

## Case Report

# A Case Report of Uterine Inversion

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## Abstract

**Background:** Puerperal uterine inversion is a rare obstetric emergency that could be life-threatening. Prompt recognition and management are crucial to reduce the complications.

**Case:** This is a 35-year-old primiparous woman who had a second-degree uterine inversion following augmentation of labour and a ventouse delivery. The uterine inversion was successfully managed with O'Sullivan's hydrostatic method.

**Conclusion:** A second-degree uterine inversion was identified and treated promptly, and patient had an uneventful recovery.

**Keywords:** Puerperal uterine inversion; Obstetric emergency; Endometrial cavity

## Introduction

Puerperal uterine inversion is a rare but potentially life-threatening obstetric emergency. It occurs when the uterine fundus collapses caudally into and in some cases, beyond the endometrial cavity [1,2]. Incidence varies between 1 in 2000 to 1 in 200,000 deliveries [3,4]. Early recognition, management and resuscitation are essential to reduce the complications of severe haemorrhage, shock and risk of maternal death [5]. The latter, has been reported at approximately 4.1 per 10 000 cases [5,6].

The degree and thus severity of uterine inversion is categorized by the extent of fundal descent. First degree (incomplete) occurs when the dome dimples into the endometrial cavity. Continued caudally, it will pass through the cervical os (second degree), into the vagina (third degree) and finally, completely externalize where both the inverted uterus and the trailing vaginal sleeve, lie outside the introitus (fourth degree/total) [6].

Recognition of inversion is understandably easier in severe cases where the uterine fundus is lost to abdominal palpation and the smooth, decidual surface of the ball-like mass can be seen protruding through the vaginal opening - though admittedly this is a sight so rarely seen that it may still cause confusion. More tragically however, the diagnosis can be missed or delayed in the setting of incomplete inversion where the prolapse remains hidden in the upper vagina and descent may be masked by the finding of a uterine body that remains partially palpable abdominally.

In the case described, the circumstances of delivery and attempted third stage management enabled an early diagnosis of acute, incomplete uterine inversion and thus immediate access to emergency resuscitative measures. The complication occurred within moments of birth. Acute onset such as this can occur at any time in the first 24 hours after delivery. In other cases, it may arise in the following four weeks (sub-acute) or even later still (chronic), when it occurs beyond the first month postpartum.

## Case Presentation

A primigravid, 35-year-old female presented at gestation of 40+2

in spontaneous labour. Her pregnancy was complicated by mild pre-eclampsia for which she had been commenced on labetalol one week prior. Her antenatal history was otherwise unremarkable. Initial vaginal examination (VE) showed a 4cm dilated, partially effaced cervix. Uterine activity was irregular and so in consultation with the patient, a decision for artificial rupture of membrane (ARM) with early Syntocinon augmentation and continuous CTG monitoring was made. First stage labour progressed uneventfully with full dilatation noted approximately 6 hours later.

Second stage labour was prolonged. VE at 2.5 hours confirmed cephalic presentation in ROA position at +1 station with moderate caput and moulding. There were no contraindications to assisted vaginal delivery. With consent, a ventouse delivery was performed culminating in the safe, live birth of a male infant weighing 3610g approximately 3.5 hours after the start of second stage.

Brisk vaginal bleeding was noted soon after. A small, secondary degree tear was identified on the perineum and hypotonic uterus palpated on abdominal examination. Active third stage management was initiated with instruction for intramuscular Syntocinon followed by controlled cord traction with suprapubic guarding to expedite placental separation. After approximately 2 minutes, the cord remained taut with no significant lengthening. The fundus remained palpable with improved tone. Vaginal examination revealed the placental body protruding through the fully dilated cervix. A diagnosis of partially entrapped, retained placenta was made.

As this occurred, an underlying convexity was felt adjacent to the placental rim and a diagnosis of concomitant, second-degree uterine inversion was made. The accoucheur immediately pushed upwards against the inverted vault in an attempt to restore normal anatomy but this was poorly tolerated and quickly abandoned. No attempt to remove the placenta occurred. An emergency code was called and urgent transfer to theatre arranged. The patient was catheterized and IV access confirmed. Estimated blood loss was approximately 1000ml and escalation to full PPH protocol was activated.

Approximately 20 minutes later, the patient was re-examined under general anaesthetic. Syntocinon infusion had ceased, glyceryl

trinitrate was given and a further attempt to restore normal anatomy occurred by pushing upwards against the fundus using the vaginal hand. This was not successful. High pressure, vaginal infusion of normal saline was then commenced as per O'Sullivan's hydrostatic method [7,8]. Real time ultrasound confirmed restoration of normal anatomy. The fluid was allowed to drain and the placenta was removed manually. The uterus remained in normal position and the cavity was confirmed empty. Ergometrine was given intramuscularly, Syntocinon infusion was recommenced and prophylactic antibiotics prescribed. A Bakri balloon was considered but not required. Total estimated blood loss was <1500mL. Post-operative haemoglobin dropped from 100gm/dL to 72. The patient was initially symptomatic and was transfused one unit of packed red blood cells. She was fully debriefed in recovery and then again, the following day. She went on to an uneventful post-delivery stay with discharge home on day 3.

## Discussion

Uterine inversion is a rare though potentially life-threatening complication of child birth. It may result in sudden, severe haemorrhage with potentially catastrophic hypovolaemic shock and maternal compromise. Critical care is essential but unlike other, more common causes of postpartum haemorrhage, the diagnosis can be missed, whereupon measures of routine management may fail to curb the full cascade of potentially life-threatening sequelae which can be swift and unforgiving [4,9].

There are many reasons why uterine inversion may occur. Typically, all share commonalities of abnormal placental separation or adherence, suboptimal uterine tone, or inappropriate timing and/or vigour, of cord traction. Pathologies may include placenta accreta, myometrial exhaustion from prolonged antenatal distension as may occur with macrosomia, multiple pregnancy or polyhydramnios or following obstructed or prolonged labour. The use of tocolytics, an overzealous or inappropriately timed approach to third stage management particularly in the absence of well-directed fundal guarding have also been implicated [1,6].

In the case described, many of these mechanisms can be identified. There was fear of PPH. Second stage had been prolonged leading to an apprehension of uterine exhaustion and atony. There was brisk vaginal bleeding following the delivery in the setting of suboptimal uterine tone. In this case, partial inversion occurred that was not identified by abdominal examination, indeed, the fundus remained palpable throughout. Unlike other instances where complete or total prolapse occurs, the unfolding events remained hidden. The advantage of the former, though disconcerting by their extreme, is that early diagnosis is possible and with that, the opportunity for definitive action. In our case, it was perhaps only that the accoucheur had remained close to the perineum following delivery and was thus in a position to consider early vaginal assessment to assist with cord traction, that diagnosis occurred. Had this not been so, it is likely that the risk of continued caudal descent and escalating maternal morbidity would have been very much greater. In our case,

management was immediate. In most instances, one can expect that with cessation of cord traction, the consideration of tocolytics and the use of controlled vaginal repositioning, resolution will occur. If this is not so, recourse to emergency operative anaesthesia may allow utilization of O'Sullivan's hydrostatic manoeuvre with successful restoration of normal anatomy and completion of third stage. Rarely however, this too may fail and strategies must then escalate towards more invasive operative procedures including if necessary, abdominal hysterectomy [1].

Even when well-managed, uterine inversion can be life changing, both for the patient and for the care giver who is suddenly thrust into an acute obstetric emergency. We were lucky. Whilst we acknowledge the likely iatrogenic component to the aetiology, we applaud the timely management of this rare and potentially devastating complication of birth. We present this case report to remind us of the importance of safe and clear communication in the birth suite environment, particularly in times of stress and heightened anxiety such as may occur during assisted or difficult deliveries. We raise for discussion, the question of optimal timing for second stage. Are we becoming too passive, too averse to intervention? Should we be acting sooner and if so, what are the consequences likely to be, not only procedurally - for these we well know, but perceptually for the mother and for those who care for her and uphold the ideals of non-assisted birth. Our case demonstrates that these questions are couched in contemporary, collaborative maternity practice. We hope that our commentary will spur a respectful consideration by all.

## References

1. Wendel MP, Shnaekel KL, Magann EF. Uterine Inversion: A Review of a Life-Threatening Obstetrical Emergency. *Obstet Gynecol Surv.* 2018; 73: 411-417.
2. Baskett TF. Acute uterine inversion: a review of 40 cases. *J Obstet Gynaecol Can.* 2002; 24: 953-956.
3. Cumming DC, Taylor PJ. Puerperal uterine inversion: report of nine cases. *Can Med Assoc J.* 1978; 118: 1268-1270.
4. Rahaoui M, Zizi H, Mamouni N, Errarhay S, Bouchikhi C, Banani A, et al. Managing Major Postpartum Haemorrhage Following Acute Uterine Inversion: A Case Report and Literature Review. 2020.
5. Hostetler DR, Bosworth MF. Uterine inversion: a life-threatening obstetric emergency. *J Am Board Fam Pract.* 2000; 13: 120-123.
6. Coad SL, Dahlgren LS, Hutcheon JA. Risks and consequences of puerperal uterine inversion in the United States, 2004 through 2013. *Am J Obstet Gynecol.* 2017; 217: 377.e1-377.e6.
7. Momani AW, Hassan A. Treatment of puerperal uterine inversion by the hydrostatic method; reports of five cases. *Eur J Obstet Gynecol Reprod Biol.* 1989; 32: 281-285.
8. Mittal P, Suri J. Inversion Uterus. In: Sharma A, editor. *Labour Room Emergencies.* Singapore: Springer. 2020.
9. Thiam M, Niang MM, Gueye L, Sarr FR, Dieme ME, Cisse ML. Puerperal uterine inversion managed by the uterine balloon tamponade. *Pan Afr Med J.* 2015; 22: 331.