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Case Report

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Endoscopic Ultrasoundguided Fine Needle Biopsy for Diagnosis of Isolated Pancreatic Tuberculosis: A Case Report

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1. Abstract

Isolated Pancreatic Tuberculosis (PT) is an extremely rare disease, with non-specific clinical characteristics, making the diagnosis often challenging with pancreatic cancers

A 60-year-old immunocompetent woman with no history of tuberculosis presented to our hospital with a 1-month history of jaundice. The radiological findings revealed the presence of pancreatic lesions and dilatation of the bile ducts. Pancreatic fine needle biopsy under echoendoscopic guidance was carried out and the histopathological exam revealed the diagnosis of PT. Therefore, anti-tuberculous therapy was initiated, leading to clinical and biological improvement.

The diagnosis of PT is rare and can sometimes be misleading. EUS-guided fine-needle aspiration (FNA) or Fine-Needle Biopsy (FNB) could help for the diagnosis of PT as they offer an adequate specimen for cytology or histopathological examination.

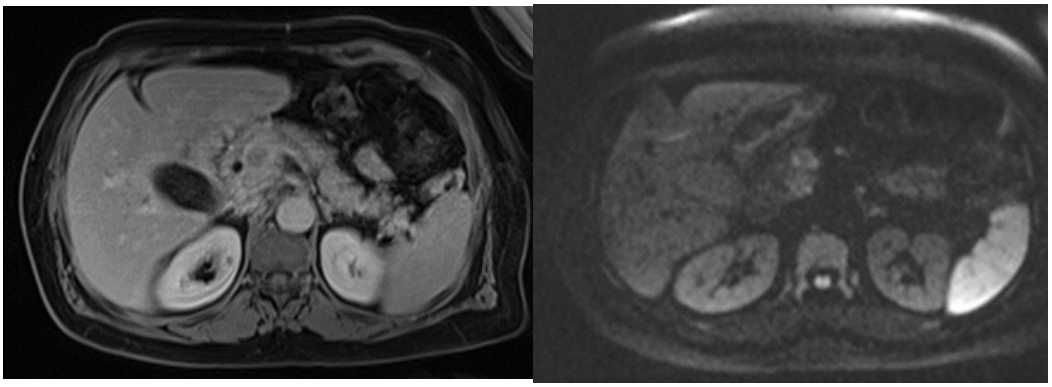
2. Background

Pancreatic tuberculosis is a great mimicker, often being misdiagnosed as pancreatic cancer. Nevertheless, it is of great importance to diagnose pancreatic tuberculosis infection in time and to initiate adequate treatment, to prevent major and unnecessary surgery.

An increased number of cases in recent decades were diagnosed using less invasive methods with a good yield, such as EUS-FNA. We report a similar case of PT diagnosed by using EUS guided Fine Needle Biopsy (FNB)

3. Case Presentation

A 60-year-old female patient, with no particular pathological history or tuberculosis infection presented to our unit with an one-month history of atypical epigastralgia that had been evolving with fever and jaundice. On examination, there was no palpable mass per abdomen. Laboratory examinations found cholestasis: alkaline phosphatase = 558 U/L (normal <240), gamma-glutamyl transpeptidase = 372 U/L (normal <40). Total bilirubin was 39.8 mg/L with 26.2 mg/L direct fraction (normal: 3-12/ 1-3). Carbohydrate Antigen (CA) 19-9 was slightly high 43.9 U/mL (normal <37). Lipase and Carcino-embryonic antigen (CEA) were within normal range. An abdominal ultrasound was performed and showed a slight dilatation of the bile ducts. Magnetic resonance cholangiopancreatography (MRCP) revealed two indissociable nodules of the pancreas. The lesions showed moderately increased signal intensity on T1 post contrast sequence, and enhanced inhomogeneously. The pancreatic duct was not dilated (Figure 1). EUS showed two lesions located at the Uncinate process of the head of the pancreas measuring 15x17 mm and 16x19 mm respectively, associated with multiple mesenteric adenomegaly (Figure 2). EUS-guided pancreatic biopsy was performed. The pathological examination revealed an epitheloid with giant cellular granulomatous pancreatitis with suppurative necrosis. The chest X-ray and HIV serology were normal. The patient did receive an anti bacillary treatment based on Isoniazid 5mg/kg, Rifampicin 10mg/kg, Ethambutol 20 mg/kg and Pyrazinamide 25mg/kg for two months, followed by two drugs for the next four months : Isoniazid and Rifampicin. The short-term evolution was marked by a favorable clinical (weight gain, apyrexia) and biological improvement with good tolerance to the treatment.



(a) (b)

Figure 1: Two nodules of the pancreas with increased signal intensity on MRI-T1 post contrast sequence (A) and Diffusion-weighted imaging (DWI) sequence (B)

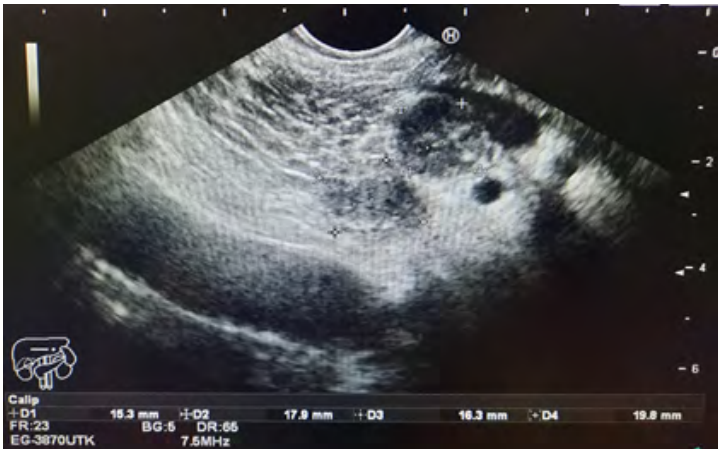


Figure 2: EUS image showing two heterogeneous hyperechoic masses with the presences of calcifcation within, at the Uncinate process of the pancreas

4. Discussion

PT is not a common affection. In large autopsy series on TB patients, Auerbach et al. reported pancreatic involvement in only 4.7% [1].

Two main types of patients with PT can be differentiated: one from areas of endemic tuberculosis infection, and another associated with immunodeficiency predominantly caused by HIV infection and present in the more economically developed world.

PT is still a rare clinical entity. About 121 case studies and case series reporting pancreas involvement in TB infection (english studies) were published between 1978 and 2017 [1].

The low probability of Mycobacterium tuberculosis localization at the pancreatic level could be explained by the retroperitoneal location of the pancreas and the antimicrobial properties of its enzymes, such as lipase and deoxyribonucleases extracts.

Three forms of PT have been described: as part of miliary tuberculosis which is the most common type, spread to the pancreas via retroperitoneal lymph nodes, or isolated pancreatic tuberculosis [2].

The clinical presentation of PT is most of the time nonspecific, with a wide spectrum of nonspecific complaints, such as abdominal pain, weight loss, fever, vomiting, jaundice, and anorexia.

Biliary obstruction caused by a mass in the pancreas can lead to temporary elevated serum CA19-9 levels. Therefore, even with elevated serum CA 19-9 levels, pancreatic tuberculosis cannot be exculded when the mass is located on the head of the pancreas [3].

The pattern of enhancement of mass lesion, pancreatic duct dilatation, and vascular invasion on contrast-enhanced cross-sectional imaging have been suggested as features differentiating pancreatic malignancy from pancreatic tuberculosis. However, none of the imaging features are specific for pancreatic tuberculosis. In the study of Rana et al there was no difference in the EUS appearances between patients with pancreatic tuberculosis and patients with pancreatic adenocarcinoma [4].

The presence of tuberculosis was identified most frequently through histological analysis (59.7%), followed by culture (28.9%), staining (27.7%) and, in a smaller number, by polymerase chain reaction (PCR) and cytology[1].

Malikowski et al recommend the EUS with fine-needle aspiration (FNA) for confirming the diagnosis of pancreatic tuberculosis [5]. Samples obtained could be sent for histology and microbiology using Ziehl-Neelsen staining and acid-fast bacilli culture and polymerase chain reaction.

To confirm or rule out the malignancy, it is necessary to make a histologic diagnosis. PT represented 8.7% of the total number of patients who underwent EUS-FNA of pancreatic masses in Puri et al study [6].

EUS-FNA has shown a high diagnostic yield in esophageal (94.3 – 100%), pancreatic and peripancreatic (76.2%), and intestinal tuberculosis (84.1%) [7].

EUS elastography in cases of PT showed stiffer tissue than the pancreatic parenchyma. Stiffness depends on the stage of tuberculosis. Elastography has helped differentiate PT from adenocarcinoma through the demarcated lesion characteristics observed in PT. However, the elastography findings of PT were similar to those of autoimmune pancreatitis. Therefore, EUS elastography alone may not accurately diagnose PT [8].

Without treatment, tuberculosis of the pancreas may progress to complications such as : acute or chronic pancreatitis, diabetes, compressions, biliary obstruction, fistulas, intra-abdominal hemorrhage.

Once the diagnosis is given, the management of PT rest on treatment comprises multi-drug anti-tuberculous chemotherapy (streptomycin, rifampicin, isoniazid, pyrazinamide and ethambutol) and it is usually recommended for between 6 and 12 months.

A biliary stent would be placed if there was no improvement in cholestasis at 4 weeks. A biliary stent would also be placed if there was intractable pruritus, cholangitis, or worsening of cholestatic symptoms after starting anti-tuberculous therapy.

5. Conclusion

Pancreatic tuberculosis is an extremely rare condition, even in countries where the disease is highly prevalent. The diagnosis is often challenging as clinical and radiological features can mimic pancreatic cancer. EUS-FNA and EUS-FNB provide sufficient samples safely and efficiently for further cytology, histopathology, and microbial examinations. Precise diagnosis is vital, as different approaches depend on the diagnosis.

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