Lipoma of the pancreas, a case report and a review of the literature

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Abstract

Lipomas of the pancreas are very rare. There are fewer than 25 reported cases of lipoma originating from the pancreas. We present a case of pancreatic lipoma in a 61-year-old woman with magnetic resonance imaging findings and confirmatory histological findings. We discuss and highlight the radiological features distinguishing a pancreatic lipoma from other fatty lesions of the pancreas and pancreatic liposarcoma and provide a brief review of the literature.

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Key words: Lipoma; Liposarcoma; Pancreas; Fat-containing pancreatic tumors
This cross sectional image reveals a homogeneous fatty containing lesion in the head of the pancreas, scalloping the pancreatic head and displacing the duodenum. Because of its size, liposarcoma could not be excluded. A Whipple's procedure was performed and the final histology of the lesion was a pancreatic lipoma. Post-operative recovery was uneventful and she was discharged in a healthy condition.

**DISCUSSION**

Lipomas are made up of mature adipose cells within a thin collagen capsule. They can be found almost anywhere in the body where there is adipose tissue. When found intra-abdominally, they frequently arise from the gastrointestinal tract, although they can be found in other rare locations such as the pancreas. In the literature there are less than 25 cases of pancreatic lipoma and 4 cases of pancreatic liposarcoma reported to date. The first reported case was described by Bigard et al in 1989 as a hypoechoic mass in the head of the pancreas and this was histologically confirmed as a lipoma. Several imaging modalities were used in the reported cases for diagnosis. Katz et al reported 4 cases of pancreatic lipoma diagnosed on computed tomography (CT), showing a homogenous lesion containing fat. Legmann et al defined the CT findings of a pancreatic lipoma. CT findings for a pancreatic lipoma include homogenous distribution of fat density with no central or peripheral contrast enhancement, Hounsfield units of -80 to -120 and a sharp demarcation with no evidence of intra- and extra-pancreatic adjacent structures infiltration. Some of these characteristics were used as a definition by Ozelm et al. Ultrasoundography was used in a series by Itai et al. Elliott et al reported a case of pancreatic liposarcoma with plain abdominal X-rays. Di Matteo et al reported a case of pancreatic lipoma that was diagnosed on endoscopic ultrasonography.

Besides lipoma of the pancreas, fatty lesions in the pancreas include focal fatty infiltration of the pancreas, teratoma and liposarcoma. Liposarcoma is itself a heterogeneous group. Classification of liposarcoma into subtypes is based on morphologic features and cytogenetic aberrations; namely, the 5 subtypes are well-differentiated, dedifferentiated, myxoid, round cell and pleomorphic. Magnetic resonance imaging (MRI) has been used to characterize the different groups of liposarcomas in the retroperitoneum. Well-differentiated liposarcoma presents as high signal intensity on T1-weighted (T1W) images, intermediate signal intensity on T2-weighted (T2W) images and drop-out signal intensity on fat-suppressed MR images. De-differentiated liposarcoma has clear demarcations between fat and non-adipose solid tissues and reveals small amounts of fatty components. Myxoid liposarcoma has a low signal intensity on T1W image and high signal intensity on T2W image. Round-cell liposarcoma and pleomorphic liposarcoma have soft tissue tumor signal intensity without the characteristic fat signal. This suggests MRI as the ideal imaging modality for retroperitoneal liposarcomas as it can demonstrate its margins and internal components. In a review and meta-analysis of the role of 18F-fluorodeoxyglucose positron emission tomography (FDG-PET) in soft tissue sarcomas, the results indicate that FDG-PET can discriminate between sarcomas and benign tumors and low and high grade sarcomas based on the mean standard uptake value.

It has been suggested that both focal fatty infiltrations and lipomas can be managed conservatively in asymptomatic and incidental cases. A presumptive diagnosis of lipoma can be made if the lesion is purely fat containing no solid areas and is small (< 3 cm) in size. In the literature, there are no definite diagnostic criteria based on size for distinguishing a lipoma from a liposarcoma in the retroperitoneum. In fact, the tumor burden (the sum of the maximum diameter of the primary tumors) has been reported in a series to be as small as 5 cm. For liposarcomas, a large (> 10 cm) size, arising from a retroperitoneal site, as well as an involved resection margin, are reported as adverse prognostic factors.

Most investigators believe that histology is not absolutely necessary to confirm the diagnosis of pancreatic lipoma because radiologic features are almost diagnostic. However, a well-differentiated lipogenic liposarcoma may mimic a benign lesion because of homogeneity of fat
and its sharply defined margins on imaging.

Retropertitoneal liposarcomas are rare and pancreatic liposarcomas are even more uncommon with eventual metastases reported in 30%-60% of cases. Only 4 cases of pancreatic liposarcoma have been reported, with minimal radiologic data. The reported pancreatic liposarcomas range from 9 to 16 cm in largest diameter and diagnosis is retrospective in nature and is not achieved based on imaging alone. A retrospective review of our departmental records identified 21 patients with primary retropertitoneal liposarcoma treated between July 1990 and June 2005. There have been no liposarcomas related to the pancreas in our institution to date.

In our case, the lesion is large and it is difficult to rule out the possibility of liposarcoma. The patient also has pain associated with symptoms of gastric outlet obstruction from compression of the duodenum and has a persistently abnormal liver function test. Hence a decision was made to perform a Whipple’s procedure to excise the tumor.

In summary, lipomas of the pancreas are very rare. The exact radiological diagnosis to differentiate it from other fat-containing lesions can be difficult. Several radiological modalities have been used, of which MRI proves to be the most useful. An asymptomatic or incidental lesion can be managed conservatively and monitored with serial imaging. However, if it is compressing on vital structures e.g. ampulla of vater or duodenum, causing symptoms or if there are any suggestions of malignant change e.g. large size, rapid growth or radiologically heterogeneous, surgery can be offered as an option for treatment and histopathological confirmation.

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