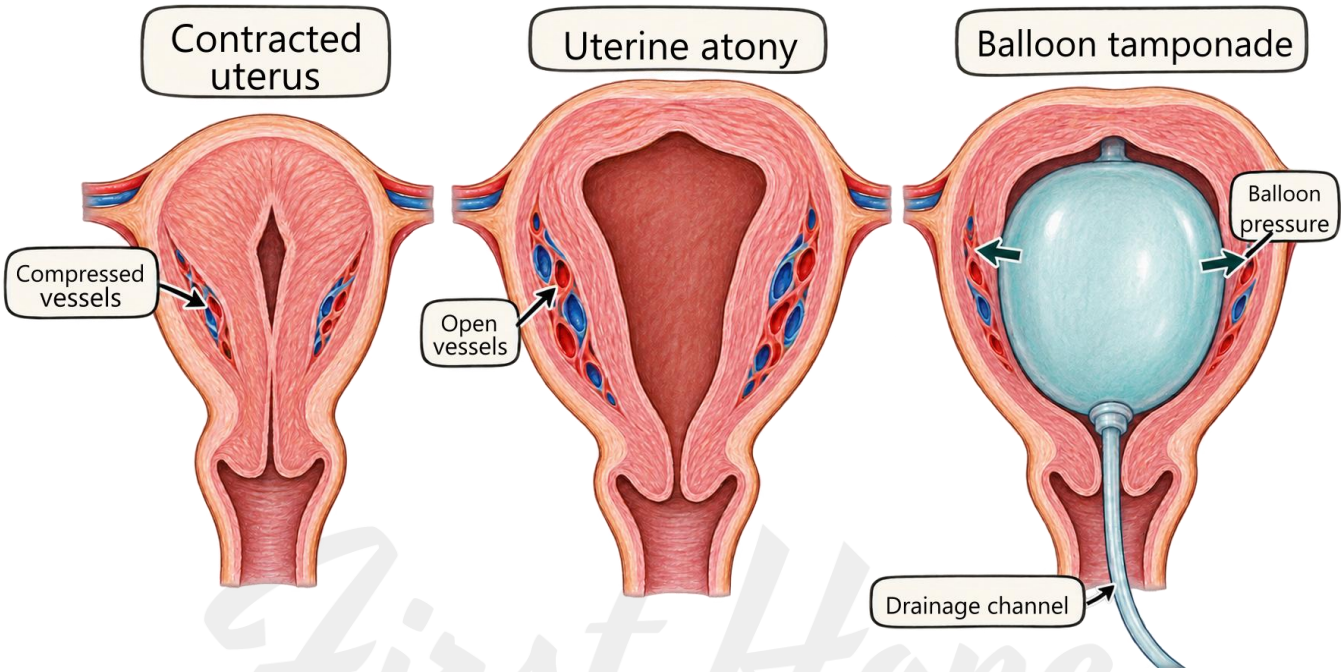
Obstetrics & Gynaecology - Topic 16 - Complications of the third stage

Postpartum Haemorrhage

- Postpartum haemorrhage means excessive bleeding after birth, and the need for treatment depends on the bleeding and the woman's condition together.



Contraction compresses uterine vessels, while a balloon can provide temporary internal pressure when selected atonic bleeding persists

Early Recognition Matters

Timing and Early Treatment

- Primary haemorrhage occurs within the first 24 hours, whereas secondary haemorrhage develops later in the postpartum period.
- Traditional volume definitions are useful for classification, but treatment must not wait for a large measured loss or obvious shock.

Measured Loss, Shock Index and Immediate Action

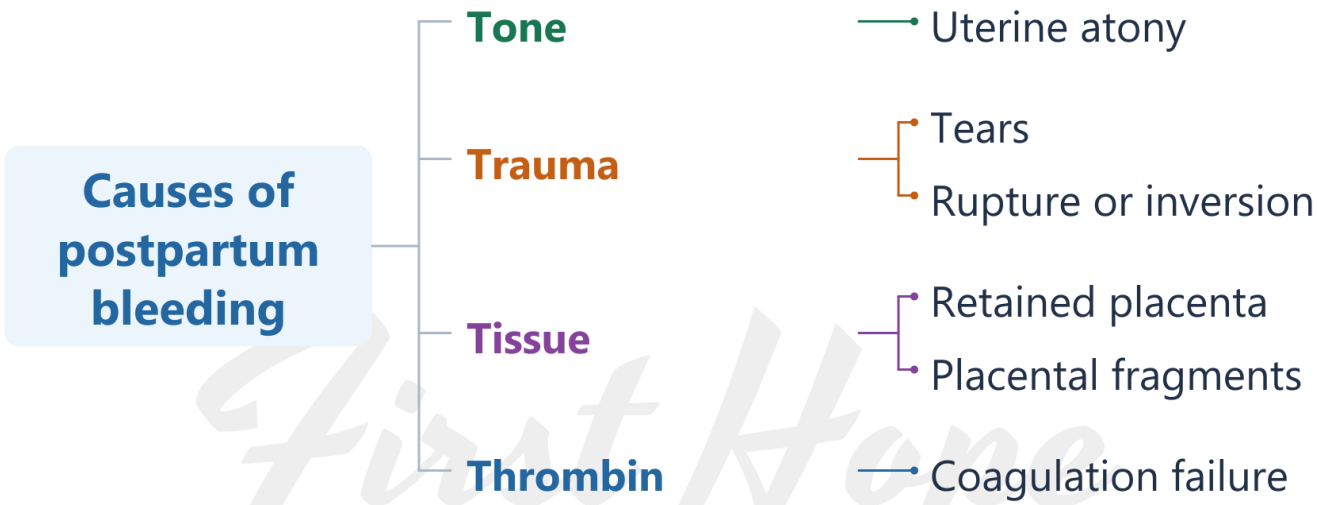
- Current WHO guidance starts the first-response treatment when measured loss reaches **500 mL**, or **300 mL with an abnormal haemodynamic sign**, whichever occurs first within 24 hours.
- The abnormal signs include a pulse above 100 per minute, systolic pressure below 100 mmHg, diastolic pressure below 60 mmHg or a shock index above 1.
- The shock index is the heart rate divided by the systolic blood pressure; a pulse of 120 with systolic pressure of 90 gives an index of about 1.33.
- Any woman with rapid bleeding, collapse or worsening perfusion needs immediate action even when the recorded volume is uncertain.

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Measure and Reassess

- Use calibrated collection and weighing methods where available, separating blood from amniotic fluid or irrigation fluid as far as practical.
- One gram of added weight on a blood-soaked swab is approximately one millilitre of blood, after subtracting the dry weight.
- Visual estimation commonly underestimates large losses, and blood may be concealed in the uterus, a haematoma or the abdomen.
- A normal early haemoglobin result does not exclude a major acute haemorrhage because equilibration has not yet occurred.

Causes: The Four Ts



1. Tone

- Uterine atony means that the uterus does not contract effectively after placental separation, leaving placental-bed vessels insufficiently compressed.
- Overdistension, prolonged or very rapid labour, infection, some medicines and previous haemorrhage increase risk, although atony can occur without an obvious risk factor.
- The uterus is often soft and enlarged, and it may fill with clot while external bleeding varies.

2. Trauma

- Cervical, vaginal and perineal tears, uterine rupture, inversion and operative injury can cause bleeding despite a well-contracted uterus.
- A concealed haematoma may cause pain and shock with little visible vaginal blood.

3. Tissue

- A retained placenta, placental fragments or abnormal placental adherence can prevent effective contraction and continue bleeding.
- Inspect the delivered placenta and membranes, and consider retained tissue when the findings or clinical course suggest it.

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4. Thrombin

- Coagulation failure may follow severe bleeding, abruption, sepsis, amniotic fluid embolism or a pre-existing bleeding disorder.
- Diffuse oozing, bleeding from puncture sites and poor clot formation raise concern for coagulopathy.

Prevention and Preparedness

Before and During Birth

Antenatal Preparation and Team Readiness

- Detect and treat antenatal anaemia, identify major bleeding risks and plan delivery where appropriate staff, blood and surgery are available.
- Prepare a standard haemorrhage kit, practise emergency drills and make responsibilities for calling help, medicines, observations and documentation clear.

Prophylactic Uterotonics and Ongoing Assessment

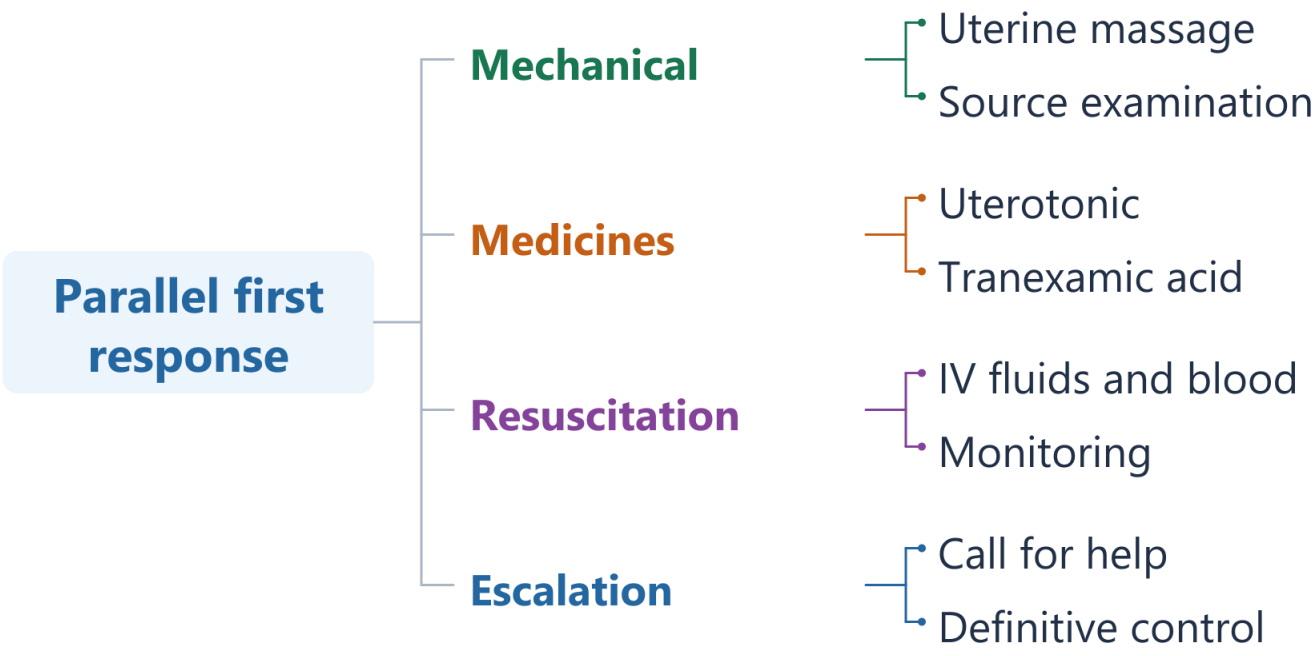
- Use an effective prophylactic uterotonic after birth and avoid unnecessary genital trauma or unsafe cord traction.
- Oxytocin is the usual first-choice prevention medicine where reliable storage and quality are assured; alternatives depend on resources and protocol.
- Current WHO guidance no longer recommends ergometrine-containing medicines for routine prevention, although selected use for **treatment** remains possible after checking contraindications.
- Check uterine tone and measured loss repeatedly after birth, with particular attention during the first two hours.

First-response Treatment

Act as a Team, Not as a Slow Sequence

- Call for help and activate the obstetric haemorrhage pathway as soon as the trigger or clinical danger is recognised.
- Uterine massage, an appropriate uterotonic, tranexamic acid, intravenous resuscitation and examination for the source should begin promptly together.
- One team member should maintain a time-stamped record of blood loss, observations, medicines, fluids and response.

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Resuscitation and Investigation

Immediate Support and Investigations

- Assess airway and breathing, provide oxygen when needed, keep the woman warm and obtain two large-bore intravenous lines.
- Send blood for a full blood count, group and crossmatch, coagulation studies and fibrinogen, with blood gas, lactate and other tests as indicated.
- Begin warmed isotonic crystalloid while blood is prepared, avoiding excessive fluid loading that can worsen dilutional coagulopathy or pulmonary oedema.

Monitoring and Early Escalation

- Monitor pulse, blood pressure, mental state, oxygen saturation, temperature and urine output, and reassess frequently after each intervention.
- Catheterise the bladder when appropriate, both to monitor perfusion and to remove distension that may interfere with uterine contraction.
- Escalate early to senior obstetric, anaesthetic, haematology, blood-bank and critical-care support according to severity.

Find and Treat the Source

Uterine Tone and Genital-Tract Trauma

- Massage a soft uterus and give uterotonics while checking for retained tissue, trauma and clotting failure.
- Examine the genital tract with adequate lighting and analgesia, and repair a bleeding tear or manage a haematoma as indicated.

Retained or Adherent Placental Tissue

- A retained placenta with bleeding needs prompt manual removal by a trained clinician under appropriate anaesthesia and antibiotic prophylaxis.

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- If abnormal placental adherence is suspected, avoid forceful separation and obtain specialist surgical help.
- A firm uterus does not mean the haemorrhage is controlled; continue to look for trauma, retained tissue and concealed bleeding.

Medicines Used for Active Bleeding

Medicine	Example treatment use	Key precaution
Oxytocin	A current WHO example starts with 10 IU diluted and given slowly intravenously, followed by a titrated maintenance infusion under protocol.	Avoid rapid intravenous injection; monitor circulation, uterine tone and fluid balance.
Methylergometrine	A commonly used treatment dose is 0.2 mg intramuscularly under the local protocol.	Avoid in hypertension, pre-eclampsia and important cardiac disease.
Carboprost	250 mcg by deep intramuscular injection; repeat only according to response/protocol, never sooner than 15 minutes, with a maximum of 8 doses or 2 mg.	Do not give intravenously; generally avoid in asthma and review other cardiopulmonary, hepatic or renal contraindications.
Misoprostol	800 mcg sublingually is an option when intravenous oxytocin is unavailable or an appropriate alternative is required.	Shivering and high fever can occur; do not add or repeat it automatically.

Tranexamic Acid

- Give tranexamic acid **1 g intravenously over about ten minutes**, as early as possible and within three hours of birth, alongside the other treatments.
- A second 1 g dose may be given if bleeding continues after 30 minutes or restarts within 24 hours of completing the first dose.
- The three-hour window is measured from birth, not from the later time when haemorrhage is recognised.
- It reduces fibrin breakdown and is useful whether bleeding arises from atony or trauma, but it does not replace control of the source.
- Avoid it when a clear contraindication to antifibrinolytic treatment exists, and use the prescribed intravenous route with careful medicine identification.

Important Drug Distinctions

- Oxytocin stimulates contraction, whereas tranexamic acid helps preserve clot; they address different parts of haemorrhage control.

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