

Abdominal cocoon: Intestinal obstruction, perforation and ischemia

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ABSTRACT

Introduction: Abdominal cocoon, also known as sclerosing encapsulating peritonitis, is a rare condition that indicates total or partial encapsulation of the small bowel by a fibrocollagenous membrane or cocoon leading to bowel obstruction. Approximately 50 cases have been reported in literature. Patients usually present with a picture of bowel obstruction and most cases are diagnosed during laparotomy. **Case Report:** We report a case of a 31-year-old male who presented with picture of bowel obstruction and a palpable para-umbilical abdominal swelling. Laboratory and radiologic investigations were not conclusive. Exploratory laparotomy showed that the patient has abdominal cocoon with bowel obstruction, perforation and ischemia. The capsule was removed and the involved bowel segment was resected. **Conclusion:** Abdominal cocoon syndrome should be suspected in patients with

bowel obstruction with no clear cause. Early diagnosis and treatment avoids bowel ischemia or further complications.

Keywords: Abdominal cocoon, Intestine, Ischemia, Obstruction, Perforation

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INTRODUCTION

Abdominal cocoon, also known as sclerosing encapsulating peritonitis, is a rare condition that indicates total or partial encapsulation of the small bowel by a fibrocollagenous membrane or cocoon leading to bowel obstruction [1]. It is usually classified as primary (idiopathic) or secondary type. The primary type mainly presents in adolescent females from tropical countries and peritonitis evoked by retrograde menstruation may be a causative factor in this form. The second type is more common and is usually considered to be multifactorial, but genetic susceptibility may also be an etiological agent [2].

Clinically, most patients present with symptoms and signs suggestive of acute or bowel obstruction [3]. Management usually needs excision of the peritoneal sac and release of adhesions [4].

CASE REPORT

A 31-year-old male patient, known to have alcoholic liver disease, portal hypertension and esophageal varices; presented to the emergency department complaining of central abdominal pain of one day duration. Pain was colicky, moderate in intensity, non-radiating, increased after food intake and associated with one episode of bilious vomiting. He reported a similar attack one week prior to presentation, which resolved spontaneously. He also gave history of a swelling in the left para umbilical area for one day, which also appeared two weeks before that, but disappeared spontaneously.

On examination: The patient was conscious, oriented and in pain. Vital signs showed pulse 70 bpm, blood pressure 104/66 mmHg and temperature 37°C. The abdomen was mildly distended but lax with a 3x3 cm soft, compressible, lobulated swelling in the left paraumbilical region, slightly tender, mobile, and non-pulsatile. No guarding or rigidity was present and bowel sounds were positive.

Laboratory investigations showed white blood cell 7000/ mm³, hemoglobin 7.4 g/dl, total bilirubin 1.5 mg/dl, creatinine: 3.5 g/dl, lactic acid 1.0, and C-reactive protein 39.

Computed tomography scan of the abdomen and pelvis showed cirrhotic liver changes associated with significant abdominopelvic ascites. Loops of small bowel were amalgamated in the left paraumbilical region with surrounding capsule (Figures 1 and 2).

Management

The patient was admitted to the hospital, started on intravenous fluids and antibiotics, and was shifted to the operating room.

Exploratory laparotomy showed:

- Two liters of turbid, foul-smelling fluid in the abdomen.
- Amalgamated small bowel mass encased in fibrous peritoneal pockets of fibrosis with areas of necrosis and perforation, (Figure 3).
- Features were representative of abdominal cocoon with bowel perforation (Figure 4).
- Parietal peritoneum showed extensive fibrous formation encasing the liver, colon and stomach.

Resection of the perforated small bowel segment was done.

The patient was transferred to the surgical intensive care unit (SICU) postoperatively and a relook laparotomy was done after one day.

Some of the fibrous tissue encasing the small intestine was released and an end-to-end anastomosis was created with a healthy bowel segment, but the patient was going into sepsis.

On pathologic examination, resected small bowel showed features of subacute serositis, while the capsule removed showed connective fibrous tissue.

The patient was then kept in the SICU; he developed an enterocutaneous fistula. Few days later, the patient started to have sepsis that resulted in multi-organ failure

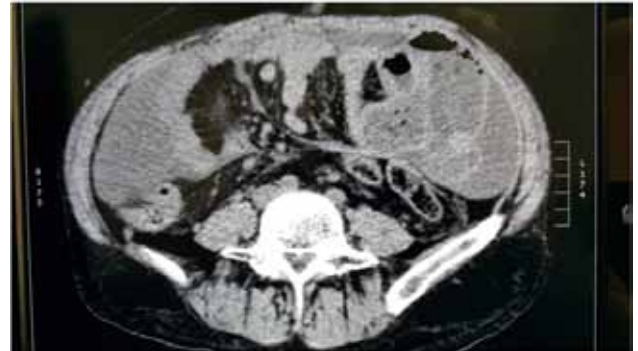


Figure 1: Computed tomography of the abdomen and pelvis showing cirrhotic liver changes associated with significant abdominopelvic ascites with amalgamated loops of small bowel in the left paraumbilical region with surrounding capsule.



Figure 2: Computed tomography of the abdomen and pelvis showing cirrhotic liver changes associated with significant abdominopelvic ascites with amalgamated loops of small bowel in the left paraumbilical region with surrounding capsule.

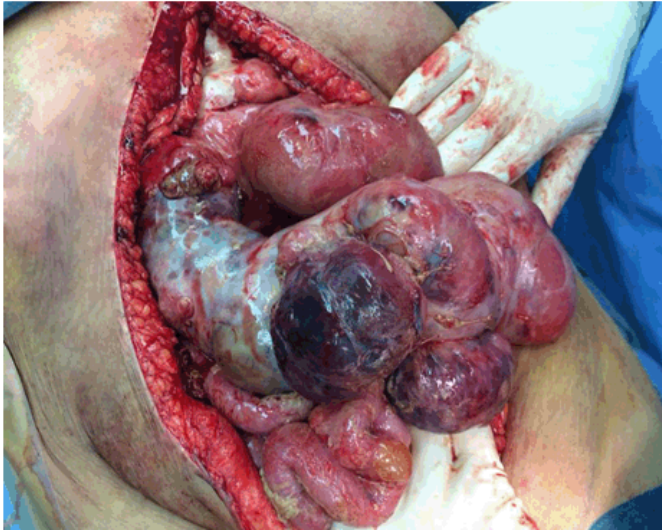


Figure 3: Exploratory laparotomy showing amalgamated small bowel mass encased in fibrous peritoneal pockets of fibrosis with areas of necrosis and perforation.



Figure 4: Exploratory laparotomy showing features representative of abdominal cocoon with bowel perforation.

and death.

DISCUSSION

Abdominal cocoon or sclerosing encapsulating peritonitis (SEP) is a rare condition that refers to

total or partial encapsulation of the small bowel by a fibrocollagenous membrane or cocoon with local inflammatory infiltrate leading to acute or chronic bowel obstruction [1]. The abdominal cocoon was first described and named in 1978 by Foo et al. Since then, approximately 50 cases have been reported in literature [5]. The majority of the cases are reported from tropical and subtropical climate belts of the world. The only case reported from a non-tropical zone is from England, in which the case was born in Pakistan [6].

The SEP is mainly an acquired disease. Many causes were listed in the pathogenesis of SEP including previous abdominal surgery or peritonitis, chronic ambulatory peritoneal dialysis and prolonged use of practolol [3]. Other conditions have been mentioned including ventriculoperitoneal and peritoneovenous shunts, SLE, sarcoidosis, cirrhosis, propranolol use for constrictive pericarditis, uterine and ovarian tumors, and recurrent peritonitis [7–9].

Clinically, most patients with abdominal cocoon syndrome (ACS) present with features of recurrent acute or chronic small bowel obstruction secondary to kinking and/or compression of the intestines within the constricting cocoon [3]. Yip and Lee [9] listed four main clinical features that help to identify abdominal cocoon preoperatively including: young girl with no other cause of bowel obstruction, similar attacks that resolved spontaneously, abdominal pain and vomiting, and a non-tender soft abdominal mass on palpation.

Abdominal X-ray and ultrasonography are not useful to differentiate ACS from other causes of bowel obstruction. Computed topography is more beneficial in differential diagnosis. The finding of a fibrous membrane enclosing the intestinal loops is a typical radiological finding of ACS [10]. However, although radiological findings, especially computed tomography, are helpful; yet, final and definite diagnosis is generally by surgery, as confirmed by ACS literature [10].

Treatment consists of excision of the peritoneal sac with lysis of the interloop adhesions. Bowel resection is done if a nonviable segment is found [4].

CONCLUSION

Abdominal cocoon is a rare cause of intestinal obstruction. It should be suspected in all patients with bowel obstruction of unknown cause. A high index of suspicion is needed for diagnosis. Treatment consists of adhesiolysis and excision of the cocoon. Early diagnosis and treatment may help to avoid bowel ischemia or perforation.

Author Contributions

Bassem Mahmoud Abou Hussein – Substantial contributions to conception and design, Acquisition of

data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ali Mohammad Al-Ani – Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Filza Khalid Khalid – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article

Yousif Hussein El Tayyeb – Substantial contributions to conception and design, Drafting the article, Critical revision of the article, Final approval of the version to be published

Alya Saif Al-Mazrouei – Substantial contributions to conception and design, Drafting the article, Critical revision of the article, Final approval of the version to be published

Faisal Mohammad Al-Badri – Substantial contributions to conception and design, Drafting the article, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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