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

Vishwajeet Singh,1 Pallavi Aga Mandhani,2 Seema Mehrotra,3 Rahul Janak Sinha1

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 time she was having menouria) and showed blood clots emerging from a fistulous opening (Figure 2). A 6-F
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 and menouria is the classical
presentation following VUF after emergency
CS. Our patient had menouria and secondary
infertility for 10 years following CS. The
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 infertility 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.

REFERENCES

9. Smayra T, Ghossain MA, Buy JN, Moukarzel M, Jacob D, Truc JB. Vesicouterine fistulas: imaging findings in

<table>
<thead>
<tr>
<th>First author (Year of Publication)</th>
<th>No. of cases attempted</th>
<th>No. of cases converted to open surgery</th>
<th>No. of Successful cases by laparoscopic surgery</th>
<th>Operation time, min</th>
<th>Blood loss, mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemal(15) (2001)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>140</td>
<td>&lt;100</td>
</tr>
<tr>
<td>Das Mahapatra(13) (2007)</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>140</td>
<td>100 to 150</td>
</tr>
<tr>
<td>Chibber(12) (2005)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>220</td>
<td>NR*</td>
</tr>
<tr>
<td>Ramalingam(14) (2008)</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>140</td>
<td>50</td>
</tr>
</tbody>
</table>

*NR indicates not reported.
three cases. AJR Am J Roentgenol. 2005;184:139-42.


