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REVIEW ARTICLE

A Rare Case of Geriatric Endometrial Adenocarcinoma Presenting with Nonpuerperal Uterine Inversion

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ABSTRACT

Background: Non-puerperal uterine inversion (NPUI) is a rare gynecological condition, most commonly associated with benign fundal leiomyomas. Its occurrence secondary to endometrial carcinoma is exceptionally uncommon and poses significant diagnostic and management challenges due to its nonspecific clinical presentation.

Case Presentation: A 75-year-old multiparous postmenopausal woman presented with excessive vaginal bleeding, a protruding vaginal mass, lower abdominal pain, fever, and urinary retention. She had previously undergone polypectomy for a prolapsing vaginal mass, the histopathological examination of which revealed Grade 1 endometrioid adenocarcinoma. Clinical examination demonstrated a longitudinal growth protruding through the cervical os with distortion of normal cervical anatomy. Ultrasonography and contrast-enhanced computed tomography suggested uterine inversion with a uterine mass occupying the vaginal canal. Following multidisciplinary evaluation and optimization, exploratory laparotomy was performed. Intraoperatively, a completely inverted uterus with inflamed cervix and enlarged pelvic lymph nodes was identified. Manual vaginal reduction was followed by radical hysterectomy with bilateral salpingo-oophorectomy, bilateral pelvic lymphadenectomy, omentectomy, and appendicectomy. Histopathological

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examination demonstrated well-differentiated endometrioid carcinoma (FIGO Grade 1) with greater than 50% myometrial invasion and involvement of the lower uterine segment. All lymph nodes, adnexal structures, omentum, appendix, and peritoneal cytology were negative for malignancy. The final diagnosis was FIGO Stage IB (pT1bN0) endometrioid carcinoma presenting as non-puerperal uterine inversion.

Conclusion: Non-puerperal uterine inversion secondary to endometrial adenocarcinoma is an exceptionally rare clinical entity. The condition may mimic other gynecological pathologies and often presents with vaginal bleeding and a protruding vaginal mass. Early recognition through careful clinical assessment and appropriate imaging is essential for accurate diagnosis and surgical planning. This case highlights the importance of considering underlying uterine malignancy in patients presenting with atypical vaginal bleeding and uterine inversion and emphasizes the role of histopathology in guiding definitive oncologic management.

KEYWORDS:

• Non-puerperal uterine inversion • Endometrioid adenocarcinoma • Endometrial carcinoma • Postmenopausal bleeding • Uterine inversion

INTRODUCTION

Uterine inversion is a rare condition in which the uterine fundus descends through the endometrial cavity and cervix, resulting in the uterus being turned inside out. It is traditionally classified into puerperal and non-puerperal forms, with the overwhelming majority of cases occurring in the puerperal setting. Non-puerperal uterine inversion (NPUI) is an uncommon gynecological entity with an unknown true incidence, and many gynecologists may never encounter a case during their clinical practice. Most reported cases are associated with benign fundal leiomyomas, while malignant tumors account for a much smaller proportion of cases.[1-4]

The association of NPUI with endometrial carcinoma is exceptionally rare. Patients commonly present with nonspecific symptoms such as vaginal bleeding, pelvic pain, urinary complaints, and a protruding vaginal mass, often resulting in delayed diagnosis. Accurate preoperative diagnosis is important because the underlying etiology and extent of inversion influence surgical planning and management. We report a rare case of chronic non-puerperal uterine inversion associated with endometrioid adenocarcinoma in an elderly postmenopausal woman.[1,4,5]

CASE PRESENTATION

A 75-year-old multiparous postmenopausal woman (P2L0) presented with excessive bleeding per vaginum of 2–3 days' duration. She had a history of a protruding vaginal mass for two months associated with lower abdominal pain, fever, and urinary retention, for which she had initially been evaluated at another institution. Polypectomy of the protruding vaginal mass was performed, and histopathological examination revealed Grade 1 endometrioid adenocarcinoma with exuberant fibromyxoid stromal reaction.

Her medical history was significant for type 2 diabetes mellitus, hypertension, and hypothyroidism. There was no family history of gynecological malignancy.

On presentation to our institution, the patient was conscious and oriented. Her pulse rate was 90 beats/minute, blood pressure was 140/90 mmHg, and oxygen saturation was 98% on room air. No active vaginal bleeding was noted. Abdominal examination revealed an obese, soft, non-tender abdomen. A venous ulcer was noted over the right lower limb.

Gynecological examination demonstrated normal external genitalia. On per speculum examination, a 5 × 4 cm longitudinal growth was seen protruding through the cervical os. On per vaginal examination, the growth was palpable through the os. The uterus could not be delineated separately because of distortion of the normal pelvic anatomy by the protruding lesion, raising suspicion of uterine inversion.

Transabdominal ultrasonography demonstrated a mass-like lesion posterior to the urinary

bladder, with the uterus not separately visualized. The lesion appeared to be protruding externally and was reported as a uterine mass associated with inversion. Contrast-enhanced computed tomography revealed a structure occupying the vaginal canal corresponding to the uterus and cervix, with features suggestive of partial uterine inversion. MRI pelvis demonstrated altered uterine morphology with inferior displacement of the uterine fundus and distortion of the normal uterine configuration, findings consistent with uterine inversion.

Laboratory investigations revealed hemoglobin of 9 g/dL, total leukocyte count of 10.42 × 10^3/µL, platelet count of 307 × 10^3/µL, HbA1c of 7.0%, serum creatinine of 2.3 mg/dL, and CA-125 of 8.7 U/mL. Peripheral smear demonstrated dimorphic anemia with neutrophilic leukocytosis. Deep vein thrombosis screening was negative.

Following multidisciplinary evaluation and optimization of her comorbidities, exploratory laparotomy was performed. Intraoperatively, no gross lesions were identified over the peritoneum, liver surface, gallbladder, stomach, omentum, small bowel, colon, or kidneys. A completely inverted uterus with an inflamed cervix was identified. Enlarged bilateral pelvic lymph nodes were present, including nodes along the external iliac vessels. Manual vaginal reduction of the inverted uterus was performed.

A radical hysterectomy with bilateral salpingo-oophorectomy and bilateral pelvic lymphadenectomy was subsequently completed. Omentectomy and appendicectomy were also performed. Estimated blood loss was approximately 200 mL.

Gross examination of the hysterectomy specimen revealed a uterus measuring 8 × 6 × 3 cm with a bosselated external surface. A pale white to pale brown infiltrative lesion measuring 5 × 4.5 × 0.5 cm arose from the uterine fundus and extended to the lower uterine segment, involving more than 50% of the myometrial thickness. An endocervical polyp measuring 1 × 0.5 × 0.3 cm was identified. A separate nodular lesion measuring 1.5 × 1 × 1 cm was present over the right side of the uterine fundus. Both ovaries and fallopian tubes appeared grossly unremarkable.

Microscopic examination demonstrated a well-differentiated endometrioid carcinoma composed of closely packed back-to-back glands lined by tumor cells with high nuclear-to-cytoplasmic ratios, vesicular nuclei, prominent nucleoli, and moderate eosinophilic cytoplasm. Mitotic activity of 5 mitoses per 10 high-power fields was identified. The tumor invaded greater than 50% of the myometrium and involved the lower uterine segment. The nearest distance from the tumor to the serosal surface was 0.4 cm. No lymphovascular space invasion or perineural invasion was identified.

The cervix was free of tumor, although the endocervical glands showed high-grade dysplasia. Both parametria were free of tumor. The ovaries, fallopian tubes, appendix, and omentum showed no evidence of malignancy. The uterine fundal nodule was identified as leiomyoma with focal adenomyosis.

Histopathological examination of the pelvic lymphadenectomy specimens demonstrated reactive lymph nodes without metastatic involvement. Peritoneal cytology was negative for malignant cells. Surgical margins were free of carcinoma.

The final pathological diagnosis was well-differentiated endometrioid carcinoma (FIGO Grade 1) with greater than 50% myometrial invasion, corresponding to FIGO Stage IB (pT1bN0). The patient was diagnosed with endometrioid carcinoma presenting as non-puerperal uterine inversion.

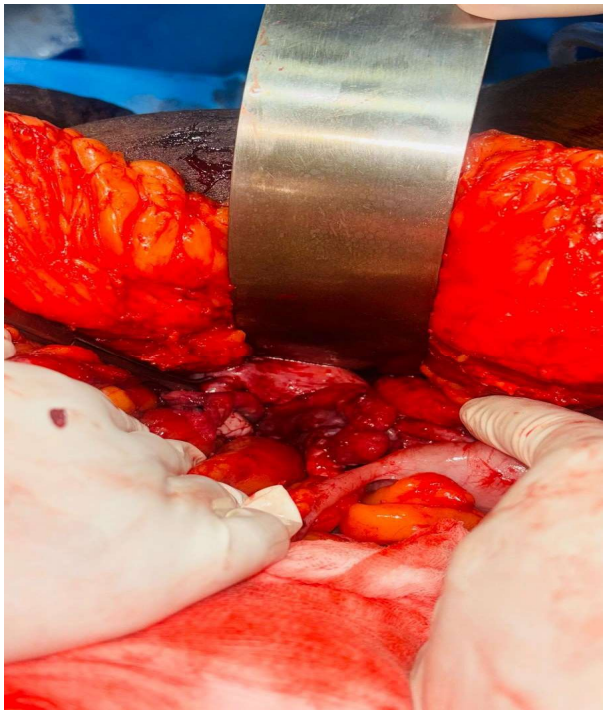

Figure 1: Intraoperative photograph demonstrating complete non-puerperal uterine inversion with the inverted uterine fundus lying deep within the pelvis

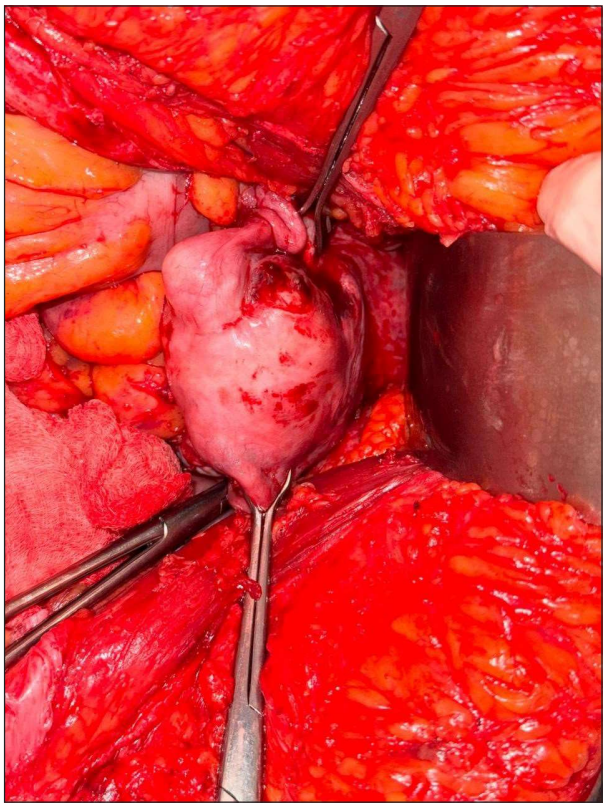

Figure 2: Intraoperative photograph showing the inverted uterus delivered into the operative field, with a fundal tumour subsequently confirmed as endometrial adenocarcinoma on histopathological examination

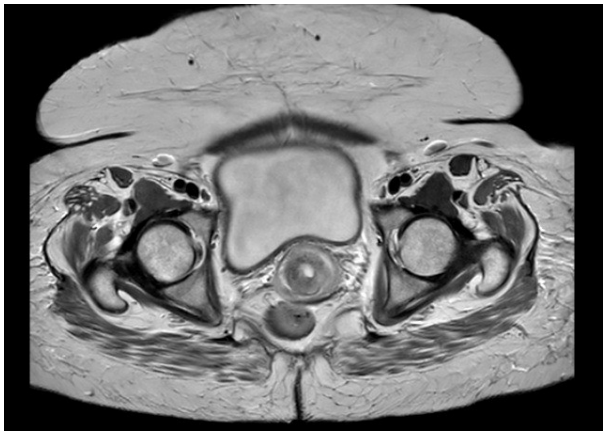

Figure 3: Axial T2-weighted MRI showing altered uterine morphology with inferiorly inverted uterine fundus and intact cervix, suggestive of uterine inversion

DISCUSSION

Non-puerperal uterine inversion is a rare gynecological condition that presents significant diagnostic and therapeutic challenges because of its rarity and varied clinical presentation. Most reported cases are associated with tumors arising from the uterine fundus, which exert traction on the uterine wall and contribute to inversion. Additional factors such as tumor size, fundal attachment, cervical dilatation, thinning of the uterine wall, and pedicle characteristics may further facilitate inversion. Although benign leiomyomas account for the majority of reported cases, malignant tumors including endometrial carcinoma have also been implicated.[2,4,6,7]

The clinical presentation of NPUI is often nonspecific. Vaginal bleeding and a protruding vaginal mass are among the most frequently reported symptoms. Patients may additionally present with lower abdominal pain, pelvic discomfort, urinary complaints, and difficulty in identifying normal cervical anatomy during examination. Because these findings may mimic cervical malignancy, prolapsed uterine tumors, or other gynecological pathologies, diagnosis is frequently delayed and may occasionally be established only during surgery.[2,8]

Imaging plays an important role in establishing the diagnosis and planning surgical management. Ultrasonography is often the initial imaging modality and may demonstrate characteristic findings such as fundal indentation and abnormal uterine configuration. MRI is particularly valuable when the diagnosis remains uncertain, as it can clearly delineate the inverted fundus, altered uterine anatomy, and associated pelvic structures. Several authors have emphasized the importance of preoperative imaging in facilitating accurate diagnosis and guiding the surgical approach.[2,5]

Management of NPUI begins with stabilization of the patient, including correction of anemia and optimization of comorbid conditions. Definitive treatment is surgical and depends on the degree of inversion, underlying pathology, and patient factors. Several operative techniques have been described, including the Huntington and Haultain abdominal procedures and the Spinelli and Kustner vaginal procedures. In cases associated with malignancy, an abdominal approach is generally preferred because it permits definitive oncologic surgery and surgical staging.[5,9]

Our patient demonstrated many of the features consistently described in the literature, including postmenopausal presentation, vaginal bleeding, a protruding vaginal mass, radiologic evidence of uterine inversion,

and final histopathological confirmation of endometrioid adenocarcinoma. Similar associations between endometrial carcinoma and NPUI have been reported only rarely.[1,9] The present case contributes to the limited literature describing endometrial carcinoma as a cause of NPUI and highlights the importance of maintaining a high index of suspicion for underlying uterine malignancy in women presenting with atypical vaginal bleeding and distorted pelvic anatomy.

CONCLUSION

Non-puerperal uterine inversion secondary to endometrioid adenocarcinoma is an exceptionally rare clinical entity. Because its presentation may mimic other gynecological conditions, diagnosis is often challenging. Careful clinical evaluation combined with appropriate imaging is essential for timely recognition and surgical planning. This case highlights the importance of considering underlying uterine malignancy in postmenopausal women presenting with vaginal bleeding and a protruding vaginal mass.

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