



A rare case of a vesicouterine fistula managed by 3 minimally invasive approaches (Video Article)

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Abstract

Vesico-uterine fistulas account for 1-4% of all genitourinary fistulas and mainly occur as a result of cesarean section, with more than 90% of cases. The present study is a video article with the objective to describe

the surgical technique for the vesico-uterine fistula repair utilizing 3 simple minimally invasive intraoperative approaches: cystoscopy, hysteroscopy and laparoscopy. We show that the laparoscopic repair of vesico-uterine fistula can be an effective and safe approach.

Key words: vesico-uterine fistula, genitourinary fistula, laparoscopic surgery, laparoscopy, Youssef syndrome

Objective: To describe a safe reproducible laparoscopic technique for the repair of vesico-uterine fistulas.

Design: Video presentation

Setting: Private hospital in Curitiba, Brazil

Interventions:

A 44-year-old woman G1P1 with a history of cesarean section 8 years ago presented with complaints of menorrhagia [1]. Transvaginal ultrasound revealed normal uterus and adnexa. Transabdominal ultrasound revealed a hyperechogenic polyp measuring 1.32 cm along the posterior wall of the bladder with normal kidneys (Figure 1). Pelvic magnetic resonance imaging identified a fistulous tract between the posterior wall of the bladder and the uterine isthmus measuring 0.9 x 0.4 cm partially occupied by a polypoid structure (Figure 2).

The steps of a laparoscopic repair of a vesico-uterine fistula are described in the video utilizing 3 minimally invasive surgical approaches: cystoscopy, hysteroscopy and an uncomplicated laparoscopic vesico-uterine repair.

In the first step, cystoscopy is performed revealing a vesical polyp, acting as an intrinsic valve to the intravesical fistula orifice located on

the posterior wall of the bladder at the level of the uterine isthmus.

The second step involves a diagnostic hysteroscopy to assess the endometrial cavity and location of the fistula orifice.

The third step involves the laparoscopic repair. Pneumoperitoneum is created via a Veress entry and insertion of 4 ports using the French configuration: a 10 mm intra-umbilical camera port and three 5 mm ports in the lower abdomen. At the level of the fistula, an incision was made on the vesical peritoneum with the use of an ultrasonic instrument. Next, the vesico-uterine space is dissected in order to mobilize the bladder from the lower uterine segment until identification of the vesico-uterine fistula is confirmed. Traditional principles of fistula repair as described by Couvelaire in the 1950s are meticulously followed [2]. We start with resection of the fistulous tract and its surrounding tissue using a laparoscopic extravesical technique as described by von Theobald and Miklos in 1998 and 1999, respectively [3,4]. The bladder closure is accomplished with continuous suture in vertical fashion using 3-0 Polydioxanone in two layers. The first layer incorporates the vesical mucosal and muscularis layers, and the second layer imbricates over the first layer. A two layer closure was also performed on the uterine

segment, after excising fistulous tract, a running suture of 2-0 Monocryl was used followed by two imbricating figure of eight sutures. A bladder integrity test with saline solution confirmed a watertight closure.

Operative time: 79 minutes, EBL 25 ml

The patient's postoperative course was uncomplicated. The patient was discharged from the hospital on postoperative day one with the foley catheter. The bladder was drained for 7 days. Pathological examination of the surgical specimen revealed tissue consistent with a fistulous tract, as well as, vesical mucosa with areas of endometriosis. At her 6 week follow up, the patient reported resolution of her symptoms.

Discussion:

Vesico-uterine fistulas account for 1-4% of all genitourinary fistulas, and are defined as a connection between the lumen of the urinary bladder and the uterine cavity or the cervical canal [5]. Vesico-uterine fistulas occur mainly as a result of cesarean section with more than 90%

of cases being attributed to benign gynecologic surgery [6]. The success rate of conservative management may be as low as 5% leaving surgery as the best management option in most patients [5,9]. Hysterectomy is not mandatory and does not seem to affect recurrence with successful term pregnancies reported following vesico-uterine repair [3]. As of August 11, 2022 there have been 28 conventional laparoscopic procedures reported in PubMed for vesico-uterine fistula, with 11 laparo-endoscopic single site (LESS) surgery, and 14 robotic cases with 100 % success rate. In our case, we described the laparoscopic repair of the vesico-uterine fistula and we showed the fistula aspect by cystoscopy and hysteroscopy as well.

Conclusion:

Minimally invasive techniques offer advantages as the optimal exposure of the operative field and less risk of complications, allowing an effective and safe approach for the management of vesico-uterine fistulas but are dependent on surgeon experience.