

An unusual cause of vomiting

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Clinical presentation

A 45-year-old female with ascites and known alcohol cirrhosis (model for end-stage liver disease [MELD] score of 26 and Child–Pugh score of 12) presented with fever, abdominal pain and vomiting. Relevant past medical history included an episode of spontaneous bacterial peritonitis (SBP) 4 weeks previously with an *E coli* grown from ascites on enrichment. The patient had been discharged previously and prescribed norfloxacin (400 mg once daily). Clinical examination revealed a distended abdomen but no pyrexia (body temperature 36.5°C). Blood tests demonstrated a leucocytosis ($27.4 \times 10^9/l$, normal range 3.4–11), deranged liver synthetic function (albumin 22 g/l, bilirubin 200 $\mu\text{mol/l}$, international normalised ratio [INR] 2.5). A diagnostic ascitic tap demonstrated a white cell count of $150 \times 10^6/l$. Empirical antibiotics were commenced following a septic screen. Due to persistent vomiting and recurrent pyrexia a computed tomography (CT) scan of the abdomen was performed (Fig 1 and 2).

What does the imaging show and what is the unifying diagnosis?

Fig 1 demonstrates dilated thickened small bowel loops consistent with abdominal cocooning. Fig 2 showed loculated ascites with a cirrhotic liver. A repeat ascitic tap demonstrated ongoing peritoneal sepsis (white cell count $4,800 \times 10^6/l$). The unifying diagnosis was small bowel ileus, secondary to ongoing peritoneal sepsis, with evidence of an abdominal cocoon.

Abdominal cocooning or sclerosing encapsulating peritonitis (SEP) can be idiopathic, affecting mainly young females in tropical countries, or can occur as a complication of continuous ambulatory peritoneal dialysis or prior abdominal surgery. It has also been reported in patients with cirrhosis and abdominal tuberculosis (TB).^{1–4}

Inflammation of the peritoneum leads to the formation of a membrane which encases the abdominal viscera, preventing gut motility and causing symptoms of sub-acute bowel obstruction.² Clinical examination reveals a tender abdomen and even a palpable mass.⁵ Imaging modality of choice is an abdominal CT scan, which is able to demonstrate encased small bowel loops and peritoneal

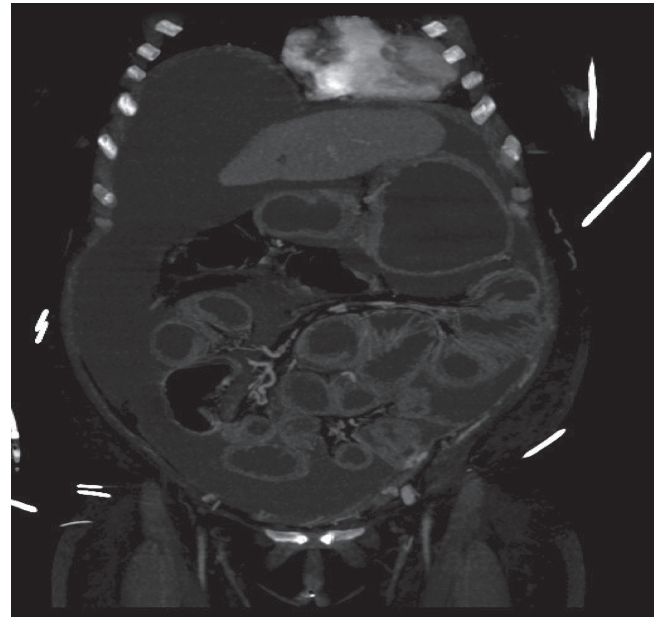


Fig 1. CT scan of the abdomen showing dilated thickened small bowel loops consistent with abdominal cocooning. CT = computed tomography.

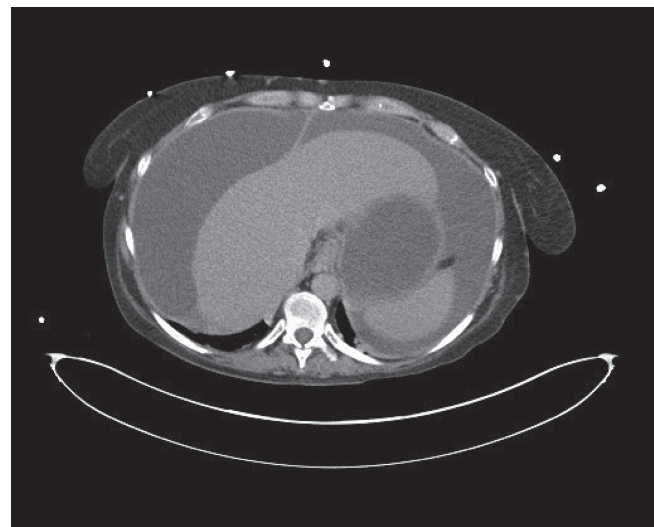


Fig 2. CT scan of the abdomen showing loculated ascites with a cirrhotic liver. CT = computed tomography.

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Key learning points

- 'Cocoon syndrome' is a possible differential in patients with end-stage cirrhosis who present with vomiting and abdominal symptoms.
- Recurrent inflammation of the peritoneum from spontaneous bacterial peritonitis (SBP) leads to encasement of the bowel.
- Computed tomography (CT) is the main imaging modality to reach this diagnosis.
- Antibiotics, parenteral nutrition and bowel rest are the standard immediate treatments.

inflammation. The initial management should include the treatment of peritoneal sepsis, nutritional support and bowel rest. A transjugular intrahepatic portosystemic shunt (TIPSS) procedure can be performed for treatment of the ascites followed by 'cocoonectomy' and wash-out at laparotomy, but this remains high risk.

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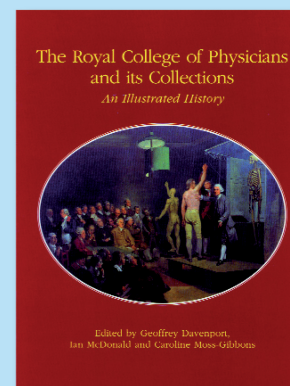
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