Section: Miscellaneous

Case Series

POST PARTUM UTERINE INVERSION OBSTRETRICIAN'S NIGHTMARE – A CASE SERIES

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ABSTRACT

Uterine inversion is a rare life threatening obstetric complication.It is defined as uterine fundus invagination through cervix, vagina or vaginal introitus which exposes the endometrial cavity. The reported incidence of puerperal uterine inversion ranges from 1:2000 to 1:20,000 deliveries. Risk factors being mismanaged third stage of labour in 50% cases and other being multiple pregnancies, macrosomia and polyhydramnios, placenta previa, placental retention. Uterine inversion need clinical diagnosis or related ultrasound findings. Diagnosis is essentially clinical. With a triad of sign and symptoms of haemorrhage, pelvic pain and shock out of proportion to the bleeding. It requires prompt identification and management. Maternal mortality is extremely high unless the condition is recognized and corrected. We present here a series of three cases of uterine inversion managed in our hospital over a period of 3 years. Our first case, is a case of term vaginal delivery at our hospital with uterine inversion with post partum haemorrhage managed in labour room itself. Second case, was a refered multigravida with pph and something coming out of vagina along with extraction of placenta in hypovolemic shock managed by hydrostatic method. Third case was also a refered patient of term vaginal delivery managed in OT after unsuccessful vaginal reposition. Our fourth case was that of a vaginal birth after cesarean section with placenta accreta in which Huntington method of reposition was done in OT followed by total abdominal hysterectomy. In all these cases, the patients were explored and primarily uterine reposition was done vaginally failing which reposition was done via laparotomy. All the patients required blood and blood product transfusion, clinical management of pph, early identification and treatment lead to a successful outcome.

INTRODUCTION

Uterine inversion is a rare life threatening obstetric complication.[1] It is defined as uterine fundus invagination through cervix, vagina or vaginal introitus which exposes the endometrial cavity.[2] The reported incidence of puerperal uterine inversion ranges from 1:2000 to 1:20,000 deliveries.[1,3] Risk factors being mismanaged third stage of labour in 50% cases and other being multiple pregnancies, macrosomia and polyhydramnios, placenta previa, placental retention.[1,4] Uterine inversion need clinical diagnosis or related ultrasound findings. Diagnosis is essentially clinical. With a triad of sign and symptoms of haemorrhage, pelvic pain and shock out of proportion to the bleeding.[5] It requires prompt identification and management.[5-9] Resuscitation along with expeditious manual or surgical repositioning of uterus and simultaneous liberal use of uterotonics is the management of choice. Rapid diagnosis and management can prevent maternal mortality.[8-10]

CASE SERIES

In our institution, situated as a tertiary care centre and primary referral point for the hilly peripheral health centres, we encountered a series of 4 cases of uterine inversion in our institution over a period of 4 years.

Case Report 1: - A lean and thin 26 year old female, G2P1L1A0 presented to labour room at 37 weeks of gestation in spontaneous labour with severe anaemia (Hb. 4g/dl). She delivered a male baby of 2.4 kg. Ten units of intramuscular Oxytocin was given with the delivery of anterior shoulder. Extraction of placenta initiated by controlled cord traction. The uterine

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fundus dragged along with placenta due to fundal attachment of placenta. It was immediately noted by the senior resident on duty and a diagnosis of uterine inversion was made. It was accompanied with complained of agonising pelvic pain and a sudden gush of bleeding per vagina. On physical examination her vitals were – respiratory rate 32/min, heart rate of 128/min, and blood pressure of 90/60 mm Hg. The uterine fundus was not palpable on abdominal examination. Per vagina a soft mass was felt suggestive of uterine fundus. Resuscitative measures were started with intravenous normal saline drip, urinary catheterization and oxygenation along with urgent blood requisition. Manual uterine repositioning was performed in the labour room. 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 was applied for successful reduction. After successful reposition, the hand was kept in the uterus till it contracted sufficiently. Bimanual uterine massage was done to prevent reversion. Simultaneous oxytocin (20 units) drip was started and uterotonics intramuscular Carboprost (250 microgram) and rectal Misoprostol (800 microgram) was administered. She received post-operative critical care with continued fluid support and uterotonics as well as oxygen support, antibiotics, Tranexamic acid, analgesics and blood components. Patient was discharged on postoperative day 8 in stable condition.

Case Report 2: - A 32-year-old multigravida, P4L4 with history of delivery of a term 3.6 kg healthy male baby at a PHC one hour back was referred to our hospital with complaints of severe post partum haemorrhage and something coming out per vaginum following expulsion of placenta. On physical examination the patient was restless, tachypnoeic, tachycardic, hypotensive with extreme pallor. Per abdomen fundal cupping was seen. On vulval inspection total uterine inversion was seen with uterine fundus outside the introitus. The sequence of events and findings lead to the clinical diagnosis of complete uterine inversion. Immediate resuscitative measures were started. Two wide bore IV cannulas secured and fluid resuscitation and transfusion started, urethral catheter inserted, oxygen via face mask started, blood workup sent to assess anaemia. Manual reposition of the uterus was performed with simultaneous use of uterotonics which was unsuccessful. After an informed consent for hydrostatic reduction was obtained. A 20G Foley`s catheter was inserted vaginally under the subpubic angle over the vaginally placed gloved hand. Catheter was used for rapid infusion of 3 litre of normal saline (0.9%) to hydrosufflate the vagina. Water tight vaginal occlusion was facilitated by straightening the patient's legs to supine position and putting the patient in reverse trendelburg position. Around after a period of 15 minutes, uterine fundus was felt per abdomen to be firm and contracted. Haemorrhage had reduced significantly. Fluid was drained and uterine tone assessed to be well contracted. The patient was then stabilized; no surgical management or hysterectomy was required. Perineal repair was subsequently performed. She was kept under intensive care unit for further management of hypotension by fluid support, blood components and administration of uterotonics and antibiotics. Blood transfusion of 4 packed red cells was done. Patient's hemodynamic also became stable. Patient recovered without complications and was discharged with oral antibiotics and pain medication.

Case Report 3: - A 20yrs old covid positive P1L1 delivered vaginally 2 days back at some remote hilly hospital. She was referred as a suspected case of uterine inversion. Patient C/O: Something coming out per vaginum, Pain lower abdomen, Bleeding per vaginum since 2 days. On examination patient was conscious, well oriented, vitals - BP 100/70mmHg, Pulse 104/min, with severe pallor. On obstetrical examination, per abdomen Fundus of uterus was not palpable, Tenderness was present over hypogastrium region. Per speculum examination: Cervix was not visualized and an irregular globular mass was seen. Per vaginum: Firm globular irregular mass felt. A clinical diagnosis of uterine inversion was made. Meanwhile IV line was secured. Foleys catherization done, Blood sample sent for crossmatch and primary blood investigations sent. Broad spectrum iv antibiotics started. Her Hb came to be 4.5gm/dl.
An attempt for manual reposition of uterus by Johnsons method under general anesthesia done which was unsuccessful. Decision for Emergency laparotomy taken and reposition of uterine fundus by HAULTAINS REPAIR was done. In this, the posterior rim of cervical ring is incised with scalpel in midline, Then inversion is dragged back from above by allis forceps and cut edges repaired in two layers. A total of 4-unit blood and 4-unit FFP were transfused. Patient was put on intensive care post op, on fluid and oxygen support, with administration of uterotonics and antibiotics. Patient recovered and was discharged on POD 10 with stable vitals.

Case Report 4: – A 27-year-old woman (P2L2 with one previous caesarean section 2 years back and currently a vaginal home delivery 1 hour back) was rushed to the emergency room of Susheela Tiwari Hospital, Haldwani. Patient's systolic blood pressure was 60mm Hg on admission with extreme pallor. Her respiratory rate was 26 breaths per minute, heart rate 130 beats per minute and was restless. Immediately, resuscitation was started. The abdominal palpation showed moderate tenderness and uterine fundus was not palpable above symphysis pubis. Vulval examination showed the fundus of the uterus and adherent placenta coming through the vaginal introitus. [Figure 1]

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Figure 1: showing complete uterine prolapse with placenta adherent to the uterine fundus

A clinical diagnosis of uterine inversion was made. Johnson's manoeuvre of manual reposition was performed unsuccessfully in the emergency room. Due to the large placenta attached at the fundus, uterus could not be reposited by hydrostatic method. The patient was immediately moved to the operating room where the manoeuvre was attempted a second time under general anaesthesia and again without success. Decision for transabdominal surgical approach for reposition of uterus was taken. Laparotomy showed classical flower vase appearance with tubes and ovarian and round ligaments in the crater of the inverted uterus. [Figure 2] Huntington`s approach was attempted. Digital dilatation of the constricting cervical ring and stepwise traction on the funnel of the inverted uterus and round ligament. Reposition of the uterus was done with difficulty due to the edema and big size of fundus with adhered placenta. Total hysterectomy was done i.v.o placenta accreta. Patient was transfused 4 units PRBC and 4 units of FFP. Patient had uneventful recovery.

Figure 2: showing flower vase appearance with tubes, ovarian and round ligaments in the crater of inverted uterus

DISCUSSION

Uterine inversion is defined as uterine fundus invagination through the cervix, vagina and vaginal introitus which exposes the endometrial cavity.[2] It is termed acute (within 24 h postpartum), subacute (between 24 h and 1 month postpartum) and chronic (after 1 month postpartum).[1,4,7,9] Most cases are postpartum complications, but it can also occur after abortion. Other than this it is rare. However, spontaneous inversion may occur frequently associated with tumour.[4] Mismanagement of third stage of labour may cause many cases of uterine inversion. The pathophysiology of this condition in pregnancy maybe a result of hormonal and biochemical factors which appoint ligaments laxity of uterus. Endogenous or intrinsic factors include excessive extension of uterine wall due to multiple pregnancies, grand multipara, macrosomia and polyhydramnios, placental abnormalities such as placenta previa and placental retention. Congenital or acquired uterine and cervical abnormalities, tumours, connective tissue disorders, prolonged labour, precipitate labour in upright position.[4,7,9,11,13] Exogenous or extrinsic factors like excessive cord traction or Credes maneuver that is excessive cord traction and fundal pressure.[4]

Clinical diagnosis usually includes the triad of sudden onset of significant vaginal bleeding, severe pelvic pain with strong bearing down sensation after delivery and shock out of proportion to the blood loss.[11,13,14] The absence of uterine fundus on abdominal palpation and its presence in the vagina is pathognomic.[8] Imaging test can be helpful but should not cause delay in the diagnosis. The degree of inversion can be classified as 1st degree (fundus is inside the uterine cavity), 2nd degree (fundus doesn't cross cervical external os), 3rd degree (fundus extends out of the external os) or 4th degree/complete inversion (fundus crosses the vaginal introitus).[1,2,4]

The most common catastrophic complication of uterine inversion is hypovolaemic and neurogenic shock (vagal reaction) triggered by sudden stretching of uterine ligaments.[9,13] The immediate management includes resuscitation efforts along with controlling haemorrhage, maintaining haemodynamic stability and repositioning the uterus.[8,11,13,14] Uterine reposition is done either simply by manual reposition, desinvagination by starting from the centre when the cervix is relaxed or from the boundary in case of a tight cervix. The Johnson process uses a simple rule of part of inverted uterus to come first to be reposited the last.[1,9,11] In conditions where the placenta has not yet separated, it should only be removed after repositioning of the uterus to prevent torrential haemorrhage.[1,15]

Regardless of the technique, there is no consensus on the timing of the removal of the placenta. However, many authors argue that this removal should occur only after the normal repositioning of the uterus, to reduce blood loss.[15]

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Alternatively, hydrostatic method using warm saline can be performed.[2,13] Surgical options include transabdominal - Huntington's or Haultain's operation (requiring dissection of the cervical ring posteriorly), and transvaginal – Spinelli and Kustner method. Division of constricting cervical ring anteriorly through vagina is used in Spinelli method which required care of bladder and ureter. Posterior division of cervical ring done in Kustners operation.[1,3,6,2,11,13] In intractable cases hysterectomy is the last resort.[1,8,9] Successful uterine replacement is followed by uterotonics administered to promote contraction of the uterus and prevent re inversion.[11,13] Appropriate antibiotic is required to prevent infection.[14]

Role of tocolysis (Terbutaline, magnesium sulphate and nitroglycerine) in reposition of the uterus. Since, reduction of uterine inversion can be challenging in the presence of a constriction ring. Tocolysis allows relaxation of the uterus before manual replacement or use of the hydrostatic method. The adverse effect of tocolytic mediated reduction in uterine tone, however, can cause an aggravation of postpartum haemorrhage.[16]

CONCLUSION

Uterine inversion is a life threatening obstetric complication requiring prompt diagnosis and urgent clinical intervention. Owing to its rarity and high morbidity and mortality a high index of suspicion is required to diagnose the condition. In our case series, the cases of uterine inversion coming from peripheral referral centres have been managed and deligently and successfully in our institution.

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