

Abdominal cocoon: A case report

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Summary

An abdominal cocoon is an uncommon condition in which there is a total or partial encapsulation of the small bowel by fibrous membrane. A pre-operative diagnosis is seldom made. Awareness of this rare surgical entity may prevent delay in treatment and avoid unnecessary procedures. We report on a patient in whom diagnosis of an abdominal cocoon was made intraoperatively and review the relevant literature.

Case Report

An eighteen year old female was seen in a private facility with a history of abdominal discomfort exacerbated by meals for the preceding four months. There was no associated nausea or vomiting. In addition, she complained of abdominal distension that was noticed two months before the discomfort began. She had no history of diarrhoea or constipation and no abnormality was reported in micturition. There was no previous medical or surgical history of significance. The patient had started menstruating two years before presentation and her menstrual periods were reportedly normal. There was no relevant family history. The general examination was normal apart from a respiratory rate of 20 breaths per minute. Abdominal examination showed central abdominal distension that moved with respiration. The central 'mass' was firm but cystic on palpation. It was mobile in all directions, tympanitic on percussion with normal bowel sounds present. Vaginal examination was normal for age.

An abdominal ultrasound showed multiple masses occupying the pelvis and pouch of Douglas, of mixed echo pattern with no active vascularisation. The uterus was reported to be normal and was attached to the masses at the fundus. Both kidneys were reported to be hydronephrotic, and the spleen enlarged. The other organs were normal. The ultrasound diagnosis was that of an ovarian mass. The patient was admitted and taken to theatre for exploratory laparotomy and possible resection of an ovarian mass.

At laparotomy, there was no small intestine immediately visible but a large membranous-covered mass in the infracolic region. The uterus and ovaries were normal. The liver, spleen and transverse colon were visible and macroscopically normal and there was no fluid in the peritoneal cavity. The membrane was then opened with sharp dissection (Figure 1 and 2) and adhesiolysis performed between membrane and small bowel and between small bowel loops (Figure 2).

Figure 1: Intra-operative picture showing the membrane



The patient recovered uneventfully post-operatively and was discharged on day five. She has subsequently been reviewed at the outpatient clinic and remains symptom free.

Figure 2: Intra-operative picture showing membrane being peeled off



Discussion

Abdominal cocoon is a rare condition that refers to total or partial encapsulation of the small intestine by a fibro-collagenous membrane or cocoon with a local inflammatory infiltrate. The condition was first described by Owtschinnikow in 1907 (1). The name abdominal cocoon was given to the condition by Foo *et al* in 1978 (2).

It has been classified as primary or secondary (2). There is also a sub-classification depending on whether there is partial (Type 1) or complete involvement of small intestine (Type 2), or if it includes the large intestines (Type 3) (3). The aetiology of the primary form is uncertain. Some authors postulate that it is a congenital malformation which involves abnormal return of the midgut loop to the abdominal cavity in the early stages of fetal development (3). Foo *et al* detected the condition in 10 young girls with symptoms of bowel obstruction two years after menarche and felt that a chemical peritonitis

was caused by retrograde menstruation that subsequently led to the formation of a cocoon (2). Our case would be that of type 2 primary abdominal cocoon.

While in the tropics and subtropics the condition has been reported mainly in young girls (4,5) with one report from East Africa and the other from West Africa, the analysis of 203 cases in a Chinese hospital series found that the male to female ratio was 1.2:1. Mean age at diagnosis was 33 years and the main clinical manifestations included sub acute intestinal obstruction (72.4%) and abdominal mass (26.1%) (6). Our patient presented with abdominal discomfort and distension. If a pseudo-mass is present it is usually due to an encapsulated cluster of dilated small bowel loops (6).

Pre-operative diagnosis can be difficult with most cases being diagnosed intra-operatively (7) as in this case report. Due to the rarity of this condition, the most likely explanation is that it is not considered in the differential diagnosis. The accuracy of ultrasound diagnosis is limited by the fact that it is operator dependent as in our case. Where available, contrast-enhanced CT scanning (CECT) may make the diagnosis pre-operatively in suspected cases (7,8). Treatment is mainly surgical (9) although medical therapy with tamoxifen for secondary cases has been described (10).

Where there are no possibilities of CECT, being aware of rare conditions such as abdominal cocoon when available investigative tools like ultrasonography are vague is important in preoperative diagnosis.

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