Abbreviations

GIST: Gastrointestinal Stromal Tumor
RCC: Renal Cell Carcinoma
LOT: Low Grade Oncocytic Tumor
CECT: Contrast Enhanced Computed Tomography
TKI: Tyrosine Kinase Inhibitors
TSC: Tuberous Sclerosis Complex

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Peripancreatic Tuberculous Lymphadenopathy: The Great Masquerader

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Infection with *Mycobacterium tuberculosis* (TB) can cause a wide range of symptoms. Although miliary tuberculosis frequently involves the liver, spleen, colon, and mesenteric lymph nodes, tuberculosis that exclusively affects the peripancreatic lymph nodes is a rare clinical condition[1]. On imaging, it is frequently mistaken for cancer or pancreatitis. This might necessitate unnecessary surgery. It is crucial to diagnose this condition prior to surgery because it is a curable disease[2]. We present a case series of 3 suchpatients diagnosed with space-occupying lesion of the pancreas on imaging and found to have peripancreatic tuberculous lymphadenopathy on endoscopic ultrasound (EUS) examination.

Case Series

Clinical details of all three patients have been described in **Table 1** (Case series of patients with peripancreatic tuberculous lymphadenopathy). Computed tomography (CT), EUS and histopathology findings of the three patients have been illustrated in **Figures1,2,3,4** respectively.

Discussion

Abdominal TB can present in an isolated nodal form as abdominal lymphadenopathy.[1] The lymphatics of the ileocecal region, jejunum, ileum, and right side of the colon drain the ingested infectious material, which accounts for the common involvement of the mesenteric root,

Table 1: Case series of patients with peripancreatic tuberculous lymphadenopathy.

*Patient characteristics	*Case 1	*Case 2	*Case 3
*Age (years)	40	16	31
*Gender	Female	Male	Female
*Presenting complaints	Abdominal pain, weight loss	Abdominal pain, weight loss	Abdominal pain, weight loss
*Significant blood tests	Hemoglobin-7gm/dl, Total Bilirubin- 0.8mg/dl, Gamma Glutamyl transpeptidase- 109 U/L	Serum Lipase- 381 U/L (>3ULN), Total Bilirubin- 0.8mg/dl, Serum Aspartate aminotransferase- 67 U/L, Serum Alanine aminotransferase- 261 U/L, Gamma Glutamyl transpeptidase- 144 U/L, Serum IgG4- 89.4mg/dl (Normal)	Serum Lipase- 4512 U/L (>3ULN), Total Bilirubin- 0.9mg/dl, Serum Aspartate aminotransferase- 59 U/L, Serum Alanine aminotransferase- 165 U/L, Gamma Glutamyl transpeptidase- 471 U/L, Alkaline phosphatase- 223 U/L
*Imaging	MRCP :Well-defined cystic lesion of size 3.6 x 2.1 x 2.2 cm with multiple internal septations, mural excrescences and thick diffusion ring in pancreatic head encasing the portal vein. The main pancreatic duct is displaced anteriorly, and distal common bile duct (CBD) is compressed. Differentials of malignant cystic neoplasm, side branch intrapapillary mucinous neoplasm and necrotic nodal mass were considered.	Contrast-enhanced CT of the abdomen (CECT ABDOMEN)- revealed a mass in the head of the pancreas with loss of plane with main portal vein <180° causing cut-off of the main pancreatic duct and CBD with resultant biliary dilatation and loco-regional lymphadenopathy. An imaging diagnosis of adenocarcinoma involving the head of the pancreas was made.	CECT abdomen revealed a mass posterior to the head of the pancreas encasing the hepatic artery and causing abrupt cut-off of mid-CBD and resultant proximal dilatation with multiple peri-pancreatic nodes.
*Endoscopic Ultrasound (EUS)	Hypoechoic nodes with areas of liquefaction around the head/uncinate process causing compression of the CBD and portal vein. Pancreatic parenchyma appeared normal. EUS FNB was done.	Hypoechoic mass- Nodal in relation to genu/head of pancreas seen compressing the CBD with dilated proximal CBD. Pancreatic parenchyma appeared normal. EUS FNB was done.	Hypoechoic nodal mass of approximately 2.5 x 2 cm adjacent to the uncinate process of the pancreas and few hypoechoic nodes in the peri-portal area. The nodes compresed the supra-pancreatic portion of CBD, causing proximal CBD dilatation. Pancreatic parenchyma appeared normal. EUS guided FNB was done.
*XPERT M.TB	Detected	Detected	Detected
Histopathology	Necrotizing sub-acute inflammation with granulomas	Necrotizing granulomatous inflammation	Chronic granulomatous inflammation
*Response to ATT	Yes	Yes	Yes
*Clinical/ Biochemical response	Yes	Yes	Yes

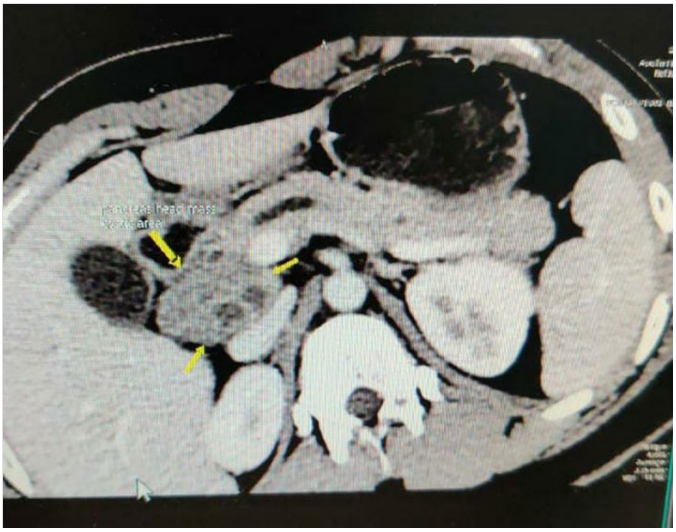

Figure 1: CECT abdomen imaging showing a mass in the head of pancreas.

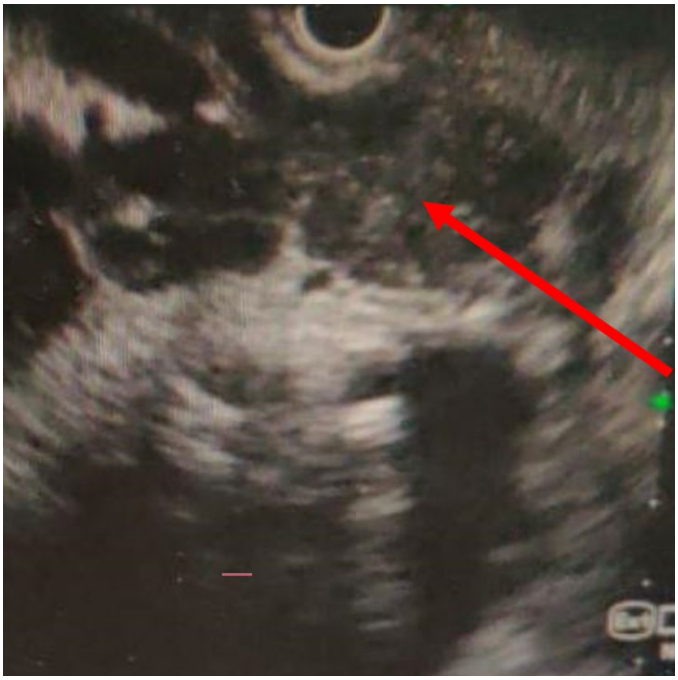

Figure 2: EUS showing bulky head of the pancreas and peri-pancreatic node.

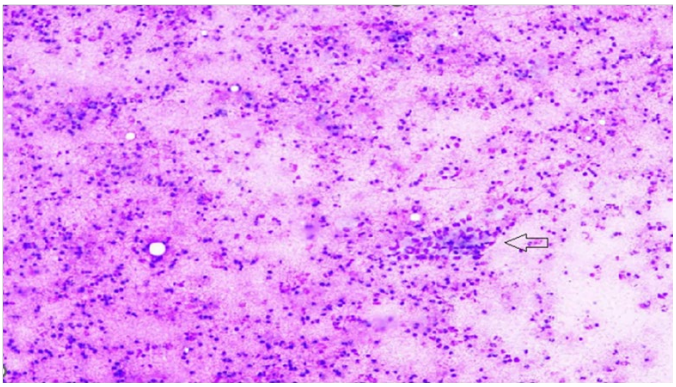

Figure 3: Histopathology showing Granuloma(arrow) in the background of sub-acute necrotizing inflammation (100X). Stain used: Hemotoxylin and eosin stain, Magnification-100X.

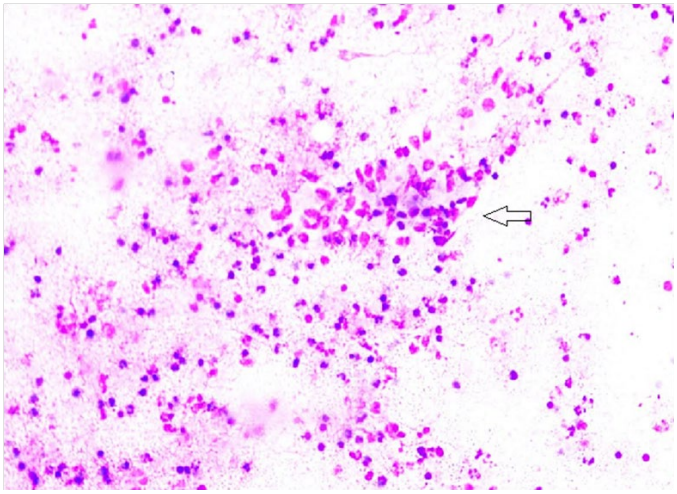

Figure 4: Histopathology showing granulomas(arrow) in the background of sub-acute necrotizing inflammation on high power (400X). Stain used: Haematoxylin and Eosin stain, Magnification-400X.

celiac, porta hepatis, and peripancreatic lymph nodes[3]. Retroperitoneal lymph nodes are largely unaffected, and their involvement rarely occurs alone[4]. There is widespread speculation that lymphohematogenous dissemination from an undetected focus in the lung is how tubercle bacilli spread to the peripancreatic lymph node[1]. Solitary or isolated tuberculous peripancreatic lymph node involvement is exceedingly rare. It might be associated with one of four possible clinical circumstances: the infection could cause gastrointestinal bleeding, pancreatitis, obstructive jaundice, or mimic a pancreatic neoplasm as a discrete mass. In this case series, all three patients presented with a pancreatic neoplasm on imaging and were found to have peripancreatic tuberculous lymphadenopathy on EUS examination.

On imaging, the lymph nodes are either distinct or appear as matted conglomerated masses. The CT characteristics of pancreatic tuberculosis are non-

specific which include an irregularly shaped, hypodense, hypovascular mass with peripheral enhancement; areas of central enhancement that can give a multiloculated appearance with nearby necrotic or non-necrotic lymphadenopathy. These characteristics mimic those of pancreatic cystic lesions that are inflammatory or neoplastic[5]. A clearly defined mass that typically appears in the pancreatic head and exhibits heterogenous enhancement are MRI findings of focal pancreatic TB. On fat-suppressed T1-weighted images, these lesions are typically hypointense, and on T2-weighted images, they exhibit a mixture of hypo/hyperintensity[2].

Biliary obstruction may develop as a result of external compression or direct ductal compression by infected nodes, along with periductal inflammation and stricture[1]. With a success rate ranging from 50 to 62%, fine needle aspiration cytology/biopsy has been used to diagnose a small number of patients[2]. High-resolution imaging with EUS enables the detection of abdominal and mediastinal lymphadenopathy as well as the differentiation of pancreatic and peripancreatic tumors. For diagnostic reasons, fine-needle biopsy (FNB) or EUS-guided fine-needle aspiration (FNA) can be used to investigate lymphadenopathy or pancreatic masses. It can detect pancreatic cancer up to 95% of the time and pancreatic tuberculosis up to 76% of the time[6]. Samples acquired could be sent for histology and microbiology utilizing acid-fast bacilli culture, Ziehl-Neelsen staining, and polymerase chain reaction assay[2]. According to reported literature, anti-tuberculous drug therapy is advised for 6-12 months[5].

Endoscopic intervention is required in patients who develop obstructive jaundice due to biliary stricture, which may be progressive despite initiation of anti-tuberculous therapy. This intervention should be carried out early on in the course of treatment[5]. The progression or resolution of the disease can be guided by CT imaging[6]. In this case series, one patient needed biliary intervention, and all three patients showed clinical and biochemical response to anti-tuberculous therapy on follow up.

Conclusion

Large peripancreatic lymphnodes compressing the pancreas and surrounding adjacent vasculature can mimic pancreatic masses and may be mistaken for malignancy. In endemic nations, tuberculosis should be considered, especially in young patients in whom pancreatic mass is reported on imaging.

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Double Gall Bladder Mimicking Choledochal Cyst Type 6

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Congenital anomalies of the biliary tree are frequently encountered in patients undergoing surgery for gallbladder stones and are a common cause of postoperative complications in these patients. Vesica fellea duplex or double gall bladder is a rare congenital malformation that