Peripancreatic Tuberculous Lymphadenitis with Biliary Obstruction Diagnosed by Endoscopic Ultrasound-guided Fine-needle Aspiration Biopsy

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Abstract

A 57-year-old man with a history of tuberculosis (TB) was found to have a pancreatic head mass, accompanied by stenosis of the common bile duct. Due to the inherent difficulty in differentiating pancreatic carcinoma from an inflammatory mass, endoscopic ultrasound-guided fine-needle aspiration biopsy (EUS-FNAB) was thus performed. The pathological findings confirmed granuloma with caseous necrosis, and the results of the QuantiFERON TB2G test were positive. Accordingly, the patient was diagnosed with peripancreatic TB and thereafter was successfully treated with anti-TB therapy. Based on the findings of this case, we conclude that EUS-FNAB is a useful modality for the diagnosis of pancreatic TB.

Key words: pancreatic tuberculosis, EUS-FNAB, pancreatic head mass, pancreatic adenocarcinoma


Introduction

Pancreatic and peripancreatic tuberculosis (TB) are both rare and difficult to diagnose, owing to their clinical courses and imaging findings which mimic pancreatic carcinoma (1-3). Previous reports have shown that open surgery or laparotomy is often necessary to confirm such diagnoses (4-6). Endoscopic ultrasound-guided fine-needle aspiration biopsy (EUS-FNAB) is becoming increasingly established as a minimally-invasive alternative to open surgery for the purpose of diagnostic confirmation; more recently, the utility of EUS-FNAB in the diagnosis of pancreatic TB has also begun to be reported as well (7-24).

In the present report, we describe a patient with peripancreatic tuberculous lymphadenitis who presented with body weight loss, elevated liver enzymes, and a pancreatic head mass, mimicking pancreatic head carcinoma. Pancreatic TB was suspected because of a past history of TB and also based on the imaging findings. The preliminary diagnosis could be confirmed via EUS and EUS-FNAB, thus precluding the need for surgery.

Case Report

A 57-year-old man was referred to our institution from another hospital with a suspected pancreatic head malignancy. He had presented to the referring hospital with a body weight loss of 20 kg over 12 months. At that time, he had no fever or abdominal pain. His past history included TB at 41 years of age and diabetes mellitus since 45 years of age. Initial laboratory tests showed elevated liver enzymes, amylase, and elastase-1 levels (Table). Computed tomography (CT) of the abdomen showed dilation of the common bile duct and soft tissue masses with a heterogeneous enhanced pattern (Fig. 1) in the pancreatic head. Endoscopic retrograde cholangiopancreatography showed a 2-cm long, smooth stricture of the distal common bile duct, and an en-
Endoscopic retrograde bile duct drainage tube was consequently inserted (Fig. 2). Bile cytology was negative for malignancy. Based on these findings, the patient was subsequently referred to our institution for further examination.

At our hospital, T1-weighted magnetic resonance imaging (MRI) was performed and the solid portion of the mass was found to produce an iso- or slightly high intensity signal. However, on T2-weighted MRI, a relatively low signal intensity mixed with high signal intensity was observed, relative to the spleen (Fig. 3A, B). On diffusion imaging, the mass showed a high signal intensity (Fig. 3C). A [F-18] 2-fluoro-2-deoxyglucose (FDG) positron emission tomography (PET)-CT scan demonstrated a maximum standardized uptake value of the mass of 6.1 (Fig. 4). The past history of TB together with the imaging findings suggested the possibility of pancreatic TB. Thus, a QuantiFERON TB2G (QFT) test was performed, the results of which were positive (1.14 IU/mL).

To obtain a definitive diagnosis, EUS-FNAB using a 25-G FNA needle (Boston Scientific, Marlborough, USA) was performed (Fig. 5). EUS revealed a 25-mm round mass in the head region of the pancreas, compressing the bile duct and portal vein, as well as a few peripancreatic lymph nodes. Pathology demonstrated granuloma with caseous necrosis and the presence of diffuse necrosis without any tumor cells (Fig. 6). Subsequently, the patient was started on a four-drug regimen of anti-TB therapy comprising isoniazid, rifampicin, pyrazinamide, and ethambutol for 2 months, followed by isoniazid, rifampicin, and ethambutol for another 4 months. One month after the end of the treatment, his presenting symptoms were confirmed to have completely resolved. A CT scan performed 6 months later showed a complete resolution of the pancreatic mass and a significant regression of the enlarged lymph nodes.

**Discussion**

Abdominal TB involving the pancreas and peripancreatic lymph nodes is rare, and it can sometimes mimic malignancies, such as pancreatic carcinoma. Pancreatic TB was first...
Figure 3. T1-weighted MRI revealed that the solid portion of the mass produced an iso- or slightly high intensity signal (A). On T2-weighted MRI, a relatively low signal intensity mixed with high signal intensity was observed, relative to the spleen (B). On diffusion imaging, the mass showed high signal intensity (C).

Figure 4. PET-CT scan demonstrated a maximum standardized uptake value of the mass of 6.1 in the pancreatic head.

reported by Auerbach in 1944; since then, the worldwide incidence of pancreatic TB has been reported to be less than 4.7% in TB carriers (25, 26), with a slight increase in frequency observed over the past several decades (27). In addition, biliary obstruction secondary to abdominal TB is quite rare. When the inflammatory mass is located at the head of the pancreas, it can lead to mechanical obstruction of the biliary tract due to the development and growth of lymph nodes or mass lesions, as was seen in the present case. The majority of previously reported patients underwent surgery, presumably because the inflammatory tumor in the pancreas was suspected to be malignant, and/or because the common bile duct stricture was considered to be irreversible (28-30).

On imaging, pancreatic TB most commonly presents as a solitary lesion that may be accompanied by cysts or abscesses. On enhanced CT, the presence of a low-density mass with ringed enhancement is regarded as a characteristic finding. On T1-weighted fat-suppressed MRI, pancreatic TB lesions appear hypointense, whereas on T2-weighted images, they show heterogeneous signal intensities (31). Furthermore, FDG PET-CT imaging is widely used to screen for
malignant tumors and to diagnose metastases by scanning the entire body at once. However, it is often difficult to distinguish tuberculous lymphadenitis from pancreatic malignancy on PET-CT, because both pathologies can result in an increased FDG uptake (32). In cases without characteristic findings of TB, such as in the present case, the QFT test is an important tool in the differential diagnosis. Unlike the conventional tuberculin test, the QFT test is not affected by past Bacille Calmette-Guerin (BCG) inoculation or infection with non-tuberculous mycobacterium. Moreover, with a sensitivity of 80-90% and specificity of 97.99% (33), the accuracy is considerably higher than that of the tuberculin test.

In the past decade, there have been several case reports demonstrating that biliary obstruction can be treated without surgery, based on the preoperative biopsy results (19, 22, 23, 34, 35). EUS-FNAB is known to be quite useful in the diagnosis of pancreatic lesions (36). In particular, demonstration of necrotizing granulomas is diagnostic of TB, and a previous retrospective study involving patients with pancreatic TB reported that the sensitivity of EUS-FNAB was 76%, without major complications (13). Nevertheless, EUS-FNAB may have some potential drawbacks. In particular, the risk of seeding in potentially resectable malignant tumors is a major concern, especially in Japan. In the present case, it was difficult to differentiate pancreatic TB from potentially resectable malignant tumors is a major concern, especially in Japan. In the present case, it was difficult to differentiate pancreatic TB from potentially resectable malignant tumors based on the diagnostic imaging findings alone; thus, EUS-FNAB was performed to provide a definitive diagnosis.

In summary, pancreatic TB should be regarded as an important consideration in the differential diagnosis of pancreatic tumors with biliary obstruction, despite the fact that the diagnosis of pancreatic TB is still rare and difficult based on clinical presentation alone. Hence, a high index of suspicion is required; the patient’s past history, the presence of a tumor with solid and cystic components, and a positive QFT test may be the first clues to the diagnosis. Finally, EUS-FNAB is extremely useful in such cases to establish a definitive diagnosis, and the resulting prompt and appropriate therapy may thus make it possible to avoid unnecessary procedures, such as laparotomy or open surgery.

The authors state that they have no Conflict of Interest (COI).

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References


