ABDOMINAL COCOON: A RARE CASE IN AN ELDERLY MALE

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SUMMARY
“Abdominal cocoon” is a rare cause of intestinal obstruction. The most common symptoms are intestinal obstruction, recurrent abdominal pain, and an abdominal mass. Most cases are diagnosed almost incidentally during laparotomy for other conditions. The etiology of abdominal cocoon remains largely unknown. Surgical treatment is the cornerstone treatment, and the prognosis after surgery is excellent. [International Journal of Gerontology 2009; 3(2): 126–128]

Key Words: abdominal pain, intestinal obstruction, laparotomy

Introduction
“Abdominal cocoon” is a rare cause of intestinal obstruction and primarily affects adolescent girls living in tropical and subtropical regions. The term “abdominal cocoon” was first used by Foo et al.1 in 1978. Since that time, isolated cases of abdominal cocoon have been reported in older patients and in men and women. The etiology of abdominal cocoon is still relatively unknown, although researchers have proposed various explanations for it, ranging from low-grade peritonitis to retrograde menstruation.

Cases of abdominal cocoon reported in the English literature have shared several characteristics. One is that the small bowel becomes encased in a thick and fibrotic membrane, which can easily be removed. The second is that surgery is the treatment of choice. Resection of the intestine may not be necessary, and this procedure can lead to high morbidity and mortality. Preoperative understanding of this condition can prevent unnecessary resection. In this article, we report the case of an elderly male patient who was admitted to our emergency department with abdominal pain and signs of acute intestinal obstruction.

Case Report
An 80-year-old man was admitted to our emergency department with a 2-day history of nausea, vomiting and abdominal pain. He had a history of constipation for several years. Abdominal pain with similar symptoms occurred about 2 years previously, and he was admitted for conservative treatment in China. Otherwise, there was no history of peritonitis, abdominal surgery, tuberculosis, hepatic disease, hemodialysis or use of β-adrenergic drugs. The family history was also unremarkable.

During the physical examination, the patient was afebrile and hemodynamically stable, but he was found to have abdominal fullness. His blood pressure was 116/88 mmHg, pulse rate 95/minute, body temperature 36.2°C and respiratory rate 18/minute. Neither pale conjunctiva nor icteric sclera was noted. The abdomen was soft, distended and tender over the epigastrian region. The bowel sounds had increased pitch and frequency. A huge mass was palpated over the upper abdomen. The man had no external hernias, and no ascites or organomegaly.
All laboratory blood analyses, including C-reactive protein level, were within normal limits. Plain abdominal X-ray films showed small bowel dilatation with air content but no free air beneath the diaphragm (Figures 1 and 2). Ultrasonography of the abdomen revealed a mass over the periumbilical region. Contrast-enhanced computed tomography (CECT) of the abdomen performed on the same day demonstrated clusters of dilated small bowel, with air–fluid levels over the proximal small intestine; this resulted from intestinal obstruction (Figure 3). The entire small intestine and a portion of the stomach, along with organomegaly encapsulated within a thin wall, were noted at the same time. There was neither ischemic change nor a luminal obstructed lesion.

The patient had persistent nausea, vomiting, and abdominal pain with rebound pain. Hence, laparotomy was finally performed. Exploration revealed encapsulation of the entire small bowel, a partial transverse colon, and a fibrous membrane covering the stomach. The membrane was separated easily, and the encapsulated intestines were freed without adhesion. Histopathologic studies of specimens of the membrane showed fibrosis with focal calcification. After an 8-day

**Figure 1.** Chest X-ray demonstrates no subphrenic free air.

**Figure 2.** Plain abdominal film reveals small bowel dilatation with air content.

**Figure 3.** (A, B) Contrast-enhanced abdominal computed tomography shows clusters of dilated small bowel with air–fluid levels over the proximal small intestine within a capsule-like membrane.
hospital stay, the patient was discharged. Eleven months after surgery, he was in good health.

Discussion

Abdominal cocoon is a rare cause of intestinal obstruction characterized by total or partial encasement of the small bowel by a fibrocollagenous cocoon-like sac. The first reported cases primarily involved young females living in tropical and subtropical regions. However, sporadic cases were subsequently reported in both genders and among all age groups, and also among individuals from various temperate zones, including Korea. Our patient, who was 80 years old, is the oldest person reported in the literature thus far.

In all, approximately 50 cases of abdominal cocoon have been reported in the English literature since 1978. Based on the report of Devay et al., the male to female ratio is approximately 1 to 4. Most patients present with acute or chronic intestinal obstruction, and/or recurrent episodes of abdominal pain with an abdominal mass.

Preoperative diagnosis of abdominal cocoon is difficult. Although results on plain abdominal films may suggest intestinal obstruction, in almost all cases, it is diagnosed incidentally during laparotomy. CECT, barium meal and ultrasonography may be helpful in preoperative diagnosis. On the CECT study, a “cauliflower sign” or delayed transit might be demonstrated. Findings after barium films may include a characteristic serpentine configuration of the distal dilated small bowel within the cocoon.

The etiology is still unknown. The original causes proposed by Foo et al. were retrograde menstruation and retrograde peritonitis via the fallopian tube. However, those possibilities could not explain the distribution of cases among different ages, genders, and geographic areas.

A completely different condition, peritoneal encapsulation, may be easily confused with abdominal cocoon. In cases of peritoneal encapsulation, the small or large bowel is seen behind an accessory peritoneal membrane, but the bowel is normal. This condition is usually asymptomatic and found in elderly males incidentally on abdominal films.

Surgical treatment is the cornerstone treatment for abdominal cocoon. In some cases, as in our patient, the membrane may extend to the surrounding organs, such as the large bowel, the stomach and the liver. However, simple removal of the membrane and lysis of the adhesion produce an excellent outcome. Bowel resection is indicated only when there are nonviable segments, and this procedure increases the risk of death. The prognosis after surgery is excellent, and recurrence has not been reported.

References