Appendicovesical fistula treated with elective laparoscopic surgery

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Abstract

Background: Appendicovesical fistula is a rare complication of advanced acute appendicitis and represents a rare type of enterovesical fistula. Its symptoms are vague and imprecise and its diagnosis is difficult, requiring a high level of suspicion. Exploratory laparotomy has been the key to diagnosis and definitive treatment for many years, but the laparoscopic approach recently stands out among different experienced groups as the method of choice.

Clinical case: We report a new case of appendicovesical fistula in a 45-year-old female who was referred from the Department of Urology with symptoms of persistent dysuria and pyuria. She was finally diagnosed by computerized tomography. Appendicovesical fistula was resolved by laparoscopic surgery. This case adds to the 115 cases published so far and to the four treated by the laparoscopic approach.

Discussion: Conventional imaging methods are unreliable for the diagnosis of enterovesical fistula. Because most appendicovesical fistulas are found to be secondary to undiagnosed and advanced acute appendicitis in the majority of the consulted publications, laparotomy is the key for diagnosis of appendicovesical fistula. However, laparoscopy is described as a diagnostic and therapeutic tool in few articles. We found only three articles in the literature referring to the laparoscopic approach as a therapeutic option.

Conclusion: Computerized tomography is the diagnostic method of choice when communication between the digestive tract and urinary tract is suspected, particularly if the suspected fistula is an appendicovesical one. The laparoscopic approach of an appendicovesical fistula is able to confirm the radiological diagnosis and provide a definitive treatment.

Key words: colovesical fistula, appendicitis, laparoscopy.

Introduction

Pneumaturia and copranuria constitute frequent clinical signs that suggest enterovesical communication. This type of fistula is usually secondary to diverticulitis or inflammatory bowel disease of torpid evolution, malignant tumors, radiation or iatrogenic injury of the lower gastrointestinal tract. Sigmoidovesical fistulas are the most common. Appendicovesical fistula is rare, representing ~1 to 5% of all enterovesical fistulas.1

Communications of the cecal appendix with the bladder is usually caused by local inflammation or by tumor tissue. Preoperative diagnosis is difficult because of the nonspecific symptoms and the low level of clinical suspicion. Definitive diagnosis is not always possible with the use of standard imaging techniques.

We report a new case of a patient with a history of a recurrent urinary infection. With the use of a computed tomography (CT) scan, this patient was diagnosed with appendicovesical fistula due to an appendiceal abscess. A laparoscopic approach confirmed the diagnosis and permitted treatment of the fistula.

Clinical Case

We present the case of a 45-year-old female patient with a history of cholecystectomy, left hemithyroidectomy and lumpectomy with axillary lymphadenectomy with subsequent radiotherapy and chemotherapy for breast cancer. The patient previously received treatment with tamoxifen. The patient was referred from the Urology Department because of dysuria with secondary persistent leukocyturia to probable enterovesical fistula.
The patient reported having had an episode of diarrhea without blood, mucus or pus 3 months before the urological consultation. She had pain in the right side of the abdomen, which resolved spontaneously. After this episode she had low-grade fever in the evenings and reported yellowish discharge during urination, requiring broad-spectrum antibiotic treatment for several months.

Abdominal and rectal examinations showed normal results. Urinalysis demonstrated mild leukocyturia (5 to 15 leukocytes per HPF) and microhematuria. The urine culture did not isolate any bacteria. Cystoscopy revealed a deep pseudopapillary formation in the bladder with purulent discharge that settled at the bottom of the bladder after the increase of abdominal pressure (Figure 1). A urological ultrasound showed, on top of the bladder, an extrinsic tumor of unknown origin that, upon pressure, emptied its contents into the bladder, with dense accumulation of material at the base (Figure 2).

A CT scan revealed a marked thickening of the base of the appendix. There was a fecalith of 18 mm in the interior of the appendix and inflammatory changes that affected prevesical fat and the anterior wall of the bladder without affecting other areas of the gastrointestinal tract. The bladder was in intimate contact with the distal region of the cecal appendix (Figure 3). The diagnosis was appendicovesical fistula secondary to inflammatory appendicitis.

The laparoscopic approach was performed using three trocars located at the umbilicus (10-mm trocar), left flank (11-mm trocar) and left lower quadrant (12-mm trocar). During surgical exploration, an inflammatory plastron located above the bladder, covered by the greater omentum and in contact with the abdominal wall, was found. Blunt dissection revealed an appendiceal fecalith at the base and a plastron that included the tip of the appendix was found to be in close contact with the dome of the bladder. These findings were compatible with the diagnosis of appendicovesical fistula (Figure 4).

A laparoscopic appendectomy was performed using a linear mechanical stapler of ENDO GIA type with 60-2.5 load, including the mesoappendix and appendiceal base. The fistula was resected applying a second ENDO GIA of identical characteristics in proximity to the bladder wall, releasing the appendiceal plastron. We confirmed the integrity of the bladder wall by instilling saline through a catheter to show tightness. The patient had an uneventful postoperative period and was discharged from the hospital 48 h postoperatively. Anatomopathological examination revealed a cecal appendix of 5 cm in length with large proximal dilation of
and dysuria, diffuse abdominal pain, fever, chills, hematuria, fecaluria, and diarrhea, among others.

Our patient began with a clinical picture of abdominal pain and a mild fever, possibly secondary to an undiagnosed acute appendicitis. These symptoms were progressive and spontaneously remitting by the formation of a fistula between the vermiform appendix and the bladder, which facilitated the drainage of a peri-appendiceal abscess into the bladder. Subsequently, the patient had recurrent urinary infections and required urological assistance.

Physical examination and conventional plain radiographs are usually not sufficient to make the diagnosis. It requires the assistance of different imaging techniques. Barium enema may be useful but with enterovesical communication it is only able to be diagnosed in 20 to 60% of cases. The findings from the cystoscopy are nonspecific. They highlight chronic cystitis and bullous edema of the bladder dome. In our case, cystoscopy revealed a significant degree of parietal cystitis and low output of dense material with a purulent appearance through the wall of the bladder dome, suggesting evidence of a suspected enterovesical fistula.

This finding is not common and many authors recommend a retrograde cystography based on the evidence of fecal, mucous or purulent drainage through the bladder wall. Because conventional imaging methods are not reliable for the diagnosis of enterovesical fistula, a CT scan is proposed as a diagnostic procedure of choice in a suspected enterovesical fistula, as in the case reported here.

In conclusion, upon suspicion of communication between the gastrointestinal and urinary tracts, a CT scan is the diagnostic method of choice, especially if one suspects an appendicovesical fistula. The laparoscopic approach of the appendicovesical fistula can confirm the radiological diagnosis and is a definitive surgical option.

**References**