

**WOMEN'S HEALTH AND PAEDIATRICS**  
**MATERNITY UNIT**

**Management of Uterine Inversion**

Amendments			
Version	Date	Comments	Approved by
1	April 1997	Guideline developed	
2	April 2005		
3	January 2013	Whole document review	Women's Health Guidelines group
4	March 2018	Whole document review- no changes	Women's Health Guidelines Group
5	February 2022	Whole document review	Perinatal Guidelines Group

**Compiled by:** **Dr Janaka Jayasinghe Registrar Obstetrics and Gynaecology**  
**Dr Joann Hale Consultant Obstetrician**

**In consultation with:** Perinatal Guidelines Group

**Ratified by:** Perinatal Guidelines Group

**Date ratified:** **February 2022**

**Next review date:** **February 2025**, or if legislation, national guidance or lessons learnt indicate an earlier review

**Target audience:** All health professionals within the maternity services

**Equality impact assessment:** Perinatal Guidelines Group

**Comments on this document to:** Perinatal Guidelines Group

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 1 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

**Contents**

1.0 INTRODUCTION ..... 5

2.0 CLASSIFICATION ..... 5

3.0 RISK FACTORS ..... 5

4.0 CLINICAL PRESENTATION ..... 6

    4.1 How to identify Uterine inversion ..... 6

    4.2 Incomplete uterine inversion ..... 6

    4.3 Differential diagnosis ..... 6

5.0 MANAGEMENT ..... 7

    5.1 Goals ..... 7

    5.2 Initial Management – see flow chart ..... 7

6.0 OTHER TECHNIQUES FOR REPOSITIONING ..... 7

    6.1 Hydrostatic repositioning (O’ Sullivan’s technique) ..... 8

    6.2 Surgical Intervention — If the above measures to replace the uterus fail, attempt surgical correction of the inversion..... 8

        6.2.1 Huntington procedure ..... 8

        6.2.2 Haultain procedure ..... 8

7.0 MANAGEMENT OF THE PLACENTA ..... 9

8.0 MANAGEMENT AFTER CORRECTION OF INVERSION ..... 9

References ..... 9

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 2 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

**Abbreviations**

<b>Coag</b>	<b>Coagulation Screen</b>
<b>FBC</b>	<b>Full blood count</b>
<b>Gr &amp; Save</b>	<b>Group and Save</b>
<b>LFT's</b>	<b>Liver function tests</b>
<b>U&amp;E's</b>	<b>Urea and Electrolyte tests</b>

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 3 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

**Uterine Inversion Management flow chart**

Uterine Inversion



(Mass protruding through the Cx or mass palpable inside the uterus)

Differential Diagnosis- Prolapsed fibroid



**If Placenta is still intact do not remove the placenta**

**Discontinue uterotronic drugs**



2222 Obstetric priority call- Including Obstetric consultant, Anaesthetic Consultant and scrub team



**Immediately attempt to manually replace the inverted uterus**

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 manoeuvre.



**If failed, start transfer of patient to theatre**

Make sure patient has 2 large bore cannula – Minimum 16G and blood for Group & Save including FBC, LFT, U&E's, Clotting.



Clinical picture can be disproportionate to bleeding and other causes should be excluded- Eg : Neurogenic Shock etc

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 4 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

# Management of Uterine Inversion

## 1.0 INTRODUCTION

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

If not promptly recognized and treated, uterine inversion can lead to severe haemorrhage and shock, which may result in maternal collapse.

## 2.0 CLASSIFICATION

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

Extent of inversion

1<sup>st</sup> degree (also called incomplete) – The fundus is within the endometrial cavity

2<sup>nd</sup> degree (also called complete) – The fundus protrudes through the cervical OS

3<sup>rd</sup> degree (also called prolapsed) – The fundus protrudes to or beyond the introitus

4<sup>th</sup> degree (also called total) – Both the uterus and vagina are inverted

Time of occurrence:

Acute – Within 24 hours of delivery

Subacute – More than 24 hours but less than four weeks postpartum

Chronic – ≥1 month postpartum

## 3.0 RISK FACTORS

1. Macrosomia
2. Rapid or prolonged labor and delivery
3. Short umbilical cord
4. Severe Preeclampsia
5. Use of uterine relaxants
6. Nulliparity
7. Uterine anomalies or tumors (leiomyoma- fibroid)
8. Retained placenta
9. Placenta accreta spectrum

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 5 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

## 4.0 CLINICAL PRESENTATION

The clinical presentation depends on the extent and time of occurrence of the inversion.

Signs and symptoms include one or more of the following:

- Mild to severe vaginal bleeding
- Mild to severe lower abdominal pain
- A smooth, round mass protruding from the cervix or vagina
- Urinary retention

The most common presentation is complete uterine inversion with severe postpartum haemorrhage, often leading to hypovolemic shock.

Shock out of proportion to blood loss has been described and attributed to increased vagal tone from stretching of the pelvic parasympathetic nerves (neurogenic shock), but this cause can lead to underestimation of blood loss.

In patients with significant vaginal bleeding, treatment should not be delayed for radiological confirmation.

### 4.1 How to identify Uterine inversion

On vaginal examination, the inverted fundus fills the vagina, on transabdominal palpation, the uterine fundus is absent from its expected periumbilical position. With severe prolapse, the inverted uterus seen protruding at the perineum

### 4.2 Incomplete uterine inversion

- Approximately 10% of cases and associated with more subtle findings.
- Blood loss may be minimal
- Examination through the dilated cervix reveals a mass (Eg: fundus) in the uterine cavity;
- On abdominal examination, a cup-like defect (fundal notch) may be palpated in the area of the normally globular fundus
- In the absence of heavy bleeding or careful examination of the fundus, these patients may not be identified for days or weeks
- Because of increasing cervical constriction over time, delayed recognition of inversion is more likely to require surgical intervention to replace the uterus, and the uterus may become oedematous and infected

### 4.3 Differential diagnosis

The most common disorder in differential diagnosis is a prolapsed fibroid

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 6 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

## 5.0 MANAGEMENT

### 5.1 Goals

1. Replace the uterine fundus to its correct position
2. Manage postpartum haemorrhage and shock, if present
3. Prevent recurrent inversion

### 5.2 Initial Management – see flow chart

- **Discontinue uterotonic drugs**
- **Call for immediate assistance**
- **Establish adequate intravenous access and aggressive fluid/blood product resuscitation.** Two large bore intravenous lines (eg, at least one intravenous catheter should be 16-gauge) and begin infusion of crystalloid to support blood pressure. Bloods – FBC, Coagulation screen including fibrinogen, U&E's, LFT's
- Blood products should be administered, as needed, to treat hypovolemia and prevent cardiovascular collapse, and reverse coagulopathy, if present.
- **Do not remove the placenta.**
- **Immediately 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 manoeuvre.
- 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 failed transfer patient to theatre immediately**
- In hemodynamically stable patients, **give uterine relaxants** when immediate uterine replacement is unsuccessful. Manual replacement is then reattempted.
  - **Nitroglycerin** (Glyceryl trinitrate) 100micrograms administered intravenously – has a short half-life
  - Terbutaline (0.25 milligrams subcutaneously)
  - Magnesium sulphate 4g over 5 min - has a slow onset of action
  - Ritodrine 0.15mg IV Bolus Slowly

## 6.0 OTHER TECHNIQUES FOR REPOSITIONING

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 7 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

## 6.1 Hydrostatic repositioning (O' Sullivan's technique)

- The patient is placed in lithotomy position
- Uterine rupture must be excluded first
- A bag of warmed fluid is hung at least 2 meter above the patient and allowed to flow by gravity or with light pressure through tubing connected to a silastic ventouse cup in to the posterior fornix of vagina; the seal between the perimeter of the cup and the vagina prevents significant leakage
- The resulting intravaginal hydrostatic pressure may force the inverted fundus back to its normal position. Two litres of warm saline fluid may be needed and can take up to 10-15min
- **A hard, black, rubber anaesthetic facemask can be used, which may fit over the vulva. The oxygen inlet allows access for fluid input.**

## 6.2 Surgical Intervention — If the above measures to replace the uterus fail, attempt surgical correction of the inversion.

- 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.

### 6.2.1 Huntington procedure

- Locate the cup formed by the inversion
- Place a clamp, such as an Allis or Babcock clamp, on each round ligament entering the cup, approximately 2 cm deep in the cup. Clamp the myometrium if the round ligaments cannot be identified.
- Gently pull on the clamps to exert upward traction on the inverted fundus
- Repeatedly clamp in 2 cm increments along the ligament and exert traction until the inversion is corrected. This procedure is similar to the hand-over-hand movements used when pulling up an anchor line.
- If available, a second operator can place a hand in the vagina and apply upward pressure on the fundus to facilitate the procedure, or they can pull one of the clamps while the first operator pulls the other clamp.

### 6.2.2 Haultain procedure

- Make an 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. A posterior incision to an anterior incision reduces the risk of accidental cystotomy.
- 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

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 8 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------

## 7.0 MANAGEMENT OF THE PLACENTA

- Do not remove the placenta until the uterus has been replaced.
- Removing the placenta before replacing the uterus increases blood loss, which may be severe.
- Leaving the placenta in situ rarely interferes with the operator's ability to restore the uterus to its normal position, provided that the patient has appropriate anaesthesia.
- After the uterus has been replaced, the most conservative approach is to await spontaneous separation of the placenta, and reserving manual extraction for usual obstetric indications (eg, hemorrhage, prolonged third stage).

## 8.0 MANAGEMENT AFTER CORRECTION OF INVERSION

- **Hold the uterus in place** – After the uterus has been replaced, the fundus should be held in place and then monitored until the surgeon is sure that the uterus is firm and its position is stable.
- **Administer uterotonic drugs** – Once placental removal has been successfully accomplished, uterotonic agents are administered to induce myometrial contraction and maintain uterine involution, thereby impeding reinversion and reducing the risk of hemorrhage.
- **Reinversion** — Treatment of reinversion is similar to that for the initial inversion. Can consider intrauterine balloon (Bakri Balloon) or uterine compression sutures to treat PPH and to further prevent recurrent inversion.
- **Antibiotic prophylaxis** – as per Microguide for manual removal of placenta but will need to continue the course. If surgical treatment then use caesarean section prophylaxis – see Microguide

### References

1. The MOET course manual. Managing Obstetrics Emergencies and Trauma

Section 1 Organisational Policy	<b>Current Version is held on the Intranet</b>	First ratified: April 1997	Review date: February 2025	Version 5	Page 9 of 9
------------------------------------	--	-------------------------------	-------------------------------	--------------	-------------