SJIF Impact Factor: 6.711

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 9.
Issue: 5
Page N. 225-228
Year: 2025

Case Series

www.wjahr.com

SURVIVING THE INEVITABLE: A JOURNEY THROUGH UTERINE INVERSION

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Article Received date: 12 March 2025 **Article Revised date:** 02 April 2025 **Article Accepted date:** 22 April 2025

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ABSTRACT
Uterine inversion is the complication of third stage of Labor, in which the uterus is turned inside out partially or completely. Its incidence varies between different population (1:2000 – 50000) births. It is an obstetrical emergency leading to shock in which shock is out of proportion of the blood loss and it can also lead to death. Immediate treatment of uterine inversion is required, a manual reduction if not possible then surgical management by different techniques can be life saving. Three different females with normal vaginal delivery at different government center at peripheral hospital came with complain of bleeding per-vaginum and shock. Clinical diagnosis was made as uterine inversion. Appropriate measures done to save the patient's life. Uterine inversion is a potent life-threatening condition. It can be prevented by careful monitoring of third stage of Labor and by controlled cord traction. Pulling the cord simultaneously with fundal pressure should be avoided. Its prognosis is grooming, sometimes if patient survives infection, sloughing of the uterus and chronic inversion with poor health may occur.

KEYWORDS: uterine inversion, Huntingtons method, spinelli method, kustner method, Johnson's manuver, Ocejo's method, Johnson's manuver.

INTRODUCTION

Uterine inversion is the complication of third stage of Labor in which the uterus is turned inside out partially or completely. It is an emergency condition if not diagnosed and treated timely, it can lead to severe hemorrhage and shock resulting in maternal death. The incidence of uterine inversion is approximately 1 in 2500 - 3700 deliveries. There are three degree of uterine inversion, first degree: there is a dimpling of the fundus which remains above the internal OS, second degree: fundus passes through the cervix but lies inside the vagina and 3rd degree: endometrium with or without the attached placenta is visible outside the vulva. It can be acute (24 hours or less after delivery), subacute (longer than 24 hours postpartum) and chronic (longer than one month postpartum) depending upon the duration of insult.

CASE REPORTS

Case: 1

25 years old woman P_2L_2 came to labor room emergency with complain of bleeding per vagina for six hours after spontaneous vaginal delivery at primary health care center. She was semi-conscious and severely pale. On examination pulse was 140 beats per minute and systolic blood pressure was 40mmHg and diastolic blood pressure was non recordable SPO_2 was 99% on room air. On abdominal examination, abdomen was soft but cupping of uterine fundus was palpable. On perineal examination a pack was present which was removed, and a globular firm mass was felt in vagina along with bleeding per vagina. Diagnosis of uterine inversion was made. Vigorous fluid resuscitation for shock management and IV antibiotics initiated. Blood was sent for routine investigations and for cross matching. Her hemoglobin came to be 2.2 g/dl, RBC was $0.38x10^6$ /µl, platelet $54x10^3$ /µl, WBC count was 8.69 x 10^3/µl. After primary resuscitation and blood transfusion, the patient was shifted for operation surgery. An attempt of vaginal manipulation done under general anesthesia which was failed hence exploratory laparotomy was done. During laparotomy typical sign of uterine inversion was present uterine fundus was absent and bilateral fallopian tubes were pulled medially into the central constriction ring, only the fimbrial end of the fallopian tubes and the ovary was visible at the edge of the constriction ring. The constriction ring was very tight. Firstly, Huntington's

method was tried by applying tension on the bilateral round ligaments but failed. Hence another method tried. A linear incision was made on the posterior wall of the uterus while applying gentle upward pressure per vaginally (Haultain method). Uterus was flabby hence uterotonics were given along with B -lynch suture. Posterior wall linear incision was repaired. bilateral tubal ligation was done. Post operative period was uneventful. A total of 4-unit PRBC transfused after surgery. Patient was discharged on 10th postoperative day.

Pic showing absent uterine fundus with invaginated fallopian tube

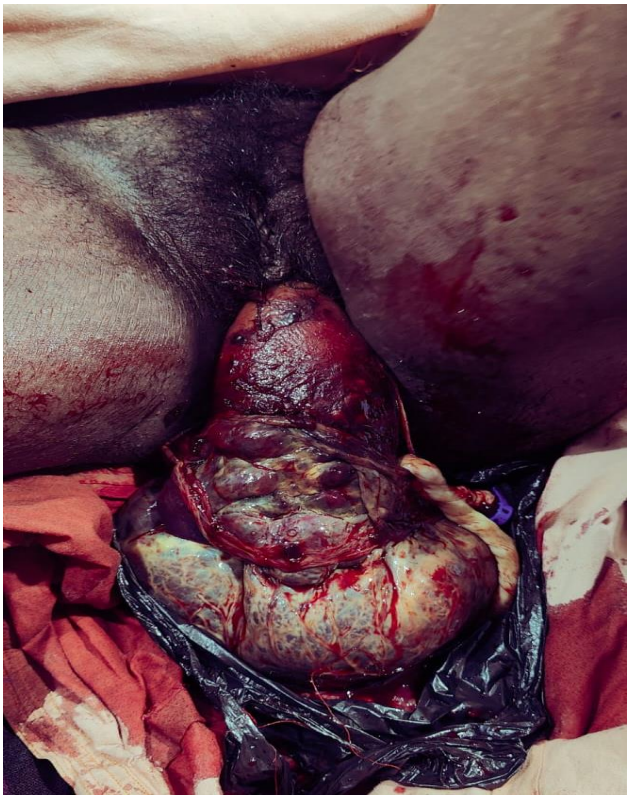
Case 2.

A 24-year-old P_2L_2 female with one vaginal delivery 2 years back and the second pregnancy is the present one came to labor room emergency with complain of bleeding per vaginum after delivery of a male baby six hours before at PHC. On examination, she was conscious and oriented to time place and person, her pulse rate was 140 beats per minute and BP was 70/40mmHg. On perineal examination, bleeding was present, two fists of clot were removed a bleeding and a heart shaped globular mass was felt in the vagina. Diagnosis of uterine inversion was made. The patient was treated by fluid resuscitation with colloids and crystalloids and blood sample was send for cross matching. Patient was immediately shifted to OT and under total intravenous anesthesia, vaginal reposition of inverted uterus was done. Uterotonics were given. There was still profuse bleeding due to uterine atony hence Chhattisgarh balloon catheter was inserted in-situ along with two vaginal packs. The patient was shifted to ICU, blood transfusion was done. Patient's pulse was 166 beats per minute and BP was 80/50 mm of Hg and hence injection noradrenaline was started. The patient improved gradually. After two hours, her pulse was 130 beats per minute while blood pressure was 108/60mmofHg and urine output was adequate. The patient was on noradrenaline for next one day and then gradually it was tapered. Patient was comfortable. 5 unit of PRBC transfused totally and the patient was discharged on the 5th post operative day. She was discharged with oral antibiotics and pain medication.

Pic of bleeding per vaginum after uterine repositioning

Case 3.

A 28-year-old lady came to labor room emergency with complain of bleeding per vaginum after delivery of a female child 3 hours ago at home. The patient was P2L2, her first child was three years old delivered vaginally at home and this was her second pregnancy. On examination, the patient was conscious oriented to time place and person, her pulse was 130 beats per minute, saturation was 88% on room air and blood pressure was 70/40mmofHg. On per abdominal examination, uterine cupping was felt and on perineal examination, uterine inversion with non-separated placenta was seen. Blood was taken for investigation and cross matching for blood transfusion. Immediately the patient was shifted to operation theatre. Fluid resuscitation was done and with one unit of blood in hand, uterine reposition was tried but reposition could not be made so immediate laparotomy was done. Uterine reposition was done by huntingtons method and then placenta was removed. Modified B-lynch sutures were taken and intra-uterine carboprost was injected. All management of PPH was done and 3 vaginal packs were given. Postoperatively the patient improved, her pulse was 100 beats per minute and the BP was 108/94 mm of Hg. Post operatively, 4-unit blood was transfused. She improved gradually. Skin sutures were cut on the 8th post-operative day, but wound gape occurred. Secondary suturing given. After one week, stitches were removed and the patient was discharged.



Uterine inversion along with placenta

DISCUSSION

Uterine inversion can be spontaneous or iatrogenic.[1] Spontaneous is due to localized atony on the placental site over the fundus, fundal attachment of the placenta, short code, and placenta accreta. Iatrogenic is due to mismanagement of the third stage of Labor in which pulling the cord when the uterus is atonic especially when combined with fundal pressure and the faulty technique of manual removal of placenta by a less experienced practitioner is most common. Risk factor includes uterine over enlargement, placenta accrete, short cord, manual removal of placenta, uterine malformation, prolonged labor, fetal macrosomia and tocolysis.[2] It leads to shock which is mainly neurogenic[3] due to 1) tension on the nerves due to a stretching of infundibulo-pelvic ligament, 2) pressure on the ovaries as they are dragged with fundus through cervical ring. Secondarily, it is due to the hemorrhage especially after the detachment of the placenta.[4] It can be diagnosed by symptoms in which there is a severe acute pain abdomen, bleeding along with a mass that can be seen protruding from the vagina.[5] On upper abdominal examination, fundus cannot be palpated and there is cupping. Patient goes into shock and the shock is out of proportion of the blood loss. However, sonography can confirm the diagnosis when clinical examination is not clear.[6] If an inversion occurs, we should call for extra help, and we should try to reposition uterus before the shock develops. Urgent manual replacement of uterus should be done, even without anaesthesia, if it is not readily available.[7] For manual, repositioning of the uterus the part of uterus which is inverted last is replaces first(Johnson's manuver).[8] By applying steady firm pressure exerted by fingers and also by applying counter support with the other hand placed on the abdomen. After replacement, hand should remain inside the uterus until the uterus become contracted by oxytocics. The placenta is to be removed manually only after uterus become contracted. However, placenta may be removed prior to replacement to reduce the bulk which facilitates replacement or if partially separated to minimise blood loss. And also in case of caesarean section, because the bulk of the uterus and the placenta may prevent reduction of the uterus through the incision. If shock develops then immediately start normal saline drip and blood transfusion should be arranged and foot end of the bed should be raised. If manual reposition is failed then we should try hydrostatic method O'Sullivan method. In this method, the uterus is replaced into the vagina and warm sterile fluid up to 5 litre is gradually instilled into the vagina[9] through douche nozzle. Vaginal orifice is blocked by operating palm supplemented by labial opposition or silicon cup or vacuum extraction cup can be used. The douche can be placed at a height of about 3 feet above the uterus. The water distend the vagina and consequent increase intra vaginal pressure leads to replacement of the uterus. If deposition is failed either by manually or hydrostatic method then surgical method is tried. Earlier vaginal method was used which includes spinelli method or kustner methods.[10] But now abdominal surgery is done by Haultain method or Huntington's method. In abdominal approach, laparotomy is done first by huntington's method. Tocolysis is given and combined reposition by simultaneously pushing upward from below and pulling upward from above and then application of atraumatic clamps to each round ligament and upward traction may be helpful (Huntingtons method). In some cases a deep traction suture in the inverted fundus or grasping it with tissue forceps may be helpful. If constriction ring is still prohibiting reposition, longitudinal surgical cut incision is made posteriorly through the ring to expose the fundus and permit reinversion(Haultain method)[11], if incision is being made anteriorly it is called Ocejo's method but avoided due to risk of bladder injury.[12] After uterine inversion replacement is done, oxytocin and other uterotonics are given and uterine incision is repaired. In some cases uterus will again invert almost immediately after repositioning. If this occurs, compression sutures are given. Uterine inversion can be prevented by not pulling the cord simultaneous with fundal pressure and manual removal done in proper way. Prognosis is extremely groovy, even if the patient survives, infection sloughing of the uterus and chronic inversion with ill health may occur.

CONCLUSION

Uterine inversion is an acute emergency obstetrical problem that needs prompts diagnosis and urgent intervention. High index of suspicion is required to diagnose such cases as these cases are very rarely encountered in clinical practice. Very early attempt to

remove partially separated placenta without controlled cord traction in conjugation with inadvertent fundal pressure may land up in such situation. Management requires prompt recognition, swift intervention and comprehensive postoperative care by employing appropriate technique and close monitoring. Complications can be minimized and successful outcome can be achieved.

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