Case Series

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Abdominal cocoon syndrome with enigmatic etiology

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ABSTRACT

Abdominal cocoon is a rare condition leading to acute or chronic bowel obstruction. Though multiple etiologies have been defined, many are idiopathic. We had three different cases of intestinal obstruction. First one was a case of intestinal obstruction in a young female and was diagnosed to have tuberculosis. She had abdominal cocoon along with perforation where even adhesiolysis was unsuccessful. Second one was a cause of right inguinal hernia in a 62-year-old male. Bowel was enclosed in a membrane and diagnosed as localised variant of abdominal cocoon. Membrane was removed and right herniorrhaphy was done. Third one was a 35-year-old male with abdominal cocoon. No previous tuberculosis history was noted and adhesiolysis was done. Thus, abdominal cocoon can present with enigmatic etiology and presentation. Only an occasional case can be due to tuberculosis as described in literature. It must always be a differential diagnosis for a case of acute or chronic intestinal obstruction.

Keywords: Abdominal cocoon, Sclerosing encapsulating peritonitis, Intestinal obstruction

INTRODUCTION

Abdominal cocoon, a rare condition is total or partial encapsulation of the small bowel by a fibro-collagenous membrane with local inflammation leading to acute or chronic intestinal obstruction. The condition is also called as 'peritonitis chronica fibrosa incapsulata' and sclerosing encapsulating peritonitis.¹

Sclerosing encapsulating peritonitis is of unknown etiology, but other causes of sclerosing peritonitis are reported in association with practolol intake, chronic ambulatory peritoneal dialysis, ventriculoperitoneal and peritoneovenous shunts, systemic lupus erythematosus, liver cirrhosis, constrictive pericarditis being treated with propranolol, intra-peritoneal instillation of drugs, endometriotic cyst or tumors of the ovary, and, recurrent peritonitis. Only an occasional case of sclerosing encapsulating peritonitis occurring secondary to a tuberculous etiology has been reported.²

Here we report three cases of cocoon abdomen with different etiology and presentation. Cocoon abdomen is not always due to tuberculosis.

CASE SERIES

Case 1

A 28-year-old unmarried female presented to the emergency department of Madras medical college with complaints of abdominal pain for two weeks which was acute in onset, continuous and no aggravating or relieving factors. She also has bilious vomiting several episodes and there is no relief of pain after vomiting. She was admitted in another hospital for 12 days where she was evaluated and found to have abdominal tuberculosis and the pain was severe for the past 3 days. She also had associated loose stools. Now she developed abdominal distension for 3 days and was referred for further management. No history of similar complaints and

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contact with tuberculosis in the past. She is not a smoker or alcoholic. Her ascitic fluid analysis was done before admission here and it was serous and AFB was positive with elevated adenosine deaminase.

On admission, patient was dehydrated with a pulse rate of 120/min and blood pressure of 90/70 mmHg. On abdominal examination, abdomen distended and diffuse tenderness was present with rigidity. Shifting dullness was noted. Ascitic fluid tapping was feculent. Per rectal examination was done and there was faecal staining.

Routine blood investigations revealed elevated leukocyte count (28,000/cu.mm) and prerenal AKI. Viral markers were negative. X-ray showed pneumoperitoneum. CT abdomen showed features of abdominal tuberculosis with pneumoperitoneum. But the site of perforation was not identifiable. Free fluid was noted.

Emergency laparotomy was planned. Following findings noted (Figure 1). About two litres of feculent discharge was drained. Omentum was oedematous and was covering the whole small and large bowel. Careful separation attempted but the risks of further perforation are high. On table surgical gastroenterology call over was made. Attempts to visualise the perforation failed. It was advised to wash and keep drain. Poor prognosis was explained to the attenders. Patient expired due to sepsis on third post-operative day.



Figure 1: Intra operative picture of case 1, no separation of bowel and omentum could be attempted.

Case 2

A 62-year-old male presented with complaints of swelling in the right groin for one year which was initially small in size and gradually increased to attain present size. It reduces by itself initially and now it is irreducible for the past two months. Now patient has pain over the swelling for past one week which was acute in onset, continuous and no relieving factors. Patient had loose stools for one week and now he is having obstipation for 2 days. Patient is diabetic, smoker and alcoholic. No history of tuberculosis in the past.

On admission, patient had pulse rate of 98/min and blood pressure of 120/70 mmHg. On abdominal examination, abdomen distended and diffuse tenderness was present with no guarding and rigidity. Patient had right irreducible indirect complete inguinal hernia and no skin changes noted. Per rectal examination was done and there was faecal staining. Routine blood investigations revealed elevated liver and renal function test. Viral markers were negative. X ray showed dilated bowel loops with air fluid level. CT abdomen showed dilated bowel loops with transition at distal ileum with collapsed distal loops and right inguinal hernia. Features were suggestive of intestinal obstruction with minimal free fluid.

Patient was taken for emergency procedure. J shaped incision was made over right groin and content was found to be small bowel covered in a membrane (Figure 2 and 3). Proximal loops dilated and distal loops were collapsed. After separating from the cord, membrane was dissected and adhesions released. Peristalsis was noted and herniorrhaphy was done. It was found to be localised case of cocoon abdomen. Ascitic fluid was taken for analysis and it was negative for tuberculosis.



Figure 2: Intra operative picture of case 2, small bowel was covered with the membrane.



Figure 3: Intra operative picture of case 2, dilated proximal bowel can be noted.

Case 3

A 35-year-old male presented with complaints of abdominal pain for two days which was acute in onset and continuous. Patient is having abdominal distension obstipation for the past two days. No vomiting. No history of similar complaints and contact with tuberculosis in the past.

On admission, vitals stable. On examination, abdomen distended with no signs of peritonitis. Routine blood investigations were normal. X ray revealed air fluid levels and signs of obstruction. CT abdomen was taken and showed intestinal obstruction. No free fluid was noted.

Emergency laparotomy was done and following findings noted (Figure 4). Whole small and large bowel was covered with a thin membrane with minimal free fluid. Adhesiolysis was done and the membrane was removed. There was a kinking of the bowel loops in the right hypochondrium within the membrane and proximal bowel loops were dilated. Peristalsis was restored after the adhesions were released. Flow was noted through the segment and bowel was normal. Wash given and abdomen closed in layers. Patient recovered uneventfully and discharged. There was no evidence of tuberculosis in the abdomen and chest.

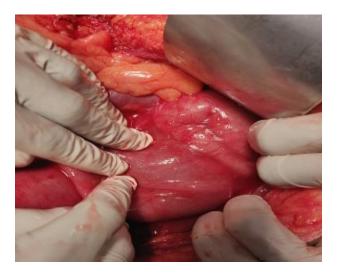


Figure 4: Intra operative picture of case 3, thin membrane was seen covering the bowel.

DISCUSSION

Foo devised the term abdominal cocoon in 1978.⁵ All three cases had different causes and only the first case was due to tuberculosis. It is very difficult to diagnose clinically and CECT abdomen always helps in diagnosis. Whatever the cause surgery is the main modality of treatment and it must be done at the earliest to avoid bowel gangrene and peritonitis which eventually lead to grave prognosis. Tuberculosis must always be ruled out as it is one of the causes for abdominal cocoon.

The gross appearance is of a cocoon like encasement of the intestine. Three types of abdominal cocoon have been described based on the extent of involvement of the small intestine or other organs. If the membrane involves only a part of small intestine the cocoon is of type I, if the entire small bowel is involved it is the type II and if the colon or any visceral organs are also encapsulated then it is of type III.³ Our second case is type II and other two cases are type III.

Kaushik et al reported 6 cases of cocoon abdomen due to tuberculosis. All cases were managed by adhesiolysis and with one case having resection and anastomosis and another having ostomy done. All patients were started on anti-tubercular drugs post operatively.²

One article reported a case of 30-year-old male who presented with acute intestinal obstruction. He was found to have tuberculosis on laparotomy and was treated accordingly. He showed that if the disease is mild to moderate, it can be managed with bowel rest, steroids and tamoxifen.⁴

Ulunoglu et al reported a 47-year-old male patient whose presentation was similar to our case. Patient was managed surgically with excision of the membrane and adhesiolysis. Similar management was followed in our case.⁶

Number of factors has been attributed to sclerosing encapsulating peritonitis. One such is the use of povidone iodine after colorectal surgeries and two such patients have developed sclerosing encapsulating peritonitis. Practolol intake has also been linked to sclerosing encapsulating peritonitis in patients who are currently taking or has taken previously and many countries have discontinued their use. 8

CONCLUSION

Abdominal cocoon can be of various cause and presentation. Tuberculosis is one of the causes of abdominal cocoon and hence it should be managed accordingly. Peritoneal sac excision and adhesiolysis is the treatment and the outcome is usually satisfactory.

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