Post-partum complete acute uterine inversion: A coordinated multi-disciplinary approach ameliorates an obstetric nightmare, a case report

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ABSTRACT

Acute uterine inversion is a rare life-threatening complication of third stage of labour. In majority of cases, exact aetiology is unknown. It should be strongly suspected when the triad of haemorrhage, shock and severe abdominal pain with bearing down sensation is present after delivery of placenta. It can occur even after active management of third stage of labour. Diagnosis is essentially clinical. Expeditious manual repositioning of uterus and simultaneous liberal use of uterotonics is the management of choice. This was successfully attempted in the present case where a 26-year-old multiparous woman, without any identifiable risk factors, developed acute puerperal uterine inversion after active management of labour. It was observed that quick and accurate clinical judgement and timely intervention can prevent maternal mortality. The role of a multidisciplinary team including primary health care provider, obstetrician, anaesthesiologist and critical care experts has significant effects on outcome especially in intractable cases.

Keywords: Acute uterine inversion, manual repositioning, shock

Case Report

A 26-year-old female, G2P1L1A0 presented to labour room at 37 weeks of gestation with an uneventful antenatal period and insignificant past medical history. Clinical examination and routine investigations were within normal limits. Ultrasonography revealed an expected fetal weight of 2.63 kg with fundal placenta. She delivered a male baby weighing 3.4 kg with a good Apgar score after normal progress of labour. Ten units of intramuscular Oxytocin was given with the delivery of anterior shoulder. Placenta and membranes were removed completely by controlled cord traction. Immediately after expulsion of placenta patient complained of severe abdominal pain and this coincided with a sudden gush of bleeding per vagina. She was restless, tachypneic (respiratory rate 32/min.) tachycardic (heart rate of 128/min.), and hypotensive (blood pressure of 90/60 mm Hg) with extreme pallor. The uterine fundus was not palpable on abdominal examination. Blood and blood clots...
measuring approximately 1,500 ml was removed from vagina and a soft mass was felt there. The sequence of events and findings lead to the clinical diagnosis of complete uterine inversion and resuscitative measures with intravenous normal saline drip, urinary catheterization and oxygenation (via face mask) was initiated along with urgent requisition for whole blood. Manual uterine repositioning was performed unsuccessfully in the labour room. The patient was immediately moved to the operating room for Johnson’s manoeuvre under general anaesthesia. The hand was introduced into the vagina and the fundus was cupped in the palm with fingers posteriorly and thumb anteriorly. The concept for reduction was that the portion of the uterus which inverted last is to be replaced first. Compression, followed by steady pressure, in the axis of pelvic inlet for 5 min. was applied for successful reduction. The counter support was applied by other hand placed suprapubically. After successful reposition, the hand was kept in the uterus till it contracted sufficiently. Bimanual uterine massage was done to prevent reversion.

The anaesthetic management included cardio-stable agents (Etomidate) and muscle relaxants with minimal or no metabolism (Atracurium) to aid uterine repositioning accompanied by fluid therapy in the perioperative period to treat deleterious effects of tissue hypoxia.\(^5\)

Intravenous Oxytocin (20 units), intramuscular Carboprost (250 microgram) and rectal Misoprostol (800 microgram) was administered. The stormy intraoperative course (life threatening hypotension and tachyarrhythmia) was managed with prompt fluid and blood component therapy along with transient vasopressor therapy significantly improving haemodynamics and tissue hypoxia. Such therapy extended into post-operative critical care. She received ventilatory support, antibiotics, Tranexamic acid, analgesics and blood components. She was subsequently weaned off all support and extubated after 6 h. Patient was discharged on postoperative day three in stable condition. She was followed up to six weeks post-partum.

**Discussion**

Uterine inversion is defined as the passage of the uterine fundus caudally into the uterine cavity and cervix, turning the uterus inside out.\(^5\) It is termed acute (within 24 h postpartum), subacute (between 24 h and 1 month postpartum) and chronic (after 1 month postpartum).\(^5,7\) Although a majority of them present with no identifiable risk factors, it can be caused due to precipitate labour, manual removal of placenta, traction on a short cord, straining or coughing while the uterus is lax especially in the setting of connective tissue disorders.\(^1,4,6,9,11\) The clinical diagnosis usually includes the triad: haemorrhage, shock and pelvic pain and any health care provider performing delivery even at primary health centres must keep this in mind.\(^2\) Sudden onset of significant vaginal bleeding, severe abdominal pain with strong bearing down sensation after delivery should alert them to possible uterine inversion.\(^9,11,12\)

The absence of uterine fundus on abdominal palpation and its presence in the vagina is pathognomonic.\(^6\) When in doubt, ultrasonography can be performed along with concomitant haemodynamic resuscitation.\(^5,8\) The degree of inversion can be classified as 1\(^{\text{st}}\) degree (fundus is inside the uterine cavity), 2\(^{\text{nd}}\) degree (fundus doesn’t cross cervical external os), 3\(^{\text{rd}}\) degree (fundus extends out of the external os) or 4\(^{\text{th}}\) degree/complete inversion (fundus crosses the vaginal introitus).\(^9\)

The most common catastrophic accompaniment of uterine inversion is hypovolaemic shock and a strong vagal reaction triggered by sudden stretching of uterine ligaments.\(^7,11\) The immediate management includes an interprofessional team, multi-pronged approach aimed at controlling haemorrhage, maintaining haemodynamic stability and repositioning the uterus.\(^6,9,11,12\) Uterine reposition is done either using simple taxi which consists of uterus desinvagination by starting from the centre when the cervix is relaxed or from the boundary in case of a tight cervix. The Johnson process on the other hand consists of pressing the level of cervicovaginal cul-de-sacs using fingers and the base by palm of the hand. Both of the techniques require the hand to be positioned in the uterus for a few minutes.\(^9,12\) Successful uterine replacement is followed by uterotonics administered to promote contraction of the uterus and prevent re-inversion.\(^6,12\) Appropriate antibiotic is required to prevent infection.\(^12\) In conditions where the placenta has not yet separated, it should only be removed after repositioning of the uterus to prevent torrential haemorrhage. Alternatively hydrostatic method using warm saline can be performed.\(^6,12\) Surgical options include Huntington’s or Haultain’s operation, is sought only when the formation of a tight constriction ring precludes the aforementioned methods of uterine reposition.\(^1,4,6,9,12\) In intractable cases hysterectomy is the last resort.\(^6,7\)

**Conclusion**

A cognizant mind, quick diagnosis and timely intervention with a coordinated multi-disciplinary approach can ameliorate an obstetric nightmare and reduce fatality in a case of Post-Partum complete acute uterine inversion.

**Consent**

Written informed consent was obtained from the patient for the publication of this case report.

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Nil.

**Conflicts of interest**

There are no conflicts of interest.

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