Abdominal cocoon, an uncommon cause of intestinal obstruction

Péritonite encapsulante, une cause rare d’occlusion intestinale

Abdominal cocoon, also called sclerosing encapsulating peritonitis, represents a rare entity characterized by the presence of a fibrous thickening of the peritoneal membranes enveloping small bowel loops and giving the appearance of a cocoon. This condition is a severe complication of peritoneal dialysis, which leads to intestinal obstruction. Radiological diagnosis is based on computed tomography features including high enhancement of thickened peritoneum, loculated fluid collections, peritoneal calcification, retraction of the mesentery with tethered small bowel loops. We report a case of abdominal cocoon complicating chronic pancreatitis.

Case report
A 41-year-old man was admitted in our hospital for a 2-week history of abdominal pain and vomiting. He was monitored for liver cirrhosis and alcoholic chronic pancreatitis with a medical past of infected pancreatic ascites nine months ago. He was febrile and physical examination showed a painful abdominal distension with ascites and severe malnutrition. Laboratory tests showed a C-reactive protein level of 300 mg per liter and a white-cell count of 17,000 per cubic millimeter. The ascites puncture was positive for *Escherichia coli* and *Pseudomonas aeruginosa*. Contrast-enhanced computed tomography (CT) of the abdomen showed marked enhancement of the peritoneum, peritoneal thickening, loculated ascites and encapsulated small bowel loops (*figure 1A and B*). These CT features evoked the diagnosis of sclerosing encapsulating peritonitis, so-called “abdominal cocoon”. Open surgery confirmed a fibrotic thickening of the parietal and visceral peritoneum with an inflammatory peritoneal process surrounding small bowel loops characterized by a cocoon-like appearance (*figure 2*). Histopathology report of peritoneal biopsy was consistent with dense peritoneal fibrosis.

Discussion
Sclerosing encapsulating peritonitis (SEP), also called abdominal cocoon, is a rare cause of intestinal obstruction due to a fibrotic encapsulation of the small bowel. The abdominal cocoon was first described and named by Foo et al. in 1978 [1]. In 1980, Gandhi et al. described a sclerosing process of the peritoneum as a complication of peritoneal dialysis [2]. SEP is a severe complication of continuous ambulatory peritoneal dialysis (CAPD), considered to be the main cause. Nevertheless, all the conditions with a chronic peritoneal inflammatory process can generate a SPE, such as cirrhotic ascites, severe pancreatitis, tuberculosis, peritoneal carcinomatosis, inflammatory foreign body reaction, autoimmune disease. Pathophysiology is complex with a two steps theory, characterized by a predisposing factor (e.g. peritoneal sclerosis due to CAPD) and a triggering factor leading to fibrosis.
factor (e.g. microbial peritonitis) [3,4]. CT imaging plays a crucial role in preoperative diagnosis of the abdominal cocoon. CT features of SEP include peritoneal thickening, loculated fluid collections, peritoneal calcification, marked enhancement of the peritoneum, tethering and thickening of the small bowel, calcification over liver capsule, spleen, posterior peritoneal wall and bowel [5-7]. Peritoneal sac excision and adhesiolysis is the usual treatment in case of intestinal obstruction [3].

Conclusion
Sclerosing encapsulating peritonitis is an uncommon cause of intestinal obstruction due to chronic inflammatory changes of the peritoneum. A better knowledge of this condition and its radiological features should improve its management.

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References