

## An exceptional case of right iliacus muscle hernia containing a perforated colonic diverticulum

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### Abstract

Right-sided colonic diverticulosis is an unusual source of right lower abdominal pain in the Western hemisphere, while iliopsoas hernia is an almost unique clinical condition, with only two reported cases in literature. A 52-year-old female, without medical history and previous trauma, presented to the emergency department for abdominal pain in the right iliac fossa, irradiated to the lower back, and fever. Clinical, radiological, and laboratory findings suggested acute appendicitis as a preoperative diagnosis; therefore, a laparoscopic appendectomy was indicated. The laparoscopic abdominal exploration revealed the presence of a right iliacus muscle hernia containing a diverticulum of ascending colon. The diverticulum showed a perforation without evidence of abscess; it was isolated from the iliacus muscle hernia, and a tangential resection of the colon with a mechanical stapler was performed. Hence, the preoperative diagnosis was not confirmed. Postoperative course was uneventful, and histology confirmed a perforated colonic diverticulum.

### Keywords

Laparoscopy; Right colonic diverticula; Iliopsoas muscle hernia; Right lower quadrant pain.

### Introduction

Right-sided colonic diverticulosis is less common than left-sided disease in Western population, while it is more frequent in Asia, especially among young people, with a prevalence ranging from 0.7% to 1.5% of the people affected by diverticulosis [1]. Two types of right colonic diverticulosis have been described: The first type includes left colon disease that also affects the right side. In contrast, the second type includes single or multiple lesions exclusively in the right colon. This type of diverticulosis seems to be associated with genetic predisposition [1] and patients usually present a single, true diverticulum located close to the ileocecal valve in 80% of the cases [2,3].

The pathophysiology of diverticulitis is incompletely understood. Previous studies suggest that diverticulitis may result from obstruction and trauma of a diverticulum with subsequent ischemia, micro-perforation, and infection [4,5], but recent findings indicate that lifestyle, diet and other modifiable factors associated with chronic inflammation and alteration of microbiota play an essential role in the diverticulitis pathogenesis [6].

The clinical presentation of diverticulitis of ascending or caecal colon could be challenging because it can mimic several pathological conditions, first of all, acute appendicitis [3]. In this setting, Computed Tomography (CT) abdominal scan is the radiologic study of choice to detect right-side colon diverticulitis, despite a low specificity [2]. The CT characteristics of a caecal diverticulitis are indeed very similar to those of acute appendicitis [7] and this explains the significant rate of intraoperative diagnosis of right colon diverticulitis during laparoscopic abdominal exploration for right lower quadrant abdominal pain [1,2].

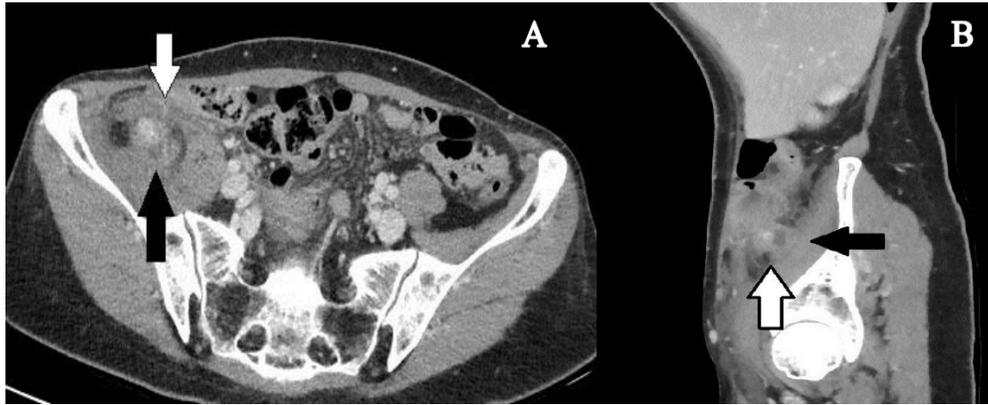
Iliopsoas muscle hernia is a very rare clinical condition with only two cases reported in literature. In the first case [8], a 26-year-old woman complaining left groin pain and showing left inguinal hernia at physical examination, underwent total extraperitoneal hernia repair through an open access. At surgery, an indirect inguinal hernia was found and during the creation of lateral space, a psoas muscle hernia was incidentally identified. Both hernia defects were repaired with a prolene mesh.

In the second case [9], a 49-years-old woman with persistent lower back and right groin pain underwent laparoscopic total extraperitoneal hernia repair for femoral hernia. During laparoscopy a defect in the psoas was discovered. and repaired with an extraperitoneal mesh.

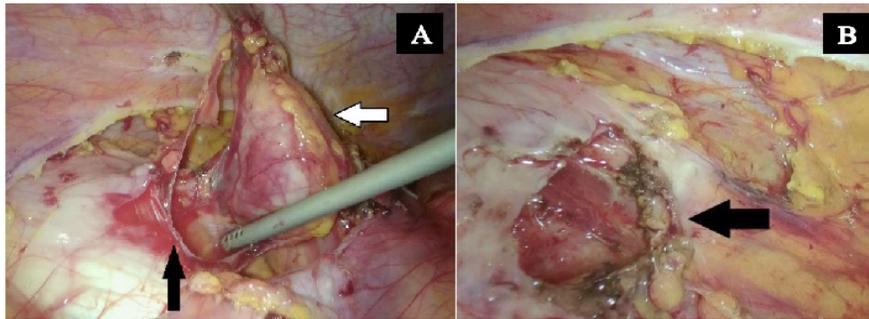
In both cases [8,9], the psoas hernia contained preperitoneal fat. At our knowledge, there are no literature reports about iliacus muscle hernias with bowel contents.

## Case Report

A 52-year-old female, without medical history or previous trauma, presented to the emergency department for abdominal pain in the right iliac fossa irradiated to the lower back, associated to fever. Physical examination revealed McBurney point tenderness, while blood tests showed increased levels of white blood cells ( $10.88 \times 10^3/\text{uL}$ ) and C-reactive protein (3.5 mg/dl). An abdominal CT scan was performed (figure 1), showing a small amount of free pericaecal fluid associated with inflammation of retrocecal adipose tissue extended to the right iliac muscle. The appendix was not clearly recognizable, and a coprolite was inside the small pericaecal collection (Figure 1). In the suspect of acute appendicitis, the patient underwent laparoscopic abdominal exploration, which revealed no signs of acute appendicitis but the presence of a right iliacus muscle hernia containing a diverticulum of the ascending colon (Figure 2), without associated purulent collection. During the hernia reduction maneuver, a break in the continuity of the diverticulum wall was found with a coprolite coming out from it. A tangential resection of the colon with mechanical stapler was performed, while the iliacus muscle hernia was not repaired with a mesh, because of the contamination of the field. Postoperative course was uneventful. Histology confirmed a perforated colonic diverticulum with a size of 3.5 x 3 x 1.5 cm. At 12 months follow-up the patient did not show signs of right iliacus muscle hernia relapse at follow-up imaging.



**Figure 1:** Abdominal CT axial (A) and sagittal (B) scans, showing the colonic diverticulum (white arrow) of the ascending colon, herniated inside the right iliacus muscle (black arrow).



**Figure 2:** Laparoscopic view (A, B) of the perforated diverticulum of the lateral wall of the ascending colon (white arrow), found inside a right iliac muscle hernia (black arrow).

## Discussion and conclusion

Iliopsoas muscle hernia is a very rare condition and the etiopathogenesis of this type of hernia is still unknown. Pelvic surgery for gynaecological disease has been associated with the onset of para-psoas hernias [11,12]. Similarly, in the case described by Esmaili [8], the patient's past surgical history included gynaecological laparoscopy and open tubal ligation.

Moreover, trauma of the anterior abdominal walls can rarely lead to hernia muscles [10]. In the case examined by Goel [8], the patient reported a history of physical exertion and the author supposed that a combination of sudden increase of intra-abdominal pressure and powerful shear forces applied to the abdominal wall could have led to a rupture in the psoas muscle and the onset of a psoas hernia.

In contrast to the two previously reported cases [8,9], our patient denied any abdominal trauma or surgical history. Moreover, the iliacus muscle hernia did not contain preperitoneal fat, but bowel contents, a condition that has never been described before in literature. In our case we suppose that a congenital defect of the iliacus muscle fascia could have induced the hernia and colonic diverticulum development.

In conclusion, chronic lower back pain associated with acute abdominal pain with non-typical clinical presentation and radiological findings can be related to the presence of a right colon diverticulum and psoas hernia. This rare condition should be taken into consideration in the differential diagnosis of right lower quadrant abdominal pain.

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