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CASE REPORT PEER REVIEWED | OPEN ACCESS

Toxic megacolon and perforation of the right colon due to sigmoid stenosis associated to chronic diverticulitis

Maria Tudela Lerma, Ana Moreno Hidalgo, Benjamin Diaz Zorita

ABSTRACT

Introduction: Diverticulosis is a common benign disease in the population over the age of 60. It ranges from asymptomatic to complicate with bleeding or perforation. "Chronic diverticulitis" is defined by its chronic clinical course and luminal obstructive change (stenosis), which may rarely lead in large bowel obstruction. Colonic dilation can cause toxic megacolon and perforation. Case Report: This is a rare case of toxic megacolon accompanied by perforation of the right colon due to chronic dilatation caused by stenosis of the sigmoid colon as a complication of diverticulitis. The patient consulted in emergency for abdominal pain and developed severe septic shock. The computed tomography showed dilatation of the colon with perforation and large retroperitoneal abscess. An emergency total colectomy was performed. Conclusion: To the best of our knowledge there are very few reports in the literature referring to toxic megacolon and perforation of the right colon due to stenosis of the sigmoid colon as a result of chronic diverticulitis.

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INTRODUCTION

Diverticulosis is a common benign disease in the population over the age of 60. It affects the sigmoid and descending colon in more than 90% of patients [1, 2].

The spectrum of diverticular disease is wide, covering different clinical scenarios; it ranges from asymptomatic to different complications [3].

Recently a new concept of diverticulitis was proposed: "chronic diverticulitis" [4, 5] it is defined by its chronic clinical course and luminal obstructive change (stenosis). This disease is a different pathologic entity considered by the common development of chronic obstructive symptoms. The chronic inflammation and recurrent diverticulitis in the left-sided colon can cause fibrosis subsequent stenosis and finally obstruction of the colon. The symptoms include vomiting, constipation and abdominal distension. Compared with acute diverticulitis it is characterized by a lack of abdominal pain, tenderness and fever [6].

Acute diverticulitis is the second cause of large bowel obstruction due to a spasm, anearby abscess or a fibrotic scar; however, chronic diverticulitis (stenosis) is a rare

cause of obstruction. It is supposed to be the cause of only 10% of large bowel obstructions [7]. Nevertheless if the stenosis is severe, a progressive dilation of the proximal colon (cecum >9 cm or transverse colon >6 cm) may lead to toxic megacolon followed by colonic ischemia-necrosis and perforation [8].

This report present and discusses a case of sigmoid stenosis due to diverticulitis and chronic dilation of the colon, which evolved in progressive proximal colon dilatation complicated by toxic megacolon and perforation of the proximal colon.

CASE REPORT

A 81-year-old women with medical history of two episodes of acute diverticulitis with pararectal abscess managed conservatively with antibiotic therapy and percutaneous drainage. Along the last year the patient presented chronic symptomos vomiting, constipation and abdominal distension. A colonoscopy revealed a partial inflammatory sigma stenosis; malignancy was discarded with two biopsies.

The patient consulted in emergency department with severe diffuse abdominal pain, which had started 24 hours earlier. She besides reported fever and vomiting.

At physical exploration she was with poor general condition, hypotensive 95 /64 mmHg, tachycardic with 115 beats/min and the temperaturewas 38ºC. Abdominal examination revealed a distended, tympanic, diffusely painful abdomen with tenderness and abdominal guarding.

The total leukocyte count at admission was 4.100/mm^3 with 89% neutrophils, increased acute phase reactants, impaired renal function with creatinine 1.36 mg/dL and high blood lactic acid. A CT- scan showedlocated complete stenosis of the sigmoid with dilation of the proximal colon. Discarded pneumomediastinum, pneumoperitoneum, retropneumoperitoneum and a large collection in right hemiabdomen Figure 1(A–C). The above clinical and laboratory findings were compatible with toxic megacolon.

The patient was taken to the operating room where laparotomy revealed fecaloid peritonitis of the four quadrants, due to 5 cm perforation of the right colon (Figure 2) with dilatation of the colon due to the stenosis of the sigma. A total colectomy with terminal ileostomy was performed. Biopsy revealed colonic ischemia and diverticulosis of the colon as well as deformity of the sigma wall by fibrosis and severe luminal narrowing of 7 cm Figure 3(A–C).

DISCUSSION

Diverticulosis is a common anatomical condition, which appears to be age dependent. Recent studies have shown that the presence of diverticula represents the most common non-neoplastic finding during screening colonoscopy [9]. Among patients with diverticulosis, 15–25% are expected develop diverticulitis in their lifetime [10], the incidence of acute diverticulitis increases with age, especially over the age of 50 [11, 12], although a recent study suggests that this proportion may be much lower [13].

It may be difficult to distinguish "chronic diverticulitis" from other diseases, which are complicated by intestinal stenosis including cancer, ulcerative colitis, Crohn's disease, and ischemic colitis. The diagnostic can be

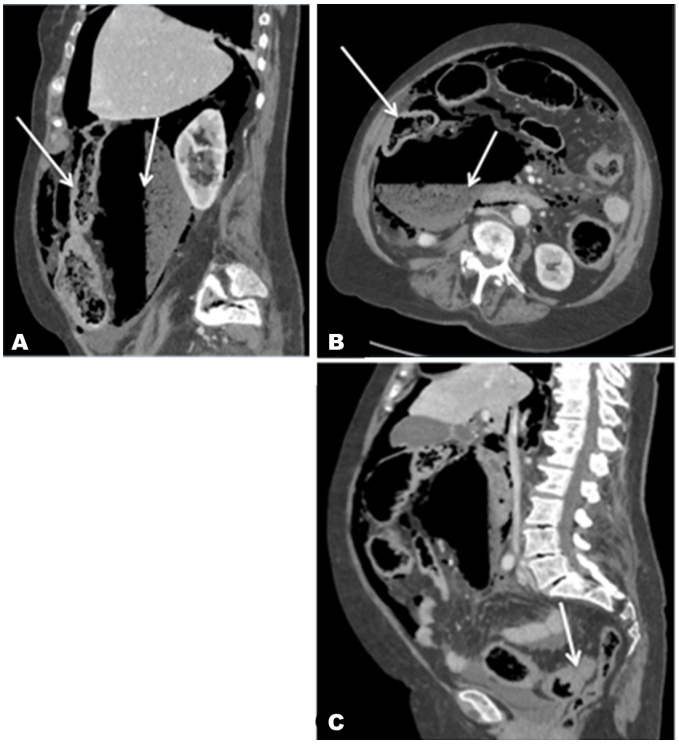

Figure 1(A–C): Abdominal CT showed: (A, B) Pneumoperitoneum, the orifice of the right colon and the large abscess of 14x10X18 cm. Stenotic lesion of the sigmoid colon (C).

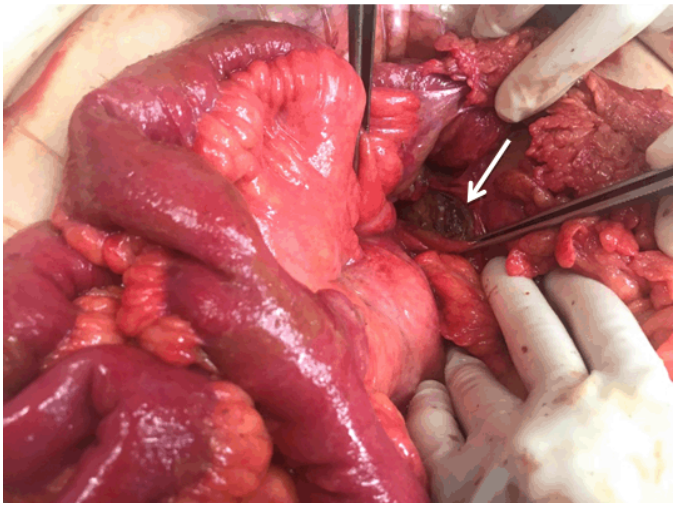

Figure 2: Operating findings: fecaloid peritonitis due to right colon perforation.

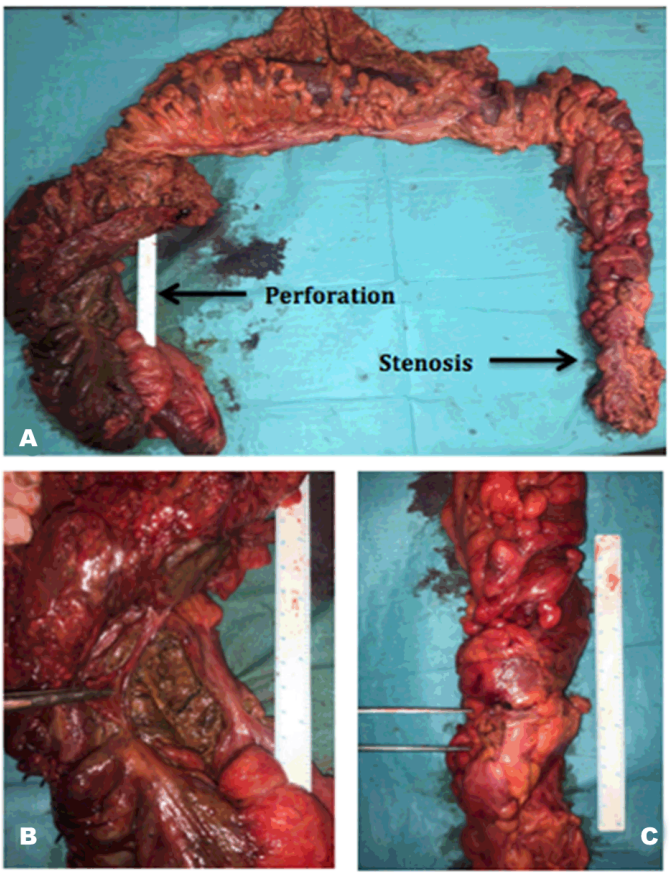

Figure 3(A–C): Resected specimen. Total colectomy (A). Right colon perforation, length 5 cm (B). Stenosis of the sigmoid colon, length 7 cm (C).

settled with the clinical characteristics (symptoms of ileus and past history with diverticulitis) and the radiographic findings. For imaging, it is useful a barium enema, computerized tomography, and endoscopy [5].

The differential diagnosis of sigmoid stenosis secondary to diverticulitis from cancer could be difficult and is a challenge for surgeons. CT colonography is an excellent technique to distinguish between both etiologies. It can evaluate the proximal colon; however, it is also contraindicated for evaluating acute abdominal conditions, like diverticulitis or the acute phase of inflammatory bowel disease, because of potential complications of air insufflation [14].

The sigmas 's stricture can cause progressive distension of the colon and increase the intraluminal pressure, which may provoke ischemia of all bowel wall layers and finally necrosis and perforation.

Toxic megacolon is a rare but severe and potentially fatal complication of colonic inflammation with high morbidity and mortality, and surgical intervention is necessary in up to 80% of cases. It is most commonly considered a complication of inflammatory bowel disease and less frequent of ischemic or infective colitis. Chronic sigma stenosis due to diverticulitis is an exceptional cause of megacolon.

The consistent feature of toxic megacolon is the radiographic evidence of total or segmental colonic distension of >6 cm. In comparison to other aetiologies of colonic dilatation, it is defined by the additional presence of systemic toxicity and inflammatory or infectious aetiology of the underlying disease. The most commonly used clinical criteria for the diagnosis of toxic megacolon include three of the four following main criteria: Fever, tachycardia, leukocytosis, or anemia. In addition, one of the following criteria should also be met: Dehydration, altered level of consciousness, electrolyte imbalance, or hypotension [15]. The patient in the case was in septic shock.

Presently, the timing of surgery in toxic megacolon remains controversial. Avoiding the necessity of surgery is the goal for all medical treatments; however, delaying surgical therapy can increase the risk of complications leading to a poor prognosis [16].

On the other hand it is debated if the prophylactic surgery of the chronic diverticulitis is indicated to avoid these severe complications. Today, the number of episodes alone is no longer regarded as a conclusive indication for surgery. It depends on the individual case and takes risk factors, complications, age, severity of episode, as well as the patient's personal circumstances and comorbidities. Chronic recurrent, uncomplicated diverticulitis should only be operated on after a careful risk-benefit analysis during an inflammation-free interval [17].

CONCLUSION

Recurrent episodes of diverticulitis, which may be subclinical, can initiate progressive fibrosis and stricturing of the colonic wall in the absence of on-going inflammation. Therefore, it can cause large bowel obstruction and finally toxic megacolon. The policy of prophylactic surgery, the timing and the appropriateness of treatment of sigmoid diverticulitis remain a topic of controversy.

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Author Contributions

Maria Tudela Lerma – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ana Moreno Hidalgo – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Benjamin Diaz Zorita – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

None.

Consent Statement

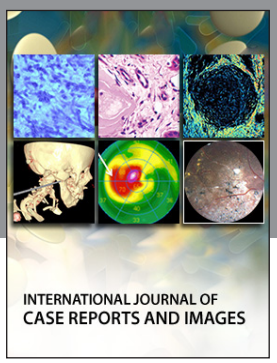
Written informed consent was obtained from the patient for publication of this case report.

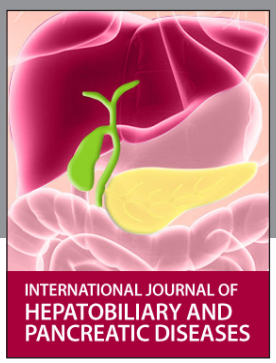
Conflict of Interest

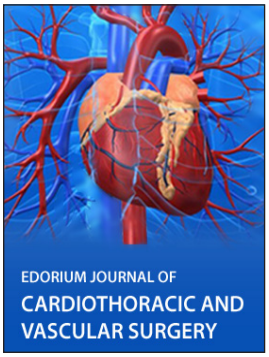
Authors declare no conflict of interest.

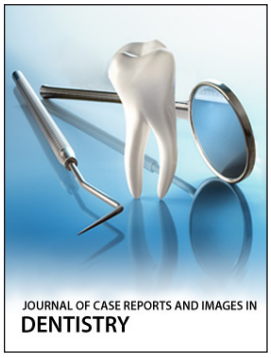
Data Availability

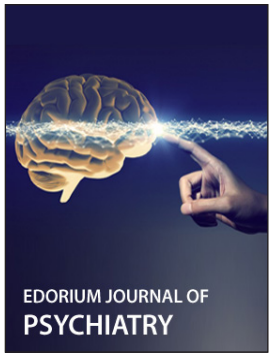
All relevant data are within the paper and its Supporting Information files.

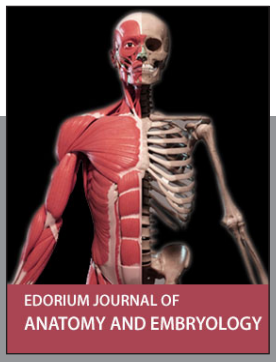


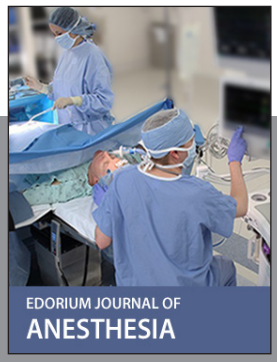












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