

CASE REPORT

A Rare Case of Nonpuerperal Uterine Inversion Managed by a Combined Laparoscopic and Vaginal Approach

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ABSTRACT

A nonpuerperal uterine inversion is a rare occurrence clinically. It is usually associated with uterine fibroids or tumors. We report a case of 47 years old nulliparous women who presented with sudden onset of severe abdominal pain and heavy vaginal bleeding. Speculum examination revealed a 6 cm bleeding mass presenting in the vagina. The case was managed by performing hysterectomy using combined laparoscopic and vaginal routes.

Keywords: Hypovolumic shock, Nonpuerperal, Uterine inversion

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INTRODUCTION

Postpartum inversion of a uterus is a rare complication with an incidence of 1 in 3500 to 1 in 100,000 deliveries.¹ Nonpuerperal uterine inversion is even rarer, and most gynecologists will not see a case during their clinical lifetime.^{2,3} It is usually associated with uterine fibroids or other tumors.⁴ It should be suspected in women with sudden onset of pain and bleeding, a nonpalpable uterus on bimanual examination and a vaginal mass. The majority of cases are managed by abdominal or vaginal hysterectomy after repositioning of the uterus. We have found only one other report of a nonpuerperal uterine inversion managed with laparoscopy-assisted vaginal hysterectomy.⁵ In this case report, we describe the steps to safely accomplish laparoscopic hysterectomy without reinversion of the uterus.

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CASE REPORT

A 47-year-old nulliparous woman presented to the emergency department with sudden onset of severe abdominal pain and vaginal bleeding. She was hemodynamically unstable and resuscitated with intravenous fluids and blood transfusion. Her hemoglobin dropped from 101 g/L (gram/liter) to 81 g/L in two hours. Hemoglobin after 4 units of blood transfusion was 97 g/L.

Following stabilization, she was transferred to the care of gynecology. She had a long history of heavy menstrual bleeding (HMB) and a pelvic ultrasound scan 6 months previously showed a 2 cm intramural fibroid at the uterine fundus. Pelvic examination revealed a broad-based mass of approximately 6 cm protruding into the vagina almost reaching the introitus with a levonorgestrel intrauterine system (IUS) lying posterior to the mass in the vagina. The uterus was not palpable on vaginal and rectal examination. The mass was bleeding on gentle manipulation (Fig. 1).

Full blood count, blood group and cross-match 4 units and examination under anesthesia was arranged in theater with possible proceed to laparoscopy +/- laparotomy. A differential diagnosis of uterine inversion with or without an extruded uterine fibroid was made.

Management

Management options were discussed in detail with pros and cons of attempted re-inversion of the uterus, excision of fibroid before inversion or hysterectomy. She opted for a hysterectomy. Examination under anesthesia (EUA) revealed no palpable uterus in the abdomen and



Fig. 1: Vaginal examination showing the ischemic bluish mass in the vagina

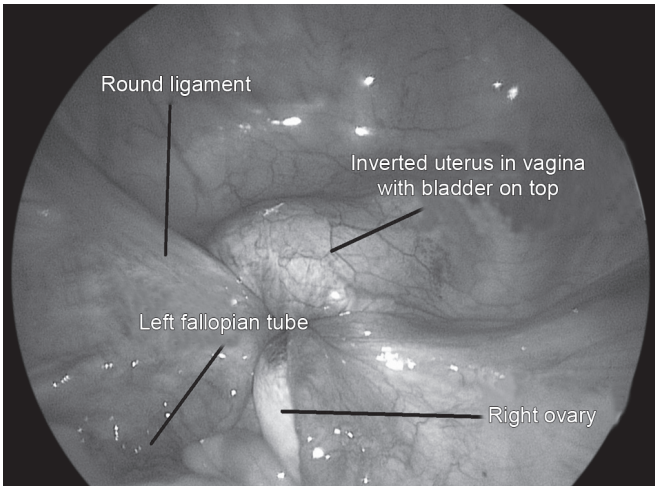


Fig. 2: Laparoscopic view showing a dimple and pulling 1. Round ligament, 2. Fallopian tubes, 3. Right ovary

inability to visualize cervix in the vagina confirming the provisional diagnosis of uterine inversion (Fig. 1). The IUS lying free behind the mass in the vagina was removed easily. The friable endometrium which was exposed due to uterine inversion was the source of bleeding.

Laparoscopic view confirmed the diagnosis of complete uterine inversion into the vagina (Fig. 2).

Appearance was like a hole in the pelvic inlet and both tubes and round ligaments were retracted inside the vagina, and the ovaries were located at the edge of the vaginal vault. An attempt was made vaginally to reduce the mass and to bring the uterus up into the abdomen to restore pelvic anatomy, but due to a tight ring of the cervix at the isthmic area, this was not possible. Laparoscopically the round ligaments and ovarian ligaments were bisected from the uterine body, and both ovaries were conserved. The vesicoperitoneal fold was opened anteriorly and the urinary bladder reflected and both uterine arteries were skeletonized. The uterine arteries were ligated bilaterally, and this facilitated the identification of the cervicovaginal junction as uterine blood supply ceases and color can be differentiated from the pink colored vagina for colpotomy.

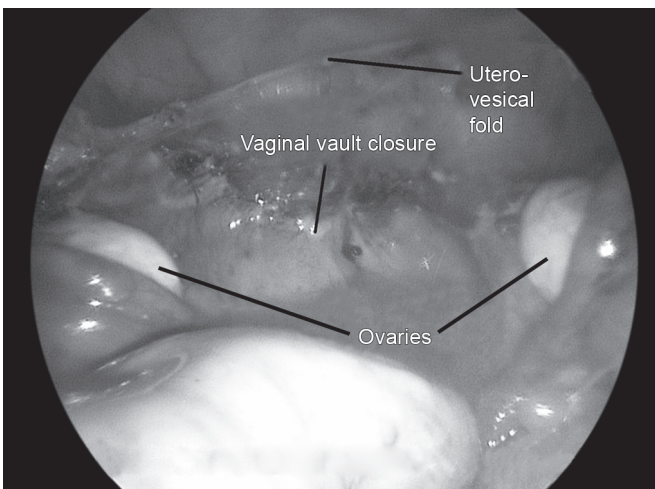


Fig. 3: Post-surgical laparoscopic view showing vault closure, right and left ovaries

A vaginal approach was utilized using a knife to open the vagina around the tissues which were ischemic at the cervicovaginal junction. Uterosacral and broad ligaments were bisected and ligated.

The uterus along with the protruding fibroid was removed and the vagina closed from below using absorbable sutures. Laparoscopy was performed to check for hemostasis and the course of ureter bilaterally (Fig. 3). Specimen with fibroid attached at the inverted fundus of the uterus with exposed endometrium and cervix removed for histology shown in Figure 4.

Outcome and Follow-up

The uterus, cervix, and fibroid were sent for histopathology and confirmed as benign. Blood loss during the procedure was 250 mL. She was discharged home the following day, and at 12 weeks postoperatively she was well.

DISCUSSION

Acute nonpuerperal uterine inversion is a rare gynecological emergency. It should be suspected in women with sudden onset of pain and bleeding, an impalpable uterus and a vaginal mass. When it occurs, it is usually tumor associated with the most common being a prolapsed leiomyoma or leiomyosarcoma.^{6,7} The misdiagnosis of submucous fibroid and surgical attempt to remove it vaginally may result in profuse bleeding and fundal perforation of the uterus. In stable patients, every effort should be made to make a preoperative diagnosis using magnetic resonance imaging (MRI) or ultrasound.⁸ A combined abdominal and vaginal examination under anesthesia performed by experienced surgeon adds to the diagnosis.

In our case, the patient presented with hypovolaemic shock and profuse bleeding, so resuscitation and stabilization with blood transfusion were required. Uterine inversion was considered in the differential diagnosis and was confirmed by laparoscopy.

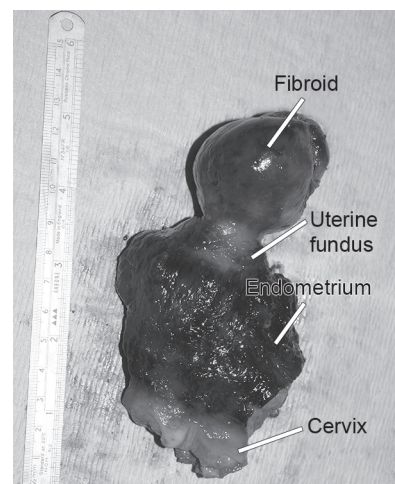


Fig. 4: Specimen with fundal fibroid, uterus and cervix

Examination under anesthesia and laparoscopy aids diagnosis as a nonpalpable uterus per abdomen, fallopian tubes or ovaries protruding into the vagina from above and no cervical opening is seen on speculum examination. Typically, (as in our case) there is a bluish-red mass in the vagina with a constricting ring of cervix superiorly.

In the literature, about 20% of cases are related to malignant tumors and sarcomas are more common than endometrial carcinoma.^{8,9} The mechanism for uterine inversion appears to be multifactorial but rapid growth, and fundal location of a tumor increases the risk of uterine inversion.

Treatment depends on whether the inversion is acute or chronic, reproductive wishes of patient and cause of inversion (benign or malignant). Many surgical methods have been described in the literature for the treatment of nonpuerperal uterine inversion. Nonsurgical methods like O'Sullivan's hydrostatic pressure for correction of inversion have limited value in nonpuerperal cases.

Surgical options include:

- Reverting the uterus manually before attempting abdominal or vaginal hysterectomy
- Vaginal hysterectomy without reverting¹⁰
- Laparoscopic and vaginal approach (as in this case).

Reversion is usually attempted after removal of a tumor and exclusion of malignancy using both abdominal and vaginal approaches. A uterine replacement, described via laparotomy, has been discussed in the literature for acute puerperal inversion. The lower uterine segment is identified and surgeons fingers placed below and between the level of the inverted fundus and progressive pressure is applied to flip up the inverted fundus gradually.¹¹ The Haultain procedure, incising the posterior uterine wall and Huntington's technique, using Allis forceps on dimple of the uterus to pull it up into the abdomen at laparotomy has been successfully reported. A vertical incision on the cervicoisthmic ring anteriorly (Spinelli procedure) and posteriorly (Kustner procedure) have also been described for achieving repositioning of the uterus. However, many reports acknowledge that repositioning of the uterus is not always successful.¹² In an acute uterine inversion, B lynch compression suture helps to reduce the risk of recurrence after manual repositioning of uterus.¹³

Without repositioning, hysterectomy is more challenging due to the traction of vessels and ureters medially. With careful dissection and division of pedicles, the procedure can be safely completed laparoscopically.

Learning Points

- Laparoscopic visualization helps to confirm the diagnosis and the division of ovarian pedicles and

round ligaments reduce tension on the protruding uterus.

- The procedure is complicated by the distortion of the pelvic anatomy resulting from uterine inversion, with the ureters being brought into close proximity to the uterine vessels. Abnormal anatomy makes all types of hysterectomy difficult but laparoscopic approach helps with better visualization and ability to dissect ureter to save them from damage if needed is an advantage.
- Careful dissection of uterine vessels is essential before ligating uterine vessels to make room for better coagulation without affecting ureter. This devascularizes the uterus and facilitates identifying the opening of the vagina.

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