9.1.2 UTERINE INVERSION

BACKGROUND INFORMATION

The incidence of uterine inversion varies according to geographical location and ranges from 1:2500\(^1\) to 1:20000\(^2,3\).

CLASSIFICATION ACCORDING TO SEVERITY OF UTERINE INVERSION\(^3\)

<table>
<thead>
<tr>
<th>Degree</th>
<th>Description</th>
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<tbody>
<tr>
<td>First</td>
<td>The fundus reaches the internal os</td>
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<tr>
<td>Second</td>
<td>The body or corpus of the uterus is inverted to the internal os</td>
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<tr>
<td>Third</td>
<td>The uterus, cervix and vagina are inverted and are visible</td>
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CLASSIFICATION ACCORDING TO TIMING OF THE EVENT\(^2,3\)

- **Acute**: Occurs within 24 hours of birth
- **Subacute**: Occurs after 24 hours, within 4 weeks
- **Chronic**: Occurs after 4 weeks, rare.

KEY POINTS

1. Concurrent maternal resuscitation with manual uterine replacement is the first line of management.
2. If the placenta is still adherent following uterine inversion – **LEAVE IN PLACE** to reduce blood loss.\(^4\)
3. Uterine rupture should be excluded prior to performing hydrostatic reduction of the uterus.

CAUSES AND RISK FACTORS

These include:

- mismanagement of the third stage – e.g. premature or excessive cord traction during active management of the third stage\(^2,3,5\), a combination of fundal pressure and cord traction to deliver the placenta, or use of fundal pressure when the uterus is atonic during placental delivery\(^3\)
- abnormally adherent placenta\(^2,3,5\)
- spontaneous inversion of unknown etiology\(^3\)
- short umbilical cord\(^3,5\)
- sudden emptying of a distended uterus\(^3\)
- nulliparity\(^2,5\)
• fundal placement of the placenta\textsuperscript{2, 3}
• antepartum use of magnesium sulphate\textsuperscript{4}

**SIGNS OF A UTERINE INVERSION**

Symptoms of uterine inversion may include:
• postpartum haemorrhage\textsuperscript{2, 4}
• shock\textsuperscript{1, 4} – thought to be due to the parasympathetic effect caused by traction of the ligaments supporting the uterus, and hypotension with inadequate tissue perfusion\textsuperscript{6}
• severe abdominal pain\textsuperscript{3}
• physical examination can reveal first or second degree uterine inversion\textsuperscript{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\textsuperscript{3}
• If uterine replacement is unsuccessful or no medical attention is immediately available:
  1. **DIAL 55, CODE BLUE – MEDICAL**
  2. Insert two 16 gauge intravenous cannulae. Group and cross-match 4 units of blood and order a full blood picture.\textsuperscript{6} Consider performing coagulation studies.\textsuperscript{6, 7}
  3. Commence intravenous fluids:
     - See Clinical Guidelines Section B 9.1.1 Primary Postpartum Haemorrhage.
     - If the woman has blood loss more than 1000mls, continues to bleed, or show signs of clinical shock\textsuperscript{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.
  4. If not already administered, withhold the oxytocin until uterine replacement is complete.\textsuperscript{2}
  5. Assess vital signs - 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.
  6. Administer oxygen via a face mask.
  8. If the uterus is successfully replaced commence an oxytocic infusion (30iu Syntocinon\textsuperscript{®} in 500mL Hartmann’s solution commencing at 240mL / hour) as per PPH therapeutic infusion regimen. See Clinical Guidelines Section B 9.1.3 Prophylactic and therapeutic oxytocin administration and infusion regimens.
  9. If the replacement of the uterus is not possible, resuscitate the woman and transfer her to theatre immediately.
  10. **IN THEATRE**
      11.1 Stabilise the woman and obtain effective anaesthesia.
      11.2 Relax the uterus with either:
          • Glycereryl trinitrate 600micrograms – sublingual
          OR
          • Terbutaline 250micrograms – subcutaneous
      11.3 Replace the uterus
11.4 Administer prophylactic antibiotics:
- Cefazolin 2 gm intravenous – one dose only
  AND
- Metronidazole 500 milligrams intravenous – one dose only

12. Commence oxytocin therapy following uterine replacement. See Clinical Guideline Section B 9.1.3 Prophylactic and therapeutic oxytocin administration and infusion regimens.

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.3
2. Then lift the uterus towards the umbilicus and return to its normal position.3
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 excluded prior to this performing the procedure.6

The women may be placed in the reverse Tredelenburg position8 to assist gravity and reduce traction on the infundibulo-pelvic ligaments, round ligaments and the ovaries.9

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.9
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.8
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.6, 9, 10
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, 8, 10

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