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## Acute uterine inversion in federal medical Centre, Owo: case report

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### Abstract

**Backgrounds:** It is a rare but serious obstetric emergency which can rapidly result in hypovolemic and/or vasovagal shock. It is associated with high maternal morbidity and mortality if there is no prompt intervention. It is imperative to describe the clinical presentation and management of this rare case to familiarize care providers with it.

**Case Summary:** An unbooked 36-year-old G6P2+3 who was admitted on account of acute uterine inversion with shock who had surgical reduction and subsequent subtotal hysterectomy due to morbidly adherent placenta of a fundal placenta.

**Conclusion:** Appropriate management of third stage of labour with high index of suspicion and early management of cases when clinically diagnosed and if required, prompt referral for expertise care were essential to ensure maternal survival and reduce morbidity.

**Keywords:** Uterine inversion, morbid placenta, haemorrhage, shock, third stage of labour.

### Introduction

Uterine inversion occurs when there is partial or wholly prolapse of the uterus through the cervix which results in the uterus being turned inside out<sup>[1]</sup>. The incidence of uterine inversion is about 1 in 2000 to 1 in 50000 deliveries<sup>[2]</sup>. This rare incidence has made the management of uterine inversion a theoretical approach for most obstetricians. This necessitates the imperative of case report of this infrequent obstetric emergency which is associated with high mortality in order to keep obstetricians abreast of its presentation and practical management. Management of acute uterine inversion involves resuscitation of the patients, conservative approach and if it fails, then surgical approach<sup>[3]</sup>.

Informed consent was obtained from this patient for the images taken and prior to publication of this case.

### Case report

Mrs. OA., 36-year-old G6P2+3 (2alive) who was admitted for cervical ripening and induction of labour at 41 weeks gestational age on account of postdated pregnancy. Pregnancy was uneventful. She had ultrasound done at 28 weeks 4 days which showed a single fetus with fundal located placenta. She had a spontaneous vaginal delivery in previous pregnancies with no puerperal complication. She had 3 spontaneous termination of pregnancy which were completed by manual vacuum aspiration.

At admission, she was clinically stable with unfavourable cervix. She had two doses of 50mcg misoprostol given at 6 hours interval. She eventually had artificial rupture of membrane with Sunitis oxytocin induction not exceeding 30 drops per minute when she achieved adequate uterine contraction. Five hours after, she was found to be fully dilated and expressed desire to bear down. She was subsequently delivered of a live male neonate with APGAR scores 8@1, 9@5 and birth weight of 4kg. During the third stage of labour, after she was given intramuscular oxytocin 10iu and while the midwife was applying cord traction, she noticed tautness of the placenta and with more effort to deliver the placenta, she noticed a bulging mass protruding through the vagina. Image attached. This was associated with significant bleeding. At presentation, she was lethargic, pale with cold clammy extremities. Pulse rate was 124 beats per minute with blood pressure of 80/50mmHg and no uterus palpable per abdomen.



**Fig 1:** Intraoperative view of complete uterine inversion with a thickened and oedematous isthmic band.



**Fig 2:** Postoperative outcome following successful reduction of uterine inversion using Haultain's procedure.

An assessment of acute uterine inversion was made and patient was informed about the diagnosis. She was commenced on 6L oxygen via facemask, intravenous access was secured with wide bore cannula and 1L normal saline was infused after samples for full blood count, group and cross match of 4 units of blood, coagulation studies, electrolytes, urea & creatinine were taken and urethral catheter was also passed.

Initial attempts were made to reduce the uterus manually which failed. There was active bleeding with patient not clinically stable. This necessitated the patient being booked for emergency laparotomy. Informed consent was taken. General anaesthesia was administered and midline infraumbilical incision was made after skin preparation. Intraoperatively, complete uterine inversion with thickened and oedematous isthmic band and pale uterus.

Huntington's procedure was attempted to return the uterus to its anatomical position however the fundus of the uterus could not be delivered through the indentation. Haultain's procedure was eventually done which was successful in delivering the uterus. However, it was noticed the uterus was dusky due to prolonged vascular compromise. A decision was made to perform subtotal hysterectomy which was ultimately done. Estimated blood loss was 1,500mL. She was transfused with 3 pints of blood intraoperative and was given 10% Calcium gluconate slowly over 10 minutes.

She was commenced on parenteral antibiotics and analgesics for 48 hours. She had the 4<sup>th</sup> pint transfuse while on the ward. Her recovery was satisfactory. Her medications changed to orals 3<sup>rd</sup> day postoperative with post-transfusion packed cell volume of 28%. She was discharged home on the 5<sup>th</sup> postoperative day on oral antibiotics and haematinics and was seen in the postnatal clinic in 2 weeks.

### Discussion

Uterine inversion is a rare clinical problem [2]. It is a condition where the fundus of the uterus turns inside out and the latter prolapses through the cervix [1, 2]. Uterine inversion is classified into puerperal when it follows delivery and non-puerperal when it occurs spontaneously due to co-existing uterine/cervical tumour [3]. Another classification is based on the degree of inversion: First degree when inverted fundus extends to but not through the cervix, second degree when inverted fundus passes through the cervix but remains in the vagina, third degree is when inverted fundus extends outside the vagina and finally, total inversion occurs when the vagina and uterus are inverted [4]. Classification based on timing can be Acute if it occurs within 24 hours after delivery, Subacute occurs more than 24 hours but less than four weeks postpartum and Chronic occurs at or after 1 month postpartum [3, 4].

The exact etiology of uterine inversion is unknown. However, possible risk factors include excessive traction on a poorly contracted uterus, fundal placenta, morbidly adherent placenta, short umbilical cord, fundal pressure, uterine anomaly, fetal macrosomia, polyhydramnios, use of MgSO<sub>4</sub> and connective tissue disorder like Ehlers Danlos syndrome [1, 4-7].

This index case of acute puerperal uterine inversion occurred in an unbooked multigravida. The probable etiology factors in this case were fundal placenta, morbidly adherent placenta due to previous evacuation and multiparity, poorly managed third stage of labour and having a macrosomic baby which could have distended the uterus to losing its tonicity after delivery. Available hospital documents showed that this is the first case of acute uterine inversion in the last 10 years. Diagnosis of uterine inversion is clinical which might present as inability to palpate the uterus per abdomen with dimple or prominent descent of the uterus through the vagina with the placenta attached depending on the degree of the inversion. It usually presents with haemorrhage which may be mild with associated shock that will be exaggerated compared with the level of bleeding due to vasovagal shock [1, 4, 8]. The patient presented in shock with significant bleeding due to different manipulations that had been

done at the referring centre.

Management includes fluid resuscitation and oxygen administration for immediate treatment of shock and replacement of uterus with the placenta intact. Cases that present early can be corrected by manual or hydrostatic repositioning. Manual repositioning known as Johnson maneuver is a sterile procedure that involves forming a fist and pushing it through the cervix of a lax uterus towards umbilicus to its normal position using the other hand to support the uterus<sup>[4, 10]</sup>.

Placenta is then delivered and Infusion of oxytocin or ergot alkaloids is started to ensure uterine contraction and blood replacement is commenced. The hydrostatic or O'Sullivan method involves running 2 to 3 liters of warm saline via tube into the vagina using your hand or vacuum cup to create a seal round the vulva. This causes the vagina vault and cervical ballooning, which allows uterus and placenta to gradually reduce thus correcting the inversion.<sup>4</sup> Oxytocin commenced once the uterus is replaced in an attempt to maintain uterine contractions. When manual or hydrostatic fails, the surgical intervention is taken. The surgical replacement includes Huntington's operation which simply involves pulling of the indented part of the uterus and relieving the constricted cervix rings digitally. Place clamps on the cup of the inversion below the cervical ring and gentle upward traction is applied<sup>[4, 9, 10]</sup>. Another surgical route is Haultain's procedure which involves incision made in the posterior portion of the inversion ring to increase the size of the ring and allow the repositioning of the uterus whereas in Spinelli's method, an anterior colpotomy is done and incision of the cervix extending into the fundus is made before manually correcting the inversion. In Kustner's method, a posterior colpotomy is made and incision of the cervix is similar to that of Spinelli's method<sup>[9, 10]</sup>. These surgical interventions may be required in cases of late presentation in which there is oedema and constriction of the inverted uterus around the cervix making conservative approach difficult as seen in this index case. Hysterectomy was done for this patient due to dusky appearance of the uterus and morbidly adherent placenta encountered.

In conclusion, puerperal inversion of the uterus is one of the hemorrhagic disasters encountered in obstetrics. Unless promptly recognized and managed appropriately, bleeding with associated shock is often massive. Third management of labour should be actively managed and ensure uterine contraction before cord traction and avoiding excessive traction. Prompt recognition is essential as the longer it is inverted the more difficult it becomes to replace as the retraction ring forms leading to need for surgical intervention.

#### Declaration

The authors declare that they have no financial or personal relationships which may have inappropriately influenced them in writing this paper.

**Conflict of interest:** The authors declared that there is no conflict of interest

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