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Case Report

Incidental intrapancreatic accessory spleen on computed tomography: the value of a stepwise imaging approach

Sze Mun Thor*, Xin Yi Goai, Georgi D. Atanasov

Department of General Surgery, Goulburn Valley Health, Shepparton, Victoria, Australia

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***Correspondence:**
Dr. Sze Mun Thor,
E-mail: szemun1210@gmail.com

ABSTRACT

Intrapancreatic accessory spleen (IPAS) is a rare benign congenital anomaly that commonly occurs in the pancreatic tail and may closely mimic hyper vascular pancreatic neoplasms, particularly non-functioning pancreatic neuroendocrine tumours, leading to unnecessary surgical resection if misdiagnosed. We report a 61-year-old man in whom an incidental pancreatic tail lesion was identified on trauma computed tomography (CT) imaging. The patient was asymptomatic with normal laboratory findings and negative tumour markers. Dedicated CT pancreatic protocol demonstrated enhancement identical to the spleen, and subsequent MRI confirmed splenic-equivalent signal characteristics across all sequences. Definitive diagnosis was established using technetium-99m heat-damaged red blood cell scintigraphy. A stepwise, multimodality imaging approach enabled confident non-invasive diagnosis and avoided unnecessary pancreatic surgery. Recognition of characteristic imaging features of IPAS is essential to ensure appropriate conservative management of incidental pancreatic lesions.

Keywords: Intrapancreatic accessory spleen, Incidentaloma, Splenunculus

INTRODUCTION

Intrapancreatic accessory spleen (IPAS), also known as splenunculus, is a benign congenital anomaly arising from incomplete fusion of splenic tissue during embryological development. Accessory spleens are present in approximately 10–15% of the population; however, intrapancreatic location is uncommon, accounting for a small subset of cases, ranging 1.1–3.4% of the population.[1,2] IPAS is most frequently located in the pancreatic tail and is often discovered incidentally during cross-sectional imaging.[3] Its clinical significance lies in its close radiological resemblance to pancreatic neoplasms—particularly non-functioning pancreatic neuroendocrine tumours (PNETs)—which may lead to unnecessary surgical resection if misdiagnosed.[4]

CASE REPORT

A 61-year-old male presented following a high-speed motor vehicle accident. Trauma computed tomography (CT) imaging demonstrated an interhemispheric subdural haematoma (SDH) and an incidental lesion in the pancreatic tail. He was asymptomatic from an abdominal perspective, denying abdominal pain, nausea, vomiting, weight loss, or constitutional symptoms. His past medical history included hypertension only.

Initial laboratory investigations revealed a normal haemoglobin level (134 g/l), mild leukocytosis (white cell count 13.4×10^9/l, neutrophils 11.1×10^9/l), and an estimated glomerular filtration rate of 66 ml/min/1.73 m². Liver function tests were within normal limits, and tumour markers, including CA 19-9, were negative.

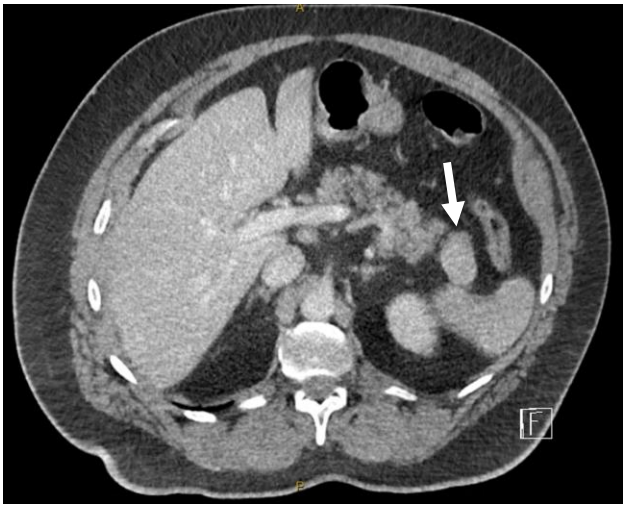

Figure 1: Axial contrast-enhanced CT pancreatic protocol images demonstrating a well-defined, homogeneous lesion within the pancreatic tail (arrow). The lesion exhibits enhancement patterns identical to the adjacent splenic parenchyma across arterial and portal venous phases, a characteristic feature of intrapancreatic accessory spleen.

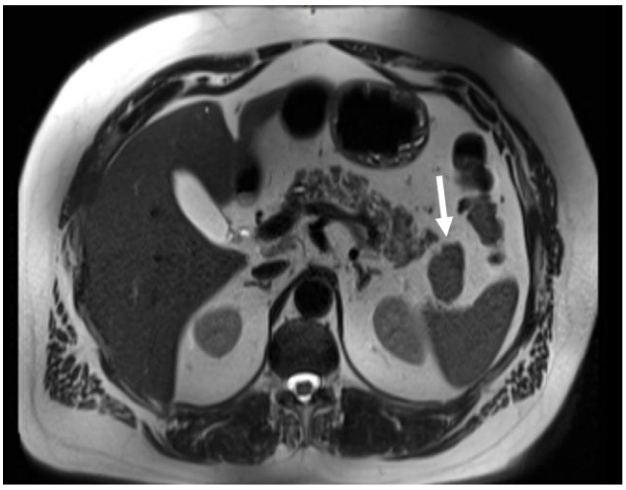

Figure 2: Axial T2-weighted MRI showing a well-circumscribed pancreatic tail lesion (arrow) that demonstrates signal intensity and internal architecture matching the adjacent splenic parenchyma, a characteristic feature of intrapancreatic accessory spleen.

He was admitted for neurological observation. Repeat CT brain imaging demonstrated interval improvement of the SDH, and he was discharged on day one post-admission with outpatient surgical follow-up for further evaluation of the incidental pancreatic lesion. A CT pancreatic protocol performed two weeks post-discharge demonstrated a well-defined 2.5×3.5 cm lesion in the pancreatic tail with enhancement characteristics identical to the spleen across contrast phases, suggestive of an intrapancreatic accessory spleen (Figure 1).

Subsequent magnetic resonance imaging (MRI) pancreas with magnetic resonance cholangiography (MRCP) performed two months later demonstrated a 2.7×3.3 cm structure inseparable from the pancreatic tail, showing intrinsic signal intensity and enhancement identical to splenic tissue on all sequences (Figures 2 and 3). Pancreatic neoplasm was considered unlikely, and nuclear medicine imaging was recommended for definitive confirmation.

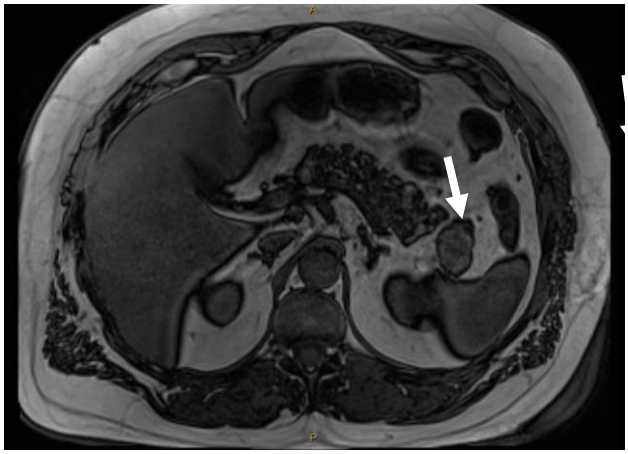

Figure 3: Axial T1-weighted MRI showing a well-circumscribed pancreatic tail lesion (arrow) that demonstrates signal intensity and internal configuration matching the adjacent splenic parenchyma, consistent with intrapancreatic accessory spleen.

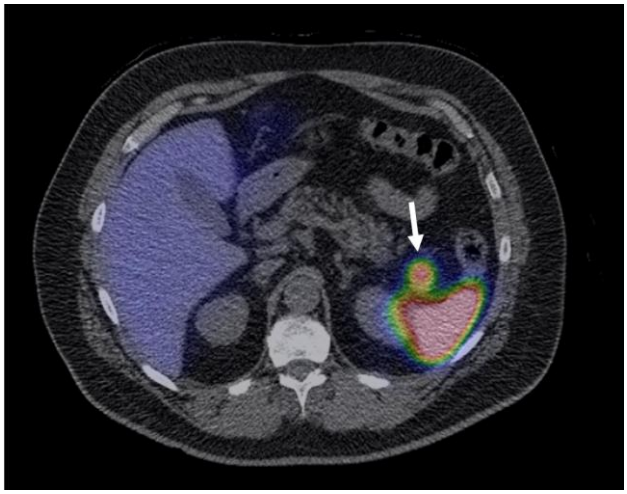

Figure 4: Tc-99m heat-damaged red blood cell scintigraphy with SPECT showing focal radiotracer accumulation in a pancreatic tail lesion (arrow), with uptake matching that of the spleen, consistent with intrapancreatic accessory spleen.

A subsequent technetium-99m heat-damaged red blood cell scintigraphy (SPECT) scan later demonstrated radiotracer uptake within the pancreatic tail lesion consistent with splenic tissue, confirming the diagnosis of intrapancreatic accessory spleen (Figure 4). The patient

remained asymptomatic throughout follow-up. Following surgical clinic review, no operative intervention was required, and he was discharged from further surgical care.

DISCUSSION

IPAS is an uncommon but well-recognised benign entity that most frequently occurs in the pancreatic tail, reflecting the shared embryological origin of the spleen and the dorsal pancreatic bud.[5] Clinical importance lies in its ability to closely mimic pancreatic neoplasms, particularly hypervascular lesions such as pancreatic neuroendocrine tumours.[3] Historically, failure to recognise IPAS has led to unnecessary distal pancreatectomy, often in otherwise asymptomatic patients, exposing them to avoidable surgical morbidity and long-term metabolic consequences.[3]

Multiphasic contrast-enhanced CT using a dedicated pancreatic protocol remains the first-line imaging modality for the evaluation of incidental pancreatic lesions. Characteristically, IPAS appears as a well-circumscribed, homogeneous lesion demonstrating enhancement patterns identical to the spleen across arterial, portal venous, and delayed phases.[6] When splenic-equivalent enhancement characteristics are demonstrated on multiphasic CT, the findings may strongly suggest the diagnosis of IPAS. However, diagnostic challenges arise when imaging quality is suboptimal or enhancement patterns are atypical, as overlap exists between IPAS and hypervascular pancreatic tumours. In such cases, further evaluation with complementary imaging modalities, such as MRI or technetium-99m–labelled heat-damaged red blood cell scintigraphy, or interval radiological follow-up to confirm lesion stability, is recommended to establish diagnostic confidence.[6,7]

MRI offers superior soft-tissue contrast and additional tissue characterisation, making it a valuable second-line modality when CT findings are equivocal. IPAS typically demonstrates signal intensity identical to splenic tissue on T1-weighted, T2-weighted, and diffusion-weighted imaging, with corresponding enhancement following gadolinium administration.[6-8] Diffusion-weighted imaging is particularly useful, as restricted diffusion matching that of the spleen substantially increases diagnostic confidence.[9] In the present case, MRI further supported the diagnosis by demonstrating splenic-equivalent signal characteristics across all sequences, reinforcing the benign nature of the lesion.

Technetium-99m–labelled heat-damaged red blood cell scintigraphy is regarded as the most specific modality for confirming splenic tissue, owing to the high selectivity of radiotracer uptake by splenic parenchyma. The addition of SPECT improves spatial resolution and lesion localisation, particularly for small intrapancreatic lesions.[6-10] Despite its high specificity, nuclear medicine imaging is not routinely required in all cases, given its limited availability, additional cost, and radiation exposure.[6-11] Its use is best reserved for diagnostically indeterminate cases or when definitive confirmation is required to confidently exclude malignancy and avoid surgical intervention.

Current evidence favours a stepwise, multimodality imaging approach for intrapancreatic accessory spleen, in which characteristic findings on cross-sectional imaging may be sufficient in some cases, while additional modalities are employed when clarification is required.[6,7] A high-quality CT pancreatic protocol demonstrating splenic-equivalent enhancement may be sufficient in many cases, with MRI serving as an effective adjunct when uncertainty remains.[6] Nuclear medicine imaging should be used in conjunction with cross-sectional imaging to confirm IPAS when findings are suggestive but not definitive.[2,8] In this case, a stepwise and judicious imaging approach enabled a confident diagnosis of IPAS, avoided unnecessary pancreatic resection, and highlights the importance of recognising this benign mimic in the evaluation of incidental pancreatic lesions.

CONCLUSION

Intrapancreatic accessory spleen is an important benign differential diagnosis for pancreatic tail lesions. Recognition of characteristic imaging features—particularly enhancement and signal patterns identical to the spleen—is essential to prevent unnecessary pancreatic resection. While CT pancreatic protocol may be sufficient for diagnosis in many cases, MRI and nuclear medicine studies play complementary roles when uncertainty persists. A structured, non-invasive imaging strategy allows accurate diagnosis and safe conservative management in asymptomatic patients.

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