Laparoscopic colovesical fistula closure with sigmoid resection


Abstract

Colovesical fistulas arise from diverticulitis, cancer, Crohn’s disease or iatrogenic injury. They are regularly manifested with irritative symptoms, urinary infection, fecaluria and pneumaturia. Diagnosis is made through computerized axial tomography (CAT) and cystoscopy. Treatment consists of fistula closure and resection of the involved intestinal segment if the condition of the patient and the cause of the fistula allow it. This procedure may be carried out in one or two surgeries. Laparoscopic approach is viable though not frequently used.

The case of a 61-year-old male presenting with complicated diverticular disease along with pneumaturia and fecaluria is presented. Colovesical fistula was diagnosed through CAT and cystoscopy. The patient underwent laparoscopic fistula closure and resection of the intestinal segment.

The technical aspects of laparoscopic fistula closure and intestinal segment resection are described. The procedure was carried out with no complications and the progression of the patient has been favorable.

Key Words: fistula, colovesical fistula

Resumen

Las fístulas vesicocolónicas tienen como origen diverticulitis, cáncer, enfermedad de Crohn o lesiones iatrogénicas; regularmente se manifiestan con síntomas irritativos, infecciones urinarias, fecaluria y neumaturia, el diagnóstico se lleva a cabo mediante TAC y cistoscopia. El tratamiento consiste en la resección y cierre de la fístula, cuando las condiciones del paciente y el origen de la fístula lo permiten está indicado la resección del segmento intestinal involucrado, este procedimiento se puede realizar en uno o dos tiempos. El abordaje laparoscópico aunque poco utilizado es viable.

Se presenta el caso de paciente masculino de 61 años, con enfermedad diverticular complicada quien presentaba neumaturia y fecaluria, se realizan TAC y cistoscopia, diagnosticando fístula colovesical. Se lleva al paciente a cierre de la fístula y resección del segmento intestinal por laparoscopía.

Se describen en este trabajo los aspectos técnicos del cierre de la fístula y resección del segmento intestinal por laparoscopia. Se lleva a cabo el procedimiento sin complicaciones y evoluciona favorablemente.

Palabras clave: fistula, fístulas vesicocolónicas

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INTRODUCTION

Colovesical or rectovesical fistulas may be the result of complicated diverticular disease (70% of cases), may be secondary to digestive tract neoplasia, Crohn’s disease, radiotherapy or may be the result of iatrogenic lesions in urological surgery or surgical procedures of the digestive tract (1). It is common for initial symptoms to be variable and non-specific. Pneumaturia may present in 50 to 70% of cases (2). The lesion is diagnosed with cystoscopy in 90% of cases. The rectum and sigmoid colon are imaged by contrast medium in computerized axial tomography (CAT) helping to locate anomalous communication and to determine the cause of the fistula (3). Along with hermetic closure of the bladder, colovesical fistula repair and closure should include resection of the fistula edges and the affected colon segment. This procedure may be carried out in two stages depending on the cause of the fistula, the nutritional status of the patient and the presence of abscess and/or intestinal obstruction (4).

Laparoscopic approach for fistula repair of this kind with colon resection and anastomosis offers the benefits of minimally invasive surgery such as a reduction of time in surgery, early mobilization and less postoperative pain (5). This surgery has been reported in isolated cases in different surgical groups, though it is not a common approach given the complexity of the procedure. It has a high conversion rate but there is improvement in relation to recuperation and a lower incidence of postoperative intestinal paresis (6,7).

The objective of this report is to present the technique of colovesical fistula closure with sigmoid colon resection and primary anastomosis in a patient presenting with sub-acute complicated diverticular disease.

MATERIALS AND METHODS

A clinical case is presented along with complementary studies, computerized axial tomography (CAT) and cystoscopy studies as well as representative images of the procedure.

CLINICAL CASE

The patient is a 65-year-old male with a medical history of hyperuricemia, gout, high blood pressure and chronic constipation. The patient’s condition had a 6-month progression presenting with irritative lower urinary symptoms characterized by dysuria, urinary frequency, tenesmus and fever along with fecaluria and pneumaturia for which he was referred to the urology service.

Physical examination revealed normal head, neck and thorax. Abdomen was balloon-shaped due to fatty panniculus and deep palpation of the hypogastrium and iliac fossa was painful. There were no signs of acute abdomen and no masses were palpated. Genitals were normal, rectal examination showed non-suspicious adenomatous Grade II prostate. There was passage of fetid urine mixed with fecal matter. Diagnostic work-up included the following tests:

Barium enema: image suggesting diverticular disease of the sigmoid colon with no passage of contrast material to the bladder (Image 1)

Colon CT scan: diverticular disease in the sigmoid colon, image suggestive of fistulous tract between sigmoid colon and bladder (Image 2)

Cystoscopy: image of 3mm diameter fistulous opening with no other alterations (Image 3)
Colonoscopy. Fistulous opening was not observed nor was the presence of neoplasia or inflammatory disease of the colon.

**PROCEDURE**

Laparoscopic fistula closure and sigmoidectomy with colorectal anastomosis were decided upon. The patient was prepped one day in advance with antibiotic (ceftriaxone), oral polyethylene glycol and with enemas. The patient was placed dorsal decubitus, with legs spread and flexed in a position similar to that used in robot-assisted radical prostatectomy. The patient was then moved into the forced Trendelenburg position to slide the abdominal content towards the head so that there was better access to the pelvic cavity. Once pneumoperitoneum had been created with the Veress needle, 4 laparoscopy ports (three 12 mm and one 5 mm) were placed and laparoscopic procedure was begun with a 30° lens. Pelvic cavity structures were dissected finding sigmoid colon segment adhered to the posterior bladder wall and localizing the area of fibrosis surrounding the fistulous opening. The area was dissected and the bladder was opened (Images 4 and 5). The bladder was then distended and fistulous tract edges cut off (Image 6). The bladder interior was checked to verify that the trigone and ureteral meatuses were not involved in the fistula. Once the edges of the bladder wall were restored with cold-knife incision, the fistula was closed in 2 planes with monocryl, the first with running sutures with intracorporeal knots and the second with simple stitches and extracorporeal knots. Flexible cystoscopy was carried out to make sure the trigone was not affected, that sutures were not exposed and to verify closure impermeability.

Sigmoidectomy was performed dissecting the Told’s fascia and separating the sigmoid colon in order to resect the segment affected by the diverticular disease. Cuts were made using endoscopic linear cutting intestinal staplers (Endo-GIA Tyco). Mesenterium hemostasis was carried out with liga-sure. Once the specimen was...
removed through the rectum, colorectal anastomosis was performed using an endorectal circular stapler. Hermetic closure was verified, the abdominal cavity was washed and a closed drain was left in place.

**PATIENT’S PROGRESS**
The patient did not present with complications and was able to walk the day after the procedure. He was given antibiotic for moderate pain. He began to tolerate oral antibiotic on day three and was released from the hospital on the fifth postoperative day, tolerating diet and able to evacuate. Transurethral catheter was left in place and removed 15 days after the procedure. Patient is asymptomatic at the 6-month follow-up.

**CONCLUSIONS**
Laparoscopic repair of colovesical fistula may be successfully performed with intestinal resection and anastomosis in a single surgery without adding to patient morbidity. It has the advantage of less postoperative pain and a quick return to normal activities. When intestinal resection is required, the patient is offered all the benefits of minimally invasive surgery.

**BIBLIOGRAPHY**