**CLINICAL CASE**

**Laparoscopic treatment of a complex vesicovaginal fistula**


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**KEYWORDS**
Vesicovaginal fistula; Laparoscopic approach; Mexico

**Abstract** Ninety percent of the vesicovaginal fistulas (VVF) are produced after a hysterectomy, with a frequency of one in 1,800 cases. Nezhat et al. were one of the first to publish an article on laparoscopic treatment of a VVF. There are very few reports with respect to the laparoscopic approaches of complex VVF.

The aim of this report was to demonstrate the successful result of the O’Conor technique in complex fistula treatment.

A 35-year-old woman had a past history of hysterectomy secondary to postpartum uterine hemorrhage in 2010. A VVF was diagnosed in the mid postoperative period and she underwent fistula repair through the vagina in March 2010. The fistula recurred and she underwent fistula repair in November 2010 with the open transabdominal approach using the O’Conor technique. The surgery failed. In June 2011 our team operated on her, performing vesicovaginal fistula repair with the laparoscopic approach. Laparoscopic surgery duration: 150 min. Intraoperative blood loss: 50 cc. Hospital stay: 3 days. Time with transurethral catheter and bilateral ureteral catheterization: 4 weeks. The patient has been under active surveillance for 13 months and there has been no fistula recurrence.

In the case of this patient, we call “complex VVF” a fistula that meets one of the following criteria: VVF larger than 2 cm, fistula that involves one ureteral meatus, fistula secondary to radiation, associated rectovaginal fistula, or fistula with failed surgical repair.

The laparoscopic treatment of complex vesicovaginal fistulas has similar results to those of open surgery.

**PALABRAS CLAVE**
Fístula vesicovaginal; Abordaje laparoscópico; Mexico

**Resumen** Noventa por ciento de las fistulas vesicovaginales (FVV) son producidas después de una histerectomía, con una frecuencia de uno en 1,800 casos. Nezhat et al. fue uno de los
Laparoscopic treatment of a complex vesicovaginal fistula

Introduction

Ninety percent of the vesicovaginal fistulas (VVF) are produced after a hysterectomy, with a frequency of one in 1,800 cases. In certain selected cases treatment can be conservative, with a very low success rate. When this management fails, surgical treatment is the option and has success rates as high as 97%; however, recurrence rates of up to 10% have been reported. Nezhat et al. were the first to publish a report on the laparoscopic treatment of a VVF. There are very few reports on laparoscopic approaches in relation to complex VVFs.

Case presentation

A 35-year-old woman had a past surgical history of hysterectomy secondary to a postpartum uterine hemorrhage in 2010. A VVF was diagnosed in the mid postoperative period and she underwent fistula repair via the vagina in March 2010, but the fistula recurred. She underwent fistula repair again in November 2010 with the open transabdominal approach and the O’Conor technique; once again the treatment failed. In June 2011 our team performed the VVF repair with the laparoscopic approach.

Technique

Under general anesthesia, cystoscopy was carried out. Both ureteral meatuses were catheterized with 6 Fr catheters; the fistulous tract was also catheterized. Gauzes with Isodine® were placed in the vaginal dome and the patient was put in the forced Trendelenburg position, the same position used in radical prostatectomy with the Boudeux technique. A 10 mm supraumbilical trocar was placed using the Hasson method and 2 more trocars were placed above the external superior iliac crests. A fourth 5 mm trocar was placed midway between the camera trocar and the pubic symphysis. Insufflation reached 12 mm Hg and flow rate was 6 mL/min (fig. 1). The multiple adhesions encountered were freed and the bladder dome was identified. Using the technique employed by O’Conor an incision was made in the bladder, as close as possible to the vaginal dome. The fistula, previously situated with a catheter, was identified through the bladder, cutting around it (fig. 2). The vagina was carefully moved away from the bladder and separate closure was carried out with Monocryl 2-0. After closure of the vagina (fig. 3), we proceeded to interposition the

Figure 1 Trocar arrangement. (1) 2 cm from the external superior iliac crest on an imaginary line between the umbilicus and the ipsilateral iliac crest. (2) At a point halfway between the umbilicus and the pubic symphysis. (3) The same as 1. (4) Transumbilical or supraumbilical.
omental appendage of the rectosigmoid colon between the vagina and bladder, before closing the bladder (fig. 4). We completely freed the paravesical spaces in order to reduce the tension of the bladder closure that was done with Monocryl® 2-0.

The laparoscopic surgery duration was 150 minutes; blood loss was 50 cc, and hospital stay was 3 days. The transurethral catheter and bilateral ureteral catheters remained in place for 4 weeks. The patient has been under active surveillance for 13 months with no sign of fistula recurrence.

Discussion

Simple abdominal hysterectomy or hysterectomy due to benign disease continues to be the most frequent cause of VVF in the developed countries. Other procedures that can produce VVF are anterior colpoperineorrhaphy and suspension with Pereira needles. No risk factors for fistula formation have been identified in the majority of the patients, but previous cesarean section has been associated as one. 4-6

VVF can be repaired either via the abdomen or the vagina. We define a complex fistula, like the one in our patient, as a fistula that fits one of the following criteria: VVF larger than 2 cm; a fistula that involves the ureteral meatus; a fistula secondary to radiation; a fistula with failed surgical repair; and a fistula accompanied by another fistula or involving the digestive tract.

The ideal principles in surgical repair include the removal of necrotic or fibrotic tissue so there can be healthy well-irrigated tissue, a preferably negative urine culture, complete excision of the fistulous tract, tension-free closure, and placement of vascularized healthy tissue between the vagina and the bladder. This technique is described by O’Conor and has success rates of 95% to 100%. 7-10

Many gynecologists favor an initial transvaginal approach, leaving the transabdominal approaches only for complex fistulas. We always perform a transvesical approach first using the O’Conor technique, whether the vesicovaginal fistula is complex or not. 7-9 This approach provides good cosmetic results and very few, if any, of the complications that arise from the abdominal cavity approach. An important step for us is to keep the surgical site free from blood in order to have better vision and to prevent hematomas that could complicate the procedure. 10

Conclusions

The laparoscopic approach for this pathology is safe and reproducible and it is equally as successful as open surgery.

Conflict of interest

The authors declare that there is no conflict of interest.

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References