## **Case Report**

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# Acute perforated transverse colon diverticulitis simulating acute cholecystitis: case report and literature review

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#### **ABSTRACT**

Transverse colon diverticulitis is a rare entity, described for the first time in 1944 by Thompson and Fox. Even more uncommon if presented with diverticular perforation of the colon. When ranking diverticula distribution by their anatomical location site, it has been set up that transverse colon is involved in an average of 10% of the cases, but diverticulitis or inflammation of these sacculations in this anatomical region only occurs in 0.5-2.5% of the cases. Female, 44 years old, who came to emergency room with acute abdominal pain as colic of 24 hours of evolution, Acute cholecystitis was considered as a first diagnostic possibility. Pain persistence and peritoneal irritation lead to an abdominal contrasted tomography (contrast IV). Oval formations protruding from the gut lumen in ascending and transverse colon were found, corresponding to diverticula. Patient was admitted in hospital and maintained in fasting period and with a double antibiotic scheme she was discharged on the 5th day of hospital stay. Transverse colon diverticulitis is a rare entity, there exist less than 50 cases reported in worldwide literature but it has been determined that patients with transverse colon diverticulitis are 15 and 20 years younger than patients with left colon diverticulitis. That is, average age of manifestation is about 45 years old. 85% of the cases have been described in women. Reports managed it successfully with antibiotics. The present report could be achieved favourably with a double antibiotic scheme, with no need of surgery.

Keywords: Abdominal pain, Diverticulitis, Diverticular disease, Transverse colon diverticulitis

#### INTRODUCTION

Diverticular disease of the colon consists in the appearance of 5 to 10 mm saccular protrusions or herniations of the mucosa and submucosa through the muscular layer, in the sites of weakness of the colon wall, caused by the merging of the vasa recta. It is the most common colonic disease in western countries, occurring in about 10% of the population. Different series have

documented that 50% of people over 50, will have diverticula in the colon. Only 5% of the cases will occur in people younger than 40 years, and generally in males with morbid obesity. The prevalence of the disease is similar in both sexes.<sup>2</sup>

Diverse clinic expressions have been reported, from asymptomatic (75%) to severe complications as

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diverticulitis, hemorrhage, fistulas and perforation (10-25%).<sup>3</sup>

The appearance of diverticula in the western world predominates in the left colon, and is distributed as follows: Sigmoid (65-80%), descendent colon (15%), transverse colon (10%), cecum (4%), ascending colon (5-10%), rectum (<1%) and, in some patients, in the whole colon.<sup>4-6</sup> In Asia, the involvement of the ascending colon predominates, mainly attributed to different diet and genetical factors.<sup>7,8</sup> Transverse colon diverticulitis is extremely rare with less than 50 cases reported in worldwide literature.

#### **CASE REPORT**

A 44-year-old female patient with a history of systemic arterial hypertension, who comes to the emergency department, reporting severe abdominal pain, of 24 hours of evolution, located in right hypochondrium with abdominal distension, epigastric burning, nausea without vomit, and one episode of watery diarrhea without mucus or blood. The pain woke her, increased after the food intake and with the deep inspiration. Forty-eight hours before the pain appeared, she identified a period of asthenia and hyperthermia.

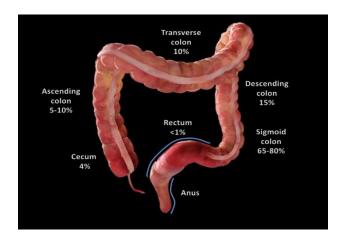


Figure 1: Colon diverticular disease distribution.



Figure 2: Gallbadder ultrasound with no inflammation evidence.

Physical exploration documented overweight by BMI, 37.6°C of temperature, tachycardia and hypertension. Pulmonary fields exploration was normal. The abdomen was flat, with involuntary muscular resistance, painful to the middle palpation of the epigastrium, with positive Murphy's sign, painful decompression in the upper right quadrant (which translated peritoneal irritation), but with negative appendicular signs, and decrease in the intensity and frequency of peristalsis.

Acute cholecystitis was considered as the first diagnostic possibility, so a dose of parecoxib was given. Blood tests and a hepatobiliary ultrasound were ordered. Blood count documented leukocytosis (14.3) and neutrophilia, without alteration in liver function tests or in pancreatic enzymes. The urinalysis was normal.

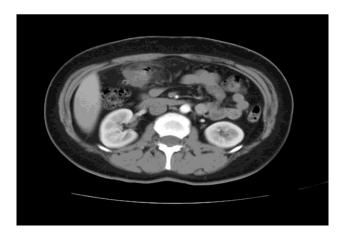


Figure 3: Axial section at renal level, calcified saccular dilatations and thickening of the wall of the transverse colon, important infiltration of mesenteric fat. Free air bubbles adjacent to diverticula.

During the ultrasound, a sonographic Murphy sign was identified. There were no echoes within the gallbladder, the free wall was 3 mm thick, the common bile duct 2 mm and the portal vein 8 mm. No alterations were revealed by this image method.

In the presence of persistent abdominal pain and peritoneal irritation, a contrast tomography of the abdomen was requested (IV contrast). Oval formations protruding from the gut lumen in ascending and transverse colon were found, corresponding to diverticula. In the transverse colon, very close to the hepatic flexure, a thickening of the colon wall greater than 5 mm was identified, with calcified saccular dilatations, pericolonic microabscesses formation and surrounding mesenteric fat stranding. An acute diverticulitis Hinchey IB of the transverse colon was diagnosed.

Patient was admitted in hospital under strict fasting and with a double antibiotic scheme (Cefotaxime and Metronidazole). She evolved successfully; pain diminished progressively as well as leukocytosis. Finally,

she was discharged on the 5th day of hospital stay with a proper oral tolerance.



Figure 4: Coronal reconstruction showing calcified saccular dilatations and transverse colon inflammation, infiltration of mesenteric fat close to vesicular bed and free air bubble adjacent to diverticula are observed.

#### DISCUSSION

Transverse colon diverticulitis is a rare entity, described for the first time in 1944 by Thompson and Fox. It is even less common to present with diverticular perforation. By stratifying the distribution of the diverticula, by the anatomical segment of the colon where they are located, it has been established that the transverse colon is involved in 10% of cases on average, but the diverticulitis or inflammation of these sacculations in this anatomical region, only occurs in 0.5-2.7% of the cases. 10,11

There are less than 50 cases reported in the world literature, but it has been established that patients with diverticulitis of the transverse colon, are between 15 and 20 years younger, than patients with diverticulitis in the left colon. 12,13 The average age of presentation, is around 45 years. Up to 85% of the cases have been described in women. 10

In this report, a 44 years old woman was presented, in accordance with epidemiologic characteristics of previous cases.

Transverse colon diverticulitis is usually part of an extended diverticular disease, with the presence of diverticula in the right and the sigmoid colon.<sup>8</sup> Contrastenhanced tomography in our patient revealed the presence of diverticula, not only in the transverse colon,

but in the ascending colon, and absence of diverticula in the sigmoid colon, as might be expected for her age.

It is important to distinguish between 2 types of diverticula: acquired and congenital. The first, are actually pseudodiverticula, since they are formed only by mucosa and submucosa, and not by the muscular layers of the colon wall. Acquired diverticula predominate in the left colon and in patients over 60 years. In contrast, congenital diverticula, are true diverticula, involve the 4 layers of the wall and predominate on the right side. In the transverse colon, the existence of both types of diverticula has been described. 14

It is a difficult to diagnose pathology, not just due to its rarity and no clinical suspicion but also because it mimics other pathologies as: appendicitis, pancreatitis, cholecystitis, perforated duodenal ulcer or even pyelonephritis. In the reported cases, 60% of the patients were diagnosed with acute appendicitis. It is calculated that an average of 3 from 25 cases are diagnosed before going on an invasive procedure. Even during the surgical act, the disease is again misdiagnosed, because in 63% of the cases, surgeons thought about a colon adenocarcinoma. Io

When reviewing coronal reconstructions in the tomography, the reason of presenting habitual symptomatology of gallbladder inflammation was easily deducted. The inflammatory process of traverse colon mesenteric fat affected by diverticulitis, reaches vesicular bed. The diagnosis of our patient could be made preoperatively, thanks to the availability of the tomography, but the definitive diagnosis was never considered as a possibility.

Several articles have shown that the presence of calcified fecalites within the diverticula, increases the likelihood of their inflammation and perforation. Tomography in the present case, evidenced calcified diverticula at the inflamed colon segment.

Most reported cases have handled surgically with resection and stoma, or resection and primary anastomosis. Several authors suggest resection of the affected segment and posterior reconstruction with a primary anastomosis even when colon is not prepared. However, there are also reported cases of successful management with antibiotics. The present case could be managed successfully with a double antibiotic scheme, with no need of surgery.

We are living in an era of changes in surgical paradigms, among them, the ones related to diverticular disease. With better imaging studies availability, the transverse colon diverticulitis diagnoses would be more frequent and more easily identified. Meanwhile, this case contributes to increase related reports, making diagnostic approach standardization and therapeutical management of these patients simpler.

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#### REFERENCES

- 1. Rezapour M, Ali S, Stollman N. Diverticular disease: an update of pathogenesis and management. Gut Liver. 2017;11(3):1-8.
- 2. Mosadeghi S, Bhuket T, Stollman N. Diverticular disease: evolving concepts in classification, presentation, and management. Curr Opin Gastroenterol. 2015;31(1):50-5.
- 3. Peery AF, Sandler RS. Diverticular disease: reconsidering conventional wisdom. Clin Gastroenterol Hepatol. 2013;11:1532-7.
- 4. Wagner DE, Zollinger RW. Diverticulitis of the cecum and ascending colon. Arch Surg. 1961;83(3):436-43.
- Martel J, Baskin JB. History, Incidence, and Epidemiology of Diverticulosis. J Clin Gastroenterol. 2008;42(10):1125-7.
- 6. Jun S, Stollman N. Epidemiology of diverticular disease. Best Practice Res Clin Gastroenterol. 2002;16(4):529-42.
- Stollman N, Ranskin JB. Diverticular disease of the colon. Lancet. 2004;363(9402):631-9.
- 8. Golder M, Ster IC, Babu P, Sharma A, Bayat M, Farah A. Demographic determinants of risk, colon distribution and density scores of diverticular diseases. World J Gastroenterol. 2011;17(8):1009-17.
- 9. Thompson GF, Fox PF. Perforated Solitary diverticulum of the transverse colon. Am J Surg. 1944;66(2):280-3.
- 10. Lai WL, Liu CL, Chan WF, Ho JWC. Perforated Diverticulitis of the transverse colon. Eur J Surg. 2000;166(7):579-80.

- 11. McClure ET, Welch JP. Acute diverticulitis of the transverse colon with perforation. Report of three cases and review of the literature. Arch Surg. 1979;114(9):1068-71.
- 12. Wilkinson TRV, Wilkinson AR. Perforated diverticulum of the transverse colon. Saudi J Gastroenterol. 2007;13(4):194-6.
- 13. Shperber Y, Halevy A, Oland J, Orda R. Perforated diverticulitis of the transverse colon. Dis Colon Rectum. 1986;29(7):466-8.
- El-Batrawy TM, Al Ashari M, Abu-Zidan FM. Perforated solitary diverticulitis of the transverse colon in a young woman." Edited by April. ANZ J Surg. 2015. Accessed 08 16, 2017. Available at http://onlinelibrary.wiley.com/wol1/doi/10.1111/ans .13123/abstract.
- 15. Sibileau E, Boulay-Coletta I, Jullès MC, Benadjaoud S, Oberlin O, Zins M. Appendicitis and diverticulitis of the colon: trap forms. J Diagnostic Interventional Radiol. 2013;94(7-8):781-802.
- 16. Solak A, Solak I, Genç B, Sahin N, Yalaz S. Transverse colon diverticulitis with calcified fecalith. Euroasian J Med 2013;45(1):68-70.
- Jasper DR, Weinstock LB, Balfe DM, Heiken J, Lyss CA, Silvermintz SD. Transverse colon diverticulitis: successful nonoperative management in four patients. Dis Colon Rectum. 1999;42(7):955-8.

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