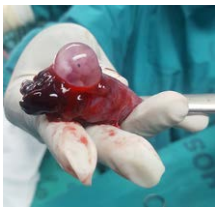
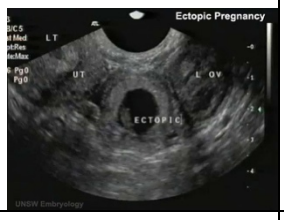
EARLY PREGNANCY

EMERGENCY PRESENTATIONS

<table>
<tr><th></th><th>ECTOPIC PREGNANCY</th><th>Ovarian mass/Torsion</th><th>Acute PID</th></tr>
<tr><td>Define</td><td>• Embryo attaches outside uterus usu. in fallopian tube (cornual region) -also cervix, ovary or abdomen
• 1-2% of pregnancies (1 in 100)</td><td>Partial/ complete twisting of ovary and fallopian tube around supporting ligaments</td><td>Ascending infection of upper female genital tract
<u>Usu. chlamydia trachomatis or Neisseria gonorrhoea</u></td></tr>
<tr><td>RF</td><td><u>Anatomical</u>
• hx of ectopic,
• hx of endometriosis,
• hx of PID (tubal scarring)
<u>Non-anatomical</u>
• Smoking,
• Advanced age,
• IUD (coils)
• IVF
  </td><td>• <u>Anatomical</u> = ovarian enlargement (cysts/tumours), long ovarian ligament's or laxity of pelvic ligaments
• <u>Non-anatomical</u> = mirena IUD (+++ cysts), adolescents, obesity, pregnancy and IVF</td><td>• Multiple sexual partners
• Unprotected sex
• Hx of STI or adnexitis
• IUDs (copper, mirena)</td></tr>
<tr><td>Sx</td><td>• Amenorrhoea 4-6 wks LMP
• Recent UPSI
<u>Non-rupture</u> =
• crampy lower abdo or pelvic pain,
• pregnancy signs (nausea, tender breasts)
• cervical motion tenderness
• vaginal bleeding (Usu. less bleeding than last period (DO NOT DISMISS!!))
<u>Ruptured</u>
• severe sudden onset abdo pain,
• Dizziness / syncope / hypoTN, tachycardia (hypovol)
• Shoulder tip pain (peritonitis)</td><td>• <u>SUDDEN</u> onset unilateral abdo-pelvic pain
• Crescendo-decrescendo pain
• Nausea and vomiting
• Vitals (stress response) = ↑HR, HTN
• Pain on palpation (localised/diffuse – depends on size of cysts)
• ?palpable adnexal mass (i.e. growth around uterus)
• NO PAIN = ischeamia of affected ovary and compromised blood supply</td><td>• Bilateral lower abdo pain (may have concurrent appendicitis)
• Fever
• N/V
• Dysuria, dyspareunia
• PV or cervical discharge (abnormal in smell/colour)
<u>Exam:</u>
• Vitals (HTN, tachycardia, tachypnoea, febrile)
• Adnexal tenderness on palpation
• <u>Vag exam →cervical discharge</u></td></tr>
<tr><td>DDx</td><td>• Pregnancy of unknown location (+B-HCG but no sign of pregnancy on TVUS)
• Ovarian torsion
• PID
• Appendicitis/diverticulitis</td><td>•</td><td>•</td></tr>
<tr><td>Ix</td><td>• Serum B-HCG (> 1000-1500) - pregnancy of unknown location
○ Serial B-HCG every 48 hrs
○ Rise > 63% = intra-uterine pregnancy
○ Rise < 63% or static over 2 days = ectopic or pregnant
○ Fall > 50% = miscarriage
• FBC (anaemia) + Group + X-match
• EUC, LFT
• COAGs (if suspected coagulopathy)
• TVUS (best)
○ <u>free fluid</u> in POD or uterine cavity
○ <u>empty uterus</u>
○ gestational sac with yolk sac or fetal pole in fallopian tube ("blob sign" or "bagel sign")
  </td><td>• FBC (++WBC)
• ++ CRP
• Serum B-HCG (exclude pregnancy)

TVUS + doppler
• Reduced blood flow
• ≥ 6cm – highest risk of torsion
• Thickened fallopian tube

<u>DDx:</u> appendicitis, ruptured ectopic, renal colic</td><td>• FBC (++WBC)
• ++ ESR
• Urine and serum B-HCG
• TVUS (free fluid, abscess, pyo/hydrosalpinx)
• GU swabs (endocervical, high vaginal, urethral) ➔ C+G PCR
• Endometrial biopsy ➔ ?endometritis
• Exploratory laparoscopy ➔ ambiguous cases</td></tr>
<tr><td>Comp.</td><td>• <u>Infertility</u>
• <u>Death</u> – hypovol. Shock /sepsis
• <u>Cervical shock</u> = HypoTN and bradycardia (due to vagal stimulation)</td><td>• Compress ovarian vein + lymphatics → reduced venous outflow
• Oedema → ischemia → necrosis</td><td>• Infertility (tubal scarring and adhesion) → O+G referral
• Ectopic pregnancy
• Peritonitis, perihepatitis
• Chronic pelvic pain</td></tr>
<tr><td>Mx</td><td><u>Unstable</u>
1) Help – O+G consult
2) <u>ABCD – vasopressors / inotropes</u>
3) IVF
4) TVUS = identify location of free fluid
5) Surgery – laparotomy/laparoscopy/ salpingectomy
<u>Stable</u>
<table><tr><th></th><th><u>Expectant</u></th><th><u>Medical</u></th><th><u>Surgery</u></th></tr><tr><td><u>Ind</u></td><td>Unruptured ectopic
• <u>if HCG < 1500</u>
• <u>mass < 3.5cm</u>
• no FHB or pain</td><td>Unruptured ectopic
1. <u>if HCG < 5000</u>
2. <u>mass < 3.5cm</u>
3. <u>no FHB or pain</u></td><td>Haem unstable
• <u>if HCG > 5000</u>
• <u>mass > 3.5cm</u>
• <u>Visible HB or pain</u></td></tr><tr><td><u>How?</u></td><td>Natural termination</td><td>IM MTX 50mg/kg – dissolve POC
1. <u>CI:</u> allergy, interstitial ectopic, HIV/BBV
2. <u>A/E</u> N/V, PV bleed, conjunctivitis</td><td>NBM + IVF maintenance
+/- Vasopressor

Laparoscopic
1. salpingectomy
2. Salpingotomy</td></tr><tr><td><u>Post-Mx</u></td><td><u>Follow up in EPAS</u>
• Analgesia
• Bereavement/ Counselling
• Plans for future</td><td><u>Follow up in EPAS</u>
1. <u>Repeat HCG</u> on Day 4, 7 post dose (↓15% expected)
2. Contraception for 3/12 post MTX – prevent teratogen</td><td><u>Follow up in EPAS</u>
➢ Anti-D in Rh -ve women
➢ salpingostomy – risk of persistent trophoblastic disease
➢ counsel pain + grief</td></tr></table></td><td><u>Additional:</u>
➢ Ovarian cystectomy and drainage (if indicated)
➢ Oophoropexy → fix ovary to abdominal wall to reduce motion OR shorten utero-ovarian ligaments

<u>Long-term</u>
➢ COCP (prevent cyst formation)
➢ CA-125 and cancer work up</td><td>• Emergency exploratory laparoscopy for ALL patients with suspected torsion
<u>(even if imaging is inconclusive)</u>
• <u>Pre-menopausal</u> ➔ adnexal detorsion and preservation of ovaries
• <u>Post-menopausal</u> ➔ <u>salpingo-oopherectomy</u></td><td><u>Unstable</u>
• DRS ABCD:
○ Broad spectrum IV abx (cephalosporin + adjuncts)
○ Analgesia

<u>Stable = Mild-mod</u>
○ outpt monitoring

<u>Stable = Severe</u>
• surgery (NBM, anaesthetics, bowel prep)
• Previous meds (e.g. anti-coags, anti-DM, thyroid meds, COCP, anti-HTN)

<u>FOLLOW-UP</u>
• Contact tracing of sexual partners (once swab results return)
○ 2/12 if gonorrhoea
○ 6/12 if chlamydia</td></tr>
</table>

MISCARRIAGES

Criteria For Miscarriage (< 20wks GA or <500g birth wt)

- Early miscarriage = < 12 weeks of GA
- Late miscarriage = >12 weeks of GA
- Recurrent m/c = ≥3x consecutive miscarriages

CAUSE:

- **Maternal** (*advanced age, extremes wt, previous substance abuse, TORCH*)
- **Foetal** (*aneuploidies, congenital abnormalities*)

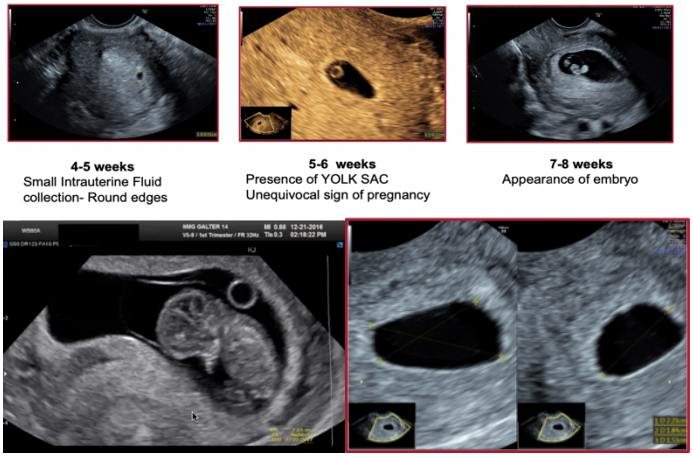
SIZE BASED CRITERIA [mainly]

1) Crown Rump Length (CRL) **>7mm without Cardiac Activity**
2) Discriminatory Mean Sac Diameter **> 25mm + NO visible embryo**

Time-based criteria:

1) Absence of Embryo with heart beat >14 days after a scan that showed Gestational Sac WITHOUT yolk sac
2) Absence of Embryo with heart beat >11 days after a scan that showed Gestational Sac **WITH** yolk sac

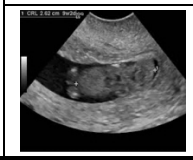
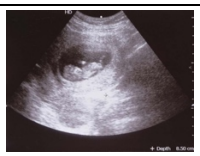
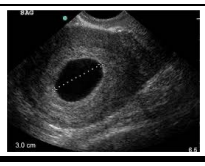
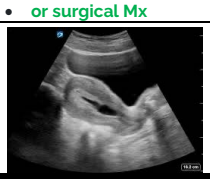
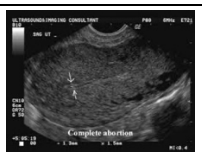
Sequence of Events in early pregnancy



4-5 weeks
Small Intrauterine Fluid collection- Round edges

5-6 weeks
Presence of YOLK SAC
Unequivocal sign of pregnancy

7-8 weeks
Appearance of embryo

	Threatened M/C	Inevitable M/C	Missed M/C *(early fetal demise)*	Blighted ovum (anembryonic gestation)	Incomplete M/C	Complete M/C
Cause	< 20 wks vaginal bleeding w/ open cervix		**Biochemical loss** (loss after +ve B-HCG but before USS) **Clinical loss** (loss confirmed on dating USS)	• Gestational sac with no embryo • Complex aneuploidy	• Incomplete expulsion of POC • Higher risk of infection	• No conception products in uterine cavity • No PAIN
PV bleed	Yes	Yes - POC seen	No	No	Yes	Yes
FHR	YES	No	No	No	No	No
VE	Closed os	Open OS	Closed os	Closed os	Open OS	Closed os
TVUS	• Ongoing pregnancy on USS (> 6 wks = FHB) • B-HCG > ++ 1000 Foetus may still be viable ➢ Intrauterine gestational sac seen ➢ Subchorionic hemorrhage (between chorion and endometrium) → large causes M/C	• Gestational sac and fetus seen low on endometrial cavity of cervical canal • **FOETUS MAY BE ALIVE**	• Fetus no longer alive • **NO FHB or symptoms** • May progress to complete M/C	• +ve B-HCG • **Elliptical Intrauterine gestation sac >25mm with no embryo** (can see trophoblastic enhancement)	• NO FHB on USS • Mean gestational sac > 25mm without fetal pole • **Medical Mx (MISO)** • **or surgical Mx**	• NO FHB on USS
						

Management of confirmed M/C + ectopic

	Expectant	Medical (<14 FA)	Surgical (≈ 12/40 GA)
Ind	➢ Foetal pole < 30cm + Serum B-HCG < 200 + no FHB ➢ Threatened M/C or PUL ➢ **Stable Patients <6 wks GA**	➢ Adnexal mass < 35mm ➢ Serum B-HCG < 1500 + no FHB ➢ Haem stable (no pain)	➢ Foetal pole length > 35mm ➢ No hx of fertility ➢ FHB present
To do	➢ **Natural** process (no meds or surgery) ➢ Watch and wait ***EPAS FU in 2 weeks*** ➢ Explain that is not lady's fault ➢ Discuss other Mx options - Advice pt pregnancy is ongoing ○ If ***threatened*** → May proceed normally w/ routine AN care, Avoid sex	➢ **200mg mifepristone RU486 = 90%** (*anti-PG to decrease placental adhesion*) ➢ **800µg Misoprostol =70% (PGE analogue)** (***PO*** if GA < 7 wks or ***PV*** if GA > 7 wks) → *stimulate uterine contractions and cervical dilatation within 4-24 hrs* ○ **A/E = Shivers, febrile, hypoTN** ➢ **Managed in outpatients**	***Suction + cuterrage (7-14 weeks)*** ➢ GA → plastic catheter sucker removes POC as bones **NOT** developed ➢ MISO prior to surgery? ***Dilatation and cuterrage (> 14 weeks)*** ➢ Cervix dilated + intracardiac injection (remove POC w/ forceps)
Adv.	➢ No A/E of SURG/med Mx ➢ **Best for incomplete M/C** ➢ 50% self-resolve – may be asymptomatic w/ minimal free fluid (esp. if PUL)	➢ No need surgery ➢ 85% success ➢ EPAS FU → USS 2-3 wks after success Rx	➢ **Low failure rate** (< 5%) ➢ Can **send POC** for karyotyping and histopathology
Disadv	➢ 25% failure rate ➢ **Unpredictable** time frame ➢ **Heavier bleeding** (1-2 wks) ➢ + more crampy pain → must be reported!!1 ➢ More likely infection if lag time > 6 weeks ➢ Need close access to EPAS esp. **<10/40 GA** ○ **Serial USS scans** (until hCG < 20) ○ **Repeat urine B-HCG 3 wks** after symptoms settle to confirm complete M/C ○ ***Anti-D if Rh -ve***	**A/E** ➢ Pain, N/V/D + contraindicated if IUD present ➢ Heavier bleeds → falls risk **Bleeding Pain Mx** = heavy and painful periods ➢ Ibuprofen 600mg Q6H ➢ **If no bleeding within 24 hrs →** *reattend and follow up at EPAS* **Order of delivery** ➢ 200mg mife (taken when convenient) ➢ 800µg miso (24 hrs after mife)	➢ **Infection – may need prophylactic ABx** ➢ **Uterine perforation** ➢ **Cervix damage or endometritis** ➢ **Bleeding** ➢ **Asherman's syndrome (XS curreting)** (scar tissue build up in uterus) → abnormal periods → high dose COCP/IUD to shed basal layers where scar tissue forms Rx)

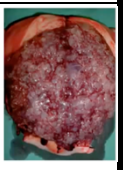
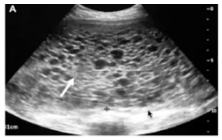
General Mx post M/C

1. **Anti-D** (for any Rh -ve women with positive HCG and vaginal bleeding) → 250IU in first trimester, 625 IU thereafter [prevent haemolytic disease of newborn)
2. **Serial B-HCG –** Confirm discontinuation of pregnancy
3. **Psych support** → address guilt/shame in women/partner experienced after loss → refer to EPAS + resources (*pinkelephants, SANDS*)
4. **Counsel at EPAS** → when to start again? (e.g. after 4-6 weeks once periods resume)
5. **Future pregnancies** → previous M/C does not affect risk of future, check for chromosomal abnormalities
6. **Pre-pregnancy OCP/LARC advice + multivitamin** (e.g. elevit, folic acid, iodine, Vit D, Ca)
7. **Beware of complications** = haemorrhage, cervical shock, endometritis, septic abortion, POC

Reduce risk of recurrent M/C by:

- No smoking
- No substance abuse (EtOH)
- Healthy balanced diet
- Avoid infections e.g. rubella)
- Avoid certain foods (e.g. soft cheese, cured or undercooked meats)
- Healthy BMI

EARLY PREGNANCY PRESENTATIONS

	RECURRENT MISCARRIAGE	HYPEREMESIS GRAVIDARUM	MOLAR PREGNANCY (1 IN 700)
Define	• **3 or more consecutive miscarriages** • 10% if women 20-30 yo • 50% in women 40-45 yo **CAUSE:** ➢ **Maternal (***advanced age, extremes wt, previous substance abuse, TORCH infection)* ➢ **Foetal (***aneuploidies, congenital abnormalities)*	➢ Nausea and vomiting normal during 1st trimester esp. 10-12 weeks GA o Assoc. w/ levels of B-HCG ➢ **Hyperemesis Gravidarum** = protracted nausea and persistent vomiting during pregnancy	**Gestational trophoblastic disease** Hydatidiform mole = tumour that mimics pregnancy growing within uterus ➢ *Complete mole (46XX)* = **2x sperm fertilise egg** (inactivated chromosome) • *Partial mole (69XXY)* = **Haploid egg** fertilized by unreduced diploid sperm
Sx	**Miscarriage Sx** ➢ +/- Pelvic pain (crampy) ➢ PV bleed – spotting, clots, POC (**SHEDDING DECIDUA)** ➢ PV discharge ➢ ↓**PREGNANCY Sx** = Reduced nausea, breast tenderness **Exam** ➢ Open /closed cervical os ➢ Cervical motion tenderness	Persistent vomiting and nausea **PLUS**: ➢ Dehydration ➢ More than 5% wt loss related to pre-pregnancy weight ➢ Electrolyte imbalance ➢ Ketosis	• Bilateral lower abdo pain • SEVERE morning sickness • **Enlarged Uterine size > than dates** • PV bleeding (menorrhagia) • Thyrotoxicosis Sx (heat intol, palp, sweat) *Exam:* • Vitals (HTN, tachycardia) • Adnexal tenderness on palpation
DDx	• **Idiopathic** • APS • Hereditary thrombophilia • Uterine abnormalities • **Genetics** (e.g. balanced translocations) • **Chronic histiocytic intervillositis** • **Chronic disease** (T2DM, thyroid, cushing, SLE)	• Twins / multi-pregnancies • Molar pregnancy • Food poisoning	➢ true pregnancy 
Ix	*Investigations should begin after:* ➢ 3 or more 1st trimester M/C ➢ 1 or more 2nd trimester M/C *Tests:* ➢ **APS screen** (Anti-cardiolipin, B2GP1, lupus anti-coagulant) ➢ **Thrombophilia screen** (Protein C/S def, Factor V leiden, prothrombin gene mutation) ➢ **Pelvic USS** – uterine abnormalities o UTERINE SEPTUM o Uni vs bicornuate uterus o Cervical insufficiency o Fibroids ➢ **Genetic test on:** o Parents o Products of conception	➢ **Vitals and BMI** ➢ **FBC** (high HCT = dehydrated) ➢ **EUC** = low Na, low K ➢ **UA** – ketosis ➢ **USS** = exclude molar and multi-gestation **Severity assessed using Pregnancy-Unique Quantification of Emesis (PUQE) score.** Total score is sum of replies to each of the three questions. PUQE-24 score: Mild ≤ 6; Moderate = 7–12; Severe = 13–15. **Motherisk PUQE-24 scoring system** In the last 24 hours, for how long have you felt nauseated or sick to your stomach? — Not at all (1); 1 hour or less (2); 2–3 hours (3); 4–6 hours (4); More than 6 hours (5) In the last 24 hours have you vomited or thrown up? — 7 or more times (5); 5–6 times (4); 3–4 times (3); 1–2 times (2); I did not throw up (1) In the last 24 hours how many times have you had retching or dry heaves without bringing anything up? — No time (1); 1–2 times (2); 3–4 times (3); 5–6 times (4); 7 or more times (5) PUQE-24 score: Mild ≤ 6; Moderate = 7–12; Severe = 13–15.	**Bloods** • FBC (↑↑WBC) • ↑↑ ESR • Urine + serum B-HCG – **ABNORMALLY HIGH** • TSH/T3/T4 **TVUS** • "Snowstorms appearance"  **Hysteroscopy** • Biopsy + staging
Comp.	• Recurrent M/C	• Severe dehydration – hypovol shock	• **Choriocarcinoma** (. germ cell tumour of ovary) • Mets - death
Mx	***NO strong recommendations to prevent*** ➢ *Anti-D if Rh -ve* ***If APS or SLE*** ➢ Low dose aspirin ➢ LMWH ***PRISM trial*** ➢ Vaginal progesterone pessaries during early pregnancy for women with recurrent M/C	**Mild hyperemesis gravidarum** 1. **PO hydration + PO anti-emetics (e.g. 1st line** = cyclizine, prochlopererazine,(stemetil) Phenergan 2nd line = metoclopramide **2. PPI or ranitiide** **When should I admit?** ➢ Cannot tolerate PO anti-emetics or fluids ➢ > 5% weight loss compared to pre-pregnancy wt ➢ Ketones present on urine dipstick **Mod-severe hyperemesis gravidarum:** 1. IV or IM antiemetics + L) lateral position (↑VR) 2. IVF resus – 0.9% NS + KCL 3. Daily EUC monitoring 4. B1 / thiamine supp. (prevent Korsakoff) 5. Thromboprophylaxis (SC clexane)	*Mx:* 1. **Surgical evacuation w/ soft plastic catheter (D+C)** 2. Send tissue to **histopathology** + register molar pregnancy 3. 15% require **SYSTEMIC MTX chemo for** persistently elevated B-HCG *Follow-up – 80% are benign* 1. **Weekly Serial HCG** monitoring until negative (then monthly for 6-12 months) 2. ***Avoid*** pregnancy during follow up 3. ***Use LARCs*** (barrier methods NOT COCP) 4. F/U and counsel in ***EPAS*** for future pregnancies → higher risk of ***For choriocarcinoma*** ➢ **1st line = MTX** (chemo) → 98% cure rates even for metastatic lung disease ➢ Good prognosis

TERMINATION OF PREGNANCY

TOP or abortion = elective procedure to end pregnancy

➢ If < 23 weeks = performed by doctor

➢ If > 23 weeks = 2x doctors must approve abortion (if mental well-being of mother is at risk, to save another fetus or if fetus has serious abnormality)

Medical Abortion

➢ **Misoprostol** = synthetic prostaglandin = induces uterine contractions

➢ **Mifepristone** = synthetic anti-progesterone = ↓embryo implantation

➢ **Prostacyclin (PGI2)** = arachidonic acid metabolite = relax uterine muscle tone (myometrium)

Surgical Abortion

➢ **Local anaesthetic +/- sedation OR GA**

➢ Cervical dilatation and suction of content of uterus (up to 14 weeks)

➢ Cervical dilatation and forceps removal (14-24 weeks)

Complications

• Bleeding, Pain, Infection

• Failure of the abortion (pregnancy continues)

• Damage to the cervix, uterus or other structures

Post-abortion care

➢ Advise PV bleed and abdo cramps for up to 2 weeks after procedure

➢ Urine B-HCG test 3 weeks after abortion to confirm success

➢ Anti-D for any Rh -ve women > 10/40