

# Pancreatic Tuberculosis-Report on a Rare Presentation of a Not So Rare Disease

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**Abstract:** ***Introduction:** Pancreatic and peripancreatic tuberculosis is such a rare entity that most of our learning about the disease is mainly from individual case reports and few case studies that have been published worldwide. Due to its vague clinical presentation, subtle biochemical abnormalities, unusual radiological findings and low index of suspicion, it is often misdiagnosed as malignancy and the patient lands up in a surgery. Ultrasonography/computed tomography/endosonography-guided biopsy is the recommended diagnostic technique and the disease is very well treatable with regular anti-tubercular chemotherapy. **Case outline:** We report a case of an adult female with no previous history of tuberculosis and were immunocompetent. Diagnosis was obtained by abdominal ultrasound guided FNAC that was suggestive of a tubercular lesion. The patient was then started on anti-tubercular therapy following which she became asymptomatic. **Conclusion:** In cases of suspicious pancreatic mass lesions, possibility of pancreatic tuberculosis should be kept in mind and to rule it out, a histopathological or microbiological diagnosis should be made.*

**Keywords:** Pancreatic Tuberculosis, Fine needle aspiration cytology, FNAC, Pancreatic cancer

## 1. Introduction

In 2017, 10 million people fell ill with TB, and 1.6 million died from the disease (including 0.3 million among people with HIV) making it amongst the 10 leading causes of deaths in the world. Abdominal tuberculosis is a very common disease in the developing countries while isolated pancreatic tuberculosis and peripancreatic tuberculosis is almost unheard of. Such a patient ends up getting misdiagnosed with malignancy or other pancreatic conditions due to its rarity, low index of suspicion and unusual presentation.

Pancreatic tuberculosis most commonly affects the region of the head and the uncinate process of the pancreas. The patient would present with vague abdominal symptoms and may mimic pancreatitis/malignancy on laboratory tests and even imaging. However, Fine needle aspiration cytology (FNAC) with Endoscopic ultrasound or abdominal ultrasound would clinch the diagnosis.

Pancreatic tuberculosis is almost completely treatable with anti-tubercular therapy and saves the patient from unnecessary Laparotomy.

We report a case of a 46-year-old Indian female who presented with fever, anorexia, distension and weight loss. CT scan revealed a pancreatic head malignant lesion but an ultrasound guided fine needle aspiration confirmed it to be a Tubercular lesion.

## 2. Case Report

A previously healthy 46-years-old female presented with complaints of mild grade fever since a year, anorexia with subsequent weight loss since 4-5 months, abdominal

discomfort and distension since 2-3 months and nausea since 1 month. There was no history of cough, vomiting, bleeding per rectum or obstipation. She had no history of previous treatment for tuberculosis or any other comorbidity. Her family history was unremarkable. She denied any sick contacts or travel within the last few years. She was a homemaker and denied smoking and alcohol or intravenous drug abuse. Her immunization history was not known. She appeared poorly nourished with pale sclera. There was no cyanosis, clubbing, pedal edema or icterus. On physical examination, her temperature was 98.8 F, blood pressure was 106/78mmHg, pulse rate was 88/minute, respiratory rate was 15/minute and oxygen saturation was 97%. Cardiopulmonary examination was normal. Abdominal exam revealed tenderness in the epigastric region.

There was no guarding or rigidity. A lump of around 4 x 3 cms was palpable in the right hypochondrium and epigastrium that was firm in consistency, irregular surface, became less prominent on a straight leg raising test, separate from the liver surface and not moving with respiration.

Routine laboratory investigations revealed hemoglobin of 11.7g/dL with a TLC of 6900 and platelet count of 1,66,000. Her liver function tests showed raised direct bilirubin (0.4mg/dL) and alkaline phosphatase (251.9 U/L) but normal indirect bilirubin, SGOT and SGPT. Her ESR was 63mm in 1<sup>st</sup> hour (raised), ADA was 35.062 U/L (normal), and LDH was 185.9 U/L (normal). Her serum amylase and lipase were 56.4 U/L and 269.4 U/L respectively. Her electrolytes, kidney function test, PT/INR were within normal limits.

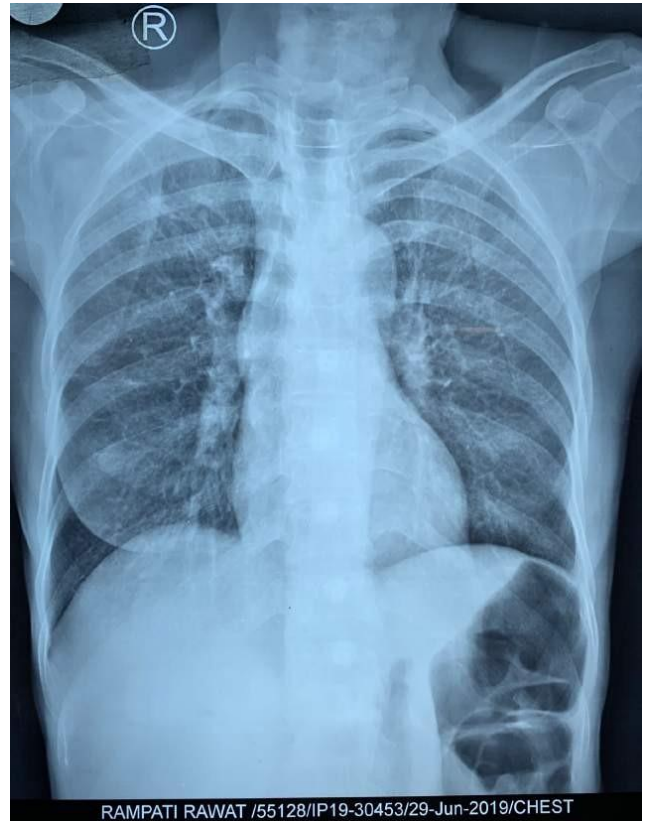
A chest X-ray at the time of admission showed prominent bronchovascular markings with COPD changes. An ultrasound (USG) of the whole abdomen showed mildly

enlarged liver with dilated intrahepatic biliary radicals and normal portal vein. Gall bladder was over-distended and showed multiple calculi with wall thickness of 5mm and dilated common bile duct. A Poorly defined hypoechoic area was seen in the region of uncinete process with atrophic distal pancreas with dilated main pancreatic duct (4-5mm). Few enlarged lymph nodes in the para-aortic region and retroperitoneum largest of 18 x 10mm were also seen.

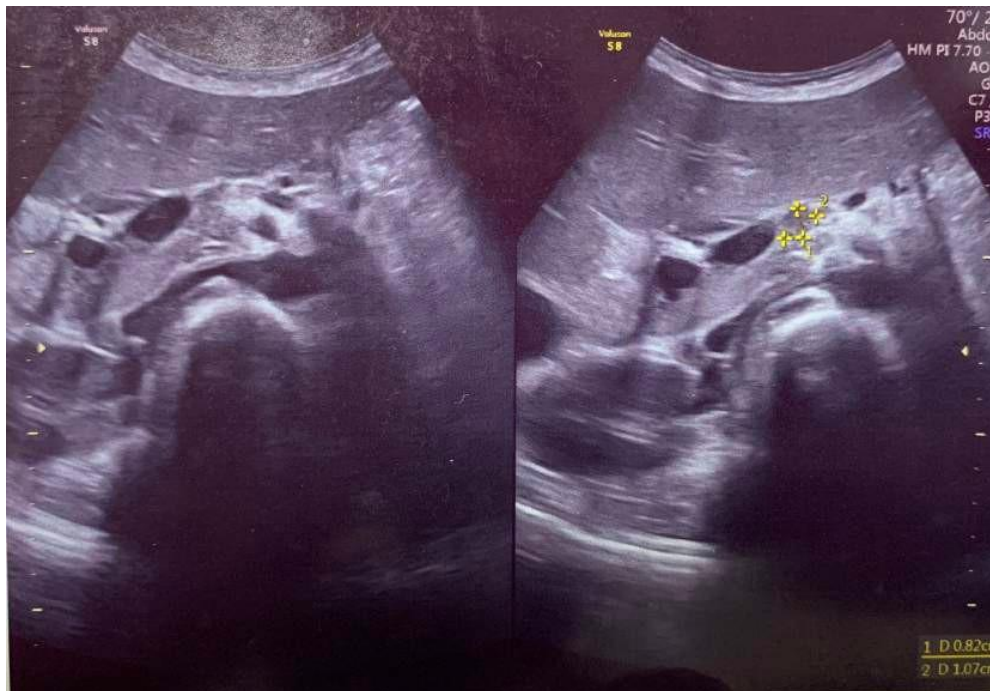
A Gastroduodenoscopy was done which showed a normal papilla and Gastroduodenitis. CA19-9 was 20.2 U/ml (normal). A Triple phase CECT was done which revealed an ill defined lesion in pancreatic head causing obstruction of intrapancreatic CBD and distal MPD with upstream dilatation of IHBR and pancreatic ductal dilatation. Proximal CBD measured about 12mm and MPD measured about 6.4mm. Marked atrophic changes were seen in the body and tail of pancreas. The lesion showed ill-defined fat planes with periampullary region on 2<sup>nd</sup> part of the duodenum with no intraluminal protrusion. Mesenteric and retroperitoneal lymphadenopathy with necrosis was seen, largest measuring 11 x 18mm in size. Overall picture was suggestive of ?Pancreatic head malignant lesion with Calculus cholecystitis with stricture in distal right hepatic duct and subcapsular calcified lesion in posterior aspect of right lobe of liver.

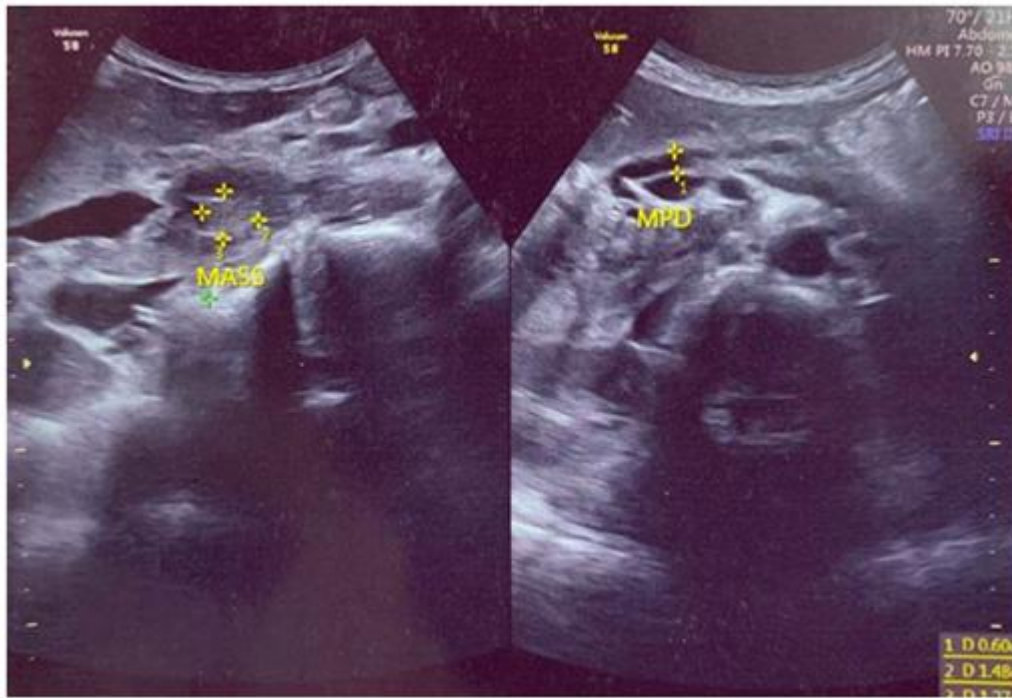
The differential diagnosis included malignant pancreatic tumor, autoimmune pancreatitis, neuroendocrine tumor, and gastrointestinal stromal tumor. An ultrasound guided FNAC from the periampullary mass showed no evidence of malignant cells and an FNAC from the mesenteric lymph node was suggestive of large lymphoid cells, sheets of mesothelial cells with clusters of epithelioid cells and multinucleated giant cells suggestive of a granulomatous

inflammatory pathology likely Tuberculosis.



Chest X-ray P/A view showing prominent bronchovascular markings with COPD changes.



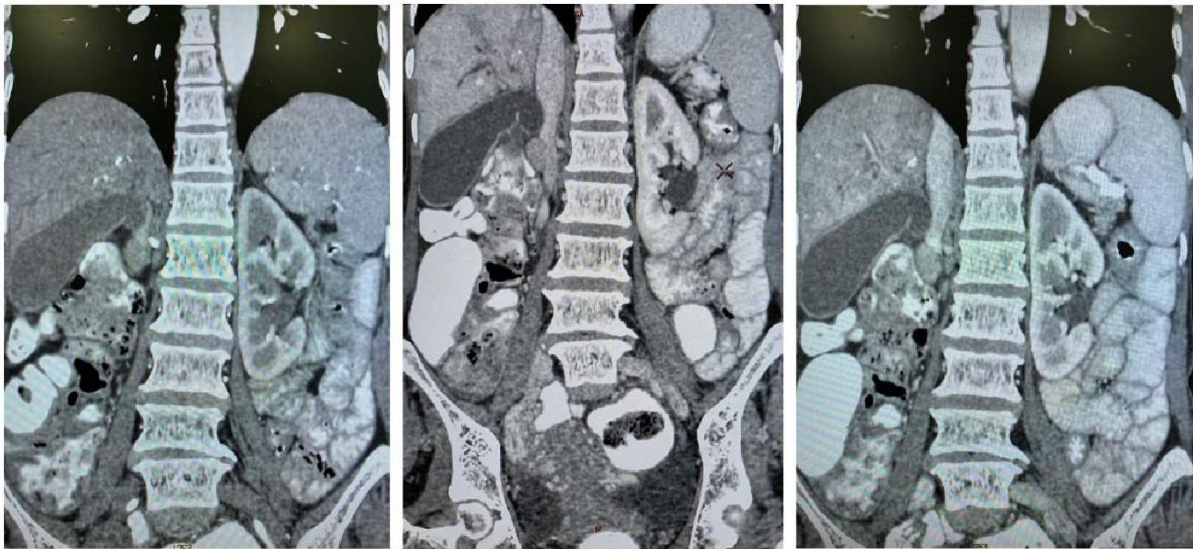


**Ultrasonography-Whole Abdomen** showing dilated intrahepatic biliary radicals, dilated common bile duct with a mass lesion in the region of uncinata process and atrophic distal pancreas with dilated main pancreatic duct.



**Triple phase CECT-whole abdomen (Axial views)- Arterial, Portal and Venous phase** showing pancreatic head mass and retroperitoneal lymphadenopathy





**Triple phase CECT-whole abdomen (Coronal views) -Arterial, Portal and Venous phase showing dilated IHBR and over distended gall bladder)**

### 3. Review of Literature

Isolated pancreatic tuberculosis and peripancreatic tuberculosis are very rare and was first reported by Auerbach in 1944. Abdominal Tuberculosis accounts for 5-12% [1, 2] and almost 11-16% of patients with EPTB have abdominal involvement [3]. Autopsy studies have shown that the pancreas is involved in 2.1%–4.7% of patients with miliary tuberculosis [4-8]. In a classical study of 300 cases of abdominal tuberculosis carried out by Bhansali, not a single case of pancreatic tuberculosis was reported [9]. However, in a study from 1999-2004 from India detected pancreatic TB in 8.3% of the 384 patients who were diagnosed with abdominal TB [10]. Epidemiologically, more than half the patients with pancreatic tuberculosis are young adults (<30 years old) [10,11] and it is more common in men likely related to the disproportional sex ratio [10, 12]. It has a 10.8% mortality rate (comparing to the mortality rate of 9.1% in immunocompetent patients) [13]. The low frequency of PPTB is believed to be because of its retroperitoneal location of pancreas as well as pancreatic enzymes including lipases and deoxyribonucleases that interfere with the colonization, seeding and proliferation of the bacteria [8, 14, 15, 16]. Pancreatic secretions also showed an antitubercular effect in vitro [17, 18], thus a large intrapancreatic inoculum of *Mycobacterium tuberculosis* is required to cause pancreatic lesions [15]. Isolated pancreatic TB is predominantly observed in three groups of people-

- Patients from endemic tuberculous zones,
- Patients from areas of widespread TB dissemination such as a military setting and developing countries [19, 20, 21, 22]
- Patients who are immuno-compromised [23]

A recent review reported that 23% of the 62 reported cases of pancreatic TB occurred in patients who were HIV positive [24]. Pancreatic tuberculosis can present with a picture of acute pancreatitis [25], portal hypertension presenting as gastrointestinal bleeding [1,26], intra-abdominal hemorrhage via direct invasion of a

peripancreatic artery [27], chronic pancreatitis, diabetes [28], obstructive jaundice or even as pancreatic mass mimicking pancreatic carcinoma making it a very challenging diagnosis. Most common location of pancreatic tuberculosis as a mass has been reported in the head (29-74.4%) followed by body (7- 17.9%), uncinata (3-7.7%), and tail (2-5.1%). Amongst clinical symptoms, abdominal pain is the most common (31-79.5%) symptom followed by fever (20-51.3%), weight loss (19-48.7%), appetite loss (11-28.2%), and jaundice (8-20.5%) that were obstructive in nature. Radiologically, there are three types of patterns seen on imaging-

- Mass-forming type (with or without diffuse pancreatic enlargement),
- Diffuse type
- Small, nodular type

The mass-forming type is the most common form that accounts for 94.4% of cases [29]. There are no specific radiological signs on a CT for diagnosing tuberculous pancreatitis but because most of them are mass forming, a hypodense lesion with irregular borders is very frequently seen mimicking pancreatic malignancy but more commonly with a normal common bile duct and main pancreatic duct [30] which is in sharp contrast as seen in adenocarcinoma of the pancreas and centrally located tumors of the pancreatic head where they are grossly dilated [31]. Less common features include pancreatic enlargement with narrowing of the main pancreatic duct and heterogeneous enhancement as seen in the diffuse variety appreciable on an MRI [31].

Although radiology can help us localize the disease and suggest the possibility of pancreatic tuberculosis but it is not specific and confirmative. A definitive decision is usually made based on a histopathological or microbiological examination of a specimen that is obtained from the pancreas or based on peripancreatic LNs.

Image-guided FNAC of the pancreas, a safe procedure, has an overall sensitivity of 64-98%, specificity of 80-100% and positive predictive value of 98.4-100% [32]. In a recent series by Song et al, EUS-FNA was able to diagnose

pancreatic/peri-pancreatic TB in 76.2% of patients [33]. Polymerase chain reaction (PCR) assay is now being increasingly used to detect Mycobacterium TB and has a sensitivity of 64% [34].

Pancreatic tuberculosis responds well to a standard anti-tubercular therapy for 6- 12 months.

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