Case Series

Idiopathic sclerosing encapsulating peritonitis (abdominal co-coon): A case series on clinical features, imaging, and surgical outcomes

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Abstract

Background: Sclerosing encapsulating peritonitis, also known as abdominal cocoon syndrome, is a rare cause of small bowel obstruction characterized by encasement of the intestines within a fibrocollagenous membrane. Preoperative diagnosis is often challenging due to nonspecific clinical presentation and overlapping imaging features. We present a case series of two male patients who presented with features of acute intestinal obstruction. Both patients had a history of abdominal pain, bilious vomiting, and obstructive symptoms. Contrast-enhanced computed tomography (CECT) revealed cluster of small bowel loops resembling an internal hernia. Intraoperatively, a thick fibrous membrane encasing the small intestine was identified in both cases, pointing to the diagnosis of idiopathic sclerosing encapsulating peritonitis. Both patients underwent surgical management with complete excision of the fibrous membrane and adhesiolysis. One case required extensive dissection due to involvement of the entire small bowel, while the other involved segmental bowel encasement. The postoperative course was uneventful in both cases, with gradual return of bowel function and favourable recovery. This case series highlights the importance of considering abdominal cocoon syndrome as a differential diagnosis in patients presenting with intestinal obstruction. Early recognition and timely surgical intervention are crucial for optimal outcomes.

Keywords: Sclerosing encapsulating peritonitis; Abdominal cocoon syndrome; Small bowel obstruction; Adhesiolysis; Intestinal obstruction; Laparotomy; Internal hernia

1. Introduction

Idiopathic Sclerosing Encapsulating Peritonitis, commonly referred to as abdominal cocoon syndrome, is a rare clinical entity characterized by partial or complete encasement of the small intestine within a dense fibrocollagenous membrane. First described by Foo et al. in 1978, it is an uncommon cause of small bowel obstruction and is often diagnosed intraoperatively due to its nonspecific clinical and radiological features [1].

The condition may be classified as idiopathic or secondary. Idiopathic cases are more commonly reported in young individuals without any identifiable cause, whereas secondary forms are associated with conditions such as prior abdominal surgery, peritoneal dialysis, tuberculosis, and chronic inflammatory states [2]. The exact pathogenesis remains unclear, although chronic subclinical peritoneal inflammation is thought to play a key role.

Clinically, patients typically present with recurrent episodes of abdominal pain, nausea, vomiting, and features of intestinal obstruction. Physical examination findings are often nonspecific, making preoperative diagnosis challenging. Radiological imaging, particularly contrast-enhanced computed tomography (CECT), may reveal clustering of small bowel loops encased within a membrane, sometimes described as the "cocoon sign," along with signs of obstruction [3].

Definitive diagnosis is usually established during surgery. The mainstay of treatment is surgical excision of the fibrous membrane and adhesiolysis, which typically results in good outcomes. Bowel resection is rarely required unless there is associated ischemia or necrosis [4].

In this case series, we present two patients with idiopathic sclerosing encapsulating peritonitis presenting features of intestinal obstruction, highlighting the clinical variability, imaging findings, and surgical management of this rare condition.

2. Case Presentation

2.1. Case 1

A 34-year-old male, a known case of epilepsy, presented with complaints of abdominal pain for 3 days and bilious vomiting for 2 days. He also reported non-passage of stools and flatus for 1 day.

On examination, the patient was hemodynamically stable. The abdomen was distended with diffuse tenderness. Bowel sounds were exaggerated, and features were suggestive of small bowel obstruction.

Contrast-enhanced computed tomography (CECT) of the abdomen revealed multiple adhesive bands with clustering of small bowel loops, suggestive of an internal hernia. Dilated mid and distal jejunal loops along with ileal loops were noted. There was evidence of small bowel obstruction with mild diffuse bowel wall thickening and edema. The affected loops showed reduced enhancement with minimal interloop fluid. No evidence of pneumoperitoneum was noted.

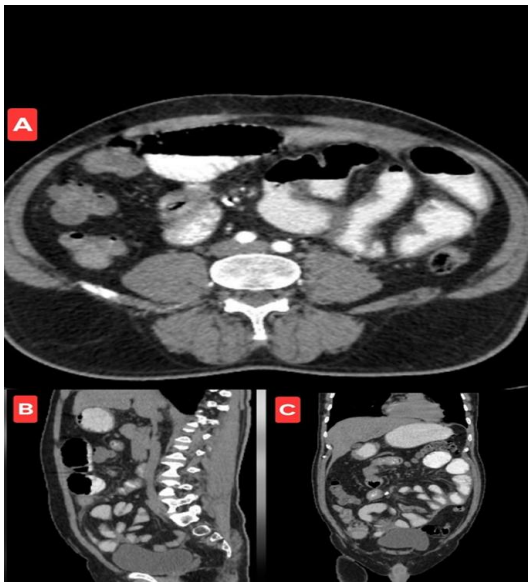

Fig (1): CECT abdomen ((A) axial, (B) sagittal, and (C)coronal sections) demonstrating clustered and dilated small bowel loops encased within a fibro collagenous membrane ("cocoon sign") with features of small bowel obstruction

The patient was taken up for emergency laparotomy. Intraoperatively, a thick fibrous membrane was found encasing the entire small intestine from the duodenojejunal flexure to the ileocecal junction. The large bowel, stomach, and other solid organs appeared normal. Small omental granulomas were noted.

The fibrous membrane was carefully dissected and excised using meticulous dissection techniques. Complete adhesiolysis was performed, and the small bowel loops were released from the duodenojejunal flexure to the ileocecal junction. Appendectomy was performed. Hemostasis was achieved, and a drain was placed. The abdomen was closed in layers.

The postoperative course was uneventful. The patient was mobilized on postoperative day 1. Ryle's tube was removed and oral intake was initiated with clear liquids on postoperative day 2 and gradually advanced to a liquid diet on day 3. The urinary catheter was removed on postoperative day 3. The patient started on a soft diet by postoperative day 4. The abdominal drain was removed on postoperative day 6. The patient recovered well and was discharged in stable condition.

2.2. Case 2

A 51-year-old male, a known case of systemic hypertension, presented with complaints of abdominal pain × 3 days abdominal distension, and bilious vomiting x1 day.

On clinical evaluation, findings were consistent with intestinal obstruction.

Contrast-enhanced computed tomography (CECT) of the abdomen revealed clustering of small bowel loops with features suggestive of an internal hernia. Dilated proximal jejunal loops were noted along with distal bowel involvement.

The patient was taken up for surgical management. Diagnostic laparoscopy was initially performed, which revealed an extensive fibrous membrane encasing the small bowel loops and so we proceeded with definitive surgical management.

Intraoperatively, a fibrous membrane was found encasing the bowel from the distal jejunum to the ileocecal junction. Approximately 60 cm of proximal jejunum was noted to be dilated and thickened. The membrane was carefully dissected and excised, and complete adhesiolysis was performed to release the bowel loops. No evidence of bowel ischemia or perforation was noted.

Hemostasis was achieved, and peritoneal lavage was performed using approximately 1 liter of Ringer lactate solution. A drain was placed, and the abdomen was closed in layers.

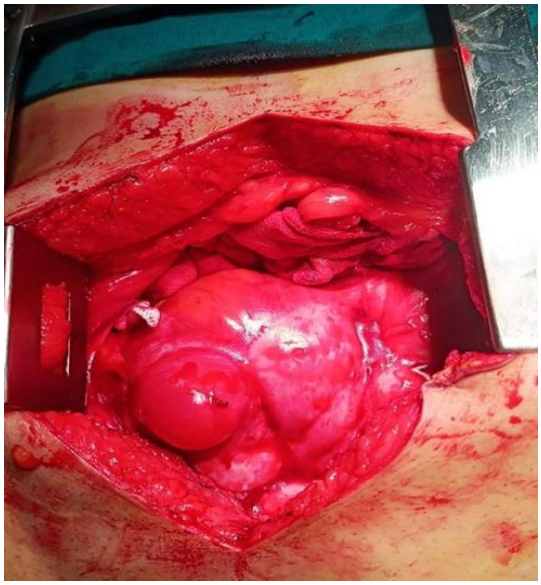

Fig (2): Intraoperative photograph showing small bowel loops encased within a thick fibrocollagenous membrane (abdominal cocoon).

The postoperative course was uneventful. The patient recovered well and was discharged in stable condition.

3. Discussion

Idiopathic Sclerosing Encapsulating Peritonitis presents a unique intraoperative challenge due to the presence of a dense fibro collagenous membrane encasing the bowel loops, leading to varying degrees of intestinal obstruction. Radiological diagnosis is usually challenging for diagnosis, and the exact extent and severity of involvement are best appreciated during surgical exploration.

In the present series, both patients presented with features of small bowel obstruction; however, intraoperative findings revealed differences in the extent of bowel involvement. Case 1 demonstrated complete encasement of the small intestine from the duodenojejunal flexure to the ileocecal junction, necessitating extensive adhesiolysis. In contrast, Case 2 showed segmental involvement from the distal jejunum to the ileocecal junction, allowing for relatively less complex dissection. This variation significantly influences operative difficulty and surgical planning.

A notable intraoperative finding in Case 1 was the presence of omental granulomas, which may indicate a chronic inflammatory process. Although no definitive etiology was established, such findings raise the possibility of subclinical or prior inflammatory conditions such as abdominal tuberculosis, previous subclinical peritonitis, or other chronic infective or inflammatory processes contributing to membrane formation. This

highlights the importance of careful intraoperative assessment and consideration of underlying etiologies.

From a surgical perspective, meticulous adhesiolysis is crucial to prevent iatrogenic bowel injury, particularly in cases with dense adhesions and extensive bowel encasement. The use of careful blunt and sharp dissection techniques enables safe release of bowel loops while preserving bowel viability. In both cases, complete excision of the membrane was achieved without the need for bowel resection, indicating timely intervention before the onset of ischemic complications.

Early surgical management plays a key role in preventing complications such as bowel ischemia, perforation, and recurrent obstruction. Both patients in this series had favorable postoperative outcomes with early mobilization and gradual return of bowel function.

This case series also highlights that despite similar clinical presentations; the intraoperative extent of disease can vary significantly. Awareness of this variability is essential for surgeons to anticipate technical challenges and tailor surgical management, accordingly, thereby ensuring optimal outcomes.

4. Conclusion

Idiopathic Sclerosing Encapsulating Peritonitis should be considered in patients presenting with features of small bowel obstruction, especially when imaging suggests clustered bowel loops. The extent of bowel involvement can vary, influencing surgical complexity. Timely surgical intervention with complete membrane excision and adhesiolysis results in favorable outcomes.

References

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