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A perforated jejunal diverticulum

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Abstract

A 65-year-old lady presented with a 5-day history of watery diarrhoea and right-sided abdominal pain. Overnight she developed localised peritonitis in the left iliac fossa. An abdominal computed tomography scan revealed free fluid in the abdominal cavity, free air in the retroperitoneum and a small bowel perforation. An emergency laparotomy was carried out which revealed multiple jejunal diverticula, one of which had perforated. Jejunal diverticula have a prevalence of approximately 1% in the general population. Perforation of a jejunal diverticulum is a rare complication. Clinically, this diagnosis may be easily confused with other causes of an acute abdomen. In an elderly person, especially if known to have jejunal diverticulosis, one must have a high index of suspicion for perforation.

Keywords

Small bowel diverticulosis; jejunal diverticulum; diverticular perforation; acute abdomen.

Case report

A 65-year-old lady presented to our A&E department with a 5-day history of watery diarrhoea with no mucous or blood, anorexia and right-sided abdominal pain. She denied recent travel or eating anything unusual. Her past medical history included an appendicectomy, reversal of a retrograde uterus, angina, Sjögren's syndrome and irritable bowel syndrome causing intermittent abdominal pain over the previous 4 years. The gastroenterologists had investigated her for her bowel symptoms and a barium enema was found to be normal. Interestingly, her mother died of "a ruptured intestine" at the age of 62 and her sister was known to have diverticulosis.

On examination, she was clinically dehydrated, but she was stable and apyrexicial. She was tender in both iliac fossae, the right worse than the left with rebound tenderness. Bowel sounds were present. Blood tests revealed a leucocytosis of 11.3×10^9/l and a C-reactive protein of 389 mg/l. No significant pathology was found on her chest film and the abdominal film showed prominent, but non-dilated small bowel loops. Intravenous fluids were commenced, a stool culture was sent and an ultrasound scan of the abdomen was requested.

She was reviewed a few hours later and the abdomen was found to be soft with tenderness in the left iliac fossa and some voluntary guarding. There was no rigidity and bowel sounds

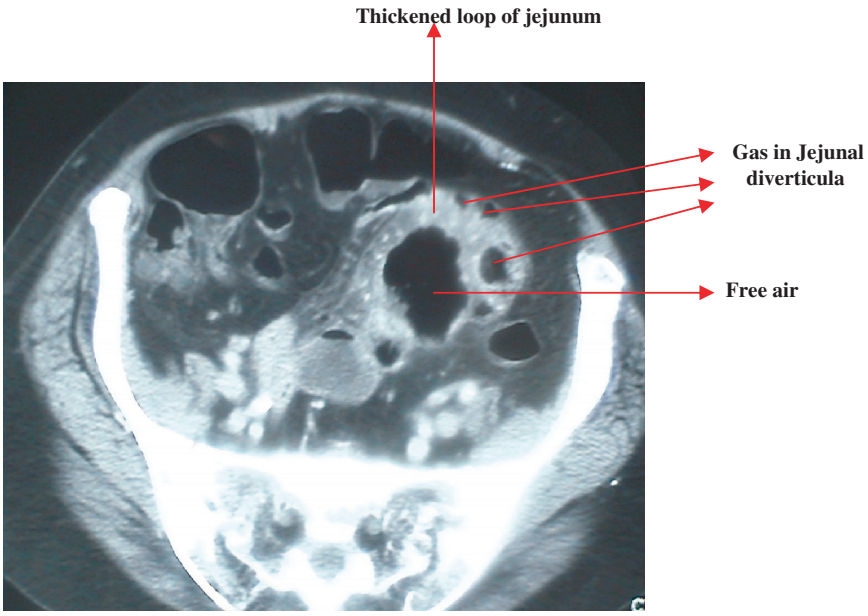

Fig. 1. Pre-operative CT scan abdomen.

were present. The main differential diagnosis was diverticulitis and intravenous broad-spectrum antibiotics were commenced.

The next morning there was some localised peritonism in the left iliac fossa and the impression was still a case of diverticulitis. The computed tomography (CT) scan of the abdomen (Fig. 1) revealed a modest amount of free fluid in the abdominal cavity, with some free air in the retroperitoneum in front of the third and fourth parts of the duodenum. A small bowel perforation was seen within a thickened loop. The sigmoid colon and the rest of the large bowel appeared normal.

She proceeded to emergency laparotomy, which revealed multiple jejunal diverticula, one of which had perforated leading to an abscess involving the mesentery of that section (Fig. 2). The rest of the gastrointestinal tract appeared normal including the large bowel, which did not show any evidence of diverticular disease. A segmental resection of the jejunum was carried out. She made a non-eventful post-operative recovery and was discharged home later that week.

Discussion

This case illustrates the diagnostic dilemma of jejunal diverticular perforation. Jejunal diverticula have a prevalence of approximately 1% in the general population[1]. On autopsy, jejunal diverticula were identified by Edwards in 1.3% of cases[2]. Radiologically, barium studies have picked up diverticula in the jejunum in 0.1–0.4% of the population[3,4]. The incidence has been found to be higher in men (58%) than women (42%)[3].

The most common part of the small bowel to be affected by diverticula was the proximal jejunum (75%), followed by the distal (20%) and then the ileum (5%). Seventy seven percent of cases demonstrated multiple as opposed to solitary diverticula. Acquired diverticula tend to involve the mucosa, submucosa and serosa. In contrast to true congenital Meckelian diverticula, these acquired diverticula originate from the mesenteric border of the bowel where the arteries enter through the bowel wall. They can be anything from a few millimetres in size to up to 10 cm[5].

Tsiotos *et al.*[3] analysed 112 cases of jejunoileal diverticulosis and of these, 42% of cases were asymptomatic. The remaining patients had symptoms of diarrhoea (58%), chronic abdominal pain (51%) or bloating (44%). Our patient had complained of these symptoms for many years and had been diagnosed with irritable bowel syndrome. Interestingly Tsiotos *et al.* also found an association with Raynaud's phenomenon and systemic sclerosis. Our patient suffered from Sjögren's syndrome which is a related disorder. To our knowledge, although an association between jejunal diverticulosis and connective tissue disorders has appeared in the literature, it is not yet known if there is a causal relationship. No immune complex studies have been performed as yet on the histopathology specimens.

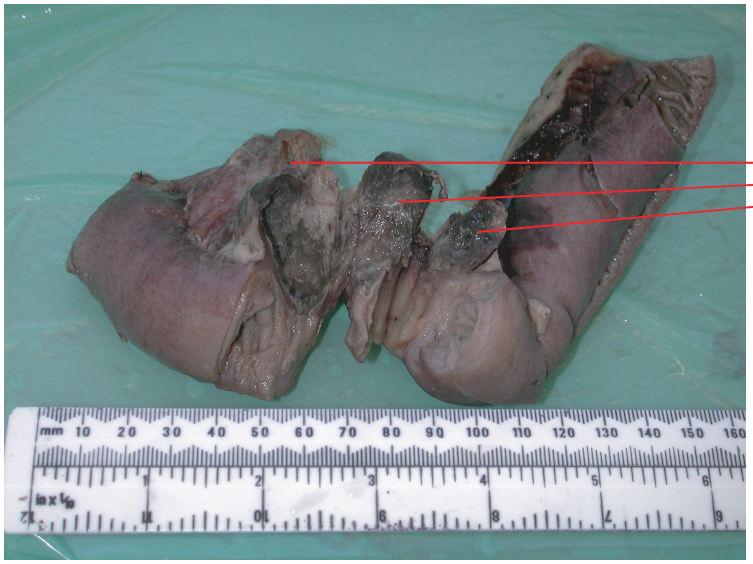

Fig. 2. Resected histological specimen.

Complications of jejunal diverticula occur in 6–10% of cases. These include diverticulitis, haemorrhage, mechanical obstruction and perforation[6]. Perforation of jejunal diverticula is a rare complication. The largest case series to date that has been reported in the literature is of 13 patients between 1971 and 1994[7]. Chendrasekhar *et al.*[8] analysed the published case reports of perforated jejunal diverticula. They demonstrated the rarity of this clinical entity and that the outcome for the patient is independent of age, gender and type of operation performed. The time frame between clinical presentation and diagnosis, however, seems to be the biggest determinant of prognosis.

Our case illustrates the difficulty in diagnosing this benign but potentially fatal condition. Clinically, this diagnosis may easily be confused with other causes of an acute abdomen such as sigmoid diverticulitis, appendicitis, perforated peptic ulcer or ischaemic bowel. As in this case, plain abdominal imaging is frequently the first investigation of choice, however, this alone is rarely useful in the definitive diagnosis[9]. This has also been found to be true of ultrasound imaging. In this case, CT was necessary to make the diagnosis. Free retroperitoneal air on the CT scan was seen to be communicating with air between the layers or the mesentery. One of the jejunal diverticula had perforated along the mesenteric border as was evidenced by the presence of an abscess between the layers of the mesentery. Presumably, free air tracked between the layers of the mesentery and found its way retroperitoneally.

Teaching point

One needs to maintain a high degree of suspicion if the patient is already known to have jejunal diverticulosis. However, it is true that the patient will be treated on the merits of clinical signs and a decision to perform a laparotomy is based on clinical signs, irrespective of the underlying aetiology. As was shown in this case, the patient presented with non-specific abdominal pain and the localisation of the pain changed, affecting both iliac fossae. The literature also illustrates that radiological help must be used early to make the diagnosis[10]. As in this case, CT will yield the definitive diagnosis and must be considered early in the management of these patients.

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