscarriage

Investigation

- Lupus anticoagulant +
- Anticardiolipin antibody +
- Anti-b2-glycoprotein I antibody +

Management

- Heparin AND
- Low-dose aspirin

This should be continued throughout the pregnancy

Rh Incompatibility

- **Primary sensitization** occurs when Rh -ve mother gives birth to Rh +ve infant
- The antibodies formed causes haemolysis in subsequent pregnancies

Prevention of Rh sensitization

- Test for anti-D antibody in all Rh -ve mothers at booking
- If Rh -ve and not previously sensitised, offer anti-D immunoglobulin
- Anti-D be given as a single dose at 28 weeks or as two doses at 28 and 34 weeks

Give anti-D within 72 hours of any of the following events:

- After delivery of a Rh+ve infant
- Abortion
- Miscarriage after 12 weeks
- Ectopic pregnancy
- Antepartum haemorrhage
- Amniocentesis and chorionic villus sampling

Rh Incompatibility

Brain trainer:

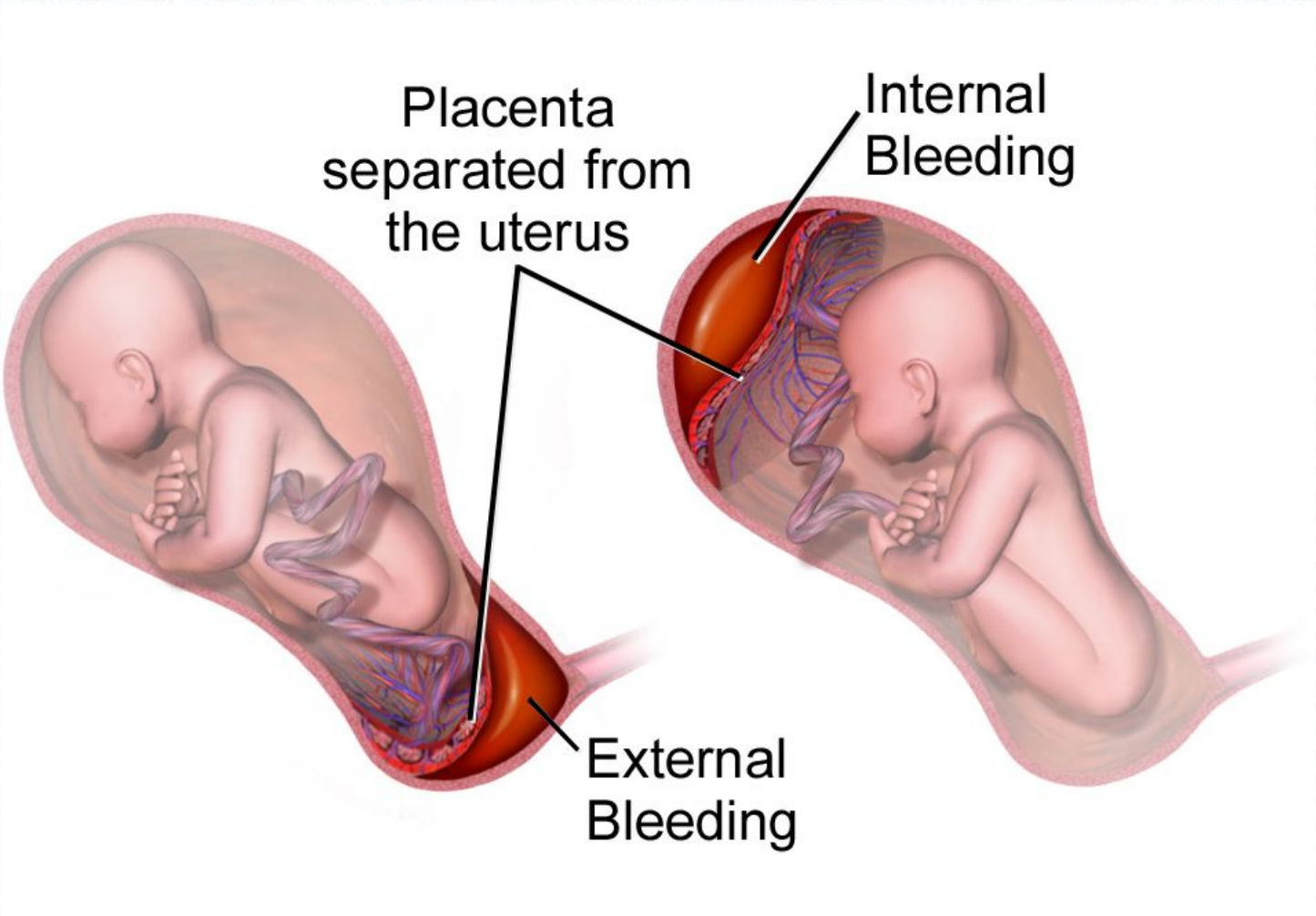
If we suspect that the fetus may have rhesus haemolytic disease, what investigation should we perform on the pregnant patient?

➔ **Assess fetal middle cerebral artery on ultrasound**

This investigation allows estimation of fetal haemoglobin concentrations and therefore the severity of fetal anaemia.

Placenta Abruption

Premature separation of the placenta before the delivery of the fetus causing antepartum haemorrhage



Placenta Abruption

Presentation

- Vaginal bleeding
- Abdominal pain
- Uterine contractions and tenderness
- Fetal distress
- DIC

Risk factors

- Multiple pregnancy
- Trauma
- Pre-eclampsia
- Hypertension
- Smoking

Management

In severe bleeding:

  - Fluid resuscitation
  - Blood transfusion
  - Caesarean section and delivery

Placenta Praevia

Placenta lies in the lower segment of the uterus

Presentation

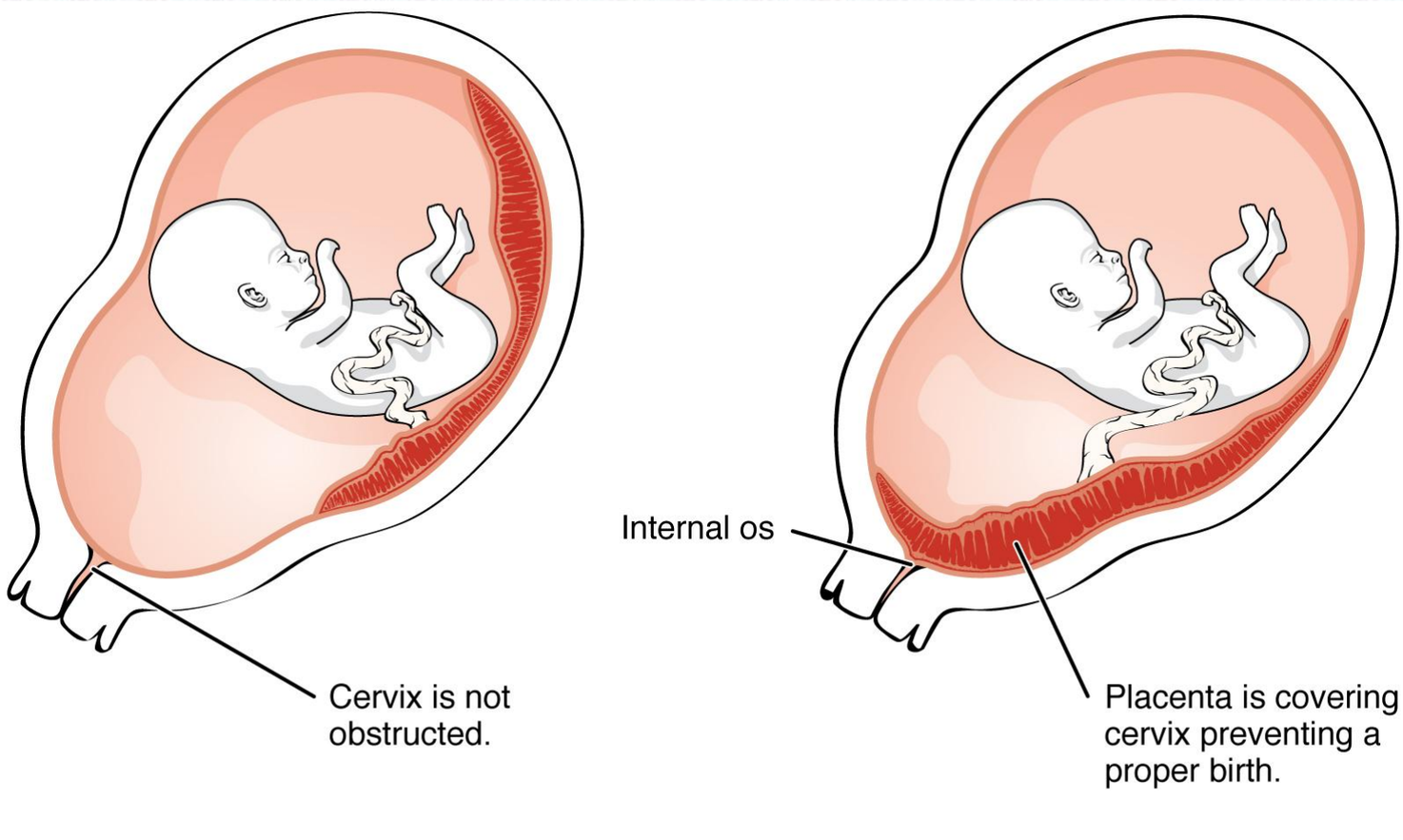
- Painless vaginal bleeding
- Abnormal fetal lie

Investigation

- Transvaginal scan (TVS)

Management

- Continuous monitoring
- Delivery by caesarean section



Normal location of placenta

Placenta previa

Recap of Common Causes of Antenatal Haemorrhage

Placenta abruption → Painful bleeding + CTG shows fetal distress (bleeding may be absent)

Placenta praevia → Painless bleeding + CTG does not show fetal distress (blood is from maternal circulation)

Vasa praevia → Painless bleeding + CTG shows fetal distress (blood is from fetoplacental circulation)

CTG

Pathological CTG

Example: Having an acute bradycardia or a single prolonged deceleration lasting 3 minutes or more

Conservative managements

- Change position of mother
- Start intravenous fluids

Important to remember especially if question ask for initial or immediate management!

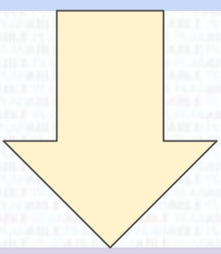
Expedite delivery

Example: If not contracting, then will require an emergency C-section

Stages of Labour

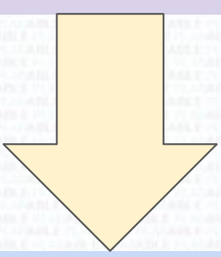
Stage 1

- From the onset of labour to full dilation of the cervix
- Latent phase → Cervical dilation up to 4 cm
- Active phase → From 4 cm to 10 cm



Stage 2

- Delivery of the fetus



Stage 3

- Delivery of the placenta and membranes

Folic Acid in Pregnancy

400 micrograms daily for the first 12 weeks for all women

5 mg daily for the first 12 weeks if:

- BMI > 30
- Diabetes mellitus
- Taking antiepileptics
- Previous pregnancy with neural tube defect
- Family history of neural tube defect

5mg for the entire pregnancy for:

- Sickle cell disease
- Thalassemia or thalassemia trait

Chorioamnionitis

Infection of the foetal amnion and chorion commonly following preterm premature rupture of membranes

Presentation

- Fever and tachycardia
- Abdominal pain
- Uterine tenderness
- Fetal distress
- Foul smelling amniotic fluid

Management

- IV antibiotics: Ampicillin and gentamicin

Uterine Rupture

Brain trainer:

A woman in labour presents with severe abdominal pain and vaginal bleeding. She is hypotensive. Her history is positive for a previous cesarean section. What is the most likely diagnosis?

➔ **Uterine rupture**

Miscarriages And Abortions

Terminology

Miscarriage

The term miscarriage is used to define spontaneous loss of pregnancy before the fetus reaches viability (24 weeks gestation). *Note that with the advancing neonatal care, babies can sometimes survive birth before 24 weeks gestation.*

Abortion

Termination of pregnancy by removal or expulsion of embryo or fetus

In the UK

- When someone says “abortion”, they usually mean induced abortion (or induced miscarriage) which means they deliberately terminated the pregnancy
- When someone says “miscarriage” they usually mean spontaneous miscarriage (or spontaneous abortion) which means they did NOT deliberately terminate the pregnancy but the pregnancy went south

Miscarriage Types

Loss of pregnancy before 24 weeks of gestation

Threatened miscarriage

- Mild bleeding
- Little or no pain
- Cervical os closed

Missed miscarriage

- Fetus is dead but retained

Inevitable miscarriage

- Heavy bleeding and clots
- Cervical os is open

Incomplete miscarriage

- Products of conception are partially expelled

Complete miscarriage

- History of heavy bleeding and clots
- Complete expulsion of the products of conception
- USG shows empty uterine cavity

Miscarriage Types

Let’s go through each type of miscarriage one by one with examples and pictures

Threatened miscarriage

Woman who is less than 24 weeks gestation comes in to the early pregnancy unit with either pain, bleeding or pain + bleeding.

↓

You do a transvaginal scan, and fetus looks fine with heartbeat

Miscarriage Types

Let's go through each type of miscarriage one by one with examples and pictures

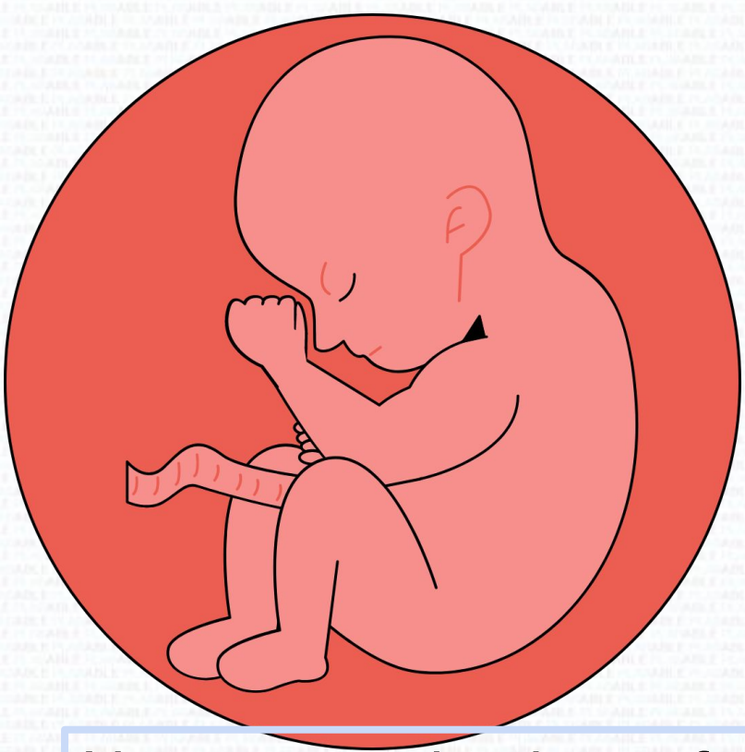
Missed miscarriage

Woman who is less than 24 weeks gestation *but old enough that you would expect a heartbeat* comes in to the early pregnancy unit with either pain, bleeding or pain + bleeding.

↓

You do a transvaginal scan, and fetus does **NOT** have a heartbeat

We made this slide simple but of course there are other ways you can diagnose missed miscarriage (e.g. mean gestation sac diameter of 25 mm with no fetal pole or yolk sac



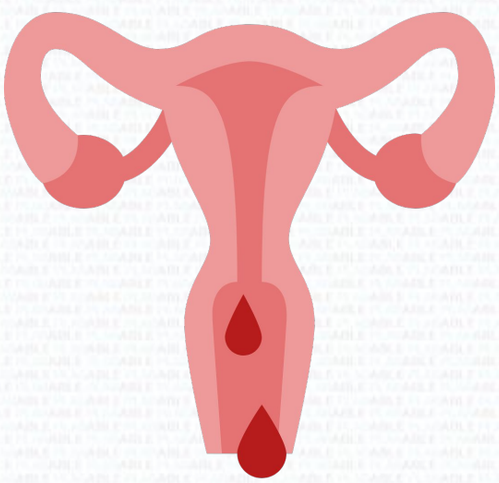
→ Not expected to know for the exam

Miscarriage Types

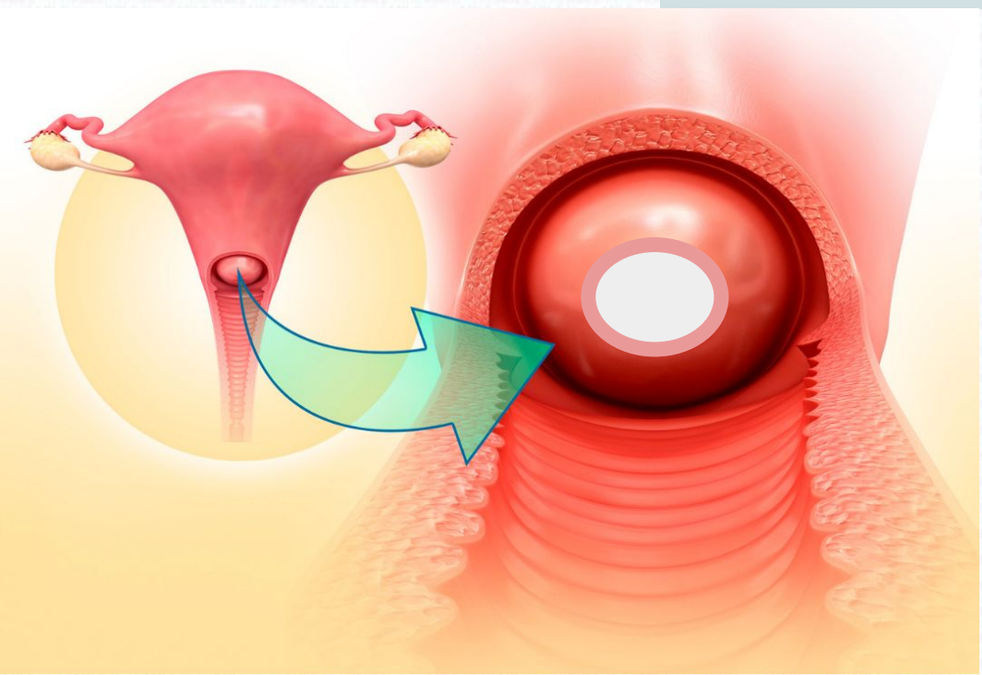
Let’s go through each type of miscarriage one by one with examples and pictures

Inevitable miscarriage

Woman who is less than 24 weeks gestation comes in to the early pregnancy unit with bleeding + an open cervix



The fetus may or may not have a heart beat but it does not matter since the cervix is open, the loss of pregnancy is inevitable *(unavoidable, certain to happen)*

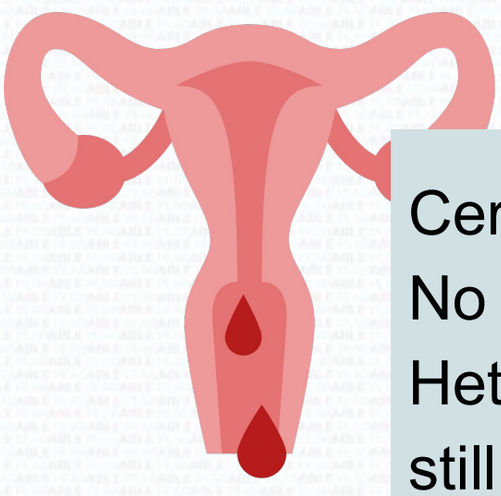


Miscarriage Types

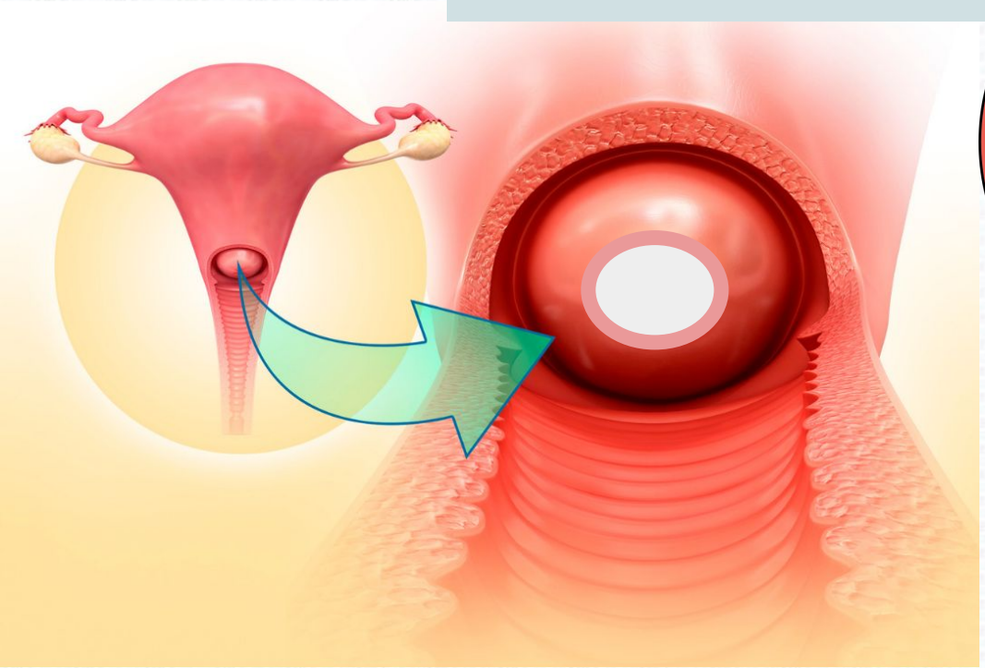
Let's go through each type of miscarriage one by one with examples and pictures

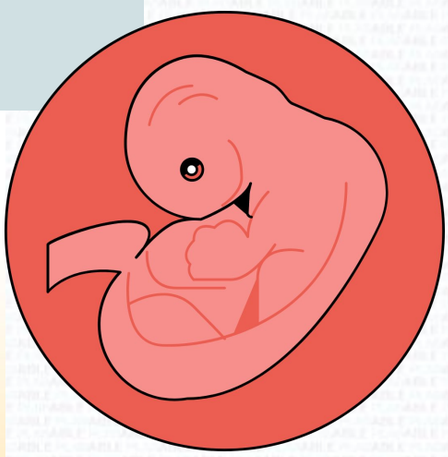
Incomplete miscarriage

Woman who is less than 24 weeks gestation *but old enough that you would expect a heartbeat* comes in to the early pregnancy unit with bleeding + history of passing products of conception



Cervix may be open
No fetal heart
Heterogeneous tissue still seen on US





Miscarriage Types

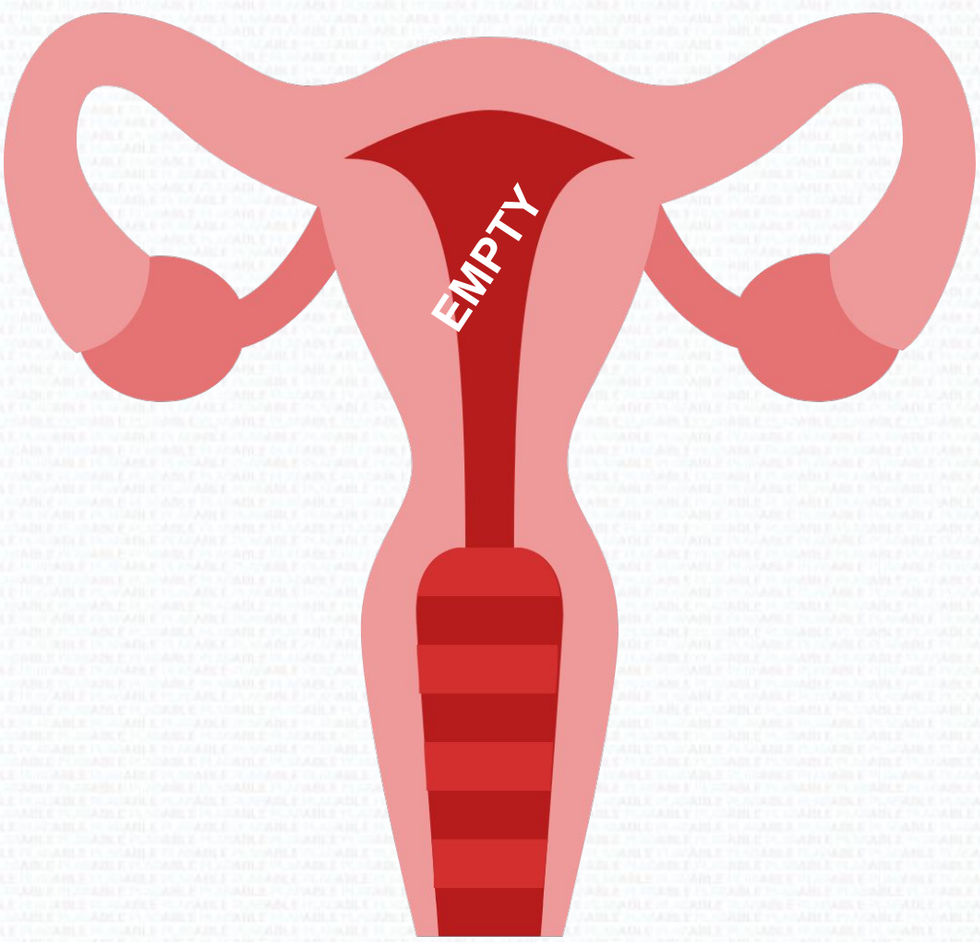
Let’s go through each type of miscarriage one by one with examples and pictures

Complete miscarriage

Woman who is less than 24 weeks gestation comes in to the early pregnancy unit with bleeding + history of passing products of conception

↓

You do a transvaginal scan and find that uterus is empty (meaning all products of conception have passed)



Postpartum Haemorrhage (PPH)

Primary PPH is defined as >500 ml of blood loss from the genital tract within 24 hours of birth (includes both vaginal & caesarean deliveries)

- **Minor** (500 - 1000ml)
- **Major** (>1000 ml)
  - **Moderate** (1000 - 2000 ml)
  - **Severe** (>2000 ml)

Secondary PPH is defined as excessive vaginal bleeding from 24 hrs after delivery up to 12 weeks postpartum

Causes:

- **T**one: Uterine atony
- **T**issue: Retained placenta or clots
- **T**rauma: Laceration of uterus, cervix or vagina
- **T**hrombin: Coagulopathy (DIC)

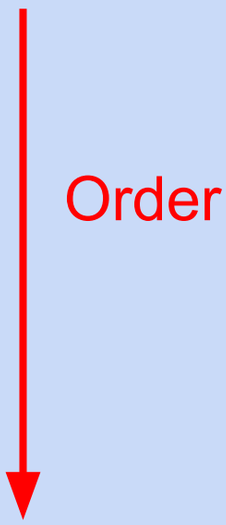
Risk factors

- Multiple pregnancy
- Multiparity
- Uterine anomalies
- Bleeding disorders

Postpartum Haemorrhage Management

Management

- Blood transfusion
- Uterine atony (most common cause):
  - Bimanual compression of uterus
  - Oxytocin IV infusion
  - Ergometrine IV or IM
  - Carboprost IM
  - Balloon tamponade
  - B-lynch sutures
  - Bilateral ligation of uterine arteries
  - Hysterectomy



Other causes:

- Removal of retained tissues
- Surgical suturing of laceration
- Correction of clotting factors

Secondary Postpartum Haemorrhage Management

Remember, Secondary PPH is defined as excessive vaginal bleeding from 24 hours after delivery up to 12 weeks postpartum

From RCOG

An assessment of vaginal microbiology should be performed (high vaginal and endocervical swabs)

A pelvic ultrasound may help to exclude the presence of retained products of conception (RPOC)

Postpartum Bleed at 4 Weeks

Candidates always get confused if they should do a **pelvic ultrasound, high vaginal swab** or just **reassure** if PV bleeding starts at 4 weeks postpartum

Remember, non-breastfeeding woman can have their menstrual cycles come back as early as 21 days post partum. So if non-breastfeeding woman, reassure

If exclusively breastfeeding, there are no consensus.

Endocervical and high vaginal swabs are suitable options. *(Especially if there are risk factors for infection)*

A pelvic ultrasound is also a suitable option. *(Especially if there are risk factors for a retained placenta)*

Hyperemesis Gravidarum

Presentation

- Persistent vomiting during early pregnancy
- Severe nausea
- Dehydration
- Weight loss
- Nutritional deficiency

Investigations

- Ketonuria
- Electrolyte disturbance

Management

- Intravenous fluid + electrolyte replacement if needed
- **First line:** prochlorperazine, promethazine or cyclizine
- Second line: metoclopramide or ondansetron
- Third line: corticosteroids

Other management to think about:

Thiamine → Reduces risk of wernicke's encephalopathy

LMWH → Reduces risk of thromboembolism

Hyperemesis Gravidarum

Management recap!

Mild → Managed as outpatient with just oral/buccal antiemetics

If more severe → Follow these steps in the exam:

Intravenous fluids

↓

Intravenous antiemetics

↓

Intravenous steroids

Rarely used

↓

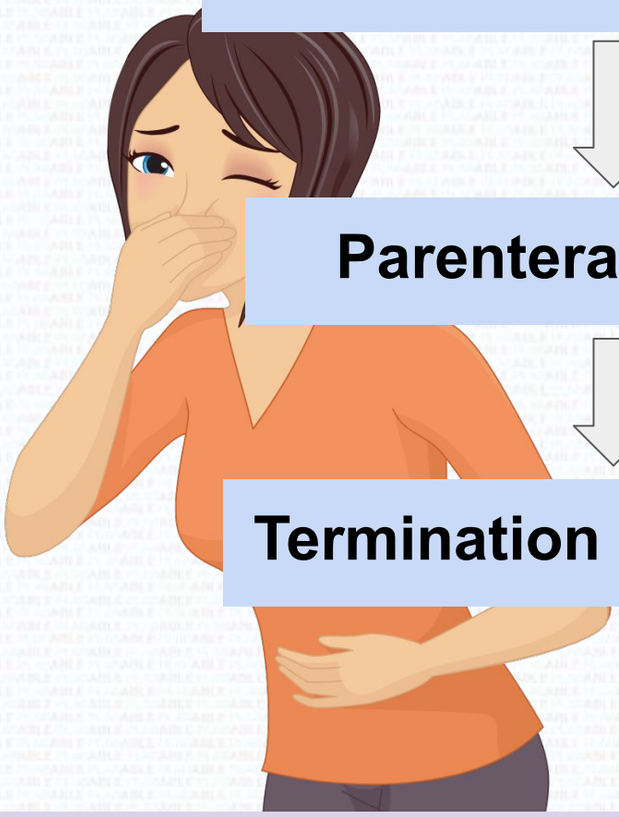
Parenteral nutrition

Even rarer

↓

Termination of pregnancy

Almost never



Think of adding in thiamine and LMWH too at the side

Pre-eclampsia

Pregnancy induced hypertension with significant proteinuria with or without oedema

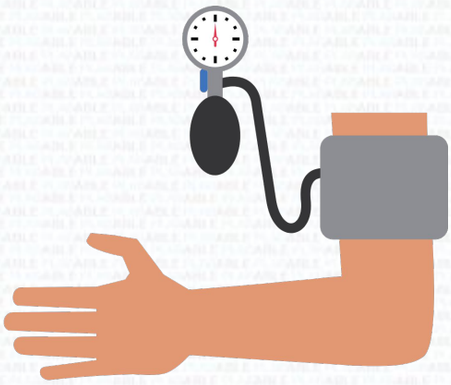
Features of severe pre-eclampsia

- Severe headache
- Vomiting
- Increased swelling of face, hands and feet
- Visual disturbance
- Liver tenderness
- Epigastric pain
- HELLP syndrome

Pick pre-eclampsia if hypertension + one of this protein values:

- 24-hour urine protein > 0.3 g / 24 hours or
- Protein creatinine ratio (PCR) >30 mg/mmol or
- Albumin creatinine ratio (ACR) (>8 mg/mmol)

Pre-eclampsia



Management

- Control BP:
  - Labetalol (first line if giving oral)
  - Methyldopa or nifedipine
  - Hydralazine (only licensed for hypertensive emergencies)
- MgSO4 (If chance of eclampsia is high)
- Delivery at the earliest (only cure)

PLABABLE memory tool:

__N__o __M__oms __L__ike __H__ypertension

- *__N__ifedipine*
- *__M__ethyldopa*
- *__L__abetalol*
- *__H__ydralazine*

HELLP Syndrome

- **H**emolysis
- **E**levated **L**iver enzymes
- **L**ow **P**latelet

Seen in severe pre-eclampsia during pregnancy

Risk factors

- Gestational hypertension
- Nulliparity
- Multiple pregnancy
- Antiphospholipid antibody syndrome

Management

- Delivery of the fetus (definitive if >34 weeks)
- Transfusion of blood products
- Plasma exchange in severe cases
- Magnesium sulfate to prevent eclampsia

Acute Fatty Liver of Pregnancy

Brain trainer:

A woman presents with severe epigastric pain, nausea and vomiting at 35 weeks of gestation. Lab results show deranged liver function, low platelets, low serum glucose, raised serum ammonia. What is the most likely diagnosis?

➔ **Acute fatty liver of pregnancy (AFLP)**

AFLP presents similarly to HELLP (minus haemolysis) with more pronounced:

- **ammonia**
- **hypoglycaemia**

Gestational Hypertension

Brain trainer:

What are the conditions for the diagnosis of gestational hypertension? How is it managed?

➔ **New hypertension after 20 weeks without proteinuria**
➔ **If BP > 140/90 → oral labetalol**

Eclampsia

Occurence of one or more seizures in a women with pre-eclampsia

Management

- Loading dose of 4g of IV $MgSO_4$ in 100 ml 0.9% NS over 5 -15 min
- Followed by continuous infusion of 1g $MgSO_4$ per hour for the next 24 hrs
- Recurrent fits - bolus of 2 to 4g of $MgSO_4$
- Delivery at the earliest (only cure)

$MgSO_4$ toxicity

- Confusion
- Loss of deep tendon reflexes
- Respiratory depression
- Decreased urinary output

Management of $MgSO_4$ toxicity

- Stop $MgSO_4$ infusion
- IV calcium gluconate 1g over 10 min

Postpartum Endometritis

Presentation

- Fever
- Abdominal pain
- Offensive-smelling lochia
- Abnormal vaginal bleeding
- Dyspareunia
- Dysuria

Risk factors

- Caesarean section (highest risk)
- Prolonged rupture of membranes
- Retained products of conception
- Manual removal of placenta
- Severe meconium stained liquor

Management

- IV clindamycin and gentamicin (first-line)

Ectopic Pregnancy

Implantation of the fertilized ovum outside the uterus

Features

- Most common area is the fallopian tubes
- Lower abdominal pain
- Vaginal bleeding
- Amenorrhoea

Risk factors

- Assisted reproductive treatments
- Pelvic inflammatory disease
- Endometriosis
- Previous tubal surgery

Pelvic inflammatory disease is a commonly tested risk factor in exams

Ectopic Pregnancy

Management

Medical management with **methotrexate** for patients:

- Haemodynamically stable
- No significant pain
- Unruptured ectopic

Surgical management for patients:

- **Haemodynamically unstable (Laparotomy)**
- Significant pain
- Ruptured ectopic
- Cannot come for follow up
- Visible heartbeat

Laparoscopic salpingectomy is preferred if the patient is haemodynamically stable but with other signs mentioned above

Ruptured Ectopic Pregnancy

A ruptured ectopic pregnancy is when the fallopian tube has split open.

It can cause severe bleeding and can be life threatening

Surgical repair needs to be carried out

The presence of moderate to large amounts of free fluid in the Pouch of Douglas is indicative of a ruptured ectopic

The cul de sac also known as the pouch of Douglas is the most inferior aspect of the peritoneal cavity and it is often the first location where free fluid accumulates.

Molar Pregnancy

Types

- Complete hydatidiform mole (can transform into choriocarcinoma)
- Partial hydatidiform mole

Presentation

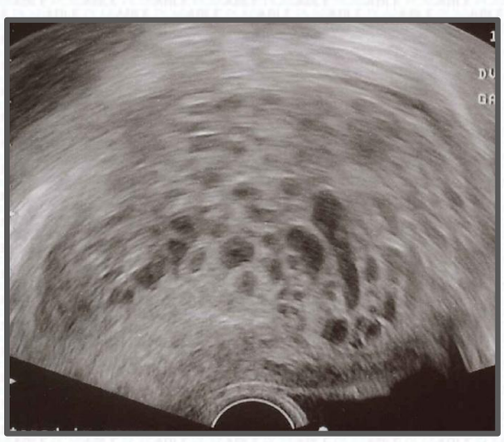
- Hyperemesis
- Painless vaginal bleeding (1st trimester)
- Uterus large for dates

Investigation

- ↑↑ serum βhCG
- USG: Snowstorm appearance
- Large theca lutein cysts

Management

- Suction curettage
- Two-weekly screening of serum and urine βhCG till it becomes normal
- Chemotherapy in case of choriocarcinoma or high βhCG even after uterine evacuation



TVS: Snowstorm or bunch of grapes appearance

Molar Pregnancy

Brain trainer:

After a diagnosis of molar pregnancy, when is a woman advised to try to conceive again?

➔ **Six months after hCG levels have been normal**

or

➔ **If on chemotherapy, 12 months after completing treatment**

Anaemia in Pregnancy

- < 11 gm/dL in first trimester
- < 10.5 gm/dL in second and third trimester
- < 10 gm/dL in the postpartum period

Management

- Ferrous sulphate

Routine Testing in Pregnancy

- Blood group and Rh status
- Rh antibodies (If Rh negative)
- Syphilis
- Hepatitis B status
- HIV
- Full blood count
- Haemoglobinopathies

Two ultrasound scans are usually offered during the course of an uncomplicated pregnancy:

- **Dating scan** (10–13 weeks)
- **Fetal anomaly scan** (18–20 weeks)

Nutritional supplements

- **Folic acid** (400 micrograms per day for uncomplicated pregnancies for the first 12 weeks)
- **Vitamin D** (10 micrograms per day throughout pregnancy)

Chickenpox in Pregnancy

Management

- **Exposed to chickenpox virus:** check immunity

  If not immunised *(e.g. no varicella zoster antibodies)*:
  → VZIG (if less than 20 weeks gestation)
  → Aciclovir (if more than 20 weeks gestation)
  (If more than 20 weeks gestation and aciclovir not an option, then pick VZIG)

- **Already developed chickenpox:** administer aciclovir

- Infection during pregnancy can cause fetal varicella syndrome
  - Limb defects
  - Eye defects
  - Microcephaly

Chickenpox in Pregnancy

Lets test your memory!

Which pregnant ladies will get VZIG?

All pregnant woman in the first 20 weeks of gestation with exposure to chicken pox with a negative VZ antibody

All pregnant woman after 20 weeks of gestation with exposure to chicken pox with a negative VZ antibody *IF ACICLOVIR IS NOT AN OPTION GIVEN*

Constipation in Pregnancy

The three safest laxatives in pregnancy that we should start with are:

- Isphaghula husk (bulk-forming laxative)
- Lactulose (osmotic laxative, useful if stools remain hard)
- Senna (stimulant laxative, useful if stools are soft but difficult to pass)

PLABABLE memory tool

__I__sphaghula, __L__actulose and __S__enna can be remembered as:

__I__

__L__*ike*

__S______ *(We will leave you to fill up whatever words that you may like for S)*

Lower UTI in Pregnancy

Key hints:

The two most commonly asked about antibiotics in pregnancy are trimethoprim and nitrofurantoin:

Trimethoprim should be avoided in first trimester
→ Risk of neural tube defects
(If used, supplementary 5mg folic acid should be prescribed)

Nitrofurantoin should not be used near term
→ Risk of neonatal haemolysis

Mnemonic:
T - Trimethoprim, Teratogenic, Term OK
N - Nitrofurantoin, Neonatal haemolysis, Not for term

Do not use amoxicillin if there is a culture resistant to ampicillin

Cefalexin is safe in pregnancy

Lower UTI in Pregnancy

Tips for answering in the exam:

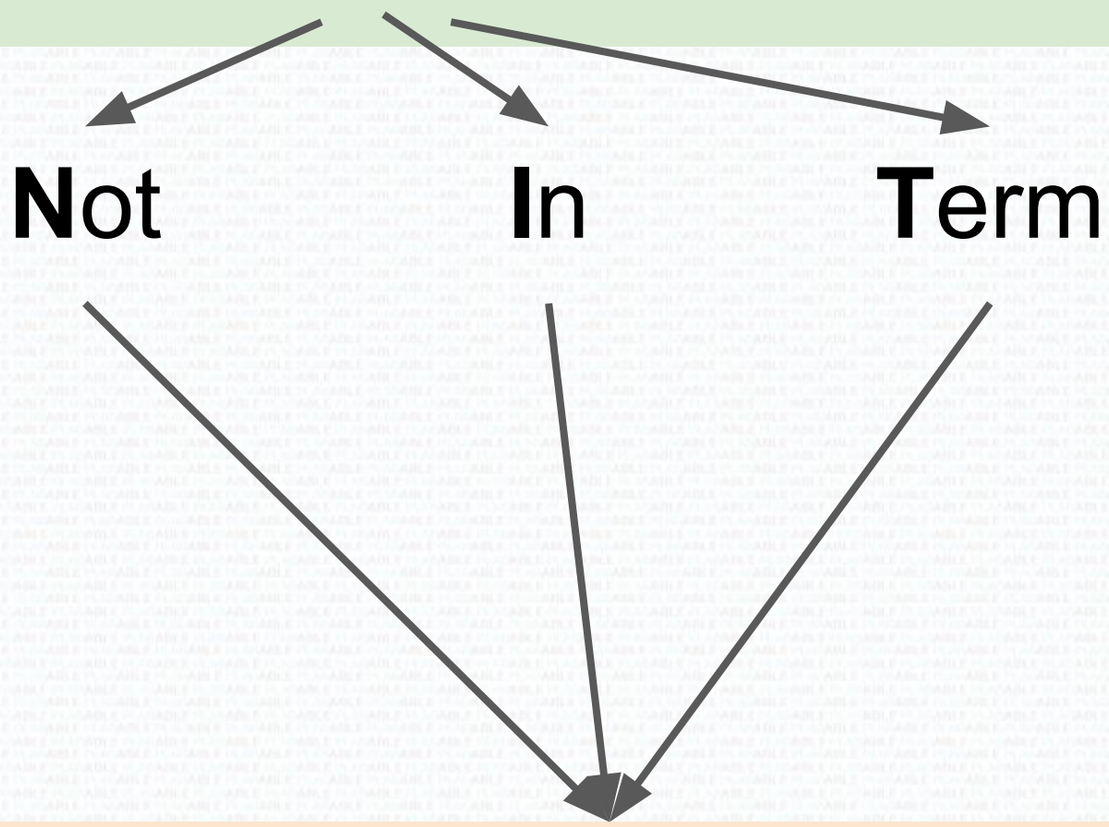
- Pick nitrofurantoin (unless at term)
- If no nitrofurantoin → Pick cefalexin
- If no nitrofurantoin or cefalexin → Pick amoxicillin

Of course look at allergy status too.

Nitrofurantoin and Pregnancy

A useful antibiotic for lower urinary tract infections in pregnancy but not to be used at term (37 weeks onwards).

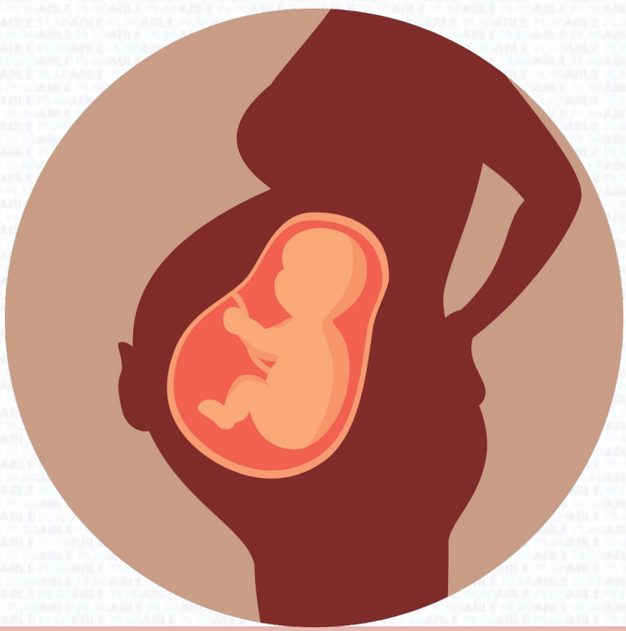
NITrofurantoin



A grammatically incorrect sentence but a useful mnemonic!

Pain Relief In Pregnancy

PPP → Pregnancy Pain, choose Paracetamol



Tips for answering in the exam:

Always pick paracetamol for pain related to pregnancy (e.g. lower abdo discomfort, arthritis, headaches). Paracetamol is the safest pain relief to use in pregnancy.

NSAIDS may lead to premature closure of the ductus arteriosus causing pulmonary hypertension.

Of course, in reality you could use other stronger pain relief like codeine, morphine etc. But these are specialist questions and unlikely to be asked in your exam.

Shoulder Dystocia Management

Two useful mnemonics to remember:

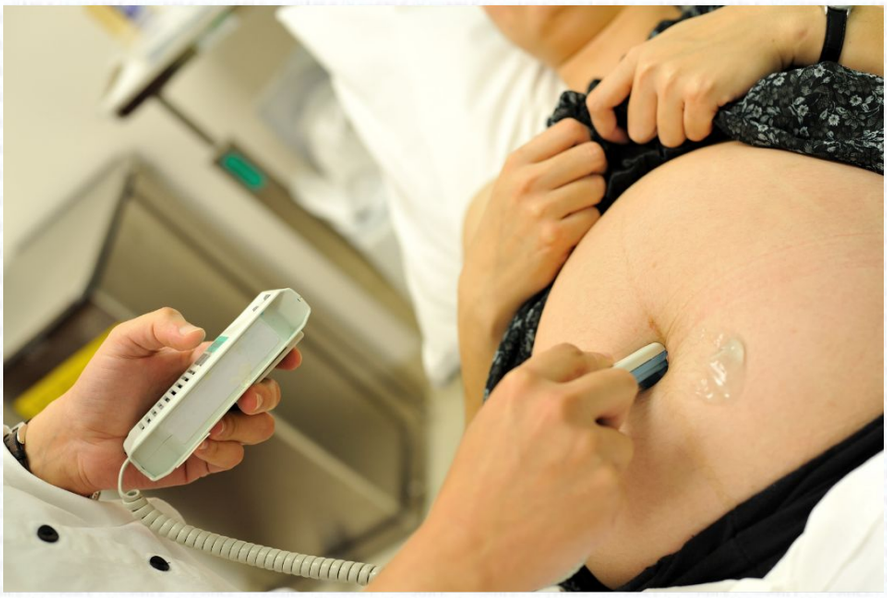
PALE SISTER or **HELPERR**

Prepare (have a plan)
Assistance
Legs (Legs in McRoberts' manoeuvre)
Episiotomy
Suprapubic pressure
Internal rotation
Screw (reverse Wood's)
Try recovering the posterior arm
Extreme measures
Repair, record and relax

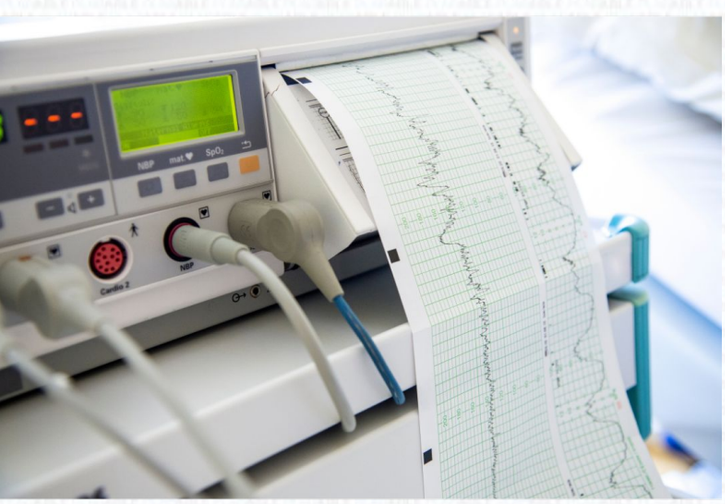
Help (call for help)
Episiotomy (may be delayed until after McRoberts)
Legs (position with McRoberts maneuver
Pressure at suprapubic area
Enter (rotational maneuvers)
Remove the posterior arm
Roll the patients to hands and knees (Gaskin Maneuver or all-fours position)

Decreased Fetal Movements

The investigations for decreased fetal movements begin with a fetal hand-held doppler ultrasound



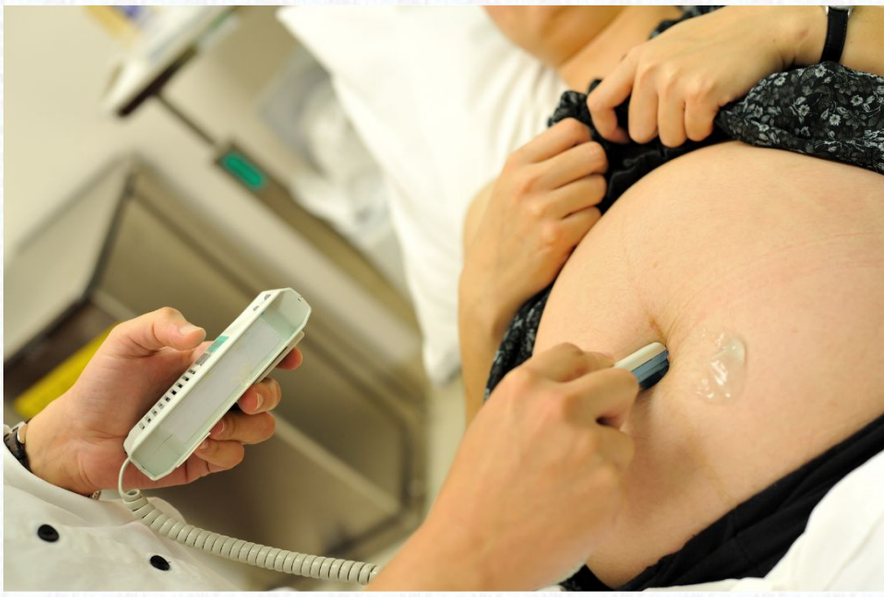
Once the heartbeat can be heard on fetal doppler ultrasound (i.e. fetal viability) then proceed to a CTG to exclude fetal compromise *(applies in women beyond 28 weeks of gestation)*



Dopplers in Pregnancy

There is a difference between a fetal hand-held doppler ultrasound and a umbilical arterial doppler assessment. **DO NOT GET CONFUSED**

Fetal hand-held doppler ultrasound is readily available and midwives, junior doctors and even medical students can easily use this to identify fetus' heart beat



An umbilical artery doppler is used by sonographers and obstetricians to detect placental insufficiency

Image Attributions

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