Case report

Endoscopic ultrasound-guided fine-needle aspiration for the diagnosis of peripancreatic tuberculous lymphadenitis

Soichi Itaba¹, Shigetaka Yoshinaga¹, Kazuhiro Nakamura¹, Takahiro Mizutani¹, Kuniomi Honda¹, Ryoichi Takayanagi¹, and Kinya Yamada²

¹Department of Medicine and Bioregulatory Science, Graduate School of Medical Sciences, Kyushu University, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812-8582, Japan
²Department of Gastroenterology, Nakatsu Municipal Hospital, Nakatsu, Oita, Japan

The percentage of patients with atypical extrapulmonary forms of tuberculosis has been increasing. Among extrapulmonary tuberculosis cases, tuberculosis of the pancreas and peripancreatic lymph nodes is a rare clinical entity. Here, we present a case of peripancreatic tuberculosis lymphadenitis diagnosed by endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) both cytologically and microbiologically. A 23-year-old man had a 1-week history of epigastralgia and low-grade fever. Subsequently, he was found to have an abnormality on abdominal ultrasound. A computed tomography scan of the abdomen showed a solitary mass consisting of multiple cystic components with rim enhancement in the peripancreatic portion contiguous to the gall bladder. Endoscopic ultrasound-guided fine-needle aspiration was performed to confirm the diagnosis. The cytological examination revealed epithelioid cells with caseous necrosis, indicating tuberculosis. The aspirated fluid was positive by polymerase chain reaction (PCR) analysis and culture for Mycobacterium tuberculosis. Antituberculosis therapy with isoniazid, rifampicin, ethambutol, and pyrazinamide was started based on the PCR and cytology results, and a good response to the treatment was noted. Endoscopic ultrasound-guided fine-needle aspiration cytology with PCR analysis is very useful for the diagnosis of peripancreatic tuberculosis.

Key words: endoscopic ultrasound, tuberculous lymphadenitis, fine-needle aspiration, pancreas

Introduction

The percentage of patients with atypical extrapulmonary forms of tuberculosis has been increasing. Specifically, extrapulmonary organ involvement of tuberculosis is estimated to occur in 10%–15% of patients without human immunodeficiency virus (HIV) infection, compared with 50%–70% in HIV-infected patients. Among extrapulmonary tuberculosis cases, tuberculosis of the pancreas and peripancreatic lymph nodes is a rare clinical entity that has been reported with increasing frequency in the literature during the past 20 years. Unfortunately, the diagnosis of pancreatic or peripancreatic tuberculosis was only made after exploratory laparotomy in most previous cases reported in the literature. Therefore, less invasive modalities are needed for the diagnosis of peripancreatic tuberculosis. Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) is a safe and useful method for the diagnosis of pancreatic mass lesions and peripancreatic lymphadenopathy. Here, we report a case of peripancreatic tuberculosis lymphadenitis confirmed by EUS-FNA both cytologically and microbiologically.

Case report

A 23-year-old Japanese man was referred to our hospital for EUS-FNA. He had been in good health throughout his life. One month before admission to our hospital, he was admitted to another hospital with a 1-week history of epigastralgia and low-grade fever. Subsequently, he was found to have an abnormality on abdominal ultrasound (US). A computed tomography (CT) scan of the abdomen showed a solitary mass consisting of multiple cystic components with rim enhancement in the peripancreatic portion contiguous to the gall bladder (Fig. 1). Ascites was not recognized on abdominal CT. A purified protein derivative skin test was positive. Peripancreatic tuberculous lymphadenitis was considered likely, but not conclusive, based on the presence...
of febrile symptoms in a young man, CT finding of a peripancreatic rim-enhanced mass with a central low attenuation area, and the positive purified protein derivative skin test. A pancreatic tumor, such as islet cell tumor, serous cystadenoma, solid-pseudopapillary tumor, and lymphoma were considered as a differential diagnosis.

On admission to our hospital, his temperature was 37.5°C. Abdominal examination revealed tenderness in the epigastrium, but no mass was palpated. Laboratory examinations on admission revealed elevated C-reactive protein (3.5 mg/dl) but a normal leukocyte count (5360 cells/mm³). Serum amylase, aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase, and total bilirubin were normal, although γ-glutamyl transpeptidase was slightly elevated (59 U/l; normal range, 10–47 U/l). He was negative for HIV antibody, and his chest radiography was normal. A well-demarcated hypoechoic and heterogeneous mass (35 × 33 mm) with solid and cystic components was recognized in linear array EUS (Fig. 2). EUS-FNA was performed via the duodenal bulb, avoiding the cystic part, with a 22-gauge manually operated needle (Echotip; Wilson-Cook, Winston-Salem, NC, USA). The clinical course after EUS-FNA was uneventful. The cytological examination revealed epithelioid cells with caseous necrosis, indicating tuberculosis (Fig. 3). The aspirated fluid was positive by polymerase chain reaction (PCR) analysis and culture for Mycobacterium tuberculosis, but negative for acid-fast bacilli staining. A chest CT scan performed after the EUS-FNA revealed multiple mediastinal lymphadenopathy, but no definite abnormalities in the lung fields. Acid-fast bacilli were negative in the sputum and gastric juice by PCR analysis, culture, and Ziehl-Neelsen staining. Antituberculosis therapy with isoniazid, rifampicin, ethambutol, and pyrazinamide was started based on the PCR and cytology results, and a good response to the treatment was noted.

**Discussion**

Peripancreatic tuberculosis usually falls into one of five distinct clinical scenarios. Specifically, the infection may (1) produce pancreatitis, (2) cause obstructive jaundice, (3) lead to gastrointestinal bleeding, (4) cause portal hypertension, or (5) mimic pancreatic neoplasia as a discrete mass.²,⁶ This final presentation is the most common of the five scenarios.²,⁷ The exact mode of transmission of *M. tuberculosis* to the pancreas is not well understood, and several possible mechanisms have been proposed. For example, lymphatic and hematogenous dissemination after pulmonary exposure has been suggested to result in infection of the pancreas, while another possible mechanism is abdominal contamination with *M. tuberculosis* via ingestion of infected materials from an active pulmonary focus with subsequent lymphatic spread.⁸

Islet cell tumor, serous cystadenoma, solid-pseudopapillary tumor, and lymphoma were considered as a differential diagnosis in the present case. Islet cell tumors (neuroendocrine tumors) are typically hypervascularg and homogenous.⁹ Central necroses are unusual.⁹ Serous cystadenoma is a female-predominant disorder.⁹ Furthermore, the CT density of the cystic part in the present case was considered to be too high for serous cystadenoma, and the endosonographic features were