March 2016 Case of the Month

A 42 year-old female with a pancreatic mass and weight loss.

Contributed by
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Clinical history:
The patient is a 45 year-old female with left upper quadrant abdominal pain and weight loss over the last few months. Abdominal CT scan demonstrated a 5.7 x 4.5 x 4.1 cm mass projecting off the pancreatic tail and adherent to the colon, highly concerning for malignancy. EUS (endoscopic ultrasound) with FNA (fine needle aspiration) and core biopsy were performed and the results suggestive of chronic pancreatitis, further investigation was recommended. Distal pancreatectomy with splenectomy and partial colectomy were performed.

Gross examination:
The pancreas and peripancreatic fat were indurated. No obvious mass was identified. The colon segment was firmly adherent to the pancreas.

Microscopic examination:
Sections show pancreatic lobular inflammation (Figure 1) with a lymphoplasmacytic infiltrate (Figure 2), storiform fibrosis (Figure 3) and acinar cells loss. The lobules maintained their original size and shape.

Additionally, there is periductal inflammation with preserved ductal epithelium (Fig 4), and obliterative phlebitis. Elastic stain is performed to help identified the obliterated vein (Fig 5). The inflammation involved both the pancreatic parenchyma and peripancreatic fat.

Immunohistochemistry for IgG4 (Figure 6) was performed and demonstrated more than 20 positive plasma cells per HPF.
Figure 1 Pancreatic lobular inflammation

Figure 2 Lymphoplasmacytic infiltrates
Figure 3 Storiform fibrosis with lymphoplasmacitic infiltration

Figure 4 Periductal inflammation
Figure 5 Obliterative phlebitis-elastic stain

Figure 6 IgG4
Final diagnosis:

Autoimmune pancreatitis (AIP) without granulocytic epithelial lesion (Lymphoplasmacytic sclerosing pancreatitis)

Discussion:

Autoimmune pancreatitis is a rare form of chronic pancreatitis characterized mainly by lymphoplasmacytic infiltrate and storiform fibrosis. The most common clinical features of AIP are abdominal pain, weight loss, jaundice, and obstructive pattern of the liver function tests. Imaging usually shows diffuse enlargement of the pancreas, however tumor-like radiologic images as in this case can occur, mimicking pancreatic cancer [1]. The differential diagnosis in AIP includes alcoholic chronic pancreatitis and pancreatic adenocarcinoma.

AIP was first described in 1961 by Sarles et al. as “primary inflammatory sclerosis of the pancreas”[2]. Yoshida et al. first proposed the concept of autoimmune pancreatitis in 1995, at that time he described autoimmune pancreatitis as an entity with similar clinical diagnosis criteria of autoimmune hepatitis: elevated serum levels of IgG, autoantibody positivity, response to steroid therapy, absence of any other etiology except for autoimmune mechanism, etc [3]. In 2003, the Mayo Clinic group reported 35 cases with 2 distinct histological patterns: lymphoplasmacytic sclerosing pancreatitis and idiopathic duct centric pancreatitis [4]. In 2004, Zamboni et al [5] described unifying histological features of AIP: periductal lymphoplasmacytic infiltrate with periductal fibrosis, without any features seen in alcoholic pancreatitis; and distinguished 2 groups of AIP based on the presence or absence of granulocytic epithelial lesion (GEL). The 2 groups of patients also differed in their clinical features such as sex, mean age, and associated immune-related diseases.

The Honolulu consensus document published in 2010 [6] describes AIP as two main types: lymphoplasmacytic sclerosing pancreatitis or AIP without GEL and idiopathic duct centric pancreatitis or AIP with GEL. Both presenting the following common histological criteria: fibroinflammatory process involving pancreatic ducts and common bile duct, and lymphoplasmacytic inflammatory infiltrate. The distinguished criteria were described based on the pattern of inflammatory infiltrate, the presence of pancreatic ducts, lobules, veins, arteries and peripancreatic fat involvement, and the IgG4 immunostaining pattern.

Histologic features of AIP without GELs show marked fibroinflammatory process involving periductal areas, lobules and veins. The inflammatory infiltrate is composed predominantly of lymphocytes and plasmal cells with occasional eosinophils while the neutrophils are usually absent or rare. Obliterative phlebitis is frequently seen with occasional arterial involvement. The fibroinflammatory process may extend to peripancreatic regions. The IgG4 immunostaining positive cells are abundant, typically >10 cells/hpf. On the other hand, in AIP with GELs, the lobular fibroinflammatory process is less marked and the lymphoplasmacytic infiltrate is admixed with neutrophils. Neutrophilic granulocytic infiltrate is
present in the medium-sized and small ducts with epithelial damage, and the inflammation is usually limited to the pancreas. Scanty to no IgG4 immunostaining positive cells are identified.

Lymphoplasmacytic sclerosing pancreatitis (without GELs) and idiopathic duct centric pancreatitis (with GELs) are pancreatic histological patterns in AIP. In 2011, the International Society of Panreatology published the International Consensus Diagnostic Criteria for Autoimmune Pancreatitis [7]. The terms type 1 and type 2 AIP were introduced to describe the clinical profiles associated with Lymphoplasmacytic sclerosing pancreatitis (AIP without GEL) and idiopathic duct centric pancreatitis (AIP with GEL). An algorithm using clinical and the above histologic features was used to help the clinicians exclude or reach a definitive or at least a possible diagnosis of AIP.