

Acute Uterine Inversion

Key Points

- Uterine inversion is a severe but rare obstetric complication.
- Prompt diagnosis and management is required to prevent life threatening haemorrhage.

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Abbreviations

FBC	Full blood count
IM	Intramuscular
IV	Intravenous
LSCS	Lower segment caesarean section
MROP	Manual removal of placenta
PPH	Postpartum haemorrhage
TURP	Transurethral resection of prostate

Introduction

Uterine inversion is a rare obstetric emergency. This is where the placenta fails to detach from the uterus and the fundus is forced through the cervix, therefore protruding into or completely outside of the vagina. It is a life-threatening situation requiring prompt diagnosis and definitive management. Women are often in severe pain and profoundly hypotensive. If not promptly recognised and treated uterine inversion can lead to severe haemorrhage and shock which could result in maternal death. Urgent replacement of the uterus, early blood transfusion, aggressive fluid management, and use of a uterine balloon reduces the morbidity from this condition. They normally need analgesia to facilitate the uterus being relocated.

Incidence varies widely from as many as 1 per 1,584 to as few as 1 per 20,000 deliveries.

Description of the degree of inversion:

- First-degree - the inverted fundus extends to, but not through, the cervix.
- Second-degree - the inverted fundus extends through the cervix but remains within the vagina.
- Third-degree - the inverted fundus extends outside the vagina.
- Total inversion - the vagina and uterus are inverted.

Active management of the third stage may reduce the incidence ⁽¹³⁾

Risk factors

- Retained placenta
- Abnormal adherence of the placenta, e.g., placenta accreta etc.
- Fundal implantation of the placenta
- Short cord and/or excessive cord traction
- Cord traction without prior administration of an oxytocic
- Premature cord traction prior to placental separation
- Fundal pressure prior to placental separation
- Previous LSCS
- Rapid or long labour
- Uterine abnormality/previous inversion
- Chronic endometritis
- Using certain drugs such as magnesium sulphate and other tocolytics
- Polyhydramnios
- Multiparity
- Uterine atony
- Macrosomic baby
- Connective tissue disorders such as Marfan's syndrome ⁽¹⁷⁾

Signs and symptoms

- PPH (nearly all cases result in major PPH, either obvious or concealed).
- Cardiovascular shock (could be out of proportion to the blood loss).
- The sudden appearance of a large, dark red mass accompanying the placenta or a mass in the vagina.
- Severe abdominal pain.
- Inability to feel the fundus abdominally.
- Neurogenic shock (due to vagal stimulation secondary to stretching of the nerve fibres in the uterine ligaments).
- Diagnosing a first-degree inversion is much more difficult. Obesity can make diagnosis more difficult. Ultrasound may be required to confirm the diagnosis ^(15, 16)

Management

- **DO NOT** attempt to remove the placenta if it is still attached.
- Call 2222 and state 'Obstetric Emergency', inform the obstetric consultant.
- Commence resuscitation:
- Give oxygen at 15 l/min via a non-re-breathe mask.
- Insert two 16g IV cannulas.
- Take bloods - FBC, Clotting, and Cross Match 4 Units of Blood.
- Commence x2 1 litre colloid solution (e.g. Isoplex, Volplex)
- Insert a urinary catheter.
- Labour ward coordinator to inform theatre, and for the potential for a laparotomy.
- Try and manually replace the uterus as quickly as possible. Reposition the uterus (with the placenta if still attached) by slowly and steadily pushing upwards. Administering tocolytics to allow uterine relaxation may help - terbutaline 0.25 mg by slow IV injection or subcutaneous if no IV access.
- If the uterus is successfully replaced, transfer to theatre for manual removal of placenta (MROP).
- If the placenta is still present, careful examination and removal are required to ensure it is not abnormally adherent.
- **If it is not possible to manually replace the uterus transfer immediately to theatre for further treatment under spinal or general anaesthetic.**
- If a GA is to be attempted then the anaesthetist and surgeons need to be aware of the risk of profound hypotension and cardiovascular instability on induction and an appropriate technique employed with senior support.

Uterine Replacement Techniques	
Manual Replacement	'Johnson manoeuvre' 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
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.

- Once the uterus is reduced, give ergometrine 500 micrograms IM and commence 40 units oxytocin infusion in 500mL sodium chloride 0.9% over 4 hours. Remember the risk of PPH.
- Maintain bimanual uterine compression and massage until the uterus is well contracted and bleeding has stopped.
- Give antibiotics as per Trust Microguide for retained placenta.
- Monitor closely after repositioning in order to avoid re-inversion.
- Recurrent inversion may be prevented by a uterine compression suture or an intrauterine balloon.
- Complications include endometritis, and damage to intestines, ureters or uterine appendages. Death can occur quickly if the condition is not recognised ⁽¹⁴⁾
- Documentation of the event, along with a de-brief to the woman is essential, it is also important regarding the management of a potential future pregnancy. If a cause for the inversion can be determined then this should also be documented and explained.
- Complete an incident form.

Monitoring compliance

This guideline will be monitored on an individual basis via incident reporting and risk management review.

Equality and diversity assessment

This guideline has been subject to an equality impact assessment.

Communication

If there are communication issues (e.g. English as a second language, learning difficulties, blindness/partial sightedness, deafness) staff will take appropriate measures to ensure the patient (and her partner if appropriate) understands the actions and rationale behind them.

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Full version control record

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This guideline has been registered with the Trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health NHS Foundation Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version History

Version	Date	Guideline Lead(s)	Status	Comment
1.0	October 2016	Alison Kirkpatrick Anna Jerome	Final	First Cross Site Version Review September 2019
2.0	June 2020	Helen Walker Sherif Ammar	Final	Updated and approved at OGCGC
3.0	May 2024	Anne Deans, Chief of Service O&G	Final	Scheduled review. Ratified at Cross site Obstetrics Clinical Governance Meeting 21/05/24

Related Documents

None