

Abdominal cocoon syndrome (sclerosing encapsulated peritonitis) causing small bowel occlusion in a patient with gastric bypass

Síndrome de cocoon (peritonitis esclerosante encapsulante) como causa de oclusión intestinal en un paciente con bypass gástrico

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Abstract

A rare condition, sclerosing encapsulating peritonitis, is characterized by a fibrotic membrane forming over the bowels, leading to intestinal obstruction. In this case of a 56-year-old male patient with a history of laparoscopic gastric bypass, a computed tomography scan showed findings indicative of the condition. Extensive adhesiolysis was performed, and biopsies confirmed the presence of fusiform cells (D2-40 positive on immunochemistry) resembling fibroblasts, within dense collagenous peritoneal tissue sheets, typical of sclerosing encapsulating peritonitis. The prevalence of this condition is uncertain, and diagnosis typically requires a peritoneal biopsy due to the nonspecific clinical presentation.

Keywords: Sclerosing encapsulating peritonitis. Laparotomy. Adhesiolysis. Gastric bypass surgery.

Resumen

La peritonitis esclerosante encapsulada es una condición rara caracterizada por una membrana fibrótica que se genera sobre las asas intestinales causando cuadros de oclusión intestinal. Se presenta el caso de un paciente varón de 56 años con antecedente de derivación gastroyeyunal por laparoscopia que presenta oclusión intestinal. Se realizó tomografía computada que evidenció sitio de transición previo al sitio de anastomosis. Se realizó de anastomosis extensa y toma de biopsias. Histológicamente se observó engrosamiento de la membrana peritoneal, células fusiformes (D2-40 positivo en inmunohistoquímica) similares a fibroblastos con láminas de colágeno peritoneal denso. La peritonitis esclerosante encapsulada es una patología de prevalencia desconocida. El cuadro clínico es inespecífico y el diagnóstico definitivo es por patología con biopsia peritoneal.

Palabras clave: Peritonitis encapsulante esclerosante. Laparotomía. Adherenciólisis. Cirugía de bypass gástrico.

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Introduction

Encapsulating peritoneal sclerosis is a rare condition characterized by a fibrotic membrane that forms over the intestinal loops, causing episodes of intestinal obstruction. Its prevalence is unknown, but it has been reported to range from 1.4% up to 7.3% in patients undergoing peritoneal dialysis¹.

Case Report

A 56-year-old man with a past medical history of morbid obesity and a gastroyeyunal bypass performed via laparoscopy 2 years prior, followed by abdominoplasty. He began experiencing sudden epigastric abdominal pain after eating, accompanied by a 2-day history of oral intolerance, nausea, and vomiting prompting him to visit the ER. Tests revealed only an elevated C-reactive protein level of 10.3. A non-contrast computed tomography (CT)

scan showed dilatation of the distal esophagus, gastric reservoir, and proximal jejunal loops (up to 60 mm in diameter), associated with a transition site prior to the anastomosis site and wall thickening (Fig. 1). An internal hernia was suspected, and laparotomy revealed fixed, dilated intestinal loops surrounded by a thickened peritoneal membrane, causing firm adhesions between loops and to the abdominal wall, involving only the Roux-en-Y bypass loops (Fig. 2). Extensive adhesiolysis and biopsies were performed. The patient had a favorable postoperative course and was discharged 4 days later.

Histologically, the peritoneal membrane showed thickening composed of a fibrous matrix with fibroblast-like cells and numerous blood vessels varying in wall thickness and congestion. The mesothelial cell layer was discontinuous. All fragments were covered by fibrinous material. The spindle cells tested positive for D2-40. Microscopic findings were compatible with encapsulating peritoneal sclerosis (Fig. 3).



Figure 1. Simple abdominal computed tomography, coronal section, showing significant dilation of small bowel loops without wall edema. The walls show enhancement despite being a non-contrast study.



Figure 2. Supra- and infra-abdominal laparotomy showing encapsulated, fixed, and dilated loops. All covered by thickened and adherent visceral peritoneum.

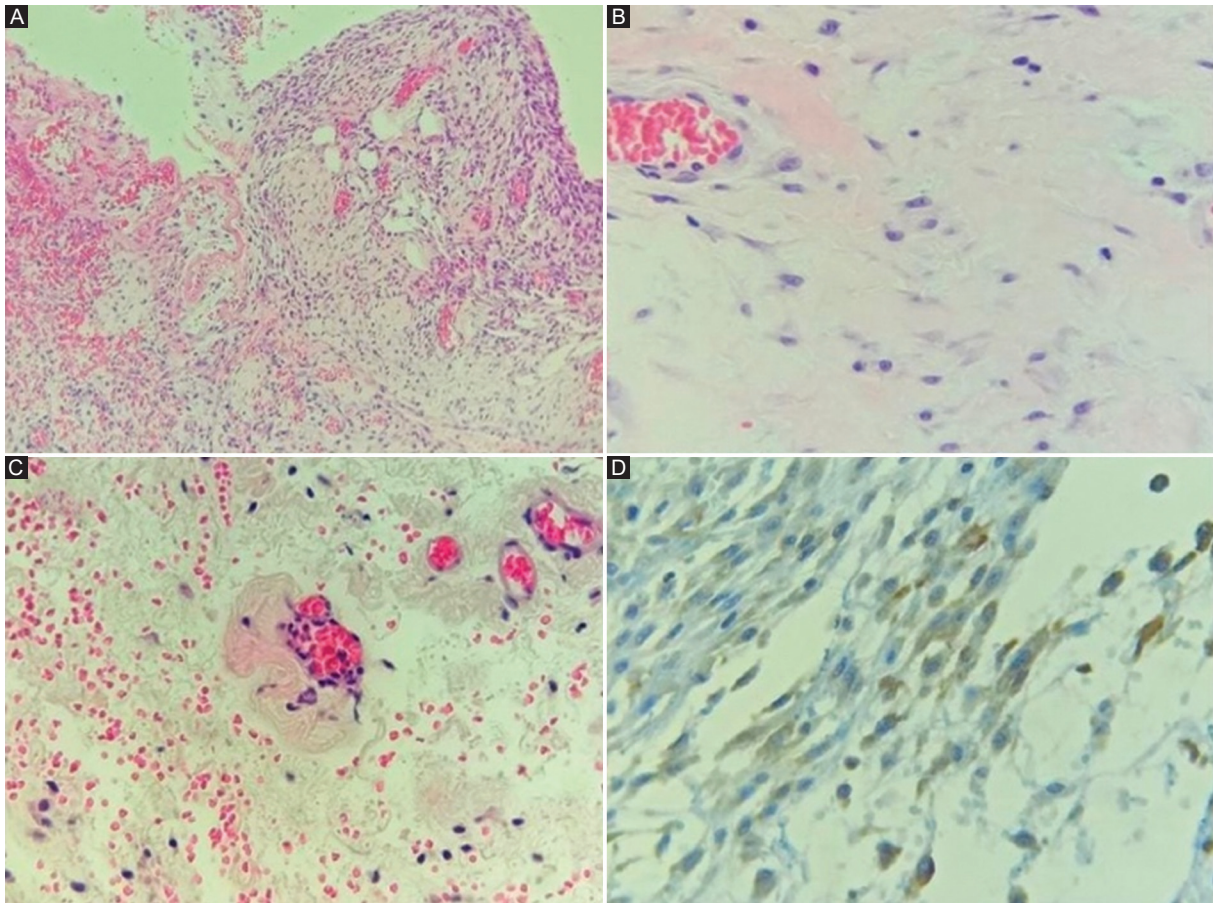


Figure 3. **A:** hematoxylin and eosin stain, 10x. Discontinuous and variable thickness mesothelial covering. Fibrinous material covering on the left of the image. **B:** hematoxylin and eosin stain, 40x. Spindle-shaped fibroblast-like cells. Nuclei with fine granular chromatin and up to 3 small nucleoli. **C:** hematoxylin and eosin stain, 40x. Capillary walls with pronounced variation in thickness. **D:** immunohistochemical staining for D2-40, 40x. Positive spindle-shaped cells.

Discussion

The first descriptions of sclerosing peritonitis date back to the 1970s, including a report of 10 young women with acute intestinal obstruction associated with retrograde menstruation². It is categorized as primary or idiopathic, which is less common and postulated to be related to viral processes and immune reactions, such as in retrograde menstruation cases, and due to chronic irritative processes in the abdominal cavity, such as peritoneal dialysis, tuberculosis, ventriculoperitoneal shunts, peritonitis, sarcoidosis, or abdominal trauma³. Depending on the extent, it can be type I with partial encapsulation of loops, type II with complete encapsulation, or type III involving intestinal loops and adjacent organs⁴. Clinical presentation is nonspecific, with an insidious and often acute onset, although subacute and chronic cases have also been reported; symptoms include

anorexia, nausea or vomiting, distension, and diffuse abdominal pain⁵, which in our case led us to consider more common causes of intestinal obstruction after bariatric surgery. Imaging studies, such as abdominal radiography, often show results consistent with intestinal obstruction or may be normal. Computed tomography is highly sensitive and can show peritoneal thickening, agglutination of intestinal loops, and dilatation of the second and third portions of the duodenum⁶. Although these studies are useful, the definitive diagnosis is established by histopathology, which can find areas of increased cellularity composed of fibroblasts, a fibroconnective tissue matrix, an infiltrate of inflammatory mononuclear cells, fibrin, and vascular congestion^{3,7}.

Braun et al.⁸ proposed the following histological characteristics for diagnosing encapsulating peritoneal sclerosis: presence of fibroblast-like cells, presence of exudate, denudation of mesothelial cells,

acellular zones, density of blood vessels, variation in blood vessel wall thickness, presence of acute and chronic inflammatory infiltrate, fibrin deposits, iron deposits, and expression of podoplanin (D2-40) in vascular and non-vascular cells. Among these, the presence of fibroblast-like cells, denudation of mesothelial cells, and expression of podoplanin are the most frequent in patients with encapsulating peritoneal sclerosis.

Acute management is surgical, and the most described intraoperative finding is dilated intestinal loops covered by a fibrous-cartilaginous membrane with firm adhesions between loops, limiting management to membrane resection and adhesion release, as well as resection of intestinal segments showing signs of ischemia or necrosis.

The recurrence rate is unknown; however, associated mortality can reach 35.4% and is related to postoperative complications in 7.7% of cases⁹. Complications associated with persistent sclerosing peritonitis are reported in 18.2% of cases⁹.

Regarding medical management, treating the underlying cause (when applicable) is suggested, such as switching from peritoneal dialysis to hemodialysis or treating tuberculosis if the patient has this comorbidity³. Immunosuppressive treatment has been studied, showing clinical improvement in renal transplant patients. Drugs such as corticosteroids, colchicine, azathioprine, cyclosporine, mycophenolate, and rapamycin inhibitors have been used to manage this condition, but with inconclusive results to this date⁹.

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Conflicts of interest

None declared.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained approval from the Ethics Committee for analysis and publication of routinely acquired clinical data and informed consent was not required for this retrospective observational study.

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