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Case Report

Management of idiopathic chylous peritonitis during laparoscopy: a case report and review of literature

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ABSTRACT

Chylous ascites is rare. Etiology can be traumatic, atraumatic or idiopathic. We present a case of idiopathic peritonitis managed by laparoscopic drainage and a medium-chain triglyceride diet. We present a case of a 60-year-old white female who presented to the emergency department with diffused abdominal pain, migrated from the back, and clinical signs of peritonitis. Blood works showed high leukocytosis, and computed tomography showed a large amount of intraperitoneal and retroperitoneal fluid. During an emergency laparoscopy, a chylous ascites was seen and drained, but a causing factor was not identified intraoperatively. Postoperatively, medium-chain triglyceride diet was initiated for a period of 6 weeks, cytological, microbiological and chemical analysis showed elevated levels of triglycerides in absence of other disease. Multiple diagnostic tests revealed no malignancy nor another underlying pathological processes. patient recovered well with no complications. When confronted with chylous ascites, surgeons should drain the abdomen and do thorough evaluation. When no cause is found intraoperatively, surgeons should not take aggressive measures but instead initiate a medium-chain triglyceride diet and search for underlying causes by means of further laboratory testing and positron emission tomography combined with computed tomography (PET-CT). When no etiology is found, medium-chain triglyceride diet can be stopped with no reports of recurrence.

Keywords: Chylous peritonitis, Laparoscopy, Medium chain triglycerides

INTRODUCTION

Chylous ascites and peritonitis, caused by leakage of lymphatic fluid into the abdomen, is uncommon. Causes can be divided into traumatic (e.g., surgery, blunt abdominal trauma, radiotherapy), atraumatic (e.g., infection, malignancy, obstruction, inflammatory disease) and idiopathic.[1] Prognosis is variable and depends on the underlying disease, but mortality is high when it is caused by malignancy.[2]

In this article, we describe the clinical presentation, management, and further investigations performed in a patient presenting with idiopathic chylous peritonitis.

CASE REPORT

A 60-year-old female presented to emergency department after referral by her general practitioner. She was suffering from back pain that had migrated to abdomen during day. There were no signs of bowel obstruction. The pain was diffused with a VAS score 8/10. Patient had history of relapsing remitting multiple sclerosis (RRMS) treated with teriflunomide, abdominal hysterectomy, she was smoker with approximately 30 pack years.

Upon examination, her temperature was 37.2ºC, with no hemodynamically relevant disease. The abdomen showed a scar from Pfannenstiel incision and was diffusely painful on palpation with signs of peritonitis

predominantly in the left and right upper quadrant. Blood analysis showed: leukocytosis, 17.7×10^9/µL with neutrophils, 15.3×10^9/µL; CRP, 2 mg/l; Hb, 10.5 mmol/l; lipase, 80 U/L. Computed tomography showed a large amount of intraperitoneal and retroperitoneal fluid (Figure 1 A.) and small bowel thickening, which is non-specific (Figure 1 B). Some lymphadenopathy was seen in both para-iliac regions. The decision was made for an emergency laparoscopy.

During abdominal inspection, peritoneal cavity was filled with a milky fluid, suggestive for chylous ascites (Figure 2 A). The mesentery of the small bowel also showed a mild chylous-like infiltration, as well as the omental bursa (Figure 2 B), suggesting retroperitoneal presence of chylous ascites. Thorough evaluation showed no other intra-abdominal pathological processes. Retroperitoneal space was not opened. Abdomen drained, and samples were sent for microbiological, cytological, and chemical evaluation. She was discharged the next day on a medium chain triglycerides (MCT) diet for 6 weeks. Definitive chemical evaluation showed high triglycerides (68 mmol/l) with normal cholesterol (4.6 mmol/l) suggestive for chyle. Cytological and microbiological evaluation, including mycobacterial screening, was normal.

A PET-CT was performed four weeks postoperatively. This showed some PET-negative lymphadenopathy in both para-iliac regions as well as increased 18-FDG uptake in the ascending colon. Additional colonoscopy showed two benign polypoid lesions in this region. We referred the patient to the internal medicine department to rule out lymphoma. Routine lab testing and a new CT scan showed no signs of malignancy. The MCT diet was halted after 6 weeks, and the patient recovered well.

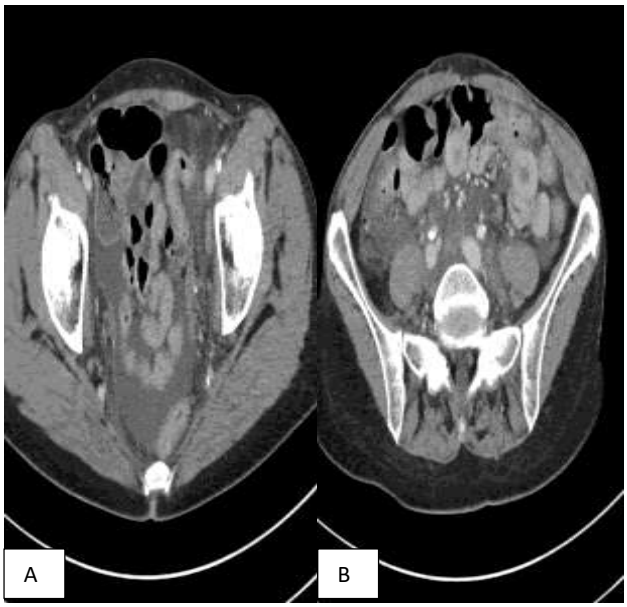

Figure 1 (A and B): Computed tomography showed a large amount of intraperitoneal and retroperitoneal fluid and small bowel thickening, which is non-specific.

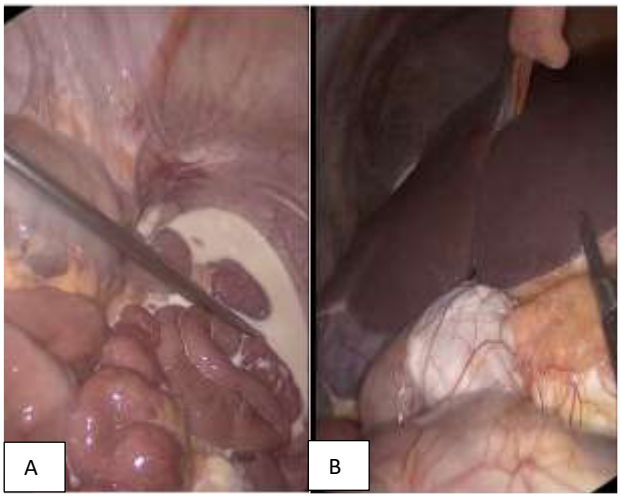

Figure 2 (A and B): The abdomen was filled with a milky fluid as well as the omental bursa, suggesting retroperitoneal presence of chyle.

DISCUSSION

Chylous ascites was defined by Cardenas et al. as the extravasation of milky or creamy appearing peritoneal fluid rich in triglycerides, caused by the presence of thoracic or intestinal lymph in the abdominal cavity.[3]

Causes are classified as atraumatic, traumatic and idiopathic.[1] In their systematic review of 131 articles concerning 190 patients, Steinemann et al found that the most common causes for chylous ascites in adults were malignancy (25%) with lymphoma being the most common type, followed by liver cirrhosis (11%) and mycobacterial infections (10%). In children, up to 84% of cases are caused by congenital lymphangiectasia, which is rare in adult presentation.[4] It is important to differentiate chylous ascites from peritonitis. The first can have non-specific symptoms developing over weeks/months.[4,5] While the latter has an acute onset of pain, caused by stretching of retroperitoneum and mesenteric serosa as chyle is non-irritating.[6]

There are very few reports that describe a coincidental finding of chylous effusion during surgery for acute abdomen. This implicates that there is no diagnostic pathway that can be used when confronted with this pathology. We decided to do a thorough clinical examination, laboratory testing and total body nuclear imaging to identify any underlying disease as well as internal medicine referral, based on the causes described by Al-Busafi et al.[1] When no underlying disease is identified, chylous peritonitis is considered idiopathic. There is no literature regarding the possibility of recurrence in the future.

When confronted with idiopathic chylous ascites during laparoscopy for peritonitis, we recommend surgeons to adequately drain the abdomen, send samples for microbiological, cytological and chemical evaluation and

search for any organ disease. We do not recommend opening the retroperitoneum or taking other invasive measures, as spontaneous closure of the leakage is to be suspected.[7,8] Further outpatient management should include a MCT diet, laboratory testing and imaging to search for underlying causes. We prefer the use of a PET-CT scan because of its high sensitivity for malignant and inflammatory disease.

CONCLUSION

Chylous peritonitis is rare and can have many causes. Clinicians should rule out trauma, malignancy, liver cirrhosis and infection. PET-CT can be a useful tool in diagnosis of an underlying cause. When no underlying etiology is found, MCT diet can be discontinued after a period of 6 weeks as no cases of recurrence have been reported. We do not recommend aggressive surgery during exploration, instead surgeons should drain the abdomen and do further diagnostic testing.

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