

CASE REPORT

Pancreatic and Peripancreatic Tuberculosis Mimicking Malignancy

Fung J Foo¹, Caroline S Verbeke², James A Guthrie³, Aftab Ala⁴, Krishna V Menon¹

Departments of ¹Hepatobiliary Surgery, ²Histopathology, and ³Radiology,
St James's University Hospital. Leeds, United Kingdom.

⁴Department of Gastroenterology and Hepatology, Frimley Park Hospital. Surrey, United Kingdom

ABSTRACT

Context There are a variety of differential diagnoses for an abnormal mass arising from the pancreas of which isolated pancreatic or peripancreatic tuberculosis is an extremely rare diagnosis with a variety of elusive presentations.

Case report We report such a case which masqueraded as malignancy in 43-year-old man presenting with jaundice, weight loss and new onset diabetes.

Conclusions Tuberculosis should be considered as a differential diagnosis to an obscure pancreatic mass which may result in local complications amenable to surgery.

INTRODUCTION

Infection with *Mycobacterium tuberculosis* has a wide array of manifestations, of which pancreatic and peripancreatic involvement is rare. Post mortem analysis of 300 military tuberculosis patients over 12 years in India did not reveal a single one with pancreatic involvement [1]. The largest autopsy series of 1,656 tuberculosis patients did find 14 with pancreatic involvement, however all had widespread military tuberculosis [2]. Isolated pancreatic tuberculosis is an exceptionally rare entity.

We present a rare case of isolated pancreatic and peripancreatic tuberculosis which

masqueraded as malignancy treated by pancreaticoduodenectomy with portal vein resection and reconstruction.

CASE REPORT

A 43-year-old gentleman of Indian origin presented with a 4-week history of painless jaundice, weight loss of 14 kg in 6 months and a one-year history of new onset non-insulin dependent diabetes mellitus. Past medical history was otherwise unremarkable and notably there was no history of tuberculosis.

The only abnormality in blood investigations were deranged liver function tests. Total bilirubin was 144 µmol/L (reference range: 5-21 µmol/L), alkaline phosphatase 1,586 IU/L (reference range: 70-300 IU/L), gamma glutamyl transaminase 1,080 IU/L (reference range: 0-90 IU/L) and alanine transaminase 547 IU/L (reference range: 0-40 IU/L). Hepatitis A, B, C serology and autoantibody screen were all unremarkable.

An abdominal ultrasound did not reveal any abnormality apart from a dilated 4.5 cm common bile duct. Further investigation with MRI revealed a 3.3 cm mass arising from the head of the pancreas abutting the posterior aspect of the portal vein (Figures 1 and 2). It was of soft tissue density, not typical of an adenocarcinoma but suggestive of a cystic neoplasm. Two enlarged peripancreatic lymph nodes were noted and there were no distant metastases.



Figure 1. Axial MR image (T2 sequence) showing an abnormal soft tissue mass (black arrow) arising from the posterior aspect of the head of pancreas encroaching upon the portal vein.

ERCP was performed which demonstrated a normal pancreatic duct. However, selective cannulation of the bile duct was unsuccessful and hence a percutaneous transhepatic cholangiography guided biliary stent was inserted. Although the mass was seen to abut the portal vein, as there was no evidence of distant disease, a pancreaticoduodenectomy was performed.

Intraoperative findings were a soft to firm pancreatic mass extending onto the lateral aspect of the portal vein encasing about 60° of the circumference over 1.5 cm. There were also peripancreatic lymph nodes of rubbery

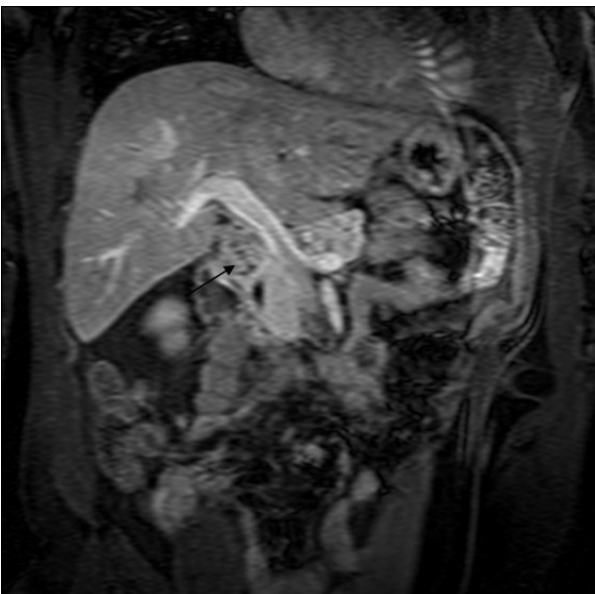


Figure 2. Coronal MR image (T2 sequence) demonstrating an abnormal soft tissue mass (black arrow) abutting the portal vein.

consistency. A lateral portal vein resection and reconstruction without the need for a patch graft was performed. A Roux-en-Y loop was formed with pancreaticojejunostomy and hepaticojejunostomy on one limb and gastrojejunostomy on the other. The patient made an uneventful recovery. Interestingly in the post-operative period, blood sugar levels were normal and the patient did not require anti-glycaemic agents anymore.

Histopathological analysis showed an enlarged 3x1.5x2 cm posterior pancreaticoduodenal lymph node demonstrating necrotising granulomatous inflammation. There was continuous extension of the inflammatory changes into the duodenal wall, posterior pancreas and distal common bile duct resulting in duodenal ulceration and biliary obstruction (Figure 3). There was also caseation involving all layers of the portal vein to within 1 mm of the vessel lumen (Figure 4). Ziehl-Neelsen staining did not reveal acid-fast bacilli. However polymerase chain reaction analysis confirmed the presence of *Mycobacteria tuberculosis*. There was no evidence of neoplasia.

The patient was subsequently commenced on quadruple antituberculous treatment comprising of rifampicin, isoniazid, pyrazinamide and ethambutol and is currently well. He was subsequently investigated and no other foci of tuberculosis have been found.

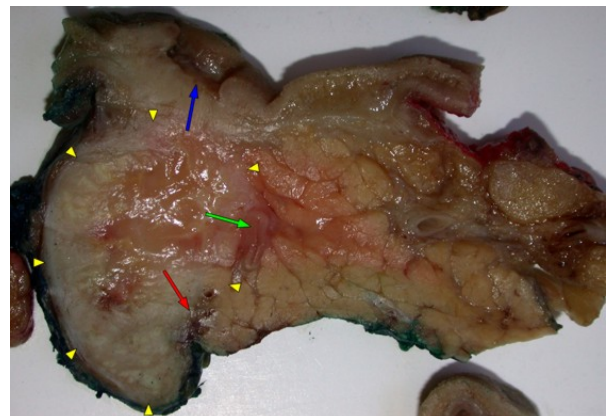


Figure 3. Enlarged posterior peripancreatic lymph node (yellow arrowheads) with central caseation. This extends into the pancreatic parenchyma compressing the common bile duct (green arrow). Inflammation also extends into the superior mesenteric vein groove (red arrow) and duodenum causing an ulcer (blue arrow).

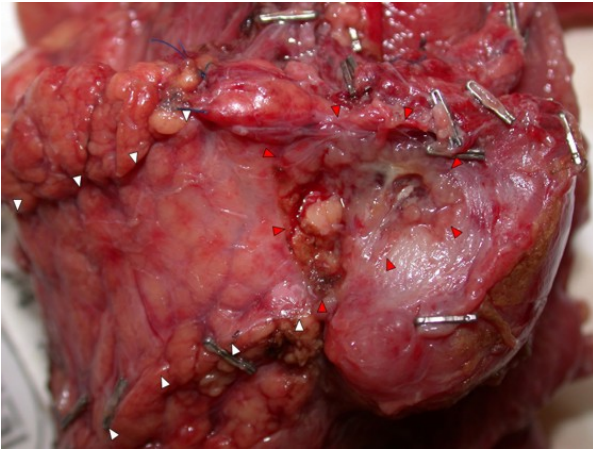


Figure 4. Posterior surface of pancreas demonstrating superior mesenteric vein groove (white arrowheads) infiltrated and eroded by necrotising inflammation (red arrowheads).

DISCUSSION

Pancreatic tuberculosis usually affects young adults with equal sex distribution [1]. Higher incidences have been observed in endemic areas and in the immunocompromised population [3]. Recent globalisation trends and widespread migration has seen cases diagnosed in areas where tuberculosis is not prevalent.

Pancreatic tuberculosis can produce a variety of clinical presentations. Well recognised presentations include acute pancreatitis [4], portal vein compression with resultant hypertension [5], gastrointestinal bleeding [6], new onset diabetes [7] and obstructive jaundice mimicking pancreatic malignancy [8]. The present case demonstrated a combination of the latter three modes of presentation.

The largest review of pancreatic tuberculosis showed that the most common presenting complaint is abdominal pain (66%) followed by fever/night sweats (52%), anorexia/weight loss (46%), malaise/weakness (28%), back pain (20%) and jaundice (15%) [9].

It is no surprise that the clinical picture in pancreatic tuberculosis mimics malignancy. Features such as weight loss, anorexia, abdominal pain, jaundice and a pancreatic mass all raise strong suspicion of a pancreatic carcinoma. A review of 58 patients with pancreatic tuberculosis in the Chinese

literature revealed that 35 patients had an initial working diagnosis of cancer [9]. Hence patients should be meticulously investigated to aid diagnosis which may result in the avoidance of oncological pancreatic resection surgery and the attributed risks.

Radiological investigations are a useful aid to diagnosis. Ultrasound can detect pancreatic masses in up to 80% of cases [9]. On CT imaging, pancreatic tuberculosis usually appears as a solitary cystic pancreatic mass which may be accompanied with peripancreatic lymphadenopathy. Less commonly it may present as diffuse pancreatic enlargement [10].

However, the differential diagnosis for a pancreatic mass includes a variety of conditions. Hence, obtaining tissue biopsy may help in establishing the diagnosis early and potentially avoid surgery. There is a small risk of malignant cell implantation along the biopsy needle track. Techniques used include endoscopic ultrasound guided biopsy, CT/US guided biopsy or even laparoscopic surgical biopsy. There are no significant differences in diagnostic accuracy between these methods [11]. Diagnosis of pancreatic tuberculosis has even been confirmed using biliary brushings obtained during ERCP [12].

Once a sample has been obtained, a range of tests are available. Microscopy may reveal granulomas although the range of aetiology can include sarcoidosis, extra-intestinal Crohn's disease, fungal infections or foreign bodies. Ziehl-Neelson staining is quick and simple but only sensitive in about 50% of the time. Cultures are more sensitive (77%) and provide antibiotic sensitivities but can take up to 8 weeks which poses diagnostic delays [13]. PCR allows same-day results with up to 77% sensitivities, although sample contamination and poor assay design can result in false negatives. Advancement in gene amplification techniques can now identify genes associated with antibiotic resistance, but cannot give information regarding drug sensitivities [14].

Surgery has been performed both as a diagnostic procedure during explorative laparotomies and for definitive treatment by

excision of the tuberculoma [15]. In a review of 40 cases of pancreatic tuberculosis presenting as a solitary mass, 18 patients underwent surgery consisting of explorative laparotomy (14 cases), pancreaticoduodenectomy (2 cases) and distal pancreatectomy (2 cases) [8]. In the present case, portal vein resection was also performed as the nature of the mass was unclear during the operation and there was infiltration into the vessel. This was confirmed on histology as caseation extending through the wall of the portal vein to within 1 mm of the lumen. There would have been a significant risk of portal vein haemorrhage or thrombosis.

Following diagnosis, antituberculous microbial therapy should be commenced. Initially, quadruple therapy is advised until sensitivities are available after which the regime can be rationalised. Treatment should be for a period of at least one year [16]. Infection control precautions should be undertaken and the patient should be tested for immunosuppressive diseases.

Isolated pancreatic tuberculosis is a rare entity and can be clinically elusive. It should be considered as a differential diagnosis to pancreatic malignancy particularly in the non-Caucasian patient with normal appearances of tumour in imaging.

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Correspondence

Krishna V Menon
St James's University Hospital
Beckett Street
Leeds LS9 7TF
United Kingdom
Phone: +44-(0)113.206.4719
Fax: +44-(0)113.206.6416
E-mail: kvmenon@aol.com

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