

May 1996

## VAGINAL VAULT EVISCERATION AFTER TOTAL LAPAROSCOPIC HYSTERECTOMY

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**Background:** Vaginal vault rupture with intestinal herniation, although rare, is a recognized postoperative complication of vaginal and abdominal hysterectomies. The incidence after laparoscopic hysterectomy is unknown.

**Cases:** Three women, ages 40-43 years, presented to the emergency room with bleeding and pain 2-5 months after total laparoscopic hysterectomy. The small bowel was visible through the introitus or protruding into the vagina. Inspection of the bowel revealed no evidence of trauma. Two vaginal cuff repairs were completed transvaginally and one laparoscopically, all with interrupted sutures of no. 0 polydioxanone or polyglactin. In follow-up period of 12-17 months, the patients were doing well.

**Conclusion:** Total laparoscopic hysterectomy may be associated with an increased risk of vaginal vault evisceration. Because laparoscopy increasingly is used to replace abdominal hysterectomy, it is important to be aware of this complication and its management. (*Obstet Gynecol* 1996;87:868-70)

Vaginal vault rupture with intestinal herniation, although rare, has been reported after vaginal and abdominal hysterectomies.<sup>1-5</sup> We report three such cases, two postcoital and one spontaneous, after total laparoscopic hysterectomy.

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### Case Reports

#### Case 1

A 42-year-old woman, gravida 5, para 3, had a total laparoscopic hysterectomy with bilateral salpingo-oophorectomy for symptomatic uterine myomas weighing 600 g. About 4 months later, she presented to the emergency room with approximately 7 cm of bowel protruding from the vagina after straining on the toilet. She denied trauma or recent coitus. The loops of bowel were covered with moist saline pads, and the patient was transferred to the operating room for examination under anesthesia. Five to 10 cm of terminal ileum were at the level of the introitus, with no evidence of ischemia, strangulation, or laceration. The bowel and vagina were irrigated with warm saline, and the patient was placed in a steep Trendelenburg position. The small bowel retracted spontaneously into the abdominal cavity. The edges of the vaginal cuff were debrided and closed transvaginally with interrupted sutures of no. 0 polydioxanone. The woman was discharged 24 hours later after an unremarkable course, and she was doing well 15 months later.

#### Case 2

A 43-year-old woman, gravida 4, para 2, underwent total laparoscopic hysterectomy for endometriosis and pain. Her uterus weighed 200 g. A modified Moschowitz procedure was performed using no. 0 polybutylate-coated polyester. Eight weeks later, after playing tennis and having intercourse, she felt a sudden sharp lower abdominal pain, experienced a bloody vaginal discharge, and became aware of a mass coming out of her vagina. Five to 7 cm of bowel were noted at the introitus. Examination under anesthesia revealed complete vault dehiscence and a portion of small bowel prolapsed with no sign of trauma or ischemia. This prolapse was easily reduced into the abdominal cavity. Bowel adhesions were present in the cuff, making vaginal closure unsafe. After pneumoperitoneum was obtained transvaginally, we proceeded with multipuncture operative laparoscopy. The bowel was inspected and found to be without ischemia or laceration. The vaginal apex was freed from the adhesions and closed

laparoscopically with several interrupted sutures of no. 0 polyglactin. This patient was doing well 1 year later.

### Case 3

A 40-year-old woman, gravida 1, para 0, underwent total laparoscopic hysterectomy for severe pelvic endometriosis. Five months postoperatively, she presented to the emergency room with vaginal bleeding and pain after intercourse. On examination, complete vaginal cuff dehiscence was found and there was visible peristalsis of the small bowel. There was no trauma to the bowel, and vaginal repair was completed with no. 0 polyglactin sutures placed transvaginally. At the 17-month follow-up, she was doing well.

### All Cases

All hysterectomies were performed by multipuncture operative laparoscopy.<sup>6</sup> Instrumentation included the UltraPulse CO<sub>2</sub> laser (Coherent, Palo Alto, CA) set at 40–80 watts (W) and 100–200 millijoules for cutting and hemostasis of small vessels. For larger vessel hemostasis and desiccation of pedicles, we used bipolar forceps (Richard Wolf Instruments, Vernon Hills, IL) at a setting of 20–25 W of nonmodulated (cutting) current. After complete removal of the uterus and cervix, the vaginal cuff was closed and anchored to the remnants of the uterosacral cardinal ligaments laparoscopically with multiple interrupted no. 0 polyglactin sutures, using extracorporeal knot-tying techniques. Care was taken to place the sutures beyond the desiccated edges of the cuff to incorporate the viable tissue. All women were healthy and had no underlying medical problems. Perioperatively, they received prophylactic antibiotic therapy at both the hysterectomy and vaginal cuff repair procedures.

### Discussion

To our knowledge, these cases of vaginal evisceration after total laparoscopic hysterectomy are the first to be reported. This complication has been reported only rarely since McGregor's initial description in 1907,<sup>1</sup> despite the large number of hysterectomies performed annually.<sup>7</sup> In a letter, Powell described reviewing 57 reports detailing 63 cases of bowel or omental prolapse through a ruptured vaginal vault (Powell JL. *Am J Obstet Gynecol* 1995;172:1656), of which 28 followed vaginal hysterectomy and nine came after abdominal hysterectomy. However, we could not find a precise estimate of the incidence of spontaneous and traumatic rupture of the vaginal vault after either vaginal or abdominal hysterectomy.

The question that remains is whether vaginal evisceration is especially common after total laparoscopic hysterectomy. Our cases may simply represent chance clustering, or there might be a higher likelihood that this complication would be noted in patients undergoing this relatively new laparoscopic procedure, com-

pared with underreporting after traditional hysterectomy. Nevertheless, a number of attributes may contribute to a higher risk of vaginal vault rupture after total laparoscopic hysterectomy. Such risk factors could explain either a higher danger of weakening of the vaginal apex or an increased susceptibility to trauma or straining of the vaginal vault in women undergoing laparoscopic surgery.

In women undergoing total laparoscopic hysterectomy, the technique used to close the vaginal cuff is not different than the traditional closure. In our three cases, the vagina was closed transversely with multiple interrupted no. 0 polyglactin sutures using extracorporeal knot tying. The way the vaginal vault was closed probably has only limited meaning, because the cuff is left open by many surgeons performing the traditional operation to allow extraperitoneal drainage.<sup>8</sup> A modification of the laparoscopic approach is the use of electricity for cutting and hemostasis. The use of thermal energy may have resulted in more tissue damage to the vaginal cuff. However, this suggestion is purely speculative, because the decrease in postoperative complications and adhesion formation does not support this contention.<sup>9</sup> It should be noted that postoperative cuff hematoma or cellulitis was not found. In any case, it may be advisable to minimize the use of thermal energy, so that the tissue is not over-desiccated. Sutures should always be placed in viable tissue.

The remarkable, rapid recovery associated with a laparoscopic or vaginal approach, compared with abdominal hysterectomy, is widely acknowledged. Swift return to everyday activities could predispose women to rupture of the vaginal vault. Although our cases presented 8–22 weeks after surgery, early resumption of intercourse and strenuous activity could have led to weakening of the apex. This is consistent with the fact that the women in our series were significantly younger than those previously reported,<sup>10</sup> and none suffered from menopausal atrophy. In such premenopausal women, coitus or a foreign body is the primary initiating cause.<sup>5</sup> Upon discharge, patients undergoing laparoscopic hysterectomy should be given careful instructions to avoid coitus until postoperative pelvic examination shows a properly healed vaginal vault incision.

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*Received August 25, 1995.*

*Received in revised form November 1, 1995.*

*Accepted December 19, 1995.*

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