

## CASE REPORT

# Pancreatic Lipoma Diagnosed Using EUS-FNA. A Case Report

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### ABSTRACT

**Context** Pancreatic mesenchymal tumors are rare, accounting for only 1-2% of pancreatic tumors. A pancreatic lipoma is an especially rare condition. This is only the second report of a pancreatic lipoma diagnosed before surgery using endoscopic ultrasound-guided fine-needle aspiration biopsy (EUS-FNA). **Case report** A 75-year-old woman with a round low-density lesion which had been detected by CT was referred to our hospital. EUS revealed an oval 49x32 mm homogeneous and almost isoechoic mass (as compared to normal pancreatic parenchyma) in the pancreatic head. Its outer margin was not clearly differentiated from the parenchyma. Although a benign pancreatic lipomatous lesion was deemed most probable from information obtained using CT/MRI, a mass with malignancy such as a liposarcoma could not be ruled out as a differential diagnosis. Therefore, EUS-FNA was performed for a definitive diagnosis. Two passes were performed with on-site pathology. The results obtained from the sample analysis indicated a pancreatic lipoma consisting of mature fat cells with no atypia. **Conclusion** Although imaging modalities are useful for the diagnosis of pancreatic lipomatous lesions, it is sometimes difficult to diagnose lipomatous malignancies mimicking benign lipoma. This case demonstrates the usefulness of EUS-FNA for the differential diagnosis of pancreatic lipomatous lesions.

### INTRODUCTION

Pancreatic mesenchymal tumors are rare. They account for only 1-2% of all pancreatic tumors [1]. Pancreatic lipoma is an especially rare condition. Only 49 cases have been reported in the literature to date [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25]. Almost all were diagnosed before surgery using imaging modalities CT, and/or MRI without histopathological findings. We herein report a case of a pancreatic lipoma, diagnosed histopathologically using endoscopic ultrasound-guided fine-needle aspiration biopsy (EUS-FNA), thus avoiding unnecessary surgery. To our knowledge, this is only the second report of a pancreatic lipoma diagnosed using EUS-FNA before surgery.

### CASE REPORT

A 75-year-old woman with a history of type 2 diabetes mellitus, hypertension, and having undergone

laparoscopic cholecystectomy for a gall stone was referred to our hospital for additional examination of a pancreatic mass. For the previous 3 months, she had endured persistent upper right quadrant pain, but her symptoms were sufficiently mild that they required no analgesics. She had no icterus or anemia on presentation. Physical examination of the abdomen revealed a scar from laparoscopy, but no distension or tenderness. Abdominal ultrasonography revealed a solid, heterogeneous, hypoechoic mass of 47.5 mm in diameter with well-defined margins inside the pancreatic head. Subsequent CT imaging showed a 50 mm diameter, low-density (-66 HU on contrast-enhanced CT and 55 HU in the liver) homogeneous focal mass in the pancreatic head. The mass was isodense, equivalent to intra-abdominal and subcutaneous fat tissue, with interlobular septa and without central or peripheral contrast enhancement (Figure 1). On MRI, the lesion yielded a high signal on both T1-weighted and T2-weighted axial sequences. A fat-suppressed T2-weighted image showed a loss in signal intensity (Figure 2).

Subsequently, EUS was performed to clarify the etiology of the mass using a curved linear array echoendoscope (GFUCP240AL5; Olympus Medical Systems Corp., Tokyo, Japan). It revealed a homogeneous and almost isoechoic (as compared to a normal pancreatic parenchyma) 49x32 mm mass in the pancreatic head. Its outer margin was not clearly differentiated from the normal pancreatic parenchyma

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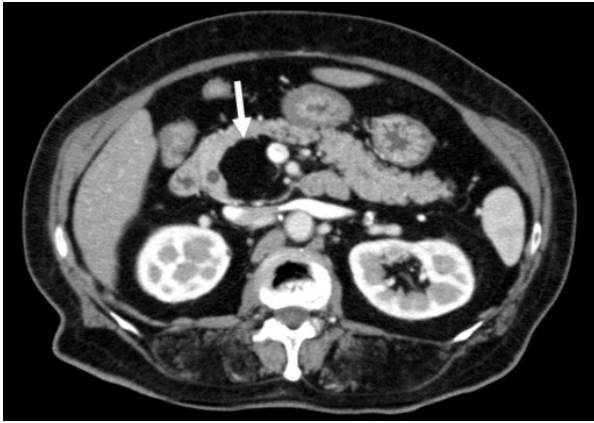
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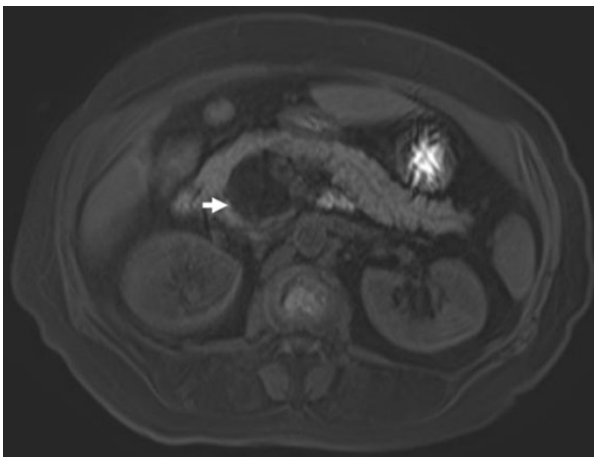
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**Figure 1.** Contrast-enhanced CT shows a 50-mm-diameter homogeneous focal mass in the pancreatic head. The mass was isodense with fat tissue, with interlobular septa, and without central or peripheral contrast enhancement (arrow).

(Figure 3). Although a benign pancreatic lipoma was deemed most probable from the information obtained using CT/MRI, a mass with malignancy, such as liposarcoma, could not be ruled out as a differential diagnosis. The lipoma was generally visualized as a hyperechoic mass; our case showed no hyperecho on echotexture. Therefore, we performed EUS-FNA using a curved linear array echoendoscope (GFUCP240AL5; Olympus Medical Systems Corp., Tokyo, Japan) and a 22-gauge needle (ECHOTIP 22G; Wilson-Hirata, Osaka, Japan) to further investigate the lesion and establish a more definitive diagnosis. After visualizing the mass using EUS and using color Doppler to confirm that there were no blood vessels within the tumor or in the projected needle path, FNA was carried out (Figure 4). After removing the stylet, aspiration was carried out at a negative pressure of 20 mL applied for 15 to-and-fro movements of the needle through the mass, adjusting a puncture route with an elevation for each movement to obtain specimens from various regions of the mass. On-site pathology revealed that the first pass obtained an insufficient amount of specimen. For that reason, we used a second pass. The FNA



**Figure 2.** The fat-suppressed T2-weighted image shows a loss in signal intensity of pancreatic mass (arrow).



**Figure 3.** EUS reveals a 49x32 mm homogeneous and almost isoechoic (compared with normal pancreatic parenchyma) mass in the pancreatic head. Its outer margin was not clearly differentiated from the normal pancreatic parenchyma.

material obtained was yellowish, apparently fat. Cytologic evaluation revealed mature fat cells with no atypia (Figure 5). We confirmed the diagnosis of a pancreatic lipoma from this histological result. No malignant cells were identified using EUS-FNA. The patient was conservatively followed up without surgical resection. No change was apparent from cross sectional imaging in the lesion at a follow-up period of 3 years, supporting the hypothesis of the lesion's benign nature.

## DISCUSSION

Pancreatic mesenchymal tumors account for 1-2% of all pancreatic tumors; they are classified according to their origin [2, 4, 8]. Fatty tumors of the pancreas, including lipomas, teratomas, liposarcomas, and focal fat infiltration, are very rare [2, 4, 8]. Although pancreatic lipoma is the most common of these tumors, the incidence of pancreatic lipoma is unknown. Since the first case report by Bigard *et al.* in 1989 [1], only 49 cases of pancreatic lipoma have been described. Almost all cases were discovered incidentally during

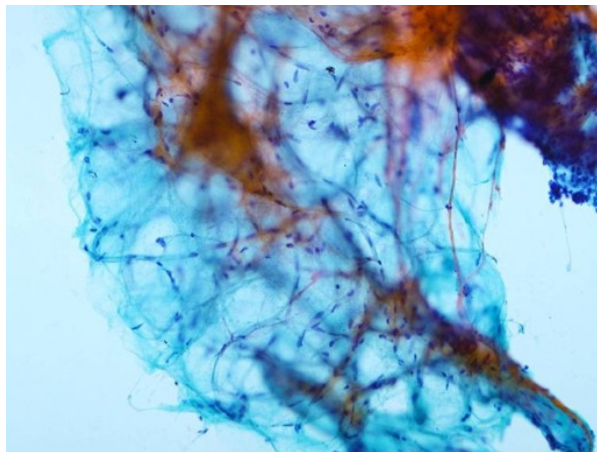


**Figure 4.** Color Doppler showed no blood vessels in the mass. EUS-FNA was performed using a 22-gauge needle (arrow).

CT scanning performed for other reasons. Reports in the literature describe only seven cases which have been diagnosed histologically: by surgery in six cases [1, 2, 3, 5, 6, 11] and by EUS-FNA in only one case [18]. Using imaging alone, another 42 cases were diagnosed.

A pancreatic lipoma is made up of lobules of mature adipose cells. The mass is encapsulated in a thin collagen layer which facilitates surgical enucleation and distinguishing between a lipoma and lipomatosis [9].

In order to diagnose a pancreatic lipoma, it is important to differentiate it from a liposarcoma. Currently, CT is considered a reliable method for diagnosing a pancreatic lipoma. Typical CT findings are hypodensity (from -30 to -120 HU) and homogeneity, with no significant contrast enhancement. Thin fibroreticular septa might be visible within the mass, representing interlobular septa. An absolute lack of infiltration of surrounding tissue is also typical [26, 27]. As described above, 42 cases were diagnosed as pancreatic lipomas without histopathological evidence. In general, liposarcoma in the abdominal cavity tends to contain large, poorly defined areas of increased density, and linear, steaky areas of increased density which tend to be thicker, more numerous and less defined on CT images than the strands seen in benign lipomas [26, 27]. It might not be difficult to distinguish between a lipoma and a liposarcoma if the mass shows the findings described above. However, well-differentiated lipogenic liposarcomas resemble a benign lipoma or infiltrating lipomatosis if CT shows that the mass is lacking higher-density tissue components [5, 27]. However, although positron emission computerized-tomography is helpful for the diagnosis of pancreatic lesions of various kinds, the role of PETCT for the differential diagnosis of a pancreatic lipoma is not well known. One report has described a pancreatic lipoma producing a false-positive PET examination [17]. The authors described the fact that other pancreatic fatty lesions might also accumulate FDG on PET examination. Regarding ultrasonography, although data



**Figure 5.** Cytopathological evaluation indicated mature fat cells with no atypia (Papanicolaou's stain, x400).

related to EUS findings of a pancreatic lipoma are limited, the typical echofeature of lipoma is considered to be a hyperechoic and homogeneous well-defined mass according to what is known about GI tract lipomas. However, because similar findings are also visualized in the case of neoplasms such as well-differentiated lipogenic liposarcoma, a careful differential diagnosis should be made. In addition, even though surgical removal is indicated for symptomatic lipomas, the patient's symptoms were sufficiently mild that analgesics were unnecessary. We thought that invasive surgical removal was avoidable if a malignancy did not exist. From these perspectives, histological examination is important to confirm the diagnosis of a pancreatic lipoma without neoplasm, even if a tumor shows typical findings on several imaging modalities. In the case presented, since the echofeatures (slightly hyperechoic, homogeneous) presented a less typical image of a lipoma, EUS-FNA was necessary for additional management.

Previous reports in the relevant literature show that histopathological examination for pancreatic lipomas has rarely been performed before surgery or follow-up without surgery. Actually, EUS-FNA is useful for diagnosing an unusual pancreatic mass, such as a lipoma, which is difficult to assess qualitatively using imaging modalities alone. In such cases, it is useful for indicating subsequent treatment strategies for the mass. To avoid unnecessary surgery, EUS-FNA for pancreatic lipomatous lesions is recommended.

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**Conflict of interest** The authors have no potential conflicts of interest

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