

CASE REPORT

Pancreatic Lipoma - A Case Report with Review of Literature

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ABSTRACT

Lipoma is a benign tumour of mature fat cells/adipocytes which are of mesenchymal origin. It can occur in any part of the gastrointestinal tract but is rarely encountered in the pancreas. Pancreatic lipomas are usually asymptomatic until their size exceeds beyond 2 cm or are found in the head of the pancreas and cause compression / obstruction of the ampulla. Lipomas exceeding 2 cm may ulcerate and can cause anaemia. Histopathological confirmation is rare because surgical intervention is not needed in most cases. Homogeneous lipoid attenuation on computerized tomography distinguishes it from well differentiated liposarcoma. Endoscopic Ultrasound guided fine needle aspiration cytology has been suggested to confirm the diagnosis. Surgical intervention is indicated if the pancreatic lipoma is symptomatic or difficult to distinguish it from liposarcoma non-invasively. We hereby present our experience with one such case of a 50-year-old female who approached our surgical clinic for occasional pain in right upper abdomen with other upper gastrointestinal symptoms.

INTRODUCTION

Pancreatic tumours have epithelial, mesenchymal or non-ductal origin. Epithelial tumours compromise the majority of them, with adenocarcinoma accounting for about 85%. Non-ductal tumours compromise only about 5-15% while as mesenchymal tumours are very rare and account for about 1% - 2% [1, 2]. Amongst the mesenchymal tumours, pancreatic lipomas or liposarcomas form an even rare subset. Increased use of computed tomography and magnetic resonance imaging has brought forth an increasing number of cases of pancreatic lipomas (Incidentalomas).

Upon review of the literature, most of the cases were incidental and were diagnosed before surgery by imaging modalities like computerized tomography, magnetic resonance imaging while the patients were being investigated for some unrelated abdominal complaints. No histopathological confirmation was deemed necessary when the imaging suggested a benign lesion.

CASE REPORT

A Fifty-year-old female presented to our surgery clinic with complaints of on and off pain upper abdomen with radiation

to back and lower chest area since past 5 months. She had associated dyspeptic symptoms. She had no known medical co-morbidities. Physical examination was unremarkable. Routine biochemical evaluation (CBC, LFT, RFT) was within normal limits. CA 19-9 level was 4.3 U/mL (Normal).

Ultrasonography was suggestive of cholelithiasis with chronic cholecystitis. A lobulated hypoechoic lesion measuring approx. 4.2×2.0 mm was seen in relation to the pancreatic head. The patient underwent CECT abdomen which revealed a lesion with fat attenuation, measuring approximately 11×4.4×3.7 mm in relation to the uncinate process of the pancreas (**Figure 1abc**). Rest of the abdominal evaluation was noncontributory.

The patient underwent routine elective laparoscopic cholecystectomy. She was discharged on the second post-operative day. Follow up was initially weekly for a month and then 3-monthly. Her laboratory investigations were repeated, results were in normal range.

DISCUSSION

Pancreatic lipomas are rare benign mesenchymal tumors. They are comprised of lobules of mature adipocytes with a thin collagenous capsule. The first case of pancreatic lipoma was reported by Bigard *et al.* [3] in 1989 who reported a hypoechoic mass in the head of the pancreas which was histopathologically confirmed as a lipoma. The size can vary between 1 to 30 cm upon presentation. Histologic confirmation of pancreatic lipoma is rare [2, 4, 5, 6, 7, 8, 10, 11].

Lipomas located in the area of head are hypothesized to originate from the retroperitoneal or mesenteric fat that gets trapped between dorsal and ventral pancreatic buds during embryonic fusion. The etiopathogenesis of lipomas

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Abbreviations CECT contrast enhanced computerized tomography; EUS endoscopic ultrasound; FNCA fine needle aspiration cytology; MRCP magnetic resonance cholangiopancreatography; MRI magnetic resonance imaging
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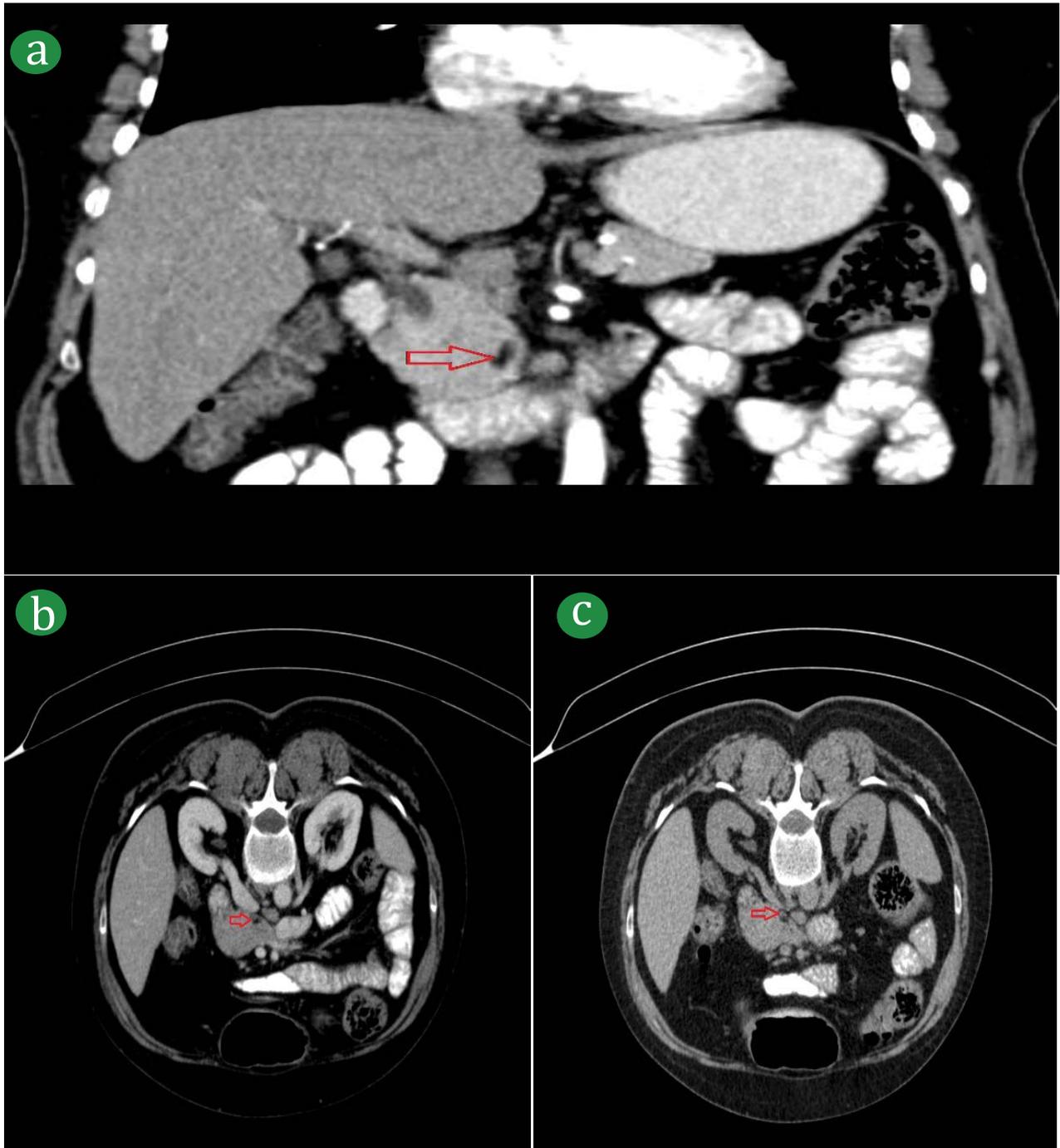


Figure 1abc. Pancreas protocol CT images showing low attenuation fat density in relation to uncinate process.

within the body and tail of the pancreas are unclear [11]. Lipomas within the head area are also distinct in the sense that they 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 [2, 3, 4, 5, 6, 7, 8, 10, 11]. Lipomas exceeding 2 cm in size may ulcerate and cause anemia [12].

Pancreatic lipomas appear hyperechoic on ultrasound, with some variable degree of hypoechogenicity. Posterior acoustic attenuation and well-defined margins suggest the diagnosis [13, 14, 15, 16]. However, US is limited by its inherent limitations in being a user-dependent modality, besides visualization and evaluation of retroperitoneal structures including pancreas is impaired by various patient related criteria

like the amount of overlying bowel gas, thickness of subcutaneous fat (BMI) and motion artifacts.

The characteristic features of pancreatic lipoma on CT scans were highlighted by Legmann *et al.* [17]. Criteria such as homogeneity, low density of the lesion (amounting from -120 HU to -80 HU), well-defined borders (no infiltration of intra- and/or extra-pancreatic structures) and lack of contrast enhancement (both central and peripheral) were deemed characteristic of pancreatic lipomas. Lipomas do not enhance with contrast media on imaging studies, which indicates a benign fatty structure [18]. The thick septa within tumour, calcifications, rapid growth and fatty focal infiltration within the peri-pancreatic adipose tissue, in contrast to pancreatic lipomas and the absence of distinct capsules are significant indicators of malignancy [18].

MRI has been used with good success in evaluation of soft tissue lesions. Pancreatic lipomas follow the signal intensity of the adjacent sub-cutaneous fat. On T1-weighted images, mature adipose tissue demonstrates high signal intensity, whereas T2-weighted images display decreased signal intensity. Like CT, MRI does not show contrast enhancement.

Literature has not been unanimous upon the use of PET scans in pancreatic lipomas. Some investigators have showed a lack of metabolic activity where as some others have documented increased metabolic uptake [14, 15, 16, 19, 20]. Further studies shall be needed to fully ascertain the role of PET imaging in evaluation of pancreatic lipomas.

Stadnik *et al.* [20]. and Dwivedi *et al.* [21]. suggested that pancreatic lipomas may be more common than reported in the literature. Stadnik *et al.* highlighted that only 50 cases have been reported so far [20, 21]. This high prevalence in imaging studies is in clear contrast to the relatively small number of clinical cases reported in the literature. Gossner *et al.* [22] tried to explain the fallacy. They mentioned the fact that radiologists interpret lipomas as focal areas of elevated fat content and relate it to the underlying pancreatic pathology (progressive atrophy or lipomatosis of the organ). Another explanation is that the fatty nature of these small lesions is assessed as a benign finding not worth further comments. They also reported that small lipomas may also be difficult to recognize on thick slices (5 mm or thicker) due to volume averaging effects. Besides the literature available on this topic is so sparse that reporting radiologists may simply not be aware of the entity of pancreatic lipomas, so much that they don't include them in their differential diagnosis. Upon review of their centres data, they mentioned that only 50% of the lipomas were initially reported. The same discrepancy between quite a common occurrence and the disregard in the literature has been shown also for small intracranial lipomas on brain CTs [21, 22].

Di Matteo *et al.* [8] reported the use of endoscopic ultrasonography (EUS) to diagnose the problem of differential diagnosis of focal fat-containing mass of the pancreas. EUS has allowed finer evaluation of the lesion as well its vicinity besides providing the possibility of tissue sampling for histological diagnosis by FNAC. EUS-guided FNA has abbreviated the need of trans-cutaneous tissue sampling which has led to low incidence of tumor seeding and pancreatic fistulas and also improved the yield of tissue diagnosis [9].

Advances in radiological sciences have brought to the fore-front an ever increasing number of pancreatic lesions which has conversely compounded the process of subtyping each of them. The differential diagnosis of fat containing lesions of the pancreas include must include teratoma, liposarcoma, focal fatty infiltration, malignant fibrous histiocytoma, lipomatous pseudohypertrophy, leiomyosarcoma, desmoid tumor, and fibrolipoma.

Liposarcoma is among the rarest fat containing pancreatic lesions which warrants surgery. These tumours

are comparatively bigger (>5 cm, and in most cases >10 cm) than lipomas, and appear heterogenous and complex (containing both solid and cystic components) on imaging.

Intervention is required only for lesions that are symptomatic or lesions that are suspicious for malignancy on imaging or biopsy. Large lesions, or lesions causing symptoms due to their mass effect on surrounding structures like bile duct, stomach or small intestines also warrant early intervention.

In our patient, considering all facts revealed through different imaging modalities, laboratory investigations and post-surgical follow up of patient and it being present in uncinate process of pancreas where it causes least gastrointestinal symptoms, it was decided not to proceed with any surgical intervention.

CONCLUSION

Pancreatic lipomas form important differential diagnoses of pancreatic incidentalomas. The available literature supports no intervention if the lesion is well distinguishable from other malignant and metastatic lesions such as liposarcomas or other metastatic conditions. Close follow up with clinical correlation is mandatory.

Conflict of Interest

The authors have no potential conflict of interest.

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