

DIAGNOSIS AND TREATMENT OF ENTEROVESICAL FISTULAS

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ABSTRACT

A fistula is an atypical connection between two epithelial surface. We studied retrospectively four male patients with enterovesical fistulas treated in our departments between March 2016 - March 2017. These included colovesical, rectovesical and ileovesical fistulas. Patients presented with urinary symptoms (pneumaturia, faecaluria and recurrent urinary tract infections). One patient had received radiotherapy after rectal resection for rectal carcinoma. For another of the cases the fistula was being due to periprostatic abscess. The third patient was diagnosed with bladder carcinoma with rectal invasion. The fourth patient was with direct invasion of sigmoid cancer to the bladder. The most common investigations included abdominal ultrasound, CT scan, cystoscopy and colonoscopy. Enteral stoma was performed in all cases as a part of surgical treatment.

All patients underwent open procedure, as a main rule enteral stoma was performed to cease the contamination, and primary repair of the bladder was performed. No recurrences were recorded, but there were several complications, including Clavien-Dindo gr. V. Most of the complications were treated by interventional urology. In conclusion, enteral division and primary repair of the bladder are safe approaches for treatment of enterovesical fistulas. As a rule ceasing of contamination should always be performed. Cystoscopy can manage most of the complications occurring in the early postoperative period. *Scr Sci Med* 2017; 49(3): 53-56

Keywords: colonic fistula, rectovesical fistula, colovesical fistula, enterovesical fistula bladder, pneumaturia

INTRODUCTION

Fistula is abnormal communication between two epithelial surfaces, in the case of enterovesical fistula (EVF) between the bladder and a hollow viscera. They are caused most often by inflammation, tumors, trauma, and postradiation.

In a retrospective analysis we studied four patients with enterovesical fistulas treated in our departments between March 2016 - March 2017. The group consist of four men aged 60-84 years. The patients had complaints of pneumaturia, fecaluria and recurrent urinary infections. One of the patients presented signs of acute abdomen due to advanced inflammation in the pelvis.

Case 1

A male in his 69's was admitted with complains of weight loss, bloating and recurrent change in bowel habits. Laboratory results were normal. The patient had CT signs of sigmoid tumor with direct infiltration of the bladder, forming colovesical fistula (Fig. 1, 2). The patient was scheduled for operative treatment. During the operation a T4-sigmoid tumor was found with adjacent inflammatory infiltration

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Received: July 28, 2017

Accepted: September 15, 2017



Figure 1. Gas bubble in the lumen of bladder

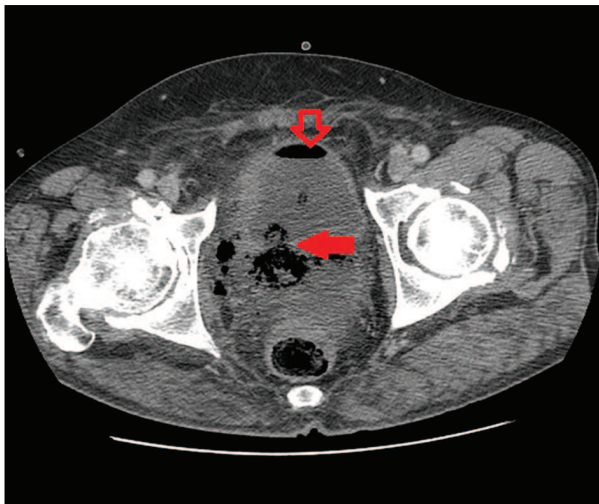


Figure 2. T4 sigmoid tumor invading posterior bladder wall

of the bladder and loco-regional lymphadenopathy. The tumor was dissected from the bladder and frozen section of the bladder wall showed no malignant cells histologically. Hartmann's procedure was performed and bladder wall was repaired with two layer continuous suture.

Case 2

A 75-years old man with progressive weight loss, dysuria, hematuria and blood in the stools was transferred from Urology Department. From cystoscopy and CT a large bladder carcinoma with infiltration of the rectum was found. Laboratory results showed light anemia. During the operation a locally advanced bladder carcinoma was found and de-functioning loop sigmoidostomy was performed.

Chemoradiation therapy was administrated to the patient.

Case 3

The third patient was a 60 years old man treated in Nephrology Department for purulent cystitis. On admission he was febrile, in poor performance status and had signs of fecaluria. Laboratory results showed extreme leukocytosis, light anemia, and elevated blood urea. CT scan was performed which revealed abscess in Douglass pouch caused by diverticulosis, and a formed colovesical fistula (Fig. 3). During operation an inflammatory tumor in the lower sigmoid colon was found with invasion of the bladder, forming a colovesical fistula. Enblock resection of the sigmoid colon, fistula and posterior wall of the bladder was performed. Hartmann's procedure plus two-layer closure of bladder wall and cystostomy were made. Postoperative wound dehiscence was observed which required revision under general anesthesia. Histological report showed no signs of malignancy.

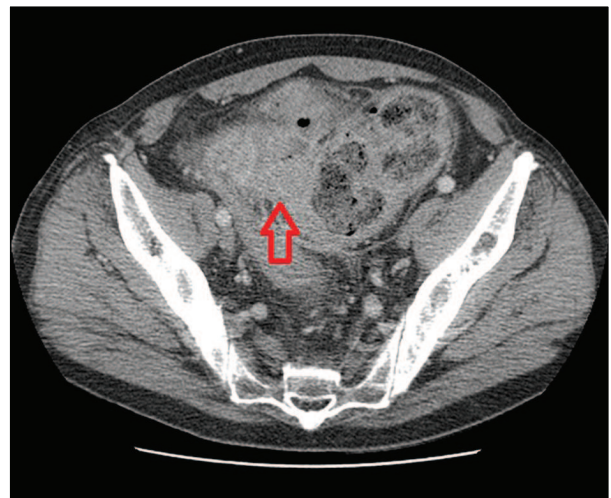


Figure 3. Abscess in the pouch of Douglas, penetrating posterior bladder wall

Case 4

A 84-years old patient with previous abdomino-perineal extirpation and chemo-radiation due to rectal carcinoma was admitted with signs of small bowel obstruction (Fig. 4), hematuria and fecaluria. Laboratory results showed light anemia and leukocytosis. After preoperative preparation the patient was operated under general anesthesia. Partial intestinal re-

section, ileostomy, two-layer closure of the bladder and cystostomy was performed. Postoperatively admitted in ICU on permanent ventilation and Dopamine support. On day seven after surgery the patient was presented with hematuria and clinical signs of hemotamponade – urgent cystoscopic revision was made, which led to seizing of the symptoms. Enteral feeding *via* nasogastral tube was started after regular bowel movement were presented. Unfortunately on day 35 patient had a cardiac arrest.

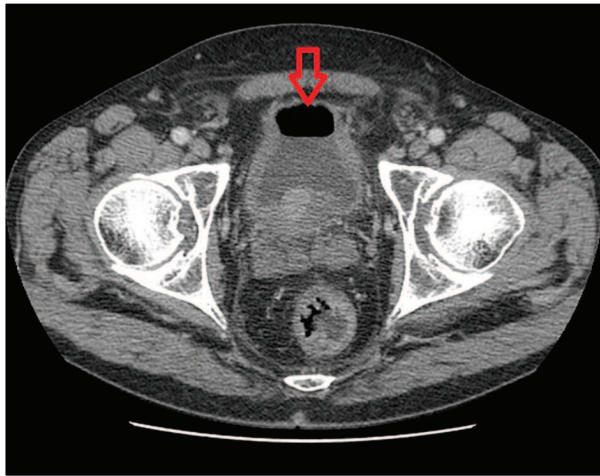


Figure 4. Dense adhesions in the pelvis due to chemoradiation therapy

DISCUSSION

It is estimated that EVF account for 1 in 3000 patient in every surgical admission. Diverticulitis is the most commonest etiology accounting for approximately 65%-79%, almost exclusively colovesical (1-4). The relative risk for developing enterovesical fistula in the presence of diverticulitis is between 1 and 4%. The second most common cause of EVF is cancer (10–20% of cases), followed by Crohn's disease (5–7%). While only approximately 2% of patients with Crohn's disease develop EVF, ileovesical fistula remains the most common type. Less-common inflammatory causes of EVF include Meckel's diverticulitis, genitourinary coccidioidomycosis, pelvic actinomycosis, and appendicitis. The iatrogenic etiology of enterovesical fistulae may occur as a consequence of general surgical procedures (particularly for colorectal cancer, diverticulitis, or inflammatory bowel disease), as well as vascular and urological interventions. Radiation-associated fistulae usually de-

velop years after radiation therapy for gynecological or urological malignancies.

Classification of enterovesical fistulae is based on the bowel segment involved. All EVF can be divided into the following 4 primary categories: (i) colovesical, (ii) rectovesical (including rectourethral), (iii) ileovesical, and (iv) appendicovesical fistulae. While colovesical fistula is the most common form of vesicointestinal fistula and is most frequently located between the sigmoid colon and the dome of the bladder, rectovesical fistulae are observed in the postoperative setting (i.e., after prostatectomy). Symptoms of vesicoenteric fistulae may originate from both the urinary and the gastrointestinal tracts. However, patients with EVF usually present with lower urinary tract symptoms, which include pneumaturia (the most common symptom present in 50–70% of cases), fecaluria (reported in up to 51%), frequency, urgency, suprapubic pain, recurrent urinary tract infections, and hematuria. The hallmark of enterovesical fistulae is Gouverneur's syndrome characterized by suprapubic pain, frequency, dysuria and tenesmus. In patients with fistulating Crohn's disease, abdominal pain, abdominal mass, and abscess are more common.

CT is the most reliable diagnostic tool. MRI, cystoscopy, colonoscopy, endoluminal US, Barium enemas can be used to diagnose EVF. Fistulography is a routine method used to diagnose EVF. Nonoperative treatment of enterovesical fistulae may be an option in nontoxic, minimally symptomatic patients with nonmalignant EVF origin, particularly in those with Crohn's disease. A trial of medical therapy including bowel rest, total parenteral nutrition, antibiotics, steroids, immunomodulatory drugs, and urethral catheter drainage may be warranted. Nonsurgical management of colovesical fistulae is generally reserved for patients unfit for major intervention or with extensive unresectable neoplastic process. However, most patients will require a diverting stoma in due course of a disease. Endoscopic, open, and laparoscopic approaches have all been used in surgical treatment of enterovesical fistulae (5-14). Colonoscopic closure of iatrogenic perforations <1 cm is a valuable option of a minimally invasive treatment. In such cases, repair of the perforation can be achieved using the TriClip device. Endoscopic treatment of enterovesical fistulae due to colorectal can-

cer is commonly associated with bowel stenosis and requires the use of covered self-expanding metal stents. The aim of operative management is to resect and reanastomose the offending bowel segment and to close the bladder. The treatment may involve single-stage or multistage procedures. Historically, proximal defunctioning procedures as sole interventions have been recommended in the management of EVF.

CONCLUSION

Enterovesical fistulae are an uncommon complication of both benign and malignant processes. Easy to diagnose with the clinical signs as pneumato- and fecaluria and using CT as a main imaging tool. Management of EVF is mainly dependent on the underlying pathology, site of the bowel lesion, and patient's preoperative performance status. Surgical poly-stage strategy is a preferred option for patients with significant comorbidities and high operative risk in most of the cases.

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