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Case Series

Puerperal uterine inversion-a near miss: case series

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ABSTRACT

Uterine inversion occurs when the uterine fundus collapses into the endometrial cavity, turning the uterus partially or completely inside out. It is a rare and severe complication with an incidence of 1:2000 to 1:50000 reflecting the quality of third stage of Labour. We studied case series of 4 cases on postpartum uterine inversion. We studied case series of 4 cases on postpartum uterine inversion in our hospital (MMIMSR), who were referred to us, from local hospitals with postpartum collapse in shock. Patient resuscitated with colloids and crystalloids, blood and blood products. Methods such as manual reposition of uterus have aided to reduce maternal morbidity and mortality in our cases. Hence early recognition and timely referral to a tertiary care hospital with ICU and blood bank facilities, helps to manage obstetrical emergencies. Acute uterine inversion is an obstetric emergency and can lead to the maternal mortality. Proper training of health care workers to conduct labour, institutional deliveries and active management of third stage of labour should be encouraged. Early diagnosis and appropriate management is the key to reduce maternal morbidity and mortality.

Keywords: Uterine inversion, Placenta, O Sullivan`s hydrostatic pressure

INTRODUCTION

Uterine inversion occurs when the uterine fundus collapses in endometrial cavity, turning uterus partially or completely inside out.[1]

Puerperal inversion of uterus remains a dreadful complication in 3rd stage of labour. It is rare with an incidence of 1:2000 to 1:50,000. How ever on the other hand, nonpuerperal uterine inversion accounts for only the 5% of all uterine inversions.[2] Mismanaged third stage of labour with excessive cord traction, remains mostly the common cause of puerperal uterine inversion. Prolonged labour with uterine inertia and multiparity are additional risk factors. Diagnosis of puerperal uterine inversion is mostly supported by absence of well retracted uterus at level of umbilicus just after delivery, along with neurogenic shock, haemorrhage and pelvic pain. Uterine inversion may occur before separation of placenta or after placenta has already been removed. The severity of uterine inversion has been classified into four degrees:1st degree (incomplete inversion)-fundus collapsed into the uterine cavity, 2nd degree (complete inversion)-fundus protrudes through introitus, 3rd degree (prolapsed inversion)-prolapse extends beyond the introitus and 4th degree (total inversion). Entire uterus along with vagina are everted.[3]

On the basis of time of occurrence, uterine inversion has been classified into: Acute which occurs within the 24 hours of birth, subacute which occurs >24 hours after delivery but within four weeks postpartum and chronic which occurs ≥1 month postpartum and is rare.

Early diagnosis and prompt management is cornerstone to reduce the maternal morbidity and mortality. Management consists of resuscitative measures with two wide bore cannulas and establishing airway, breathing and circulation. Rushing crystalloids and colloids along with simultaneous manual replacement of the uterus under general anaesthesia in operation theatre is first line approach. In event of failure of above method, O Sullivan`s hydrostatic pressure technique is to be tried.

In rare circumstances where above methods do not succeed, operative abdominal methods such as Huntington procedure and Haultain procedure or operative vaginal methods may be chosen for chronic inversion of uterus.

Here we report case series of 4 successfully treated cases of puerperal uterine inversion in last one year.

CASE SERIES

Case 1

A 25-year-old P1L1 referred to obstetrics emergency MMIMSR, tertiary care rural centre with postpartum haemorrhage. Patient was in shock and had history of full-term vaginal delivery conducted at home by skilled birth attendant. On admission patient was drowsy, pale, had cold clammy extremities with feeble pulse-140 bpm, BP-80/60 mmHg, O_2 saturation was 96% on room air. On doing abdominal examination-uterus was not at all palpable. On per speculum examination, a congested and smooth hyperaemic mass with a velvety surface was seen in vagina. Investigation-on admission: Hb-6.6 gm%, TLC-120000, INR-1.2, S. Creatinine-1.30 mg/dl. A provisional diagnosis of 3rd degree uterine inversion with PPH and severe anaemia in shock was made. Patient was put on inotropic support and airways; breathing and circulation was established. Resuscitation with crystalloids, blood and blood products with simultaneous exploration in operation theatre under general anaesthesia was done. Manual Reposition of uterus was done by cupping technique. Uterotonics were administered due to uterine atony. After regaining uterine tone, balloon tamponade was put into the cavity of uterus. Four unit PRBC were transfused during intraoperative procedure and patient was kept on ventilatory support. Patient was extubated after 12 hours of procedure. She was kept in intensive care unit 48 hrs post operatively, broad spectrum antibiotics were started and 2 more units of blood transfusion were given in the immediate post operative phase. Patient was then discharged in well stabilized condition on 9th postpartum day with the haemoglobin level of 10 gm/dl.

Case 2

A 27year old P1L1 presented to our hospital 6 hours after delivery, in a shock. The patient had a spontaneous full term vaginal delivery at private hospital, following which there was torrential bleeding per vaginum. On admission, her BP-80/50 mmHg, pulse rate-150 bpm, RR-20 cycles/min, with 98% O_2 saturation at RA. On per abdominal examination, uterus was 12-14 weeks size with a depression noted at fundal region. On per speculum examination-a round boggy congested mass was noted in the vagina. On bimanual examination, cervical os opening was felt around the boggy mass suggestive of 2nd degree uterine inversion. Investigations-Hb-6.2 gm/dl, TLC-30,000, INR-1.5, S. creatinine-0.9 mg/dl. Patient was examined under general anaesthesia. Manual reposition of uterus was done and uterotonics were started. Once uterine tone was regained back, balloon tamponade was done episiotomy was re-sutured. Patient was shifted to ICU, uterotonics were continued for a 24 hour period and patient was kept on ventilatory and inotropic support for 24 hours. Patient received 2-units of PRBC during intraoperative period and 2 more unit PRBC during postoperative period. Patient recovered gradually and was discharged on day 10 of postoperative period with Hb of 10.2 gm/dl.

Case 3

A 28-year-old, P1L1 was referred from a local hospital with history of delivery of live healthy baby weighing 3.4 kg, 12 hour back. She was referred to our hospital in view of postpartum haemorrhage. On examination, patient is drowsy, pale, BP on admission-70/60 mg and pulse rate-142 bpm, O_2 saturation was 97% on room air. On P/A examination -abdomen was soft, fundus could not be felt except a dimple. On Per speculum examination, uterine fundus with firmly attached placenta was seen in the vagina along with profuse bleeding per vaginum (Figure A and B). A diagnosis of uterine inversion, retained placenta and PPH with severe anaemia in shock was made. Investigation-Hb-5.4 gm TLC-18,000, INR-1.4, serum creatinine-1.0 mg/dl. Patient was immediately taken to OT. Under the general anaesthesia, manual reposition of the uterus was done using the Johnson manoeuvre and uterotonics given for 24 hours. The placenta separated spontaneously during the procedure. Patient received 2 unit of PRBC, and was started on inotropic support during intra op period. Patient received ICU care for 3 days, broad spectrum antibiotics and 3 unit PRBC were given in post op period. Patient was then discharged on post op day 10 in satisfactory condition with Hb of 11.2 gm/dl.

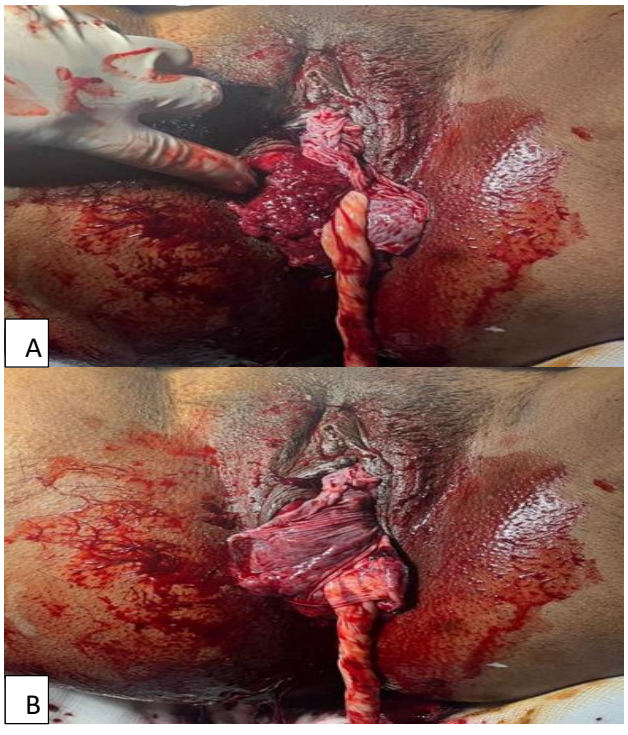

Figure 1 (A and B): Inversion uterus with placenta.

Case 4

A 22-year-old P2L2 came to us,10 hours after birth in a state of shock. She had history of vaginal delivery, conducted by a skilled birth attendant at home. Immediately after delivery, she had uterine inversion during the third stage of labour. Inversion was diagnosed by midwife and immediately patient was brought to hospital. At the time of admission, blood pressure was 80/50 mmHg, pulse rate was 143/ min and feeble and oxygen saturation was 99% at room air. On doing abdomen examination, fundus was not palpable. On per vaginal examination, cervical ring encircling the fundus felt, thus making the firm diagnosis of third-degree puerperal uterine inversion. Patient was then explored in OT under anaesthesia and repositioning of uterus was done manually along with simultaneous resuscitative measures. Uterotonic agents were given, due to which uterus became well retracted. Patient was on inotropic support and intravenous fluids and received 4 units of blood transfusion along with simultaneous resuscitation done by anaesthesia team. Patient was extubated 3 hours after procedure. The postoperative period was nearly uneventful and she was given discharge on 8th postoperative day with a Hb of 9.8 gm/dl.

DISCUSSION

Puerperal uterine inversion is an unusual dreadful complication of puerperium, giving minimal time in reviving the patient, once she develops postpartum haemorrhage and shock. The severity of uterine inversion has been classified into four degrees-In 1st degree; uterine fundus is found within uterine cavity and when fundus protrudes through the cervical OS, then it is a 2nd degree inversion. The 3rd degree is when fundus exteriorizes outside the vagina. Complete uterine inversion associated with vaginal inversion is 4th degree inversion. Diagnosis is made on the basis of postpartum haemorrhage and severe neurogenic shock, due to the excessive pulling of parasympathetic nerves, inability to palpate uterine fundus and appearance of a vaginal mass. Ultrasound may aid to confirm diagnosis.

The aim of management is replacement of uterine fundus to its normal position, management of shock and postpartum haemorrhage by simultaneous resuscitative measures and to prevent recurrence of inverse. Early interventions for managing uterine inversion: call for help, discontinue all uterotonics agents and administer crystalloids, colloids and blood products aggressively are cornerstone for success along with resuscitative measures. The first approach is reversal of uterus manually through vagina. This is done mostly by pushing the fundus by placing a hand inside the vagina, along the long axis of vaginal cavity toward the umbilicus under general anaesthesia. This manoeuvre is called Johnson manoeuvre, causes the stretching of ligaments of uterus which ultimately leads to widening of cervical ring thus aiding in repositioning.[4] Once reduction occurs, uterotonic agents and tamponade are used for maintaining uterine tone and to prevent reversion.[5] When this method fails, O'Sullivan hydrostatic manoeuvre is tried, using hydrostatic pressure for replacement of uterus to its anatomical position.[6] In this method, a bottle of warm saline is placed 2 meter above patient`s position and fluid is allowed to flow with the help of tubing into vagina. The pressure of the water leads to correction of inversion. A new modification of hydrostatic pressure method requires filling of vagina with 2-5 litres of warm saline, by attaching the tubing of saline to silastic ventouse cup, which help to provide a better seal. The pressure applied intravaginally return the uterus to its normal anatomical position. If above measures fail to replace the uterus, then surgical approach becomes imperative. The surgical methods used for uterine replacement are either abdominal or by vaginal route. Abdominal procedures are Haultain procedure and Huntington procedure. In Huntington procedure, laparotomy is required to locate fundus of uterus. Allis clamps are placed at round ligament and traction is applied toward umbilicus. Placement of further clamps is done at 2 cm interval on advancing fundus and process is repeated until inversion is corrected.[7]

In case of failure of this procedure, Haultain procedure is also used with Huntington procedure, in which a horizontal hysterotomy like incision is given in posterior part of lower uterine segment, ultimately increasing the size of opening.[8] Apart from this, there are also two vaginal methods: Spinelli's consisting of anterior median colpohysterotomy through vaginal route which allows the removal of cervical constriction and Kostner's consisting of posterior median colpohysterotomy.[9]

In conclusion, the effectiveness and simplicity of manual method of replacement make it the first line procedure of choice. Despite various methods, prevention is of utmost importance as it reduces maternal morbidity and mortality. Hence controlled cord traction for delivery of placenta is optional, to be practiced by skilled birth attendant only.

CONCLUSION

Puerperal uterine inversion of uterus, being a very rare complication of vaginal or caesarean birth, is an obstetrical emergency and can lead to postpartum haemorrhage and neurogenic shock, resulting in maternal near miss or mortality. In our current situation, health care workers in the periphery should be trained efficiently to practice controlled cord traction for delivery of placenta. Institutional deliveries should be encouraged. How ever if uterine inversion occurs, early diagnosis and prompt management with simultaneous resuscitation and manual reposition of uterus is key to best outcome in terms of maternal health, thereby reducing maternal morbidity and mortality.

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