COMPLICATIONS OF THE POSTNATAL PERIOD

POSTPARTUM HAEMORRHAGE

UTERINE INVERSION

Keywords: uterine inversion, third stage of labour, controlled cord traction, CCT, inversion of uterus, hydrostatic reduction, Johnson manoeuvre, O’Sullivan's technique, manual replacement of uterus

BACKGROUND INFORMATION

Uterine inversion is almost always caused by applying cord traction before the uterus has contracted firmly and placental separation has occurred. Teaching should emphasise the maxim that the uterus must be palpated to confirm that it is contracted before applying any traction to the cord.

It is often associated with acute lower abdominal pain and severe shock of neurogenic and haemorrhagic origin. The shock is often out of proportion to the degree of blood loss. Blood loss may not occur if the placenta remains attached.

Other associated factors are:
- Fundally located adherent placenta
- Uterine atony
- Short umbilical cord
- Primiparity
- Macrosomic fetus
- Arcuate of bicornuate uterus
- Ehlers – Danos and other syndromes associated with abnormal or ‘weak’ collagen
- Previous uterine inversion
- antepartum use of magnesium sulphate

CLASSIFICATION ACCORDING TO SEVERITY OF UTERINE INVERSION

First degree
The fundus reaches the internal os

Second degree
The fundus has passed through the cervix but not outside the vagina

Third degree
The fundus is prolapsed outside the vagina

Fourth degree
The uterus, cervix and vagina are completely turned inside out and are visible.

CLASSIFICATION ACCORDING TO TIMING OF THE EVENT

Acute
Occurs within 24 hours of birth

Subacute
Occurs after 24 hours and within 30 days

Chronic
Occurs after 30 days and is rare.

KEY POINTS

1. Early recognition is key to initiate prompt treatment and reduce associated morbidity.
2. Concurrent maternal resuscitation with manual uterine replacement is the first line of management.
3. If the placenta is still adherent following uterine inversion – **LEAVE IN PLACE** to reduce blood loss.
4. Uterine rupture should be excluded prior to performing hydrostatic reduction of the uterus.
SIGNS OF A UTERINE INVERSION

Symptoms of uterine inversion may include:

- postpartum haemorrhage\(^2\), \(^4\)
- shock\(^2\), \(^4\) – thought to be due to the parasympathetic effect caused by traction of the ligaments supporting the uterus, and hypotension with inadequate tissue perfusion\(^4\)
- severe abdominal pain\(^3\)
- physical examination can reveal first or second degree uterine inversion\(^3\)

MANAGEMENT

Note:

- Maternal resuscitation while attempting uterine replacement should be initiated simultaneously.
- If the placenta is still in situ, leave in place until uterine replacement is complete.
- Attempt manual replacement of the uterus by re-inverting it and keeping the hand in the uterus until firm contraction of the uterus is felt\(^3\)

1. **DIAL 55, CODE BLUE – MEDICAL.** Early involvement of senior obstetric and anaesthetic staff reduces mortality.
2. Ensure the head of the bed is flat. The woman may remain with her legs bent or in lithotomy.
3. Insert two 16 gauge intravenous cannulae. Group and cross-match 4 units of blood and order a full blood picture.\(^5\) Consider performing coagulation studies.\(^6\)
4. Commence intravenous fluids:
   - See Clinical Guidelines, Restricted Area Guidelines (*Intranet only*), [Primary Postpartum Haemorrhage](https://example.com).
   - If the woman has blood loss more than 1000mL, continues to bleed, or show signs of clinical shock\(^7\), in consultation with the anaesthetist the volume and rate of fluids is adjusted according to the clinical situation. Warming of the solution may be required.
5. If not already administered, withhold the oxytocic until uterine replacement is complete.\(^2\)
6. Commence monitoring immediately - blood pressure, pulse, respirations, and oxygen saturation levels 15 minutely (more frequently if maternal conditions necessitates). Monitor vital signs continuously as soon as practical with access to continuous monitoring equipment.
8. If the uterus is successfully replaced commence an oxytocic infusion (30iu Syntocinon® in 500mL Hartmann’s solution commencing at 240mL / hour) as per PPH therapeutic infusion regimen. See [Clinical Guidelines, O&M, Complications of the Postnatal Period: Oxytocin: Prophylactic & Therapeutic Administration / Infusion Regimens](https://example.com).
9. If the replacement of the uterus is not possible, resuscitate the woman and transfer her to theatre immediately.
10. **IN THEATRE**
    10.1 Stabilise the woman and obtain effective anaesthesia.
    10.2 Relax the uterus with either:
        - Glyceryl trinitrate spray 400micrograms – sublingual OR
        - Terbutaline 250micrograms – subcutaneous OR
        - Intravenous salbutamol up to 250 micrograms
    10.3 Replace the uterus
11. Commence oxytocin therapy following uterine replacement. See [Clinical Guideline, O&M, Postnatal Complications: Oxytocin: Prophylactic & Therapeutic Administration / Infusion Regimens](https://example.com)
MANUAL REPLACEMENT (JOHNSON MANOEUVRE)

The uterus may require relaxation prior to manual replacement.

1. Using the palm of the hand push the fundus of the uterus along the direction of the vagina towards the posterior fornix.⁴
2. Then lift the uterus towards the umbilicus and return to its normal position.⁵
3. Maintain the hand in situ until a firm contraction is palpated.

Oxytocin therapy should be administered to initiate and maintain contraction of the uterus.

HYDROSTATIC REDUCTION (O’SULLIVAN’S TECHNIQUE)⁶

Hydrostatic reduction is a method of reinverting the uterus by infusing warm saline into the vagina.

Note: uterine rupture should be exclude prior to this performing the procedure.⁵

The women may be placed in the reverse Trendelenburg position⁷ to assist gravity and reduce traction on the infundibulo-pelvic ligaments, round ligaments and the ovaries.⁸

Method one

1. Attach a 2 x 1 litre bags of warmed saline to a Y-Cystoscopy giving set. Additional fluids may be required.
2. Insert the hand into the vagina with the open end of the tubing near the posterior fornix. Obtain a seal at the vaginal entrance by enclosing the labia around the wrist/hand to prevent fluid leakage.⁸
3. Infuse warmed fluid under gravity. Several litres of fluid may be required.

Method two

1. Attach a 2 x 1 litre bags of warmed saline to a Y-Cystoscopy giving set.
2. Gently push the inverted uterus into the vagina.⁷
3. Insert a 6cm (or appropriate sized) silastic ventouse cup into the lower vagina. Avoid pushing the cup deep into the vagina. Attach tubing to a container with warmed saline tubing or the giving set, and then place it 1 metre above the patient.⁷,⁶,⁹
4. If leaking occurs at the introitus gently withdraw the cup until it fits against the inner aspect of the introitus.

Following the procedure the uterus should be digitally explored. The hand should be kept in the uterus until the oxytocic therapy produces a contracted uterus.⁶,⁷,⁹

SURGICAL MANAGEMENT

Laparotomy with open reduction of the uterine inversion may be necessary if the previous methods are unsuccessful.
REFERENCES / STANDARDS

National Standards – 1 Clinical Practice is Guided by Current Best Practice.
9 Recognising and Responding to Clinical Deterioration
Legislation - Nil

Related Guidelines / Policies – KEMH Clinical Guidelines, Obstetrics & Midwifery:
  Restricted Area Guidelines (Intranet only), Primary Postpartum Haemorrhage
  Postnatal Complications: Oxytocin: Prophylactic & Therapeutic Administration / Infusion Regimens
Other related documents – Nil

RESPONSIBILITY
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Access the current version from the WNHS website.