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CE - MEDICAL ILLUSTRATION

Giant sigmoid diverticulum: a rare cause of common gastrointestinal symptoms

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Introduction

A 75-year-old woman was admitted to the emergency department (ED) with a history of vague abdominal pain associated with meteorism, nausea and occasional vomiting. Over the 6–7 months prior to admission, the symptoms had been characterized by periods of exacerbation, alternating with spontaneous remission. During this period, the patient had been periodically treated with a symptomatic pharmacological approach, with consequent alleviation of the symptoms. Before hospitalization, no laboratory tests, radiological screening or colonoscopic surveillance had been carried out. When the patient came to our unit, she presented the abdominal symptoms described above with stable vital signs and was afebrile. On physical examination, the abdomen was mildly tender to palpation in the middle and lower quadrants with no signs of peritonitis. No abdominal mass was felt during abdominal palpation. A digital rectal examination gave no clues, while laboratory tests yielded a positive result for occult blood in the faeces. Laboratory tests also revealed a white blood cell count of $18.3 \times 10^3/\mu L$ (normal value: $4.5–10.8 \times 10^3/\mu L$) with a mild increase in the neutrophil cells and an iron deficiency anaemia. A plain abdominal X-ray study demonstrated a large, rounded, radiolucent formation (12 cm × 22 cm) in the middle and lower abdomen, with no signs of obstruction (Fig. 1a, b). The subsequent unenhanced CT scan presented an image of an air-filled structure with thin regular walls and a narrow neck, opening into the sigmoid colon. The inner part of this structure contained a small quantity of fluid. The presence of this formation was confirmed by 2D MPRs in the sagittal and coronal plane (Fig. 2a, b).

The mass was diagnosed as a giant sigmoid diverticulum (GSD). Multiple other diverticula were present in the descending colon. The patient underwent sigmoid resection with primary anastomosis, without further complications.

Prevalence

Giant colonic diverticulum (GCD) is a rare manifestation of colonic diverticular disease. So far, fewer than 150 cases of GCD have been reported, most of them (85 %) associated with coexistent diverticular disease [1]. About 90 % of these have occurred in the sigmoid colon.

Classification

The histological classification of GCD identifies two different entities. Type 1 diverticulum is a pseudodiverticulum, which does not have mucosa and accounts for 87 % of cases [2]. Type 2 diverticulum is a true diverticulum, the wall of which contains serosa, muscularis, submucosa and mucosa. This is a congenital paediatric condition accounting for 13 % of cases [3].

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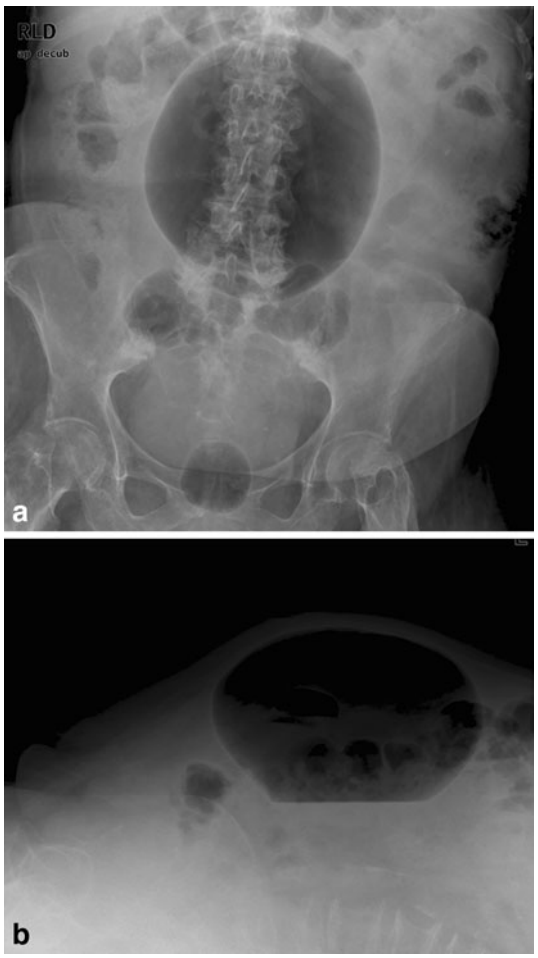

Fig. 1 Plain anteroposterior (**a**) and lateral (**b**) radiographs demonstrate a large, rounded, radiolucent formation (12 cm × 22 cm) in the middle and lower abdomen with no sign of obstruction

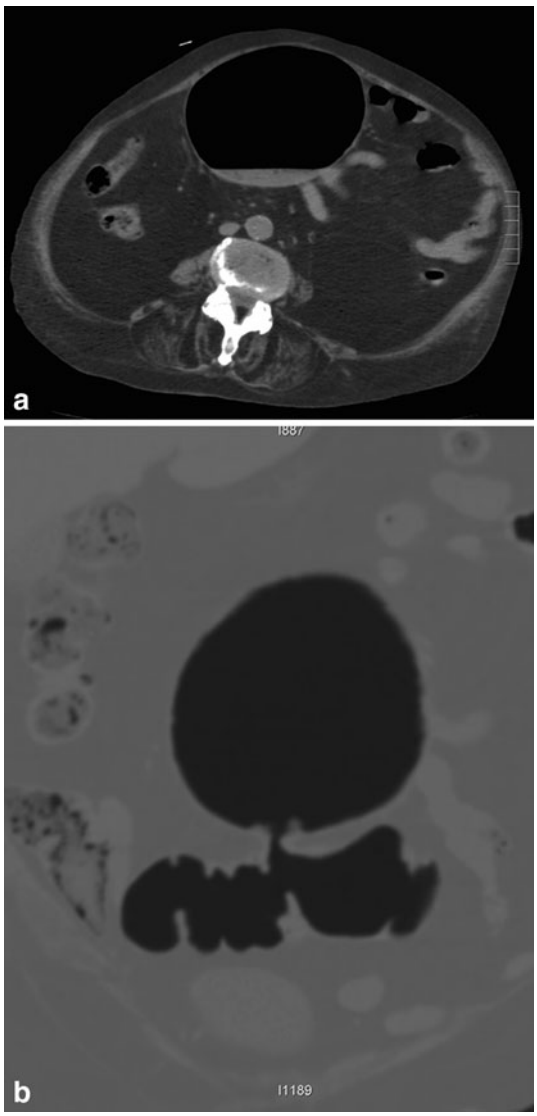

Fig. 2 Subsequent unenhanced axial CT scanning confirms the presence of an air-filled mass with thin regular walls, a small quantity of fluid in the inner part (**a**) and direct communication with the sigmoid colon, as confirmed by coronal 2D MPR (**b**)

Pathogenesis

The pathogenesis of GCD is still unclear. It has been proposed that the neck of the diverticulum becomes occluded, and gas produced by gas-forming bacteria becomes trapped in a ball-valve mechanism [4]. Another theory supposes that the inflammatory diverticulum formation may be secondary to diverticular microperforation of the mucosa and submucosa, and progressive dilatation of the cavity due to worsening colonic inflammation [2].

Symptoms

Patients with GCD often present with vague abdominal pain (68 %), vomiting (12 %), and constipation (18 %). Other symptoms may include abdominal distension, rectal bleeding, diarrhoea, fever and nausea. Reported complications include bowel obstruction, volvulus, perforation, gastrointestinal haemorrhage, abscess formation and sepsis. Furthermore, GCD poses a 2 % risk of malignancy in the affected region [2].

Diagnosis

A diagnosis of GCD often cannot be established on clinical grounds, and the GCD may only be detected using roentgenography. There are sufficient characteristics to enable a pre-operative diagnosis using such tools (plain films, barium enema, CT scans). To meet the criteria for GCD, the diverticulum should have a diameter of at least 4 cm, and arise from the antimesenteric border of the colon [2].

Treatment

Surgical procedures are the mainstay of treatment for GCD. Diverticulectomy is possible in the case of an isolated congenital diverticulum. For other cases, sigmoid resection with primary anastomosis is recommended to reduce the risk of recurrences. In the eventuality of complications such as free perforation, a two-stage colonic resection using a Hartmann's procedure is advised [2]. A percutaneous computed tomography-guided treatment of GSD, with dilatation of the neck, decompression of the inflamed diverticulum and placement of an internal stent across the neck of the diverticulum, has also been described [5]. In any patient presenting with severe abdominal symptoms, in whom it is highly probable that there is a surgically correctable cause of symptoms, it is useful to make a differential diagnosis through an immediate and complete work-up, in order to prevent misdiagnosis or further complications. In the case of discovery of GSD in asymptomatic or low-symptomatic patients who are elderly or otherwise at high risk in terms of response to surgery, the best approach may be monitoring the condition and tailored conservative management with bowel rest, intravenous fluids, antimicrobial therapy and pain management [2].

Conflict of interest None.

References

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