Case report

Pancreatic tuberculosis: an elusive diagnosis

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Background
Pancreatic tuberculosis is a rare disease. Its presenting features are usually vague and non-specific, while the radiological features mimic pancreatic malignancy in many cases and pancreatitis in others. Ultrasound- or CT-guided fine-needle aspiration cytology (FNAC) or biopsy may show caseating granulomatous inflammation but microbiological confirmation may not always be possible. Laparotomy may be required if other investigations prove inconclusive. The response to treatment is good.

Case outlines
We report two young men with pancreatic tuberculosis. The diagnosis was obtained by FNAC in one and laparotomy in the other. Each patient responded to anti-tuberculous chemotherapy and is now asymptomatic.

Conclusion
Tuberculosis should be considered in the differential diagnosis of an obscure pancreatic mass, and the condition is readily curable.

Keywords
pancreas, tuberculosis

Introduction
Tuberculosis is a common disease in developing countries, although its exact prevalence cannot be assessed [1]. Even in developed countries like the USA, it is still an important problem [2]. Abdominal tuberculosis frequently poses problems in diagnosis because the clinical features are vague and it mimics a number of other diseases. The pancreas is rarely affected. In a classical study of 300 cases of abdominal tuberculosis carried out by Bhasali [1], not a single case of pancreatic tuberculosis was reported. Especially in the wake of the acquired immunodeficiency syndrome and the widespread use of immunosuppressant drugs, the diagnosis of tuberculosis must be kept in mind when dealing with pancreatic masses that do not fit into a particular pattern or do not have a clear histopathology. Tuberculosis being a curable disease, every effort should be made to arrive at an early diagnosis so as to avoid unnecessary interventions, including laparotomy.

Case report

Case no. 1
A 33-year-old man presented with upper abdominal pain of 1 year’s duration radiating to the back. He had a history of pulmonary tuberculosis 7 years earlier, for which he had taken a complete course of anti-tuberculous chemotherapy. Clinical examination was unremarkable: there were no lymph nodes in the neck and there was no palpable abdominal lump or ascites. There were no features of endocrine or exocrine pancreatic insufficiency. Haematological investigations and renal and liver function tests were normal. He was HIV-negative. Computed tomogram (CT) scan revealed a heterogeneous solid pancreatic head mass with cystic areas (Figure 1). On abdominal exploration, there was a mass in the pancreatic head while the rest of the abdomen showed no obvious pathology. There were no tubercles in the peritoneum or omentum and the small and large bowel appeared normal. Fine-needle aspiration cytology (FNAC) of the mass showed the presence of caseous granulomatous necrosis. The abdomen was closed with no further surgical procedure. Postoperatively the patient was started on anti-tuberculous therapy. He responded well to treatment and was free of symptoms at 2 years.

Case no. 2
A 34-year-old man presented with upper abdominal pain
of 10 days duration. He had no other symptoms and no past history of pulmonary tuberculosis. Clinical examination and laboratory investigations were again non-contributory. CT scan revealed a heterogeneous mass lesion in the head of pancreas, involving the uncinate process and containing multiple hypodensities. CT-guided FNAC showed necrotising granular inflammation of tuberculoid aetiology. The patient was started on anti-tuberculous therapy and is well at 9 months.

**Discussion**

Tuberculosis is a systemic disease with protean manifestations. The disease persists as an important health problem even in developed countries like the USA [2]. Approximately 15% of cases involve extrapulmonary sites [2]. Since pancreatic tuberculosis is rare [3–6], it poses a clinical dilemma, as it does not commonly figure in the differential diagnosis of a pancreatic mass. Clinically and radiologically, it may mimic a pancreatic malignancy, thus adding to the confusion [3, 4, 7–9]. However, the excellent response to anti-tuberculous therapy means that these patients should not be misdiagnosed and mismanaged.

The common presenting features are non-specific abdominal pain, fever, anorexia and weight loss [3–7, 9–13]. Less common symptoms include iron-deficiency anaemia, vomiting, obstructive jaundice, upper gastrointestinal bleeding and portal hypertension [3, 13–16]. Patients may or may not have had other forms of tuberculosis in the past. Clinical examination is usually non-contributory. The vague symptomatology and lack of clinical findings therefore make a clinical diagnosis of pancreatic tuberculosis virtually impossible. Radiological imaging techniques usually fail to make a clear distinction between pancreatic tuberculosis and malignancy [3, 7–9, 11, 13, 17]. Ultrasonographic features include a diffusely enlarged pancreas with focal hypoechoic lesions or cystic lesions of the pancreas [9, 11]. Associated findings include peripancreatic and mesenteric lymphadenopathy, bowel wall thickening (usually in the ileo-caecal region), focal hepatic or splenic lesions and ascites [9]. CT scan most commonly reveals a mass lesion [3, 10, 17]. In patients with the acquired immunodeficiency syndrome (AIDS), CT scan features include small (<1 cm), low-attenuation nodules or diffuse enlargement of the pancreas [17]. Cystic lesions and multiloculated lesions of the pancreas have also been found to be of tuberculous origin [5, 9, 18]. Peripancreatic and periporal lymphadenopathy with peripheral ring enhancement are ancillary findings.

Ultrasound- or CT-guided FNAC may provide the diagnosis, especially with the help of an expert cytologist experienced in the diagnosis of tuberculosis [4, 6, 12]. This investigation can avoid an unnecessary laparotomy [6, 7]. However, situations may still arise when FNAC or biopsy proves inconclusive and surgery must be performed [11, 13, 18, 19].

In the absence of obvious tubercles and/or extra-pancreatic disease, it would be difficult to differentiate tuberculosis from malignancy even after laparotomy [3, 11, 18, 19]. Intraoperative FNAC and biopsies may then provide a diagnosis. The crucial microscopic features are those of caseating granulomatous inflammation [5, 8, 10, 13]. Acid-fast bacilli may also be found [7]. Cultures for mycobacteria take up to 6 weeks to grow and are used to confirm the diagnosis [5, 7]. However, it must be remembered that bacteriological confirmation may not be possible in many patients [2, 20].

A recent diagnostic test is the polymerase chain reaction (PCR)-based assay, which detects *Mycobacterium tuberculosis* DNA in resected specimens. It is a highly specific assay and may give a positive result even when special staining techniques and cultures of these tissues are negative [8].
The treatment of pancreatic tuberculosis comprises multi-drug anti-tuberculous chemotherapy for between 6 and 12 months. Response to therapy is predictable and complete [3–5, 7, 8, 10, 12, 13, 21]. These patients still need to be followed up carefully for subjective and objective response to therapy to rule out the rare possibility of tuberculosis coexisting with malignancy, especially in endemic areas.

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**References**