Uterine Inversion

Classification :	Guideline		
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Authors Division:	Women's and Children's Health		
Departments/Group this Document applies to:	Obstetricians, midwives, nurses and MCAs		
Approval Group: Guideline Review Group, Women's Health CIG		**Date of Approval:**	23/12/2020
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		Review Date:	23/12/2023
Unique Identifier: MIDW/GL/28	**Status:** Approved	**Version No:** 6	
Guideline to be followed by (target staff): Guidance within this document applies to all staff and students working within MKUH Maternity Services.			
To be read in conjunction with the following documents:			
Are there any eCARE implications? No			

CQC Fundamental standards:
Regulation 9 – person centred care
Regulation 10 – dignity and respect
Regulation 11 – Need for consent
Regulation 12 – Safe care and treatment
Regulation 13 – Safeguarding service users from abuse and improper treatment
Regulation 14 – Meeting nutritional and hydration needs
Regulation 15 – Premises and equipment
Regulation 16 – Receiving and acting on complaints
Regulation 17 – Good governance
Regulation 18 – Staffing
Regulation 19 – Fit and proper

Disclaimer

Since every patient's history is different, and even the most exhaustive sources of information cannot cover every possible eventuality, you should be aware that all information is provided in this document on the basis that the healthcare professionals responsible for patient care will retain full and sole responsibility for decisions relating to patient care; the document is intended to supplement, not substitute for, the expertise and judgment of physicians, pharmacists or other healthcare professionals and should not be taken as an indication of suitability of a particular treatment for a particular individual.

The ultimate responsibility for the use of the guideline, dosage of drugs and correct following of instructions as well as the interpretation of the published material **lies solely with you** as the medical practitioner.

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Guideline Statement

Acute uterine inversion is a rare and unpredictable obstetric emergency. This document aims to provide guidance to maternity caregivers, to help them identify and manage this condition in a safe and timely manner.

Executive Summary

- Acute uterine inversion is a rare and unpredictable obstetric emergency.
- Mortality and morbidity are reduced by early recognition and optimal management.
- The degree of shock may be out of proportion to the estimated blood loss and a bradycardia due to increased vagal tone.
- Shock and uterine replacement should be addressed simultaneously.
- If the placenta remains attached, do not attempt to remove it until the uterus is replaced, as doing so can exacerbate heavy bleeding.
- Multi-disciplinary team work is essential.
- The infrequency of clinical cases necessitates regular simulation training, to ensure clinical preparedness; this applies both to hospital- and community- based teams.

1.0 Roles and Responsibilities:

The entire maternity care team share the responsibility to:

- Be aware of uterine inversion as a potential cause of maternal morbidity and mortality
- Take steps during labour to reduce the risks of uterine inversion
- Maintain an appropriate index of suspicion for diagnosis, to promote early recognition and management
- Escalate any concerns to an appropriately experienced member of the team in a timely manner
- Work together to facilitate quick, safe, and effective management of any woman with an inverted uterus

2.0 Implementation and dissemination of document

This guideline has been reviewed and approved by the Guideline Review Group. It is available on the MKUH intranet.

3.0 Processes and procedures

3.1 Incidence

Incidence has varied over time, geography, delivery site, and labour management (vaginal delivery cf. caesarean section; physiological or active management of the third stage). A case series from Canada over the last two decades of the 20th century suggested an overall rate of **1 in 3127** deliveries (Basket 2002), and this probably provides a reasonable estimate for MKUH.

3.2 Aetiology

A number of associations have been cited for uterine inversion. Every effort should be made to recognise these, and the additional risks they may confer on each woman in labour:

Mismanagement of the third stage of labour (traction on the umbilical cord prior to separation of the placenta); often secondary to an inexperienced birth attendant
Uterine atony
Fundal attachment of the placenta with short umbilical cord
Morbidly adherent placenta (eg. placenta accreta)
Uterine abnormality
Manual removal of the placenta
Precipitate labour and birth
Prolonged labour
Multiparity
Connective tissue disorders – eg. Marfan syndrome, Ehlers-Danlos syndrome
Previous uterine inversion

In many cases no risk factors are recognised. Uterine inversion can therefore be unpredictable. Practitioners involved in any incidences must not receive blame, as occurrence does not imply mismanagement.

3.3 Prevention

- Aware of risk factors (3.2)
- Do not employ any method to expel the placenta out when the uterus is relaxed
- Pulling the cord simultaneously with fundal pressure should be avoided.
- Active management of third stage of labour may reduce incidence

3.4 Classification

First (incomplete)	The inverted uterine fundus extends to, but not beyond, the cervical ring
Second (incomplete)	The inverted uterine fundus extends through the cervical ring, but remains within the vagina
Third (complete)	The inverted uterine fundus extends through the cervical ring, and down to the introitus
Fourth (total)	The vagina is also inverted

3.5 Signs and Symptoms

Signs	**Symptoms**
Shock (Hypovolemic or neurogenic)	Severe abdominal pain and/or back pain
Uterus feels dimpled or not in its proper position	Sudden cardiovascular collapse
Lump in the vagina or uterine protrusion at the introitus	Post-partum haemorrhage (94%)

Shock can be disproportionate to blood loss.

3.6 Differential Diagnosis

Utero-vaginal prolapse
Fibroid polyp
Post-partum collapse
Severe uterine atony
Neurogenic collapse
Coagulopathy
Retained placenta, without uterine inversion

3.7 Management

Patient **resuscitation and repositioning** of the uterus have to be undertaken **simultaneously** – good teamwork is essential.

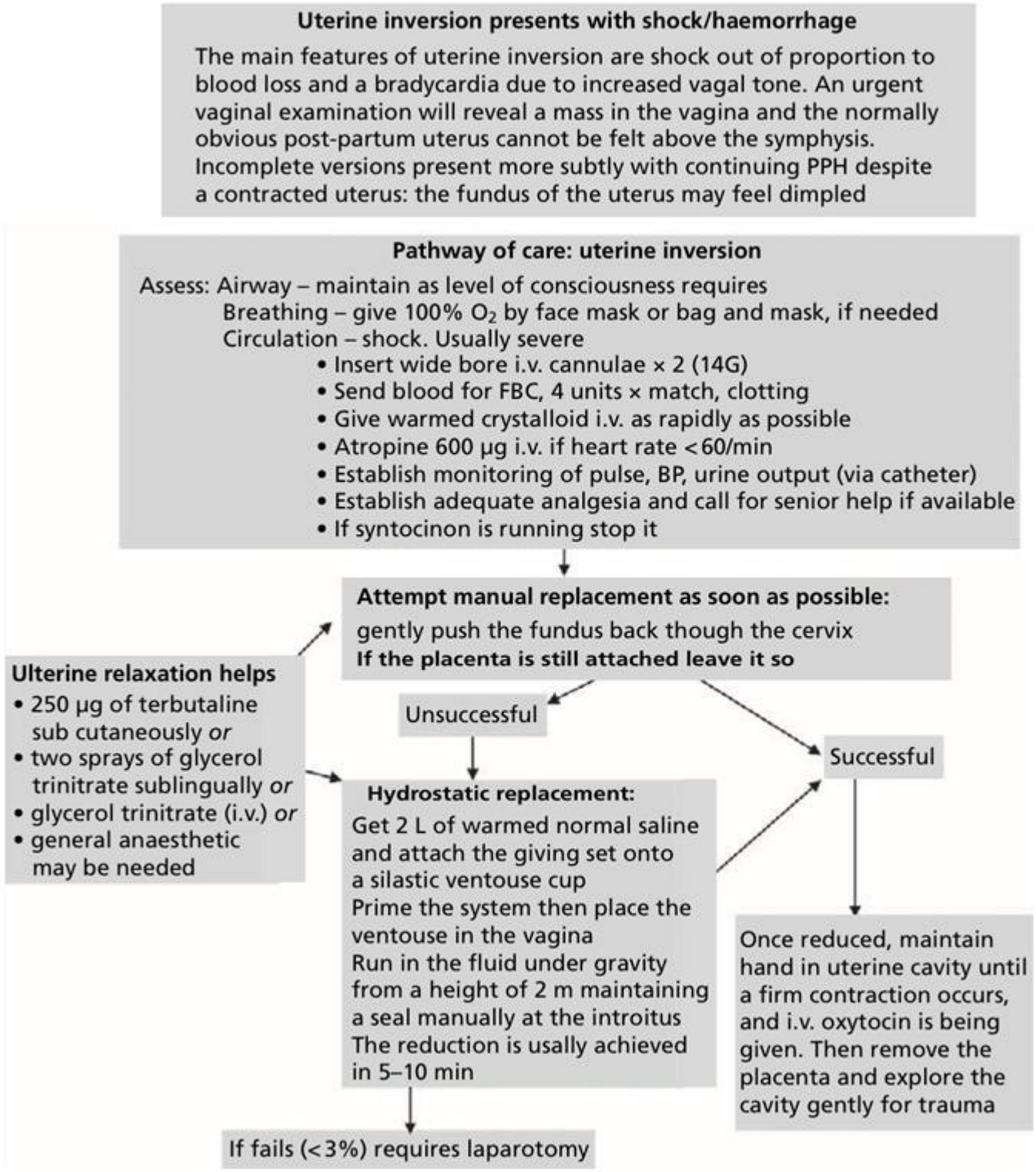
1. This is an obstetric emergency. Call for help using the emergency buzzer. The obstetric registrar and anaesthetist should be fast-bleeped (2222) if not already present. Phase 1 theatres should be requested to prepare for a possible emergency case.
2. **Airway** – maintain **Breathing** – give 100% oxygen by face mase (if needed) **Circulation**- IV wide bore cannula (2 grey cannulas), FBC and 4 units cross matched, clotting, IV warm crystalloid
3. Try to replace the uterus immediately – see section 3.6 below for possible techniques.
4. **Do <u>not</u> remove the placenta if it is still attached, as this can precipitate heavy bleeding**.
5. If not already administered, **withhold oxytocic drugs** until the uterus is replaced as this can make uterine replacement more difficult.
6. Commence monitoring of blood pressure, pulse, respiratory rate, oxygen saturation, and temperature.
7. Prepare for theatre (use Cat 1 EMCS protocol), if manual replacement has failed

3.8 Uterine Replacement Techniques

Manual Replacement	*'Johnson manouevre'* i) Using the palm of the hand, push the fundus of the uterus along the direction of the vagina, towards the posterior fornix ii) Lift the uterus towards the umbilicus and return it to its normal position (can also be done with a clenched fist) iii) Keep the hand in situ until good uterine tone is achieved
Hydrostatic Replacement	*'O'Sullivan technique'* i) Examine the uterus to exclude uterine rupture ii) If possible, place patient in the Trendelenburg (head down) position iii) Attach a litre of warmed saline to a giving set (additional bags may be required). Instillation of 4-5L of saline may be sufficient to balloon the vagina and reverse the inversion. iv) Place the fluid as high as possible and/or use a pressure bag, in order to build hydrostatic pressure. v) After reducing the uterine prolapse into the vagina, insert the free end of the giving set into the posterior vagina, and close the labia as tight as possible, in order to prevent fluid leakage vi) Providing sufficient fluid is instilled, the resulting pressure should reposition the uterus (can take 5-10mins) vii) The uterus should be digitally examined after hydrostatic repositioning – to confirm complete resolution, and hold in place until good uterine tone is achieved * Some descriptions of the technique include use of a silastic cup, to obtain a better seal at the introitus while delivering the water. This is a reasonable approach providing the giving set can be attached efficiently.
Tocolytic Agents There is a role for tocolysis in relaxing a constriction ring, to enable uterine reversion via these methods. However, this can precipitate the risks of PPH, so should be used cautiously. **Terbutaline 0.25mg subcutaneous** has a rapid onset of action, a short half-life, and is readily available on the Labour Ward, hence is the drug of choice In practice, rather than pursuing the use of tocolytic on a conscious woman, it will be necessary to transfer the women to an operating theatre for general anaesthesia relatively early. The advantage of GA is that in addition to pain relief, it promotes uterine relaxation	

Surgical Management	The need for surgery (laparotomy) is rare; a consultant obstetrician should be present. *'Huntingdon's Operation'* i) Under GA, open the peritoneal cavity and expose the inversion site – a crater will be evident in the region of the cervix (with indrawn tubes and round ligaments) ii) Introduce two Allis forceps to the crater and use them on each side to provide gentle upward traction – pulling the uterus out of the constriction ring and restoring it to its normal position *'Haultain's Operation'* i) Steps as per Huntingdon's Operation, with the addition of a posterior longitudinal incision of the cervical ring, to help facilitate uterine reversion; subsequently closed with interrupted sutures.
As soon as the uterus is restored to its normal configuration, the agent used to provide relaxation is stopped, and simultaneously oxytocin is started to contract the uterus while the operator maintains the fundus in normal relationship. After the uterus is well contracted, the operator continues to monitor the uterus transvaginally for any evidence of subsequent inversion.	

3.9 Management Algorithm



If there is need for use of atropine, to discuss with Anaesthetist.

3.10 Management Post Uterine Replacement

The patient requires careful monitoring, so should be managed either on Labour Ward, or the Department of Critical Care.

1. Administer uterotonics, to maintain uterine contraction (required to prevent re-inversion and to reduce the risk of bleeding) Consider (based on clinical picture and contra-indications): ○ Syntocinon 10 units IM ○ Syntocinon 40 units infusion over 4hrs ○ Ergometrine 0.5mg IM ○ Carboprost 0.25mg IM ○ Misoprostol 0.8mg PO or 0.8-1mg PR
2. Check the cervix and vagina for lacerations, and repair these as appropriate
3. Insert a urinary catheter
4. Continue to monitor blood pressure, pulse, respiratory rate, oxygen saturation, temperature, and hourly fluid input/output
5. Administer 24hrs of IV antibiotics – Coamoxiclav 1.2grams + Metronidazole 500mg (or equivalent)
6. Undertake daily blood tests (FBC, U&E, Clotting). More frequent if patient clinically unstable.
7. Transfuse red blood cells, platelets, and/or other blood products as appropriate to correct anaemia and coagulation defects (as per Major Obstetric Haemorrhage protocol)
8. Debrief the women and offer birth after- thoughts
9. Ensure good documentation

4.0 Training

Training will be provided through PROMPT and skill drills.

With a greater frequency of physiological third stage management among non-hospital births, and inherently less recourse to acute support, it is essential that community-based staff and students receive training, and that advice provided in this is tailored to their typical work-setting.

5.0 Associated Documents

None.

6.0 Statement of evidence/references

Statement of evidence:

References:

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Ogueh, O & Ayida, G (1997) Acute uterine inversion: a new technique of hydrostatic replacement. BJOG: An International Journal of Obstetrics and Gynaecology. 104: 951-952. Doi:10.1111/j.1471-0528. 1997 tb 14358

Williams Obstetrics (2005) Williams Obstetrics 22nd edition,

7.0 Governance

7.1 Document review history

Version number	Review date	Reviewed by	Changes made
5	01/2018	John Heathcote	Review and updated
6	09/2020	Kyin Yu Maw	Review and updated

7.2 Consultation History

Stakeholders Name/Board	Area of Expertise	Date Sent	Date Received	Comments	Endorsed Yes/No
Julie Cooper	Head of Midwifery	15.1.18	22.1.18	Comments received and sent to author	Yes
Carolyn Rooth	Consultant Midwife	15.1.18	22.1.18	Comments received and sent to author	Yes
Kirsty Felce	Audit and Risk Midwife	22.1.18	29.1.18	No	Yes
Mary Plummer	Matron, Maternity Inpatients	22.1.18	29.1.18	No	Yes
Lydia Stratton-Fry	Labour Ward Manager	22.1.18	29.1.18	No	Yes
Nidhi Shandil-Singh	Consultant, Obs and Gynae	22.1.18	29.1.18	No	Yes
Nandini Gupta	Consultant	22.1.18	29.1.18	No	Yes
Bernadetta Sawarzynska-ryszka	Associate Specialist, Anasthetics	22.1.18	29.1.18	No	Yes
Miss Swati Velankar	Consultant obstetrician	12/2020	12/2020	Change the flow chart into more detailed version	Yes
Maternity guideline group	Women and children	11/2020		Yes	Yes
Maternity CIG	Women and children	12/2020		No	

7.3 Audit and monitoring

Audit/Monitoring Criteria	Tool	Audit Lead	Frequency of Audit	Responsible Committee/Board
Due to the rare nature of this obstetric complication cases will be reviewed on an individual basis.	a) Received Datix forms and Statements of Concern	Investigator of Datix	Case by case	a) Risk Management meeting discusses all datix forms. Cases will be presented via: a) Labour Ward Forum b) Clinical Improvement Group c) CSU Governance Forum

7.4 Equality Impact Assessment

As part of its development, this Guideline and its impact on equality has been reviewed. The purpose of the assessment is to minimise and if possible remove any disproportionate impact on the grounds of race, gender, disability, age, sexual orientation, religion or belief, pregnancy and maternity, gender reassignment or marriage and civil partnership. No detriment was identified. Equality Impact assessments will show any future actions required to overcome any identified barriers or discriminatory practice.

Equality Impact Assessment			
Division	Women and children	Department	Maternity
Person completing the EqIA	Kyin Yu Maw	Contact No.	
Others involved:	Miss Swati Velankar	Date of assessment:	12/2020
Existing policy/service	Yes	New policy/service	No

Will patients, carers, the public or staff be affected by the policy/service?	Yes
If staff, how many/which groups will be affected?	*All staff*

Protected characteristic	Any impact?	Comments
Age	NO	Positive impact as the policy aims to recognise diversity, promote inclusion and fair treatment for patients and staff
Disability	NO	
Gender reassignment	NO	
Marriage and civil partnership	NO	
Pregnancy and maternity	NO	
Race	NO	
Religion or belief	NO	
Sex	NO	
Sexual orientation	NO	

What consultation method(s) have you carried out?
Emails, maternity guideline group, maternity CIG
How are the changes/amendments to the policies/services communicated?
email, meetings, maternity CIG
What future actions need to be taken to overcome any barriers or discrimination?

What?	Who will lead this?	Date of completion	Resources needed
Review date of EqIA	12/2023		