Laparoscopic Repair of Vesicouterine Fistula
A Brief Report With Review of Literature

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INTRODUCTION

Vesicouterine fistula (VUF) is a rare type of genitourinary fistula that accounts for 1% to 4% of all reported urogenital fistulas.(1) With the rising rate of lower segment cesarean section (LSCS) all over the world, the management of this entity becomes even more important, both from clinical as well as medico-legal points of view.(2) Herein, we report the laparoscopic management of a patient with VUF following LSCS.

CASE REPORT

A 34-year-old woman presented with history of recurrent suprapubic pain, secondary amenorrhea along with menouria following LSCS ten years earlier. She developed these complications one month after she underwent the LSCS. She had menouria and suprapubic pain at monthly intervals for 3 to 5 days. Apart from these symptoms, no other symptoms were reported.

Physical examination of the abdomen and per-vagina were unremarkable. Ultrasonography of the kidney, ureter, and bladder and renal function tests were within normal limits. Intravenous urography was unremarkable.

Cystoscopy revealed an opening of approximately 10 mm in the supratrigonal region (Figure 1). Cystoscopy was repeated after one week (at the the time she was having menouria) and showed blood clots emerging from a fistulous opening (Figure 2). A 6-F

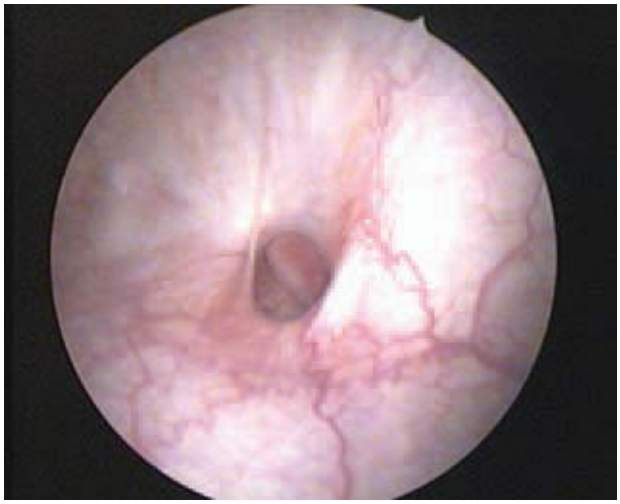

Figure 1. Cystoscopy showing a round to oval 10-mm opening in the supratrigonal region.

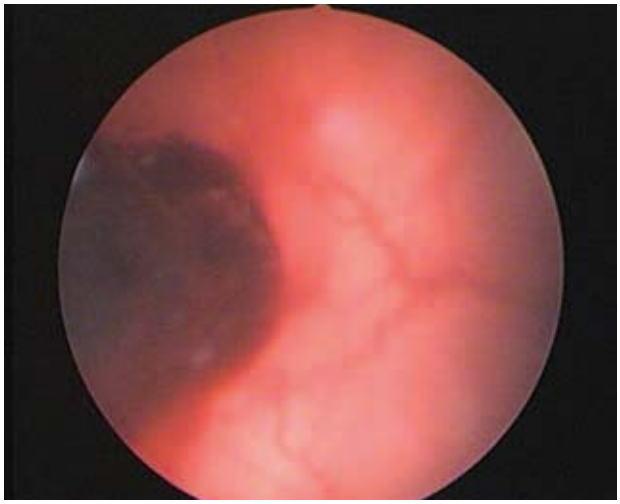

Figure 2. Cystoscopic view of the fistula in supratrigonal region with blood clots.

ureteral catheter over a J-tip guidewire (0.035") (Terumo; glidewire) was inserted through this opening. With little manipulation, it entered the uterine cavity and coiled inside. In the same operative sitting, hysteroscopy was performed with the aid of a 7.5-F ureteroscope. It confirmed the position of the coiled ureteral catheter and the guidewire inside the uterine cavity.

TECHNIQUE

This patient was managed by laparoscopic surgery. In lithotomy position, bilateral ureteral orifices and the fistulous opening were catheterized with 6 F ureteral catheters. A 22-F Foley catheter was inserted inside the urinary bladder. Thereafter, the patient was placed in supine position with the head tilted down. Pneumoperitoneum was created and 3 ports were inserted; a 12-mm supraumbilical port for camera and two 5-mm para-rectal ports on either side laterally (halfway between the umbilicus and the anterior superior iliac spine). Dissection was started in the vesicouterine peritoneal fold. The bladder was densely adhered to the uterus. A plane between the bladder and uterus was created by sharp dissection. The fistulous tract was identified by the presence of the ureteral catheter entering the uterine cavity. A deliberate cystotomy was made (2 cm wide) in the posterior bladder wall, which was extended downwards to incorporate the fistulous opening in a circumferential manner and this was excised later on. The uterine fistulous opening was closed in interrupted fashion with 3-0 polyglactin suture. The ureteral catheter was pulled out just before the final knots were tied (Figure 3). The bladder was repaired in two layers in continuous manner with 3-0 polyglactin sutures (Figure 4). The bladder was then gently filled with normal saline to rule out any leak. The uterovesical fold of the peritoneum was mobilized and tucked onto the anterior wall of the uterus to cover the suture line. A 16-F tube drain was inserted in the uterovesical pouch and brought on the surface through the right para-rectal region.

RESULTS

The operation time was 180 minutes and the total blood loss was 50 mL. Postoperative course was uneventful and the patient was discharged after one week. Foley catheter was removed after 3 weeks. Micturating cysto-urethrogram was done following catheter removal and depicted normal bladder contour. Post-void film did not show any evidence of contrast extravasation. Now, the patient has started menstruating following the operation and is doing well at 6 months of follow-up period.

DISCUSSION

Cesarean section (CS) accounts for more than 75% of VUF[3,4] and menouria is the classical presentation following VUF after emergency CS. Our patient had menouria and secondary infertility for 10 years following CS. The

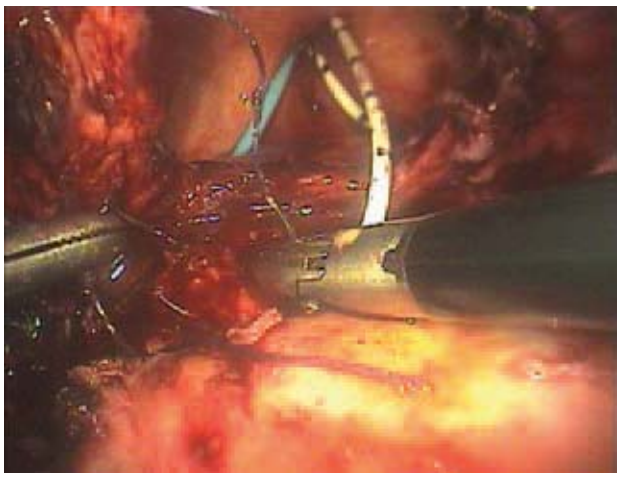

Figure 3. Laparoscopic view of the intracorporeal suturing of the vesicouterine fistula.

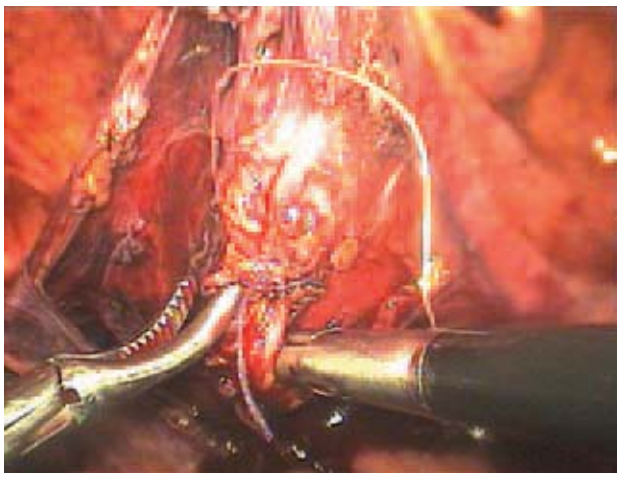

Figure 4. Laparoscopic view of the intracorporeal suturing of the cystotomy.

treatment of choice in such a case is VUF disconnection and closure of the bladder and uterine fistulous openings with interposition graft. Our patient was managed by laparoscopic transperitoneal fistula disconnection and closure of the bladder and uterine fistulous openings by intracorporeal suturing with the peritoneal fold as interposition graft.

Depending on the menstrual flow, Jozwik divided VUF into 3 categories: Type I - with menouria; Type II - with menouria and vaginal flow; and Type III - with normal vaginal menses.[5] This condition is popularly known as Youssef syndrome and characterized by menouria with *absence* of urinary incontinence and vaginal bleeding.[6]

For diagnosis, detailed history, vaginal examination, cystoscopy, cystography, and/or hysterography are needed. In recent years, new diagnostic modalities, such as transvaginal ultrasonography (with or without Doppler study), contrast-enhanced computed tomography scan, and magnetic resonance imaging have been added to the armamentarium for rapid and clear diagnosis.[7-9]

Conservative management, including continuous bladder drainage with antibiotics and anticholinergics are recommended if the patient is in early postpartum phase and has a small fistula. The success rate of conservative management is less than 5%.[10] Open surgical management also has good results.[10,11] The advantages of laparoscopic technique are quicker convalescence, shorter hospital stay, and better cosmetics with similar success rates to open surgery.[12-15] Technically, laparoscopy provides better visualization due to the magnification, but intracorporeal suturing is the difficult part of the operation (Table).

This report points to following unique features not reported earlier in literature: (i) the patient had menouria and secondary infertily for a long duration (10 years); (ii) for the purpose of diagnosis, a ureteral catheter was passed in the uterine cavity under cystoscopic guidance and then with the help of a ureteroscope, hysteroscopy was performed to confirm the fistulous tract; and (iii) vesicouterine peritoneal fold was used as an interposition graft which has not been reported previously.

CONFLICT OF INTEREST

None declared.

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Highlights of published reports on laparoscopic vesicouterine fistula repair.

First author (Year of Publication)	No. of cases attempted	No. of cases converted to open surgery	No. of Successful cases by laparoscopic surgery	Operation time, min	Blood loss, mL
Hemal[15] (2001)	2	1	1	140	<100
Das Mahapatra[13] (2007)	1	-	1	140	100 to 150
Chibber[12] (2005)	2	1	1	220	NR*
Ramalingam[14] (2008)	1	-	1	140	50

*NR indicates not reported.

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