

## Case Report

# Pancreatic Tuberculosis Mimicking Malignancy Diagnosed with Endoscopic Ultrasound-Guided Fine Needle Aspiration

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### ABSTRACT

A female presented to the physician with a history of right upper quadrant pain. Abdominal computed tomography (CT) scan demonstrated a multi-loculated solid lesion in the head of the pancreas concerning for a primary malignancy. Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) of the lesion was performed and cytology revealed no evidence of malignancy. The acid-fast bacilli culture was found to be positive for *Mycobacterium tuberculosis* complex and pancreatic tuberculosis was diagnosed.

**Keywords:** endosonography; fine needle aspiration; tuberculosis

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### INTRODUCTION

Pancreatic tuberculosis (TB) is a rare condition affecting those from endemic areas as well as those with immunocompromise.<sup>1</sup> Within the past decade, there has been an increase in the number of cases reported within the United States.<sup>2-5</sup> We report a case of pancreatic TB in a young female that initially presented as a pancreatic mass lesion.

### CASE REPORT

A 41-year-old Thai female presented to her primary physician with a history of right upper quadrant pain. While the pain had been present for several years, it had worsened considerably over the past year, prompting her to seek medical attention. The patient denied weight loss, but did complain of low-grade fevers and chills. Her past medical history was unremarkable. The patient was born in Thailand and had migrated to the United States 6 years ago.

On physical examination, she was noted to be afebrile and his other vital signs were normal. There were no significant

findings on examination of his lungs, heart, or abdomen.

Her laboratory studies results were as follows: white blood cell count 7.4/mm<sup>3</sup> (reference range: 3.8-10.8/mm<sup>3</sup>), hemoglobin 11.8 g/dL (reference range: 13.2-17.1 g/dL). Her white blood cell differential count was normal. Her sedimentation rate was elevated at 45 mm/h (reference range: 0-20 mm/h). Other studies including serum chemistries, liver function tests, and blood cultures were non-revealing. Gastrointestinal tumor markers carbohydrate antigen 19-9 (CA19-9) and carcinoembryonic antigen (CEA) were both within normal limits. Her chest radiograph was normal. On abdominal computed tomography (CT) scan demonstrated a 5.1 cm × 2.8 cm multi-loculated solid lesion in the head of the pancreas concerning for a primary malignancy along with several enlarged lymph nodes in the peripancreatic region.

An endoscopic ultrasound (EUS) was performed which revealed a 4.3 cm × 2.5 cm hypochoic, homogenous mass lesion with a cystic component within the pancreatic head (Fig. 1). In addition, an oval, 1.1 cm × 1.2 cm heterogeneous lymph node adjacent to mass was seen (Fig. 2). EUS-guided fine needle aspiration (EUS-FNA) of the lesion was performed with 25-G needle. Cytology from the mass revealed necrotizing granulomatous inflammation with no evidence of malignancy. The acid-fast bacilli (AFB) stain was negative. Subsequently, the AFB culture was found to be positive for *Mycobacterium tuberculosis* complex from the pancreatic mass cell block and found to be susceptible to ethambutol, isoniazid, pyrazinamide and rifampin. She

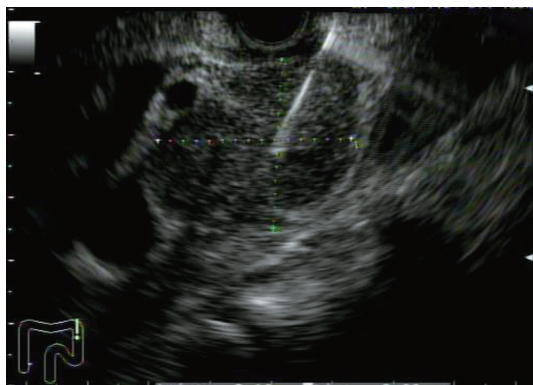
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**Figure 1.** Endoscopic ultrasound-directed fine needle aspiration of the pancreatic tuberculous mass.

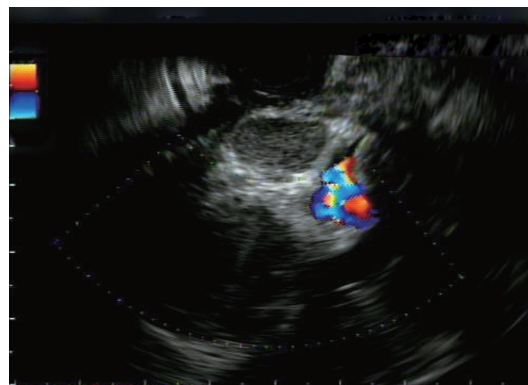
was treated with these 4 drugs for 2 months followed then rifampin and isoniazid for a further 7 months. At the end of therapy, her abdominal pain and fever had resolved and she maintained a normal appetite and weight.

## DISCUSSION

Even in countries where TB is endemic, pancreatic TB is rare. Of the 300 cases of abdominal TB reported by Bhansali *et al*, no cases of pancreatic involvement were found.<sup>1</sup> The pancreas may have intrinsic qualities that protect itself from *Mycobacterium tuberculosis*, specifically the presence of pancreatic enzymes that may interfere with the colonization of the bacteria.<sup>6</sup> However, in cases of pancreatic TB, the two possible routes for TB to reach the pancreas include hematogenous spread in military TB or direct spread from contiguous lymph nodes.<sup>7</sup> It is important to note that TB of the pancreas is most likely to develop in immunocompromised individuals or individuals who are from or travel to endemic areas.

Pancreatic TB may present as a pancreatic abscess, pancreatitis or a cystic or solid pancreatic mass. Despite the rarity of this condition, one must consider it in the differential diagnosis of a solid pancreatic lesion since it can mimic pancreatic cancer. Literature as early as 1944 showed this association as Auerbach found 14 cases of generalized miliary TB with pancreatic involvement that mimicked neoplasia.<sup>8</sup> In more recent times, Franco-Paredes and colleagues reviewed literature between 1980 and 2002 and found 50 cases of pancreatic TB, of which 13 were masses thought to resemble a carcinoma.<sup>6</sup> These statistics alone highlight that despite the rarity of pancreatic TB it can frequently resemble carcinoma and therefore warrants thorough evaluation. Saluja *et al.* concluded that the three most common symptoms were abdominal pain, jaundice and weight loss,<sup>3</sup> three symptoms which are also commonly found in patients with pancreatic carcinoma.

In the initial stages of a workup, many imaging modalities can be employed ranging from CT scans to magnetic resonance imaging (MRI). However, even with all of the different modalities of imaging currently available, pancreatic



**Figure 2.** Endoscopic ultrasound visualization of an enlarged peri-pancreatic lymph node adjacent to the pancreatic mass.

TB does not have any pathognomonic features on imaging and therefore only a tissue sample can give a definitive diagnosis. In recent years, the use of EUS-FNA has become an essential tool in the evaluation of a pancreatic lesion.<sup>3</sup>

Ahlawat and his colleagues were the first to report using EUS-FNA in diagnosing pancreatic or peripancreatic TB. Since then, the utility of using EUS-FNA in diagnosing pancreatic TB has been further established.<sup>4,5,9-12</sup> However, the overall accuracy remains difficult to determine due to the rarity of this condition. One study, done by Song *et al.*, reports that pancreatic TB was diagnosed in 76.2% of their patients using EUS-FNA.<sup>13</sup> Ueda *et al.* have suggested that combining EUS-FNA with contrast ultrasonography may help identify what area should be biopsied and therefore increase diagnostic yield.<sup>11</sup>

As illustrated in our case, the analysis of the FNA sample shows cytology consistent for granulomatous inflammation and a negative acid-fast bacilli stain. Due to the limited utility of an acid fast bacilli stain in this scenario, it is imperative that clinicians culture the FNA sample for *Mycobacterium tuberculosis*. This reinforces that practice that bacterial culture remains the most specific test for diagnosing pancreatic TB.<sup>14</sup>

Once a diagnosis is made, the patient can be started on antituberculin therapy; resolution of symptoms as well as of the pancreatic lesion should be seen after a full course of treatment.

## Conclusion

Pancreatic TB should be suspected in patients with solid pancreatic lesions, especially if the patient is young, immunocompromised, or from an endemic area.

When the diagnosis is suspected, appropriate screening for TB and EUS-FNA of the pancreatic lesion can lead to diagnostic confirmation of the disease and thus avoid unnecessary explorative laparotomy or pancreatic resection.

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