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Case Report

Inversion of uterus with sub mucus fundal fibroid with secondary infection: a rare case report

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ABSTRACT

Uterine inversion is a rare gynecological condition where the uterus turns inside out, typically starting with the fundus descending into the uterine cavity and potentially progressing to complete inversion with vaginal prolapse. It is classified as complete or partial based on the extent of inversion. While most cases (85.8%) are acute and associated with childbirth, non-puerperal uterine inversion—occurring outside the obstetric context—accounts for only 16.35% of cases and is seldom encountered in clinical practice. Non-puerperal inversions are usually linked to uterine pathology and affect women in their reproductive years. The most common cause is the prolapse or extrusion of submucosal fibroids, particularly those located at the fundus, responsible for 80–85% of cases. Less common causes include endometrial polyps, neoplasms, and increased intra-abdominal pressure. Diagnosis of non-puerperal uterine inversion before surgery is difficult and requires a high index of suspicion. Management is exclusively surgical, with the choice of approach based on the patient's fertility preferences. Uterus-preserving surgeries are preferred when future fertility is desired. Surgical techniques include abdominal approaches (Huntington and Haultain procedures) and vaginal approaches (Kustner and Spinelli procedures). Although abdominal hysterectomy is commonly performed, vaginal hysterectomy can be safe and effective with proper technique. Complications such as superinfection, ulceration, and necrosis of the prolapsed mass are possible and should be managed promptly with broad-spectrum antibiotics and appropriate wound care. Successful outcomes depend on early recognition, accurate diagnosis, and skilled surgical intervention tailored to the individual patient.

Keywords: Non puerperal chronic uterine inversion, Vaginal myomectomy, Superinfection

INTRODUCTION

In uterine inversion, the uterus turns inside out. Initially, the fundus descends into the uterine cavity, creating a cup-shaped indentation on the peritoneal surface. This inversion continues, eventually resulting in the entire uterus being turned inside out and protruding into the vagina.

Upon examining the peritoneal surface of the inverted uterus, the fallopian tubes, ovaries, and round ligaments are visible, appearing to extend into a deep depression where the uterine body would normally be. Uterine inversion is categorised as either complete or partial, depending on the extent of the inversion.[1]

This condition is quite rare, with most cases being acute and related to childbirth (85.8%). Non-puerperal uterine inversions, which are less common and occur in chronic or gynaecological contexts, account for about one-sixth of all inversion cases (16.35%). Acute non-puerperal inversions are particularly rare, with only 8.6% of these cases reported as sudden occurrences. Due to their rarity, most gynaecologists may never encounter a non-puerperal uterine inversion in their career.[2]

Gynaecological uterine inversions are often linked to uterine pathology and tend to affect older women in their reproductive years. The most frequent triggers for these inversions (80-85% of cases) are prolapse or extrusion of fibroids, particularly submucosal myomas at the uterine

fundus. Less common causes include endometrial polyps and neoplasms. Additionally, hormone replacement therapy and increased intra-abdominal pressure have been noted as factors that may contribute to the occurrence of uterine inversion.[3]

Diagnosing non-puerperal uterine inversion before surgery can be challenging and demands a high level of suspicion. This gynaecological issue is managed solely through surgery, with the choice of procedure depending on the patient's wish to preserve future fertility. For those who wish to maintain their fertility, uterus-sparing surgery is preferred. Surgical options can include abdominal, vaginal, or a combined abdominal-vaginal approach. The commonly used abdominal techniques are the Huntington and Haultain procedures, while the Kustner and Spinelli procedures are typically employed for vaginal approaches.[2]

CASE REPORT

A 50-year-old perimenopausal female with previous 3 normal vaginal delivery referred to our hospital with a mass coming out from vagina since morning after heavy exertion which was painful and irreducible with active bleeding per vagina. Prior to this, she had a complain of something come out per vagina for 2-3 days which was not associated with pain, bleeding, fever, rigors, and chills. Her obstetric history indicated that she delivered at home with the help of traditional birth attendants, and labor lasted for less than 12 hours. Last child delivery was 23 years ago. She has no known past medical or surgical history.

On presentation, her blood pressure was 150/100 mm of Hg, other vital signs were normal, her weight was 50 kg. On inspection of external genitalia, a large, polyploidal fleshy mass was present protruding through the introitus. The mass was approximately 10 cm past the hymenal ring, globular in shape, and measured around 7×8 cm. It appeared to be attached to an inverted uterus. On palpation, per abdomen was soft and on local examination the mass was firm, painful and did not bleed on touch but bleeding was present on manipulation, the cervical rim was felt upon introitus. The external urethral meatus was normal. Catheterisation was done and per rectal examination did not reveal any uterus or any pelvic mass.

Laboratory tests indicated normal complete blood count (CBC), normal liver and renal function with normal urine routine microscopy and imaging results included a normal chest X-ray and a pelvic ultrasound, which did not show the uterus or a pelvic mass. Abdominal sonography also reported no abnormalities.

Given these findings, non-puerperal uterine inversion was suspected. The patient was admitted to the gynaecology ward and started on anti hypertensives, broad-spectrum antibiotics, anti fibrinolytic agent and perineal care initiated. Patient was planned for OT and combined abdominal-vaginal approach was chosen.

The patient was positioned in a supine semi-lithotomy position.

Vaginal procedure

Mass was tried to reposit but was not successful in replacing the uterus to its original position, so a decision for vaginal myomectomy was taken. Myoma attached to the inverted uterine fundus was excised. After removing the myoma, the tissue planes were not clearly visible, leading to the decision to convert to an abdominal hysterectomy for better visibility.

Figure 1: Mass per vagina.

Figure 2: Preoperative findings.

Figure 3: Enucleation of myoma.

Abdominal procedure

Upon opening the abdomen, both ovaries and fallopian tubes were found on either side of the constriction cup laterally. The rim of the constriction cup was cut on its posterior aspect to relieve tightness. This allowed the fundus to be pushed up through the cervix with traction applied to the round ligaments. Total abdominal hysterectomy was performed.

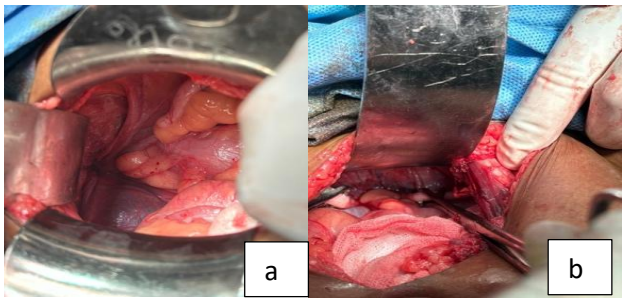

Figure 4 (a and b): Cup shape indentation on the peritoneal surface.

The removed tissue was longitudinally sectioned in the operating room, revealing features of a fundal submucosal myoma, and was sent for histopathological examination.

Figure 5: Gross specimen after surgery showing uterus and myoma.

Postoperatively patient was continued on higher antibiotics but on 4th post-operative day abdominal dressing was soiled with greenish discharge. Swab for culture sensitivity was taken which suggested pseudomonas infection and antibiotics were started according to sensitivity.

Stitch removal was done following which there was full length superficial skin gap. Daily dressing was done for 7 days along with antibiotics according to culture sensitivity report. Resuturing was done on 11th post op day. Patient was discharged from hospital uneventfully after complete suture removal.

DISCUSSION

Uterine inversion is a rare but serious complication. The following factors listed can contribute to uterine inversion.

Sudden emptying of a distended uterus

When a uterus that is significantly distended (for instance, by a large tumor or a very large fetus) suddenly empties, the sudden change in volume and pressure can increase the risk of inversion. If the uterus is already stretched and weakened, it might be more susceptible to turning inside out when the pressure dynamics change rapidly.

Thinning of uterine walls due to intrauterine tumors

Intrauterine tumors, particularly malignant ones like sarcomas, can cause thinning of the uterine walls. This thinning weakens the uterine structure and makes it more prone to inversion. Pressure atrophy from these tumors can further compromise the integrity of the uterine walls.

Dilatation of the cervix

The cervical dilation, particularly during labor, can contribute to uterine inversion if it occurs in conjunction with other factors. If the cervix dilates too quickly or excessively, it can disrupt the support structure of the uterus, especially if combined with a forceful delivery or other stress factors. Symptoms include: bleeding per vagina, mass coming out per vagina, lower abdominal pain, and urinary incontinence.

Diagnosis

Clinical examination

It includes mass coming out per vagina, negative probe test, and demonstration of endometrium on the surface of the mass.

Ultrasound findings

Transverse plane

The hyperechoic fundus surrounded by fluid creates a characteristic "target sign."

Longitudinal plane

In cases of incomplete inversion, the uterus appears "Y"-shaped with depression of the fundus, while complete inversion presents as a "U"- shaped deformity.

MRI (best modality)

MRI is superior for diagnosing uterine inversion and characterising any underlying masses.

U-shaped cavity

Sagittal and coronal images reveal a U-shaped cavity, indicating invagination of the fundus.

Bull's eye sign

Axial images may show a "bull's eye" sign, and visualisation of bulging round ligaments can confirm inversion.

Biopsy

Biopsy of the mass if malignancy if suspected.[4] A study by Lewin et al suggests using T2-weighted MRI scans to identify key features of uterine inversion, including a U-shaped uterine cavity, a thickened and inwardly curved fundus on sagittal views, and a 'bullseye' appearance on axial images. However, access to such imaging is often limited in hospitals within developing countries.[5]

Treatment approaches

Huntington abdominal approach

Grasp the round ligament and uterus below the area of inversion and slowly pull up until the uterus is reinverted.[6]

Haultain abdominal approach

Incise the vagino-cervical ring posteriorly and carry it up the posterior wall of the uterus until it can be reinverted.[7]

Kustner's vaginal approach

Enter the posterior cul-de-sac vaginally.

Split the posterior aspect of the uterus and cervix, then gradually re-invert the uterus.[7]

Spinelli's vaginal approach

Incision on the anterior aspect of the cervix', separate the bladder, then re-invert the uterus.[8]

Vaginal myomectomy

If myomas are present, perform a vaginal myomectomy before attempting hysterectomy to facilitate the procedure.[9]

Combined laparoscopic and vaginal approach

Described by Auber et al for effective management.[10]

Fertility-sparing surgeries

Possible for younger patients by abdominal, vaginal, or combined approaches.

Manual repositioning

Described by Johnson and possible for acute inversion.[11]

Saline hydrostatic pressure positioning was described by O'Sullivan, modified by Oguey and Ayida.[12]

These approaches are tailored based on the specifices of the case, including the patient's overall health, the extent of inversion, and any associated complications.

A study by Anitha et al, reposition procedures like that of Johnson are more likely to be successful in acute inversion but in chronic cases, surgery is imperative, depending on the patient's reproductive desire and associated conditions, surgical reposition or hysterectomy could be considered.[8] When addressing uterine inversion, especially in patients desiring future fertility, it's crucial to repair the uterine incision via an abdominal approach. In contrast, a routine vaginal hysterectomy may be performed when fertility is not a concern.

In cases of non-puerperal uterine inversion, there is a significant association with malignant tumors. A study by Takano et al reported a 92% incidence of tumors in these cases, with 71.6% being leiomyomas and 20% classified as malignant. This underscores the importance of maintaining a high index of suspicion for underlying pathology in such situations. Regular monitoring and thorough evaluation are essential to ensure appropriate management and treatment.[12]

CONCLUSION

Non-puerperal uterine inversion cases are rare and challenging to handle, even for experienced gynaecologists. A high level of suspicion and a thorough understanding of gynaecological surgery are crucial for achieving a successful outcome. While most surgeons prefer the abdominal approach for hysterectomy, vaginal hysterectomy can be performed efficiently and safely with some basic repositioning skills.

Cases of non-puerperal uterine inversion can be complicated by superinfection, ulceration, and necrosis of the prolapsed mass. Therefore, it is important to suspect these issues and manage them with broad-spectrum antibiotics and appropriate local wound care.

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