MS No: PJMDS/CR/014/2024

Case Report

Cocoon Abdomen - A Rare Presentation of Abdominal Tuberculosis

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ABSTRACT

Background: Abdominal cocoon (sclerosing encapsulating peritonitis) is a rare disorder, characterized by fibrous encapsulation of the loops of small bowel. Although generally idiopathic, secondary causes can include tuberculosis, especially in endemic areas.

Case Presentation: We report a rare case of an isolated tuberculous abscess in the liver of a 26-year-old man with a 9-month history of high-grade fever, loss of weight, and generalised weakness, pyrexia of unknown origin and diffuse epigastric pain with radiation to the whole abdomen. On examination, he was pale and had temporal wasting, and signs of ascites with shifting dullness. Though Gene Xpert and AFB smear were negative, the analysis of ascitic fluid was exudative with highly raised adenosine deaminase (ADA) levels. CT-scan imaging showed encapsulated small bowel loops surrounded by chronically thickened peritoneum and moderate ascites consistent with abdominal cocoon due to tuberculosis. First-line anti-tuberculous therapy (ATT) was begun. The patient shows clinical improvement with substantial weight gain and disappearance of the symptoms after nine months of therapy. Follow-up CT-scan showed resolution of encapsulation and ascites.

Conclusion: Abdominal cocoon is an extremely rare form of tubercular presentation that has to be treated urgently by diagnosis and then can be effectively treated conservatively with ATT if diagnosed early. This case emphasizes the need for integration of clinical, biochemical, and radiological findings for prompt, non-operative management in endemic regions.

Keywords: Abdominal cocoon, Anti-tuberculous therapy, Ascitic fluid, Sclerosing encapsulating peritonitis, Tuberculosis

INTRODUCTION

The abdomen of the cocoon, also known as the abdominal cocoon syndrome or peritonitis of idiopathic sclerosation, is a rare affection which can complicate abdominal tuberculosis. In this syndrome, there is a formation of fibrous tissue that Encapsulates up the intestines, leading to intestinal obstruction. This phenomenon is not only rare but has significant diagnostic challenges, especially in patients with abdominal tuberculosis.

Clinical significance occurs due to the severity of the symptoms associated with the abdomen of the cocoon. Patients generally have signs of intestinal obstruction, including abdominal pain, vomiting and constipation. In cases where tuberculosis is involved, these symptoms can be confused with other complications of the disease. A Rastogi study highlights the importance of recognizing the abdomen of the cocoon as a possible complication of abdominal tuberculosis, as it can considerably affect patient results if it is not identified early[1].

Diagnosis remains a challenge. The abdominal cocoon often imitates other conditions and can be misunderstood as a primary obstruction of the intestine. It has been suggested that advanced imaging techniques such as MRI and computed tomography helping these diagnosis; these can reveal the unique characteristics of the Cocoon abdomen. Various authors emphasize the usefulness of these imaging methods. Chaudhary et al. discuss the distinct imaging characteristics of abdominal tuberculosis and how they can present Cocoon syndrome[2]. In addition, Nadamani et al. present the series of imaging cases which highlight the need for complete diagnostic approaches[3].

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Submitted: July 18, 2024
Revised: November 26, 2024
Accepted: December 10, 2024

Treatment strategies for the cocoon abdomen depend on the severity of the patient's obstruction and overall state. Surgical intervention may be necessary in serious cases where intestinal obstruction causes ischemia. In cases involving abdominal tuberculosis, a combination of anti-tuberculosis therapy and surgical management has proven beneficial. Girdhar et al. describe a case of tuberculous abdominal cocoon which has been managed effectively surgically as well as the appropriate treatment of tuberculosis[4]. This highlights the importance of an interdisciplinary approach in the management of these cases.

The scarcity of the cocoon abdomen linked to its association with abdominal tuberculosis underlines the need for increased awareness of health care providers. Cases like those documented by Chorti et al. underline the importance of studying unusual presentations and to consider the abdomen of the cocoon in differential diagnoses[5]. In addition, each case contributes to an increasing set of literature which informs better management strategies, as demonstrated in the case of magazines of Mandavdhare et al.[6].

The clinical meaning of the abdomen of the cocoon in abdominal tuberculosis is underlined by its unusual challenges of presentation and diagnosis. Adequate recognition and management strategies are essential to improve patient results, requiring in-depth understanding and current research in this rare clinical scenario. The implications for patient management are deep, especially since the medical community meets more cases in various populations[7-14].

This case report highlights a rare presentation of abdominal cocoon secondary to tuberculosis in a young male patient managed at a tertiary care hospital in Karachi, Pakistan. The report underscores the importance of early diagnosis using clinical, biochemical, and radiological findings, along with successful conservative management using ATT.

CASE REPORT

A 26-year-old male presented in Indus Hospital Karachi, with complaints of high-grade fever with night rise, body aches and generalized weakness for 9 months. He had significant weight loss with severe pain in epigastrium radiating to whole

abdomen, associated with movement, especially lying straight or turning in bed and deep breathing. He did not have any other relevant systemic complaints, medication history, addictions or family history of any chronic or current illness.

He was vitally stable on examination. Systemic examination was consistent with pallor and temporal wasting. He had a distended abdomen that was tender with no visceromegaly but shifting dullness was present and gut sounds were also audible. Other systems were grossly unremarkable. He was admitted and initial lab work up showed Hemoglobin of 13g/dl with a raised ESR. His renal and liver profile was normal. Ascitic fluid analysis was consistent with an exudate with high protein and low SAAG ratio. Ascitic fluid Adenosine deaminase levels were significantly raised, Gene Xpert for MTB and AFB smear was negative for Mycobacterium Tuberculosis. HIV serology was also negative. CT scan abdomen showed evidence of encapsulated cocoon like small bowel loops with surrounding peritoneal thickening / enhancement. Moderate ascites was seen within the sac. However, there was no evidence of intestinal obstruction. Findings were likely suggestive of cocoon abdomen seen in abdominal tuberculosis. (Figures 1 and 2)

On the basis of clinical history and radiological findings, awaiting TB culture, he was started on treatment for abdominal tuberculosis with first line Anti-Tuberculous drugs including Isoniazid, Rifampicin, Pyrazinamide and Ethambutol according to his weight. He was discharged home with close follow ups in clinic. On follow up he remained well with no adverse effects to the therapy. After completing treatment for 9 months for abdominal tuberculosis, his clinical findings had markedly improved and he had gained weight of 8 kgs. Repeat imaging was done at the end of treatment that showed complete resolution of previously noted encapsulated small bowel loops with peritoneal thickening and ascites.

Figure 1: An axial image of CT Abdomen with Contrast of our patient showing bowel loops in a cocoon form

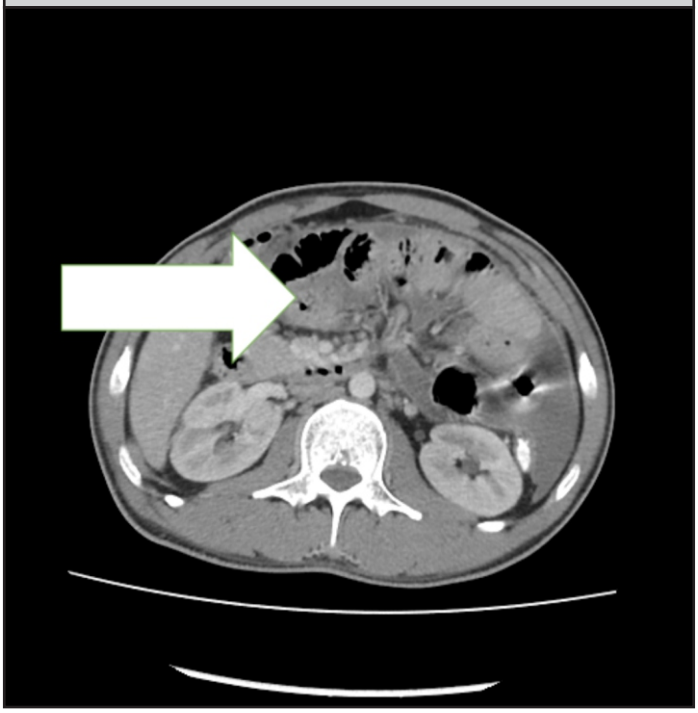
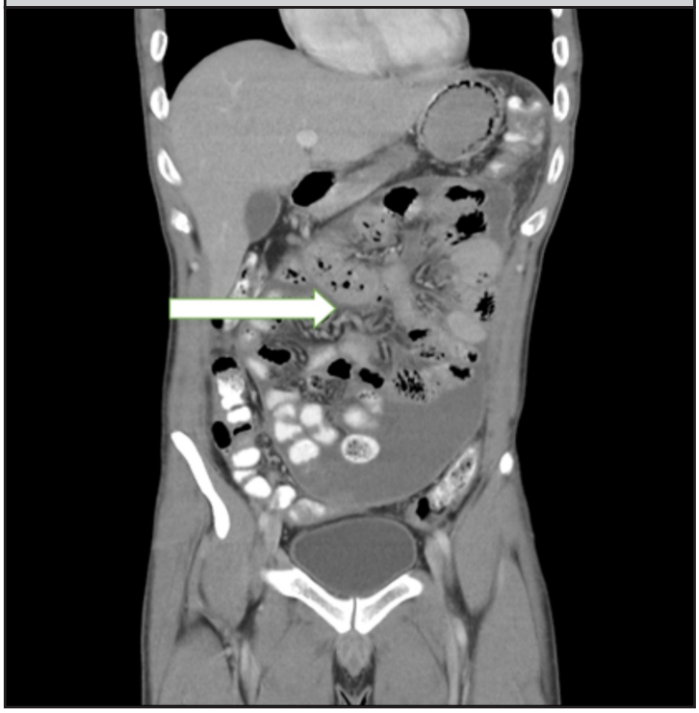


Figure 2: A coronal section of CT scan Abdomen showing cocooning of the intestinal loops.



DISCUSSION

Sclerosing encapsulating peritonitis, also known as abdominal cocoon syndrome is a rare and still mysterious phenomenon that causes intestinal obstruction and is characterized by a thick, fibrous sheet of tissue surrounding almost all the loops of the small bowel. Though most cases are idiopathic, it may also be due to tuberculosis, peritoneal dialysis, some drugs, and recent abdominal surgery. This is a more common condition in young women and in tropical and subtropical regions due to the higher burden of diseases such as tuberculosis and other risk factors[1,2].

Abdominal cocoon syndrome usually has non-specific symptomatic presentation, which includes intermittent colicky abdominal pain, progressive weight loss, nausea, vomiting, and partial or complete intestinal obstruction of varying degree. Abdominal distention and tenderness are frequently noted on physical examination; however, abdominal mass is inconsistently identified and contributes to difficulty in diagnosis[3].

The preferred diagnostic investigation is contrast enhanced computed tomography (CT) with classic findings including “concertina” or “bottle guard” pattern of the involved jejunal loops gives a characteristic CT findings, including small bowel loops that tend to be encapsulated in a “concertina” or “bottle guard” patter 12. Yet, all of these hallmark signs are not necessarily present, rendering the diagnosis somewhat elusive in certain cases. Due to the rarity and non-specific nature of the presentation, abdominal cocoon syndrome was traditionally diagnosed intra-operatively. Because of imaging advances, particularly the advent of CT, the diagnosis of the condition has greatly improved, allowing for a reduction in exploratory surgery[4-6].

Background in areas endemic for tuberculosis, a tubercular cause should be strongly suspected, especially if the ascitic fluid has a high adenosine deaminase (ADA) level. The optimal management of this rare entity associated with tuberculosis remains controversial but ATT forms the backbone of treatment and is very effective in resolving the clinical presentation and

imaging findings. Complicated cases of patients who present with bowel obstruction, perforation, and refractory medical management are indicated for surgery[7-9].

Although histopathological examination yields important information, as it has been consistently reported to show a fibro-collagenous membrane that is several millimeters thick with chronic inflammatory change in the surrounding tissue (e.g., lymphocytic infiltration and reactive hyperplasia of mesenteric lymph nodes in the case of tuberculosis). This information aids in the diagnosis and subsequent management[10-12].

Diagnosis of abdominal cocoon syndrome is important to avoid unnecessary surgical procedures through accurate diagnosis especially early. We highlight the role of advanced imaging modalities, cytological and chemical analysis of ascitic fluid, and histopathological findings in helping to distinguish this rare entity from more common causes of intestinal obstruction. In this context, early initiation of ATT in TB-related cases is often associated with significant clinical improvement, underscoring the principle that conservative management is appropriate in the majority of cases, with surgery appropriate in the face of complications[13,14].

CONCLUSION

Abdominal cocoon is an extremely rare form of tubercular presentation that has to be treated urgently by diagnosis and then can be effectively treated conservatively with ATT if diagnosed early. This case emphasizes the need for integration of clinical, biochemical, and radiological findings for prompt, non-operative management in endemic regions.

Conflict of Interest: Authors declare that there is no conflict of interest.

Source of Funding: Nil

Authors' Contributions: All authors took part in this study to an equal extent. **Ameet K** Managed data collection and patient care. **Natasha K** Contributed to clinical evaluation and manuscript editing. **M Saqib QI** Provided radiological evaluation and discussion input. **Aneeta** reviewed clinical findings and revised the manuscript. **Pooja** assisted with data organization and final proofreading**.**

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How to cite: Ameet K, Natasha K, Muhmmad SQI, Aneeta, Pooja. Case Report: Cocoon Abdomen- A rare presentation of Abdominal Tuberculosis. Pak J Med Dent Sci. 2024;1(2):63-65