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## Case Report

# Primary pancreatic lymphoma-diagnosed on computed tomography: A rare case report. ☆

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## ABSTRACT

Primary pancreatic lymphoma is a rare disease. It comprises less than 0.5 % of pancreatic neoplasm and 0.1% of malignant lymphoma. It should be differentiated from pancreatic adenocarcinoma because management differs. At computed tomography, 2 types of morphology of primary pancreatic lymphoma have been described- a localized well-circumscribed tumoral form and another diffuse enlargement infiltrating or replacing most of the pancreatic gland. Here, we are presenting computed tomography (CT) imaging features of a case of primary pancreatic lymphoma in a 27 year old female who presented with a complaint of abdominal pain radiating to the back for 3 months and yellowish discoloration of sclera and skin for the last 15 days. In contrast-enhanced computed tomography an exophytic homogeneously hypoenhancing mass arising from head and neck region of pancreas was seen. Involvement of common bile duct (CBD) and duodenum was there. The main pancreatic duct was not dilated. Common hepatic artery was encased by mass without arterial luminal narrowing or distortion. Diagnosis of primary pancreatic lymphoma was suggested on basis of imaging findings and further confirmed with fine-needle aspiration cytology.

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## Introduction

Primary pancreatic lymphoma is a rare disease. It comprises less than 0.5 % of pancreatic neoplasm [1] and

0.1% of malignant lymphoma [2]. Secondary involvement of pancreas from direct invasion from retroperitoneal lymph nodes is more common than primary pancreatic lymphoma.

Criteria for primary pancreatic lymphoma is a dominant mass in pancreas with absence of superficial or mediasti-

Abbreviations: CT- Computed tomography, CBD- Common bile duct; USG- Ultrasonography, HU- Hounsfield unit; PET- Positron emission tomography, FNAC- Fine needle aspiration cytology.

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**Fig. 1 – Primary pancreatic lymphoma: (A) Non contrast, (B) pancreatic phase and (C) portal phase of CECT shows homogeneously attenuating pancreatic head mass, hypoenhancing to pancreatic parenchyma in pancreatic and portal phase.**

nal lymphadenopathy on chest imaging, a normal leukocyte count in peripheral blood, and absence of hepatic and splenic involvement [3].

The clinical presentation of pancreatic lymphoma is abdominal pain or jaundice which mimics pancreatic adenocarcinoma [4]. Differentiation from adenocarcinoma is crucial because management differs, being surgery for adenocarcinoma and chemotherapy for lymphoma [5]. This is a case report of primary pancreatic lymphoma, diagnosed on basis of CT features which was further confirmed by fine needle aspiration cytology.

### Case summary

A 27 year old female presented with a complaint of abdominal pain radiating to back for 3 months and yellowish discoloration of sclera and skin and vomiting for the last 15 days.

On ultrasonography (USG) a homogeneously slightly hypoechoic mass was seen in region of pancreatic head with moderately dilated intrahepatic biliary radicles. Gall bladder was overdistended and CBD could not be visualized separately from mass. Periapillary carcinoma was suspected and CT abdomen was done for further evaluation.

Plain and contrast-enhanced CT was performed with a 64 slice Philips Brilliance scanner. 80 mL nonionic contrast (ultravist, 370mg I/mL) was injected with rate of 4 mL per second through 18G intravenous canula. Pancreatic phase scan was done at 40 seconds and portal phase scan was acquired at 70 seconds post contrast injection. Non contrast CT showed a mass homogeneously isodense to pancreas with Hounsfield unit (HU) value 33. On pancreatic and portal venous phase mass were homogeneously hypoenhancing as compared to rest of pancreas with HU values 88 and 93 respectively. HU value of pancreas attenuation in pancreatic and portal venous phase was 152 and 127 respectively (Fig. 1).

Mass measuring 66 × 50 × 40 mm was seen arising from head and neck region of pancreas with exophytic growth in retroperitoneum causing obliteration of proximal and mid-CBD with upstream dilated common hepatic duct and bilobar moderate intrahepatic biliary radicle dilation. The gall bladder was overdistended. Mass was also seen invading D2 segment of duodenum with proximal overdistended stomach suggestive of obstructive changes (Fig. 2). Encasement of common

hepatic artery and their branches were noted with no evidence of luminal narrowing or distortion. Portal vein was effaced (Fig. 3). Main pancreatic duct was not dilated.

Another well circumscribed similar lesion of size 30 × 27 × 20 mm was noted closely approximated with described mass. Either it was a lobulated component of same mass or a lymph nodal mass in peripancreatic region (Fig. 3). No other significant peripancreatic or retroperitoneal or mesenteric lymph node was noted. No focal lesion was noted in the liver or spleen.

Considering the imaging finding of a large exophytic mass arising from the head of pancreas showing homogenous hypo enhancement with invasion of adjacent retroperitoneal structure and no evidence of main pancreatic duct dilatation or distortion of encased vessels, possibility of pancreatic lymphoma was suggested. USG guided fine needle aspiration cytology (FNAC) was performed in our institute and confirmed the diagnosis of lymphoma.

Positron emission tomography (PET) was also performed which showed tracer uptake in pancreatic region with mean standard uptake value (SUV)- 13 (Fig. 4). No evidence of uptake in thorax or rest of body region suggestive of primary lymphoma of pancreas (Fig. 5).

### Discussion

At CT 2 types of morphology of primary pancreatic lymphoma have been described- a localized well-circumscribed tumoral form and another diffuse enlargement infiltrating or replacing most of the pancreatic gland [6].

The diffuse infiltrating pattern may mimic the imaging findings of pancreatitis with gland enlargement and irregular infiltration of the peripancreatic fat [6]. patients with this pattern however never show typical clinical features of acute pancreatitis even if serum amylase and lipase level is raised [6]. Diffuse infiltrating pattern is difficult to differentiate from autoimmune pancreatitis on basis of imaging findings alone, however degree of pancreatic enlargement is more in case of lymphoma [7].

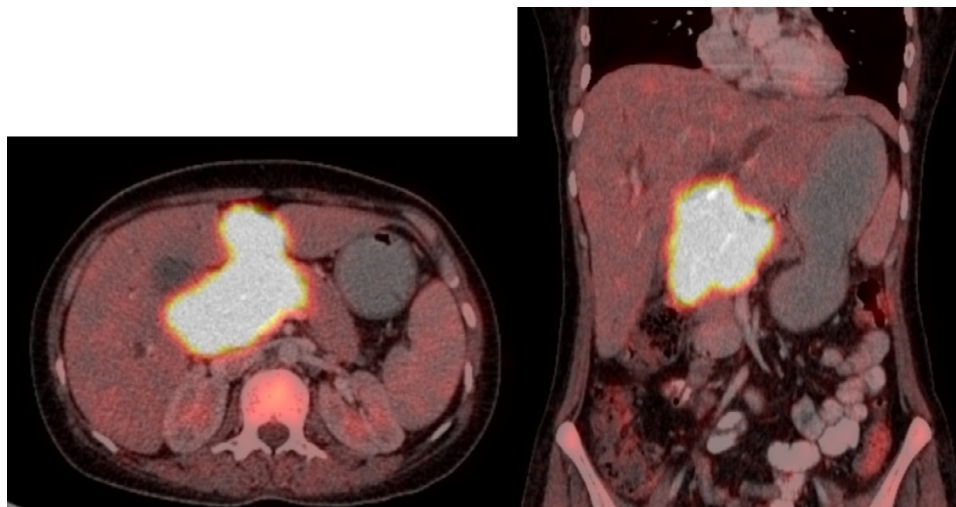
Localized mass forming lymphoma is most commonly located in head region [8]. Pancreatic mass is seen as a large hypodense pancreatic mass with progressive homogenous hypo enhancement with vessels encasement and absence of necro-



**Fig. 2 – Primary pancreatic lymphoma-** Post contrast coronal and axial CT shows pancreatic mass obliterating common bile duct with obstructive changes in common hepatic duct and intrahepatic biliary radicles (thick black arrow). Gall bladder is overdistended (white arrow). Mass is infiltrating duodenum (thin black arrow) with obstructive changes in stomach. Main pancreatic duct is not dilated.



**Fig. 3 – Primary pancreatic lymphoma-** Axial and coronal CECT - Pancreatic head mass encasing common hepatic artery (black arrow) and its branches (arrow heads) without luminal distortion and compressing portal vein (white arrow). A lobulated component or lymph nodal mass is seen close to pancreatic head mass (curved arrow).



**Fig. 4 – Primary pancreatic lymphoma: Axial and Coronal FDG PET/CT fusion image showing uptake in pancreatic mass.**



**Fig. 5 – Primary pancreatic lymphoma: FDG PET scan 3D - Tracer uptake noted only in pancreatic region.**

sis, dilatation of pancreatic duct, and infiltration of encased vessels [7]. Other features are enlarged lymph nodes below the level of renal vein, invasive growth, and retroperitoneal or upper abdominal organ infiltration [8].

Most of the above features were present in our case except for lymph nodes below the level of the renal vein. Infiltration of duodenum with obliteration of CBD and no dilatation of pancreatic duct was also reported in a case by Alzervi et al [8].

Although lymphoma can arise from body and tail of the pancreas and the presence of areas of necrosis, dilatation of pancreatic duct and heterogenous enhancement has been reported [7].

Primary pancreatic lymphoma is a rare disease that can be differentiated from adenocarcinoma in some cases on basis of imaging findings and unnecessary surgery can be avoided.

### Conclusion

Primary pancreatic lymphoma is a rare disease that should be suspected in any case with CT features of exophytic pancreatic mass with homogenous low attenuation, non-dilatation of pancreatic duct, vessels encasement without obvious infiltration, and invasion of adjacent structures like CBD or duodenum. Primary pancreatic lymphoma with typical imaging features can be differentiated from adenocarcinoma which would completely alter the course of disease management.

### Patient consent

Patient's consent was taken for the publication of the case.

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