
Abdominal Cocoon: A Rare Cause of Intestinal Obstruction

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Abstract

Background: Abdominal cocoon is characterized by small bowel encapsulation and is a rare cause of intestinal obstruction.

Case report: We describe a young man who presented with acute intestinal obstruction. At surgery, the entire small bowel was found to be encapsulated inside a dense fibrous sac. The peritoneal sac was excised, followed by lysis of the interloop adhesions. Outcome was satisfactory.

Conclusions: The clinical diagnosis of abdominal cocoon requires a high index of suspicion because of the nonspecific clinical picture and noncontributory imaging findings. Surgical treatment consisting of peritoneal sac excision and adhesiolysis is generally successful.

MeSH Words: Abdominal cocoon, intestinal obstruction

Introduction

Sclerosing peritoneal encapsulation is a rare developmental malformation characterized by the encasement of all or part of the small bowel by a thick, accessory peritoneal sheath [1]. It was first described by Owtschinnikow in 1907 as “*peritonitis chronica fibrosa incapsulata*” [2] and termed “abdominal cocoon” by Foo in 1978 [2,3]. The condition is acquired and the cause is usually unknown. Abdominal cocoon generally presents as recurrent acute or subacute intestinal obstruction with or without a mass [3]. Our Medline search yielded 48 published cases in the contemporary medical literature. The accessory membrane is easily removed surgically, and complete recovery is the rule [4].

The aim of this report was to describe a young man with abdominal cocoon and to alert physicians to the diagnosis and management of this condition.

Case Report

A 38-year-old white man presented with colicky abdominal pain, nausea, vomiting, and abdominal distention. He reported having had several such episodes over the previous 6-7 months. The community physician had diagnosed acute gastroenteritis but prescribed no specific treatment. On admission, blood pressure was 110/65 mmHg, pulse rate 108/min, body temperature 38.2°C. The patient was dehydrated. Systemic examination revealed no abnormalities.

Examination of the abdomen revealed distension, diffuse pain, and hyperactive bowel sounds. There was no free fluid in the abdomen. The patient had not had a bowel movement for 2 days. Blood analysis showed a hemoglobin level of 13.2 g/dl, hematocrit 46%, and white blood cell count 16,300/mm³.

Plain abdominal x-ray film showed multiple air-fluid levels, with no free gas under the dome of the diaphragm. On abdominal computerized tomography (CT) scan, severe peritoneal thickening could be seen with small bowel encapsulation (Fig. 1).

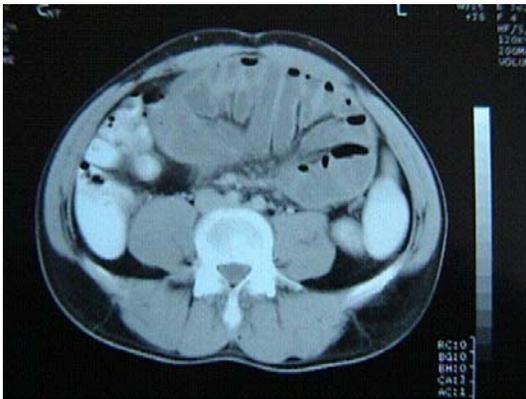


Figure 1: CT view of encapsulated small bowel

The provisional diagnosis was acute intestinal obstruction with a possibility of strangulated bowel. Exploratory laparotomy, performed through a midline incision, revealed that the entire small bowel was encapsulated by a dense fibrous sac (Fig. 2). The peritoneal sac was excised and adhesiolysis was performed to release the intestinal loops. The intestinal content was drawn off into the colon (Fig. 3).



Figure 2: Preadhesiolysis view of the abdomen

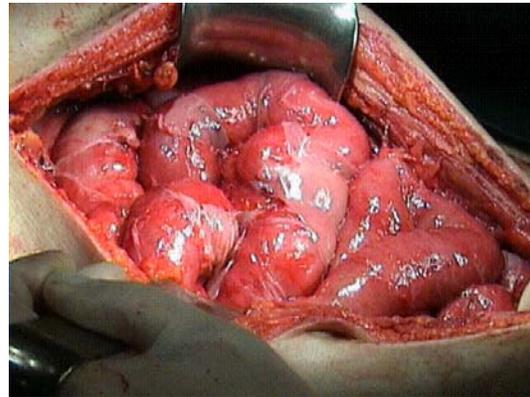


Figure 3: Panoramic view of the abdomen after decapsulation and adhesiolysis

The postoperative course was uneventful.

Discussion

Abdominal cocoon may be classified into primary or idiopathic and secondary forms [5]. Primary abdominal cocoon occurs mainly in young women from tropical and subtropical zones. Although retrograde menstruation with or without viral infection of the fallopian tubes has been suggested as a possible etiology [5,6], it does not account for the occasional occurrence of abdominal cocoon in males [2]. Secondary abdominal cocoon is apparently associated with predisposing factors, such as recurrent peritonitis, intake of intraperitoneal irritants, including antibiotics and beta blockers, chronic ambulatory peritoneal dialysis (CAPD), sarcoidosis, familial Mediterranean fever, carcinoid syndrome, exposure to asbestos, and autoimmune disease [5, 7]. The prevalence of abdominal cocoon in patients undergoing CAPD ranges from 0.5% to 2.8%. In the only large prospective study conducted to date, abdominal cocoon was diagnosed in 2.5% of 1958 Japanese patients treated with CAPD over a 4-year period. Surprisingly, one-half to two-thirds of the patients acquired the disorder within an average of 4 months after termination of CAPD therapy; in some cases, the delay was as long as 4 years [8,9].

The clinical presentation of abdominal cocoon includes acute, subacute, or chronic intestinal obstruction, abdominal distension, nausea, and vomiting [2, 7]. Patients usually complain of recurrent attacks of intestinal obstruction [4]. Some patients are asymptomatic. An accurate diagnosis is difficult to make preoperatively [3]

because findings on biochemical investigations are usually normal, and imaging findings are nonspecific [5], although plain abdominal X-ray film may show air- fluid levels [6]. In the rare reports of the CT appearance of abdominal cocoon, adherent small bowel loops encased within a thick enhancing peritoneal membrane were visualized [2,5]. In the cases of abdominal cocoon described in the literature to date, the diagnosis was made either during surgery for unrelated reasons (in asymptomatic patients) or at exploratory laparotomy (in patients who presented with bowel obstruction). The typical finding at surgery is a conglomeration of small bowel loops encased in a dense white membrane [1,5]. Treatment, as in the present case, consists of excision of the accessory peritoneal sac with lysis of the interloop adhesions. Bowel resection is unnecessary [1, 3] unless a nonviable segment is found [4,5].

Conclusion

Abdominal cocoon is a rare cause of small bowel ileus, especially when accompanied by nonstrangulating obstruction. The nonspecific clinical picture and benign imaging findings make diagnosis difficult. A high index of suspicion is needed in the absence of other possible causes of the symptoms of abdominal obstruction. Treatment consists of excision of the accessory peritoneal sac and lysis of the interloop adhesions. Outcome is generally good.

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