LYMPHOPLASMACYTIC SCLEROSING PANCREATITIS: A Multimodality Pictorial Review

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Learning Objectives:

To provide a systemic review of the imaging differences between Lymphoplasmacytic Sclerosing Pancreatitis and pancreatic cancer with emphasis on CT and MRI.

Background:

Lymphoplasmacytic sclerosing pancreatitis is a form of chronic pancreatitis characterized by mixed inflammatory infiltrate centered on the pancreatic ducts. It is a cause of benign pancreatic disease that can clinically mimic pancreatic cancer. Its preoperative recognition is important because patients usually respond to steroid therapy.

Imaging Findings:

In the proper clinical setting (obstructive jaundice with no or mild abdominal pain, weight loss and recent-onset diabetes in elderly pacients), when typical findings of pancreatic or biliary neoplasms are not found, the diagnosis of lymphoplasmacytic sclerosing pancreatitis should be considered. The suggestive findings of this disease will be illustrated through a multimodality imaging approach and analysed for its contribution to refine the differential diagnosis.

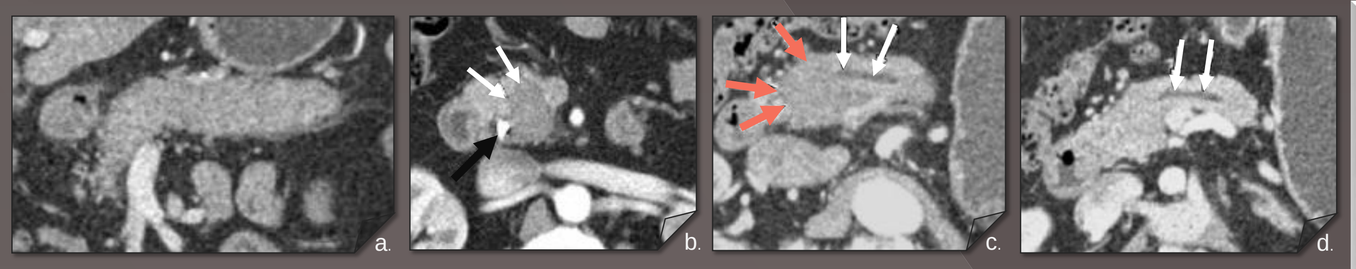


Figure 1 – (a) Venous phase coronal reformatted CT image shows diffuse enlargement of the entire pancreas, without its normal lobular appearance. (b) Arterial phase axial CT image shows enlargement of the pancreatic head with a distinct area of decreased attenuation (white arrows). A stent is seen in the common bile duct (black arrow). (c) Arterial phase oblique axial reformatted CT image shows enlargement of the pancreatic head with a distinct area of decreased attenuation (orange arrows). The main pancreatic duct is minimally dilated (white arrows) proximal to the enlarged portion. (d) Venous phase oblique axial reformatted CT image of the same patient showing that the hypoattenuating area seen in the pancreatic head becomes nearly isoattenuating relative to adjacent pancretic parenchyma.

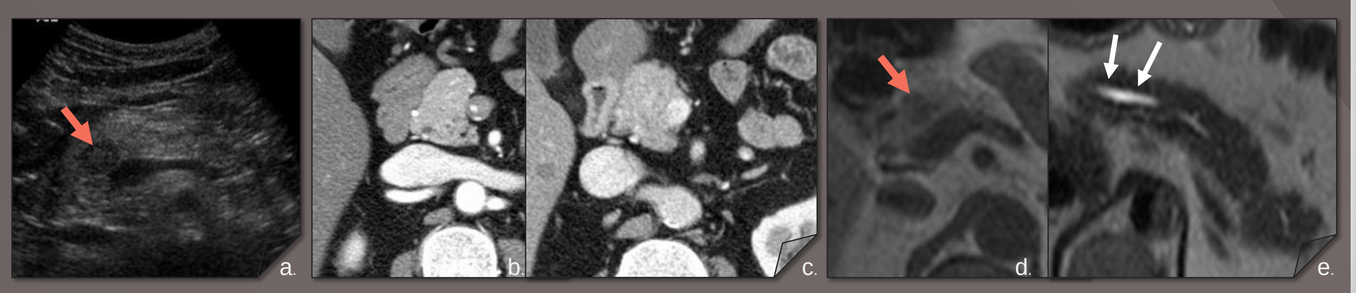
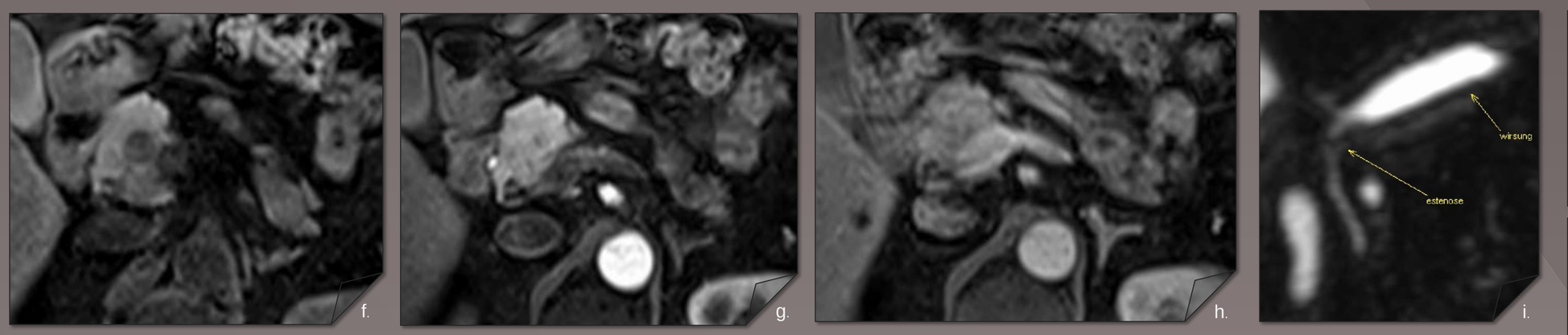


Figure 2 – (a) Axial US image shows solid hypoecoic nodule (orange arrow) located in the pancreatic head. (b, c) Arterial and venous phases axial CT images show no difference of attenuation between the lesion and the unaffected pancreatic parenchyma. (d) T1-weighted axial MR image of the same patient showing that the nodular area is hypointense (orange arrow) relative to the adjacent pancreatic parenchyma and (e) T2-weighted axial MR image demonstrating the minimally dilated main pancreatic duct (white arrows). (f) Unenhanced and (g, h) gadolinium-enhanced T1-weighted MR images show, once more, no difference in signal intensity on post-contrast images. (i) MIP reformatted MR image showing the segmentally narrowed main pancreatic duct with slight dilatation proximal to the lesion (5 mm caliber). (j, k) On diffusion-weighted images (b = 50 sec/mm^2; b = 700 sec/mm^2) this intrapancreatic lesion demonstrates maintenance of the signal intensity (white arrows) and (l) a moderately restricted diffusion on the ADC (apparent diffusion coefficient) map (white arrow).



Typically, CT and MRI images show diffuse enlargement of the pancreas (Fig 1a). Focal enlargement may also be seen, particularly in the pancreatic head (Fig 1b), and a pancreas that appears to be normal in size is also a possibility (Fig 2). Atrophy of the glandular parenchyma is not usually seen, and when present, the diagnosis of pancreatic cancer is much more likely. The affected pancreatic area is isoattenuating relative to adjacent unaffected parenchyma on unhenanced CT and shows hypointensity on T1-weighted images (Figs 2d, 2f). The contrast enhancement pattern is variable. Previous studies reported that on early post-contrast phase images, the involved portion of the pancreas appears hypoattenuating compared with unaffected pancreatic parenchyma (Figs 1b, 1c). On venous phase images, it may remain hypoattenuating or may become nearly isoattenuating compared with unaffected pancreatic parenchyma (Fig 1d). However, the pancreas may show homogeneous contrast enhancement in all post-contrast phases (Figs 2b, 2c, 2g, 2h), depending on the degree of inflammatory infiltrate and fibrosis of the involved area. At ultrasonographic (US) examination, the pancreas appears hypoecoic and diffusely enlarged with the so called “sausage-like” appearance. It may also appear as a hypoecoic mass in the affected site (Fig 2a).

The main pancreatic duct is diffusely or segmentally narrowed (Fig 2i), a feature well displayed on CT or MR cholangiopancreatography images. Mild dilatation of the main pancreatic duct proximal to the enlarged portion of the pancreas may also be seen. However, significant dilatation, characteristic of pancreatic ductal adenocarcinoma, is not found in lymphoplasmacytic sclerosing pancreatitis.

Major pancreatic vascular involvement is uncommon in lymphoplasmacytic sclerosing pancreatitis compared with pancreatic adenocarcinoma. Smooth stricture of the distal common bile duct is often seen in lymphoplasmacytic sclerosing pancreatitis, particularly in patients whose pancreatic head is affected.

Conclusion:

Many patients undergo surgical resection because of suspicion that a “mass-like” pancreatic lesion is malignant. When features suggesting lymphoplasmacytic sclerosing pancreatitis are found, clinical and serologic data should be evaluated to achieve the correct diagnosis and avoid unnecessary surgical therapy.