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Abdominal Cocoon Syndrome, A Rare Case Report

Ali Abo Gasleh[1], Ibrahim Aldmour[1], Mohammad Abu-Jeyyab[2*]

[1]*General Surgery Department, Al-Basheer Hospital, Amman, Jordan*
[2]*School of Medicine, Mutah University, Al-Karak, Jordan.*

***Corresponding Author**: Mohammad Abu-Jeyyab, School of Medicine, Mutah University, AlKarak, Jordan.

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Abstract

A rare cause of intestinal obstruction is an abdominal cocoon. Preoperatively, most cases are difficultto diagnose. In most cases, surgical removal of the membrane resulted in complete recovery. The exact cause of abdominal cocoon is unknown. We described a male patient who presented with signs of intestinal obstruction and was diagnosed as having an abdominal cocoon intraoperatively.

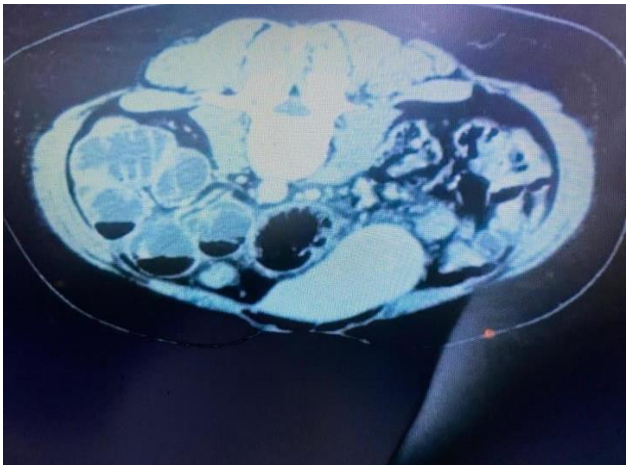
Keywords: *Abdomen, Cocoon, Small Bowel, Acute Abdomen.*

Introduction

The term "abdominal cocoon" refers to an uncommon illness with an unknown cause that mostly affects teenage females living in tropical and subtropical climates. Foo et al [1]. Identified and named the abdominal cocoon for the first time in 1978. Since that 1978 account, which claimed that the abdominal cocoon was produced by a low-grade peritonitis induced by retrograde menstruation, the genesis of this entity has remained a mystery. Later, rare case reports involving elderly patients of all genders were reviewed in the literature [2-5]. The small bowel gets wrapped in a thick membrane in each of these situations. The accessory membrane in front of the small bowel is easily removed, however excision may not be required. Following membrane removal, the general rule is full healing. This study describes a male patient who arrived at the emergency room with symptoms of intestinal blockage.

Case presentation

A 33-year-old female presented to us with a history of generalized abdominal pain and abdominal distension for 1 day. The pain was mild to moderate, continuous, and associated with nausea and vomiting. His symptoms worsened pain became severe. He had no previous medical history of abdominal pain or change in bowel habits. The patient has Surgical history of cystectomy and cesarean section. On examination, he appeared distressed and toxic**.** His vitals were as follows: pulse 97 beats/min (regular), blood pressure 114/65 mm Hg, and respiratory rate 20 per minute. He was afebrile. Abdominal examination showed generalized tenderness more so in the epigastric area. There were no gut sounds. The digital rectal examination was unremarkable. On auscultation, both lung fields had symmetrical breath sounds. An abdominal X-ray showed a paucity of bowel gas whereas the erect chest X-ray was normal with no evidence of pneumoperitoneum. Laboratory investigations showed hemoglobin 13 gm/dl, hematocrit 39%, total leukocyte count 100,000/cc (69.4% neutrophils), and platelets 400,000/cc. Serum creatinine and electrolytes were within normal limits. A computer tomography (CT) scan abdomen with oral and intravenous contrast suggested features of intestinal obstruction (Fig. 1). Based on clinical and radiological features decision of laparotomy was made. Exploratory laparotomy revealed 200 ml of yellow serous fluid and a thick white membrane covering the stomach, liver, and small and large bowel. The greater omentum was not identifiable. The cocoon-like membrane was gently dissected off the small bowel. There was a well-defined plane of dissection. Care was taken to prevent any serosal injury. The entire small bowel was healthy. He received peripheral parenteral nutrition and a short course of intravenous steroids to decrease bowel edema. Nasogastric output gradually decreased. His hospital stay was 20 days. He had a good recovery and was well 4 months later.



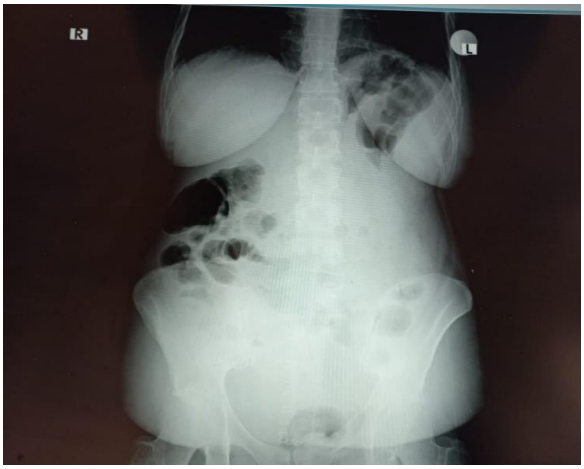


Fig (1): (A) abdominal X-ray shows dilated bowel loops (B) Axial CT scan shows dilated bowel loops

Discussion

AC is an uncommon illness characterized by the entire or partial encapsulation of intra-abdominal organs by a dense fibrous sac, which can result in acute, subacute, or chronic intestinal blockage. The underlying etiology is yet unknown, however it is thought to be the result of a single or complicated combination of numerous causes. There are numerous etiologic hypotheses: 1. Congenital development malformation: the defective membrane developed from the lining of the extraembryonic celom, which entered the abdomen with the intestine during the 12th week of gestation [6]. 2. Eyewinker stimulation: various etiological factors in ambulatory dialysis, such as dialysate solution acidity, plasticizers, and particulate matter, could promote membrane development secondary to peritonitis [7]. 3. Age and gender: retrograde menstruation in adolescent girls may promote fibrous capsule formation [8]. 4. Bacterial and viral infection: Staphylococcus aureus and Streptococcus infections were the most common in bacterial peritonitis [7]. ECHO viruses [7]. Coxsackie B virus or adenovirus [8] have been implicated as a cause of primary peritonitis; additionally, tuberculous abdominal cocoon was more frequently reported [9]. Nonetheless, additional research is needed to determine the actual cause of AC. Our patient was a young woman with no previous hepatopathy, TB, intraabdominal cavity administration, long-term usage of beta blockers, or surgical history. As a result, we hypothesized that inflammatory alterations including pelvic adhesion and hydrosalpinx would be involved in the peritoneal encapsulation process.

Because the clinical signs are non-specific and vary between individuals, the diagnosis is rarely made preoperatively, and it is frequently discovered by chance during a laparotomy or autopsy. The condition is typically asymptomatic, with only a small percentage of patients experiencing non-specific symptoms such as abdominal pain, nausea, abdominal fullness, vomiting, an abdominal mass, and bowel obstruction, but it also exhibits primary infertility in females, which is frequently misdiagnosed as chronic appendicitis, incomplete intestinal obstruction, ovarian cyst torsion, and so on. Given this context, there is a general consensus that AC can be diagnosed when part or all of the abdominal organs are encased within a fibrous membrane, which cannot be explained by any other condition at the same time. Our patient's AC diagnosis was confirmed during laparotomy, which revealed the distinctive unequal thickness of the membranes that contained some small intestine in a cocoon of opaque tissue [10].

However, imaging studies are crucial in the preoperative identification of the condition. The radiological indication was described as small bowel clumped together in a serpiginous way, giving the impression of a cauliflower [11]. Clusters of intestinal loops were found to be encased within a membrane-like sac using contrast-enhanced computed tomography (CECT) [12,13]. MDCT can clearly show the profile of the saclike membrane and provide more information to the surgeon [14]. Direct magnetic resonance imaging (MRI) revealed convoluted bowels with air-liquid matter, as well as peritoneal adhesion in the abdominal cavity [15]. A thick-walled tumor with intestinal loops, loculated ascites, and fibrous adhesions was seen on ultrasound [7,10,12,16]. Exploratory laparotomy and laparoscopy have been shown to increase diagnostic accuracy [13,17]. The histological analysis of the membranes revealed fibrous connective tissue growth with a nonspecific chronic inflammatory

reaction [16]. Unfortunately, there were no imaging results, and the above-mentioned characteristics were not discovered during the ultrasound test, because our patient was asymptomatic and was discovered incidentally during surgical investigation. The reasons for the disease's lack of attention can be summarized as follows: a lack of understanding due to its rarity, as well as unusual clinical signs and imaging studies. As a result, greater awareness of this disease, as well as the combination of clinic and radiology, may aid in preoperative diagnosis.

Almost all literatures recommend surgery for symptomatic AC. The premise is simple: release the adhesions and carefully excise the covering fibrous membrane on the small intestine. AC with infertility is classified as tubal infertility; we believe the explanation is that the fallopian tube and ovary were encapsulated inside fibrous membranes, limiting the fallopian tube's activity and function of picking up eggs or conveying gametes. These patients' clinical symptoms are latent, with no self-conscious symptoms, but their pelvic adhesion is severe, making any attempts to separate adhesion and regain the anatomic structure of the organs in the pelvic cavity fruitless. As a result, IVF and ET are the greatest treatment options for infertility, and there is no difference in cycle regimens when uterine and ovarian functions are normal.

Conclusion

AC is uncommon in general, and diagnosing it before surgery can be problematic, particularly for obstetricians and gynecologists. As a result, except for the imaging examinations stated above, the condition would be strongly regarded for primary infertility when we encounter the following scenarios: 1. no anomalies in uterine development or ovulation; 2. HSG shows that tubal are obstructive or passable, and sometimes hydrosalpinx is suggested in the image; 3. intra-abdominal pressure was abnormally high under laparoscope. Infertility treatment would avoid intestine stimulation and damage as much as possible when the diagnosis is verified during the operation, because operation stimulation could aggravate the sickness and eventually lead to postoperative intestinal obstruction.

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