



Diverticulitis Complicated with Colovesicocutaneous Fistula

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Despite anatomic proximity, communication between colon, urinary bladder, and umbilicus is very rare. We report a 54-year-old male who presented with drainage of feces from the umbilicus and urinary tract infection. Laparotomy showed a composite colovesicocutaneous fistula with involvement of the urachus. The pathology report confirmed diverticulitis complicated by fistula formation. Post-operative course was uneventful. At 6 months' follow-up the patient remains well with normal bowel function.

Key words: diverticulitis, colovesicocutaneous fistula, urachus

INTRODUCTION

Diverticular disease of the colon is a common condition and affects one third of patients older than age 45.¹ In this patient population, 25% of cases will be complicated by diverticulitis; These cases may require surgery for abscess, hemorrhage, perforation, or fistula formation. Fistulas occur in 2% of patients with diverticulitis². Colovesical fistula is the most common. We describe here a patient presenting with colovesicocutaneous fistula complicated by diverticulitis. This diagnosis, initially suggested on computed tomography (CT), was subsequently confirmed by surgical intervention. To our knowledge, colovesicocutaneous fistula is extremely rare and only a few cases have been reported³⁻⁵.

CASE REPORT

A 54-year-old male was referred by a local hospital with complaints of lower abdominal pain, dysuria, pneumaturia, and drainage of feces-like material from the umbilicus. Tracing his past history, he had no other systemic disease except benign prostate hyperplasia treated with medication for three years. He had received

herniorrhaphy due to right inguinal hernia six years prior. He denied any history of trauma in recent years. For approximately three weeks before admittance, the patient experienced low-grade fever and lower abdominal pain. There was no change in bowel habits or significant body weight loss had occurred. Two days prior to admission, an ulcerated lesion, about 3mm x 5mm in size, developed in the umbilicus with drainage of enteral materials was noted.

On admission, physical examination revealed tenderness over the left lower quadrant. A foul-smelling, draining fistula at the umbilicus was found. Urinalysis revealed presence of bacteria and pyuria. Laboratory findings were unremarkable. Colonoscopy showed multiple diverticula and nearly total obstruction of the sigmoid colon. Computed tomography (CT) demonstrated a mass lesion, about 7 x 4 x 5 cm in size, over the sigmoid colon with enterocutaneous fistula (Fig.1).

Laparotomy revealed an 8-cm-diameter mass to which the sigmoid colon, bladder dome, and abdominal wall adhered firmly. Left hemicolectomy with end colostomy, fistulectomy, and partial resection of the bladder wall were performed. Macroscopically, multiple diverticula with submucosal pus formation were noted. One fistula was observed to originate from the diverticulum, connecting the bladder dome and extending to the umbilicus. Pus and enteral materials were draining into the fistula (Fig.2). Microscopically, the sections show diverticulitis with submucosal abscess formation and acute inflammation. No evidence of neoplastic disease or Crohn's disease was found. Post-operative course was uneventful. At 6 months' follow-up the patient remains well with normal bowel function.

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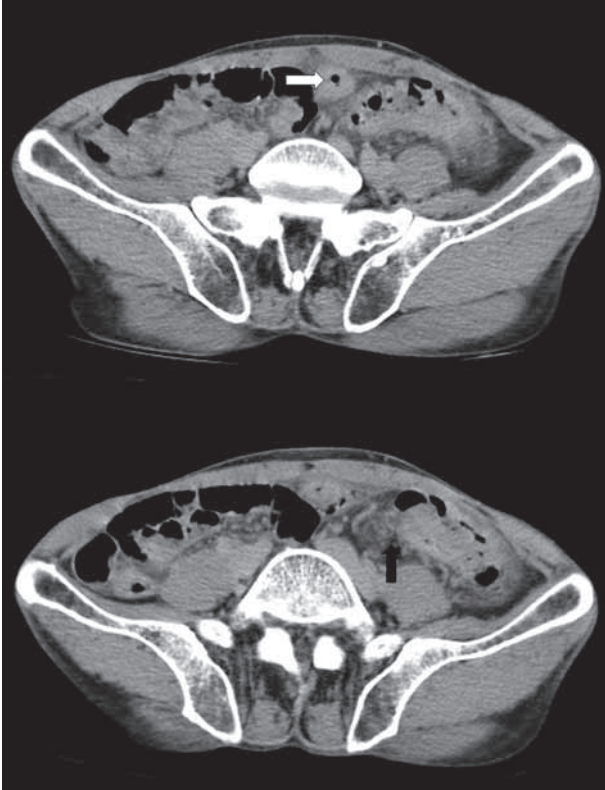


Fig. 1 CT demonstrated a mass lesion, about 7x4x5 cm in size, over the sigmoid colon (black arrow) with enterocutaneous fistula (white arrow).

DISCUSSION

Diverticular disease of the colon is a common condition and affects one third of patients older than age 45.¹ Ten percent to 25% of patients with diverticular disease will experience diverticulitis and its complications^{6,7}. Complications of diverticular disease include diverticulitis, abscess formation, perforation, obstruction, fistulas, and massive bleeding. Fistulas are the result of a localized perforation into adjacent viscera. Two percent of patients who experience acute diverticulitis may present with fistula formation². Most fistulas originate in the sigmoid colon, largely because of the high incidence of diverticulitis frequently found in the sigmoid colon. Colovesical fistulas comprise the majority of all fistulas formed from acute diverticulitis, accounting for 48 to 65% in reported series^{2,8-9}. The most common presenting symptoms in patients with colovesical fistulas are pneumaturia and fecaluria. Other symptoms are abdominal pain, dysuria, weight loss, diarrhea, and urine per rectum⁹⁻¹¹. These are followed by urinary tract infection and fever. Urologic

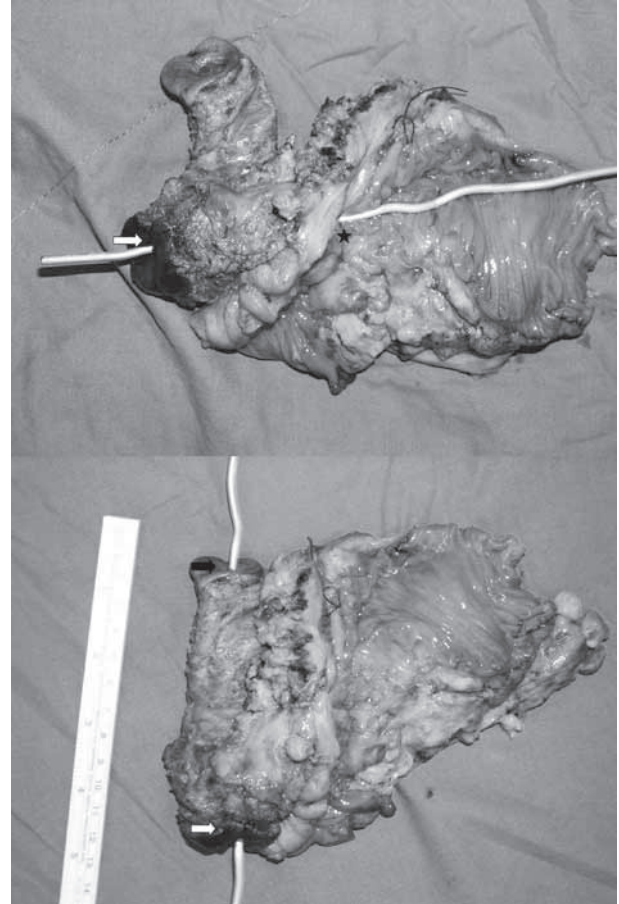


Fig. 2 Resected specimen. A fistula is seen extending from the sigmoid-colonial diverticulum to the vesicle and the vesicocutaneous fistula along the urachus tract. (Black arrow: umbilicus; White arrow: bladder wall; Asterisk: sigmoid colon)

symptoms are predominant because higher pressure in the colon is typically noted. This also explains why the incidence of pneumaturia and fecaluria is higher than that of urine per rectum¹². Treatment was undertaken depending on the etiology and clinical and general condition of the patient. Enterovesical fistulae rarely close spontaneously and surgery is generally required¹³. It is recognized that without surgical intervention 75% of patients may die from sepsis within 5 years¹⁴.

Our case presented with urinary tract infection with development of pneumaturia, and had a clear case of colovesicocutaneous fistula presenting at the umbilicus. The resected specimen revealed a fistula between the sigmoid colon, bladder, and umbilicus that traveled in the course of the urachal canal. The urachus is derived from the allantois, which is initially a fibromuscular tube

that connects the bladder to the umbilicus. The lumen of urachus is usually obliterated during fetal development and forms the median umbilical ligament¹⁵. Failure of the lumen of the allantois to completely obliterate results in persistence of a urachal remnant. Umbilical drainage was also one of the most common presenting symptom in infection of the urachal remnants. However, urachal anomalies rarely present in adulthood, and then typically as a localized periumbilical infection. Infection of patent urachal cyst involving with the colon was less likely since diverticula were noted at the sigmoid colon.

Several cases of enterovesicocutaneous or enterourachal fistula have been reported. All were fistulas involving the small intestine as a result of Crohn's disease³⁻⁵. Colonic involvement is extremely rare. Sawyer reported a case of diverticulitis of sigmoid colon with fistula communicating with a large urachal cyst¹⁶. Flanagan et al. reported a case of urachal cyst with fistula extending to the normal sigmoid colon¹⁷. Quek et al. described a colourachal fistula caused by acute diverticulitis in a 26-year-old female presenting with feculent umbilical drainage without development of urinary tract infection¹⁸.

This case report highlights the importance of a thorough history, a complete physical examination, and adequate investigation for patients presenting with symptoms of drainage from the umbilicus. With the presentation of urinary tract infection, colovesicocutaneous fistula via urachus due to diverticulitis of the colon may be considered. CT is an important choice for making a diagnostic decision. Treatment requires surgical management with excision of the diseased colon, partial cystectomy with involved bladder, and removal of the fistula from the urachus.

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