Intrapancreatic accessory spleen: an important differential to consider before surgery

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Summary Solid tumours in the tail of the pancreas may present a diagnostic dilemma if the clinical history, imaging features or cytology is not conclusive. The common differential diagnoses for a pancreatic tail mass are a primary malignancy, neuroendocrine tumour or a retroperitoneal tumour. However a comparison to the adjacent spleen on imaging may help identify aberrant splenic tissue. We present the case of an incidental finding of a solid tumour in the tail of the pancreas, which was resected and a histological diagnosis of an intrapancreatic spleen (IPAS) was made. A suspicion of IPAS when reviewing the imaging may have prevented the resection of a benign tumour.

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1. Case report

A 65 year old Caucasian male presented with severe abdominal and back pain. His past medical history includes diet controlled diabetes and hypertension. A ruptured abdominal aneurysm was suspected and the patient underwent an arterial phase contrast CT angiogram. This showed an aneurysmal abdominal aorta (3.8 cm) and a lesion in the tail of the pancreas measuring 47 by 29 mm (Fig. 1). The lesion appeared denser than the surrounding pancreas, and the differential diagnosis included a pancreatic primary malignant lesion or a retroperitoneal sarcoma. A low attenuating lesion in the liver was also identified which was difficult to characterise due to its size (9.5 mm). The patient’s abdominal pain settled with conservative management, however he had persistent back pain. Subsequent endoscopic ultrasounds and biopsies of the pancreatic lesion were inconclusive (unspecific inflammatory cells only). The patient underwent a repeat CT six months later, which showed that there was no change in the characteristics or size of the pancreatic lesion. Due to the indeterminate nature of the mass and persistent back pain, the patient elected to have a surgical resection. He underwent a laparoscopic distal pancreatectomy and splenectomy with no postoperative complications. He made an uneventful recovery, although the back pain still persisted.

2. Histology and immunohistochemistry

Histological examination of the specimen showed a well-defined encapsulated mass within the tail of the pancreas. The morphological features of the mass were identical to splenic tissue. Although mostly separated from pancreatic tissue by a thick fibrous capsule (Fig. 2A), several sections showed merging of the surrounding pancreatic tissue with the capsule as well as the accessory splenic tissue.
Immunohistochemistry confirmed the merging of the pancreatic and splenic tissue, with pancreatic tissue staining negatively with LCA and splenic tissue highlighted by LCA (Fig. 2B). The histological findings were consistent with a diagnosis of an intrapancreatic accessory spleen.

3. Discussion

3.1. Embryology

An accessory spleen derives from embryological aberration during splenic development, when a focus of splenic tissue arises separate from the main body of the spleen. Majority of accessory spleens are found around the splenic hilum and are not of clinical significance. They occur in up to 30% of the population [1] and majority are found around the splenic hilum. An intrapancreatic spleen (IPAS), although the second commonest location for an accessory splenunculus, is still an uncommon finding [2]. Its clinical significance is in its misdiagnosis and subsequent unnecessary surgical intervention.

3.2. Diagnosis

IPAS is rarely symptomatic, and diagnosis is difficult if it is not suspected or misdiagnosed [3]. Several imaging modalities, used to visualise pancreatic lesions may aid a diagnosis of IPAS.

3.3. Ultrasound

On ultrasound, if the pancreatic tail is visualised, IPAS usually appears as a solid structure, with identical echogenicity to the spleen. Contrast enhanced sonography gives characteristic enhancement features which may aid differentiation from the surrounding pancreatic tissue and facilitate the diagnosis of IPAS [4].

Several studies report high success rates using endoscopic ultrasound (EUS) with fine needle aspiration for characterisation of pancreatic tumours, including IPAS, and its superiority when compared with CT and MRI [5–7]. However in our case, EUS and fine needle biopsy were inconclusive despite two attempts.

3.4. CT

Due to increased availability of CT scanning, improved resolution and multiphase imaging, there is an increase in

Fig. 1 CT abdomen showing a dense mass in the tail of the pancreas, with similar attenuation as the spleen.

Fig. 2 A, Sections from the distal pancreatectomy show the presence of a well defined encapsulated intrapancreatic mass completely surrounded by pancreatic tissue. The morphological features are identical to that of splenic tissue. Haematoxylin and eosin stained section. B, Immunohistochemistry confirms the merging of the pancreatic and splenic tissue. The splenic tissue is highlighted by LCA and the surrounding pancreatic tissue is negative. IHC for LCA.
incidental findings such as IPAS. The findings of IPAS on a contrast enhanced CT depend on the number of phases used. In our hospital, if a vascular pancreatic pathology is identified or suspected a triple phase (arterial, pancreatic, portal/venous) contrast CT is used for further characterisation. The attenuation of an IPAS, similar to that of the spleen, is usually higher than the surrounding pancreatic tissue on all phases, allowing possible identification [8].

3.5. MR

Several MR techniques have been used to demonstrate IPAS as it demonstrates similar MRI enhancement as the spleen. The use of super paramagnetic iron oxide (SPIO) enhanced MRI may enable better differentiation between splenic and pancreatic tissue [7,9]. Another MR modality used to demonstrate IPAS is diffusion weighted images (DWI). DWI demonstrates significant differences between pancreatic and splenic tissue, and has been used to successfully diagnose IPAS and differentiate it from a solid pancreatic tumour [9].

3.6. Nuclear medicine

Scintigraphy has been used to diagnose pancreatic tumours. Technetium-99m heat damaged red blood cell (HDRB) scintigraphy is reported as being highly specific for splenic tissue (Ota et al. 1997). Somatostatin receptor scintigraphy has a high sensitivity for gastro endocrinal tumours (70–95%) and may help to identify pancreatic endocrine tumours [10].

4. Learning point

In the last five years over forty case reports of intrapancreatic spleens have been published (PUBMED). In almost all cases, the clinical history was not typical of a pancreatic malignancy and IPAS was an incidental finding. Less than 15% of case reports had a definitive diagnosis with imaging, avoiding the need for surgical resection.

The consequences of missing a potential pancreatic malignancy are grave, however the risk to the patient of pancreatic surgery and its sequelae is also considerable. IPAS should be considered as a diagnosis for tail of the pancreas tumours and multimodal imaging should be used before surgical resection of a benign mass.

References