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CASE REPORT

Isolated Pancreatic Tuberculosis in Non-immunocompromised Patient Treated by Whipple's Procedure: a Case Report

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PANCREATIC tuberculosis (TB) is a rare disease and its diagnosis is difficult because of the lack of specific clinical manifestations. Computed tomography (CT) and magnetic resonance imaging (MRI) have some diagnostic values in this disease, but it is easy to misdiagnose pancreatic TB as a pancreatic tumor.¹ In this article, we present a case of non-immunocompromised patient developing an isolated pancreatic TB, report the CT and MRI findings, and the surgical procedure for it.

CASE DESCRIPTION

A 34-year-old man visited our hospital, complaining of abdominal distension and weight loss. The patient reported no history of cough or fever, or immunocompromise. On physical examination, the patient was afebrile, skin and sclera were stained yellow, slight tenderness was present in the upper abdomen, and bowel sounds were normal. Laboratory investigation revealed slightly elevated levels of total bilirubin (39.33 $\mu\text{mol/L}$) and conjugated bilirubin (27.36 $\mu\text{mol/L}$). The level of γ -glutamyl transpeptidase (1194.1 U/L) was above the normal range (9-64 U/L). The levels of aspartate aminotransferase (112.3 U/L), alanine aminotransferase (205.5 U/L), and alkaline phosphatase (727.9 U/L) all exceeded the normal ranges. Serum levels of carbohydrate antigen 19-9 and carcinoembryonic antigen were within normal limits. Amylase, white blood

cell count, and blood glucose level were also within normal ranges. Lung X-ray detected no abnormal signs.

CT revealed a mass of 6.4 cm $\times$ 3.8 cm in the neck of the pancreas, with focal hypodense lesion and irregular borders surrounding the common hepatic artery. The distal pancreatic duct was not dilated. Enlarged gallbladder and dilated intrahepatic duct were found. These findings indicated pancreatic tumor and bile duct obstruction. The mass was not enhanced in contrast-enhanced CT (Fig. 1).

MRI revealed an irregular mass of 5.4 cm $\times$ 4.2 cm in the neck of the pancreas. The lesion had slightly increased signal intensities on fat-suppressed T1-weighted images. T2-weighted images showed heterogeneous intensity of the lesion with areas of slightly increased signal intensity. The pancreatic segment of the common bile duct was not shown clearly. A dilated intrahepatic duct was found on magnetic resonance cholangiopancreatography (Fig. 2). These findings indicated a pancreatic tumor causing bile duct obstruction.

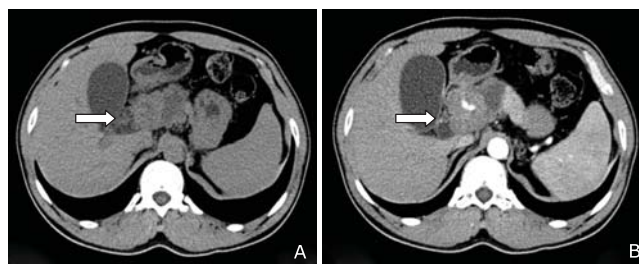


Figure 1. Computed tomography (CT) reveals a mass of 6.4 cm $\times$ 3.8 cm in the neck of the pancreas with focal hypodense lesion and irregular borders, surrounding the common hepatic artery (arrow, A). In contrast-enhanced CT, the mass is not enhanced (arrow, B).

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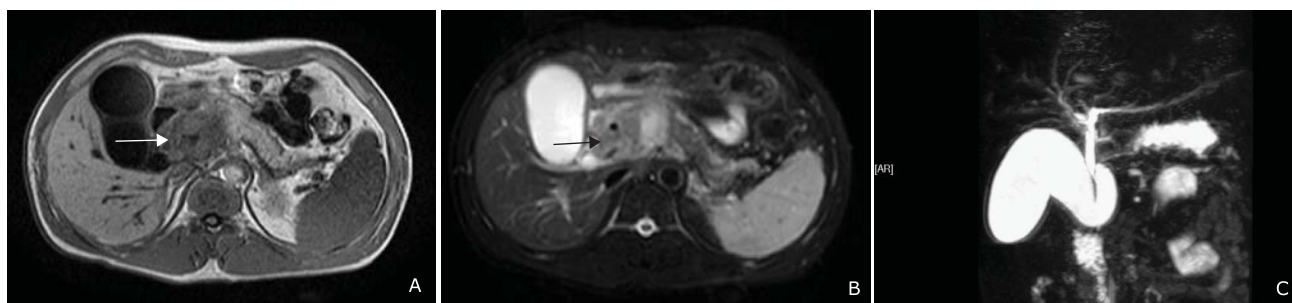


Figure 2. Magnetic resonance imaging reveals an irregular mass in the neck of the pancreas. The lesion shows slightly increased signal intensity on fat-suppressed, T1-weighted images (arrow, A). The T2-weighted image shows heterogeneous intensity of the lesion with areas of slightly increased signal intensity (arrow, B). The pancreatic segment of the common bile duct is not shown clearly. A dilated intrahepatic duct is found on magnetic resonance cholangiopancreatography (C).

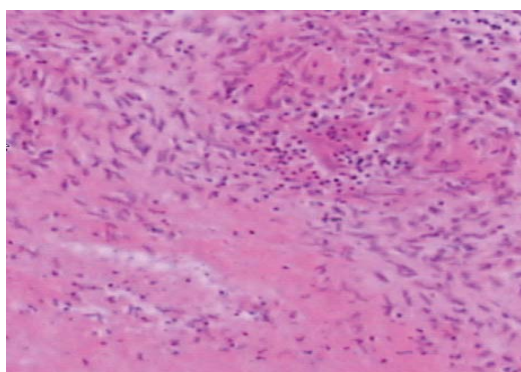


Figure 3. Pathological photomicrograph of the resected pancreatic tissue shows epithelioid granuloma, caseous necrosis, and Langhans giant cells. (HE, 100×)

Pancreatic TB was confirmed following pancreatoduodenectomy. Exploratory laparotomy revealed a mass of 6 cm×4 cm at the head of the pancreas, close to the neck of the pancreas. The mass compressed the common bile duct and invaded the common hepatic artery, but was easily separable from the artery. We resected the head of the pancreas, duodenum, gallbladder, common bile duct, part of distal stomach, and a 10-cm section of the jejunum. We employed the sequence of pancreatocenterostomy, choledochojejunostomy, gastrojejunostomy for anastomoses after resection. In pancreatocenterostomy, the jejunum was overlapped to the pancreas, with a silicone tube in the pancreatic duct. The pathological photomicrograph showed epithelioid granuloma, caseous necrosis, and Langhans giant cells (Fig. 3).

The patient recovered well with no complications, such as pancreatic fistula or infection. Anti-tubercular drugs including isoniazide and rifampin were administered for a year. In the following 2 years, TB was not relapsed.

DISCUSSION

Pancreatic TB is a rare disease, accounting for 2% of all

the TB discovered in autopsy.² Solitary pancreatic involvement of TB in non-immunocompromised patients is even more unusual,³ because the pancreas is biologically protected from being infected by *Mycobacterium tuberculosis*.⁴ Pancreatic TB may mimic pancreatic carcinoma clinically and radiologically.⁵ Anti-tubercular therapy is curative in the majority of pancreatic TB cases and the course of treatment is 6 months to 1 year, with good prognosis. The reliable diagnostic method is biopsy. If misdiagnosed as malignancy, however, pancreatectomy would be inevitable, so careful recognition of pancreatic TB is vital.⁶

The CT characteristic of pancreatic TB is a hypodense mass with irregular margins and peripheral enhancement, occasionally mimicking pancreatic carcinoma,⁷ whereas in this case, CT showed no enhancement of the mass, possibly suggesting that the mass was not malignant.

To our knowledge, there are few reports on the MRI findings of TB involvement of the pancreas. De Backer et al⁸ described 3 MRI features of pancreatic TB: in 2 patients, T1-weighted images showed a hypointense lesion and heterogeneous signal intensities, with areas of increased and decreased signal intensity in T2-weighted images; in 1 patient, diffuse enlargement of the pancreatic gland was associated with increased signal intensity in T2-weighted images, and heterogeneous decreased signal intensity in T1-weighted images. In the present case, the MRI features were not the same: the lesion had slightly increased signal intensity in both T1-weighted and T2-weighted images.

The patient in this case demonstrated no evidence of other foci of TB. Pancreatic TB should be suspected in patients having a pancreatic mass, particularly if the patient is young, or the erythrocyte sedimentation rate is abnormal, or the patient is known to have been exposed to TB.⁹ When CT and MR cannot confirm the diagnosis, fine-needle aspiration cytology of the pancreatic lesion should be performed, such as endoscopic ultrasound-guided biopsy or CT-guided percutaneous biopsy,¹⁰ to

avoid unnecessary explorative laparotomy, because almost all the cases with pancreatic TB could be treated with medical management.¹¹

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