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An Elderly Patient with Abdominal Pain were Misdiagnosed as Volvulus, Tuberculous Peritonitis, Pyloric Obstruction, and Finally Diagnosed as Abdominal Cocoon: A Case Report

*Zhao Xinxiu**

Department of Gerontology, The First Affiliated Hospital, College of Medicine, Zhejiang University, China

Abstract

Abdominal cocoon syndrome is a rare condition characterized by the encasement of small bowel loops by thick fibrous scar tissue. Only a few cases have been reported in elderly patients. We present a case of a 70-year-old male, presenting to our department with recurrent abdominal pain and bloody stool for 2 years. The patient has given informed consent to the published case. His significant past history included inguinal hernia repair and prostate hyperplasia resection. Over the past two years, the patient had no obvious causes of recurrent paroxysmal abdominal pain, accompanied by cessation of anal exhaust and defecation, nausea and abdominal distension. The colonoscopy revealed colonic polyps. Incomplete intestinal obstruction. Multi-disciplinary consultation was organized. Exploratory laparotomy was performed in gastrointestinal surgery. The fibrous membrane was excised, and the bowel segments were loosened. The symptoms of abdominal pain and distention were relieved gradually without nausea and vomiting, and the patient was discharged from the hospital one week after the operation when he could tolerate oral soft food. In clinical diagnosis of abdominal pain and obstruction in the elderly, do not miss such rare special circumstances his condition may be a rare form of small bowel obstruction diagnosed during surgery in elderly such as AC, and pay attention to the common and common symptoms after operation such as infection of incision.

Keywords: Intestinal obstruction; Abdominal cocoon; Multidisciplinary team; Elderly

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Correspondence:
Zhao Xinxiu, Department of Gerontology, The First Affiliated Hospital, College of Medicine, Zhejiang University, China, Tel: 15857108850; E-mail: xinxiuzhao@126.com

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Introduction

Abdominal cocoon, also known as sclerosing encapsulating peritonitis, is a rare cause of small bowel obstruction and is characterized by a complete or partial encasement of the small bowel by a fibrocollagenous cocoon-like sac [1,2]. It is most commonly observed in adolescent girls in tropical and subtropical regions. The condition presents with recurrent episodes of small bowel obstruction and can be idiopathic or secondary [3]. Peritonitis or a history of abdominal surgery, long-term peritoneal dialysis, cirrhosis of the liver, systemic lupus erythematosus, sarcoidosis, etc. have all been identified as risk factors [4,5]. Abdominal enhanced CT is the most reliable method for diagnosing abdominal cocoon disease, and a central mass of the small intestine surrounded by a dense membrane is typical of CT. The characteristic manifestations of abdominal cocoon disease, such as peritoneal thickening, fluid accumulation, calcifications, and loops of the small intestine clustered in the abdominal center, and peritoneal enhancement, may be indicated on CT scans [6]. Moreover, a pathological examination will reveal a complete loss of the mesothelium associated with significant interstitial thickening composed of fibroblasts and collagen deposition within the peritoneal membrane. In the early stages, patients can be managed conservatively; however, surgical intervention is necessary for those with advanced-stage intestinal obstruction.

Case Presentation

A 70-year-old man with recurrent abdominal pain and bloody stool for 2 years was admitted to the hospital 2 days ago for the same reason. His significant past history included inguinal hernia repair and prostate hyperplasia resection. Over the past two years, the patient had no obvious causes of recurrent paroxysmal abdominal pain, accompanied by cessation of anal exhaust and defecation, nausea and abdominal distension. The colonoscopy revealed colonic polyps. The

abdominal CT showed partial intestinal dilatation with liquid level and ileal thickening. The blood routine, CRP, ESR, TSPOT, immune indexes and other tests showed no significant abnormalities. Three times of hospitalization due to the above symptoms, incomplete small intestinal obstruction, incomplete pylorus obstruction, small intestinal volvuluses were diagnosed, excluding tuberculous peritonitis. After fasting, gastrointestinal decompression, fluid replacement, somatostatin, acid suppressors, stomach-protecting treatment and Anti-Tuberculosis Therapy (ATT), but his symptoms did not resolve. Finally, abdominal cocoon was diagnosed by exploratory laparotomy and its symptoms were relieved by surgical treatment. Ethical approval was obtained from the First Affiliated Hospital, College of Medicine, Zhejiang University Ethical Review Authority 2022 Research NO. 002-expedited review. This study was performed in accordance with the ethical guidelines of the World Medical Association Declaration of Helsinki 2013.

The physical examination revealed mild abdominal distention, mild upper abdominal tenderness, and hyperactive bowel sounds in pitch and frequency. No organomegaly or external hernias were present. A digital rectal examination suggested internal hemorrhoids, which can explain the bloody stool. The internal hemorrhoids were alleviated after external drug treatment. Laboratory blood analyses including a complete blood count, and the biochemistry, CRP, ESR, and TSPOT results were within normal limits. An abdominal enhanced CT showed intestinal wall thickening, some intestinal cavity dilatation, a "whirlpool sign" of the superior mesenteric artery and vein and distal vessels; thus, small bowel volvulus was the first consideration. The dynamic electrocardiogram suggested sinus bradycardia, with the slowest heart rate being 43 beats/min. The imaging results of oral meglumine diatrizoate are as follows: Deformed duodenal bulb, narrowed posterior bulb, and contrast agent obstruction through the pylorus; an incomplete pyloric obstruction was considered. Multislice CT enterography showed dilatation with a small amount of gas-liquid level, and an incomplete small intestinal obstruction was considered.

The elderly male suffered from repeated ileus attack, long-term fasting, emaciation, progressive decline in Body Mass Index (BMI), poor nutritional status and bradycardia. Organize multi-disciplinary consultation. The multi-disciplinary team includes gastrointestinal surgery, cardiology, nutrition, geriatrics, Radiology, and digestive physicians.

Diagnosis and treatment opinions: Improve coronary angiography to eliminate serious coronary lesions before exploratory laparotomy, and implant temporary pacemaker to avoid sudden cardiac arrest. Consultation opinions of nutrition department and geriatrics department shall be formulated for the perioperative enteral and parenteral nutrition program. Exploratory laparotomy was performed in gastrointestinal surgery. White translucent pseudomembranous tissue had formed on the surface of the abdominal viscera, encapsulating the small intestine, large intestine, liver and other organs during surgery. The small intestine was entangled at 20 cm and 40 cm away from the ileocecal area, which was considered the obstruction. The proximal segment of the small intestine was arranged smoothly, and the peristalsis was normal. Several white nodules could be observed on the surface of the gastric branch. Biopsy specimens were retained during the operation. The gallbladder wall was thickened, which was in accordance with the manifestations of cholecystitis, hematoma, and clear ascites in the pelvis. The appendix was congested and edematous, and a small amount of clarified ascites could be seen in the pelvic cavity. Combined with the preoperative examination, the following intraoperative diagnoses were considered: 1. Abdominal cocoon disease, 2. Incomplete intestinal obstruction, 3. Cholecystolithiasis, and 4. Chronic appendicitis. Since it is difficult to fully separate adhesions under endoscopy, open surgery was performed, which included intestinal adhesion lysis + cholecystectomy + appendectomy + intestinal arrangement + fascial tissue flap formation + abdominal wall plastic suture. The fibrous membrane was excised, and the bowel segments were loosened. The circulation of the bowel segment was intact; therefore, no resection was needed during the operation. The operation proceeded smoothly. The postoperative abdominal CT results are shown in figure. The symptoms of abdominal pain and distention were relieved gradually without nausea and vomiting, and the patients were discharged from the hospital one week after the operation when they could tolerate oral soft food. After 15 days of follow-up, he had normal diet and intestinal peristalsis. He was treated as an outpatient twice every three months and had no symptoms. It is recommended that he only have further follow-up if necessary.

The patient signed informed consent forms previously approved by the First Affiliated Hospital, College of Medicine, Zhejiang University.

Discussion

Abdominal cocoon is mostly observed in young girls living in tropical and subtropical regions [7]. However, we reported a case of AC in an elderly male patient. The role of MDT is established throughout the course of treatment. AC is a rare syndrome that mostly affects the small bowel. In this syndrome, intra-abdominal fibrosclerosis and peritoneal adhesions surround the bowel, creating a sac or cocoon that causes acute or chronic intestinal obstruction [8].

The clinical features, intraoperative conditions, and treatments of 37 cases of AC were retrospectively studied from January 2010 to January 2019. Only 1 case (2.7%) of elderly patients (>60 years old). Most of the first symptoms of the patients were abdominal pain and other intestinal obstruction, and some of them had no typical symptoms or other diseases. The preoperative abdominal CT showed that the small intestine was convoluted and aggregated in 14 cases. A thin envelope was observed around the small intestine. Most of the other patients were confirmed by intraoperative exploration and discharged after surgical treatment. A few patients were discharged after hormone, tamoxifen and immunosuppressant treatment. Among the 24 cases of surgical treatment, 22 patients underwent cocoon-like adhesion release after exploratory laparotomy, 5 patients underwent cocoon removal, 3 patients underwent intestinal resection, 9 patients underwent intestinal rearrangement, and 2 patients underwent appendectomy. Ileus catheters were placed in 3 patients.

The postoperative complications were as follows: Incision infection (1 case), and postoperative inflammatory intestinal obstruction (3 cases). Parts or all of the small intestines were covered with a layer of milky white dense fibrous thin membrane, which formed mass-like adhesions, and a fibrous film was attached to the mesenteric roots. Extensive adhesions existed between the intestines. The postoperative pathological examinations of 24 confirmed patients showed fibrohistiocytic hyperplasia and collagenization with chronic inflammatory cell infiltration. In addition, all patients received medicine, a healthy diet and lifestyle interventions.

Follow-up after discharge: Most patients recovered successfully.

Etiology: ACS was reported in those treated with beta-blockers, peritoneal dialysis, peritoneal shunting, and intraperitoneal chemotherapy and in those with recurrent peritoneal irritation and peritonitis and cirrhosis, but it is mostly an idiopathic disease.

The clinical presentation of abdominal cocoon syndrome generally occurs as acute abdomen and intestinal obstruction. The preoperative diagnosis of ACS is difficult. Radiological findings, especially CT findings, can be helpful. The typical findings of abdominal cocoon to be a concentration of the whole small bowel in the center of the abdomen encased by a soft tissue-density membrane, mimicking a cocoon. This coiling of the small bowel in an accordion-like fashion has been described as a "cauliflower-sign" [9,10]. However, the final diagnosis is generally made by surgery. Enhanced abdominal CT scans may be helpful in the differential diagnosis. Recognition of the fibrous membrane surrounding the bowel loops is a typical radiological finding of ACS [11]. The early preoperative diagnosis and treatment of the syndrome is vital for the circulation of the encaged bowel segments and for preventing the risk of strangulation. MDT plays an important role in clarifying the diagnosis and ensuring perioperative safety. The differential diagnoses include Small Bowel Vovulus (SBV), congenital peritoneal encapsulation, peritonitis carcinomatosa, pseudomyxoma peritoneal mesothelioma, and tuberculous peritonitis [12,13]. In case of asymptomatic patients or patients with mild symptoms, ACS can be treated conservatively by intestinal rest, nasogastric intubation, and enteral or parenteral nutritional support [14]. However, in moderate to severe cases, both medical (corticosteroid and tamoxifen therapy) and surgical treatment are used. Ideally, surgical excision with a laparoscopic approach is a favorable choice for excising the encapsulating membrane with adhesiolysis, thus leading favorable outcomes and an excellent prognosis [15].

Conclusion

Abdominal cocoon is a rare pathological phenomenon that may be found in all populations. It is often misdiagnosed as volvulus of small intestine, obstruction of pylorus and general obstruction of small intestine. The "whirlpool sign" of abdominal enhanced CT and the appearance of white and translucent pseudomembrane tissue wrapping on the surface of abdominal organs seen by exploratory laparotomy are the effective means for final diagnosis. In clinical diagnosis of abdominal pain and obstruction in the elderly, do not miss such rare special circumstances his condition may be a rare form of small bowel obstruction diagnosed during surgery in elderly p as AC, and pay attention to the common and common symptoms after operation Such as infection of incision, incomplete resection of dense fibrous membrane, recurrence of abdominal cocoon, inflammatory ileus and so on. In addition, the elderly patients with hidden symptoms and multiple diseases should actively use MDT comprehensive evaluation and collaborative diagnosis and treatment.

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