

# Detection of Esophageal Tuberculosis, a Rare Cause of Abdominal Pain, on $^{18}\text{F}$ -FDG PET/CT

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The esophagus is rarely affected by *Mycobacterium*. A 75-y-old man presented with upper abdominal pain and significant weight loss for 2 mo. Contrast-enhanced CT, upper gastrointestinal endoscopy, and abdominal vessel angiography gave normal results. To clarify the facts,  $^{18}\text{F}$ -FDG PET/CT was performed, revealing an  $^{18}\text{F}$ -FDG-avid lesion in the posterior wall of the lower thoracic esophagus. On endoscopic ultrasound-guided fine-needle aspiration of this lesion, puslike material was released. On microscopic examination, acid-fast bacilli were noted. The patient then began receiving standard antitubercular therapy.

**Key Words:** esophageal tuberculosis; endoscopic ultrasound;  $^{18}\text{F}$ -FDG PET/CT

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The esophagus is rarely affected by *Mycobacterium*, and esophageal tuberculosis in the absence of mucosal changes is an uncommon cause for abdominal pain. We present the case of a patient with upper abdominal pain and weight loss in whom tuberculosis was revealed through  $^{18}\text{F}$ -FDG PET/CT followed by lesion aspiration.

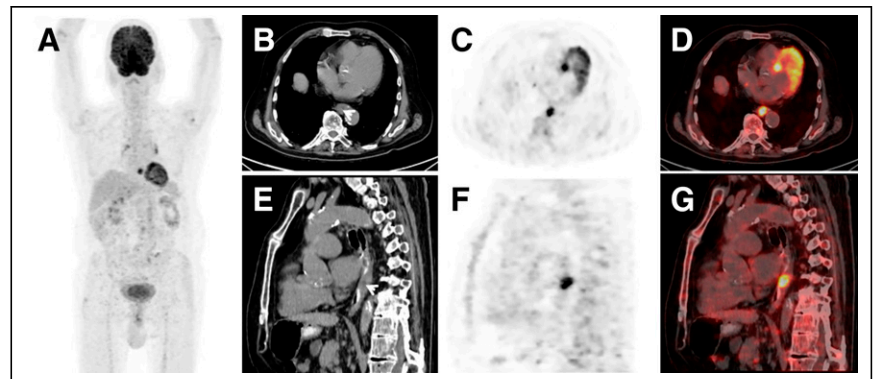
## CASE REPORT

A 75-y-old man complained of upper abdominal pain and significant weight loss for 2 mo. The pain was dull, constant, and of varying intensity. He was on regular analgesics, but no significant improvement had been noted. He had no difficulty swallowing. There was no significant contributory past history or family history. On general and physical examination, no abnormality was noted. The results of

laboratory assessment and biochemical profile were also normal, as were the results of contrast-enhanced CT of the chest and abdomen, upper gastrointestinal endoscopy, and abdominal vessel angiography.

Because PET may identify early functional changes in an organ or tissue related to early onset of a disease before anatomic changes appear, we performed  $^{18}\text{F}$ -FDG PET/CT to search for an early pathologic cause of the patient's discomfort. The images (Fig. 1) revealed an  $^{18}\text{F}$ -FDG-avid (SUV<sub>max</sub>, 9.8) heterogeneously enhancing soft-tissue-density lesion ( $\sim 1.3 \times 1.2 \times 1.5$  cm) in the posterior wall of the lower thoracic esophagus. The lesion was causing mild narrowing of the esophageal lumen. Additionally, a few mildly  $^{18}\text{F}$ -FDG-avid mediastinal lymph nodes with foci of calcification were noted.

On endoscopic ultrasound examination, the inner esophageal mucosal lining was normal. Endoscopic ultrasound-guided fine-needle aspiration of the esophageal lesion was then performed, extracting dense, puslike material that, on



**FIGURE 1.** (A)  $^{18}\text{F}$ -FDG PET maximum-intensity projection shows abnormal hot spot in midline lower thoracic region. (B–G) Corresponding transaxial (top) and sagittal (bottom) contrast-enhanced CT (B and E), PET (C and F), and PET/CT (D and G) images reveal  $^{18}\text{F}$ -FDG-avid (SUV<sub>max</sub>, 9.8) heterogeneously enhancing soft-tissue-density lesion ( $\sim 1.3 \times 1.2 \times 1.5$  cm) in posterior wall of lower thoracic esophagus (arrowheads). Lesion was causing mild narrowing of esophageal lumen.

microscopic examination, revealed acid-fast bacilli. The patient was subsequently scheduled to receive standard antitubercular therapy, and after 2 mo of treatment, the abdominal pain had improved significantly.

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## DISCUSSION

Esophageal tuberculosis is extremely rare, accounting for only 0.15% of tuberculosis cases (1,2), and usually affects the mid esophagus because of direct extension from mediastinal structures. Common symptoms of esophageal tuberculosis are dysphasia and retrosternal pain; however, histopathology is needed to confirm the diagnosis (3–5). Esophageal tuberculosis is difficult to identify in the absence of a mucosal lesion or at an early stage (3). Clinical, radiologic, and endoscopic findings are not well defined because of the rarity of the disease (6,7). Because  $^{18}\text{F}$ -FDG PET/CT is a well-established modality for detection of metabolically active lesions, it is a good modality for clarifying uncertain cases (8–10).

## CONCLUSION

Esophageal *Mycobacterium tuberculosis* may be missed in the absence of mucosal changes and is an uncommon cause for abdominal pain. In the present case,  $^{18}\text{F}$ -FDG PET/CT proved used in detecting an esophageal tuberculosis lesion even after upper gastrointestinal endoscopy gave normal results.

## DISCLOSURE

No potential conflict of interest relevant to this article was reported.

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