

## CASE REPORT

## Histologic confirmation of huge pancreatic lipoma: a case report and review of literatures

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Pancreatic lipomas are commonly diagnosed based on radiologic images, although the prevalence of lipomas has not been established. Histologic confirmation of pancreatic lipomas is extremely rare because surgical treatment is unnecessary in most cases. Endoscopic ultrasound-guided fine-needle aspiration cytology has been suggested to avoid unnecessary surgery to distinguish between a lipoma and a well-differentiated liposarcoma; however, surgery would be needed when the tumor is associated with symptoms or difficult to distinguish from a liposarcoma. We present a case of a pancreatic lipoma in a 54-year-old male patient that was histologically-confirmed by subtotal pancreatectomy.

**Key Words:** Lipoma, Pancreas

### INTRODUCTION

Most pancreatic tumors arise from epithelial cells. In fact, only 1 to 2% of these tumors originate from the mesenchyme. Mesenchymal tumors are classified according to histologic origin and include benign and malignant neoplasms. Because pancreatic lipomas can be observed if there is no specific clinical symptom or change in tumor size, the histologic confirmation of pancreatic lipoma is rare. However, when the pancreatic tumor is symptomatic and difficult to distinguish from well-differentiated liposarcoma, surgical management would be needed. We report a large pancreatic lipoma with histologic confirmation which was difficult to distinguish from a liposarcoma.

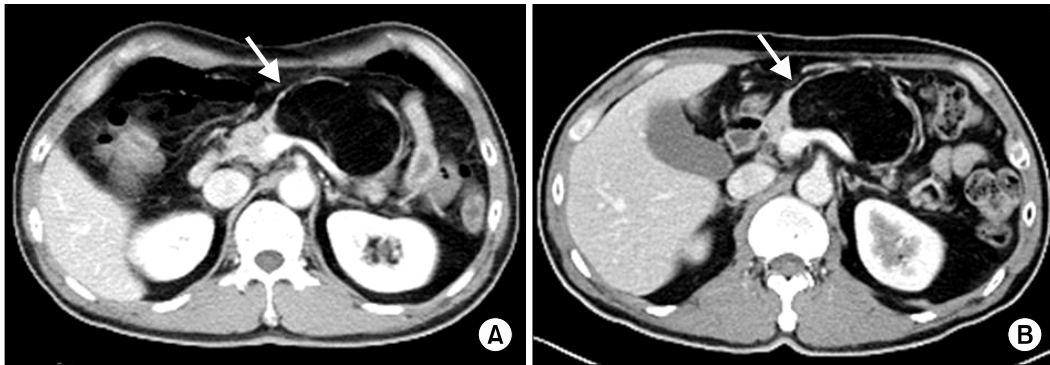
### CASE REPORT

A 54-year-old male patient with type 2 diabetes mellitus was evaluated for assessment of an incidental pancreatic tumor. There were no specific findings based on laboratory testing (amylase, 84 IU/L; lipase, 23 IU/L; carcinoembryonic antigen, 1.86 ng/mL; carbohydrate antigen 19-9, 12.78 U/mL), with the exception of an elevated glucose level (172 mg/dL). Computed tomography (CT) demonstrated a 9-cm, well-circumscribed, non-invasive tumor in the body of the pancreas with a -100 HU density which

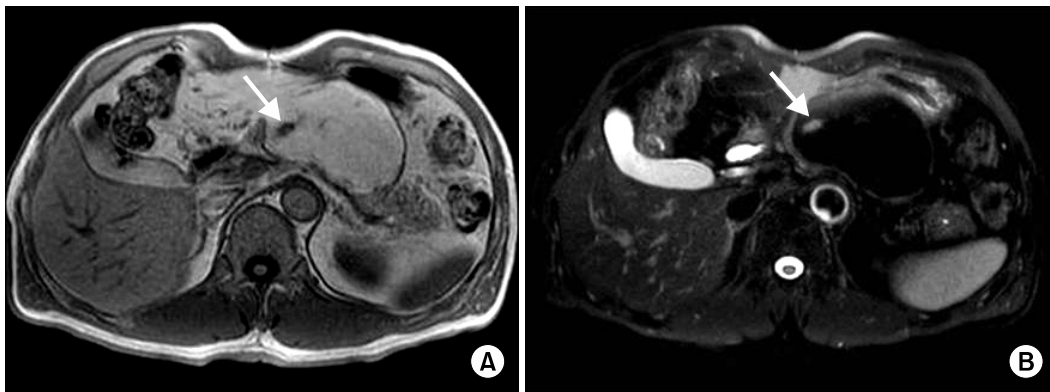
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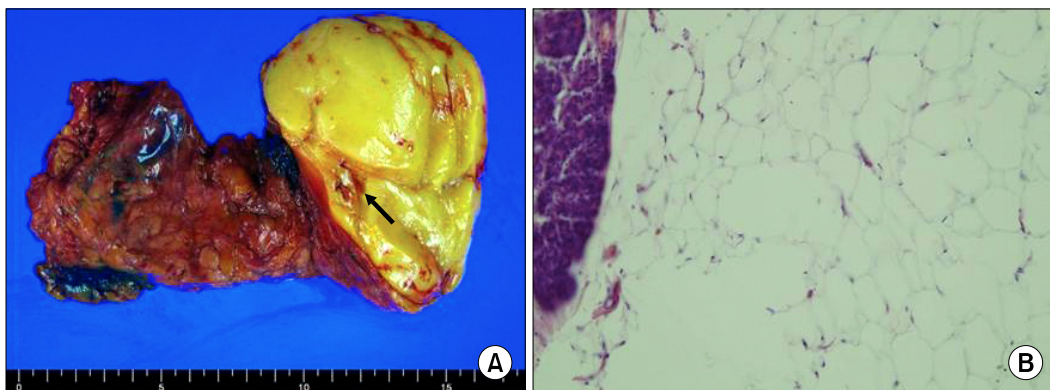
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**Fig. 1.** A 54-year-old male patient with a pancreatic lipogenic mass. (A) Contrast-enhanced abdominal computed tomography shows a 9-cm lipoma in the body of the pancreas (arrow), which had a density of -100 HU (consistent with subcutaneous adipose tissue). (B) After 3 months, the pancreatic tumor increased from 9 cm to 10.5 cm (arrow).



**Fig. 2.** (A) Lipogenic tumor of the pancreas. The axial T1WI shows a 10.5 cm well-defined hyperintense mass lesion in the body and tail of the pancreas. (B) The axial 3-dimensional fat suppression T1WI shows a well-defined hypointense mass containing mural nodules (arrows).



**Fig. 3.** (A) The 10.4 × 6.9 cm well-circumscribed mass in the body of the pancreas. The cut surface of the mass consists of yellow focal fibrous tissue and a hemorrhagic area. This hemorrhagic area (arrow) was noted on the magnetic resonance imaging as a mural nodule. (B) Mature adipocytes were noted adjacent to the pancreatic parenchyma (H&E, original magnification, ×40).

was homogeneous in appearance with the fat composition of the abdominal wall (Fig. 1A). Although the initial impression was a lipoma, a liposarcoma could not be com-

pletely ruled out because of a focal enhancing soft tissue component in the mass. On magnetic resonance imaging, there was a 10.5 cm well-defined, hyperintense mass con-

**Table 1.** Histologic confirmation of pancreatic lipomas

Ref.	Gender /age	Size (cm)	Location	Symptoms	Abnormal lab findings	Diagnostic methods	Specimen sampling methods
2	F/63	3.3	Head	Pain		US	FNA PD
3	NA/NA	5	Head				Intra-operative trans-duodenal core needle biopsy
4	NA/11 mo	30	Tail	Incidental in laparotomy			NA
5	F/70	4	Head	Pain, nausea	Hyperbilirubinemia Elevated amylase Liver function test	US CT ERCP	Excision
6	F/70	NA	Head	Pain	Hyperbilirubinemia Elevated amylase	US CT	NA
7	F/69	12	Head	Increasing pain		CT	FNA PD
8	F/70	3.4	Head	Asymptomatic		US CT MR	EUS-FNA × 4
9	F/51	9	Head/neck	Pain		US CT	PD
10	F/75	4.75	Head	Pain		US CT MR	EUS-FNA × 2
Our study	M/54	10.4	Body	Asymptomatic, increasing size		US CT MR	Subtotal pancreatectomy

NA, not available; US, ultrasound; CT, computed tomography; ERCP, endoscopic retrograde cholangiopancreatography; MR, magnetic resonance; FNA, fine needle aspiration cytology; PD, pancreaticoduodenectomy; EUS-FNA, endoscopic ultrasound-guided fine needle aspiration biopsy.

taining mural nodules in the body and tail of the pancreas on axial T1-weighted images (Fig. 2). After 3 months, a subtotal pancreatectomy with a splenectomy was performed to distinguish the mass from a liposarcoma because the pancreatic tumor increased from 9 to 10.5 cm in size on contrast-enhanced abdominal CT (Fig. 1). In pathologic finding, a 10.4 × 6.9 cm pancreatic lipoma containing yellow focal fibrous tissue and hemorrhagic areas was identified which was suggested as a mural nodule on image findings. Based on the microscopic findings, only mature adipocytes were noted adjacent to the pancreatic parenchyma (Fig. 3). Post-operatively, the patient was treated to control a worsening glucose level and discharged without specific complications in 14 days.

## DISCUSSION

Since the first pancreatic lipoma was documented by Bigard et al. [1] in 1989, only 45 cases of pancreatic lipomas have been reported. Although the tumor size could vary from < 1 to 30 cm in size, the observation would be possible because they are nearly stable. For this reason, the histologic confirmation of pancreatic lipoma is rare [2-9].

While lipomas located with the head of the pancreas may originated from trapped retroperitoneal or mesenteric fat between the dorsal and ventral pancreatic buds during embryonic fusion, the etiopathogenesis of lipomas within the body and tail of the pancreas are unclear [10]. Lipomas within the head of the pancreas exhibit clinical symptoms, such as abdominal pain, whereas lipomas within the body and tail of the pancreas are usually silent, even when > 10 cm in size (Table 1) [1-9].

A CT scan is a useful imaging modality for detecting pancreatic lipomas. The diagnostic criteria for pancreatic lipomas include well-circumscribed lesions without any extravisceral continuation with the peri-pancreatic adipose tissue, densitometric measurement between -30 and -150 HU, well-delineated thin-homogenous capsule, and no sign of invasion of adjacent organs. The thick septa within the tumor, calcifications, rapid growth, and focal fatty infiltration within the peri-pancreatic adipose tissue, in contrast to pancreatic lipomas, and the absence of distinct capsules are significant indicators of malignancy [10]. A surgical procedure is needed for well-differentiated liposarcomas which resemble benign lipomas [1]. The differential diagnosis of pancreatic lipomas should include lipomatosis, cystic teratomas, fibrolipomas, lipoblastomas, and liposarcomas. In the current case, liposarcomas could not be ruled out because of the increasing size and enhancing soft tissue component. An endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) was not performed because EUS-FNA sometimes leads to needle-track seeding metastasis when the mass is malignant.

There are 10 histologically-confirmed lipomas based on surgical resection or EUS-FNA, including the current case (Table 1). The mean size of 8 pancreatic lipomas confirmed with surgery was 10.5 cm and the locations of the tumor were as follows: 6 cases in the head of the pancreas; 1 case in the body of the pancreas; and 1 case in the tail of the pancreas. Abdominal pain was associated with most pancreatic lipomas and pancreatitis occurred in two cases, but not in the current case.

Although pancreatic lipomas are not common, the diagnosis with imaging scans is quite accurate and EUS-FNA is a useful procedure for histologic confirmation of the tumor. Surgical excision should be considered when the tumor is symptomatic or difficult to distinguish from a liposarcoma.

## CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

## ACKNOWLEDGEMENTS

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