CASE REPORT

A space occupying lesion masquerading as pancreatic carcinoma

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SUMMARY

The coexistence of painless jaundice and a space-occupying lesion in the head of the pancreas usually signifies a diagnosis of pancreatic cancer. We present a case, where the cause of a pancreatic mass turned out to be related to tuberculosis. Tuberculosis affecting abdominal organs in isolation is uncommon, and more often forms part of disseminated disease. Pancreatic tuberculosis is very rare, especially in immunocompetent individuals. While every effort should be made to ensure that potentially operable pancreatic cancers undergo prompt surgical excision, the challenge for the future will be to make a preoperative diagnosis of pancreatic conditions that require medical rather than surgical therapy.

BACKGROUND

The coexistence of painless jaundice and a space-occupying lesion in the head of the pancreas usually signifies a diagnosis of pancreatic cancer. CT imaging using pancreatic protocols is usually the first line of definitive investigation, with other modalities, such as MRI or endoscopic ultrasound (EUS), increasingly playing a problem-solving role. Further adjuncts including the tumour marker carbohydrate antigen 19-9 (CA19-9). Despite careful diagnostic work-up, large surgical series still report a significant proportion of cases that were presumed to have been cancer but turned out to be benign neoplasms or inflammatory masses on definitive histology. While every effort should be made to ensure that potentially operable pancreatic cancers undergo prompt surgical excision, the challenge for the future will be to make a preoperative diagnosis of pancreatic conditions that require medical rather than surgical therapy.

We present a case, where a pancreatic mass was related to an unusual cause.

CASE PRESENTATION

A 46-year-old man of Indian origin presented with painless obstructive jaundice, in the form of dark urine and pale stools. Systemic review was negative, he had no significant medical history and did not take any medications.

He has been living in the UK for 14 years, having previously been resident in India, but had travelled back to India on frequent occasions. Other than jaundice, his clinical examination was unremarkable.

INVESTIGATIONS

Laboratory tests revealed his serum alkaline phosphatase to be 193 U/l (normal 42–128 U/l), alanine transaminase 271 U/l (normal 5–45 U/l) and bilirubin 40 U/l (normal 3–21 U/l), with his CA 19-9 121 U/ml (normal <37 U/ml). His full blood count, urea and electrolytes, chromogranin A and B, CEA and gut hormones were all within normal range. A preoperative chest radiograph was unremarkable, and he was also HIV antibody negative.

CT confirmed a 30 mm×20 mm mass within the head of the pancreas, clear of the superior mesenteric and portal vessels and therefore resectable (figure 1). EUS imaging demonstrated a hypoechoic mass within the head of the pancreas and biliary dilation (figure 2). EUS-guided cytology, despite good passes through the lesion, only showed suspicious cells with no conclusive diagnosis possible. The radiology was highly suggestive of an operable pancreatic adenocarcinoma.

TREATMENT

He underwent a pylorus preserving pancreatoduodenectomy. The operative findings were of a palpable mass in the pancreatic head, no liver or peritoneal metastases and no significant lymphadenopathy. The operative histopathology report showed a pale, extensively necrotic area which measured 30×20×20 mm abutting the anterior margin. This specimen was extensively sampled. Several large lymph nodes were identified in the peripancreatic tissue. All the lymph nodes are extensively replaced by caseating necrosis with associated granulomas including numerous Langhans type giant cells. The granulomata extended into adjacent pancreatic tissue and into the wall of the duodenum. There was

Figure 1 Axial-CT image demonstrating a hypodense mass within the head of the pancreas. No associated pancreatic duct dilation is seen.

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Figure 2 Endoscopic ultrasound image demonstrating a hypoechoic mass within the head of the pancreas.

no evidence of neoplasia in the sections studied. The appearances were highly suggestive of a *Mycobacterium tuberculosis* (TB) infection (figure 3). Ziehl-Neelsen stain was performed on several blocks. Occasional acid fast bacilli, morphological consistent with *M. tuberculosis*, were identified. The PCR molecular amplification test was negative for *M. tuberculosis* complex, but PCR inhibitors may have been present.

The patient was started on intravenous therapy for pancreatic tuberculosis in the form of rifampicin, isoniazid, ciprofloxacin and clarithromycin, owing to delayed gastric emptying post-operatively. This continued for 12 days until gastric stasis resolved when he was switched to oral rifampicin, isoniazid, pyrazinamide and ethambutol and was discharged on day 28 after admission. After 8 weeks of quadruple therapy his pyrazinamide and ethambutol therapy was discontinued and he continued on rifampicin and isoniazid therapy for a further 4 months.

OUTCOME AND FOLLOW-UP

At 4-month follow-up he had made a good recovery and returned to work a month later.

DISCUSSION

We have described a case of isolated visceral TB. In this case, the suspected diagnosis was of another space occupying lesion, pancreatic carcinoma. In this latter diagnosis, the optimal management is surgical resection. However, the correct diagnosis of

Figure 3 Histology section showing a close-up of the edge of a granuloma including necrosis and a giant cell.

isolated visceral tuberculosis was not made until histopathological examination of the resected specimen.

Tuberculosis is a very prevalent infectious disease in some areas of the world, with rates highest in sub-Saharan Africa, India, China and Southeast Asia.¹ However tuberculosis affecting abdominal organs in isolation is uncommon, and more often forms part of disseminated disease.² When tuberculosis affects the abdominal organs and cavity, it usually involves lymph nodes and the ileocaecal junction.³ Less commonly it can affect the rest of the gastrointestinal tract, peritoneum, spleen and liver. Pancreatic tuberculosis is very rare, especially in immunocompetent individuals.

In 1944, Auerbach's review of 297 autopsies in patients with miliary tuberculosis reported pancreatic involvement in only 4.7% of cases.⁴ Paraf *et al*⁵ in 1966, found pancreatic involvement on autopsy in 2% of 526 patients with miliary tuberculosis. Therefore, even in cases of miliary tuberculosis, where visceral involvement is more widespread, the prevalence of pancreatic tuberculosis is very low. Pancreatic tuberculous lesions can present as a cystic or solid mass, and are often misdiagnosed as a pancreatic neoplasm, with the true diagnosis being made histologically.⁶

Isolated pancreatic tuberculosis is particularly rare and most papers are case reports. Patients with isolated pancreatic tuberculosis may present with abdominal pain (75%) and anorexia with weight loss (69%). Approximately 50% of patients with pancreatic tuberculosis have constitutional symptoms such as fever and night sweats, with jaundice and back pain occurring less commonly (31–40%).⁷

Patients may also develop an abdominal mass, ascites, pancreatitis and pyrexia of unknown origin. Other important factors to consider in the initial assessment are a medical history of tuberculosis, a positive contact history or positive Mantoux test. However, owing to its rarity, it often remains undiagnosed until after surgical removal, or at autopsy.

Ultrasonography can be used to identify lesions in the pancreas, but a multimodality approach to imaging is most accurate, incorporating CT with a pancreas protocol and MRI.⁸

These lesions usually appear as a non-specific focal mass, with either cystic or solid characteristics. Pancreatic tuberculosis is generally not suspected unless pulmonary tuberculosis, enlarged coeliac lymph nodes, ileal-caecal mural changes or lesions in other abdominal organs are identified.⁹

There are few reports of MRI in isolated pancreatic tuberculosis; De Backer *et al* commented that if lesions are focal, they present as a sharply delineated mass in the pancreatic head, showing heterogeneous enhancement. Lesions are hypointense on fat-suppressed T1 weighted images, and a mixture of hypointense and hyperintense on T2-weighted images.¹⁰

Diagnosis cannot be confirmed until tissue has been obtained for microbiological and histopathological examination. Tissue can be obtained intraoperatively or preoperatively via US-guided or CT-guided fine needle aspiration (FNA). Tissue sampling in suspected operable pancreatic cancer has generally not been performed because the false-negative rate for pancreatic cancer is high and percutaneous biopsy techniques are associated with a high rate of tumour seeding of the biopsy track. Moreover, the chief aim in the management of a mass in the head of the pancreas is to ensure that an operable pancreatic cancer is not missed as, owing to the biologically aggressive nature of pancreatic cancer, it will soon become inoperable and have a much poorer prognosis.

Recently, EUS with guided FNA (EUS-FNA) has been playing an increasing role in the diagnosis and staging of pancreatic

lesions. A small retrospective analysis in Korea showed that EUS-FNA correctly diagnosed pancreatic and peripancreatic TB in 16 out of 21 patients (76.2%), consequently avoiding surgery in those 16 individuals.¹¹

The presence of acid fast bacilli and the subsequent culture of *M tuberculosis* provides diagnostic confirmation. PCR may also be used to detect *M tuberculosis* DNA in resected specimens and is very useful when previous tissue staining and cultures have been negative.¹²

Learning points/take home messages

- ▶ Visceral tuberculosis is a rare condition that must be suspected in pancreatic lesions when patients have had exposure to tuberculosis, or if they are from high-risk prevalence areas of the world.
- ▶ Treatment usually comprises multidrug antituberculous therapy for a period of greater than 6-month duration and results are very encouraging, with most patients having complete resolution.
- ▶ Above all, in the management of isolated lesions of the pancreas we should emphasise diagnosis by non-invasive imaging and prioritise identifying operable malignancies, in order to ensure that patients are not denied the opportunity to undergo potentially curative operations.

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