Case Report

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A Rare Cause of Small Bowel Obstruction: Congenital Peritoneal Encapsulation

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Abstract

Congenital peritoneal encapsulation (CPE) is a rare condition in which part or all of the small intestine is surrounded by an accessory peritoneal layer congenitally. Although it rarely causes small bowel obstruction, it is usually asymptomatic and the diagnosis is mostly made incidentally during surgery or autopsy. In this presentation, it is aimed to remind CPE, which is a rare disease, with a case report. A 41-year-old male patient presented to the emergency department with diffuse and cramping pain lasting for approximately 8 hours. He had nausea and vomiting. No gas or faeces output for 72 hours. Hemodynamically stable patient had normal hemogram and biochemical parameters and afebrile. After surgery, the patient was discharged uneventfully. CPE should be considered in small bowel obstructions of unexplained etiology. Laparoscopic evaluation is effective in diagnosing CPE.

Keywords: Congenital peritoneal encapsulation, small bowel, emergency, surgery

Introduction

Congenital peritoneal encapsulation (CPE) is a rare condition in which part or all of the small intestine is surrounded by an accessory peritoneal layer congenitally (1). Although it rarely causes small bowel obstruction, it is usually asymptomatic and the diagnosis is mostly made incidentally during surgery or autopsy (2). Abdominal cocoon (AC) and sclerosing encapsulated peritonitis (SEP) are other entities that cause peritoneal encirclement in the small intestine. While CPE is congenital, AC and SEP are acquired diseases (3,4). In this presentation, it is aimed to remind CPE, which is a rare disease, with a case report.

Case Report

A 41-year-old male patient presented to the emergency department with diffuse and cramping pain lasting for approximately 8 hours. He had nausea and vomiting. No gas or faeces output for 72 hours. Hemodynamically stable patient had normal hemogram and biochemical parameters and afebrile. On physical examination, there was abdominal distension. There was tenderness in the right abdominal quadrants on palpation. On auscultation, bowel sounds were locally hyperactive. He had no history of chronic disease or previous surgery. Abdominal pain and ileus attacks not exceeding 24 hours have occurred once or twice a year in the last three years, but they have resolved spontaneously or with conservative treatment. Air-fluid levels in the small intestines were seen in the abdominal X-ray. Abdominal ultrasonography (USG) revealed marked dilated small bowel loops and a small amount of free fluid between these loops. Abdominal computed tomography (CT) showed dilated abdominal small intestines and findings consistent with obstruction (figure 1). The patient was hospitalized with the diagnosis of ileus. Decompression was performed with a nasogastric tube. It was decided to perform diagnostic laparoscopic surgery for the patient who did not respond to 24-hour observation and medical treatment. A signed consent form was obtained from the patient for all procedures to be performed. Laparoscopic examination revealed a thin membrane covering the small intestine from the terminal ileum to the middle of the jejunal segment on the right side of the abdomen (figure 2). It was separated from the abdominal wall laparoscopically. Due to the presence of extensive bands between the small bowel loops, open surgery was performed. All adhesions were separated, the small intestines were released from the pressure of the accessory peritoneum and placed in the abdomen. The surgery took about 100 minutes and was completed without any problems. The patient was discharged without complications on the 6th postoperative day.

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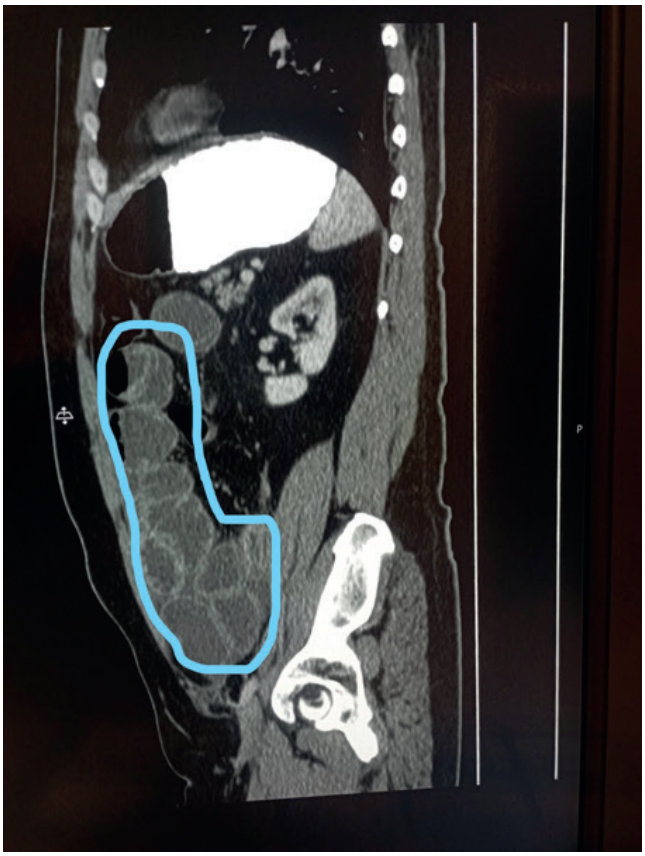

Figure 1. Abdominal CT shows dilated small bowel loops (blue stripe)

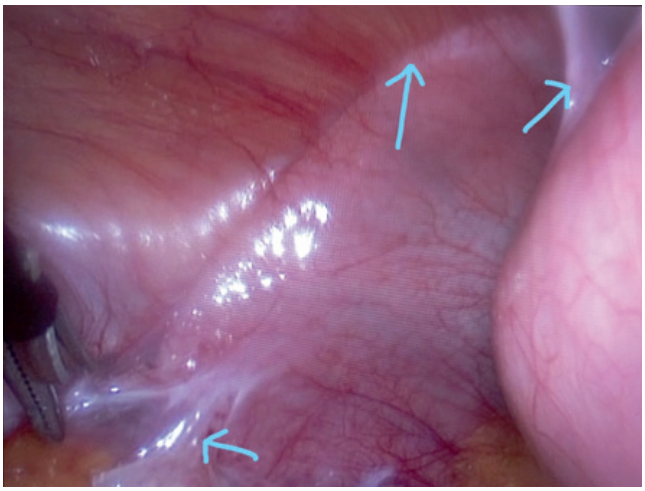

Figure 2. Peritoneal membrane surrounding the small intestine in diagnostic laparoscopy

Discussion

CPE was first described by Cleland in 1868 (5). In the 12th week of pregnancy, due to the abnormal rotation of the small intestines, it leads to the formation of accessory membranes that completely or partially surround the ans. During this rotation, the yolk sac, which should remain on the umbilical pedicle, migrates with the small intestines. The accessory peritoneum extends from the ascending and descending colon laterally, superiorly to the transverse colon, inferiorly to the pelvic parietal peritoneum, and encapsulates the small intestine (6,7).

AC and SEP are two other entities that surround the small intestine, causing capsule formation. However, these are acquired diseases, unlike CPE. The SEP capsule is thicker and fibrous. The most common cause is chronic peritoneal dialysis. It causes SEP in recurrent peritonitis, ventriculoperitoneal and peritoneo-venous shunts, sarcoidosis, intra-abdominal tuberculosis, Mediterranean fever, systemic lupus erythematosus and fibrogenic foreign materials. Emergency operations due to SEP have a higher mortality rate than CPE. AC, on the other hand, is another disease whose cause is unknown and progresses with encapsulation. Etiologically, recurrent gynecological infections and retrograde menstruation are held responsible (8,9). In our case, none of these etiological factors were present and the diagnosis was compatible with CPE.

Since CPE is a congenital disease, malformations such as situs inversus and congenital epigastric hernia can be seen together (10). No additional congenital malformation was observed in our patient.

Dave et al. In this study, 45 cases shared in the literature were examined. The mean age was 40.8 years, and it was found to be more common in males (11). However, the true incidence is difficult to determine. These data are compatible with our case.

Preoperative diagnosis is difficult. There are no diagnostic laboratory or imaging parameters. For this reason, it is necessary to suspect first of all for the diagnosis. CT may show small clumping formed by the peritoneal membrane. Dilated small intestines form a spiral sign (1,12). Its treatment is surgical excision of the peritoneal membrane. Adhesions must be separated at all junction points between the small bowel loops. The intestinal loops in the capsule are released and placed in the abdomen. If there is a necrotic or perforated segment, it is resected. Histological examination reveals normal peritoneal tissue and fibrovascular tissue covered with mesothelium without inflammation (13). In our patient, after making the definitive diagnosis with diagnostic laparoscopy, all areas that could be separated laparoscopically were separated, and open surgery was performed to excise the deeply located bands. Thus, possible morbidities were prevented.

The prognosis for CPE is very good. No recurrence was reported after surgery. The longest follow-up period in the literature is 7 years without complications (6,11).

Conclusion

CPE is a rare clinical entity that occurs as a result of a congenital malformation of accessory peritoneal tissue surrounding the small intestine. CPE should be considered in small bowel obstructions of unexplained etiology.

Laparoscopic evaluation is effective in diagnosing CPE, but in cases where the long small bowel segment is affected, as in our case, we think that it would be appropriate to switch to open surgery to prevent morbidity, as well as the necessity of separating all bands.

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