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SIGMOIDOVESICAL FISTULA COMPLICATING DIVERTICULAR DISEASE: REPORT OF SIX CASES

FÍSTULA SIGMOIDOVESICAL COMO COMPLICAÇÃO DE DOENÇA DIVERTICULAR: RELATO DE SEIS CASOS

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RESUMO

Introdução: Fístula colovesical é uma comunicação patológica entre a bexiga e o cólon. Pode originar de neoplasia colônica, radioterapia, doenças inflamatórias intestinais, iatrogênese, mas é mais frequente como complicação de doença diverticular do cólon sigmóide. Fístula colovesical secundária, a doença diverticular do cólon sigmoíde, tem apresentado aumento em sua incidência devido ao aumento da expectativa de vida da população, e da mudança de hábito alimentar. **Relato do caso:** Apresentamos seis casos de fístula sigmoidovesical complicando doença diverticular do cólon sigmóide tratados cirurgicamente com ressecção do cólon. Três casos eletivos foram tratados com ressecção e anastomose primária, um deles por laparoscopia e os casos complicados com cirurgia de Hartmann e reconstrução tardia do trânsito intestinal em dois de três pacientes. **Conclusão:** De maneira geral, os resultados foram favoráveis em todos os pacientes operados.

Palavras-chave: Fístula do Sistema Digestório. Cólon Sigmóide. Doenças do Cólon Sigmóide. Diverticulite.

ABSTRACT

Introduction: Colovesical fistula (CVF) is a pathological communication between the large bowel and urinary bladder. It may result from bowel cancer, radiotherapy, inflammatory intestinal diseases, iatrogenesis but it is more frequent after complications of diverticular disease of sigmoid colon. The incidence of sigmoidovesical fistula (SFV) secondary to diverticular disease is rising, being directly associated with population aging and to modern alimentary habits. **Case report:** We present a group of six patients with SVF after complicated diverticular disease, treated by surgical resection of the diseased colon. Three elective cases were treated with primary resection and anastomosis, one of them laparoscopically and the acute complicated cases with Hartmann`s procedure and later reconstruction of the colonic transit in 2 of 3 patients. **Conclusion:** Overall, outcomes were favorable in all treated patients.

Keywords: Diverticular Diseases. Colon, Sigmoid. Digestive System Fistula. Sigmoid Diseases.

INTRODUCTION

The incidence of diverticular disease (DD) has been rising in the last years, affecting 50 to 60% of people at the age of 60[1,2]. Only 20% of the patients with DD will develop symptoms, without acute inflammatory signs. Even so, the majority of them will be treated conservatively with success, but in some cases, complications such as abscess, obstruction, hemorrhage, perforation, and fistula will arise[3-5].

The majority of diverticular disease affects the sigmoid colon and the segmental inflammatory process can have different outcomes, from self-limited low-grade inflammation to severe cases evolving to abscess or perforation of the colonic wall. The perforation may have different presentations: free perforations when the colon communicates with the peritoneal cavity, or localized perforation walled off by the omentum or surrounding viscera, notably the urinary bladder. Chronically the local inflammatory process can give rise to a sigmoid vesical fistula (SVF).

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Colovesical fistula patients present with pneumaturia, fecaluria, recurrent urinary infection, foul urine and signs and symptoms of previous diverticulitis[3,6].

Open surgery management has been the standard treatment for SVF. More recently laparoscopic surgery has shown to be an alternative and less invasive approach even though it is described to have high conversion rates up to 46.9%[2]. The American Society of Colon and Rectal Surgeons Practice Parameters recommends the laparoscopic approach when the expertise is available[5,7].

CASE REPORT

A retrospective study was conducted at a single institution in patients with sigmoidovesical fistula complicating diverticular disease of the sigmoid colon over 19 years period. Six patients were included in this study. Medical records, relevant data (age, sex, symptoms, surgical procedure, complications) and results were reviewed.

1) 70-year-old fragile man, with severe emphysema due to heavy smoking, presented with abdominal pain, urinary infection and sepsis. He complained of air bubbles during micturition. Emergency laparotomy identified an expected sigmoidovesical fistula and a definitive lifesaving Hartmann's procedure was performed. The patient was discharged after complete recovery from the procedure. Owing to associated comorbidities, he was encouraged not to consider the future reconstruction of colostomy.

2) 65-year-old man presented with sudden onset of lower abdominal pain, fever and pneumaturia. He was submitted to laparotomy when diverticulitis with a sigmoid vesical fistula was identified. Hartmann`s procedure was performed due to diffuse peritonitis with fecal contamination. Reconstruction of the colonic transit was successfully performed 3 months later.

3) 63-year-old man who had two episodes of acute diverticulitis in an interval of 5 years, both treated medically. Three years after the last episode presented lower abdominal pain associated with pneumaturia. A CT scan demonstrated signs of SVF. The patient was submitted to elective sigmoidectomy with primary colorectal anastomosis and suture of the bladder wall with no adverse events.

4) 38-year-old man, presented to a urologist with chronic recurrent urinary infection, pneumaturia and abdominal pain. Ultrasonography showed an abnormally thickened bladder wall with dense urine. An abdominal CT scan was suggestive of diverticulitis with an SVF. The patient was submitted to an elective sigmoid resection with primary anastomosis and suture of the bladder wall.

5) 39-year-old man, complaining of lower abdominal pain and dysuria. A few days later, he returned with worsening of abdominal pain and a palpable mass in the left lower quadrant of the abdomen. A CT scan suggested diverticulitis, pericolic abscess and colovesical fistula. He was submitted to laparotomy when an abscess due to diverticulitis with a sigmoidovesical fistula was found. Hartmann's procedure with suture of the bladder was performed. He had partial wound dehiscence on the fourth day, due to repetitive coughing, which was sutured. A urinary catheter for urinary bladder drainage was left for 4 weeks. Seven months later, he had restorative colorectal anastomosis.

6) 56-year-old male, complained of lower abdominal pain and dysuria and was examined by a urologist. Abdominal CT was undertaken and a sigmoidvesical fistula was identified. Colonoscopy confirmed the diagnosis of diverticular disease and excluded malignancy. Elective laparoscopic primary resection was performed without suture of the bladder and the patient was discharged on the fourth day and a Foley catheter kept for two weeks.

Between 1999 and 2019 we have had 6 patients with sigmoidovesical fistula (SVF). A summary of these patients is shown in table 1.

Case	Age	Simptons	Procedure	Complication
1	70	Urinary sepsis, pneumaturia, abdominal pain, emphysema	Hartmann	X
2	65	Dysuria, pneumaturia, abdominal pain, fever	Hartmann colorectal anastomosis after 3 months	X
3	63	Recurrent crises of diverticulitis. Pneumaturia	Resection and anastomosis	X
4	38	Recurrent urinary infection, disuria, pneumaturia and abdominal pain	Resection and anastomosis	X
5	39	Pneumaturia, palpable mass in the hypogastrium	Hartmann colorectal anastomosis after 7 months	Partial wound dehiscence
6	56	Left lower abdominal pain, fever, pneumaturia and foul urine	Laparoscopic resection and anastomosis	X

All the reported patients were male. All patients treated under elective conditions (n=3), were given primary colonic resection and anastomosis of the colon and presented uneventful recovery. The last treated patient was the only one submitted to laparoscopic approach. In this case intense fibrosis between the bladder and colon wall was found. The urinary bladder fistula orifice was not identified, and the bladder was not sutured. Urinary catheter was left *in situ* for two weeks. In all five laparotomic patients the bladder was sutured.

Emergency surgery was offered in the form of Hartmann's procedure for patients considered high risk due to comorbidities and peritonitis (3=patients) to avoid high-risk anastomosis.

DISCUSSION

Sigmoidovesical fistula (SVF) is a potentially hazardous complication of acute diverticulitis.

Fortunately only a small number of patients with diverticular disease will develop symptoms (15 to 20%) and among then only a few will have some complication.

Diverticulosis is a common condition, affecting up to 60% of the western population at the age of 60 and its incidence is rising in the last century[1,2,6] Most people with DD remain asymptomatic, between 10 to 20% develop symptoms. Among these patients, 15% will need surgery for SVF[9]. Considering the patients with symptoms due to diverticulitis, the majority will be treated clinically. In the small group of complicated patients only a few will need some kind of surgical repair[2,3,8,9]. We treated a group of six patients with a rare complication of severe diverticulitis: sigmoidovesical fistula. It is interesting that CVF in commoner in males. Females have the interposition of the uterus between the sigmoid colon and the bladder as possible explanation to low incidence of CVF[2,6,10]. In our series all six patients were males.

The commonest etiology for SVF is diverticular disease (40-80%) but SVF can also be found in cancer (19%), Crohn`s disease, radiotherapy or iatrogenesis[7].

Recurrent episodes of severe pain, intestinal obstruction, perforation, sepsis and CVF are indications for surgical treatment. Symptoms of the fistula depend on the organs involved, most commonly bladder (65-69%) vagina (25%), intestine (6%), skin (6%)[2,6,10]. SVF secondary to diverticulitis occurs in up to 5% of patients with complicated diverticulitis and its incidence is rising[6,7].

The pathogenesis is related to inflammation leading to perforation of the diverticulum and overt communication to a previously adhered organ. When the adherence is to the bladder it may erode through the bladder´s wall resulting in a sigmoidvesical fistula.

Diagnosis is often based on pathognomonic signs: faecaluria, pneumaturia and recurrent urinary infection[4,6,11], but abdominal pain and signs of diverticulitis is often present without urinary symptoms[9].
The only brazilian report of SVF is in a male patient with recurrent urinary tract infection[12].

SVF is commoner in elder males and in women who have been submitted to hysterectomy[5]. These observations support the theory that the body and fundus of the uterus may act as a protective barrier[7,13]. In our series all six patients were males.

Ultrasound, cystoscopy and CT are used to confirm the diagnosis, but CT is the most accurate, showing up to 90% of sensibility, and considered the gold standard for detection of CVF[5,13,14]. MRI is highly sensitive but it is expensive and less accessible[7,15]. In the last few years, CT became available in most places and was used in our recent cases. The picture 1 and picture 2 are from our last case.

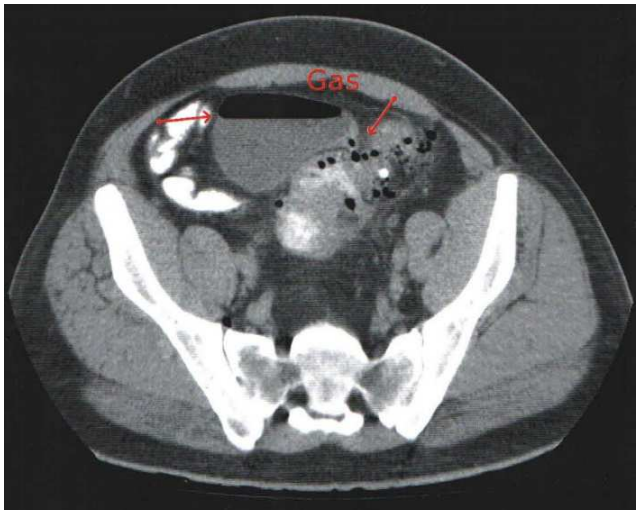

Figure 1. Arrows indicate air inside the urinary bladder and sigmoid diverticulitis.

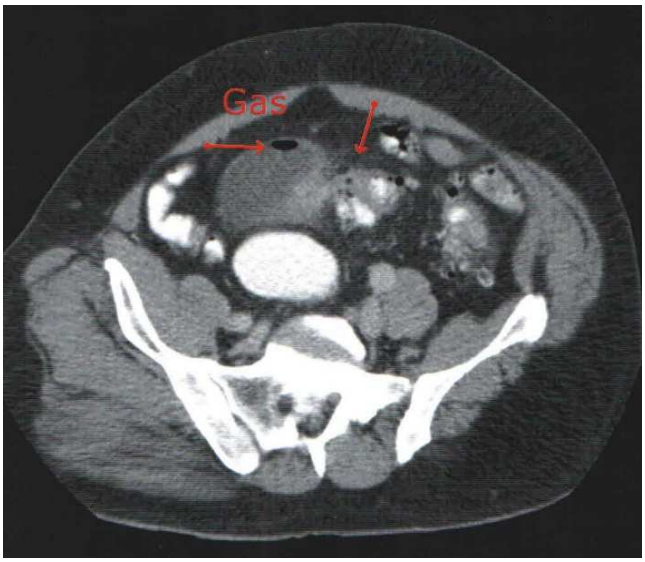

Figure 2. Arrows indicate air inside the urinary bladder and the site of SVF.

Surgery is the method of choice for SVF. Only patients at high risk of perioperative morbidity and mortality should be treated conservatively[16]. Surgery consists of removing the diseased segment of the colon, as well as the fistula, with primary suture of the bladder defect, when identified, to prevent recurrence[13].

In high-risk cases, it may not be safe to proceed to primary anastomosis and Hartmann's procedure is a good option[5,13,17]. This procedure can be performed via laparotomy, laparoscopy or potentially through robotic surgery[2,10].

A Laparoscopic approach has been increasingly favored[2,6,15]. Recent studies of laparoscopic management of complicated diverticulitis have demonstrated that under experienced hands, operation time and conversion rates are acceptable, and morbidity and mortality rates are compared with open surgery[1-3,9,15,16]. Currently, the American Society of Colon and Rectal Surgeons Practice Parameters recommends laparoscopic approach for elective colectomies when expertise is available[2,5]. In these series of patients, one was treated by laparoscopic approach showing excellent outcome.

Martinolich et al. reported in 2018 the outcome of 111 patients with diverticular fistulas submitted to minimally invasive sigmoid colectomy with primary anastomosis[2]. Five patients were unfit for the method and excluded from the study. The remaining 106 underwent to sigmoid colectomy with primary anastomosis with a conversion rate of 34.7%. Four of these patients had a robotic approach without conversion. They concluded that laparoscopic sigmoid colectomy for CVF is safe, with results similar to open sigmoid resection. These results are supported by other reports[1,5].

A 14-year surgery group experience treating CVF also demonstrated similar results when open and laparoscopic approach were compared[9]. Recent reports compared robotic versus laparoscopic approach in colectomies and also found similar results. The only significant differences were prolonged operative time and higher costs in the robotic group[10,11,18].

A controversial issue is the management of the bladder site of the fistula. We performed the primary suture of the bladder in all of our open cases. Some authors claim that if the fistula orifice of the bladder wall is not easily found it may be let without suture[13,19]. Others claim that intraoperative instillation of methylene blue may be used to limit unnecessary bladder repair[6,19]. The suture of the bladder is more frequently described in open approaches[9] possibly because it is less technically demanding under open access and also commoner when the surgical procedure is performed by general surgeons compared with urologists [19].

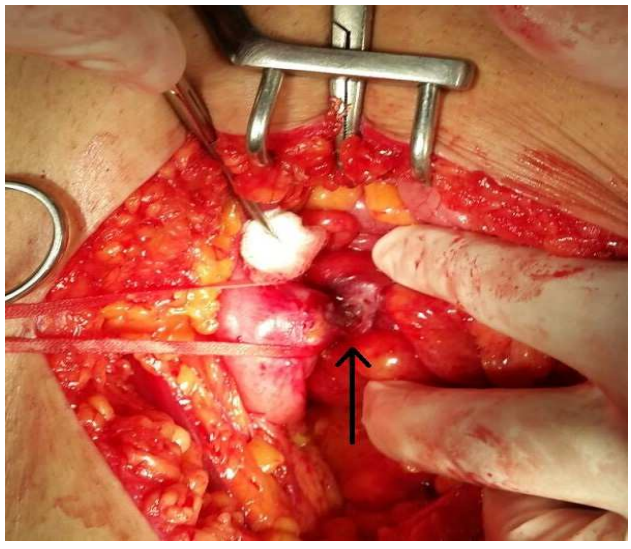

Figure 3. Fistula tract, case 4.

DISCUSSION

We presented a group of six patients with sigmoidovesical fistula due to complicated diverticulitis with five patients submitted to open resection of sigmoid colon and suture of the bladder defect and one to

laparoscopic sigmoidectomy without bladder suture. As SVF is a potentially lethal complication of diverticulitis and increasingly common due to an aging population, it is an important presentation of which to be aware. Overall outcomes were good and comparable with the literature.

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