

# Vaginal-Cuff Dehiscence and Evisceration after Radical Robotic Surgery for Urothelial Carcinoma of the Urinary Bladder

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Vaginal-cuff dehiscence and evisceration is defined as partial or total separation of the vaginal cuff from the protrusion of intra-abdominal content, which are generally small intestinal segments. We aimed to report a case of vaginal-cuff dehiscence after robotic laparoscopic surgery for urinary bladder malignancy and its management. A 71-year-old multiparous woman with a medical history of osteoporosis and a previous surgery for umbilical herniation presented with vaginal-cuff dehiscence 8 months after her urothelial carcinoma of the urinary bladder was surgically treated, which was followed by ongoing chemotherapy. To avoid potential complications and owing to the failure of manual reduction of the eviscerated segments, the patient underwent emergency laparotomy. The vaginal cuff was closed with coated absorbable no. 1 polyglactin sutures. This case of vaginal-cuff dehiscence after robotic laparoscopic surgery for urinary bladder malignancy adds to our knowledge of the clinical presentation and management of this condition.

**Keywords:** Vaginal-cuff dehiscence, evisceration, laparoscopic surgery, urothelial carcinoma

## INTRODUCTION

Vaginal-cuff dehiscence (VCD) and evisceration is defined as partial or total separation of the vaginal cuff from the protrusion of intra-abdominal content, which are generally small intestinal segments (1). A higher incidence of VCD has been reported after laparoscopic procedures than after laparotomy (2). As vaginal evisceration following VCD can cause peritonitis, sepsis, and necrosis of the intestinal tract, prompt surgical and medical intervention is required (3). Here we present a case of VCD that occurred 8 months after robotic laparoscopic surgery for malignant bladder carcinoma with vaginal invasion.

## CASE PRESENTATION

A 71-year-old multiparous woman with a medical history of osteoporosis and previous surgery for umbilical herniation presented with VCD 8 months after her urothelial carcinoma of the urinary bladder was treated surgically, which was followed with ongoing chemotherapy. The surgery consisted of radical cystectomy, total abdominal hysterectomy, bilateral salpingo-oophorectomy, partial vaginectomy, pelvic lymphadenectomy, intracorporeal ileal conduit creation, bilateral urethral stent placement, and urethrectomy performed by robotic laparoscopy (Da Vinci Intuitive Surgical system USA) in our institution. The operation notes indicated that the rationale for the performance of hysterectomy was vaginal invasion of known malignancy, seen on pre-operative computed tomography. The vaginal cuff was sutured with coated no. 1 polyglactin 910 (Vicryl®; Figure 1).

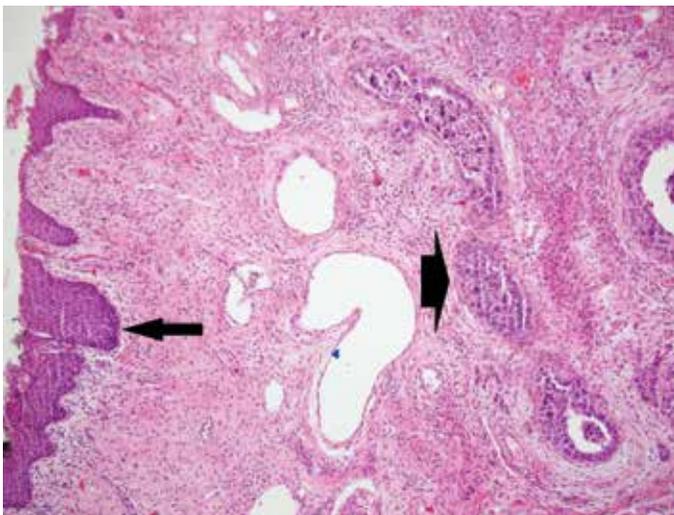
Physical examination revealed VCD and evisceration of the intestine (approximately 80 cm of the ileal segment), but no color change or sign of necrosis indicating compromise of the blood supply. Stimulation of the intestinal segments revealed normal peristaltic movement (Figure 2).

To avoid intestinal resection due to intestinal tract necrosis, to control vascular support of the intestine, and because of unsuccessful manual reduction of the intestinal segments, we determined that laparotomy was the preferred procedure.

Under general anesthesia, a 4 cm midline incision was made. The prolapsed intestinal tract was transmitted to the abdominal cavity after sufficient cleansing with warm sterilized physiological saline solution. Vascular support and peristaltic movement of all intestinal tract segments were checked. The vaginal cuff was opened fully by pulling all intestinal



**FIGURE 1.** Vaginal-cuff dehiscence and evisceration



**FIGURE 2.** Tumor-cell infiltration in the sub-epithelial layer under the stratified squamous epithelium of the vagina (tall arrow) and atypical urothelial cells with large eosinophilic cytoplasm and large hyperchromatic nuclei with distinct nucleoli (short arrow). Hematoxylin and eosin stain, x100.

segments to the sub-diaphragmatic zone. The vaginal cuff was held and hung up using Allis forceps, then closed using continuous no. 1 polyglactin 910 (Vicryl UK) sutures. Teicoplanin 400 mg (Targocid® Gruppo Lepetit, Anagni - Italy) was administered intravenously to prevent post-operative infection.

The patient's post-operative course was uneventful, and the drainage tube was removed on post-operative day 2. Antibiotic treatment was continued until post-operative day 7, after which the patient was discharged. Outpatient examinations performed 2 and 6 weeks post-operatively revealed that the vaginal cuff was completely intact, and the patient had no related complaint. Written informed consent was obtained from the patient who participated in this study.

## DISCUSSION

VCD with evisceration is a rare complication that can necessitate emergency surgery due to the risk of intestinal tract necrosis. VCD incidences of 0.15-0.25%, 0.08-0.15%, and 0.64-1.35% after total abdominal, vaginal, and laparoscopic hysterectomy, respectively, have been reported (4, 5). In a 2010 study, 0.6% of 677 women who underwent total hysterectomy by robotic laparoscopy presented with VCD. (2) Three-fourths of these cases were related to sexual intercourse. (2) Another study revealed that vaginal evisceration complicates 35%-67% of VCD cases. (6, 7) Reported risk factors for VCD are smoking, atrophic vaginitis, poorly controlled diabetes mellitus, long-term steroid treatment, constipation, vaginal-cuff cellulitis or abscess, pelvic radiation, and immunosuppression (2, 4).

Risk factors in our patient were the use of alendronate sodium (which causes constipation) for osteoporosis, previous umbilical herniation surgery, primary bladder malignancy with related surgery and ongoing chemotherapy, valsalva maneuver due to continuous constipation, advanced age, and, probably, multiparity. The patient reported that she had no sexual intercourse after the initial operation. Another risk factor for this patient was the performance of robotic laparoscopy, which can cause thermal damage that impairs wound healing, employs laparoscopic sutures that are known to be weak, and increases abdominal pressure due to inflation with carbon dioxide. All of these factors increase the burden on the pelvic base, despite the performance of all robotic laparoscopies at our institution with a monopolar device for colpotomy, creation of incisions as rapidly as possible, and minimization of thermal damage (2). A multi-institutional analysis including 12,398 patients who underwent hysterectomy for benign and malignant disease revealed that the rate of VCD was higher in cases involving vaginal closure with laparoscopic knots (6).

VCD typically develops in the first week after hysterectomy, as a result of sexual intercourse that impacts an insufficient fusion point of the vaginal cuff (4). Patients' main complaints are atypical genital bleeding, increased vaginal discharge, and lower abdominal pain. Our patient had no sexual intercourse after the procedure and no complaint other than protrusion of the intestinal segments.

## CONCLUSION

Very few cases of VCD after robotic laparoscopy have been reported, and no previously reported case has had a primary etiology of urinary bladder malignancy. This report describes such a clinical presentation, expanding knowledge about cases in which VCD can occur.

**Informed Consent:** Written informed consent was obtained from the patient who participated in this study.

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