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Small bowel obstruction due to encapsulation and abnormal artery

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Summary: A case of peritoneal encapsulation is reported. Of fourteen reported and two anecdotal cases, this is the third case with small bowel obstruction. Bowel malrotation is associated with the condition and in our case an abnormal artery was the cause of obstruction. We support previous authors' suggestions that, if the condition is found incidentally at laparatomy, it should be treated surgically by excision of the peritoneal sac and division of any tight band.

Introduction

Peritoneal encapsulation is a rare entity. Thirteen cases are reported in the literature. It may be associated with malrotation of the intestine or the presence of an abnormal artery as reported below. It is a rare cause of small bowel obstruction.

Case report

A 40 year old man presented with a day's history of constant lower abdominal pain associated with nausea, anorexia and vomiting. On examination, he was mildly dehydrated, with a normal temperature, pulse, blood pressure and respiratory rate of 30/minute. There was tenderness in the lower abdomen with rebound and rigidity. Bowel sounds were quiet and infrequent. Clinically he had peritonitis of unknown cause.

The haemoglobin was 16.7 g/dl, white cell count was 17.2×10^9/l and the serum electrolytes and urea, random sugar and amylase were within normal limits. Plain abdominal X-ray showed dilated small bowel loops with air fluid levels.

At laparatomy the small bowel was completely enclosed in an accessory peritoneal sac which occupied the middle of the abdomen. It extended up into the epigastrium in front of the colon and stomach and down into the pelvis. The sac contained obstructed small bowel and free fluid. When it was opened the obstruction was found to be caused by the right border of the sac posteriorly. The band which obstructed the small bowel was traced to the superior mesenteric artery near its origin at the root of the mesentery (Figure 1) and passed downwards as a tight band across the front of the ileum a few inches proximal to the ileocaecal valve where the ileum lay just above the sacral promontory. At this point it trapped the ileum against the promontory causing obstruction. The band was divided to release the obstruction.

The band contained a vessel which divided into two branches above the terminal ileum. One passed downwards and backwards deep into the pelvis towards the upper part of the rectum. The other

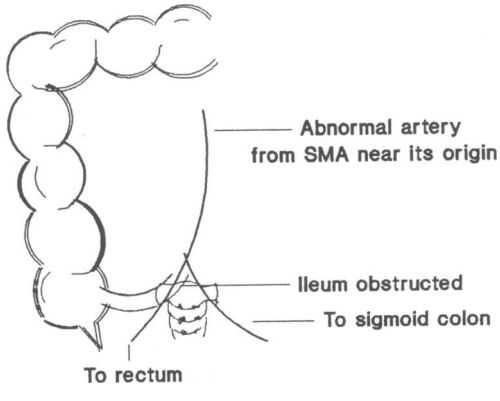

Figure 1 Ileum trapped against sacral promontory. SMA = superior mesenteric artery.

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passed across the front of the ileum to end up in the sigmoid colon.

The accessory peritoneal sac was excised and the peritoneum washed out after a swab was taken for culture. There was no bacterial growth. The patient progressed satisfactorily and was discharged on the sixth postoperative day. He was well at the follow-up clinic. Sigmoidoscopy on that occasion was normal to its full length (to 25 cm).

Discussion

Thirteen cases of peritoneal encapsulation have been described in literature. The first eight cases were reviewed by Sieck *et al.*[1] Five other cases have since been described.[2-6] Walsh and Russel[4] mentioned two other cases the senior author had seen but not reported, making the total number of cases seen including ours 16.

The age range of 11 patients given was 40–82 with a median of 61 years. There were 10 males and one female and in different racial groups. It was symptomless in 13/16 (81%) of patients, being found at autopsy in four and incidentally at laparatomy for other causes in nine patients.[1-4]

Two cases presented with small bowel obstruction[5,6] and our case makes the third symptomatic case. The mechanism of obstruction in the previous cases was the thickened neck of the accessory sac. Division of the obstructing band and excision of the sac cured the patients. Malrotation of the gut has been described with peritoneal encapsulation[4] but ours is the first case of vascular abnormality associated with this condition.

This abnormality is thought to occur when the lining of the extra embryonic coelum enters the abdomen with the intestines instead of remaining at the base of the umbilical cord.[7] With other authors[5,6] we advocate the excision of the sac when found incidentally at laparatomy.

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