Abortion (miscarriage)

Definition

Termination of pregnancy before 20w (some say 24w) gestation and/or foetus/embryo weighing ≤500g. Ectopic pregnancy and gestational trophoblastic (molar) disease are not included.

Terminology and time frame of pregnancy outcomes

		Gestational age from LMP (in weeks and 2 more than Developmental age)																
		2		6		11	20	21	22	23	24†	25	26	27	28	29	37	40	42
Aspect of fetus & pregnancy	Prenatal development stage	Embryo					Fetus												
	Whether fetus viable	Not viable					*(probably not)*				(probably)				Viable				
	If vaginal bleeding is observed	Threatened abortion					*(probable miscarriage)*				Antepartum haemorrhage								
	Onset of spontaneous delivery	Early Pregnancy Loss			Clinical abortion		spontaneous (aka Miscarriage)				Premature labour						Term		Overdue
	... and delivered alive										Premature birth						Delivery		
	... but then dies afterwards																Neonatal death		
	If died before delivery										Stillbirth‡								

† Age of viability was 28 weeks before availability of modern medical intervention, current 50% chance of survival to discharge occurs for 24-25 weeks.

‡ Definition varies by country: Australia 20 weeks, UK 24 weeks, US no standard definition and Canada follows WHO's "Fetal death" at any stage gestation.

Epidemiology

- Vaginal bleeding affects 20-30% of all pregnancies.
- Up to 50% of those who bleed may go on to have a miscarriage
- 85% of spontaneous miscarriages occur in the first trimester.

Classification

- *Threatened miscarriage:* Cervical os is closed. Risk of miscarriage ~30-40%.
- *Inevitable miscarriage:* Cervical os is open.
- *Incomplete miscarriage:* Some POC remain & symptoms settled/settling
- *Missed miscarriage:* Largely asymptomatic blighted ovum or foetal death in utero. No POC passed. May have persistent dirty, brown d/c rather than bleeding/pain. Uterus small for dates. βhCG +ve for few days. Early pregnancy symptoms ↓or gone.
- *Completed miscarriage:* All POC lost & symptoms settled/settling
- *Recurrent or habitual miscarriage:* ≥3 consecutive abortions.

Causes

- Most often idiopathic
- Abnormal fetal development
- Genetic balanced parental translocation
- Placental failure
- Multiple pregnancy
- Uterine abnormality or incompetent cervix (second trimester)
- Immunological
- Infections
- Endocrine: e.g. luteal phase deficiency, polycystic ovary syndrome.

Risk Factors

- Age: more frequent >30y
- Incidence increases with number of previous births.
- Substance abuse: smoking, EtOH, illicit drug use
- Uterine surgery or abnormalities e.g. incompetent cervix.
- Connective tissue disorder (SLE, anti-phospholipid Ab-lupus anticoagulant Ab).
- Uncontrolled DM.

Presentation

History: Vaginal bleeding ± clots/POC and crampy lower abdominal pain. Increased risk of complete miscarriage with increased bleeding/pain. Pregnant? Fever? Shoulder tip pain? Trauma? Past O&G Hx. Drugs/Meds. Blood group.
Exam: Shock? Fever? Peritonitis? Is uterine size appropriate for dates?
VE: POC in cervical canal? Is os open or closed? Any cervical excitation or lesions?

Differential Diagnosis

- *Implantation bleeding:* Spotting associated with normal implantation of the embryo into uterine wall. Frequently occurs around when period was due.
- *Ectopic pregnancy:* 3% of pregnancies. Pain may precede bleeding. See separate article.
- *Hydatiform molar pregnancy* (gestational trophoblastic disease)
- *Subchorionic haemorrhage*.
- *Non-gestational:* Postcoital bleeding, trauma, polyps, malignancy, infection

Investigations

Urine: βhCG
Bloods: FBC, G&H, βhCG, coags, culture if febrile.
Imaging: USS if ≥6w ideally transvaginally (to see if missed or incomplete, rule out ectopic)
Other: HVS/Cervical swabs if infection suspected.

Complications

Septic abortion:

- Offensive pink vaginal discharge and fever - 80% of cases where confined to decidua.
- More severe form spreads to uterine wall → tender boggy uterus & lower abdomen, ↑HR, and occasionally shock and DIC.
- Most cases due to E.coli, streptococci and/or anaerobes. If not severe give **Augmentin Duo Forte** PO bd + **metronidazole** 500mg bd or if severe **ampicillin** 2g IV q6h + **gentamicin** 4-6mg/kg IV od + **metronidazole** 500mg IV bd
- D&C once patient has stabilised, or earlier if bleeding severe.
- Hysterectomy may be needed if infection uncontrolled.

Management

Resuscitation if shocked:

- Hypovolaemia: 2xIVC, fluids ± blood. Vaginal packs
- Cervical shock: Remove POC from vagina/cervix

Rh prophylaxis: If Rh -ve. **AntiD Ig** 250 Units if ≤12w else 625 Units
Diagnosis dependent:

- *Threatened miscarriage:* Follow up by GP/early pregnancy clinic for USS, serial βhCG
- *Inevitable or incomplete miscarriage:* Consideration for D&C.
- *Missed miscarriage:* **Misoprostol** PV or PO vs D&C
- *Completed miscarriage:* No specific Rx.

D&C: if persistent excessive bleeding, haemodynamic instability, ?RPOC ± infected, ?gestational trophoblastic disease.
Admission: may be required for D&C or medical abortion (**misoprostol**)
Bed rest: will not change outcome, but may be psychologically beneficial.
Supportive care: Analgesia, support, follow-up and formal counselling when necessary.
Advice: Bleeding normally ceases after complete abortion within 10 days. If continue after that or pain/symptoms then review for RPOC.

Recurrent Miscarriage

Loss of ≥3 consecutive pregnancies.

Epidemiology

1% couples trying to conceive have recurrent miscarriages.
No underlying cause is found in many of them.

Risk factors

Increasing maternal age

Causes

- Genetic abnormalities:
  - Fetal aneuploidy (esp trisomy) most common cause of miscarriage <10w gestation.
- Antiphospholipid syndrome:
  - Most important treatable cause of recurrent miscarriage.
  - Include lupus anticoagulant and anticardiolipin antibodies.
  - The prevalence of antiphospholipid syndrome in women with recurrent miscarriage is 15%.
- Structural:
  - Uterine anomalies (bicornuate uterus or septa) in >30% cases of recurrent miscarriage. Only 50% of these → term delivery.
  - Uterine fibroids are present in up to 30%
  - Cervical incompetence (late miscarriage preceded by spontaneous PROM or painless cervical dilatation).
- Infective:
  - Controversial. Poor evidence for TORCH or vaginosis.
- Endocrine:
  - Assoc with polycystic ovarian syndrome, insulin resistance, & hyperprolactinaemia
- Immune:
  - High levels of natural killer cells in uterine mucosa (not reflected in blood level).
- Thrombophilias
- Idiopathic

Investigations

Blood: Antiphospholipid antibodies, karyotyping
Imaging: Pelvic ultrasound
?Screening for and treatment of bacterial vaginosis.

Management

Antiphospholipid syndrome: **heparin** + low dose **aspirin**. **IVIG** + **prednisolone** also used.
PCOS: **Metformin**
Cervical cerclage: cervical incompetence is over-diagnosed as a cause of second trimester miscarriage. Some controversy. Little evidence according to Cochrane.

Prognosis

If no abnormality is found 75% chance of successful future pregnancy