case report

Sclerosing encapsulated peritonitis: typical imaging findings for easy diagnosis

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Sclerosing encapsulated peritonitis (SEP) is a rare disease characterized by intestinal encasement within a fibrocollagenous membrane. Diagnosis of SEP may be challenging due to a lack of specific symptoms. Demonstration of clustered intestinal segments surrounded by a membranous sac by various imaging modalities is crucial to reveal the presence of SEP. Radiologic examinations play an important role in the management of the disease. This case is not unusual. Our intention is to emphasize the role of the imaging findings of a patient with primary SEP that presented with recurrent intestinal obstruction.

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Sclerosing encapsulated peritonitis (SEP) is an uncommon cause of intestinal obstruction defined as partial or complete encasement of the intestines by a fibrocollagenous capsule.[1] The clinical features that lead to the preoperative diagnosis include abdominal distention, colicky abdominal pain, and recurrent ileus episodes. The diagnosis of SEP is crucial for accurate management of the disease, but it is challenging without radiologic examinations due to the non-specific clinical findings.[2] We present a case of primary SEP with imaging features to emphasize the role of radiologic imaging methods.

CASE

A 29-year-old male patient was admitted to the emergency department with intermittent and crampy abdominal pain, abdominal distension, nausea, vomiting, inappetence which started two days before. He had a clinical history of similar episodes, with the last episode occuring a year previously. He stated that these episodes resolved spontaneously. He had no history of abdominal surgery, prolonged medication, tuberculosis, sarcoidosis, dialysis, or peritonitis. Physical examination revealed mid-abdominal tenderness and mild distention. Laboratory tests revealed an elevated C-reactive protein level of 4.9 mg/L (reference range 0.0–0.5 mg/L) and white blood cell (WBC) count of 17.9 x10^9/ L (reference range 3.5–10×10^9/L).

A plain abdominal radiography found a few air-fluid levels which indicated an intestinal obstruction (**Figure 1**). The patient subsequently underwent abdominopelvic ultrasonography to exclude any intra-abdominal mass or free fluid. The ultrasonography showed that intestinal segments were clustered and encased by a hyperechoic dense membrane (**Figure 2**). Brid ileus due to fibrotic bands was suspected, and abdominal CT showed dilated small bowels accumulated in the left iliac fossa within a thin sac-like membrane on CT (**Figure 3**). Proximal small bowel segments were moderately dilated and contained air-fluid levels. There was

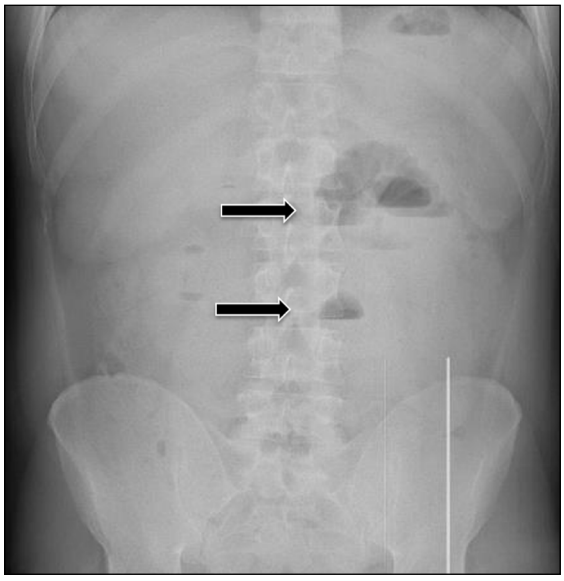

Figure 1. Abdominal x-ray showing air fluid levels (arrows).

no intra-abdominal mass, free fluid or air in the abdominal cavity. The patient was diagnosed as having primary SEP on the basis of imaging findings. Bowel rest with nasogastric decompression was initiated. On the second day, the ileus resolved spontaneously, and abdominal pain was relieved. Abdominal MRI showed extension of the fibrotic membrane around the intra-abdominal organs. As in the CT findings, the intestines were encased by a fibrocollagenous membrane on MRI (**Figure 4**). Excision of the fibrotic membrane was offered, but the patient refused any intervention.

DISCUSSION

SEP is a rare disorder that may cause recurrent ileus and abdominal pain. The disease has primary and secondary forms. In the primary form of the disease, also known as abdominal cocoon, there are no predisposing factors. Hypoplasia of the omentum is a possible etiology, but the mechanism of fibrotic membrane formation is still unclear.[3] In the secondary form, any condition that causes peritoneal inflammation and induces intra-abdominal fibrosis may be part of the etiology (peritoneal dialysis, ventriculoperitoneal shunts, previous abdominal surgery, tuberculosis, sarcoidosis, familial Mediterranean fever, fibrogenic foreign material, or extended practolol therapy).[4]

Clinical symptoms and laboratory findings are nonspecific, especially in the early stages of the disease. Thus, detection and diagnosis of SEP can be challenging without imaging methods. Plain abdominal radiography, ultrasonography, and CT can display dilated intestinal segments. Demonstration of the thin sac-like membrane, which envelopes the intestines, is the typical finding for SEP and can be displayed on both CT and MRI. Moreover, the extension of the fibrotic membrane and its relationship to surrounding structures can also be assessed more clearly with MRI.[2] Clustered, crowded and abnormally located intestines with signs of intestinal obstruction may also be seen in internal herniation, intestinal malrotation, and retractile mesenteritis, in which the membranous structure surrounding and enveloping the intestine are not present.[5]

Bowel rest with nasogastric decompression and fluid electrolyte therapy are often treatable in patients with symptoms that are not severe, and not accompanied by life-threatening conditions like intestinal necrosis and perforations, bleeding, or any other significant symptoms. Conservative treatment is mostly a time-saving option, although surgery is curative. Partial or total excision of the fibrotic membrane is the best choice in surgical procedure.[2] In conclusion, primary SEP is a rare cause of ileus in patients with symptoms of recurrent abdominal pain and ileus. A fibrocollagenous membrane is typical in SEP and can be easily demonstrated by radiologic imaging methods. Familiarity with radiological findings is important for appropriate assessment and management.

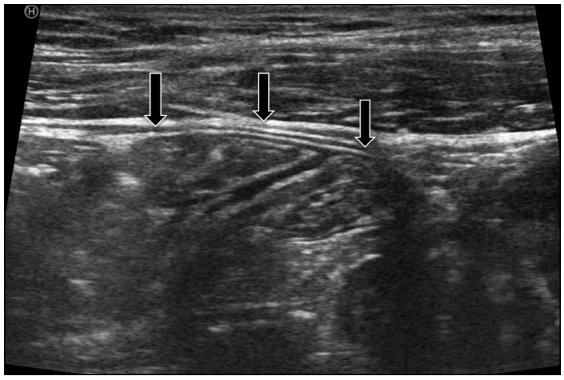

Figure 2. Gray-scale ultrasound image showing hyperechoic linear structure enveloping clustered bowel segments loops (arrows). Free fluid is not observed.

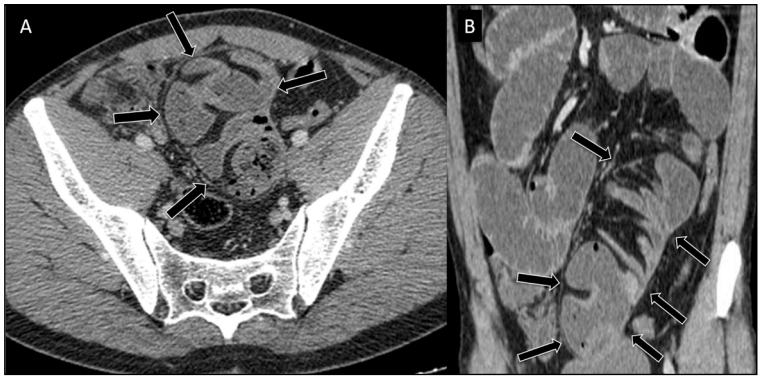

Figure 3. Axial (A) and coronal (B) contrast-enhanced abdominal computed tomography showing clustered small intestines and a thin membranous structure surrounding the intestinal loops (arrows).

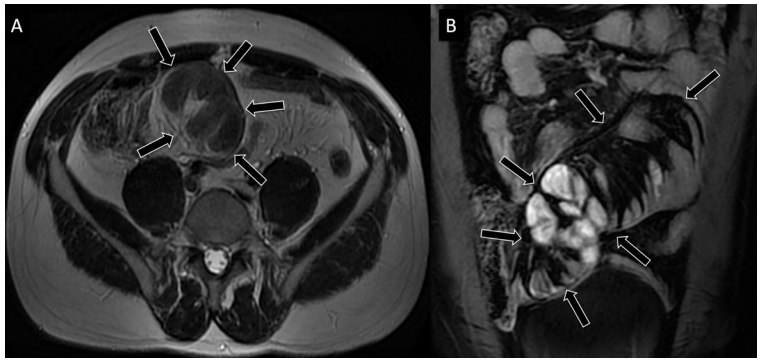

Figure 4. Axial T2-weighted (A) and coronal FIESTA (B) MR images showing a hypointense membranous structure (arrows) in keeping with sclerosing encapsulated peritonitis.

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