A Rare Case of Non-puerperal Uterine Inversion with Uterosacral Ligament Hysteropexy

Alexandra Wolfe, BS, OMS-III Midwestern University
19555 N 59th Ave, Glendale, AZ 85308
awolfe11@midwestern.edu

Dr. Ali Azadi, MD, MSc, MBA, FACOG, FPMRS,
Clinical Assistant Professor, University of Arizona, College of Medicine
475 N 5th St, Phoenix, AZ 85004
Medical Director, Star Urogynecology
14155 N 83rd Ave, Peoria, AZ 85381
azadoox@yahoo.com
Abstract
Non-puerperal uterine inversions are rare, comprise 5% of uterine inversions (1), usually occur in women over 45 years old, and are most commonly due to expulsion of a mass. Diagnosis after discovery is often difficult due to vague symptoms, presentation, and unknown course of the pathology. Surgical intervention is usually necessary due to anatomical changes that occur after a chronic inversion. Our case is a 66 year old woman, who presented to the emergency department with vaginal bleeding and a protruding mass. She was found to have a stage 4 prolapse, and after diagnosis, she was promptly taken to surgery. Due to full cervical dilation and increased risk of ureteral injury with hysterectomy, a robotic uterosacral ligament hysteropexy was performed. The surgery was completed without complications and she was discharged home the next day. She has remained asymptomatic without any problems through her 6 month follow up. Although uterine preservation after inversion has been done to preserve fertility, there have been no documented cases of hysteropexy as a safety precaution. Additionally, robotic approach after a non-puerperal uterine inversion has not been documented. This case displays the success of robotic uterosacral ligament hysteropexy and should be considered in cases of chronic inversion with potential ureteral injury.

Introduction

While puerperal uterine inversions are an uncommon gynecologic event, non-puerperal uterine inversions are extremely rare, with 229 cases reported between 1947-2017 (2). Non-puerperal inversions are caused by benign corpus uterine tumors 57.2% of the time, specifically leiomyomas, as was the case here. Their etiology is often multifactorial, due to rapid growth of the tumor, fundal location, thinning of the fundal wall, cervical dilation and subsequent uterine expulsion (2). Manual traction and increased intraabdominal pressure can also contribute (3). Women most often present with vaginal discharge, irregular uterine bleeding, pelvic discomfort, and anemia with hemoglobin <7 mg/dL due to chronic progression (4). Depending on the acuity of the inversion, manual repositioning alone is possible. However, in chronic inversions and those involving tumor growth, surgical intervention is often necessary (5). Considering the average age of women who experience non-puerperal inversions is above 45 years old, women have often completed child bearing (6). Hysterectomy is the most common procedure, 86.5% of the time; however, in this case a hysteropexy was completed due to potential ureteral injury from anatomical changes after chronic inversion (3).

Case Presentation

66 year old multiparous female without any significant past medical or surgical history presented to the emergency department complaining of vaginal bleeding and a vaginal mass protruding outside the vaginal opening. She was aware of the vaginal prolapse for about 5 years but it was gradually worsening, however, she was able to reduce the bulge manually. As her symptoms were tolerable and managed conservatively, she did not seek any medical treatment prior to this emergency department visit.

She presented to emergency department when the vaginal bulge increased in size and was associated with bleeding. Upon evaluation in the emergency department, it was noted that there
was a 15 cm mass protruding outside of the vaginal opening with active bleeding. Her vitals were within normal limits, but her hemoglobin upon admission was 8 mg/dl trending down; she received 2 units of packed red blood cells. It was also noted that she had urinary retention and a Foley catheter was subsequently placed.

The examination of the vaginal mass showed complete uterovaginal prolapse with uterine inversion (Figures 1a & 1b). Two large uterine masses with a fibroid appearance were noted that were broadly attached to endometrium. As there was active bleeding, the patient was consented and taken to the operating room for surgical management. Although not examined with this patient, possible Chapmans points for uterine dysfunction include the anterior points between the upper edge of the pubic ramus and ischium or posteriorly between the PSIS and spinous process of L5 (7).

General endotracheal anesthesia was obtained and the patient was placed in a dorsal lithotomy position. After the abdomen, perineum and vagina were prepped and draped, examination under anesthesia confirmed complete inversion of the uterus as well as prolapsed fibroids. Endometrial curettage was done sharply to obtain tissue sampling of the exposed endometrium. Then, using Ligassure®, a myomectomy was completed. At this point, the prolapse was able to be reduced manually.

The patient had desired management of pelvic organ prolapse using native tissue. Due to full dilatation of the cervix, a total hysterectomy increased risk of ureteral injury, therefore, surgical correction with uterine preservation was deemed to be a safer approach. Abdominal trocars were inserted in the usual fashion, the robot was docked, and the uterine manipulator was in place. The uterine manipulator was pushed in by the surgical assist, and the uterosacral ligaments were better identified under tension. The peritoneum over the ligaments was dissected, and the ureters were visualized. A monofilament permanent suture (Prolene)® was passed from lateral to medial at the level of the ischial spine on each side. Care was taken to avoid the ureters laterally and the colon medially. A good portion of the ligament was obtained and then each suture was passed from lateral to medial over the posterior surface of the cervix including the insertion of the uterosacral ligaments. After both sutures were passed through, they were tied with careful attention to avoid air knots.

Additional suture for suspension was passed using delayed absorbable suture (polydioxanone) in a similar fashion, 1 cm distally to the original suture on each side. After the sutures were tied, good apical suspension was obtained. Cystourethroscopy was done to confirm integrity of the bladder and patency of the ureters.

The patient was observed overnight, and when upon meeting the discharge criteria, she was discharged home the next day. Minimal bleeding was noted postoperatively.

The patient was seen postoperatively at 2 and 6 weeks. No immediate complications were noted, and she was asymptomatic. At her 6 month follow up, pelvic examination showed good apical support with the cervix at 6 cm inside the hymenal ring (POP-Q, C -6).
The pathology report confirmed the masses to be leiomyomas without any evidence of malignancy.

Discussion

Uterine inversions can be categorized into obstetric, puerperal, or gynecologic, non-puerperal. Due to the rarity and non-specific symptoms of non-puerperal inversions, diagnosis is often delayed. Women present to their physician due to bleeding, discharge, pain/discomfort or symptoms of anemia with hemoglobin often <7 mg/dL if it is a chronic problem. However, acute inversion can present as hypovolemic shock (4). Physical exam often demonstrates a dark red, friable mass in the perineum. Osteopathic exam could demonstrate sacral dysfunction or the physician could detect the Chapman’s reflex points mentioned earlier. Differential diagnosis includes cervical, vaginal, or vulvar cancer. When the presenting symptoms and physical exam are not sufficient, diagnosis relies on MRI or U/S. Sagittal view demonstrates a U-shaped cavity and thickened fundus, and axial imaging displays a bulls eye pattern (3). As in the case here, physical exam was sufficient for initial diagnosis, which was confirmed intraoperatively. Surgical intervention was initiated promptly to prevent further blood loss.

After identification, staging (Table 1) is appropriate to determine the treatment plan (2). Workup should include biopsy of the mass, if present, and referral to an oncologist if appropriate. Treatment should consider the following: patient’s age, fertility preferences, surgical route (abdominal, vaginal, or robotic), determination if repositing will be attempted, and final procedure (hysterectomy or mass resection with hysteropexy). Surgical methods for repositioning include four different options including an abdominal (Haultain or Huntington) and vaginal (Kustner or Spinelli) routes (4). Although often these methods fail in over half of the cases or are not attempted at all if hysterectomy is planned (4). Haultain method is the most often used, it involves laparotomy with posterior incision of the inversed ring followed by traction for repositioning at the fundus. Nonsurgical methods (e.g., Avery repository, repeated vaginal douching) are also available but are not advised unless the patient is not a surgical candidate due to high rates of inversion reoccurrence (3).

In this patient’s case, a robotic approach was used. To our knowledge, this is the first documented case completed robotically with the daVinci system after non-puerperal uterine inversion. One other successful robotic case was documented after puerperal uterine inversion, with success, at 6 weeks post-partum (8). Surgical assistance with the daVinci system should be considered with management of chronic uterine inversion. Additionally, uterine preservation with hysteropexy should be considered with anatomical changes after chronic inversion to avoid ureteral injury.

Acknowledgements/Disclosures:
There are no disclosures by the authors.
References


Preoperative uterine masses with complete uterovaginal prolapse and uterine inversion
Preoperative uterine masses with complete uterovaginal prolapse and uterine inversion
<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Incomplete inversion, fundus is within the uterine cavity</td>
</tr>
<tr>
<td>2</td>
<td>Complete inversion, fundus is protruding through the cervix</td>
</tr>
<tr>
<td>3</td>
<td>Total inversion, fundus is protruding through the vulva</td>
</tr>
<tr>
<td>4</td>
<td>Total inversion, fundus is protruding through the vulva with vagina involved</td>
</tr>
</tbody>
</table>

Stages of Genital Inversion