European Journal of Case Reports in Internal Medicine

Pancreatic Lipoma: A Pancreatic Incidentaloma Diagnosis with Computed Tomography

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Doi: 10.12890/2021_002252- European Journal of Case Reports in Internal Medicine - © EFIM 2020

Received: 14/01/2021
Accepted: 17/01/2021
Published: 23/03/2021

How to cite this article: Beddi A, Merzem A, Harmak M, Belgadir H, Amriss O, Moussali N, El Benna N,. Pancreatic lipoma: a pancreatic incidentaloma diagnosis with computed tomography. *EJCRIM* 2021;**8**: doi:10.12890/2021_002252

Conflicts of Interests: The Authors declare that there are no competing interests.

ABSTRACT

Lipoma of the pancreas is a rare benign tumour which is usually discovered incidentally on imaging. We present a case of an incidentally discovered pancreatic lipoma in a 79-year-old man with non-metastatic prostate adenocarcinoma who was referred to radiology for follow-up imaging. Fat-containing tumours originating from the pancreas are very rare. Most lipomas show characteristic features on imaging that allow their differentiation.

We present the imaging features of a pancreatic lipoma on ultrasound, CT and MRI, discuss the differential diagnosis, and provide a brief review of the literature.

LEARNING POINTS

- Pancreatic lipoma is a rare mesenchymal tumour that is being increasingly recognized.
- Pancreatic lipoma is commonly asymptomatic and incidentally detected.
- CT and MRI allow confirmation of the diagnosis and elimination of other differential diagnoses.

KEYWORDS

Pancreatic, lipoma, imaging

INTRODUCTION

Mesenchymal tumours of the pancreas are rare and constitute less than 2% of all pancreatic tumours, with those containing fat being the most uncommon. The pancreas is an unusual location for a lipoma, which is usually detected as an incidental finding on imaging. Lipomas show characteristic imaging features, the identification of which allows the correct diagnosis without the need for histopathological confirmation.

CASE PRESENTATION

The patient was a 79-year-old man who was referred tothe radiology department for follow-up imaging to check that his prostate adenocarcinoma had not metastasized; he was asymptomatic for the pancreatic lesion. He underwent CT imaging as a part of routine follow-up, which identified a pancreatic lipoma. Plain and contrast CT scanning of the abdomen (*Fig. 1*) demonstrated a well-defined, homogeneous, fatty (–110HU) lesion measuring 2.7×12 cm with no contrast enhancement, on the head of the pancreas without infiltration of peripancreatic fatty tissue, and widening of the pancreatic duct and common bile duct. Ultrasoundand MRI were subsequently performed. MRI corroborated the CT scan findings.Ultrasound (*Fig. 2*) revealed the lesion washyper-echoiccompared with the liver,and located on the head of the pancreas.

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The rest of the pancreas was normal in size and echogenicity, without significant dilation of the main pancreatic duct. MRI of the abdomen was performed to confirm that the lesion was benign. It was hyperintense on T1 and T2-weighted images (*Fig. 3*), while T1 hyperintensity was suppressed on fat-suppressed sequences (*Fig. 4*),confirming the fatty nature of the lesion. No biopsy was performed in view of the typical imaging features. The characteristic findings confirmed a pancreatic lipoma.

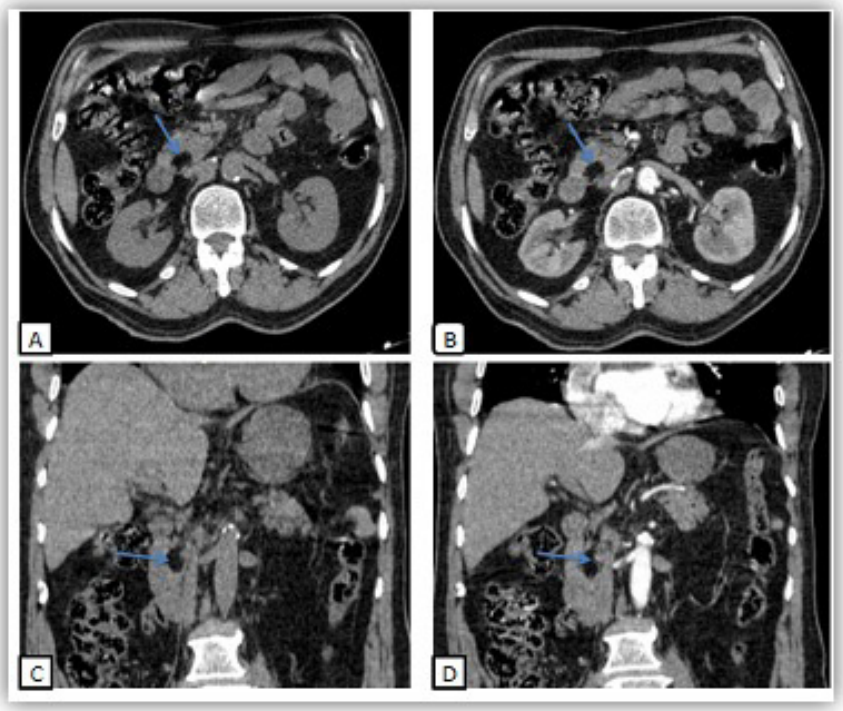

Figure 1. Non-contrast (A: axial, C: coronal) and contrast-enhanced (B: axial, D:coronal) CT images show a well-circumscribed focal lesion (arrow) on the pancreatic head. The mass was isodense with fatty tissue (–110 HU) and without central or peripheral contrast enhancement (arrow)

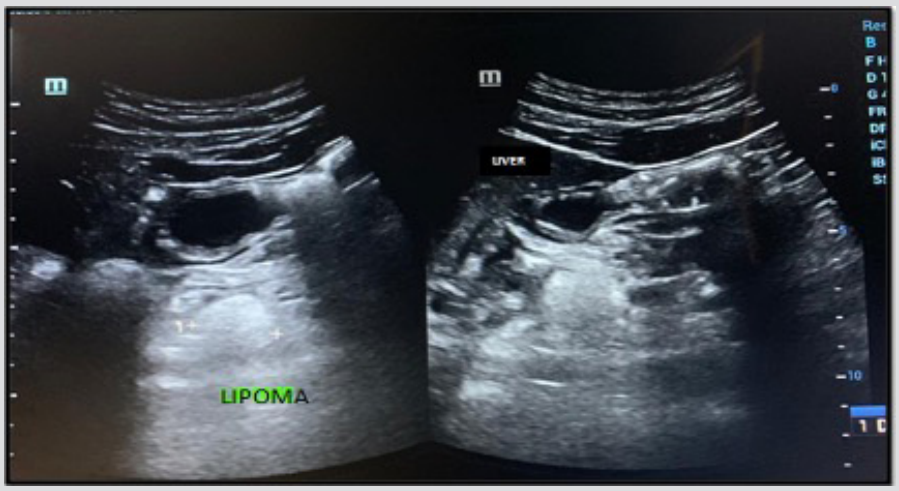

Figure 2. Transverse (B-mode) ultrasound image showing hypo- to hyperechoic lesion on the head of the pancreas

DISCUSSION

Lipomas are benign tumours of mesenchymal origin, and are very uncommon in the pancreas. The true incidence of pancreatic lipomasis unknown as they are usually detected as incidental findings on CT and MRI[1]. These lipomas have characteristic imaging features which allow a correct diagnosis to be made without the need for histopathological confirmation.

Histologically, a lipoma is an encapsulated mass of mature adipose cells arranged in lobules, and may contain fine connective tissue septa. A thin capsule differentiates a lipoma from lipomatosis and facilitates its enucleation; lipomatosis defined as replacement of pancreatic fatty tissue by fat [2].Therefore, lipomas may not be as rare as previously thought as they may be missed or not reported[3].

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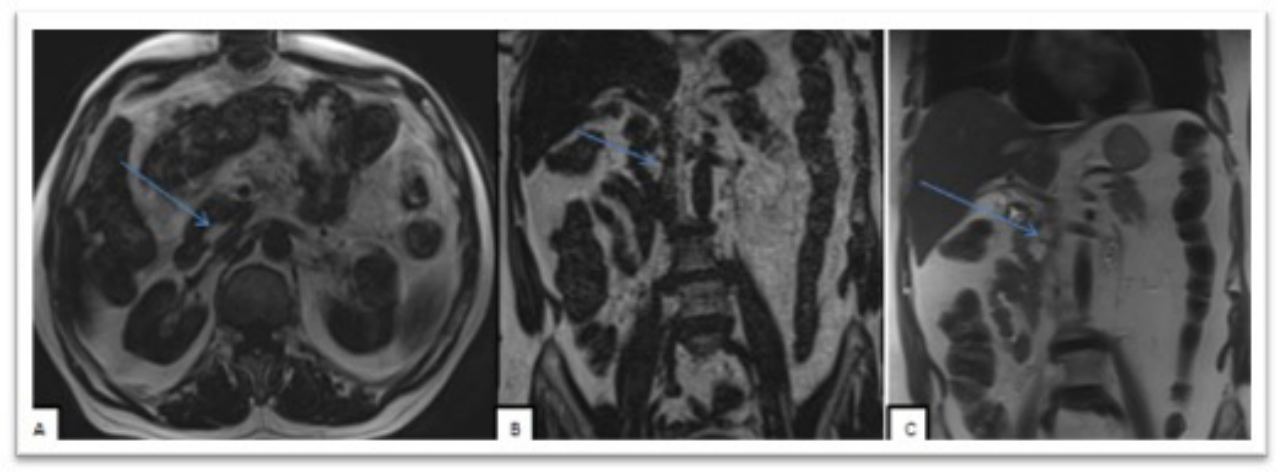

Figure 3. (A) Axial T1, coronal T1 (B) T1 weighted MRI and coronal T2 weighted MRI showing a hyperintense lobulated mass (arrows) on the head of the pancreas.

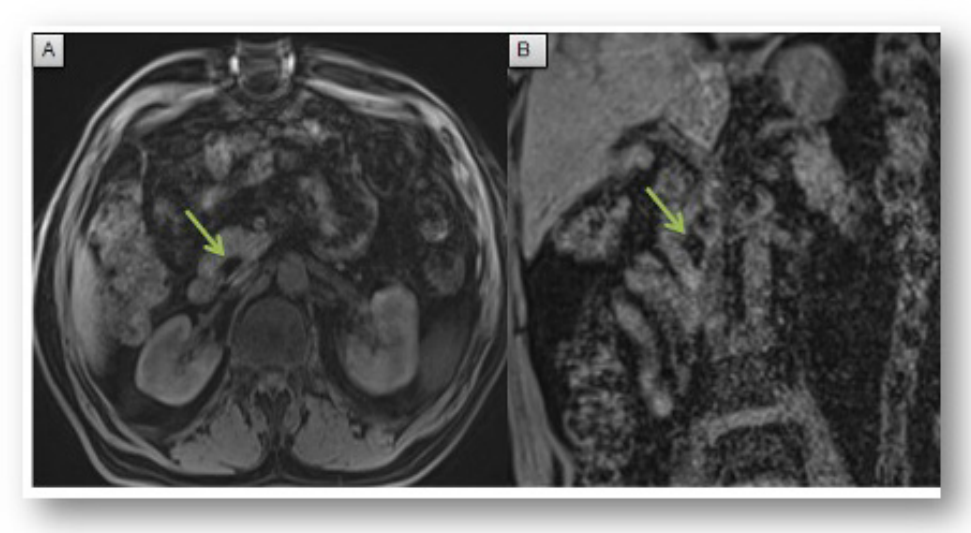

Figure 4. Axial (A) and coronal (B) T1 weighted fat-suppressed sequence showing suppression of T1 hyper intensity (arrow) within the lesion, suggesting a lesion of fatty nature.

Moreover, small lesions may be difficult to recognize on thick slices due to volume averaging effects. The lipoma is usually less than 5cm in size and clinically silent, or may present with abdominal pain, and biliary or pancreatic duct obstruction when large. Symptomatic intra-pancreatic lipoma may require surgical treatment.

Ultrasound is not the best method for detecting pancreatic lipomas[3]. These tumours are characteristically well-defined, homogeneous and usually hyperechoic. They do not show colour uptake on Doppler imaging[1]. They are seen as small hyperechoic lesions with sharp regular borders, as in our case.

CT is the most effective imaging modality for diagnosing pancreatic lipomas[5]. On CT scans, they are homogeneous, well-definedand fatty (HU −80 to −120) with no central or peripheral enhancement. The sharp demarcation with no evidence of infiltration into surrounding pancreatic or extra-pancreatic tissues shows the lesion's benign nature[4]. Thin septations may be seen within the mass corresponding to fibrolobular septae.

On MRI, lipomas appear hyperintense on both T1 and T2-weighted sequences, similar to intra-abdominal and subcutaneous fat. Fat-suppressed images show homogeneous suppression of signal intensity within the tumour. Like CT, MRI also does not show contrast enhancement.

Important differential diagnoses to consider include fatty replacement, pseudohypertrophic lipomatosis, teratoma and liposarcoma. Pseudohypertrophy of the pancreas is a rarer condition in which the pancreas is enlarged, either by diffuse fatty infiltration or due to the appearance of multiple fatty masses[1]. Teratoma is also rare in the pancreas and is diagnosed when a lesion with variegated density is seen

or both calcification and fat are present in the lesion. It is generally asymptomatic but requires surgical treatment. Liposarcomas are slowly growing malignant fatty tumours, most commonly seen in the extremities and retroperitoneum, and rarely in the pancreas. A large size, inhomogeneous attenuation due to soft tissue within the fatty mass and poor definition favour a liposarcoma. The presence of fatty tissue rules out a diagnosis of adenocarcinoma or pancreatic neuroendocrine tumour [2].

Most investigators believe that histopathological confirmation is not essential for a diagnosis in the presence of the typical imaging features of a pancreatic lipoma. In cases with atypical imaging features, an endoscopic/percutaneous biopsy may be considered [1]. In our case, the diagnosis was made on CT and confirmed on MRI imaging.

CONCLUSION

Pancreatic lipomas are rare benign tumours. They have characteristic imaging features which allow the correct diagnosis without the need for biopsy.

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