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IUJ VIDEO

Laparoscopic transperitoneal extravesical approach to vesicovaginal fistula repair without omental flap: a novel technique

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Abstract
Introduction and hypothesis The O'Connor bladder bivalving technique remains the traditional abdominal approach to vesicovaginal fistula repair whether performed via laparotomy or laparoscopy.
Methods This video depicts a new surgical technique utilizing a laparoscopic transperitoneal extravesical approach without invasive bladder bivalving or an omental flap. This technique was first described in 1999 and has been utilized on >40 patients with either primary or recurrent vesicovaginal fistulas.
Results A 98% success rate is reported.
Conclusion This alternative technique can be performed using either a laparoscopy or the traditional laparotomy approach.

Keywords Vesicovaginal fistula · Laparoscopic vesicovaginal fistula · Bladder fistula · Urogenital fistula · Laparoscopic vesicovaginal fistula repair

Aim of video

Our purpose in producing this video is to describe our non-traditional technique of a vesicovaginal fistula (VVF) repair utilizing a laparoscopic transperitoneal extravesical approach in patients with either primary or recurring cases of VVF. This technique is not a modification of the O'Connor technique [1], which requires bivalving of the bladder, nor does it utilize an omental flap.

Methods

We retrospectively reviewed the charts of 41 women in our practice who underwent a laparoscopic transperitoneal extravesical VVF repair since 1998. The technique, which is not a modification of the O'Connor technique, was first described in 1999 [1] and has been described in subsequent papers [2–5] and used to repair both primary and recurrent VVF with great success. Though we show our technique employing a laparoscopic approach, this operative technique could be performed via a laparotomy.

We highly recommend a bowel decompression regimen to improve visualization of the operative field and to reduce the risk of accidental bowel injury. All patients undergo a modified bowel preparation consisting of a full liquid diet 48 h prior, followed by a clear liquid diet and a bottle of magnesium citrate 24 h prior to the scheduled surgery. A single IV dose of prophylactic antibiotic (cefazolin, 1 g) is administered 30 min prior to surgical incision. Antiembolic thigh-high compression boots are routinely used during and the first evening after surgery. The patient is intubated, given general anesthesia, and positioned in a dorsal lithotomy position with arms placed against her side.

Prior to actually starting the laparoscopic portion of this surgery, we first identify the fistula transvaginally and cystoscopically. During cystoscopy, a right-angle clamp is placed through the vaginal fistula opening and into the bladder. A ureteral stent is threaded through the cystoscope and into the jaws of the right-angle clamp. The tip of the stent is

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grasped, and the stent is then pulled through the fistula and out the vaginal introitus. Both ends of the stent are tagged with a single hemostat so the stent does not dislodge during surgery, and the stent acts as a palpable guide to help the surgeon identify the fistula laparoscopically.

After laparoscopic access (transperitoneal approach), the surgical dissection begins with the surgeon using a fingertip to locate the stent at the vaginal apex and dissecting between the bladder and the anterior vaginal wall (extravesical). This dissection is exactly like the dissection performed during a sacral colpopexy when attempting to expose the pubocervical fascia of the anterior apical vaginal wall. The surgeon's dissection is directed toward the palpable stent and fistula. Further dissection will allow entry into the fistula tract, exposing the previously placed stent. The stent can be removed at this point, and further dissection is performed in an attempt to achieve 1–2 cm of bladder mobilization away from the underlying vagina. This mobilization is key, as it allows for complete separation of the bladder and the vagina. This separation will allow adequate space for suturing individual-layered closure of the bladder and of the vagina. The scarred edges of both bladder and vagina fistulous tracts are then debrided, accessing fresh tissue for healing.

We usually close the defect in the vagina first to maintain pneumoperitoneum; this is done using a 2–0 delayed absorbable suture in an interrupted figure-of-eight fashion. The bladder muscularis is then approximated using interrupted figure-of-eight 4–0 delayed absorbable sutures. The bladder is retrograde filled with 400–500 cc of sterile water, and the integrity of the incision closure is checked. Once the integrity of the first layer of repair is confirmed, a second layer imbricating the serosa over the first layer is performed. A second retrograde fill is performed, and the integrity of the suture line is confirmed by giving the patient 1 Amp of Indigo Carmine and doing a cystoscopy to confirm ureteral patency while simultaneously evaluating bladder closure laparoscopically. The patient consented to the video and study.

Results

All VVFs were repaired laparoscopically using a transperitoneal extravesical dissection approach with a layered closure technique, and all but one without an omental flap. Average patient age was 46.7 (range 31–73) years. Average hospital stay was 1.2 (range 1–3) days, estimated blood loss was 70 (range 5–200) ml, and the cure rate was 97.6 % (40/41) with one surgical attempt. No intraoperative or postoperative complications were noted.

Conclusion

A laparoscopic transperitoneal extravesical VVF repair technique without an omental flap can be a feasible and safe operation in patients with primary and recurring VVF who may have had an omental flap previously.

Consent Written informed consent was obtained from the patient for publication of this video article and any accompanying images.

Conflicts of interest None.

References

1. O'Connor VJ Jr (1980) Review of experience with vesicovaginal fistula repair. J Urol 123:367–78
2. Miklos JR, Sobolewski C, Lucente V (1999) Laparoscopic management of recurrent vesicovaginal fistulal Int Urogynecol. J Pelvic Floor Dysfunct 10(2):116–17
3. Abdel-Karim AM, Mousa A, Hasouna M, Elsalmy S (2011) Laparoscopic transperitoneal extravesical repair of vesicovaginal fistula. Int Urogynecol J 22(6):693–7
4. Miklos JR, Moore RD (2012) Failed omental flap vesicovaginal fistula repair subsequently repaired laparoscopically without an omental flap. Female Pelvic Med Reconstr Surg 18(6):372–3
5. Miklos JR, Moore RD (2012) Vesicovaginal fistula failing multiple surgical attempts salvaged laparoscopically without an interposition omental flap. J Minim Invasive Gynecol 19(6):794–7