International Journal of Health Science

ISSN 2764-0159 vol. 6, n. 2, 2026

ARTICLE 14

Acceptance date: 12/02/2026

INTESTINAL SEMIOCLOSURE SECONDARY TO ENCAPSULATING SCLEROSING PERITONITIS: CASE REPORT

Juliana Sampaio Saraiva de Oliveira
Resident Physician in Gastroenterology. Medical Residency Program in Gastroenterology, Walter Cantídio University Hospital, Federal University of Ceará (UFC).

Gabriela Oliveira Soeiro
Resident Physician in Gastroenterology. Medical Residency Program in Gastroenterology, Walter Cantídio University Hospital, Federal University of Ceará (UFC).

Frederico Eduardo Ribeiro Bezerra Monteiro
Resident Physician in Gastroenterology. Medical Residency Program in Gastroenterology, Walter Cantídio University Hospital, Federal University of Ceará (UFC).

Romão Augusto Alves Filgueira Sampaio[4]
Doctoral student in the Graduate Program in Translational Medicine at the Federal University of Ceará (UFC).

Gabriela de Araújo Miranda[5]
Resident Physician in Pathology. Medical Residency Program in Pathology, Walter Cantídio University Hospital, Federal University of Ceará (UFC).

Carlos Gustavo Hirth
Pathologist at Walter Cantídio University Hospital (HUWC) of the Federal University of Ceará (UFC).

Lúcia Libanêz Bessa Campelo Braga
Assistant Physician and Preceptor of the Gastroenterology Residency at Walter Cantídio University Hospital (HUWC) of the Federal University of Ceará (UFC).

Abstract: Case report: A 55-year-old man presented with severe and intermittent abdominal pain in the left iliac fossa for four months, weight loss of 15 kg, and progression to cessation of bowel movements and flatulence. Physical examination indicated intestinal semi-obstruction. Abdominal tomography revealed diffuse jejunoileal thickening and luminal reduction, with upstream gastroduodenal distension and apparent intussusception. The patient underwent diagnostic laparoscopy, which identified a thick capsule surrounding the intestinal loops, consistent with encapsulating peritonitis. **Discussion:** Encapsulating sclerosing peritonitis (ESP) is a rare entity characterized by chronic fibroinflammatory process of the peritoneum, involving the intestine by a fibrous membrane and constituting an uncommon cause of intestinal obstruction. It can be idiopathic or secondary to chronic peritoneal inflammation, especially after peritoneal dialysis and abdominal surgery. Its nonspecific clinical picture makes diagnosis difficult, often confirmed only intraoperatively. **Conclusion:** This case highlights the importance of considering EIS in the differential diagnosis of patients with chronic abdominal pain and intestinal obstruction of undetermined cause. Given nonspecific clinical manifestations and limitations of preoperative tests, intraoperative recognition remains essential for proper diagnosis and treatment.

Keywords: Intestinal obstruction. Encapsulating peritoneal sclerosis. Peritoneal fibrosis.

INTRODUCTION

Encapsulating sclerosing peritonitis (ESP) or abdominal cocoon syndrome

(ACS) is a rare and potentially serious clinical entity characterized by chronic peritoneal inflammation with the formation of a thick fibro-collagenous membrane that partially or totally envelops the intestinal loops, particularly the small intestine, resulting in intestinal obstruction[1].

Its initial description dates back to the early 20th century, when it was historically called "chronic encapsulating fibrotic peritonitis." The condition is categorized as primary (idiopathic) or secondary, depending on the presence of associated triggering factors. The idiopathic form is a rare entity, often manifested by recurrent episodes of intestinal obstruction[2]. The term "abdominal cocoon syndrome" was coined to describe the idiopathic form, first described in 1978[3].

EPP represents a condition with high morbidity and mortality and variable presentation, ranging from anorexia and abdominal pain to obvious signs of intestinal obstruction, whose obstructive symptoms may be continuous, intermittent, or repeated and are directly attributed to diffuse thickening of the peritoneum and the formation of adhesions [1,4] .

Therefore, it is a topic of significant medical interest since it represents a rare etiology of intestinal obstruction, whose preoperative diagnosis remains a challenge due to the nonspecific nature of the initial symptoms[3], often being a surprise diagnosis, established during surgical intervention performed for obstruction of undetermined cause[5] . Thus, the rarity of the condition, coupled with the nonspecific nature of its clinical and laboratory presentation, often results in a late diagnosis, which negatively impacts the management and prognosis of patients[1].

The objective of this article is to report a case of intestinal semi-occlusion secondary to encapsulating sclerosing peritonitis, aiming to present an unusual etiology of this clinical syndrome that needs to be remembered among the diagnostic possibilities.

CASE REPORT

A 55-year-old male patient reported 4 months of intense and intermittent abdominal pain in the left iliac fossa, associated with hyporexia, nausea, vomiting, weight loss of 15 kg during this period, and perception of a palpable mobile abdominal mass. He denied fever or other systemic symptoms. He had a history of umbilical hernioplasty more than 10 years ago.

Three months after the onset of symptoms, he developed a 15-day cessation of bowel movements and flatulence. Physical examination of the abdomen revealed no signs of peritoneal irritation. At that time, he was admitted to a secondary hospital for management of intestinal semi-occlusion, where an abdominal X-ray was performed, revealing dilation of the intestinal loops without air-fluid levels, and a contrast-enhanced CT scan showed diffuse and regular parietal thickening of the jejunum and ileum, causing luminal reduction with consequent gastroduodenal distension upstream. He was evaluated by general surgery, which indicated conservative management. He was subsequently referred to Walter Cantídio University Hospital (HUWC) for further diagnostic investigation.

Upon admission to the Gastroenterology Department of HUWC, the patient was asymptomatic, with bowel movements and flatulence present, without complaints

of abdominal pain, nausea, or vomiting. During hospitalization, enterotomography was performed, which showed diffuse thickening of the jejunoileal mucosa (Figure 1), of indeterminate nature, with the possibility of parasitic involvement, mainly giardiasis, and differential diagnosis with lymphoproliferative disease. In addition, the imaging exam also showed apparent rotation and invagination of a segment of the jejunal loop at the level of the angle of Treitz, associated with marked gastroduodenal fluid distension, which may correspond to intussusception causing intestinal semi-occlusion (Figure 1). Upper digestive endoscopy and colonoscopy were performed, with no findings to explain the condition.

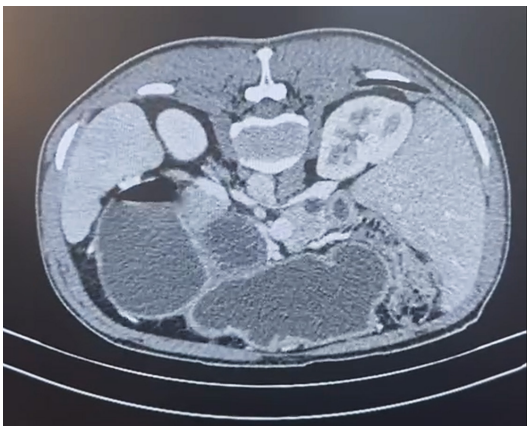

Figure 1. Axial enterotomography image showing diffuse thickening of the jejunoileal mucosa, associated with marked gastroduodenal fluid distension.

The patient underwent diagnostic laparoscopy, which revealed a thick fibrotic capsule involving the entire cavity, mainly the small bowel loops, forming a large conglomerate, findings consistent with encapsulating peritonitis (Figure 2). Conversion to exploratory laparotomy was performed, with h e release of intestinal loops from the thick encapsulating capsule (Figure 3). Intraoperatively, there were no signs of other lesions, nodules, or intracavitary masses. Histopathological examination of the peritoneal implant showed fibrinous peritonitis with no evidence of malignancy (Figure 4). The patient showed clinical improvement after the surgical procedure, with no further episodes of intestinal semi-occlusion.

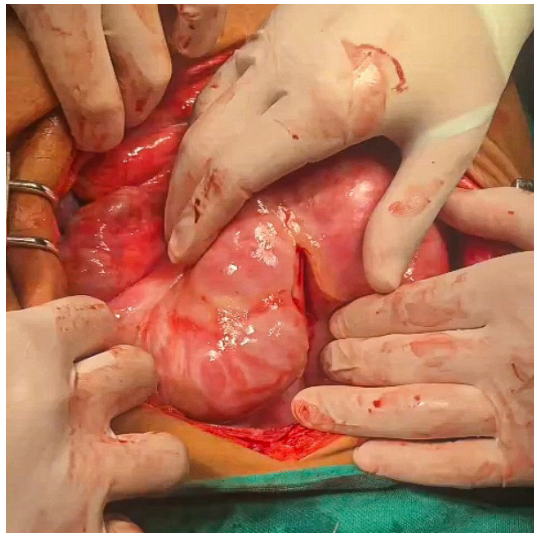

Figure 2. Laparotomy image showing a thick membrane surrounding intestinal loops, especially the small intestine.

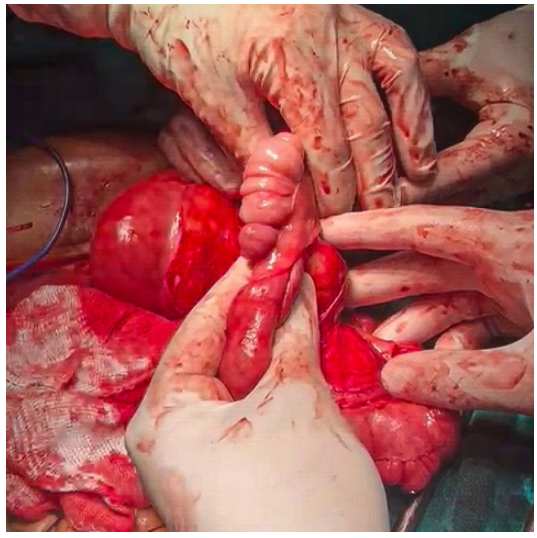

Figure 3. Laparotomy image showing release of the intestinal loop from the fibrotic capsule.

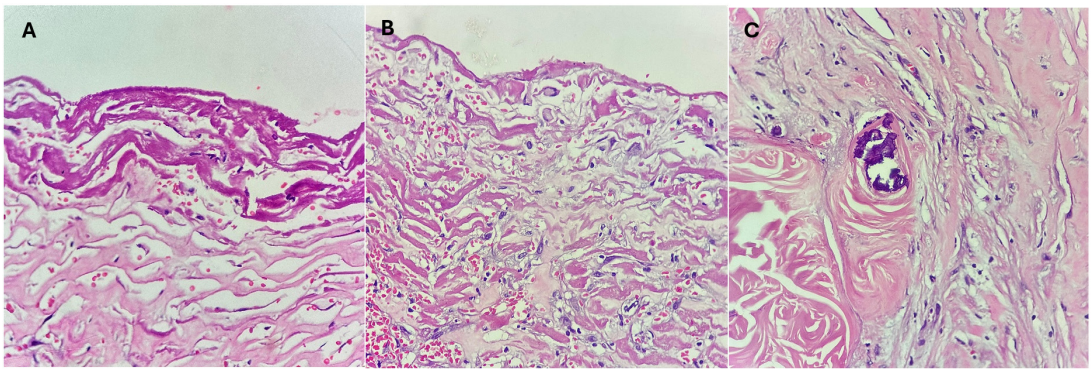

Figure 4. A) Peritoneal surface covered by eosinophilic material compatible with fibrin, characterizing fibrinous peritonitis. Hematoxylin and eosin (HE), 40x. B) Fibrin deposit associated with the proliferation of activated fibroblasts, star-shaped, with voluminous nuclei and evident nucleoli. Hematoxylin and eosin (HE), 40x. C) Stromal fibrosis with foci of dystrophic calcification in peritoneal adipose tissue. Hematoxylin and eosin (HE), 40x.

DISCUSSION

EEP is a rare condition characterized by the formation of a fibro-collagenous capsule partially or totally enveloping the small intestine, giving it the appearance of a cocoon. Due to this encapsulation, there is a reduction in intestinal motility and recurrent episodes of obstruction[6].

In the present case, the patient presented with an insidious clinical picture, marked by intermittent abdominal pain, significant weight loss, and progression to intestinal subocclusion, representing manifestations that are consistent with those described in the literature, which shows a higher incidence in men and an often insidious and nonspecific clinical presentation[7]. The absence of systemic inflammatory signs such as fever and the chronic progression of this patient reinforce the progressive and nonspecific nature of the clinical presentation of PEE, which contributes to the diagnostic delay observed in most cases. In addition, the occurrence of recurrent episodes of non-strangulating intestinal obstruction, in the absence of other etiologies, which in this case initially responded to conservative measures, is a finding that may raise early clinical suspicion for EEP[3].

Preoperative diagnosis by imaging methods is challenging and requires a high index of suspicion, since the radiological changes of EEP may be present in other conditions[6]. In the present case, the initial tomographic findings, including diffuse peritoneal thickening and diffuse small bowel loops, luminal reduction, and upstream distension, are consistent with previous descriptions of PEE, although they are not pathognomonic. Considering the radiological diagnosis, computed tomography (CT) is the method of choice, as it allows the identification of abnormally thickened and contrast-enhanced peritoneal membrane, as well as encapsulated and agglomerated intestinal loops[8]. Thus, CT can demonstrate suggestive findings, such as peritoneal thickening or calcification, loculated fluid collections, adhesions or thickening of the intestinal wall, and intestinal dilation with caliber alteration[6]. However, individually, these findings are not pathognomonic and may mimic inflammatory, infectious, or

neoplastic processes[6], as initially considered in this patient, whose differential diagnosis included parasitic involvement, lymphoproliferative disease, stenosing Crohn's disease, and tuberculous peritonitis. Confirmation, therefore, often falls on surgical exploration[7] , as occurred in this patient. In the case presented, diagnostic laparoscopy played a fundamental role, allowing direct visualization of the fibrotic capsule involving the intestinal loops, a characteristic finding of encapsulating peritonitis. The absence of masses, neoplastic implants, or other associated lesions reinforces the diagnosis of non-neoplastic EEP, with the definitive diagnosis based on the histopathological result of fibrinous peritonitis without malignancy.

Although PEE is classically associated with prolonged peritoneal dialysis, it has a recognized multifactorial etiology and can occur in other clinical situations, such as peritoneal infections, autoimmune diseases, or after abdominal surgery[6]. Given this, the disease can be classified as primary, also called idiopathic, whose cause remains unknown, and secondary, in which there is an identifiable triggering factor. In secondary EEP, medications, infections and intra-abdominal surgeries, intraperitoneal irritants, chronic liver diseases, post-transplant states, neoplasms, endometriosis, and autoimmune diseases can initiate the inflammatory cascade that results in peritoneal fibrosis. This wide variety of associated conditions reinforces the complex and heterogeneous nature of EPP[1]. In the case presented, the etiology of EPP had previous abdominal surgery as a probable predisposing factor, although it is not possible to establish a direct causal relationship.

From a pathophysiological point of view, it is accepted that multiple factors can act as a "second insult" on a previously susceptible peritoneum, culminating in chronic inflammation, fibrin deposition, and progressive fibrosis[9]. Considering this, a chronic or acute peritoneal insult (such as surgery, peritoneal dialysis, infection, or foreign body) triggers an initial inflammatory response that, in predisposed individuals, can evolve into a cascade of pro-inflammatory and pro-angiogenic cytokines, resulting in depletion of mesothelial cells, increased production of extracellular matrix components, and fibrogenesis, thus forming a fibro-collagenous membrane[1,9]. In this context, the histopathological examination of our patient, which revealed fibrinous peritonitis without malignancy, is consistent with the established fibrotic phase of the disease. Histopathological studies highlight findings such as fibroblast-like cells, mesothelial denudation, fibrin deposits, and decreased cellularity as the most common characteristics in established EEP compared to simple peritoneal sclerosis[10] .

Surgical treatment through the release of intestinal loops and excision of the fibrotic capsule remains the definitive approach for cases refractory to clinical treatment and should be performed in experienced centers due to its complexity and high risk[1]. Reports in the literature indicate that the laparoscopic approach may be feasible for both diagnosis and treatment in selected cases, with a good postoperative prognosis and low risk of long-term recurrence[3] . In this scenario, the favorable clinical evolution after surgical treatment of our patient, without recurrence of subocclusive episodes in the postoperative period, corroborates evidence that complete surgical release of the loops and resection of the capsule are effective strategies when performed in experienced centers. However,

it is important to note that this surgery is technically challenging and associated with significant morbidity, with a potential risk of intestinal perforation and mortality that can reach 35.4% in some series, especially in less experienced centers[1]. Thus, as an alternative for the active inflammatory phase or as a bridge to surgery, the adjuvant use of corticosteroids or tamoxifen has been described mainly in EEP secondary to dialysis, but its evidence in the idiopathic form is limited to case reports[2].

CONCLUSION

This case reinforces EEP as a challenging diagnosis that should be considered in the differential diagnosis of chronic or recurrent intestinal obstruction, especially in patients with a history of previous peritoneal insult. The combination of clinical suspicion, careful interpretation of imaging tests, and an appropriate surgical approach remains essential for definitive diagnosis and good clinical outcomes.

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