Computed Tomographic Findings of an Abdominal Cocoon with Intestinal obstruction: a case report

TAIW LEE1  MING-DER LEE2  MING-HSIEAN HSU1  SHUN-AN LEE1  USMAN MALIK1

Yuan-Li Lee General Hospital, Lee Medical Corporation1
Graduate Institute of Long-term Care2, National Taipei College of Nursing

Abdominal cocoon also referred to as sclerosing encapsulating peritonitis, is a relatively rare cause of intestinal obstruction in which variable lengths of bowel is encased in a dense fibrotic membrane with the appearance of a cocoon. We present a case of a 57-year-old woman with severe abdominal pain and nausea. X-ray of abdomen showed a mass-like shadow over right lower quadrant of abdomen with partial intestinal obstruction. Abdominal computed tomogram imaging revealed a conglomerate of several ileal loops surrounded by a thin membrane in right lower abdomen, forming a sac-like structure or a cocoon and associated with proximal intestinal obstruction. Upon surgery, an abdominal cocoon over the terminal ileum, 30cm proximal to ileo-cecal valve. We would like to emphasize that the typical findings of Computed tomogram (CT) were of significant help in the diagnosis of abdominal cocoon.

Abdominal cocoon is a condition in which a segmental bowel is encased in a dense fibrotic membrane, causing intestinal obstruction. The origins of this disease vary widely; it can be idiopathic or secondary to various abdominal disorders. We present a patient with an intestinal obstruction whose abdominal computed tomographic (CT) images showed typical findings of an abdominal cocoon, a diagnosis is confirmed by the following operative findings.

CASE REPORT

A 57-year-old woman was admitted via Emergency Room for severe abdominal pain and nausea for the prior several days. She had been well in the past with no history of abdominal operation or procedure. General physical examination revealed an anxious looking. Her pulse was 104/minute, body temperature 37°C, blood pressure 110/60mmHg. There was no cyanosis or jaundice. No abnormality of the chest or cardiovascular system was found. Local examination of abdomen revealed slight tenderness and distented were found with hypoactive bowel sounds. At Emergency Room, abdominal X-ray showed a space-occupying lesion in the right lower abdomen with proximal intestinal dilatation (Fig. 1). Chest film showed no active lung lesion.

Routine laboratory workup revealed normal findings, including results of complete blood count, serial metabolic analysis, and urine analysis, etc. After admission, an abdominal sonogram was performed and proximal intestinal dilatation with some ascites were found; peritonitis was suspected; Abdominal CT was done and showed a conglomerate of small bowel loops in right lower abdomen with encasement by a thin membrane, resulting in proximal intestinal obstruction (Fig. 2). Abdominal cocoon with intestinal obstruction is suspected. The patient consulted with a surgeon and a
laparotomy was performed subsequently. A cocoon or sac-like lesion about 10 cm in dimension with a shiny covering membrane was found (Fig. 3); it was located 30 cm proximal to the ileocecal valve with diffuse intestinal dilatation above this lesion. After excision and peeling off the membrane, a glomerate of ileal loops within the membrane was found, containing some sticky food-like material. This material passed through to distal bowel loops when the surgeon squeezed the ileal loops; a lysis procedure was done at the same time. Finally, the whole small bowel was freed and looked normal and patent. The peeled off membrane was studied histopathologically and revealed thickened fibrotic tissue without foci of inflammation. The patient had an uneventful postoperative recovery period and was discharged from the hospital about ten days after operation. The patient has been regularly followed-up at Out-Patient Department for 19 months after surgery without any recurrence of abdominal symptoms.

DISCUSSION

Small bowel obstruction is a common cause of acute abdomen. Accurate diagnosis is important to achieving effective management and preventing complications, and clinical signs and symptoms are not always helpful. Abdominal computed tomogram has, however, been shown to be effective in diagnosing small bowel obstruction with high degree of sensitivity [1]. Abdominal CT can sometimes provide information about the specific cause and site of obstruction. Adhesions are the most common cause of small bowel obstruction, accounting for 60-80% of all the cases [2]. Other possible causes include external hernia, inflammatory strictures, tumors, etc.

Abdominal cocoon or sclerosing encapsulating peritonitis (SEP) was first mentioned in literature in 1978 by Foo et al. as a rare benign cause of acute or subacute intestinal obstruction [3]. It is characterized by total or partial encasement of the small bowel within a thin fibrotic membrane. It is found in perimenarchal young women of the tropics and subtropics and was thought to be caused by viral peritonitis complicating retrograde menstruation [3]. Since then, published reports of cases with similar presentation have been related to the use of oral practolol (β-adrenergic blocker) [4], found in cirrhotic patients treated by peritoneovenous shunt, or in patients with chronic ambulatory peritoneal dialysis, occurring after orthotopic

Figure 1. 57-year-old woman with abdominal cocoon. KUB shows an occupied mass shadow (arrow) over right lower quadrant of abdomen with proximal intestinal dilatation.

Figure 2. 57-year-old woman with abdominal cocoon. CT scan of abdomen shows cluster or glomarate of ileal loops are encased by a thick membrane (arrowheads) that occupied right lower quadrant of abdomen.
CT findings, abdominal cocoon, intestinal obstruction

CT findings, abdominal cocoon, intestinal obstruction

liver transplantation, or in patients with a history of previous abdominal surgery or peritonitis. The pathogenesis of this entity is uncertain and may be idiopathic as in our case.

The common presentations of this entity include abdominal distention, pain and vomiting. Some of these symptoms may resolve spontaneously, with the presence of a soft nontender mass on abdominal palpation. These findings are not specific for making an accurate diagnosis.

Only a few reports are found in the radiologic literature regarding imaging findings of abdominal cocoon [5, 6]. Radiographs of the abdomen may show a sign of small bowel obstruction that is similar to those in patients with any other causes. Barium swallow studies may reveal a circumscribed mass of bowel loops conglomerate in one area with or without delayed passage of contrast material [7, 8]. Ultrasonography may reveal an echogenic mass of dilated small bowel loops surrounded by a thick rim of hypoechoic fibrous membrane [9]. In appropriate clinical setting, recognition of the entire dilated small bowel at the center of the abdomen, which is found on CT or MRI (Magnetic Resonance Imaging) images to be encased within a thick fibrocollagenous membrane as though it were in a cocoon, is diagnostic of SEP [4, 5, 10]. Other imaging findings may include signs of obstruction, fixation of intestinal loops, ascites or localized fluid collections, bowel wall thickening, peritoneal or mural calcification, and reactive adenopathy. Abdominal X-ray of our case showed a space-occupying mass shadow in right lower quadrant of abdomen with proximal bowel dilatation; but barium swallowing study was not performed in our case because we were concerned the patient’s condition might become worse after the examination. Abdominal CT revealed a thin membrane encapsulating clustered small bowel loops over right lower abdomen associated with proximal intestinal dilatation and these findings were confirmed by the subsequent surgery.

Among all the causes of small bowel obstruction, an internal hernia that causes localized collection of small bowel loops with symptoms of obstruction must be considered in the differential diagnosis of SEP. Abdominal computed tomographic (CT) findings of an internal hernia are: (a) central location of the small bowel, (b) evidence of small bowel obstruction, (c) clustering of the small bowel, (d) displacement of and mass effect on adjacent organs, and (e) stretched, displaced, crowded, and engorged mesenteric vessels [11]; however, no encapsulated membrane and clustered bowel loops are present. Presence of a thin membrane surrounding clustered bowel loops on computed tomographic images in the diagnosis of abdominal cocoon is able to differentiate from the possibility of internal hernia [5, 6].

In conclusion, the radiologist should keep in mind that the presence of small bowel obstruction, with a conglomerate of some bowel loops surrounded by a thin membrane revealed on CT or MRI studies in the patient of acute abdominal pain is the clue to the diagnosis of abdominal cocoon.

REFERENCES

2. Balthazar EJ, Liebskind ME, Macari M. Intestinal ischemia in patients in whom small bowel obstruction is suspected, evaluation of accuracy limitations, and clinical implication of CT in diagnosis, Radiology 1997; 205: 519-522

Figure 3. 57-year-old woman with abdominal cocoon. Intraoperative photograph shows a cocoon lesion (arrow) with a shiny, thick covering membrane over right lower abdomen.
腹部腸繭合併腸阻塞之電腦斷層發現：病例報告

李韞¹  李明德²  許明賢¹  李順安¹  馬里克¹

李綜合醫療社團法人苑裡李綜合醫院¹
國立台北護理學院 長期照護研究所²

腹部腸繭又稱為硬化包覆型腹膜炎，它是造成腸阻塞罕見的原因，其特徵是某段腸道被緻密纖維化包膜所覆蓋形成類似“繭”之病灶。我們提出一位 57 歲婦女之病例主要臨床表現是多日來嚴重腹痛及噁心，腹部 X 光攝影中發現右下腹部有一腫塊陰影合併腸阻塞徵象，後續之腹部電腦斷層檢查影像中可見在右下腹一團迴腸被一薄膜包住，形成類似囊狀或繭狀物，同時合併近端腸阻塞，手術中發現這腸繭位置在距迴音瓣近端 30 公分處，經由此發現我們強調此典型電腦斷層徵象應為診斷腹部腸繭之依據。