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A Rare Case of Chronic Non-Puerperal Uterine Inversion in a Nulliparous Woman Requiring Surgical Repositioning: Diagnostic and Therapeutic Insights

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Abstract: ***Background**: Chronic non-puerperal uterine inversion is an extremely rare clinical condition, especially in nulliparous women. It presents with vague symptoms, often delaying diagnosis and management. **Case Presentation**: We present the case of a 37-year-old unmarried, nulliparous woman with schizophrenia who presented with a chronic mass protruding from the vagina and secondary amenorrhea. MRI confirmed complete uterine inversion. Surgical repositioning was successfully performed using Haultain's technique. **Conclusion**: This case underscores the diagnostic utility of MRI and the therapeutic role of Haultain's procedure in managing chronic uterine inversion. It also highlights the importance of multidisciplinary care, especially in patients with psychiatric comorbidities.*

Keywords: Uterine inversion, Chronic non-puerperal, Haultain's procedure, MRI, Uterine preservation, Nulliparous

1. Introduction

Uterine inversion refers to the turning of the uterine fundus inside out, typically occurring in the puerperium. Non-puerperal uterine inversion is extremely rare and often associated with intrauterine lesions such as submucosal fibroids or malignancies [1,2]. Its vague presentation makes early diagnosis challenging. Imaging—particularly MRI—plays a pivotal role in establishing the diagnosis, especially in chronic cases [3]. Definitive treatment is surgical, with Haultain's procedure being the preferred method in chronic, irreducible cases [4].

2. Case Presentation

A 37-year-old unmarried, nulliparous woman presented with a mass protruding through the vagina and amenorrhea for the past 18 months. The mass was associated with foul-smelling watery discharge. She had undergone gynecological surgery three years earlier, reportedly for a fibroid, although details were unavailable. Notably, she had a 14-year history of schizophrenia and was on olanzapine 5 mg daily.

Due to limited self-care and social neglect, the condition remained undiagnosed. She was repeatedly treated for vaginal discharge syndrome over the past 15 months, without improvement.

3. Examination

Per speculum examination revealed a pinkish, firm, globular mass measuring approximately 7 × 4 cm protruding through the introitus. The leading part of the mass was the uterine fundus, with a 4 × 4 cm longitudinal laceration and no active bleeding(image1). The cervix was not appreciated, and the uterus was non-palpable on bimanual examination. Abdominal examination was unremarkable.

Image 1: Gross Appearance of inverted Uterus with Laceration

Investigations
Hemoglobin: 12 g/dL
Platelet count: 285,000/mm³
Total leukocyte count: 7,400/mm³
Urinalysis: Normal

HIV and HBsAg: Non-reactive
Chest X-ray: Normal
Blood group: B Rh-positive

Pelvic Ultrasound:
The uterus was not visualized in the pelvis. A bulky, heterogeneous mass was seen at the introitus with minimal vascularity. Findings were inconclusive, with differential diagnoses including a fibroid polyp or uterine inversion.

MRI Findings:
MRI confirmed complete uterine inversion, with the fundus protruding through the cervix and external os. Both ovaries were displaced below the uterine body. No intrauterine mass or neoplasm was identified (image 2 and 3). Imaging demonstrated a "U-shaped" uterine cavity and "bull's-eye" sign.

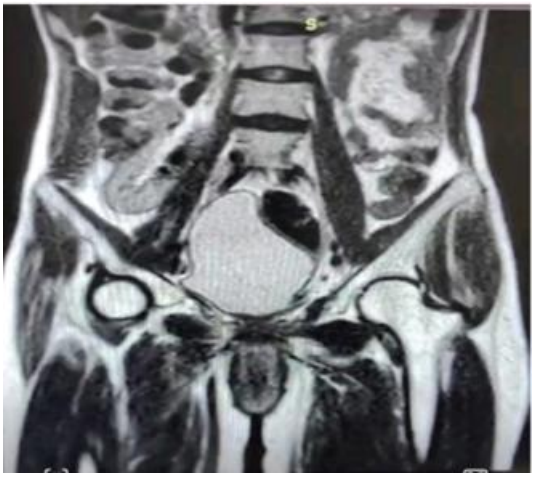


Image 2: Coronal T2-weighted MRI image appears to show findings suggestive of chronic uterine inversion

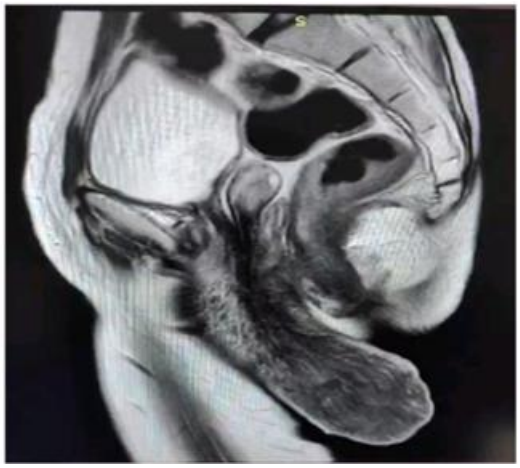
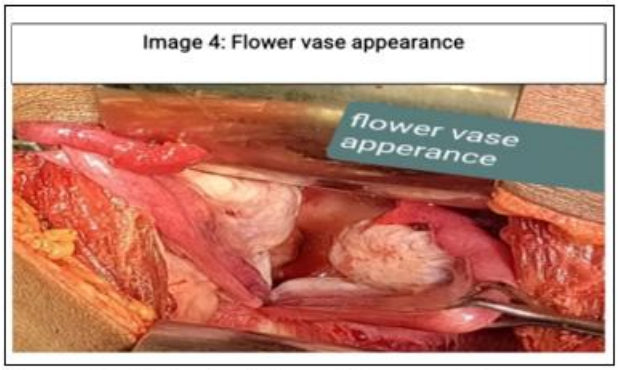


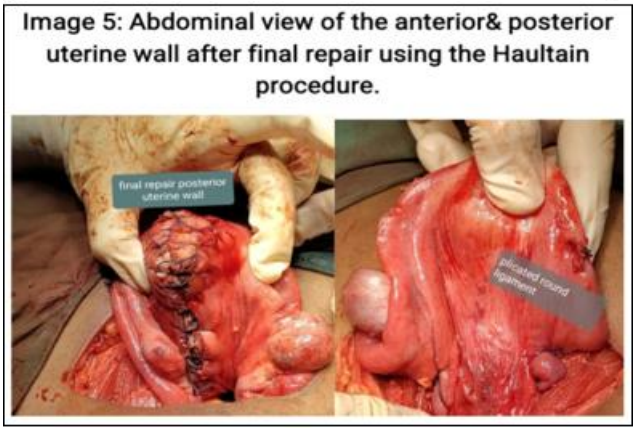
Image 3: Sagittal MRI image showing the anatomy and key findings of chronic uterine inversion

Management
After thorough counseling, daily cleaning with 5% povidone-iodine and magnesium sulfate dressings was initiated to reduce local inflammation and edema.

Following preoperative optimization, surgical repositioning was performed using Haultain's procedure under general anesthesia via a Pfannenstiel incision. Intraoperative findings included a "flower vase" appearance, confirming complete inversion(image4). A vertical incision was made on the posterior uterine wall at the constriction ring. The fundus was gently pushed vaginally and elevated abdominally to restore the normal uterine configuration.

Bilateral round ligament plication was performed to maintain uterine anteversion (image 5). Hemostasis was achieved, and the uterus was successfully preserved.





4. Outcome and Follow-up

The patient had an uneventful recovery and was discharged on the 10th postoperative day. At 6-week follow-up, the uterus was well-supported and normally positioned. The patient reported general well-being and cessation of abnormal discharge. She was counseled regarding the necessity of cesarean delivery in any future pregnancy.

5. Discussion

Chronic non-puerperal uterine inversion is a rare and often misdiagnosed condition. While most cases are linked to intrauterine masses such as fibroids or sarcomas [1,2], no such pathology was identified in our patient. We suspect that prior surgery may have contributed to the inversion.

Ultrasound is often inadequate for diagnosing chronic uterine inversion, as in our case. MRI proved invaluable in confirming the diagnosis and guiding surgical management—consistent with findings by Ghuman et al. [3] and Chhabra et al. [5].

Surgical options include vaginal approaches (Kustner's and Spinelli's procedures) and abdominal approaches (Huntington's and Haultain's techniques) [8,9]. In cases with a tight constriction ring, Haultain's procedure is

preferred, as originally described in 1901 [4]. Our approach also mirrors successful uterus-sparing outcomes in reports by Gehlot et al. [7] and Rathod et al. [8].

Preservation of fertility was crucial in this nulliparous patient. Our case aligns with similar reports of uterus-sparing outcomes in young women [10,11]. Although pregnancy following chronic uterine inversion correction is rare, cesarean delivery is typically recommended to prevent recurrence [12].

6. Conclusion

Chronic non-puerperal uterine inversion is an uncommon but important differential diagnosis for women presenting with a longstanding vaginal mass and amenorrhea. This case underscores the diagnostic value of MRI and the efficacy of Haultain's procedure in managing chronic inversion. Fertility preservation was successfully achieved. Multidisciplinary management—including psychiatric care—was critical in ensuring favorable outcomes in this vulnerable patient.

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