Early pregnancy loss

Clinical Guideline Presentation v4.0

45 minutes
Towards CPD Hours
References:
The Queensland Clinical Guideline *Early pregnancy loss* is the primary reference for this package.

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Feedback and contact details:

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## Abbreviations

<table>
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<tr>
<th>Term</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>β-hCG</td>
<td>Beta human chorionic gonadatropin</td>
<td>STI</td>
<td>Sexually transmitted infection</td>
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<tr>
<td>CRL</td>
<td>Crown rump length</td>
<td>TAS</td>
<td>Transabdominal ultrasound scan</td>
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<tr>
<td>EPAS</td>
<td>Early pregnancy assessment service</td>
<td>TVS</td>
<td>Transvaginal ultrasound scan</td>
</tr>
<tr>
<td>EPL</td>
<td>Early pregnancy loss</td>
<td>USS</td>
<td>Ultrasound scan</td>
</tr>
<tr>
<td>IUP</td>
<td>Intrauterine pregnancy</td>
<td>&gt;</td>
<td>greater</td>
</tr>
<tr>
<td>FBC</td>
<td>Full blood count</td>
<td>≥</td>
<td>greater than or equal to</td>
</tr>
<tr>
<td>LNMP</td>
<td>Last normal menstrual period</td>
<td>≤</td>
<td>less than or equal to</td>
</tr>
<tr>
<td>MSD</td>
<td>Mean sac diameter</td>
<td>&lt;</td>
<td>less than</td>
</tr>
<tr>
<td>POC</td>
<td>Products of conception</td>
<td>TAS</td>
<td>Transabdominal ultrasound scan</td>
</tr>
<tr>
<td>PR</td>
<td>Per rectum PV</td>
<td>TVS</td>
<td>Transvaginal ultrasound scan</td>
</tr>
<tr>
<td>QTC</td>
<td>Queensland Trophoblast Centre</td>
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# Definitions

<table>
<thead>
<tr>
<th>Term</th>
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<tr>
<td>Early pregnancy loss</td>
<td>• Occurs within the first 20 completed weeks of pregnancy</td>
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<tr>
<td>Ectopic pregnancy</td>
<td>• Located outside of the uterus, usually in the fallopian tubes, but may be in the cornu, cervix, caesarean section scar, ovary or other sites</td>
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<tr>
<td>Expectant management</td>
<td>• No specific intervention. The woman awaits spontaneous passage of products of conception (POC)</td>
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<tr>
<td>Medical management</td>
<td>• Use of medications to aid expulsion of POC</td>
</tr>
<tr>
<td>Surgical management</td>
<td>• Surgical intervention to remove POC</td>
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Learning objectives

• Identify clinical assessments for women with suspected early pregnancy loss (EPL)
• Identify criteria for establishing location and viability in suspected EPL
• Recognise treatment and care options appropriate to diagnosis
• Identify psychological supports for the woman and her family
Assessment of EPL

What are usual symptoms of EPL?
• Vaginal bleeding
• Pain (abdominal, shoulder tip, diaphragmatic, back)
• Postural syncope
• Vomiting
• Passage of products of conception

Ask about:
• Menstrual history/LNMP
• Date of positive pregnancy test
• Obstetric/gynaecological history
• Any USS or quantitative β-hCG in this pregnancy

Do you need to confirm pregnancy?
Yes, all women with symptoms of EPL (regardless of reproductive age, LNMP, history of sterilisation, reported sexual inactivity or contraception) require:
• Serum β-hCG (preferred)
  ◦ If delay in reporting likely, urinary β-hCG acceptable

Other investigations?
• FBC, group and antibody screen
• Mid stream urine for microscopy, culture and sensitivity
• Sexual health screen if indicated
Haemodynamic instability

What if the woman is clinically unstable?
Urgent intervention is required. Presume ruptured ectopic, incomplete miscarriage with cervical shock or massive haemorrhage
• Resuscitate—standard procedures
• IV access (x 2 large gauge cannulas)
• Speculum examination (remove any visible products of conception (POC))
• Indwelling catheter to empty bladder
• Urgent FBC group and hold

Is surgery always indicated?
Unstable haemodynamics is a clinical indication for:
• Surgical evacuation of uterus
• Laparoscopy/laparotomy for removal of ectopic

If ectopic is excluded and bleeding continues, consider:
• Ergometrine maleate 250 micrograms IV or IM
• Misoprostol 800–1000 micrograms PR
• Critical bleeding protocol activation
Physical assessment

What do you look for?

Baseline observations
• Temperature, heart rate, respiratory rate, blood pressure

Abdominal examination
• Tenderness (rigidity/guarding)
• Distension
• Size of uterus relative to dates

PV blood loss
• Pad change frequency/volume of loss
• Check current pad

Vaginal examination (individualise)

Speculum examination
• Source and amount of bleeding
• POC in the os (remove if visualised and send for histology)

Bi-manual examination
• Cervical motion tenderness
• State of internal cervical os
• Adnexal masses (ectopic or other mass)
**β-hCG in early pregnancy**

**What is normal?**
Serum β-hCG is positive at 9 days post-conception (> 5 IU/L confirms pregnancy).

**Up to 6–7 weeks**
(for potentially viable IUP)
- Mean doubling time is 1.4–2.1 days
- Every 48 hours:
  - 85% show rise of at least 66%
  - 15% show rise between 53–66%
  - Slowest ever recorded rise is 53%

**Viable or not?**
A single β-hCG value does not differentiate between a viable and non-viable pregnancy
Serial β-hCG are required to see the direction of change
Ultrasound scan

Is TVS or TVA preferred?
TVS by an experienced sonographer is the gold standard in the first trimester and is preferable where available.

Diagnosis of complete miscarriage?
- Can only be confirmed conclusively after identification of a yolk sac
- If no prior report of an IUP, an ‘empty uterus’ is not diagnostic of a complete miscarriage
- Requires follow-up with serum $\beta$-hCG until negative +/- TVS to exclude ectopic

When is an IUP usually visible?
- Gestational sac when MSD $\geq$ 3 mm (from 4 weeks and 3 days after LNMP)
- Yolk sac by 5.5 weeks or MSD of 8–10 mm
- Fetal pole by 5–6 weeks
- Cardiac activity routinely detected by 6–6.5 weeks
- CRL at 6 weeks + 0 days = 4 mm
Pregnancy of unknown location (PUL)

It may not be possible to confirm if pregnancy is intrauterine or extrauterine at the first assessment

**Requires:**
- Specialist review
- Close follow-up
- Serial β-hCG and TVS

**May be useful:**
- Serum progesterone level
- Mathematical risk prediction models

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**Diagram:**
- PUL
  - Specialist review 2x β-hCG 48-72 hours apart
  - Serial β-hCG levels
    - rise of ≥ 66% or fall of < 50%
    - rise of < 66% or fall of < 50%
  - Likely IUP (ectopic not excluded)
    - TVS
      - If β-hCG < 2000 repeat in 1-2 weeks
      - If β-hCG ≥ 2000 repeat within 1 week
      - Or
        - When MSD estimated to be > 25 mm
  - Likely non-viable (IUP or ectopic)
  - Manage as indicated
  - Likely ectopic
  - Assess viability
  - IUP observed? Yes
  - Repeat TVS
  - No

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Queensland Clinical Guidelines: Early pregnancy loss
Diagnosis of non-viable IUP

Has the diagnostic criteria changed?
Yes. Previous criteria for excluding a viable pregnancy has been shown to be insufficiently stringent enough to avoid false positive diagnosis of non-viable IUP.

Criteria for diagnosis (TVS)
• MSD > 25 mm and no fetus present
• Fetus with CRL ≥ 7 mm visible, but no fetal heart movements after observation of 30 seconds or more
• Absence of embryo with heartbeat ≥ 2 weeks after a scan that showed a gestational sac without a yolk sac
• Absence of embryo with heartbeat ≥ 11 days after a scan that showed a gestational sac with a yolk sac
Athena, a 41 year old woman presents to emergency department with a history of abdominal pain and spotting over the last 2 days. She has a history of infertility and has never been pregnant despite multiple IVF attempts. She smokes 15 cigarettes per day.

What risk factors alert you to the possibility of ectopic pregnancy?

• Athena has known risk factors for an ectopic pregnancy (40+ years old, history of infertility, current smoker)
• Also has symptoms consistent with an early pregnancy loss (pain and bleeding)

Given the above, what else might you ask Athena?

• Date of last period?
• Has a pregnancy test been performed in the last few weeks?
• Any known problems in relation to her infertility (e.g. tubal pathology)?
• Further details about the nature of the pain and bleeding
Management of ectopic

Athena’s observations are normal. Her initial serum $\beta$-hCG is 2020 IU/L. Routine bloods are normal. TVS reveals an ectopic pregnancy of 3 cm in the right fallopian tube. No fetal heart motion is detected. No free fluid is seen in the pelvis. Athena states that although the pain is getting worse, she would like to have ‘wait and see’ treatment.

What do you discuss with Athena in relation to expectant management?

Usually only suitable if:

- Initial $\beta$-hCG < 1500 IU/L and falling
- Ectopic is small (< 3 cm in size)
- The woman has no pain

Rupture of the ectopic is a very serious complication and could be life threatening

Expectant management would not usually be recommended for Athena

What management options can be recommended to Athena?

Both medical and surgical management options can be recommended to Athena
Athena decides to have surgical management of her ectopic pregnancy. She asks you what appointments and tests she will need afterwards.

What do you advise Athena about follow-up care?

- GP follow-up approximately 2 weeks after surgery
- Further blood tests and scans not routinely required
- Urinary $\beta$-hCG about 3 weeks after the surgery to confirm level falling
- Offer Athena the Queensland Clinical Guideline information sheet about ectopic pregnancy

Tubal ectopic pregnancy
Isha presents with vaginal bleeding. She thinks she is about 5 weeks pregnant with her first baby. Her β-hCG is 5600 IU/L. An intrauterine pregnancy is not seen on initial TVS. Isha asks if she has lost the baby.

What can you tell Isha?

• Bleeding in early pregnancy doesn’t always mean a miscarriage
• Sometimes it can be difficult to see an early pregnancy on USS
• It is not certain a miscarriage has occurred just because the uterus appears empty at this stage
• A repeat serum β-hCG in 48 hours will help identify what is happening more clearly and when another TVS is best performed
Medical management for non-viable IUP

Unfortunately Isha’s repeat β-hCG and TVS reveal that the criteria for diagnosis of a non-viable IUP have been met. You tell Isha that sadly, there is no hope of the pregnancy continuing and discuss management options. Isha requests medical management.

What do you advise Isha about medical management?

• Misoprostol is the drug of choice
• Reported 80‒99% effective in achieving complete miscarriage
• Treatment can be offered as an outpatient or as a day procedure
• Surgical management can be chosen later if desired or needed

Risk and benefit

• Effective alternative to surgical evacuation in first trimester
• More effective than expectant management for missed miscarriage
• If incomplete miscarriage, no significant difference between medical and expectant management for rates of complete miscarriage or need for surgical evacuation
• Bleeding is heavier and more prolonged after medical treatment with misoprostol than with curettage
Medical management for non-viable IUP

Isha has the first dose of misoprostol in the early pregnancy assessment unit. She says she would like to go home to be with her family and asks you what she can expect.

Can Isha have misoprostol by mouth instead of vaginally?

Oral administration is an acceptable alternative to vaginal or buccal route.

When is another β-hCG required?

β-hCG is recommended on Day 1 (day of first misoprostol) and Day 8 to ensure levels are falling.

When is TVS recommended?

- Repeat TVS is not routinely required.
- Consider if symptomatic to assess for retained POC or if β-hCG has not fallen more than 90% over 7 days.
Isha asks what she can expect with regards to bleeding and side effects from the misoprostol. She also asks when she can get pregnant again. What can you advise her?

**Bleeding?**
- Expect bleeding heavier than menses
- Cramping may accompany bleeding
- If bleeding not commenced within 24 hours, contact the hospital EPAS, Emergency Department or equivalent
- If soaking more than one pad within 60 minutes, seek emergency assistance

**Side effects of misoprostol?**
- May include pain, diarrhoea and vomiting
- Offer analgesia and anti-emetics

**Conception interval?**
There is no evidence to recommend a specific conception interval after a miscarriage. Pregnancy can be attempted whenever desired
RhD negative women

Isha is RhD negative. What advice can you give Isha about RhD immunoglobulin?

Is Rh D immunoglobulin indicated for Isha?

Yes, Rh D immunoglobulin is indicated for Rh D negative women (with no preformed anti-D antibodies) following a miscarriage at any gestation

• Administer within 72 hours of pregnancy loss
• Can be administered up to 10 days after pregnancy loss but efficacy lower

Recommended dosage

• Gestation ≤ 12 weeks 250 IU IM
• Gestation > 12 weeks 625 IU IM
Gestational Trophoblastic Disease (GTD)

Classification

• Non-neoplastic lesions
  ◦ Exaggerated placental site reaction
  ◦ Benign placental site nodule

• Molar pregnancy
  ◦ Partial hydatiform mole
  ◦ Complete hydatiform mole

• Gestational trophoblastic neoplasms (GTN)
  ◦ Persistent GTD (invasive mole)
  ◦ Gestational choriocarcinoma
  ◦ Placental site trophoblastic tumour
  ◦ Atypical placental site nodule
  ◦ Epithelioid trophoblast tumour

Queensland Trophoblastic Centre (QTC) - contact

• In all cases of GTD or possible GTD diagnosis
• For any clinical concerns
• Email: QTC@health.qld.gov.au

Isha returns on Day 8 and physically seems well. Bleeding is diminishing she has no pain. However, she is crying uncontrollably and says she is having trouble sleeping. She can’t talk to her partner about things, and isn’t eating. She says she feels very low.

What do you discuss with Isha?

• Her current feelings and reaction to loss
• Her unique situation and context around her EPL including any risk factors for psychological morbidity (e.g. history of mental illness)
• Unique challenges of EPL

What support can you offer Isha?

• Express sorrow for her loss
• Provide opportunity for Isha to openly discuss her feelings
• Express genuine concern and demonstrate emotional awareness
• Counsel regarding potential to experience symptoms of grief, depression and anxiety
• Provide information about accessing additional support and community-based support organisations
• Refer to mental health services if required