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Abdominal cocoon—A rare cause of intestinal obstruction☆

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ABSTRACT

INTRODUCTION: Abdominal cocoon syndrome is characterized by small bowel encapsulation by a fibro-collagenous membrane or "cocoon". It is a rare cause of intestinal obstruction.
PRESENTATION OF CASE: A 42-year old man presented with sub-acute intestinal obstruction. Intra-operatively, the entire small bowel was found to be encapsulated in a dense fibrous sac. The peritoneal sac was excised, followed by lysis of the inter-loop adhesions. Postoperative recovery was unremarkable.
DISCUSSION: Most patients with abdominal cocoon syndrome present with features of recurrent acute or chronic small bowel obstruction secondary to kinking and/or compression of the intestines within the constricting cocoon. An abdominal mass may also be present due to an encapsulated cluster of dilated small bowel loops.
CONCLUSION: Abdominal cocoon is a rare condition causing intestinal obstruction and diagnosis requires a high index of suspicion because of the nonspecific clinical picture. CECT of the abdomen is a useful radiological tool to aid in preoperative diagnosis. Peritoneal sac excision and adhesiolysis is the treatment and the outcome is usually satisfactory.

1. Introduction

Abdominal cocoon syndrome is a rare condition that refers to total or partial encapsulation of the small bowel by a fibro-collagenous membrane with local inflammatory infiltrate leading to acute or chronic bowel obstruction.[1,2] The condition has been described by various synonyms including 'peritonitis chronica fibrosaincapsulata' by[3] and sclerosing encapsulating peritonitis.[2] We report a case of a 42-year old male who presented with features of sub-acute intestinal obstruction due to an abdominal cocoon who was treated successfully by surgery.

1.1. Case report

A 42-year old male presented with a one week history of colicky abdominal pain, vomiting and abdominal distension. He had multiple similar episodes over the previous 6 months which were treated conservatively. A provisional diagnosis of adhesive intestinal obstruction was made on previous occasions given a past history of open appendectomy.

On this occasion, examination revealed abdominal distension with central abdominal tenderness and hyperperistaltic bowel sounds on auscultation. His vital signs were normal and there was no clinical evidence of peritonitis. Other systemic examination was unremarkable.

Plain abdominal X-ray revealed multiple air fluid levels with dilated small bowel loops, suggestive of intestinal obstrcution. Contrast enhanced computed tomography (CECT) of the abdomen showed clustered, dilated small bowel loops within an enhancing sac like structure with associated inter-loop fluid suggestive of scleroscing encapsulating peritonitis (abdominal cocoon) (Figs. 1a and 1b).

Laparotomy and exploration revealed the entire small bowel encapsulated in a thick fibrous membrane (Fig. 2a). The membranous sac was excised along with adhesiolysis (Fig. 2b). His post-operative recovery was satisfactory.

2. Discussion

Scleroscing encapsulating peritonitis has been classified as primary and secondary based on whether it is idiopathic or has a definite cause.[2] The aetiology of the primary form is uncertain with various hypotheses, although it is probably caused by a subclinical peritonitis leading to the formation of a cocoon.[1,4,5] Foo et al. detected the condition in 10 young girls with symptoms of bowel obstruction two years after menarche and postulated that a chemical peritonitis was caused by retrograde menstruation, leading to the formation of a cocoon.[4] Secondary causes include the placement of Le Veenshunts for refractory ascites,[5] continuous

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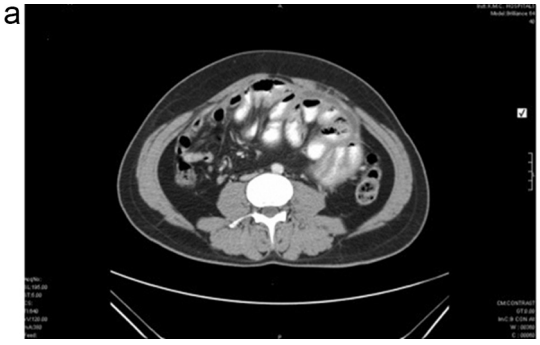

Fig. 1a. CECT abdomen (Axial section) showing enhancing sac with small bowel as content.

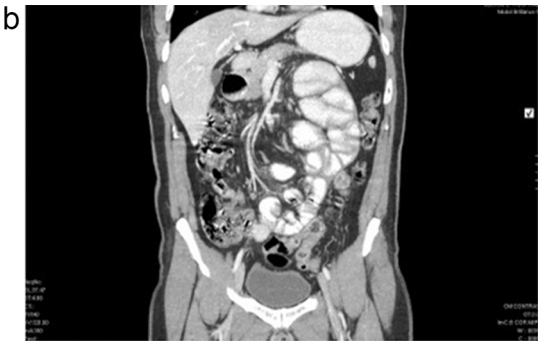

Fig. 1b. CECT abdomen (Sagittal section) showing small bowel encapsulation.

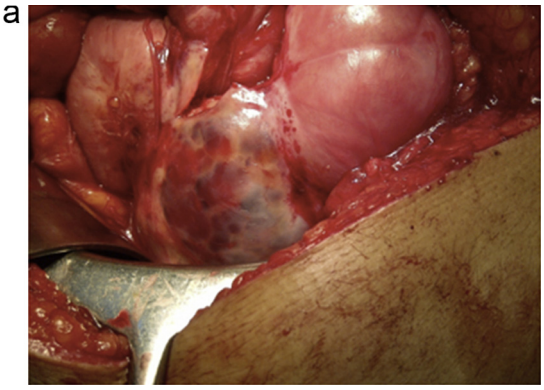

Fig. 2a. Intraoperative image showing the sac containing small bowel.

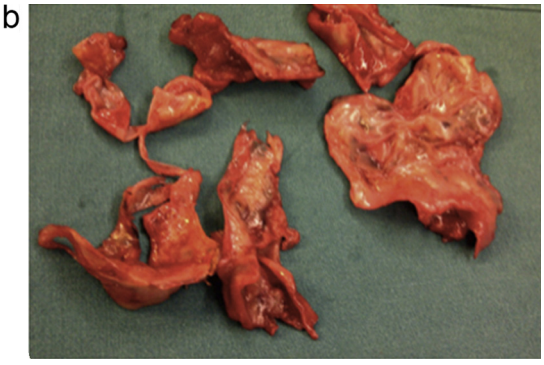

Fig. 2b. Excised sac.

ambulatory peritoneal dialysis,[6] systemic lupus erythematosis, and the use of povidone iodine for abdominal wash-out,[7] as well as the α adrenergic blocker practolol.[8] Practolol has been withdrawn from use because it was noted to cause the formation of a peritoneal membrane.

Clinically, most patients with abdominal cocoon syndrome present with features of recurrent acute or chronic small bowel obstruction secondary to kinking and/or compression of the intestines within the constricting cocoon.[1,4,5] An abdominal mass may also be present due to an encapsulated cluster of dilated small bowel loops.

Abdominal X-ray findings are non-specific. CECT is a useful tool for preoperative diagnosis of abdominal cocoon. The imaging features are, however, not pathognomic. CT findings of a membrane enveloping loops of small bowel were seen in some paraduodenal hernias, abdominal cocoon, and in peritoneal encapsulation.[5] However, the clinical and pathological features of these entities are different.

The final diagnosis of abdominal cocoon is usually based on intra-operative and histopathology findings, with a significant number presenting for emergency treatment without any imaging being performed. In all the reported patients, portions of the small bowel were encased within a fibrous cocoon.

Differential diagnosis includes peritoneal encapsulation, which was described as a developmental anomaly where the whole of the small bowel is encased in a thin accessory membrane. The clinical symptoms of this condition differ from those of the abdominal cocoon syndrome, in that the patients are mostly asymptomatic and the findings are incidental and late in life.

Treatment, as in the present case, consists of excision of the accessory peritoneal sac with lysis of the inter-loop adhesions. Bowel resection is unnecessary unless a nonviable segment is found.

Conflict of interest statement

None.

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Ethical approval

Taken.

Author contributions

Dr. Digvijay Sarma and Dr. Rajesh Nair contributed in Study design, data and writing. Dr. Tushar Dani involved Data collection. Dr. Prashanth Shetty contributed in Final editing and revisions.

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