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CASE REPORT

Pancreatic tuberculosis mimicking pancreatic carcinoma during anti-tuberculosis therapy: A case report

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Abstract

Pancreatic tuberculosis (TB) is a rare condition, even in immunocompetent hosts. A case is presented of pancreatic TB that mimicked pancreatic head carcinoma in a 40-year-old immunocompetent male patient. The patient was admitted to our hospital after suffering for nine days from epigastralgia and obstructive jaundice. Computed tomography revealed a pancreatic mass that mimicked a pancreatic head carcinoma. The patient had undergone an operation four months prior for thoracic TB and was undergoing anti-TB therapy. A previous abdominal ultrasound was unremarkable with the exception of gallbladder steroid deposits. The patient underwent surgery due to the progressive discomfort of the upper abdomen and a mass that resembled a pancreatic malignancy. A biopsy of the pancreas and lymph nodes was performed, revealing TB infection. The patient received a cholecystostomy tube and recovered after being administered standard anti-TB therapy for 15 mo. This case is reported to emphasize the rare contribution of pancreatic TB to pancreatic masses and obstructive jaundice.

Key words: Anti-tuberculosis therapy; Pancreatic head carcinoma; Pancreatic tuberculosis; Pancreatic mass; Tube cholecystostomy

Core tip: Pancreatic tuberculosis (TB) is rare in immunocompetent or immunosuppressed hosts. We report a case of a 40-year-old immunocompetent host with pancreatic TB that mimicked pancreatic head carcinoma with obstructive jaundice. The patient had previously been operated on for thoracic TB and was receiving anti-TB therapy. We report this case to emphasize rare causes of pancreatic masses and obstructive jaundice, and to discuss alternate treatments for pancreatic TB.

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INTRODUCTION

Pancreatic tuberculosis (TB) is a rare occurrence in either immunocompetent or immunosuppressed hosts; human immunodeficiency virus (HIV)-infected patients only have a 0.46% incidence[1]. Isolated pancreatic TB is predominantly observed in areas of widespread TB dissemination such as a military setting. Currently, there are few reports detailing pancreatic TB cases, and none of the patients were receiving anti-TB therapies at the time of diagnosis. Here, a case of pancreatic TB is presented in an immunocompetent host that was receiving anti-TB treatment. This article highlights the importance of understanding

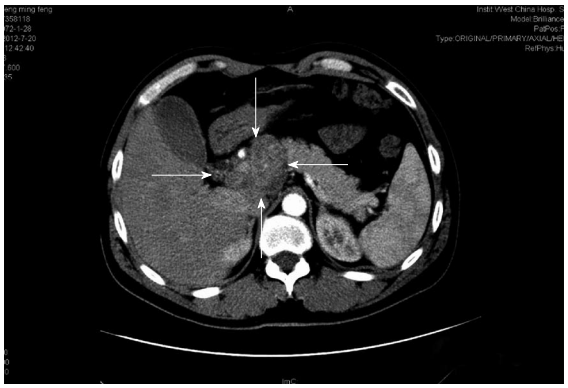

Figure 1 Computed tomography of a pancreatic tuberculosis lesion. Computed tomography revealed a necrotic and calcified cystic lesion (white arrows) with well-defined margins in the head of the pancreas; the lesion mimicked pancreatic head carcinoma.

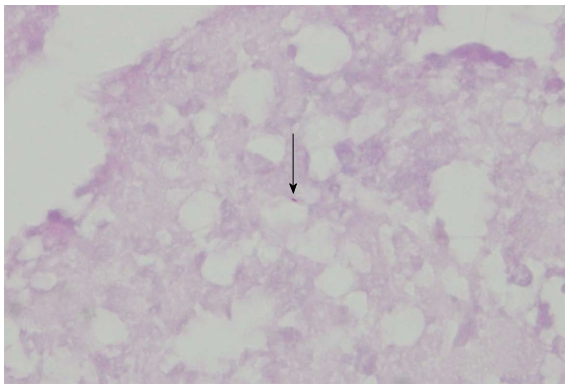

Figure 2 Histopathology of lymph node biopsies. Ziehl-Neelsen staining of a lymph node biopsy from the pancreatic region revealed granulomatous inflammation with necrosis and acid-fast bacilli (black arrow; magnification × 400).

this rare disease as a cause of pancreatic masses and obstructive jaundice.

CASE REPORT

In July 2012, a 40-year-old male patient was admitted to our hospital after suffering from epigastralgia and jaundice for nine days. Upon eating, the patient complained of nausea and a worsening pain that radiated to his back. An abdominal examination revealed sensitivity in the upper abdomen without hepatosplenomegaly or ascites. The patient's medical history revealed that he had been previously diagnosed with thoracic TB and had undergone an operation for a thoracic abscess four months prior. Since his diagnosis, the patient was treated with a multi-drug anti-TB regimen that included 300 mg/d isoniazid, 600 mg/d rifampicin, and 750 mg/d ethambutol.

The patient did not present with signs of any immunosuppressive diseases and a serological test for HIV was negative. Laboratory tests revealed the following: 9.75 × 10^9 white blood cells (WBC)/L [reference range (RR): 4.0 - 10.0 × 10^9 WBC/L], 30.5 μmol/L total bilirubin (RR: 5.0 - 28.0 μmol/L), 24.5 μmol/L direct bilirubin (RR: < 8.8 μmol/L), 135 U/L alanine aminotransferase (RR: < 55 U/L), 64 U/L aspartate aminotransferase (RR: < 46 U/L), 715 U/L gamma glutamyl transpeptidase (RR: 6 - 46 U/L), 335 U/L alkaline phosphatase (RR: 47 - 138 U/L), and 66.84 U/mL carbohydrate antigen 199 (RR: < 22 U/mL).

Computed tomography (CT) revealed a soft tissue shadow in the head of the pancreas. The lesion, which was necrotic and calcified, measured 5.6 cm × 4.2 cm and mimicked a pancreatic head carcinoma. CT images also revealed upstream biliary dilatation and multiple lymphadenopathies surrounding the head of pancreas, the vena cava and the liver artery. The celiac trunk and descending part of duodenum could not be clearly identified in the lesion, suggesting that the above areas were involved. A pancreatic neoplasm with multiple lymph node metastases was suspected after CT (Figure 1). A chest CT revealed small nodes in the superior lobe of the left lung and in the lower lobes of both lungs. As the patient had a medical history of TB, the abdominal ultrasound taken four months prior was reexamined, but found to be unremarkable with the exception of steroid deposits in the gallbladder. Progressive discomfort in the patient's upper abdomen and the identification of a potential malignancy *via* CT led to the decision to operate and perform a biopsy.

Caseous necrosis and lymphadenectasis was observed during the biopsy procedure. Subsequently, a cholecystostomy tube was placed. Samples from the lymph nodes and biopsies of the mass were obtained for histopathologic examination. Ziehl-Neelsen staining revealed caseous granulomatous inflammation and necrosis with acid-fast bacilli (Figure 2). The presence of *Mycobacterium tuberculosis* DNA was confirmed within the biopsy samples by polymerase chain reaction (PCR). The patient was therefore administered the standard anti-TB therapy of 300 mg/d isoniazid, 600 mg/d rifampicin, 1.5 g/d pyrazinamide, and 750 mg/d ethambutol for nine months followed by six months of 300 mg/d isoniazid, 600 mg/d rifampicin, and 1.5 g/d pyrazinamide. The patient recovered quickly and was without abdominal pain during the 15 mo of treatment.

DISCUSSION

Pancreatic TB is extremely rare, even in immunocompromised hosts, and this rarity is attributed to the resistance provided by the pancreatic enzymes[1,2]. Despite its rarity, pancreatic TB can occur even when patients are undergoing the standard anti-TB drug (ATD) regimen, as was demonstrated by the case reported here. A diverse spectrum of symptoms can arise during pancreatic TB, ranging from abdominal discomfort, obstructive jaundice, fever, loss of appetite or nausea, to night sweats and weight loss[3,4]. Imaging of the pancreas by ultrasound or CT has demonstrated that pancreatic TB can mimic a pancreatic neoplasm[4-6]. When this is the case, pancreatic head carcinoma must also be considered during the operation. We report the present case to emphasize alternate, though more rare, causes of pancreatic masses and obstructive

jaundice.

According to the literature, endoscopic ultrasound-guided fine needle aspiration biopsy (FNAB) and a PCR-based approach are recommended for pancreatic TB diagnosis[7-9]. However, FNAB is not always employed due to the increased risk for pancreatitis and tumor dissemination. Thus, an operation with an incisional biopsy represents a more specific diagnostic modality and an effective therapy for pancreatic abscesses. Current literature also promotes the use of standard ATD therapy for six to twelve months as an effective strategy to treat pancreatic TB in a majority of cases[1,2,7,10]. As pancreatic TB can occur during treatment, however, ATD may be an insufficient therapy for patients. In the present case, we feel that an operation accompanied by cholecystostomy tube placement aided in treating the patient.

In conclusion, the case report emphasizes a rare cause of pancreatic mass and obstructive jaundice, and shows that an operation and tube cholecystostomy in combination with ATD therapy are an effective treatment for pancreatic TB.

COMMENTS

Case characteristics

A 40-year-old male patient with a history of thoracic tuberculosis (TB) presented with epigastralgia and jaundice while receiving anti-TB therapy.

Clinical diagnosis

An abdominal examination revealed sensitivity in the upper abdomen without hepatosplenomegaly or ascites.

Differential diagnosis

Pancreatic carcinoma and pancreatitis.

Laboratory diagnosis

The following laboratory results were obtained: 9.75 × 10^9 white blood cells/L; 30.5 μmol/L total bilirubin; 24.5 μmol/L direct bilirubin; 135 U/L alanine aminotransferase; 64 U/L aspartate aminotransferase; 715 U/L gamma glutamyl transpeptidase; 335U/L alkaline phosphatase; 66.84 U/mL carbohydrate antigen 199.

Imaging diagnosis

Computed tomography revealed a necrotic and calcified cystic lesion in the head of the pancreas that measured 5.6 cm × 4.2 cm and resembled a pancreatic malignancy.

Pathological diagnosis

Biopsies of the lymph nodes and mass revealed caseous granulomatous inflammation and necrosis with acid-fast bacilli; a polymerase chain reaction-based approach confirmed the presence of *Mycobacterium tuberculosis* DNA.

Treatment

After surgery, the patient was administered the standard anti-TB regimen of isoniazid, rifampicin, pyrazinamide, and ethambutol for nine months followed by a regimen of isoniazid, rifampicin, and pyrazinamide for an additional six months.

Related reports

TB is most often observed as necrotic granulomas within the lungs. Extrapulmonary TB, however, accounts for approximately 10%-30% of all cases and more than 5% of patients have abdominal involvement. In the abdominal cavity, TB predominantly affects the peritoneum, gastrointestinal tract (especially the ileum and cecum), liver, spleen, and lymph nodes. Pancreatic TB is extremely rare, likely due to resistance provided by pancreatic enzymes, and may occur as a result of bacterial dissemination from lymph nodes in the area. Pancreatic TB is often confused with pancreatic malignancy in clinical and radiological examinations.

Term explanation

TB is a disease caused by *Mycobacterium tuberculosis* bacteria. While the bacteria predominantly affect the lungs, they can also damage other parts of the body. Pancreatic TB occurs when these bacteria affect the pancreas. Pancreatic TB is extremely rare and can mimic a carcinoma, lymphoma or cystic neoplasia.

Experiences and lessons

This case report highlights pancreatic TB as a rare cause of pancreatic masses and obstructive jaundice that can mimic pancreatic head carcinoma and be treated *via* tube cholecystostomy in combination with anti-TB therapy.

Peer review

This article presented with the case report of a pancreatic TB which mimicking pancreatic head carcinoma in an immunocompetent host. After anti-tuberculin therapy, the patient recovered soon. This report is interesting and informative that provides useful information of rare disease as a cause of pancreatic masses and obstructive jaundice.

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