

Abdominal Tuberculosis presented with Ileocaecal Stenosis – A case report with review of literature

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Abstract

Extra pulmonary tuberculosis occurs in 5 to 15% of all cases of tuberculosis whereas tuberculosis affecting gastrointestinal tract occurs only in 1% of all cases of tuberculosis. The gastrointestinal tuberculosis most commonly presents as *peritonitis*.

In this article we are going to report a case of abdominal tuberculosis. A 29-year-old Libyan female presented with sub acute intestinal obstruction due to *thickening of terminal ileum and ileocaecal stenosis*. She underwent surgery and histopathological study revealed abdominal tuberculosis.

We reviewed the articles related to abdominal tuberculosis published in literature.

Key words

Abdominal tuberculosis, gastrointestinal tuberculosis, thickening of terminal ileum and ileocaecal stenosis

Introduction

Tuberculosis (TB) is a common infectious disease in the developing world and caused by *Mycobacterium tuberculosis*. An estimated two billion people are infected with *Mycobacterium tuberculosis* worldwide, out of which about 8.8 million people develop active tuberculosis each year.¹In addition to this, tuberculosis kills 1.6 million people each year.¹

It commonly affects the lungs causing *pulmonary tuberculosis*. But, it can also affect outside the lungs causing extra pulmonary tuberculosis.²Extra pulmonary tuberculosis can affect any site in the body. The most common

Case presentation

A 29-year-old Libyan female presented to the department of surgery with pain abdomen for the last ten days. It was sudden in onset, severe, continuous and colicky in nature. It started at the right lower abdomen and then spread over the entire abdomen. She also complained of similar previous episodes. The pain was associated with vomiting of a large amount of green material and it was not related to meal.

She revealed a history of *chronic dry cough*, *shortness of breath* and *wheezing*. She was diagnosed as a case of *pulmonary* distended, moving normally with respiration, but there was generalized tenderness on

sites affected in order of their frequencies of occurrence are lymphatic system, genitourinary system, bones and joints, blood, meninges and abdomen.³ Abdominal tuberculosis occurs in about 2% of all cases of tuberculosis.⁴ These figures are different in cases of patients with immunodeficiency. Immunodeficient patients are more likely to have extra pulmonary tuberculosis than those with normal immune system. For example, about 50% of HIV patients with tuberculosis have extra pulmonary tuberculosis whereas about 11% of HIV patients with tuberculosis have abdominal tuberculosis.⁵

tuberculosis about 6 years back and received treatment for one year. Her brother is a known case of pulmonary tuberculosis. She had a past surgical history of *appendectomy* about 6 years back.

On examination, she was conscious and oriented with a pulse rate 96 bpm, blood pressure 120/85 mm Hg, respiratory rate 28 per minute and temperature 37.5°C. No abnormality was found on examination of heart and lungs. Abdomen was soft, lax with centrally placed umbilicus, not palpation with positive bowel sound. Her nervous system was normal.

On admission, her CBC revealed WBC $7.1 \times 10^3/\mu\text{L}$, RBC $4.4 \times 10^6/\mu\text{L}$, HGB 11.8 g/dL, HCT 37%, MCV 84.1 fL, MCH 26.8 pg, MCHC 31.9 g/dL, PLT $489 \times 10^3/\mu\text{L}$. Her blood biochemistry reports included random blood sugar 89 mg/dL, urea 20 mg/dL, creatinine 0.5 mg/dL, total bilirubin 0.5 mg/dL, AST 24 U/L, ALT 18 U/L and

ALK 70 U/L. Her blood group was 'O'Rh (-). Serology tests for HIV, HBV and HCV were found negative.

Chest x-ray (fig 1A), x-ray abdomen in erect posture (fig 1B) and contrast-enhanced CT scan of abdomen and pelvis (fig 2) were done.

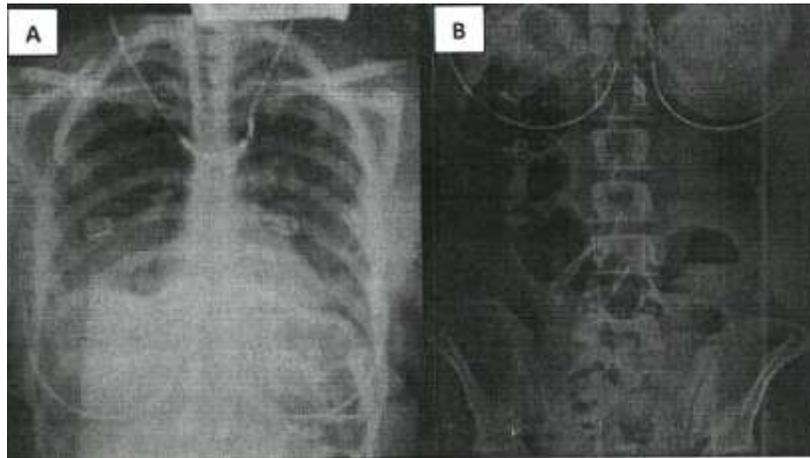


Figure 1. A. Normal chest x-ray (metal artefact visible) B. X-ray abdomen in erect posture showing no significant abnormality (metal artefact visible)

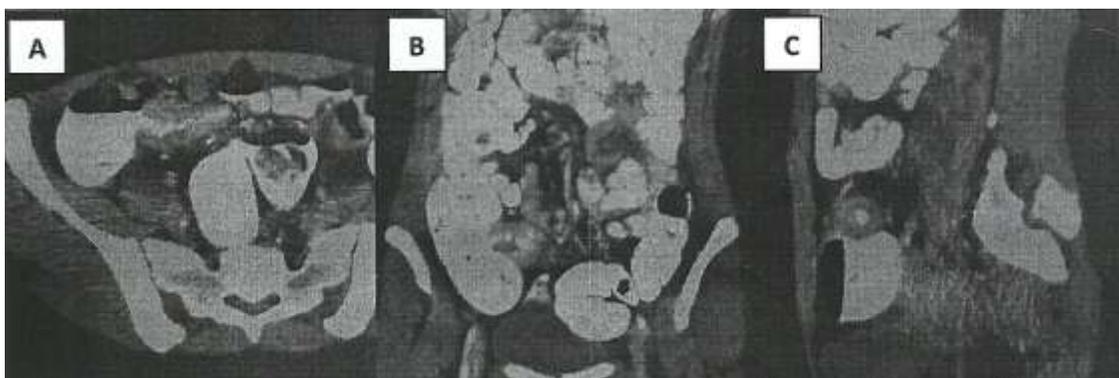


Fig 2. Contrast enhanced CT scan of abdomen and pelvis using intravenous, oral and rectal contrast showing focal thickening of the walls of terminal ileum. Three views are taken. A. axial B. coronal and C. sagittal

The patient underwent laparotomy. The thickened segment of terminal ileum was excised and sent for histopathological studies. Intraoperative and postoperative images of the respected segment of the terminal ileum were taken (fig 3).

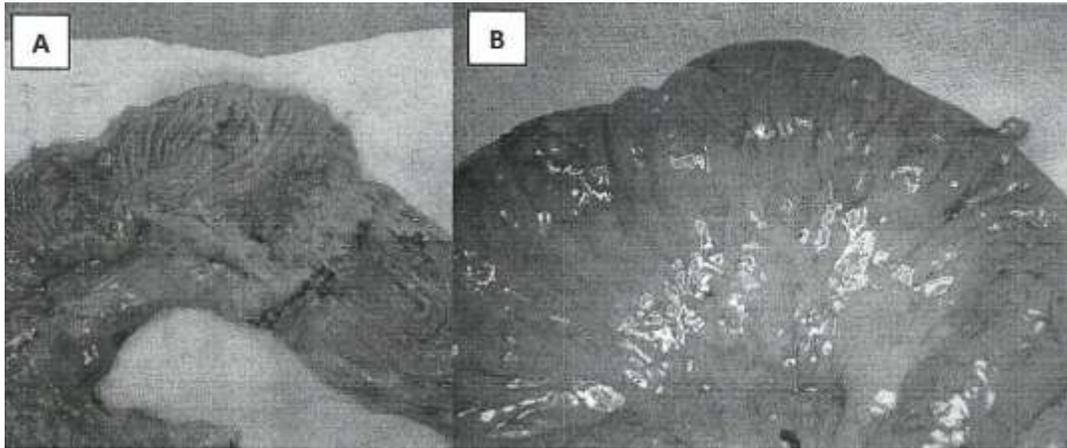


Fig 3. A. Part of the terminal ileum showing homogenous grayish-yellow cut section with cassation-like material and ulcers with thickened edges and shallow floor B. Part of the ascending colon with the surrounding momentum showing multiple nodules of variable sizes (lymph nodes)

The histopathological report revealed tuberculosis of ileocaecal junction with free surgical margins, involvement of 26 lymph nodes and tuberculosis peritonitis. In addition, mental tissue showed tuberculosis deposits and eight mesenteric lymph nodes in the sample were all involved.

Discussion

In abdominal tuberculosis, *Mycobacterium tuberculosis* can infect the peritoneum, gastrointestinal tract, intraabdominal solid organs and mesenteric lymph nodes.^{5,6} This is more common in adults as well as in children under the age of ten years representing about 10% of the cases of abdominal tuberculosis.⁷ The most common age group affected by this condition is between 25 and 45 years.⁸ *Mycobacterium tuberculosis* infects the

abdomen either through blood from the primary tuberculosis in the lung or through direct spread from an adjacent infected tissue. Ingestion of infected sputum is also a possible mechanism of abdominal infection.⁹

The symptoms associated with abdominal tuberculosis are usually non-specific and may lead to misdiagnosis or delay in diagnosis.¹⁰ The delay in diagnosis is estimated to be at least

four months in 70% of peritoneal tuberculosis in adults.¹¹ The most common symptoms of abdominal tuberculosis include fever, abdominal pain and weight loss.¹² Additional symptoms in chronic cases are anorexia,

On examination of abdomen, no abnormality is usually detected. Sometimes a firm mass may be palpated in the right lower quadrant of the abdomen which is usually caused by hypertrophy of the iliac region of the small bowel.⁵ Sometimes a mass may be palpated in the central abdomen and it results from enlargement of the mesenteric lymph nodes.⁶ A chronic abdominal problem of unknown origin, for example unexplained intestinal obstruction or unexplained ascites or mass, should raise a high index of suspicion for tuberculosis.⁶

The most common site of intestinal obstruction in abdominal tuberculosis is the ileocaecal region and comprises of 52% to 85% of the cases.¹³ Other less common sites of intestinal obstruction in abdominal tuberculosis include jejunoleum, colon and anorectal area.¹⁴ The causes of ileocaecal region being the most common site of intestinal tuberculosis and tuberculous intestinal obstruction are thought to be the presence of large amount of lymphoid tissue in this region, physiological stasis in that area and high rate of absorption (specially of fluid and electrolytes) with minimal digestion taking place in that region.^{4,5,14}

constipation, diarrhoea, malaise and night sweat.^{5,12} About one third of the patients may present with acute problems such as intestinal obstruction, perforation and peritonitis.⁵

Diagnosing abdominal tuberculosis is not easy and needs a high index of suspicion. Routine haematological tests usually have little value in diagnosing abdominal tuberculosis.^{9,15} They usually reveal mild normocytic, normochromic anaemia, thrombocytosis and lymphocytosis with elevated ESR.¹⁵ Imaging plays an important role in diagnosing abdominal tuberculosis. A chest x-ray showing pulmonary tuberculosis supports the diagnosis of abdominal tuberculosis.^{2,6} However, the chest x-ray in patients with abdominal tuberculosis mostly appear normal,⁶ except in one study where about 50% of the patients with abdominal tuberculosis had abnormal findings in their chest x-ray.⁹ A normal chest x-ray with no evidence of pulmonary tuberculosis does not rule out the diagnosis of abdominal tuberculosis.^{2,6} X-ray abdomen may show intestinal obstruction and bowel perforation.⁶ Ultrasonography of abdomen may show dilated loops of small bowel, diffuse or focal thickening of bowel wall, thickened peritoneum with enlarged mesenteric lymph nodes in addition to the ability of ultrasound of detecting ascites if it is present.⁴ CT scan of abdomen can show the thickening of bowel wall, inflammation and

stricture outside the bowel wall, matted bowel loops and mesentery, omental mass, enlarged intra-abdominal lymph nodes and it can detect ascites also.¹⁶ Ascitic fluid is rich in protein and calcification, irregular ureteral thickening and hydronephrosis can be seen when tuberculosis affects the urinary tract.¹⁶ Tuberculosis rarely affects the liver, spleen, pancreas and adrenal glands, but when it does, hypodense masses (tuberculoma) can be seen in these organs and in cases of military tuberculosis numerous very small hypodense foci can be seen in liver and spleen.¹⁶

Acid fast bacilli can be detected in ascitic fluid and with more difficulty in lymph nodes and gastrointestinal tissues.⁶ In case of tuberculous peritonitis, examination of ascetic fluid reveals lymphocytosis, high protein content (>30 g/L), high LDH level (>90 IU/L) and low serum-ascitic fluid albumin gradient (SAAG) (<11 g/L).¹⁵

Colonoscopy is useful in visualizing ulcerative, stricturous and hypertrophic bowel lesions and for taking biopsy samples from them while

cells in case of tuberculous peritonitis and this is the reason why it usually has high attenuation (25-45 HU).¹⁷ Focal nephritis, nodular masses in the kidney, renal parenchymal scarring and laparoscopy or laparotomy can help in visualizing the intraabdominal lesions and sampling them.^{5,8} Histopathological examination of the biopsy samples can reveal granuloma with caseation.^{8,18}

A combination antituberculous drug therapy for 6-9 months with isoniazid, rifampin, pyrazinamide and ethambutol is the recommended first line of management unless there is a need for surgical intervention.^{5,6} Surgery is recommended when there is strong suspicion of abdominal tuberculosis, but no tissue could be obtained for examination or in cases of acute abdomen. If surgery is indicated, usually conservative procedures such as limited segmental ileocecal resection or strictureplasty are preferred and the acute complications of abdominal tuberculosis such as peritonitis, perforation, can be treated surgically as needed.⁶

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