

Mesenteric chyle infiltration in small bowel volvulus

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DESCRIPTION

A man in his 80s presented to the emergency department overnight with a 5-hour history of sudden onset severe abdominal pain radiating through to the back associated with nausea. Relevant medical history included a previous right inguinal hernia repair and known sigmoid cancer for which he was awaiting a sigmoid colectomy. He was on no regular medications.

Baseline bloods were unremarkable apart from a mildly raised white cell count of $10.24 \times 10^9/L$. C reactive protein and amylase were both normal. Venous blood gas analysis demonstrated lactate of 4.5 mmol/L.

Emergency CT scanning demonstrated small bowel volvulus with a double twist of the superior mesenteric artery, associated with radiographic evidence of early small bowel ischaemia.

He was taken to the theatre for an emergency laparotomy. On initial inspection of the abdominal contents, it was noticed that the affected section of the small bowel mesentery had a striking white liquid within the mesentery (figure 1). This milky liquid was only present in the twisted section and could easily be 'milked' around the mesentery. There were also small quantities of this same milky liquid pooling freely within the abdomen. Samples of this fluid were taken for cytology, MC+S (Microscopy, Culture and Sensitivity) and lipid analysis (results found in table 1).

The twisted section of the small bowel was viable when untwisted, so no bowel resection was performed. The laparotomy wound was closed with a drain left in the patient's pelvis. The drain was removed 2 days after the procedure and the patient was discharged 9 days later.

The analysis of the fluid, as seen in table 1, is consistent with chyle due to the exceptionally high lipid content. Reviewing the literature, there are many case reports which describe chylous ascites (free chyle within the abdomen) as a result of small bowel volvulus. However, the presence of chyle within the mesentery during small bowel volvulus is a very rare occurrence with only five cases described.¹⁻⁵

During the literature search, there was no specific research focussing on the aetiology of chyle infiltration within the mesentery. However, Bhardwaj *et al* considered the aetiologies of chylous ascites which could be used to propose the aetiology of the mesenteric chyle infiltration. Bhardwaj *et al* proposed that there were two main mechanisms by which chylous ascites occurred.⁶ The first mechanism was that elevated lymphatic pressures (caused by pathologies such as portal hypertension, increased lymphatic production or lymphatic obstruction) can cause serosal and endothelial compromise resulting in

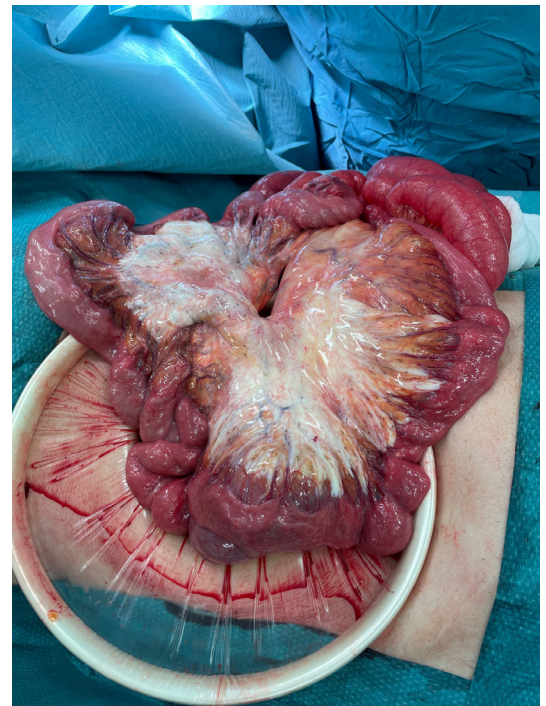


Figure 1 Mesentery with chyle infiltration.

chyle leakage. The second mechanism was a direct breach of the lymphatic wall (such as trauma or fistulae) causing chyle leakage.

During small bowel volvulus, there would be a localised lymphatic obstruction which could cause chyle leakage into the mesentery by compromising the integrity of the serosa and endothelium of the mesenteric lymphatics via increased lymphatic pressure.

This case, supported by photographic evidence, is a further example of how small bowel volvulus can result in chyle infiltration within the mesentery. As in other similar case reports, the patient received

Table 1 Analysis of abdominal free fluid

Investigation on milky free fluid in abdomen	Result
Microscopy, culture and sensitivity	No growth after 48 hours.
Cytology	Abundant red blood cells together with very occasional mesothelial cells and very scanty inflammatory cells including macrophages. No evidence of pyogenic infection or of malignancy.
Lipid analysis	The sample is heavily lipaemic—to such an extent that it is unable to be analysed for cholesterol or triglycerides.



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'normal' management for small bowel volvulus (laparotomy and detwisting of the affected bowel). This case further highlights that while mesenteric chyle infiltration in small bowel volvulus can be a striking operative finding, it does not require any extra specific management other than the management of the volvulus. The patient's recovery was as expected for a patient with small bowel volvulus with no obvious complication which resulted from the mesenteric chyle infiltration.

Learning points

- ▶ The presence of white milky fluid within the mesentery during small bowel volvulus can represent chyle leakage which could be due to mesenteric congestion.
- ▶ Case reports seem to show that these cases should be managed no differently than other cases of small bowel volvulus.

Contributors NC was the lead in the case report and conducted the patient consent, wrote the case report, conducted background reading and submitted the report. EK reviewed the first draft and provided improvements upon the initial draft. PO initially came up with the idea for the case report and also reviewed the final draft of the report.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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