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Intra-Abdominal Tuberculous Lymphadenitis Diagnosed Using an Endoscopic Ultrasonography-Guided ProCore Needle Biopsy

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Intra-abdominal tuberculous lymphadenitis can mimic a variety of other abdominal disorders such as pancreatic cancer, metastatic lymph nodes, or lymphoma, which can make a proper diagnosis difficult. A correct diagnosis of intra-abdominal tuberculous lymphadenitis can lead to appropriate management. Endoscopic ultrasonography (EUS)-guided needle biopsy may be the procedure of choice for tissue acquisition when onsite cytopathology examination is unavailable because it is essential to obtain sufficient material suitable for the examination using an ancillary method, such as flow cytometry, molecular diagnosis, cytogenetics, or microbiological culture. We report a case of intra-abdominal tuberculous lymphadenitis diagnosed using an EUS-guided, 22-gauge histology new needle biopsy without an onsite cytopathology examination.

Key Words: Endosonography; Fine needle biopsy; Tuberculosis

INTRODUCTION

Intra-abdominal tuberculous lymphadenitis can present as a cystic or solid mass that mimics malignancies, such as pancreatic cancer, metastatic lymph nodes, or lymphoma, which makes it difficult to differentiate these conditions.[1-3] Intra-abdominal tuberculous lymphadenitis poses a diagnostic and management challenges even in areas where tuberculosis (TB) is endemic. A correct diagnosis of intra-abdominal tuberculous lymphadenitis may avoid unnecessary surgery and lead to proper management. We present a case of intra-abdominal tuberculous lymphadenitis diagnosed using an endoscopic ultrasonography (EUS)-guided, 22-gauge histology new needle biopsy without an onsite cytopathology examination.

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CASE REPORT

An immunocompetent, 61-year-old woman was referred to our hospital for the evaluation of a gastric subepithelial lesion found incidentally during an upper endoscopy screening. Her medical history was unremarkable. She denied abdominal pain, weight loss, anorexia, fever, jaundice, night sweats, and fatigue. The general physical examination was unremarkable. The chest radiograph showed multiple variably sized calcified nodules in both upper lobes, suggesting the sequelae of pulmonary TB (Fig. 1A). She was negative on a human immunodeficiency virus screening test. Laboratory tests showed a hemoglobin of 12.5 g/dL and a white blood cell count of 5,800/mm^3 with normal differential count. The liver and renal profiles were normal. On upper endoscopy, a 3×3 cm intraluminal protruding mass with normal overlying mucosa was noted in the cardiac region of the lesser curvature of the stomach (Fig. 1B). Abdominal computed tomography (CT) detected enlarged lymph nodes with rim enhancement and central low attenuation at the gastrohepatic ligament (Fig. 1C). EUS was performed to better characterize this lesion, and showed a heterogeneous hypoechoic lesion (3×2 cm) (Fig. 1D). We performed an EUS-guided fine needle biopsy (EUS-FNB) because no onsite cytopathology examination was available. The EUS-FNB was done using a convex array echoendoscope (Pentax EG-3870

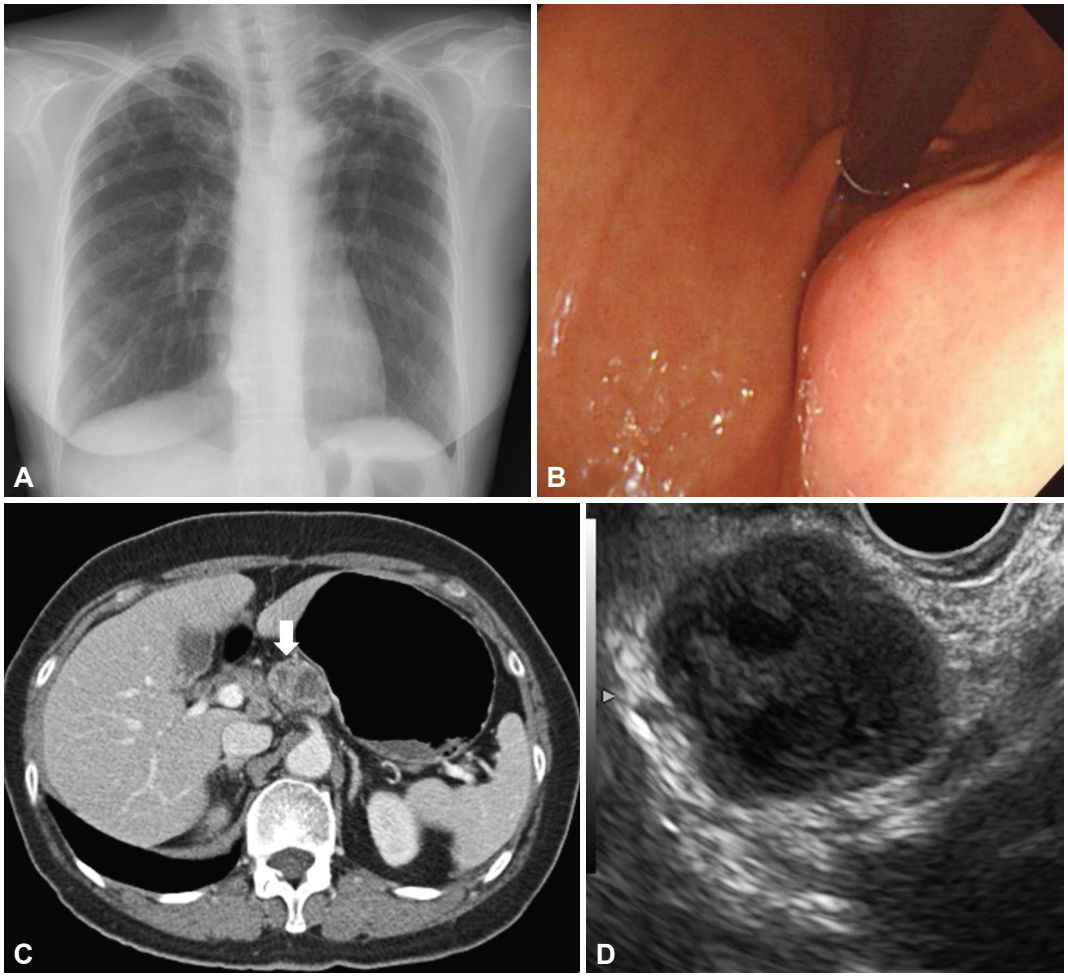

Fig. 1. Clinical findings. (A) Chest X-ray showing multiple variably sized calcified nodules in both upper lobes. (B) Upper endoscopy showing a 3×3 cm intraluminal protruding mass with normal overlying mucosa in the cardiac region of the lesser curvature of the stomach. (C) Abdominal computed tomography showing enlarged lymph nodes with rim enhancement and central low attenuation at the gastrohepatic ligament. (D) Endoscopic ultrasonography showing an enlarged heterogeneous hypoechoic lymph node.

UTK; PENTAX Co., Ltd., Tokyo, Japan) and the newly designed 22-gauge Echotip Ultra FNB needle, featuring ProCore reverse bevel technology (Cook Endoscopy, Limerick, Ireland).

After the lesion was endosonographically visualized and the region was scanned for vessels by power Doppler, FNB using a 22-gauge ProCore needle was performed from the stomach. The needle was advanced into the lesion under endosonographic guidance. Once the lesion was inserted, the stylet was removed, and suction was applied for 20 seconds using a 10 mL syringe while moving the needle to and fro within the lesion. Suction was released before the needle was removed. Adequate tissue materials were obtained on one needle pass with one to and fro needle movement (Fig. 2A). Pathology revealed caseous necrotic material (Fig. 2B). Although no epithelioid granuloma was found, a few acid-fast bacilli were identified on Ziehl-Neelsen staining (Fig. 2C). She was also positive in a TB polymerase chain reaction assay. Intra-abdominal tuberculous lymphadenitis was diagnosed based on these results. The patient underwent anti-TB treatment. On the follow-up CT scan obtained 2 months later, the size of the previous intra-abdominal tuberculous lymph nodes was dramatically reduced.

DISCUSSION

For lymph node enlargement in a patient with no history of malignant disease, the differential diagnosis is very broad, including TB, lymphoma, and lymph node metastases from an unknown primary.[1-3] Therefore, it is essential to obtain sufficient material suitable for examination using an ancillary method, such as flow cytometry, molecular diagnosis, cytogenetics, or microbiological culture. In a previous study that used EUS-guided fine needle aspiration (FNA) for pancreatic/peripancreatic TB, unnecessary surgery was performed in five patients (24%) with nondiagnostic EUS-FNA results.[4] In this context, more tissue may be required to reach a correct diag-

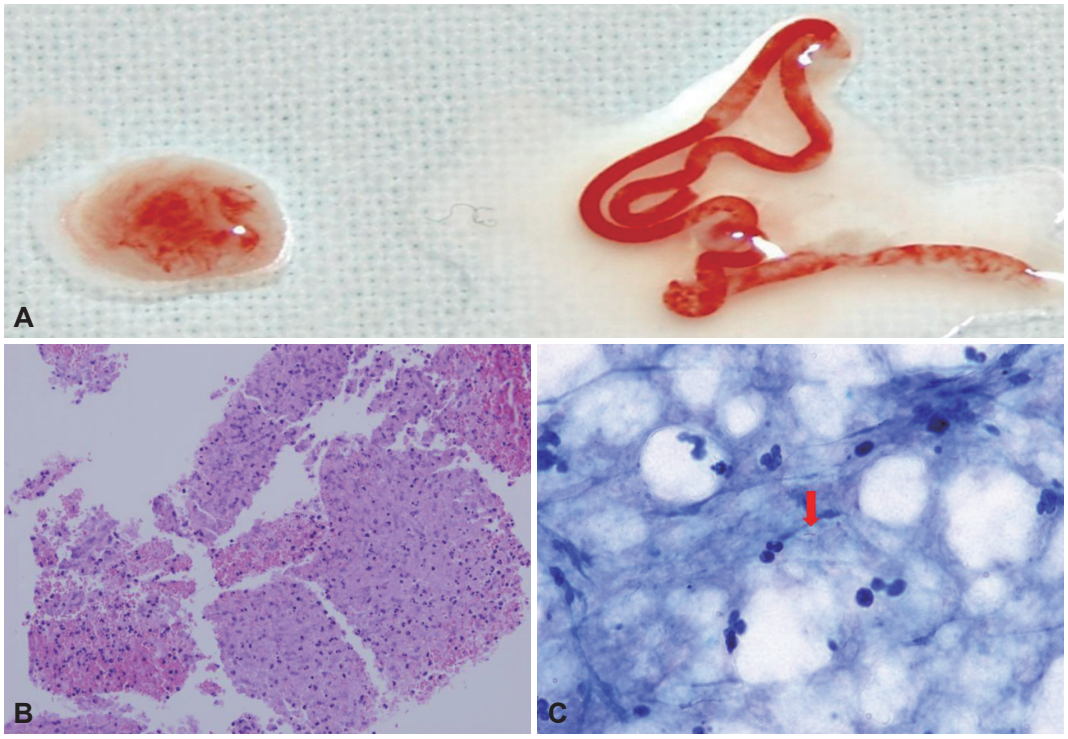

Fig. 2. Pathological findings. (A) Tissue materials obtained using the endoscopic ultrasonography-guided ProCore biopsy. (B) Caseous necrotic material with no epithelioid granuloma (H&E stain, ×100). (C) Acid-fast bacillus (arrow) (Ziehl-Neelsen stain, ×1,000).

nosis and to guide a proper therapy. The use of an EUS-FNB needle may obviate the need for onsite cytopathology assistance. Specific diagnosis of malignant tumors and granulomatous disease has been reported to be achieved significantly more often when using EUS-FNB than EUS-FNA.[5,6] EUS-FNB might also have some advantages over EUS-FNA, especially without onsite cytopathology assistance, since EUS-FNB potentially decreases the number of needle punctures and increases the chances of obtaining sufficient specimens.

Recently, the EUS-guided ProCore biopsy was introduced.[7] The needle is composed of stainless steel with a nitinol stylet (Fig. 3). The stylet running through the cannula of the needle matches the tip bevels. The sheath of the ProCore needle is 5.2 Fr, and it has a 2 mm reverse bevel side fenestration 3.9 mm from the needle tip to allow suctioning of tissue into the bevel and to gain core tissue on withdrawal. The handle materials are Lexan-121, polyestyrene, and Dynaflex. In one large multicenter trial, the technique was feasible and safe for histopathological diagnosis, providing high diagnostic accuracy.[7] Technical details of the standard tissue acquisition protocol were as follows:[7] after the target lesion was endosonographically visualized and the region was scanned for vessels using color and pulsed Doppler, FNB was performed from the duodenum, stomach, esophagus, or rectum, depending on lesion location. The FNB needle was advanced into the target tissue under endosonographic guidance. Once the lesion was penetrated, the stylet was removed, and suction was applied for 10 to 20 seconds using a 10 mL syringe while moving the needle to and fro within the lesion either once or three to four times. Suction was released before the needle was removed. One to three needle passes were performed.

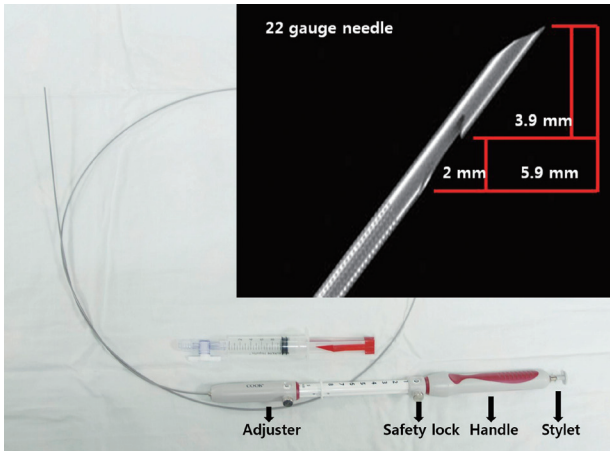

Fig. 3. Detailed image of the 22-gauge ProCore needle.

Therefore, we performed EUS-guided 22-gauge ProCore needle biopsy, ultimately diagnosing intra-abdominal tuberculous lymphadenitis in our case. EUS-guided 19-gauge Trucut biopsy (EUS-TCB) might also have been useful for the diagnosis of intra-abdominal tuberculous lymphadenitis in our case without onsite cytopathology. Lee et al.[8] reported that

EUS-TCB changed management decisions in 27.7% of patients with gastric subepithelial lesions, but could not be performed in 13.8% because of technical difficulties, including difficulty in advancing the needle because of acute echoendoscope angulation or in penetrating the elastic gastric wall. The maneuverability of the echoendoscope and ability to angulate the Albarran lever were reduced when 19-gauge Trucut needles were used. Only the 22- or 25-gauge needles appeared to be suitable for insertion into the target regions when tight angulation of the endoscope or an Alberran lever were necessary. In this context, a 22-gauge ProCore needle biopsy might have some technical advantages over a 19-gauge EUS-TCB needle. However, there have been no reports comparing the diagnostic yields of 22-gauge ProCore biopsy and 19-gauge TCB.

In conclusion, we safely performed EUS-FNB using a 22-gauge ProCore needle in a case of intra-abdominal tuberculous lymphadenitis, and were able to provide an accurate diagnosis. We believe that EUS-ProCore biopsy is a good alternative to EUS-TCB in suspected intra-abdominal tuberculous lymphadenitis, especially with no available onsite cytopathology. EUS-FNB using a 22-gauge ProCore needle might also have some technical advantages over EUS-TCB if tight angulation of the echoendoscope is necessary.

Based on our observations, we believe that a prospective trial to further evaluate the role of EUS-ProCore biopsy and its complications in suspected intra-abdominal tuberculous lymphadenitis is warranted.

Conflicts of Interest

The authors have no financial conflicts of interest.

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