

## Case Report

# Laparoscopic Management of Recurrent Vesicovaginal Fistula

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**Abstract:** Vesicovaginal fistula repair is most commonly undertaken via a transvaginal approach. We report a recurrent case of vesicovaginal fistula which was ultimately repaired using a laparoscopic approach. The fistula followed a hysterectomy and persisted despite two operations using the Latzko partial colpocleisis and prolonged catheterization. The fistulous tract was ultimately repaired by closing the vagina and bladder with an interposing omental flap utilizing a laparoscopic approach.

**Keywords:** Laparoscopy; Latzko; Urogenital fistula; Vesicovaginal fistula

## Introduction

Vesicovaginal fistula repairs have been described primarily utilizing vaginal and/or abdominal approaches. Although there are a number of techniques using these approaches, the technique chosen is often determined by the operator's preference, experience or training. Nezhat et al. [1] published the first and only case report in which a vesicovaginal fistula was repaired successfully using laparoscopy. We believe this is the first published report of a laparoscopic repair of recurrent vesicovaginal fistula using a layered closure and omental flap.

## Case Report

A 36-year-old caucasian woman, gravida 3 para 3, developed a vesicovaginal fistula 2 weeks after abdominal hysterectomy for benign disease. There

were no reported intraoperative or immediate postoperative complications, but she later developed a watery vaginal discharge and was referred to the urogynecology unit for evaluation. A vesicovaginal fistula was suspected and a methylene blue dye test performed. Office evaluation confirmed a vesicovaginal fistula. An intravenous pyleogram was performed and revealed a single 5 mm fistulous tract located in the upper third of the bladder. Cystoscopy confirmed bilateral ureteral patency and a vesicovaginal fistula. The fistulous tract did not appear to be completely epithelialized, so the fistula was managed by continuous drainage for 4 weeks via a transurethral Foley catheter. Because the tract did not close spontaneously, the patient was scheduled for surgery. A Latzko partial colpocleisis was performed, adhering to the principles described by Tancer [2]. Intra-operatively the bladder was filled retrograde with 300 ml of sterile milk; no evidence of fistula patency was noted at time of speculum examination. Despite continuous catheterization and antibiotics the patient presented with urinary incontinence 3 weeks postoperatively. Speculum examination confirmed urine extravasating from the site of repair. Management options, including abdominal and repeat transvaginal approaches, were discussed. The patient elected for a repeat transvaginal approach.

Ten weeks after the diagnosis of the recurrent fistula a second Latzko procedure was performed without complication. After completion of the partial colpocleisis the bladder was distended with 300 ml of sterile milk. No evidence of leakage was noted at the incision site. The bladder was drained with a Foley catheter for 6 weeks, after which the patient presented with complaints of urine leakage from the vagina. Examination confirmed a recurrent vesicovaginal fistula. Again the options were discussed with the patient, including a laparoscopic approach. It was explained to the patient that a laparoscopic repair was not the standard of care.

but rather best be considered an innovative surgical approach with the potential clinical benefits of minimally invasive surgery. She chose the laparoscopic approach with or without a combined vaginal approach, rather than a laparotomy.

Ten weeks after the second Latzko procedure the patient underwent a laparoscopic approach to repair the vesicovaginal fistula. Cystoscopy was performed to identify the ureters and the fistulous tract. A ureteral catheter was placed through the fistula and delivered through the vagina to facilitate identification during dissection. A minilaparotomy was made at the inferior edge of the umbilicus, where a 10 mm port was placed to accommodate the laparoscope. Three other ports were placed under direct vision. A 5 mm port was placed suprapubically in the right paramedian area, and a 12 mm port placed in the left paramedian area. A thorough inspection of the abdomen and pelvis was performed.

An EEA sizer was placed into the vagina to elevate the apex and to facilitate the dissection. The bladder was filled retrograde with normal saline to better identify the vesical vaginal reflection. The vesicovaginal space was dissected using endoscopic scissors and blunt dissection. Identification of the ureteral stent laparoscopically confirmed entry into the fistulous tract. The fistulous tract was excised and dissection continued 1–2 cm distal to this site, mobilizing the vagina and bladder edges.

One layer of 3/0 Vicryl sutures was placed in an interrupted fashion in the vagina and the bladder. Seven sutures were placed on the vaginal side and four on the bladder side. All suturing was performed laparoscopically, using extracorporeal knot tying. The bladder was filled in a retrograde fashion with 300 ml of normal saline solution, and no leaking was noted laparoscopically. The omentum was mobilized and introduced between the bladder and anterior vaginal wall. Using two interrupted sutures of 3/0 Vicryl the omental flap was anchored to the anterior vaginal wall. The patient was discharged the morning after surgery with a transurethral Foley catheter. The bladder was drained for 21 days, after which time cystoscopy revealed a well-healed mucosa. The patient has been followed for 6 months without recurrence of the fistula.

## Discussion

Genital urinary fistulas in women remain relatively uncommon. In underdeveloped countries they are caused

primarily by obstetric complications; in developed countries total abdominal hysterectomy for benign gynecologic disease continues to be the most common cause.

Vesicovaginal fistulas can be successfully repaired utilizing either a transvaginal or a transabdominal approach. The vaginal approach is easier, less traumatic, has a shorter operating time and less postoperative pain than abdominal surgery [3]. The Latzko procedure, essentially a partial colpocleisis, is most commonly used, especially in patients who have a simple posthysterectomy vesicovaginal fistula. Multiple previous unsuccessful attempts at closure however, may produce excessive scarring of the vagina so that exposure and dissection from below is extremely difficult. Under these circumstances, transabdominal closure may be necessary [4].

Laparoscopy is a minimally invasive technique which allows for transabdominal access with excellent exposure and minimal morbidity. Indications for laparoscopic approaches to urologic and gynecologic conditions continue to gain acceptance, despite academic controversy. Using laparoscopy we successfully repaired the vesicovaginal fistula by closing the vagina and bladder and interposing an omental flap. The procedure was without complications, had minimal morbidity, a shorter hospital stay and a faster return to normal activity than would be anticipated for a patient having a laparotomy. The authors believe the laparoscopic approach is a viable and less morbid alternative than traditional open abdominal approaches in the treatment of recurrent vesicovaginal fistulas.

## References

1. Nezhat CH, Nezhat F, Nezhat C, Rottenberg H. Laparoscopic repair of a vesicovaginal fistula: a case report. *Obstet Gynecol* 1994;83:899–901
2. Tancer ML. Vesicovaginal fistula after total abdominal hysterectomy. *J Pelv Surg* 1995;1:167–70
3. Margolius T, Mercer LJ. Vesicovaginal fistula. *Obstet Gynecol* 1994;49:840–841.
4. Thompson JD. Vesicovaginal fistula. In: Thompson JD, Rock JA, eds. *Te Linde's operative gynecology*, 7th edn. Philadelphia: JB Lippincott Co, 1992:785–817