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CASE REPORT

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Small bowel evisceration after abdominal hysterectomy with open vaginal cuff technique: A case report

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Key Clinical Message

Vaginal cuff dehiscence post-hysterectomy is rare yet significant. Early recognition and prompt surgical intervention are crucial to prevent complications like bowel infarction. Consider second-look laparotomy in cases of uncertain bowel viability.

Abstract

Vaginal cuff dehiscence (VCD) is a rare but potentially life-threatening complication following a hysterectomy characterized by the separation of the vaginal vault. This condition, which may result in vaginal evisceration (VE), presents a significant risk of pelvic contents, particularly the small bowel, protruding into the vagina. Early diagnosis and prompt surgical intervention are paramount to prevent severe complications, including bowel infarction, obstruction, and peritonitis. Although VCD and VE are rare, they require urgent surgical management to avoid adverse outcomes. We reported a case of small bowel evisceration in a woman with a history of total abdominal hysterectomy 6 months ago. VCD and VE are very rare but life-threatening complications of hysterectomy. Discussing the symptoms with patients who have multiple risk factors is crucial to avoid severe sequels following hysterectomy. Based on our experience, performing a second-look laparotomy is a reliable approach to ensure the viability of the intestinal loop. However, it will likely increase the risk of infection.

KEYWORDS

hysterectomy complications, pelvic organ prolapse, surgical management, vaginal cuff dehiscence, vaginal evisceration

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1 | INTRODUCTION

Vaginal cuff dehiscence (VCD) refers to the opening of the vaginal vault. VCD increases the risk of pelvic contents being expelled into the vagina, which is called vaginal evisceration (VE).[1] According to a review by Nezhat et al., 35%–67% of cases of VCD result in VE. The reported incidence of VE following hysterectomy varies from 0.032% to 1.2%.[2] The most common organ that prolapses through the vagina is the terminal ileum. However, the protrusion of the omentum, colon, appendix, and fallopian tubes has also been reported.[3] Though VE is an exceedingly rare complication of hysterectomy, it is a life-threatening situation that often needs a prompt surgical approach to avoid severe sequels. Any delay in the diagnosis and management of small bowel prolapse may lead to bowel infarction, bowel obstruction, thromboembolism, peritonitis, and septicemia.[4,5]

Due to the rarity of VE and a lack of high-quality evidence, there are still many conflicts regarding this condition's incidence, etiology, risk factors, and management. Hence, case reports would provide the literature with great material for future reviews and finding answers to the questions regarding the prevention and management of VCD and VE.

2 | CASE HISTORY/ EXAMINATION

A 78-year-old woman was admitted to the emergency department with a small bowel protrusion from the vagina. Upon further investigation, it was revealed that the patient has been dealing with chronic constipation and stress urinary incontinence for many years. Six months prior to her current presentation, she was diagnosed with uterine prolapse and anterior cystocele, leading her to undergo a total abdominal hysterectomy (TAH) with an open vaginal cuff method, bilateral salpingo-oophorectomy, anterior colporrhaphy, and urethropexy. The patient stated that 2 months after the surgery, she started feeling "something prolapses through her vagina when she lifts heavy objects or during defecation." The patient didn't seek medical care until the day before her recent admission, when she noticed the bowel loop had protruded from the vagina and didn't retract on its own. The last defecation and flatus were on a day before the admission. The vital signs were normal when the patient was referred to the emergency room. There weren't any significant findings in the abdominal examination. However, the gynecologic assessment demonstrated a 60-cm ileal loop eviscerated through the vagina. (Figure 1). Upon inspection, the protruding loop exhibited severe edema and erythema, but there were no definite signs of ischemia. The only remarkable findings on laboratory examination were the neutrophile ratio of 78.4% and CRP of 81.1 mg/L.

FIGURE 1 Small bowel protrusion through the vagina.

After taking informed consent, the patient was transferred to the operating room for reduction of small bowel and vaginal cuff closure.

3 | METHODS (DIFFERENTIAL DIAGNOSIS, INVESTIGATIONS, AND TREATMENT)

In the operating room, after placing the patient in the supine position and induction of general anesthesia, the surgeon performed a midline incision above and below the umbilicus. Due to the previous surgery, there were many intestinal adhesions that were divided accurately. After further investigation, it was discovered that there was a 5 cm opening in the vaginal cuff, through which an intestinal loop had protruded. The eviscerated loop was located 150 cm from the Treitz ligament and 70 cm from the ileocecal valve. It was carefully reduced, and a damaged spot on its serosal layer was repaired using an absorbable suture. There were also some areas with color changes, suspicious of possible bowel ischemia (Figure 2). To ensure viability, the small bowel was placed in warm water, and the peristalsis was seen. A careful inspection of intestinal mesentery also showed no signs of mesenteric diseases. The surgery team used a delayed absorbable suture to close the vaginal cuff in two layers. In the first layer, the anterior and posterior vaginal mucosa were

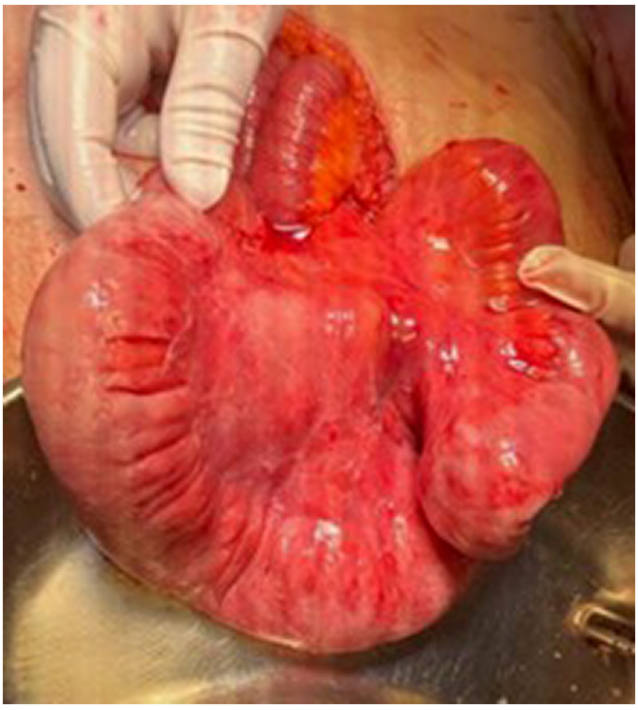

FIGURE 2 Edema and color changes in the intestinal loop.

reapproximated and closed using a running continuous suture. After that, the vaginal muscular layer was closed using the Lembert method. In the end, the vaginal stump was reperitonealized by closing the anterior and posterior peritoneum. A Nelaton catheter (CH-18) was inserted in the pelvic floor and emerged from the left side of the abdomen to prevent fluid accumulation.

Since the surgical team was not able to certainly confirm the viability of the terminal ileum during the first operation, a second-look laparotomy was planned. Two days later, the patient underwent the second operation to be assessed for the signs of intestinal infarction and the necessity of bowel resection. After induction of general anesthesia, the abdomen was re-opened in the previous midline incision. The involved part of the small bowel was meticulously examined for evidence of ischemia or necrosis. The mesentery, omentum, and colon were also re-evaluated, and no pathological findings were identified. The abdomen was closed, and the incision was irrigated and dressed cleanly.

One day after the surgery, the patient was able to tolerate oral feeding. Although prophylactic antibiotics (Cefazolin 1 mg) were given before the operation and other advice was taken to prevent surgical site infection (SSI),[6] the patient developed a superficial SSI a week after the surgery. A wound drainage culture was performed to treat the SSI, and an antibiotic regimen, including Ceftriaxone and Metronidazole, was administered. The wound was also cleaned and irrigated under sterile conditions, and a fresh dressing was applied every day.

4 | CONCLUSION AND RESULTS (OUTCOME AND FOLLOW-UP)

The SSI resolved after a week, and the patient was discharged from the hospital without any complications related to bowel function, vaginal cuff healing, or abdominal incision.

5 | DISCUSSION

Various factors contribute to the occurrence of VCD and VE, including hysterectomy, older age, post-menopausal state, vaginal vault prolapse, vaginal surgery, smoking, and obesity.[3] The heavy use of electrocauterization during hysterectomy is also another factor that may lead to VCD.[7] In premenopausal women, sexual intercourse and vaginal foreign bodies are the most common factors that can trigger vaginal evisceration, whereas in postmenopausal women, the evisceration usually occurs spontaneously or due to increased intra-abdominal pressure.[3] In our patient, the association of multiple risk factors led to intestinal evisceration. Especially having constipation for years, which caused increased intra-abdominal pressure, was an undeniable contributing factor to uterine prolapse and vaginal evisceration.

Previous studies have reported conflicting findings regarding the effect of the hysterectomy surgical route on the incidence of VCD and VE.[7] For instance, a retrospective study on 9973 cases of hysterectomy suggested that, compared to abdominal hysterectomy, laparoscopic technique is related to a decreased risk of VCD.[8] On the other hand, a recent review suggests that VCD occurs more frequently after a total laparoscopic hysterectomy than TAH.[7] Thomopoulos et al.[4] stated that a higher incidence of VCD after laparoscopic hysterectomy might result from thermal energy usage in laparoscopic procedures.

It is supposed that not closing the vaginal cuff after a hysterectomy does not increase the risk of vaginal dehiscence.[7] In our case, after performing an abdominal hysterectomy, the surgeon opted to leave the vaginal cuff open while controlling bleeding with a running suture on the edge of the vaginal stump. However, they closed the peritoneum using a 2.0 Vicryl running suture. The purpose of not closing the vaginal cuff is to allow for drainage of retroperitoneal secretions and to prevent hematoma formation and infection.[9]

Although the occurrence of VCD and VE following hysterectomy is exceedingly rare, we should be aware of their symptoms and potential causes. It is crucial to discuss the symptoms of VCD and VE with patients who have multiple risk factors after a hysterectomy. Our patient, however, had been experiencing protrusion of the

intestinal loop for about 4 months; she didn't seek medical care because she wasn't aware of this complication and thought her symptoms were related to the previous cystocele.

The diagnosis of VCD is made clinically and usually does not cause a challenge for the surgeons. It may present with abdominal or pelvic pain, vaginal bleeding, or watery discharge. However, it would be even easier to make the diagnosis when it's associated with VE. The patients may state that they feel something protruding from the vagina, or the prolapsed intestinal loop can be visible on physical examination.[10]

In some patients, like our case, blood investigation can show an increased neutrophil count.[11] We also saw an increased CRP level in primary lab tests. All these laboratory findings can indicate an inflammatory intestinal state. Performing an abdominal computed tomography (CT) scan with intravenous (IV) contrast can be helpful in ruling out other pathologies.[12] For instance, it can determine early signs of intestinal ischemia. Bowel wall changes, pneumoperitoneum, mesenteric inflammation, and intra-abdominal fluid collection can be suggestive of ischemic changes on an abdominal CT scan.[13] Our patient did not exhibit any clear indications of bowel ischemia during the initial assessment. Moreover, requesting an abdominopelvic CT scan with IV contrast to check for intestinal ischemia could lead to a delay in surgery. As a result, the surgery team decided to perform an urgent surgical intervention to prevent any harm to the intestinal wall and the possibility of peritonitis.

Different studies have reported various approaches to the management of VCD and VE. Selection of the appropriate technique depends on factors like the patient's vital signs, bowel viability, and surgeon availability. There are different surgical routes, including vaginal, abdominal, laparoscopic, and combined techniques to manage vaginal dehiscence. Neither of these approaches has a general superiority over the others.[14] In our case, due to the severe edema, hyperemia, color changes, and lack of bowel peristalsis, we used an open abdominal technique to explore the intestinal viability precisely. Furthermore, exploratory laparotomy provided us with an excellent visualization for the repair of vaginal dehiscence.

Determining the intestinal loop's viability is imperative to decide whether the bowel resection is essential. A bowel resection poses a risk for infection, malnutrition, hemodynamic instability, and organ failure. Good intestinal color, peristalsis, and pulsations in the mesentery show that the bowel is viable.[15] When clear signs of bowel infarction are present, deciding to resect the necrotic segment becomes straightforward. However, with the lack of such a clear presentation, surgeons would face a big challenge. Many surgeons prefer physical examination and intraoperative inspection of the bowel for ischemic signs. Some others use tests like mesenteric color duplex ultrasonography, fluorescein uptake, indocyanine green uptake, evaluation of tissue oxygenation, and myoelectrical activity to ensure bowel viability.[16,17] There is no general agreement on the most effective method for assessing bowel viability.[17] Additionally, in some circumstances, neither of these approaches is reliable for determining that the intestinal tissue is healthy. As a result, second-look surgery is still considered the most reliable way when the situation is uncertain.[15,18]

Meng et al. reviewed the literature on the indications of second-look surgery for bowel ischemia. They concluded that performing a second-look laparotomy should only be considered in selected cases due to the increased risk of anesthesia, infections, and other complications. The need for relaparotomy can be determined by the findings during the initial operation. The authors also suggested that second-look laparoscopy could be a viable alternative. However, they emphasized the importance of having enough experience and technique to choose laparoscopy over open surgery. The need to find a higher level of evidence is also undeniable when recommending a laparoscopic approach for second-look surgery.[15] In our case, performing a relaparotomy probably had a significant effect on the occurrence of SSI 1 week after the surgery.

6 | CONCLUSION

Vaginal cuff dehiscence and VE are very rare but life-threatening complications of hysterectomy. Discussing the symptoms with patients who have multiple risk factors is crucial to avoid severe sequels following hysterectomy. Based on our experience, performing a second-look laparotomy is a reliable approach to ensure the viability of the intestinal loop. However, it will likely increase the risk of infection.

AUTHOR CONTRIBUTIONS

Seyed Ramin Dabiri: Writing – original draft. **Ali Mehri:** Writing – original draft; writing – review and editing. **Farzaneh Mollanorouzi:** Conceptualization; resources. **Davod Alavi:** Investigation; writing – review and editing. **Abbas Abdollahi:** Supervision. **Mohammad Taghi Rajabi Mashhadi:** Resources; supervision.

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CONFLICT OF INTEREST STATEMENT

All authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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