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## Acute inversion of Uterus: Our Experience

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### ABSTRACT

**Background:** *Acute inversion of the uterus means a rapid turning of the uterus inside out per via naturalis. This serious complication usually occurs during the third stage, the prognosis is always very grave, the mortality varying between 23 and 80% in different series. If left alone, sloughing and/or sepsis may occur. Treatment is to replace inverted uterus as soon as possible.*

**Aim:** *To reinforce that in case of acute inversion of uterus, number of steps be taken instantaneously, and simultaneously, i.e. to call for assistance, to arrange blood, to summon anesthesiologist etc. To show any delay in treatment increases the mortality rate appreciably.*

**Material and methods:** *Total ten cases of inversion were recorded. Out of ten cases of inversion recorded, one was excluded from study as it was a chronic inversion in postmenopausal woman with fundal fibroid. Total deliveries from 2007 to 2014 were 23,927, making the incidence of puerperal inversion as 1 in 2658. Out of 9 cases 3 were referred from outside and 6 were from the institute.*

**Results:** *Cases were divided into two groups. Those following vaginal delivery, and those occurred at the time of caesarean section. All 6 cases from institute were recovered without significant morbidity, and no mortality.*

**Keywords:** *acute inversion of uterus, puerperium, post partum hemorrhage, obstetrical emergency.*

## Introduction

Uterine inversion is defined as the passage of the uterine fundus through the endometrial cavity and cervix, turning the uterus inside out. Uterine inversion is a rare obstetric emergency. The incidence varies considerably and can range from 1 case in 2000 to 1 case in every 50,000 births. [1] Uterine inversion can be classified in four degrees, depending on the localization of the uterine fundus. In first degree, the fundus is inside the cavity. If it reaches but does not exceed the cervical external os, it is second degree inversion. When the fundus extends out of the external os, is

of third degree. When it is beyond the vaginal introitus, it is called complete or 4th degree uterine inversion. [2]

## Material and methods

A retrospective case sheet review was conducted of all cases of acute uterine inversion recorded in obstetrics and gynecological department in a teaching hospital in north Karnataka, India. Total deliveries from 2007 to 2014 were 23,927. Cases were divided into two groups. Those following vaginal delivery, those occurred at the time of caesarean section.

**Table no 1: Cases of acute uterine inversion following vaginal delivery**

Clinical presentation case wise and treatment.
<p><b>Case N01:</b> G2, A1, 25 years old, ML 3yrs. h/o early spontaneous abortion at 3 months, conceived after two cycles of clomifen citrate, suffered from chicken pox at 32- 34 weeks. Hb% 9gram at the time of admission to labor ward, full term, normal delivery in the hospital, developed 3<sup>0</sup> inversion with h/o slight traction on umbilical cord. h/o bout of cough in 3<sup>rd</sup> stage, developed PPH, went in to shock. Transfused iv fluids, two units of blood, tried replacement by Johnson's maneuver in OT under anesthesia, could not replace because of tight cervical ring, submitted for laparotomy, and with upward pressure from vagina on fundus, and with finger dilatation of cervical rim per abdomen, repositioned uterus. Cervical ring was not cut. Tab mesoprostol 800mcg, given rectally, uneventful post operative recovery, <i>inversion to reposition interval was less than one hour.</i></p> <p>HSG was done after three years for secondary infertility, conceived within two months after HSG, Full term, normal delivery, uneventful postpartum.</p>
<p><b>Case N02:</b> P1, 23 years, delivered at nearby taluk hospital, developed inversion while managing 3<sup>rd</sup> stage, and referred with IV fluids on, in 108 ambulance. At admission patient was very pale, vitals not recordable, developed hypoxic convulsions, resuscitation tried, and died within 30 minutes of admission due to irreversible shock, <i>Inversion to death interval was about three hours.</i></p>
<p><b>Case N03:</b> P2, delivered at nearby PHC, a live baby, developed complete inversion and PPH, brought</p>

dead through 108 ambulance. *Inversion to death interval was about two hours.*

**Case N04:** Primi, delivered in the hospital. FT, ND, h/o hypotonic uterine contractions, augmented with oxytocin drip, with minimal traction on the cord, developed complete inversion, developed hypotension, immediately shifted to OT, and repositioned by Johnson's maneuver under general anesthesia, transfused one unit of whole blood, treated with 800mcg mesopristol per rectally. Uneventful recovery.

*Inversion to replacement interval was about one hour.*

Conceived after one half years, delivered FT, ND, uneventful.

**Case No5:** Primi, delivered in the hospital. FT, ND, developed complete inversion spontaneously, gone into shock, shifted to O.T with in 30mts, with simultaneous fluid and blood replacement, repositioned uterus by Johnson's maneuver, post partum recovery normal, developed unexplained pain abdomen and post partum psychosis on tenth postpartum day, lasting nearly for three months, continued treatment for depression for one year, and recovered. *Inversion to replacement interval was about 30 minutes.*

Conceived two years later, refused to undergo normal delivery, elective LSCS done, with tubal ligation, and uneventful recovery.

**Case No6:**G3 P3, delivered 9 days back at nearby taluk hospital, FT, live baby, h/o PPH treated with IV fluids and uterotonics, referred to us as continuous bleeding, with suspected prolapsed uterus. Severe pallor present, HB 3gr%, deep red polypoid swelling seen in vagina on speculum examination, cervical rim felt high up, treated with 3 units blood transfusion and higher antibiotics, replaced by vaginal route under halothane anesthesia, with uneventful post partum recovery.

#### Table no 2: Cases of acute uterine inversion following LSCS delivery.

**Case No1:** G3, P2, with h/ o two previous LSCS, delivery of the fetus was uneventful. After the baby was born, 10 I.U of oxytocin IM was administered, with slight cord traction, complete inversion of the uterus through the uterine incision occurred with the placenta remaining firmly attached to the fundus, went into hypotension on the table with PPH, *inversion corrected immediately*, partially adherent placenta, removed, and uterine massage done. Two units of whole blood were transfused. After the end of cesarean section, 0.8 mcg of misoprostol was given per rectum. Postoperative period was uneventful and the patient was discharged on the 5<sup>th</sup> postoperative day.

**Case No2:** G2, previous LSCS, with CPD, high head, posted for LSCS, at spontaneous onset of labor pains, baby delivered with help of fundal pressure, developed complete spontaneous uterine inversion with placenta attached, developed hypotension on the OT table, *inversion immediately corrected*, placenta delivered by manual removal, moderate PPH, managed with IV fluids, 2 units blood,

intramyometrial carboplast injection, uneventful post partum recovery.

**Case No3:** G3, Previous two LSCS, posted for elective LSCS, uneventful baby delivery, developed complete inversion on the table with minimal traction on short cord, went into acute shock, *immediately replaced*, removed partially adherent placenta, Postoperative period was uneventful. Developed secondary PPH on twelfth day of post partum, USG shows haematometra, treated with antibiotics, tab mesoprostol, 200 mcg/ BD for 3 days, and with 10 units syntocinon drip. Haematometra resolved in a span of 2 weeks completely and woman restored normal cycles after 6months.

### Results

In our study, nine were puerperal inversions, and one out of them was sub acute incomplete inversion, referred here on 9<sup>th</sup> day of puerperium. Two cases were acute, referred from outside very late. One of these cases one was brought dead with completely inverted uterus lying outside the vulva, and the other case was brought in with irreversible shock and in the state of gasping. In both cases inversion to admission interval was more than 3 hours, and both were brought in 108 ambulance. In three cases, inversion occurred in the labor room itself, and all of them were recovered with immediate replacement under anesthesia. In these cases inversion to replacement time was less than an hour, with simultaneous fluid and blood replacement. In three cases inversion took place on the OT table during caesarean section and immediate replacement results in uneventful recovery. Between 2007 to 2012, there were 8 cases, and between 2013to 2014 only one case was recorded. This may be due strict implementation AMTSL during all deliveries and extra supplement of uterotonic drugs in high risk cases if needed.

### Discussion

Uterine inversion is almost always associated with immediate life threatening hemorrhage, and without prompt treatment it may be fatal. Contributing to uterine inversion is a tough cord that does not readily breakaway from the placenta, combined with fundal pressure and a relaxed uterus, including lower segment and cervix. Placenta accreta may be implicated, although uterine inversion can occur without the placenta being so firmly adherent.

### Etiology

It is classified as acute uterine inversion if it takes place before the contraction of the cervical ring, sub acute if this occurs after contraction of the cervical ring, or chronic if it occurs after the first 4 weeks after birth. <sup>[3]</sup> Although generally associated with excessive cord traction in the third stage of labor, the causes of uterine inversion remain unexplained. <sup>[4]</sup> Nulliparity, the rapid uterine emptying and fundal implantation of the placenta are predisposing factors for uterine inversion. Risk factors are tension on the umbilical cord, fetal macrosomia, , excessive

fundal pressure, placenta accreta, short umbilical cord, ligaments laxity, and congenital abnormalities of the uterus<sup>[5]</sup> The catastrophe is most likely to occur if the placenta is attached to the fundus.

### **Clinical features**

The symptoms are very severe shock, out of proportion to the amount of blood lost. Blood loss in these cases was often massive but greatly underestimated.<sup>[6]</sup> A tendency to bearing down after the placenta has been delivered; persistent red hemorrhage or repeated small hemorrhages in the puerperium, with obvious signs of anemia and difficulty in micturition.

The signs are as follows. A complete inversion is self-evident. Incomplete inversion may be mistaken for a large fibroid polyp, but if the bladder is empty, an abdominal examination will reveal the absence of the fundus uteri in the abdomen, and in its place a saucer-shaped depression where the fundus has been invaginated into the uterine cavity. Examination reveals a large rounded polypoid mass in the vagina.

### **Diagnosis**

The diagnosis of uterine inversion is clinical. Observation of the uterine fundus beyond the vaginal introitus in the complete form or the palpation of the fundus through the external os in incomplete uterine inversion is the most common sign. The diagnosis is often suspected in the presence of massive PPH or in the absence of uterine fundus during abdominal palpation. Hypotension and tachycardia may supervene and

evolve into hypovolemic shock. When a physical examination is inconclusive and the patient is hemodynamically stable, the diagnosis can also be confirmed by ultrasound, which detects a vaginal mass with specific characteristics. (The echogenicity of the endometrium shows the shape of C letter and the echogenicity of the uterus the shape of H letter).<sup>[7]</sup>

### **Treatment**

A two intravenous infusion systems are made operational; ringer's lactate and blood are given to treat hypovolemia.<sup>[6]</sup> Freshly inverted uterus with placenta already separated from it may often be replaced simply by immediately pushing up on the fundus with palm of the hand, and fingers in the direction of the long axis of the vagina. This maneuver, called Johnson's maneuver, should be carried out as soon as possible to minimize the blood loss and to improve the chances to resolve, since the longer the time between the inversion and the beginning of the maneuver, the lower is the success rate. If attached, the placenta is not removed until infusion systems are operational, fluids are being given, and anesthesia, preferably halothane has been administered. Tocolytics are given for uterine relaxation and repositioning. The inverted uterus if prolapsed, beyond vagina, is replaced within the vagina. After removing the placenta, the palm of the hand is placed on the centre of the fundus, with fingers extended to identify margins of the cervix. Pressure is applied with the hand so as to push the fundus upwards, through the cervix. As soon as the uterus is restored its normal configuration, tocolytics if on

use are stopped, uterotonics like oxytocin are started to facilitate uterine contraction.

### **Surgical interventions**

When the initial approach fails, it is essential to have an operating room, an obstetrical team and an anesthetist available for a surgical intervention. There are two main surgical techniques described: In Huntington technique, clamps are placed on the round ligament, near to its insertion in the uterus, and traction is applied while the assistant exerts traction on the contra lateral way through the vagina. This is the simplest technique and has a lower risk of complications.

In case of failure, the Haultaim technique should be performed. In this, an incision is made in the posterior portion of the ring formed by the cervix, to increase the size of the ring and thus reposition the uterus. Other techniques are, using hydrostatic pressure when manual reduction is not successful and conditions for surgical intervention are absent.

<sup>[4]</sup>In other technique, balloons are placed intravaginally to increase the pressure on the uterine fundus to push the uterus to its initial position.<sup>[8]</sup> Other techniques described require scientific studies to demonstrate their efficacy and safety, including the use of obstetric vacuum extractor (ventouse) to reverse the uterine fundus.<sup>[9]</sup> or surgical resolution by laparoscopy.<sup>[10]</sup> Regardless of the technique, there is no consensus on the timing of the removal of the placenta. However, many authors recommend, placental removal should occur only after the normal repositioning of the uterus, to reduce blood loss.<sup>[11]</sup> After reversal of inversion,

it is essential to administrate uterotonic agents (oxytocin or misoprostol) to prevent recurrence. Some authors support the use of broad spectrum antibiotics to prevent endometritis or sepsis.<sup>[12]</sup>

### **Conclusions**

Acute uterine inversion is an obstetric complication that, due to its grave risk, requires a rapid diagnosis and immediate action. Its low incidence leads to scarce experience in solving this kind of situation. Regardless of the treatment, vaginal or surgical approach, the best prognosis occurs in situations when the diagnosis and maneuvers for uterine reversal are made early. There are no predictive factors known for uterine inversion, only risk factors. Therefore, it is essential to keep in mind this diagnosis in all cases of postpartum hemorrhage, and be updated about the medical therapy and surgical techniques required to solve this type of complication.

### **References**

1. Dwivedi S, Gupta N, Mishra A, Pande S, Lal P: Uterine Inversion: A Shocking Aftermath Of Mismanaged Third Stage Of Labour. *Int J Reprod Contracept Obstet Gynecol* 2013, 2(3):292-295.
2. Pauleta R, Rodrigues R, Melo A, Graça L: Ultrasonographic Diagnosis Of Incomplete Uterine Inversion. *Ultrasound ObstetGynecol* 2010, 36:260. [Pubmed Abstract | Publisher Full Text](#)
3. Livingston S, Booker C, Kramer P, Dodson W: Chronic Uterine Inversion At 14 Weeks Postpartum. *Obstet*

- Gynecol 2007, 109:555. Pubmed Abstract | Publisher Full Text .
4. Hostetler D, Bosworth M: Uterine Inversion, A Life-Threatening Obstetric Emergency. J Am Board Fam Med 2000, 13(2):120-123. Publisher Full Text
  5. Witteveen T, Van Stralen G, Zwart J, Van Roosmalen J: Puerperal Uterine Inversion In The Netherlands: A Nationwide Cohort Study.
  6. Text Book Of Williams, Obstetrics, 22nd Edition. Chapter 35, Page No 834
  7. Hsieh T, Lee J: Sonographic Findings In Acute Puerperal Uterine Inversion. J Clin Ultrasound 1991, 19:306. Pubmed Abstract | Publisher Full Text
  8. Momani A, Hassan A: Treatment Of Puerperal Uterine Inversion By The Hydrostatic Method; Reports Of Five Cases. Eur J Obstet Gynecol Reprod Biol 1989, 32:281. Pubmed Abstract | Publisher Full Text
  9. Antonelli E, Irion O, Tolck P, Morales M: Subacute Uterine Inversion: Description Of A Novel Replacement Technique Using The Obstetric Ventouse. Bjog 2006, 113:846. Pubmed Abstract | Publisher Full Text
  10. Shepherd L, Shenassa H, Singh S: Laparoscopic Management Of Uterine Inversion. J Minim Invasive Gynecol 2010, 17:255. Pubmed Abstract | Publisher Full Text
  11. You W, Zahn C: Postpartum Hemorrhage: Abnormally Adherent Placenta, Uterine Inversion, And Puerperal Hematomas. Clin Obstet Gynecol 2006, 49:184. Pubmed Abstract | Publisher Full Text
  12. Adesiyun A: Septic Postpartum Uterine Inversion. Singapore Med J 2007, 48:943. Pubmed Abstract | Publisher Full Text .