

Tuberculosis of the pancreas

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Summary

Tuberculosis of the pancreas is extremely rare. We report a case which demonstrates the diagnostic confusion which may arise in this condition. A 55-year-old alcoholic caucasian man presented with loss of weight and obstructive jaundice. Ultrasonography, endoscopic retrograde cholangiopancreatography and computed tomography showed a mass lesion in the head of the pancreas, diagnosed as probably malignant. He underwent a Whipple's pancreatoduodenectomy and made a good recovery. Histological examination showed typical features of tuberculosis. In the absence of other foci of active disease chemotherapy was not given. He remains well 12 months after operation.

Keywords: pancreas, tuberculosis, endoscopic retrograde cholangiopancreatography

Tuberculosis is still a common disease in developing countries and its incidence is slowly increasing in developed countries.¹ Tuberculosis of the gastrointestinal tract is a recognised complication. Up to 12% of patients infected with tuberculosis may have involvement of the abdominal organs.² Farer *et al* reported abdominal tuberculosis in only 4% of cases of extrapulmonary tuberculosis in North America, making the abdomen the least common of any extrapulmonary site³ and similar findings have been reported in the UK.⁴

Tuberculosis of the digestive system may involve any part from oesophagus to anus, including peritoneum, mesenteric lymph nodes, spleen or liver.⁵ Atypical forms of gastrointestinal tuberculosis are more likely in immunocompromised individuals.⁶ Tuberculosis of the pancreas is extremely rare and is generally associated with miliary tuberculosis.^{7,8}

We report a case of tuberculosis of the pancreas in an alcoholic caucasian, in whom the diagnosis was made postoperatively.

Case report

A 55-year-old alcoholic caucasian man presented with obstructive jaundice and loss of weight. Ten years previously he had presented with rheumatoid arthritis and vague, non-specific, intermittent upper abdominal pain. He had a long history of severe alcohol abuse. Investigations suggested raised γ -glutamyl

transferase levels to 84 IU/l (normal 10–46 IU/l), while all other tests were unremarkable. He was thought to suffer from irritable bowel syndrome and excessive alcohol intake. Chronic pancreatitis was considered as a possible diagnosis but he refused to undergo pancreatic function tests. A therapeutic trial of pancreatic enzyme supplementation produced no benefit and he was discharged from hospital.

On this occasion, he presented with malaise, anorexia and jaundice. There was no prior history of tuberculosis. Haemoglobin was 12.4 g/dl, white blood cell count $6.2 \times 10^9/l$, erythrocyte sedimentation rate 22 mm/h, renal function and electrolytes were within normal limits. Liver function was deranged, bilirubin 64 $\mu\text{mol/l}$ (normal $<17 \mu\text{mol/l}$), alkaline phosphatase 2028 IU/l (normal 100–300 IU/l), alanine transaminase 192 IU/l (normal 5–43 IU/l). Proteins (72 g/l) and albumin (32 g/l) were normal. Chest radiograph was normal. Ultrasonography showed extra- and intra-hepatic bile duct dilatation. A hypoechoic mass (2.2 cm) in the head of pancreas was seen along with a 2 cm lymph node anterior to the coeliac axis. Abdominal computed tomography (CT) confirmed the ultrasound findings and suggested a neoplasm in the head of pancreas with a few periportal lymph nodes and no evidence of encasement of the superior mesenteric artery (figure 1). Endoscopic retrograde cholangiopancreatography (ERCP) showed moderate intra- and extra-hepatic duct dilatation with a 4–5 cm stricture of the terminal common bile duct (figure 2). The stricture was stented with a 12-cm, 10-F endobiliary stent. A presumptive diagnosis of carcinoma of the head of pancreas was made and after resolution of the jaundice the patient underwent a Whipple's pancreaticoduodenectomy. At operation, a hard nodular head of pancreas with enlarged surrounding lymph nodes was found. The rest of the abdominal cavity and viscera were normal. Complete excision of the mass was performed, and the cut margins of the pancreas showed normal appearance on frozen section histology. Subsequent paraffin sections of the pancreas showed necrotising granulomata of the intrapancreatic and periportal lymph nodes. Though mycobacteria could not be identified, the histological appearance was strongly suggestive of tuberculosis. Post-operative recovery was uneventful. HIV antibody test and Mantoux tests (1:10000) were negative but a Heaf test was positive.

The patient was referred to a chest physician for consideration of antitubercular chemotherapy. Sputum cultures were negative. The

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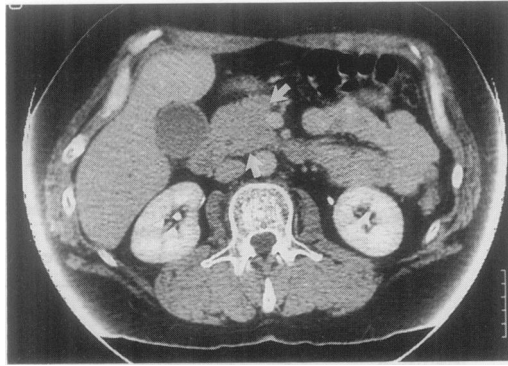


Figure 1 Abdominal CT showing a mass in the head of the pancreas without extension beyond the gland (arrowed). Below the upper arrow the enhancing superior mesenteric vein is adjacent to but not invaded by the tumour. Appearances are consistent with a resectable carcinoma

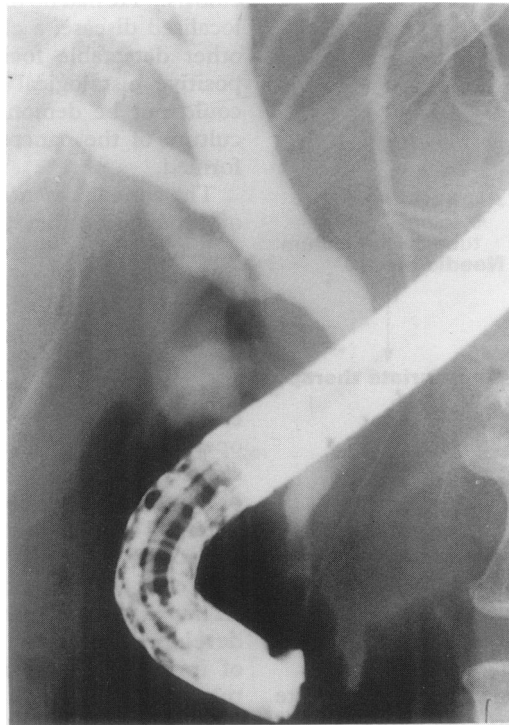


Figure 2 ERCP showing a stricture of the lower common bile duct consistent with the diagnosis of carcinoma. A stent was inserted and resection performed after a period of biliary drainage

absence of residual disease, and the difficulty anticipated in administering chemotherapy to a patient who continued to drink alcohol to excess, and who had persisting disturbances of liver function, led to a decision to withhold further treatment. One year after operation he remains well.

Discussion

Isolated pancreatic tuberculosis is extremely rare, one review of the English literature revealing only 24 reported cases.⁹ Auerbach reviewed 1656 autopsies performed on tuberculous persons. Of these, 297 (17.9%) had acute miliary tuberculosis. He did not find any case with isolated tuberculosis of the pancreas,

though among the cases with acute generalised tuberculosis, the pancreas was also involved in 14 (4.7%) cases.⁷ Paraf *et al* in a review of 526 autopsies of miliary tuberculosis, found only 11 cases of pancreatic or peripancreatic involvement.⁸ Bhansali did not have a single case of pancreatic tuberculosis in a series of 300 cases of abdominal tuberculosis (table).¹⁰

The pathogenesis of pancreatic tuberculosis is not well known. It has been suggested that the bacillus reaches the pancreas by lymphohaematogenous dissemination,¹¹ which could be from a small undetected or reactivated primary or secondary tuberculous lesion. The primary focus may well be intestinal, with spread to the pancreas from involved retroperitoneal lymph nodes. In one large series,¹² 71% of patients with gastrointestinal infection had a normal chest radiograph. Others argue that the pancreas could become involved by a toxic-allergic reaction of the pancreas in response to tuberculosis elsewhere.¹³ There is little to support this view.

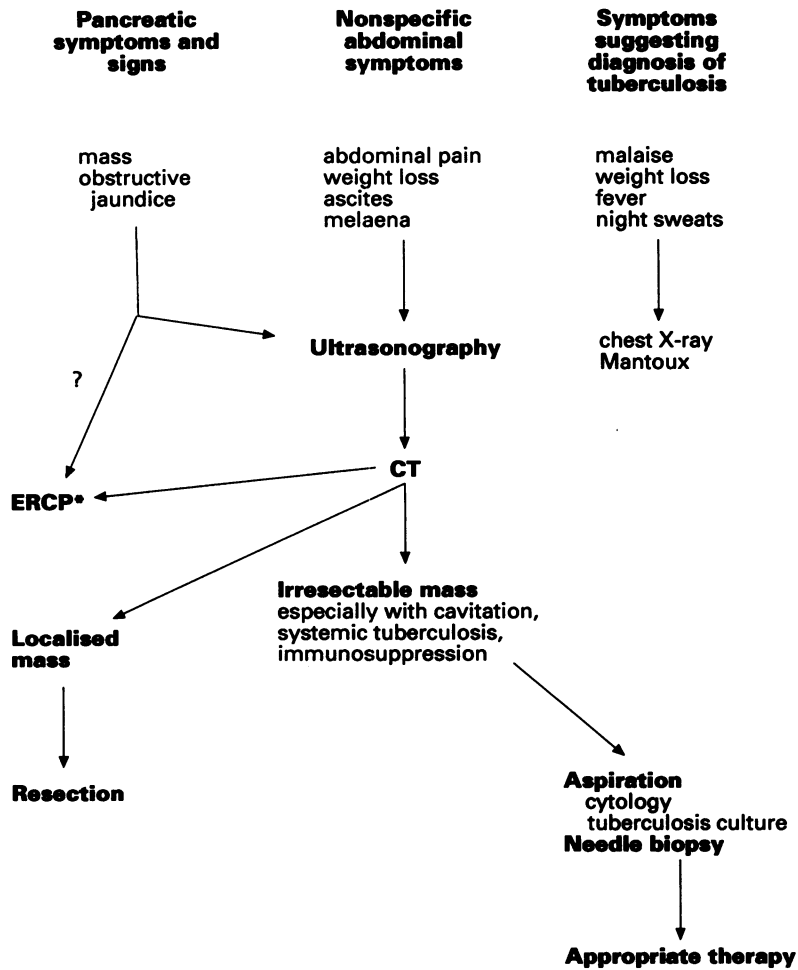
Abdominal tuberculosis may present with varying signs and symptoms. The diagnosis of abdominal tuberculosis is difficult, time-consuming and costly. Mycobacteria are not always grown from the tuberculous abscess or lesion.² Farer *et al* reported bacteriological confirmation in only 57% cases of extrapulmonary tuberculosis.³ The protean clinical manifestations depend on the site and extent of the disease. Pancreatic tuberculosis may manifest as anorexia, malaise, low-grade fever, weight loss, night sweats, acute or chronic abdominal pain, ascites, melaena, a pancreatic mass or abscess, or obstructive jaundice.⁹ Pancreatic tuberculosis may present as acute¹⁴ or chronic¹³ pancreatitis or may mimic malignancy, as in this case.

Investigations generally do not contribute to the diagnosis. Chest radiographs and sputum smears are often negative, as in our case. Ultrasonography, ERCP, and CT normally suggest the presence of a mass lesion in the pancreas but are unable to rule out malignancy or make a specific diagnosis. The diagnosis is sometimes not possible even at operation. Recently six cases were found to be HIV positive,⁹ but our case was HIV negative.

In our patient, the diagnosis of pancreatic tuberculosis was by histological analysis of the specimen. One previous case has been treated by pancreatoduodenectomy.¹⁵ If the diagnosis

Table Site incidence in 360 cases of abdominal tuberculosis.⁹ Many patients had more than one abdominal lesion

Site	n
Stomach	1
Appendix	1
Small intestine	87
Small intestine + caecum	32
Caecum	68
Large intestine excluding caecum	7
Liver	2
Peritoneal tubercles	103
Lymph nodes	150



* ERCP should be done after CT in obstructive jaundice, to avoid stent artifact on CT

Figure 3 Presenting features and investigation of pancreatic tuberculosis

of pancreatic tuberculosis is made pre- or intra-operatively then standard antitubercular therapy may be successful, as in 13 of 14 reported cases.^{9,16,17}

Complete surgical excision may be adequate therapy, and for this reason, chemotherapy was withheld in our patient. In addition, there was continuing alcohol abuse and liver dysfunction

Summary/learning points

- abdominal tuberculosis is a relatively uncommon presentation
- tuberculosis infection and abdominal forms are more likely in populations from the Indian sub-continent
- atypical forms may be related to immune suppression
- pancreatic tuberculosis is extremely rare

which would have made such treatment difficult. Decisions about therapy may be finely balanced in these patients, and it is recommended that all cases of nonpulmonary tuberculosis should be managed in collaboration with a chest physician.¹⁸

Our patient fulfils all criteria except one for the diagnosis of primary pancreatic tuberculosis.¹⁹ He had no history of tuberculosis, had localised disease, a clear chest radiograph, no other detectable foci of tuberculosis, and a positive histological diagnosis. Mycobacteria could not be demonstrated on staining, and culture of the pancreatic tissue was not performed.

The varied presenting features and the rarity of pancreatic tuberculosis make its diagnosis difficult and a high index of suspicion is required for successful pre- or intra-operative diagnosis (figure 3). Ultrasound or CT-guided aspiration cytology or histological biopsy may help in differentiating tuberculosis from carcinoma, lymphoma, sarcoidosis or chronic pancreatitis. However, we do not favour pre-operative biopsy when resectable carcinoma is suspected, because of the increased incidence of positive peritoneal cytology,²⁰ with the potential risk of tumour dissemination.

Recently, there has been an increase in the incidence of pancreatic tuberculosis related to an increase in the incidence of tuberculosis in developed countries¹ and increasing numbers of immunocompromised persons. Pancreatic tuberculosis should be considered in the differential diagnosis of obstructive jaundice and of a pancreatic mass, particularly in members of high-risk groups.

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