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UTERINE INVERSION

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AUTHORSHIP, RESPONSIBILITY AND REVIEW

Author	Dawn Apsee	Ratification Date	October 2023
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Disclaimer

When using this document please ensure that the version is the most up to date by checking the Obstetrics & Gynaecology Guidelines on WISDOM

PRINTED DOCUMENTS MUST NOT BE RELIED ON

Guidelines Definition

Clinical guidelines are systemically developed statements that assist clinicians and patients in making decisions about appropriate treatments for specific conditions.

They allow deviation from a prescribed pathway according to the individual circumstances and where reasons can be clearly demonstrated and documented.

Minor Amendments

If a minor change is required to the document, which does not require a full review please identify the change below and update the version number.

Type of change	Why change made	Page number	Date of change	Version 1 to 1.1	Name of responsible person
New Guideline for CTMUHB	Amalgamation of POW into CTUHB to form a CTMUHB Document	All	07.12.2019	1	Intrapartum Guideline Committee
3 year Update	Insert Prompt algorithm and guideline in line with same.		Oct 2023	2	Dawn Apsee

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1. Introduction

1.1 Definition

Uterine inversion occurs when the uterine fundus collapses into the endometrial cavity, turning the uterus partially or completely inside out. It is a rare but life-threatening complication of vaginal or caesarean delivery which requires prompt intervention.

Partial or complete inversion complicates 1:2000 births, and can occur with both vaginal and caesarean deliveries. The placenta may still be attached. It can be spontaneous or iatrogenic.

1.2 Classification

Uterine inversions are classified by the extent of inversion and time of occurrence:

Extent of inversion:

- 1st degree (incomplete) – The fundus is within the endometrial cavity
- 2nd degree (complete) – The fundus protrudes through the cervical os
- 3rd degree (prolapsed) – The fundus protrudes to or beyond the introitus
- 4th degree (total) – Both the uterus and vagina are inverted

In practice it is simply referred to as complete or incomplete depending on whether the fundus has passed through the cervix.

Time of occurrence:

- Acute – Within 24 hours of delivery
- Subacute – More than 24 hours but less than four weeks postpartum
- Chronic – ≥ 1 month postpartum

2. Rationale

The large majority of uterine inversions occur within 24 hours of birth. Uterine inversion can be associated with massive haemorrhage and shock. These can rapidly be fatal and the condition requires immediate action. Management is aimed at maintaining maternal circulation and replacing the uterus as quickly as possible. Inversion is associated with macrosomia, a fundal placenta and uterine atony.

2.1 Risk Factors for Spontaneous Inversion

- Adherent fundal placenta
- Uterine atony
- Short umbilical cord
- multiparity
- Macrosomia
- Arcuate or bicornuate uterus
- Previous uterine inversion
- Vaginal birth after caesarean (VBAC)
- Precipitate labour
- Ehlers Danlos syndrome and other connective tissue disorders
- Retained placenta, and placenta accreta

2.2 Risk factors for Iatrogenic Inversion

- Excessive traction on the cord, especially if the uterus is atonic
- Fundal pressure when the uterus is relaxed.

2.3 Prevention

- Awareness of risk factors
- Appropriate management of third stage
- Cord traction should not be applied until the signs of placental separation are apparent.

2.4 Recognition

Early recognition is vital to enable prompt treatment.

Symptoms and signs include:

- Haemorrhage.
- Severe low abdominal pain.
- Shock (out of proportion to blood loss).
- Placenta may or may not be in situ.
- Uterine fundus not palpable per abdomen.
- Vaginal examination reveals a mass in the vagina.
- On abdominal examination, a cup-like defect (fundal notch) may be palpated in the area of the normally globular fundus in incomplete uterine inversion
- Urinary retention

3. Management

Treatment of uterine inversion and resuscitation should take place simultaneously. See Appendix A for Acute Management of Uterine Inversion Guide.

3.1 Management Process

I. Call for Help

Pull the emergency buzzer and dial 2222 stating clearly and concisely declaring the emergency. (Experienced Midwife; Senior Doctor, SHO & Consultant Obstetrician, Obstetric Anaesthetist & ODP). Be ready to transfer to theatre.

II. Resuscitation

AIRWAY: Secure and maintain airway

BREATHING: 10 litres oxygen therapy via non-rebreather mask

CIRCULATION:

- IV Access: wide bore cannula x 2 (ideally 16G, grey) Take blood: X Match – 4-6 units, FBC and Clotting Screen.
- Commence infusion of Hartmann's.

MONITOR:

- Continuous pulse, Oxygen saturations, respiratory rate and blood pressure recording (using oximeter and automated BP recording).
- All observations should be recorded on MEOWS Chart
- Observe woman for signs of shock

III. Discontinue uterotonic drugs since uterine relaxation is needed for replacement of the uterine fundus.

IV. Treatment

- The uterus should be replaced as soon as possible
- If placenta adherent, **LEAVE IN SITU**. Attempts to deliver the placenta may cause MASSIVE HAEMORRHAGE and/or shock.
- If the woman is bleeding heavily, is haemodynamically unstable or already has effective analgesia, **attempt to manually replace the inverted uterus** to its normal position. This is best accomplished by placing a hand inside the vagina and pushing the fundus along the long axis of the vagina toward the umbilicus (Johnson's Maneuvers).
- If the woman is stable and does not have adequate analgesia, prompt transfer to theatre for analgesia should be considered prior to replacement.

- Prompt intervention is critical since the lower uterine segment and cervix will contract over time and create a constriction ring, thus making manual replacement progressively more difficult.
- If a constriction ring is palpable, pressure should be applied to the part of the fundus nearest the ring to ease it through from bottom to top. This avoids attempting to push a wider diameter of the fundal mass through the ring, which is likely to fail.
- Attempts at manual replacement may be accompanied by severe bleeding.
- If the patient is haemodynamically unstable after an initial attempt at replacement, it is reasonable to proceed directly to laparotomy.
- In haemodynamically stable patients, **give uterine relaxants** when immediate uterine replacement is unsuccessful. Manual replacement is then reattempted.

Uterine relaxants

Caution should be taken with uterine relaxants as they will exacerbate atonic postpartum haemorrhage once uterus is replaced. As soon as the uterus is restored to its normal configuration, agents used to provide relaxation should be stopped.

- **Glyceryl trinitrate** 50 micrograms administered intravenously, followed by up to four additional doses of 50 micrograms, as needed to achieve adequate uterine relaxation for replacement.
- **Terbutaline** (0.25 milligrams subcutaneously) or magnesium sulfate (4 to 6 grams intravenously over 15 to 20 minutes) are other options for uterine relaxation. Terbutaline has a rapid onset of action and a short half-life and Magnesium sulfate has a slow onset of action.

'For further drug information, such as cautions, contraindications and side-effects, please consult BNF (<https://bnf.nice.org.uk>) or eMC (<https://www.medicines.org.uk/emc>).'

3.2 Hydrostatic Reduction (O'Sullivan technique):

- **Uterine rupture must be excluded.**
- Warm sodium chloride solution preferably should be used.
- Using the largest giving set available, sterile fluid is rapidly run into the vagina whilst the introitus is manually sealed.
- Two or three litres of fluid may be required.
- Another technique involves connecting the giving set to a silastic ventouse cup in order to obtain a better seal.

3.3 Secondary (surgical) interventions

If the above measures to replace the uterus fail, then the patient should be taken promptly to the operating room to attempt surgical correction of the inversion under spinal or general anaesthetic.

At laparotomy, in place of the uterus, a constriction ring containing a dimple or cup or slit is often observed, and the adnexa (fallopian tubes, round ligaments, and possibly one or both ovaries) are typically pulled into this hole.

Huntington's procedure:

- The cup formed by the inversion is located
- A clamp, such as an Allis or Babcock clamp, is placed on each round ligament entering the cup, approximately 2 cm deep in the cup
- The myometrium can be clamped if the round ligaments cannot be identified. Gently pulling on the clamps exerts upward traction on

the inverted fundus. Clamping in 2 cm increments followed by traction is repeated until the inversion is corrected.

- If available, a second operator can place a hand in the vagina and apply upward pressure on the fundus to facilitate the procedure.

Haultain's procedure:

- Incision (approximately 1.5 inches in length) in the posterior surface of the uterus to transect the constriction ring and thus increase the size of the previously constricted area.
- Surgical release of the constriction ring should allow manual reduction of the uterine inversion.
- Manual reduction can be performed through the vagina or by placing a finger abdominally through the myometrial incision to below the fundus and then exerting pressure on the fundus to reduce the inversion.
- The incision is repaired when the uterus has been returned to a normal position.

Type of anaesthesia given to patient should be decided by the anaesthetist based on the patient's general condition, degree of shock and the procedure contemplated.

3.4 Procedures to avoid

Vaginal surgical approaches are no longer performed.

4. Post procedure

- Careful exploration of uterus and remove any remaining bits of placenta. Ensure there is no uterine/cervical trauma. Treat haemorrhagic shock and watch out for Post-Partum Haemorrhage (PPH).

- Commence oxytocin infusion after successful removal of the placenta to induce myometrial contraction and maintain uterine involution. Atonic postpartum haemorrhage is common after correction of uterine inversion, an oxytocin 40 units in 500ml sodium chloride infusion over 4 hours will reduce the risk of haemorrhage and impede reinversion.
- For PPH administer tranexamic acid (TXA) alongside uterotonics in line with OBS Cymru 4 stage paperwork

Antibiotic prophylaxis:

Please refer to CTM UHB anti-microbial guideline

[Uterine inversion \(microguide.global\)](#)

If patient known or suspected to have resistant organisms e.g, MRSA, discuss prophylaxis regimen with Consultant Microbiologist

Prophylactic antibiotics should be given within 60 minutes before the skin is incised and as close to the time of incision as practically possible.

- Ensure adequate documentation.
- Debrief the woman and her birthing partner.

5. Postnatal Care

Following replacement of the uterus, the woman will require nursing in the high care area for at least 24 hours with postpartum management similar to that after massive PPH.

6. Documentation

All cases of uterine inversion should be reported via Datix

7. Debriefing

An opportunity should be given for the woman and family to see a senior obstetrician prior to discharge home. If uterus is still in situ advice regarding future mode of delivery should be given and documented.

The woman and her partner should be given an opportunity to have a further consultation after discharge from hospital.

8. References

RCOG (2016), Green Top no 52, Prevention and Management of Postpartum Haemorrhage

Bhalla R, Wuntakal R, Odejinini F, Khan RU: The Obstetrician & Gynaecologist: Acute inversion of uterus 2009; 11:13–18

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Appendix A - Management of Acute Uterine Inversion

