

Refractory Urinary Tract Infection in a Male with Colovesical Fistula

CASE REPORT

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Abstract

A colovesical fistula is a communication between the lumen of the colon and the bladder, which sometimes results from diverticulitis. The left or sigmoid colon is the most commonly involved segment. The most usual presenting symptoms are pneumaturia and fecaluria, followed by dysuria, abdominal pain and, rarely, hematuria; these patients also often present with symptoms of recurrent/chronic urinary tract infection.

We present here the case of a 57-year-old man complaining of recurrent lower urinary tract symptoms followed by pneumaturia and fecaluria. Computed tomography of the abdomen and pelvis revealed a colovesical fistula due to sigmoid diverticulitis. After locating the fistula, the lesion was totally removed, including the segmental sigmoid colon and partial bladder. The anastomosis was completed with a circular stapler and the bladder defect wall was repaired with double suture. The patient was doing well 3 months post-operatively and showed no evidence of urinary tract infection. Patients with repeated and refractory urinary tract infections should be considered for anatomical disorders such as colovesical fistula.

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Introduction

Colovesical fistulae are primarily present with symptoms related to the lower urinary tract (present in 50-70% of cases). These symptoms include pneumaturia, faecaluria (51%), frequency, urgency, suprapubic pain, recurrent urinary tract infections (UTIs), and hematuria [1]. Due to chronic UTI symptoms, patients with colovesical fistula frequently report numerous courses of antibiotics before referral to a urologist.

Computed tomography (CT) scan is the modality of choice for the diagnosis of colovesical fistula. It also provides essential information about the adjacent anatomical structures. The other diagnostic methods include cystoscopy, virtual colonoscopy, barium enema, and magnetic resonance imaging (MRI) [2]. Here, we describe a case of colovesical fistula secondary to sigmoid diverticulitis.

Keywords

Colovesical Fistula;
Pneumaturia; Fecaluria;
Urinary Tract Infection.

Case report

A 57-year-old man presented to our nephrology department with the presentation of mild fever (38.1°C) and costovertebral angle pain, complicated with urgency and dysuria. Urine microscopy revealed leukocytes and bacteria, and *Escherichia coli* was found on culture. The white blood cell count was 15,100/mm³ with a neutrophil fraction of 83.6%. Acute UTI and pyelonephritis were diagnosed. Symptoms improved gradually over a 6-day inpatient course of antibiotics as intravenous fluoroquinolones with adult maximum dose. The patient was followed up as an outpatient for 3 months; although he continued oral antibiotics, leukocytes and bacteria were still observed in his urine. He also gave a history of pneumaturia and faecaluria during this time; however, no chronic constipation, anal bleeding, changed bowel habits, weight loss, or change in appetite was reported. There were no other co-morbidities or previous abdominal surgeries.

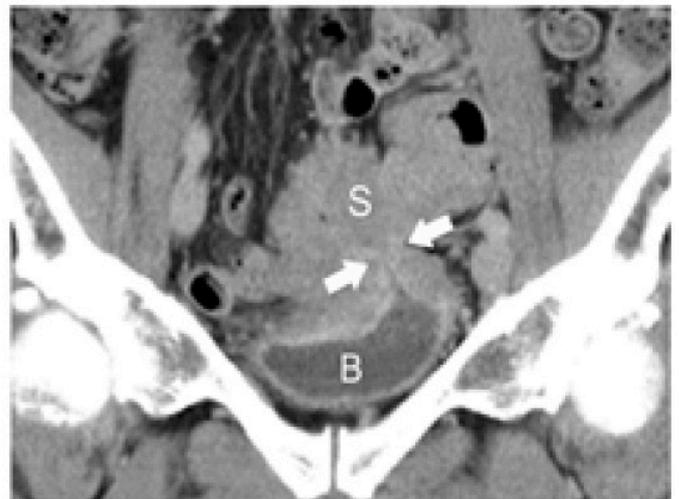
On abdominal CT, the sigmoid colon and urinary bladder dome were thickened and severely adherent to each other. Infiltration of the adjacent adipose tissue was noted. A free air bubble within the bladder dome (**Figure 1a**) and a fistula tract from the sigmoid colon to the bladder (**Figure 1b**) were observed.

To confirm the fistula tract, we performed cystography. A small amount of debris accumulated on the bladder dome. Based on the above examinations, we diagnosed sigmoid colovesical fistula caused by diverticulitis, and performed an open abdominal surgery. Severe inflammation of the sigmoid colon with adhesion to the urinary bladder was identified near the fistula. Multiple diverticuli of the sigmoid and descending colon were also found. Sigmoidectomy, resection of colovesical fistula, and partial cystectomy were carried out. The final pathology report confirmed the colovesical fistula secondary to sigmoid diverticulitis. A nasogastric tube was left in place, and the patient continued on nothing by mouth (NPO) status until bowel function returned. A Foley catheter was placed to monitor urinary output and lower bladder pressure. The patient was discharged in a stable condition 1 week after the surgery and had no complications or recurrences during the 3-month follow-up.

Discussion

Colovesical fistula is the most common type of fistula associated with diverticular disease of the colon. It occurs in 2%-22% of patients with known

Figure 1: Abdominal computed tomography. (a) Axial CT scan shows gas within the bladder dome (arrow). (b) Coronal reconstruction view depicts wall thickening of the bladder (B) and sigmoid colon (S) with a fistula tract (arrows) between them.



diverticular disease. The majority of patients with colovesical fistula are over 50 years old, with a male-to-female ratio of 3:1. The lower incidence in females is attributed to the interposition of the uterus and adnexa between the bladder and the colon. The preferred management of colovesical fistula is primary resection with anastomosis performed as a one-stage procedure [1].

The other etiologies include carcinoma of colon (20.1%), Crohn's disease (9.1%), surgery (3.2%), radiotherapy (3%), and trauma [1]. The most common presenting features of colovesical fistula include pneumaturia, dysuria, fecaluria, hematuria, orchitis, and abdominal pain [3]. CT scan of the abdomen and pelvis is the most sensitive imaging test, and should always be included as part of the initial evaluation of suspected colovesical fistula. CT scan can illustrate small amounts of air or contrast media within the bladder, localized thickening of the bladder wall, or an extraluminal mass adjacent to the bladder. Three-dimensional reconstruction is useful when traditional axial and coronal images fail to demonstrate the anatomy in sufficient detail [4].

Colovesical fistulae can almost always be treated with resection of the involved segment of colon and primary anastomosis in a single stage. The bladder wall should be repaired with two-layered closure when large visible defects are present. The defect usually heals with temporary urethral catheter drainage [5]. The patient is observed with repeated urinalysis or culture for symptoms of recurrent infection, pneumaturia, or fecaluria.

Conclusion

In summary, clinicians must be aware of a possible colovesical fistula, secondary to diverticulitis in the case of refractory urinary tract infections, followed by pneumaturia and fecaluria. On CT scan, gas within the bladder lumen is suggestive of a fistula. Direct visualization of the tract itself is less common. Barium enema and cystoscopy are both helpful for confirmation. However, single-stage resection of

the involved bowel segment, with anastomosis and primary closure of the bladder defect, remains the mainstay of the surgical treatment.

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