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Haultain Procedure in Irreducible Uterine Inversion: A Fertility-Preserving Surgical Approach

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Abstract: ***Chronic uterine inversion is an uncommon but important cause of abnormal uterine bleeding and vaginal mass in gynaecological practice. Unlike acute inversion, it presents with persistent vaginal mass, abnormal bleeding, and anaemia rather than shock. Surgical correction is often required due to fibrosis and formation of a tight cervical constriction ring. We present a case of a young women who developed sudden heavy menstrual bleeding and was found to have chronic uterine inversion which was managed by Haultains procedure.***

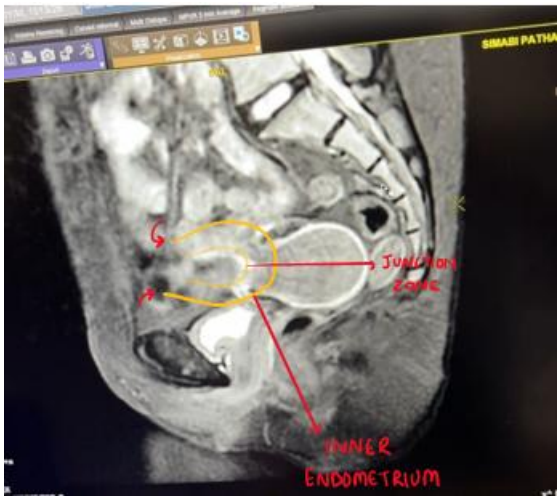
Keywords: Inversion, Huntington procedure, Haultain procedure, anaemia

1. Introduction

Uterine inversion is a condition in which the uterus turns inside out with prolapse of the fundus through the cervix. [1] Although rare, it is of two types which can occur in two distinct clinical situations. First is the acute type which almost always occurs in the immediate postpartum period. It is associated with severe pain, post-partum haemorrhage and acute anaemia. The other variant is the chronic inversion which is insidious in onset. It is usually associated with vaginal discomfort, irregular vaginal bleeding, vaginal discharge and anaemia [2] Chronic uterine inversion is a complication that occurs either beyond 4 weeks of delivery or in a non-pregnant woman which can be due to causes such as submucosal myomatous polyp in the fundal region causing traction effects, sarcomatous changes in fundal fibroma infiltrating myometrium, weakening of uterine walls and causing inversion it can also occur following cervical amputation possibly due to cervical atony or incompetency.[3]

2. Case Report

A 22-year-old P2L2 presented to the emergency department with complaints of heavy menstrual bleeding for 10 days during her regular menstrual cycle. The bleeding was associated with passage of clots and progressive dizziness. She had a similar episode seven months prior, for which she was hospitalized. Ultrasonography performed at that time suggested chronic uterine inversion. She received correction of anemia and was planned for elective surgical correction; however, she was discharged on request and did not follow up. On examination the patient was conscious, oriented, and hemodynamically stable but appeared markedly pale. She complained of dizziness. Per speculum examination revealed a red, velvety mass protruding into the vagina from the cervix, consistent with uterine inversion. The cervical rim could be felt circumferentially around the mass. blood investigations were sent. Her hb was 2.9 g/dL, TLC 7200/mm³, and platelet count 3.11 lakh/mm³ suggestive of life-threatening anemia. In view of the critically low haemoglobin level (2.9 g/dL), the patient was transfused with packed cell volume (PCV) on an urgent basis. She received multiple units of packed red blood cells with close hemodynamic monitoring. The transfusions were well tolerated. Serial haemoglobin assessments showed gradual improvement. Concurrently, anemia correction was continued with haematinics and nutritional optimization. Additional laboratory investigations and pre-anaesthetic evaluation were performed to assess operative fitness. MRI was done which revealed uterine inversion prolapsing into cervix and vagina.

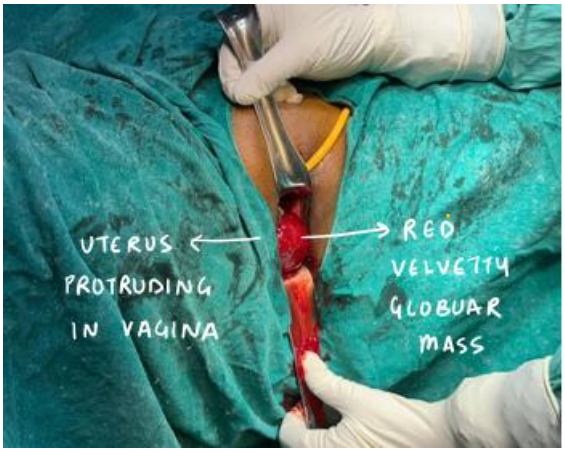


Over a period of 20 days, the patient was optimized for surgery. Once haematologically stable and deemed fit for anaesthesia, she was scheduled for a planned surgical procedure.

The patient was posted for:

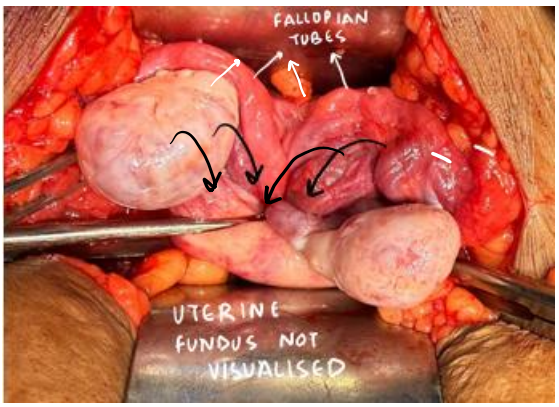
- Evaluation under anaesthesia (EUA)
- Exploratory laparotomy
- Surgical correction of uterine inversion
- **SOS hysterectomy**, if repositioning was not feasible or in case of uncontrolled intraoperative bleeding.

Evaluation under anaesthesia was done and findings were confirmed. Per speculum examination showed red velvety mass protruding from cervix into vagina.



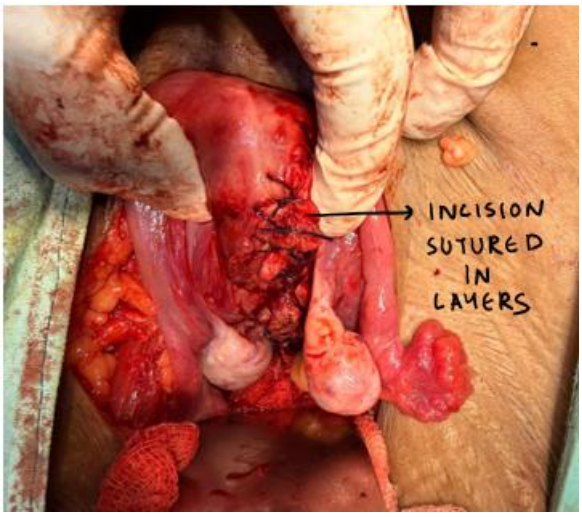
On exploratory laparotomy, classical intraoperative findings were noted. There was a characteristic "flower vase" appearance of the uterus, with a cup-shaped depression at the site of the uterine fundus. The uterine fundus was not visible in its normal anatomical position.

Instead, a concavity was observed at the fundal region, into which both fallopian tubes and round ligaments were seen converging and entering.



Intraoperative photo showing dipping of fundus with flower vase appearance

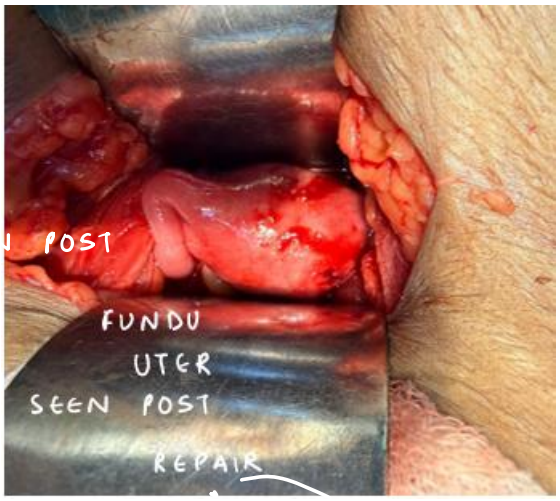
The posterior rim of the constricting cervical ring was identified. A longitudinal incision was made over the posterior cervical ring to release the constriction (Haultain procedure). Following this, gradual and controlled upward traction was applied to reposition the inverted uterus to its normal anatomical configuration.



Incision was sutured in layers. To provide additional uterine support and reduce the risk of recurrence, bilateral round ligament plication was performed. Haemostasis was secured, intraperitoneal drain was kept and abdominal closure was completed in layers.

The patient tolerated the procedure well and was shifted to the recovery unit in stable condition.

Post operatively one packed cell volume was transfused.



She was monitored. Her haemoglobin improved to 10.2g/dl. The intraperitoneal drain was removed on postoperative day 4, and she had an uneventful recovery. She was discharged in stable condition on postoperative day 7 with no ischemic or urological complications.

3. Discussion

Uterine inversion is a condition in which the uterus turns inside out. Initially, the fundus of the uterus is pushed down into the uterine cavity, creating a cup-shaped depression on the peritoneal surface. With continued uterine contractions, the invagination progresses further until the uterus may become completely inverted and descend into or outside the vagina.[4] When the peritoneal surface is examined, structures such as the fallopian tubes, ovarian ligaments, and round ligaments appear to pass into a deep hollow where the uterus

normally lies. Uterine inversion may be classified as partial or complete depending on how far the uterus has turned inside out.

The second classification is according to the delay between the delivery and the diagnosis of the uterine inversion: [5]

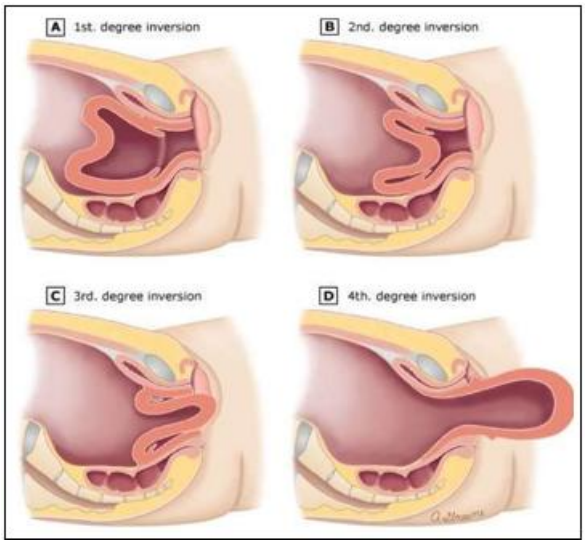
- Acute inversion arises immediately or within 24 hours after delivery.
- Subacute inversion occurs after the first 24 hours and within four weeks after delivery.
- Finally chronic inversion arises after more than four weeks after the delivery

The second classification is commonly used. It is based on the anatomical severity of the inversion. [5]

- First Stage: There is dimpling of the fundus but the fundus still remains above the level of the internal OS.
- Second stage: The fundus passes up to the internal OS but not up to the introitus.
- Third stage: The fundus extends up to the introitus
- Fourth stage: The uterus is completely turned inside out and lies partly outside the vulva.

Acute inversion-

Most cases of acute inversion occur after childbirth (puerperal inversion). It may result from excessive traction on the umbilical cord when the placenta is still attached, or from pressure applied to a relaxed uterus immediately after delivery. In some cases, it occurs spontaneously due to uterine contractions or muscle weakness at the fundus, and is often associated with severe shock and heavy bleeding.[6]



Chronic inversion-

Chronic uterine inversion occurs when an inversion that began during the postpartum period is not recognized or when it is associated with the extrusion of a submucous fundal myoma. Women commonly present with intermittent lower abdominal pain, irregular vaginal bleeding, and sometimes offensive blood-stained discharge due to infection.[7] In some cases, fibrosarcoma may soften the uterine wall and contribute to inversion. Diagnosis can be difficult and requires identifying a cup-shaped depression at the uterine fundus. In complete inversion the cervix is drawn upward and not palpable, while in partial inversion the uterine sound passes only a short distance. Ultrasound and laparoscopy help confirm the diagnosis.

Chronic uterine inversion usually results in the formation of a dense constriction ring, progressive edema and tissue necrosis, the uterus can't be reverted to normal anatomy by manipulation. Hence, surgery is usually required. If managed in a timely correct manner, uterine inversion has a good prognosis. Surgical management depends on various factors like preoperative diagnosis, stage of inversion, the extent of necrosis, age of the patient, the reproductive desire for parturition, and the skill of the attendant. In benign cases with a completed family, abdominal or vaginal hysterectomy is recommended and in cases associated with malignancy, radical treatment is necessary. Some surgical methods are available to treat chronic non-puerperal uterine inversion. The efficacy of non-surgical methods is not clear. Huntington and Haultain's techniques are commonly used in abdominal operation procedures. The Kustner and Spinelli are the vaginal approach procedures which can be used. Robotic and laparoscopic surgeries are upcoming advances for treating chronic uterine inversion.

The **Huntington procedure** and **Haultain procedure** are abdominal surgical techniques used to correct uterine inversion. In the Huntington procedure, the abdomen is opened and the inverted uterine fundus is gradually pulled upward using clamps placed on the round ligaments or the uterine wall. The uterus is repositioned step by step by applying gentle traction, and no incision is made on the constriction ring. This method is generally suitable when the constriction ring is not very tight.[8] In contrast, the Haultain procedure is used in cases where the constriction ring is tight and prevents repositioning of the uterus. In this technique, after opening the abdomen, a longitudinal incision is made on the posterior aspect of the cervical constriction ring to release the tight ring. Once the ring is incised, the inverted uterus is pushed back to its normal anatomical position and the incision is then sutured.[9] Thus, while the Huntington procedure relies on traction without cutting the constriction ring, the Haultain procedure involves surgical incision of the ring to facilitate repositioning.

The abdominal route is preferred over the vaginal as the incision of the uterus is reduced to a minimum, traction on the round and broad ligaments helps in reposition, the uterine wall can be more accurately sutured and haemorrhage more efficiently controlled. Therefore, we also adopted the Haultain's abdominal approach with a good surgical outcome.

4. Conclusion

Chronic uterine inversion is a rare but serious gynaecological condition that may present with abnormal uterine bleeding, a vaginal mass, and severe anemia. Early recognition and timely intervention are essential to prevent life-threatening complications and to preserve reproductive function. Due to the presence of a constriction ring and associated tissue changes that hinder manual repositioning, surgical management remains the mainstay of treatment. Among the available surgical techniques, Haultain's procedure is an effective fertility-preserving option, particularly in cases with a tight cervical constriction ring. This case also highlights

how the management, prognosis, and overall outcome can be significantly influenced by the patient's family support and socioeconomic circumstances. In our case, the patient was initially admitted and underwent correction of anemia; however, she went home due to her personal reasons before definitive surgical management could be performed. She later presented again with more severe symptoms, which might have been avoided had the surgical correction been undertaken during the initial admission. Therefore, along with accurate diagnosis and appropriate surgical intervention, addressing social and economic barriers and ensuring proper counselling are important to achieve favourable outcomes. Prompt management and careful follow-up can lead to successful restoration of normal uterine anatomy with minimal complications.

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