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**Case Report**

# Non-puerperal total uterine inversion: an unusual gynecological case managed with vaginal hysterectomy

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## ABSTRACT

Uterine inversion during puerperium is an obstetric emergency, and it is an even rarer complication posing a diagnostic challenge in gynaecology. Non puerperal uterine inversion is mostly associated with benign uterine pathology such as leimyomas. Treatment depends on the associated pathology and stage of inversion. A rare case of acute non-puerperal total uterine inversion caused by multiple fundal leiomyomas in a 47-year-old woman resulting in profuse vaginal bleeding is reported; it was successfully treated by vaginal hysterectomy. The postoperative period was uneventful, and the patient was discharged in good condition. Acute complete uterine inversion is rare in non-pregnant women, and there are only a few reported cases worldwide. It therefore poses a diagnostic dilemma to the unsuspecting gynaecologist, and therefore a high index of suspicion is needed to differentiate it from uterovaginal prolapse or a prolapsed fibroid, as the clinical presentations can be similar.

**Keywords:** Uterine inversion, Non-puerperal, Leimyomas, Vaginal hysterectomy

## INTRODUCTION

Uterine inversion is a rare clinical condition in which the fundus of the uterus descends into or through the cervix, resulting in an inside-out telescoping of the uterus out of the pelvis into the vagina or even outside the body.[1,2] Inversion of the uterus may be puerperal or non-puerperal. Puerperal inversion is a rare complication of poorly managed third stage of labour and accounts for 1 in 3500 deliveries.[2] However, the incidence for non-puerperal uterine inversion remains unclear, with just more than 100 cases reported worldwide.[2,3] Non-gravid uterine inversion is associated with uterine pathology, with 80-85% of them being associated with uterine leiomyomas.[4] Inversion of fibroid uterus is due to thinning and weakening at the seat of tumour implantation, which is more marked in larger tumours that are fundal in location. Most women present with abnormal uterine bleeding that can be significant enough to result in anaemia requiring blood transfusion or even hypovolemic shock. There might be associated abdominal pain, discomfort, fullness in the vagina, or even a mass coming out of the vagina.[5] Detailed history taking and examination, along with complementary imaging tests such as ultrasonography, are key tools for diagnosing as well as for the plan of management. The appropriate treatment depends on the general condition of the patient and the staging of uterine inversion.[6]

### *Staging of uterine inversion*

The stages include - stage 1: intrauterine/incomplete inversion-fundus remains within the cavity; stage 2: complete inversion of uterine fundus into the cervix; stage 3: total inversion where by the fundus protrudes through the vulva; and stage 4: the vagina is also involved with complete inversion through the vulva along with an inverted uterus.[6]

Surgical approach is the treatment of choice, and the extent of the surgery depends on if a fertility-sparing approach is needed as well as the suspected possible cause for the uterine inversion. For those who have completed their

family and/or bleeding significantly, a hysterectomy may be performed as both a lifesaving procedure and treatment of the uterine inversion. There are vaginal and abdominal surgical approaches for those who require a fertility-sparing procedure and are haemodynamically stable with no vascular compromise to the uterus.

## CASE REPORT

A 47-year-old woman (gravida 1, para 1) was admitted to our hospital because of profuse vaginal bleeding. On examination, she looked pale with cold and clammy extremities and was haemodynamically unstable with a heart rate of 114 beats per minute and a blood pressure of 90/54 mmHg. Her oxygen saturation was 96% on room air, and her respiratory rate was 18 per minute. She was pale, and there was a large, firm hemorrhagic mass filling the vagina and protruding to 15 cm beyond the introitus (Figure 1). The mass formed an inverted pyriform swelling. It was smooth, dark red in colour, and bleeds on palpation. The cervix was completely inverted, and no constricting ring is felt surrounding the neck of the swelling. Bimanual palpation revealed the absence of the uterine body, and only the cervix is felt abdominally.

**Figure 1: A large, firm hemorrhagic mass filling the vagina and protruding to 15 cm.**

Massive haemorrhage protocol was activated, and two wide-bore cannulas were inserted. Blood samples were sent off while she was being resuscitated. Her haemoglobin was 5 g/dl, platelets 1.2 lacs, normal PT (15.8) and INR (1.2), and normal urea and electrolytes. The pregnancy test was negative. Blood was cross-matched, and blood transfusion commenced. Continuous bladder drainage with a Foley catheter and broad-spectrum intravenous antibiotics was started. Blood transfusion was done to improve her anaemic status preoperatively. Local dressing using the antiseptic solution of povidone iodine and the hygroscopic action of magnesium sulphate was done daily for 5 days.

Ultrasound revealed an absent uterine fundus in the pelvis with the lower segment of the uterus visualised with echogenic content showing vascularity with a pseudoendometrial stripe of the inverted cervix.

After stabilisation of the condition (Hb: 7.5 g/dl and Ht: 38%), with volume expansion of crystalloids and blood transfusion with antibiotic coverage for 5 days, she presented a favourable opinion from anaesthesiology and the physician, followed by a surgical procedure on the 6th day.

The patient and relatives were counselled for surgery, and well-informed written consent was taken.

***Surgical report***

*Proposed surgery: Vaginal hysterectomy*

Patient in lithotomy position, under spinal anaesthesia, under all aseptic precautions.

*Surgical findings*

Uterine prolapse, with inverted uterus. Intraoperatively, the uterus was found to be completely inverted with the endometrial surface of the fundus visible. There were multiple submucosal fibroids on the fundus of the inverted uterus with significant necrosis.

After painting and draping were done, bladder sound was introduced and margins of bladder confirmed. A transverse incision was made on the cervix, and anterior colpotomy was done (Figure 2). The round ligament and fallopian tubes were seen going inside the uterus (Figure 3).

**Figure 2: A transverse incision was made on the cervix, and anterior colpotomy.**

Similarly, posterior colpotomy was also done (Figure 4). The anteroposterior extent of the cervix was palpated (Figure 5). A single clamp was applied laterally, including the uterine vessels and uterosacral ligaments, which were cut and ligated. Specimen was excised and sent for histopathology examination. Vaginal vault closure done (Figure 6). Haemostasis checked and confirmed. Vaginal packing was done with betadine-soaked roller gauze (Figure 7). Excised specimen showed an inverted uterus and cervix and was sent for histopathology (Figure 8). Patient was shifted out in good condition. Postoperatively, the patient had a good recovery. With prophylactic antibiotics, the postoperative period was uneventful and afebrile, and she was discharged on postoperative D8. The histopathology report showed an inverted uterus with

multiple ulcerated leiomyomas. In the outpatient follow-up visit, she was in good general condition, afebrile, with absence of any pervaginal bleeding or discharge.

**Figure 3: The round ligament and fallopian tubes were seen going inside the uterus**

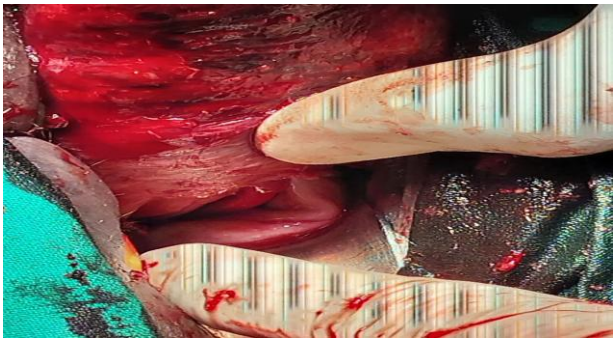

**Figure 4: Posterior colpotomy.**

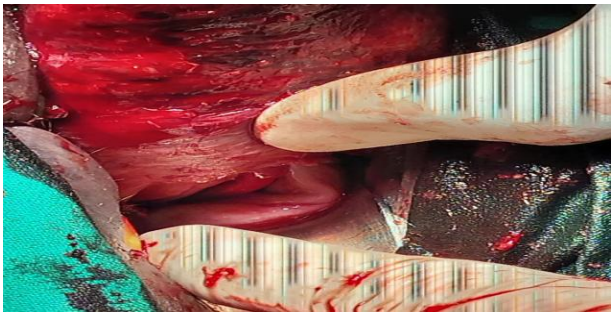

**Figure 5: The anteroposterior extent of the cervix.**

**Figure 6: Vaginal vault closure.**

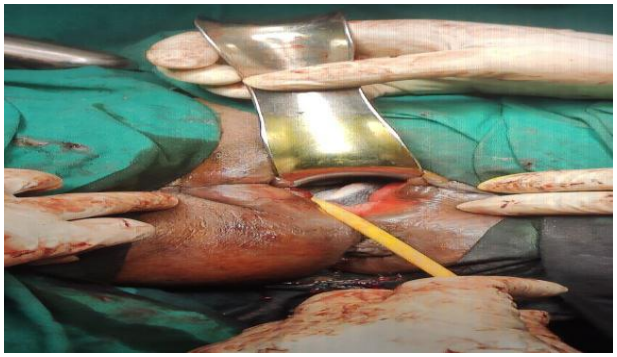

**Figure 7: Betadine-soaked roller gauze.**

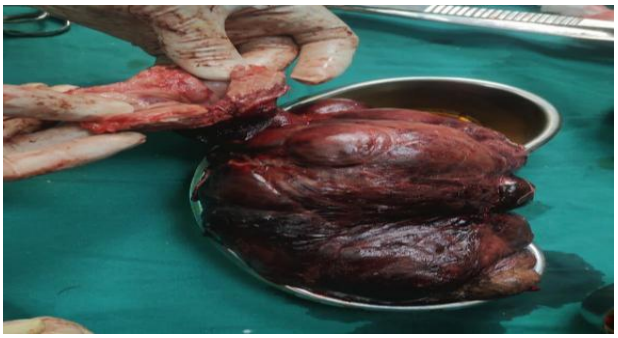

**Figure 8: Inverted uterus and cervix.**

**Figure 9: Huge mass protruding per vaginum.**

**Figure 10: Pedunculated uterine fibroid.**

***Differential diagnosis***

A case of prolapsed fibroid mimicking uterine inversion.

A 47-year-old, nulliparous woman, with a 2-day history of huge mass protruding per vaginum, associated with significant bleeding and passage of clots (Figure 9). Excised specimen showing normal sized uterus with pedunculated uterine fibroid arising from it (Figure 10).

## DISCUSSION

Acute complete uterine inversion is rare in non-pregnant women, and there are only a few reported cases worldwide.[2] It therefore poses a diagnostic dilemma to the unsuspecting gynaecologist, and therefore a high index of suspicion is needed to differentiate it from uterovaginal prolapse or prolapsed fibroid, as the clinical presentations can be similar.[1,2] The majority of the patients are likely to present with vaginal discharge, irregular or heavy vaginal bleeding, urinary problems, or abdominopelvic pain, and when examined, a mass is usually seen with some discharge or bleeding, depending on the symptoms.[2,7] This patient presented with heavy vaginal bleeding with hypovolemic shock in addition to the history of lower abdominal pain requiring resuscitation and surgical intervention. The usual manual reduction of the uterus, which is done in puerperal uterine inversion, is often unsuccessful in the non-puerperal form. This is because the lower uterine segment and the cervix contract over time to create a constriction ring, thus making manual replacement of the uterus progressively more difficult, if not impossible; therefore, surgical option becomes inevitable.[2] There are abdominal and vaginal procedures done to replace the uterus, and subsequently, depending on the clinical presentation, reproductive wishes of the patient, or the possible cause of the uterine inversion, further management is carried out. Usually, the cases of non-puerperal uterine inversion present after 47 years; they are mostly related to benign myomas and rarely associated with malignancies.[8] Only a few cases of non-puerperal inversions have been reported in young women, and in most cases, the aetiology is attributed to malignancy.[8] The need to conduct histopathology studies on all samples cannot be overemphasized.

## CONCLUSION

Non-puerperal uterine inversion is rare and remains a diagnostic and management dilemma to a gynaecologist, especially because the presentation is non-specific. Clinical diagnosis of this is often not easy, and sometimes this situation can prove to be fatal. A high index of suspicion is necessary for diagnosis when a large prolapsed fibroid is encountered. Uterine inversion has a good outcome if diagnosed and managed timely. Repositioning of the uterus may not be possible in all cases, leaving hysterectomy as the only option, and the extent of the procedure depends on the skill and experience of the surgeon as well as the clinical presentation of the patient.

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