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Pure Laparoscopic Repair of Benign Colovesical Fistula Without Colectomy or Proximal Diversion: Report of 2 Cases

Manickam Ramalingam, Kallappan Senthil, Mizar Ganapathy Pai
Department of Urology, PSG Institute of Medical Sciences, Coimbatore, Tamilnadu, India
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ABSTRACT

The authors report management of 2 patients with symptomatic colovesical fistula due to diverticular disease of the colon. Initial laparoscopy showed that there was: (1) no active inflammation, malignancy, or abscess; (2) a single fistulous communication without much adhesion; (3) a pliable colon; (4) no distal obstruction or other pathology in the large bowel; (5) a healthy omentum to interpose between the bowel and bladder. Therefore, conventional colectomy and proximal diversion were deferred. Laparoscopic excision of the fistula and closure of the bladder and colon were performed, with interposition of the omentum. To the authors' knowledge, this is the first report of such a procedure. The 2 patients remained symptom-free after 5 years and 6 months, respectively. Pure laparoscopic repair of a colovesical fistula without colectomy or proximal diversion appears to be feasible, safe, and effective in select patients.

KEYWORDS: Colovesical fistula; Laparoscopy; Colonic divertulosis

CORRESPONDENCE: Dr. Manickam Ramalingam, Department of Urology, PSG Institute of Medical Sciences, Peelamedu, Coimbatore, Tamilnadu 641004, India (uroram@yahoo.com).

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INTRODUCTION

Colovesical fistula is an uncommon complication of colonic diverticulosis. The reported incidence is around 2% [1]. The patients commonly present with irritative lower urinary tract symptoms (LUTS), pneumaturia, fecaluria, and recurrent urinary tract infection (UTI).

Contrast computed tomography (CT) is the most sensitive diagnostic investigation because it demonstrates the presence of the fistula and presence or absence of abscess. Colonoscopy and cystoscopy are done to rule out malignancy.

The standard management of colovesical fistula is colectomy and/or diversion after excision of the fistula [1,2]. The present authors report 2 patients with colovesical fistula and no pericolic abscess. In addition, the colon in these patients did not show any active inflammation and was pliable. Hence, the colonic defect was closed primarily without colectomy or proximal diversion using procedures reported elsewhere [3,4]. The purpose of the present report was to describe the technique of excision of the fistula and closure of colonic and bladder defects using only laparoscopy.

CASE REPORT

The authors report the management of colovesical fistula in 2 patients.

Case 1

The first patient was a 46-year-old male who presented primarily with dysuria for 2 months and pneumaturia for 2 weeks. He had an episode of terminal hematuria. He also complained of vague lower abdominal pain and constipation.

Preoperative evaluation. Clinical examination was unremarkable. A CT scan with rectal contrast revealed an air pocket in the urinary bladder and a fistulous communication between the bowel (sigmoid colon) and the dome of the bladder on the left side. There was no abscess in the pelvis.

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case report

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Figure 1. Cystoscopy Revealing Fistulous Opening in the Posterior Wall of the Bladder, Exuding Feculent Material.
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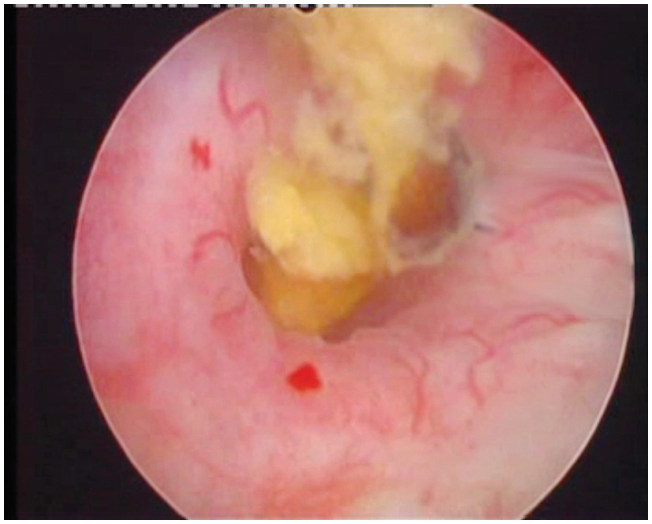

Figure 2. Initial View Showing Single Adhesion Between the Sigmoid Colon and Bladder With no Active Inflammation.
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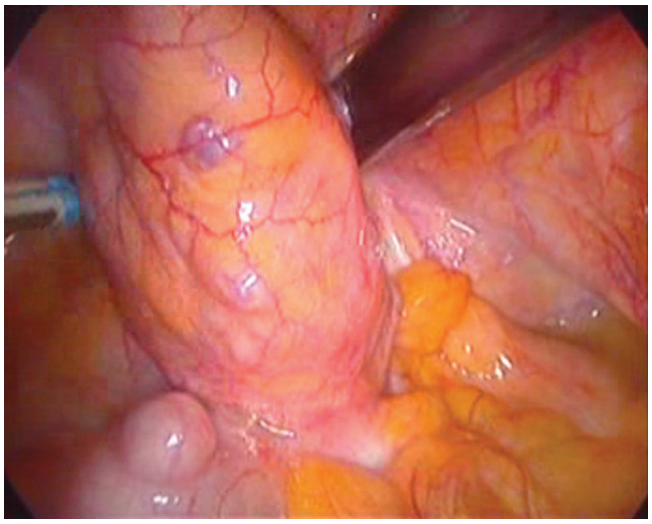

A cystogram revealed flow of contrast into the sigmoid colon. Cystoscopy showed substantial debris in the bladder. There was an inflamed area around a fistulous opening, with discharge of feculent matter in the dome on the left side (Figure 1). Colonoscopy confirmed the presence of multiple diverticuli and the absence of malignancy. There was no active inflammation. The site of the communication with the bladder could not be ascertained during colonoscopy.

Surgical management. Colonic preparation was done using polyethylene glycol (PEG). A residue-free diet was started 48 hours before surgery. Broad spectrum systemic antibiotics were started (cefoperazone, sulbactam with amikacin, and metronidazole). The procedure was described to the patient and he consented to possible colectomy or colostomy.

Because the preoperative CT scan did not show a pericolic abscess and the preoperative colonoscopy did not show diverticulitis, the plan was to do a diagnostic laparoscopy and proceed without colectomy or diversion. Initial laparoscopy (Figure 2) showed that there was: (1) no active inflammation, malignancy, or abscess; (2) a single fistulous communication without much adhesion; (3) a pliable colon; (4) no distal obstruction or other pathology in the large bowel; (5) a healthy omentum to interpose between the bowel and bladder. Therefore, colectomy and proximal diversion were deferred and the following procedure was performed.

The patient was placed in the Trendelenburg position. The bladder was catheterized. After maximal anal dilatation, a large transanal tube was placed up to the sigmoid colon to help reduce colonic pressure [5,6]. Five ports were placed: (1) a 10 mm supraumbilical camera port, (2) a 10 mm right pararectus port, (3) two 5 mm ports in the left midclavicular line, and (4) an anterior axillary line for hand instruments. The fistulous tract was identified, dissected, and excised (Figure 3). The edges of the bladder and bowel were trimmed and closed with interrupted 2-0 vicryl sutures (Figure 4; Figure 5). A few sutures were placed to bury the first layer. The omentum was

Figure 3. The Fistula Being Excised From the Bladder With a Margin of Healthy Tissue.
doi: 10.3834/uij.1944-5784.2010.02.06f3

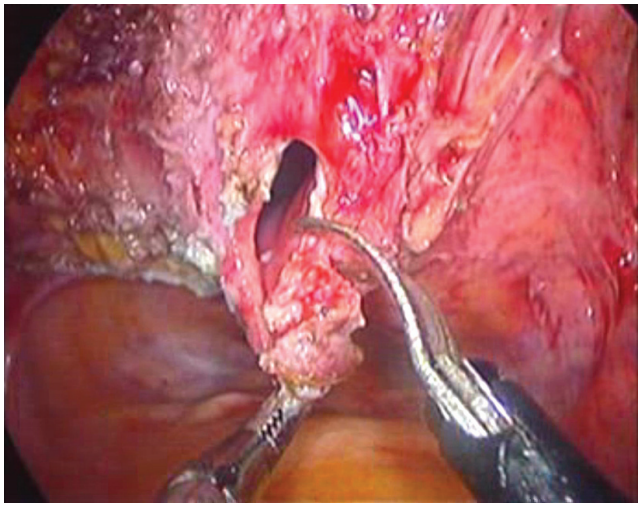

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Figure 4. Second Layer of Bladder Closure in Progress. doi: 10.3834/uij.1944-5784.2010.02.06f4

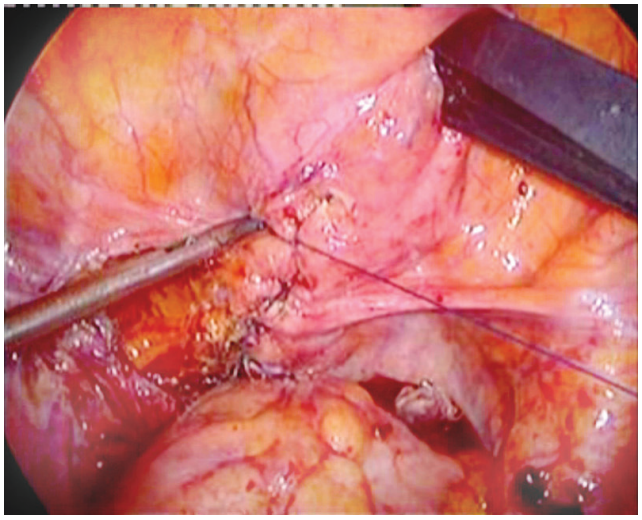
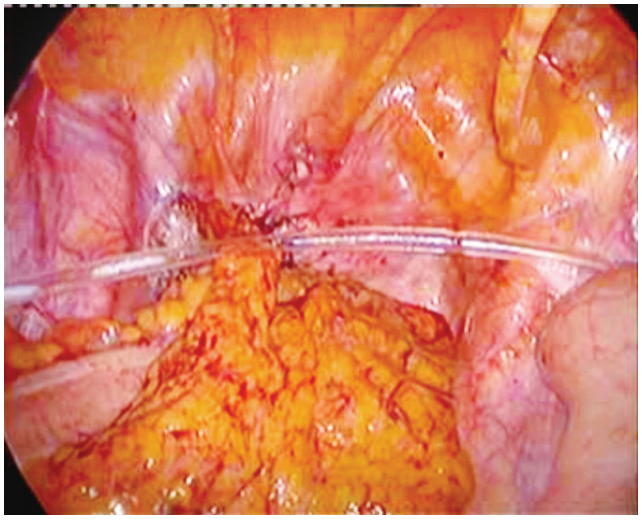


Figure 6. Omentum Tacked to the Bladder. doi: 10.3834/uij.1944-5784.2010.02.06f6

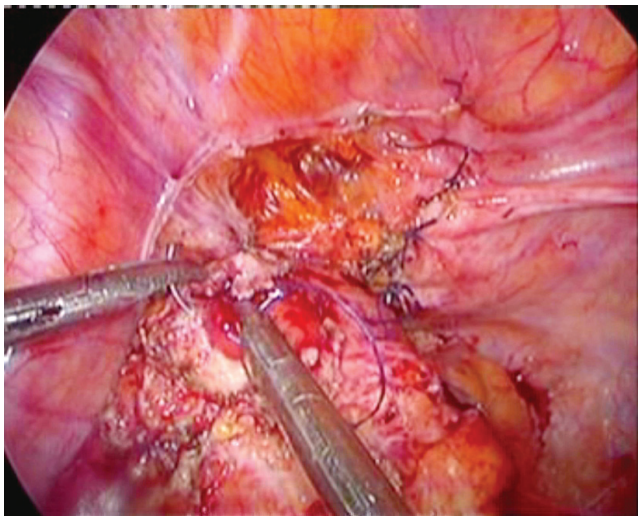


interposed between the bowel and bladder and tacked to the bladder (Figure 6). A drain tube was introduced through the lateral port.

Case 2

The second patient was 74-year-old male with recurrent UTI for 6 months. He had fecaluria and pneumaturia for approximately 2 weeks. He had a colonoscopy 6 years ago for bowel symptoms that showed diverticuli. He did not have any subsequent bowel symptoms.

Figure 5. The Defect in the Sigmoid Colon Being Sutured With 2-0 Vicryl. doi: 10.3834/uij.1944-5784.2010.02.06f5



Clinical examination was unremarkable. A CT scan confirmed the presence of a colovesical fistula. This patient's diagnostic laparoscopy showed the same findings as those described for Case 1. Therefore, he was also managed by excision of the fistula and closure of the colon and bladder defects in 2 layers, with interposition of the omentum.

RESULTS

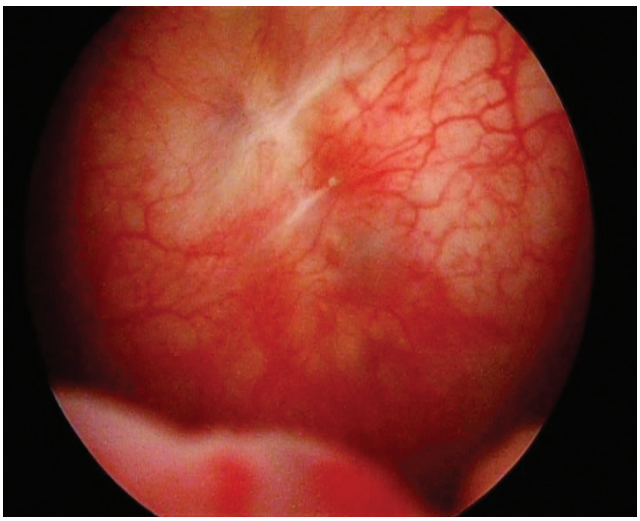
The operative times were 210 minutes and 230 minutes for Case 1 and Case 2, respectively. The average blood loss was 100 mL. There were no intraoperative or postoperative complications. Oral fluids were started in 48 hours. The transanal tube was removed once the bowels moved. The first patient was discharged on the 7th postoperative day. The second patient had status asthmaticus on the 6th postoperative day and was discharged on the 10th day.

Patients were reviewed in the outpatient department on the 14th postoperative day. A cystogram was done. Neither patient showed any leakage, so the catheter was removed. Cystoscopy performed after 3 months showed a well-healed scar (Figure 7). At follow-up of 5 years and 6 months, respectively, both patients were asymptomatic.

DISCUSSION

Most patients with colovesical fistulae are symptomatic at presentation and require treatment. The standard management of colovesical fistulae is by excision of the fistula with colonic resection, or diversion colostomy using an open technique [7], laparoscopic-assisted technique [8,9], or pure laparoscopic approach [10,11]. The bladder is managed by Foley drainage

Figure 7. Postoperative Cystoscopy Showing Well-Healed Scar. doi: 10.3834/uij.1944-5784.2010.02.06f7



or closure of the defect. However, several modalities of management have been described in the literature, including medical management [12-14]. Spontaneous closure of a colovesical fistula can also occur.

Amin et al [13] reported conservative management of colovesical fistulae due to diverticular disease in high-risk patients. They observed 6 patients for 3 to 14 years without significant complications. There is also a single reported case of a colovesical fistula treated with transurethral resection, with no evidence of recurrence in more than 2 years of follow-up [15]. Fibrin glue as a sealant of urinary tract fistula (including a colovesical fistula) has also been described. However, the glue was reported to be unsuccessful for the colovesical fistula [16].

Laparoscopic repair of a colovesical fistula is less invasive than the other repair methods. Tsivian et al [9] reported a 57-year-old man with diverticulitis and colovesical fistula that was managed by laparoscopic mobilization and resection of the sigmoid colon, followed by open anastomosis. The patient was asymptomatic after 6 months of follow-up.

The present authors reported 2 patients who presented with colovesical fistula. Because of their presenting signs, they were managed only through laparoscopy by excision of the fistula and closure of the colonic and bowel defects. Both patients had a satisfactory healing and did not have a recurrence in the follow-up period.

CONCLUSION

In the presence of select favorable signs, laparoscopic repair of colovesical fistula may be completed without colectomy or colonic diversion. The laparoscopic approach is less invasive than other procedures and appears to be an effective method of management for colovesical fistula in some patients.

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