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CASE REPORT | PANCREAS

A Novel Home for Hemangiomas: Sclerosing Hemangioma in the Pancreas

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ABSTRACT

Pancreatic hemangiomas, predominantly in female patients, are rare benign vascular tumors. We report a unique case of an incidentally discovered pancreatic sclerosing hemangioma. The patient's clinical presentation and imaging were concerning for an abdominal mass. Endoscopic ultrasound and histopathology confirmed the pancreatic sclerosing hemangioma. Because there were no complications, surgery was not performed, and the patient was monitored. Biopsy confirmation is crucial to rule out malignancy and avoid unnecessary surgical resection.

KEYWORDS: pancreatic hemangioma; sclerosing hemangioma; pancreatic lesion; vascular tumor

INTRODUCTION

Hemangiomas, benign vascular tumors comprising blood vessels, primarily occur within abdominal organs, with the liver being most affected.[1,2] Pancreatic hemangiomas are exceptionally infrequent, with 20 documented cases.[3] Although the pathophysiology of adult hemangiomas is not fully understood, their growth mechanism is derived from the proliferation of vascular endothelium and vascular malformations; growth is stimulated by dilation of the local vasculature.[4] Even rarer are sclerosing hemangiomas, marked by thrombus, necrosis, and scar formation.[5]

CASE REPORT

A 73-year-old woman with a history of eradicated *Helicobacter pylori* gastritis, coronary artery disease, hypertension, hyperlipidemia, and tobacco use presented with postprandial epigastric pain that started a few months ago. On examination, the abdomen was soft and nontender with no palpable findings. An abdominal computed tomography (CT) scan with intravenous and per os contrast revealed an ill-defined 3.5 × 3.4 × 3.0 cm hypodense area in the pancreatic head (Figure 1). No additional abnormalities were observed in the imaging, specifically no pancreatic duct dilation or atrophy. Liver function tests, lipase, and carbohydrate antigen 19-9 (CA 19-9) tumor marker were unremarkable, with CA 19-9 measuring <3 U/mL (normal range: 0–37 U/mL).

Subsequently, an endoscopic ultrasound (EUS) identified a 40 × 46 mm anomaly in the pancreatic head and neck (Figure 2). Fine-needle biopsies (FNBs) showed scattered pancreatic acini and nodular densely hyalinized tissue (Figure 3). Immunoperoxidase staining highlighted benign vascular channels within the dense nodular fibrosis (Figure 3), and trichrome staining highlighted the fibrosis (Figure 3). These findings confirmed a pancreatic sclerosing hemangioma. There was no family history of cancer, including pancreaticobiliary. A follow-up CT scan after 6 months showed stable size and appearance. Her dyspepsia eventually improved with pantoprazole.

DISCUSSION

Pancreatic hemangiomas are extremely uncommon.[6] The reasons behind their rarity compared with liver hemangiomas are not defined and might relate to differences in vasculature, microenvironment, or vascular growth factors.[4] Averaging 7.7 cm in diameter,

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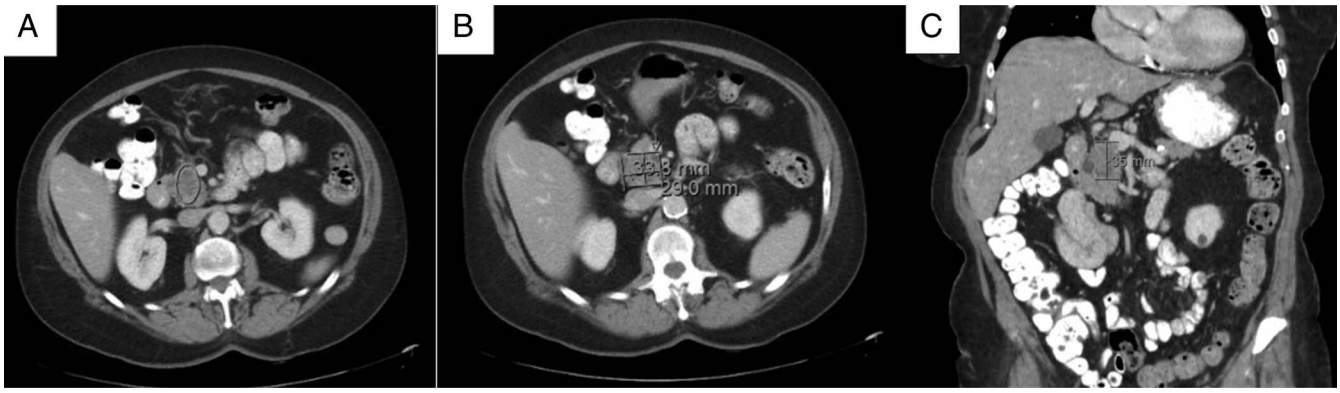

Figure 1. (A–C) Abdominal CT scan with IV and PO contrast revealing a pancreatic hemangioma measuring 3.5 × 3.4 × 3.0 cm in size. CT, computed tomography; IV, intravenous; PO, per os.

they are located in the pancreas body or tail and are more common in female patients.[3] Symptoms are usually absent unless the hemangioma causes compression of adjacent organs.[7] Common presentation is epigastric pain. Less common symptoms include hematemesis, melena, abdominal distension, dizziness, palpitations, fever, or jaundice.[2,3]

A pancreatic lesion can trigger various differential diagnoses. Pseudocysts, often seen in pancreatitis, might show enhancement on imaging.[1] Serous cystadenomas resemble pancreatic hemangiomas, presenting as cystic or lobular masses with septation, sometimes featuring central calcification.[1] Mucinous cystadenomas typically display a smooth border with an eggshell appearance and occasional septations.[1] Intraductal papillary mucinous neoplasms usually exhibit a cystic appearance with a connection to the main pancreatic duct.[1] Pseudopapillary tumors of the pancreas, found rarely and primarily in young women, manifest as solid fibrous capsules featuring hemorrhage, necrosis, and cystic degeneration areas.[8] It is important to consider these more common lesions before consideration of pancreatic hemangiomas.

Preoperative diagnosis of hemangiomas remains challenging, with 2 cases correctly identified as pancreatic hemangiomas before surgery.[3] There are no specific laboratory tests for pancreatic hemangiomas; tumor markers such as CA 19-9, carcinoembryonic antigen, and alpha-fetoprotein are typically within normal ranges.[2] When assessing hemangiomas by ultrasonography, they are often observed as well-demarcated, presenting as hyper or isoechogenic areas within the pancreas, and sometimes displaying mixed echogenicity.[6] The absence of a fine speckled internal echo pattern suggests a vascular tumor rather than a mucinous one.[6]

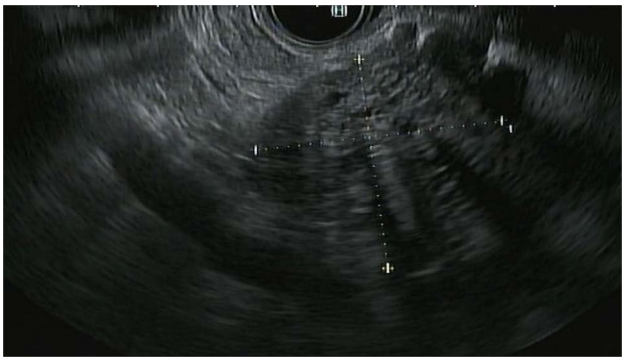

Figure 2. EUS demonstrating an abnormality measuring 40 × 46 mm in the pancreatic head and neck. EUS, endoscopic ultrasound.

Contrast-enhanced CT scans typically show liver hemangiomas with arterial phase enhancement starting at the lesion's periphery and moving inward.[3] However, pancreatic hemangiomas usually display minimal arterial phase enhancement, appearing cystic with neovascularization and slow blood flow.[3] The vascularity can vary based on the lesion's ratio of cystic to solid components.[3] In magnetic resonance imaging, pancreatic hemangiomas manifest as distinct multilocular cystic clusters without affecting the main pancreatic duct.[2] On non-enhanced magnetic resonance imaging, they display low signal attenuation on T1-weighted images and high signal attenuation on T2-weighted images.[2] While classic hemangiomas reveal nodular peripheral enhancement on CT, sclerosing hemangiomas may lack this feature because of fibrosis.[3]

Detecting pancreatic hemangiomas solely through imaging can be challenging. EUS with FNB or fine-needle aspiration is crucial for diagnosing complex cystic pancreatic masses because imaging often cannot accurately characterize these.[6,9] Although both methods have relatively identical sensitivity and specificity, FNB offers higher accuracy by providing larger tissue samples with usually well-preserved histologic architecture, overcoming limitations of fine-needle aspiration, which may yield small, less conclusive samples.[9] Confirmation of hemangiomas relies on histological examination and specific immunohistochemical studies, expressing markers such as CD31, CD34, and factor VIII antigen.[7,8] These studies aid in distinguishing hemangiomas from other cystic neoplasms.[1,8]

Pancreatic hemangiomas are historically treated with surgery, particularly for larger ones or in cases with uncertainties,

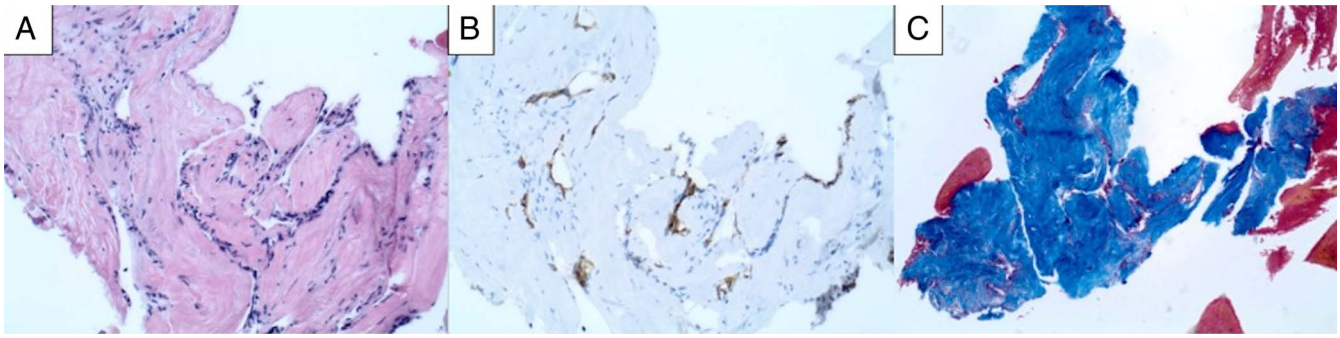

Figure 3. (A). Hematoxylin and eosin stain (×10): benign vascular channels within densely fibrotic nodular stromal areas. (B) Immunoperoxidase stain CD31 (×10): highlighting the endothelial lining of benign vascular channels within densely fibrotic nodular stromal areas. (C) Trichrome stain (×4): nodular fibrosis depicted in blue.

unresponsive symptoms, or mass-related complications.[1,6] The surgical method selected depends on the tumor's location and size.[7] For body or tail tumors, distal or subtotal pancreatectomy, sometimes with splenectomy, is recommended.[7] In instances where the tumor tightly adheres to the splenic hilum, splenectomy with body and tail resection might be necessary.[1] Pancreaticoduodenectomy is recommended for head lesions.[2] If malignancy is ruled out and complete removal is feasible, local surgical resection, with or without sparing surrounding tissue, is a safe choice.[2,7] Morbidity rates are higher in pancreaticoduodenectomies than in distal pancreatectomies.[2] Surgical resection reports show positive outcomes, including symptom relief, minimal complications, and no tumor recurrence.[5]

Pancreatic surgeries come with high risks, costs, and lengthy hospital stays.[2] A watchful, conservative approach is advisable for patients with noncompressive lesions, minimal symptoms, and confirmed absence of malignancy.[2] Treatment decisions should involve both the patient and the provider.[2] Adult hemangiomas exhibit slow growth and usually carry no malignant potential.[6] Although they may enlarge, they rarely cause obstruction or invasion of neighboring structures.[6] No established standard exists for follow-up intervals or imaging. Monitoring is at the discretion of the gastroenterologist, who should remain mindful of potential complications, including spontaneous or traumatic rupture, bleeding, pancreatitis, or infection.[6]

In conclusion, pancreatic hemangiomas, as benign vascular tumors, should be considered in the differential for pancreatic lesions. EUS-guided biopsy with immunohistochemical studies is essential to exclude malignancy. A conservative approach suffices for symptom management once malignancy is ruled out for lesions without significant compression. Properly identifying sclerosing pancreatic hemangiomas ensures a thorough diagnosis and proper treatment plan.

DISCLOSURES

Author contributions: All authors have approved the manuscript and agree with the submission. J. Tidwell is the article guarantor.

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