

Groove pancreatitis: A series of 5 cases

Groove pancreatitis is a distinct form of chronic pancreatitis affecting the region between the duodenum, head of pancreas and the common bile duct.¹ The exact incidence of groove pancreatitis is not known, but it accounts for approximately 19.5%-24.4% of pancreatoduodenectomies performed to treat chronic pancreatitis.² Patients usually present with pancreatic type of chronic abdominal pain. The major differential to this condition would be peri-ampullary carcinoma or carcinoma of the head of pancreas. The diagnosis is more easily made radiologically than clinically. We present a series of 5 cases of groove pancreatitis that presented to our tertiary referral hospital in the past 6 months.

Case Reports

This series consists of 5 patients who presented with abdominal pain and had either normal levels or an insignificant rise of pancreatic enzymes. Their clinical and other features are shown in **Table 1**. The diagnosis of pancreatitis was made on the basis of pancreatic type of pain and the CT findings.³ All patients were middle-aged males (mean age: 46 yrs) presenting with recurrent abdominal pain, for durations varying from 3 months to 7 years. Loss of weight was significant in almost all the patients. One of the patients had earlier been treated for chronic pancreatitis with a Beger's duodenum-preserving pancreatic head resection that resulted in cessation of symptoms for 5 to 6 years with recurrence thereafter, for which celiac plexus block was performed which gave him symptomatic relief for 5 months. Another patient underwent celiac plexus block with splanchnicectomy for pain relief but was lost to follow up. Two of the patients were diabetic and three of them consumed alcohol in significant amounts.

Discussion

Groove pancreatitis is a relatively uncommon condition that is not very well recognized. This condition was first

described by Becker et al in 1973.³ Due to the overlap of many differential diagnoses such as heterotopic pancreas, pancreatic hematoma, and periampullary malignancies, Adsay and Zamboni proposed the term "paraduodenal pancreatitis" for this condition.⁴

The exact pathogenesis of groove pancreatitis remains unclear. The most widely accepted pathogenic mechanisms for groove pancreatitis is that it could arise due to an anatomical or functional obstruction of the minor papilla and/or an increased viscosity of the pancreatic juices caused by factors such as smoking and alcohol, which could lead to stasis of pancreatic juices causing pancreatitis. Other mechanisms include fibrous scarring due to peptic ulcer, duodenal infections or duodenal wall cyst.²

To establish a definitive diagnosis of groove pancreatitis is a daunting task. Patients with groove pancreatitis usually present with chronic abdominal pain, nausea with vomiting and weight loss. Jaundice is not a prominent symptom unless there is a common bile duct stricture. Blood tests might show a slight elevation in the pancreatic and hepatic enzymes or tumor markers carbohydrate antigen 19-9 or carcinoembryonic antigen; however these elevations are present only in few and thus are seldom useful. Upper gastrointestinal endoscopy is normal or may show an inflamed mucosa or stenosis of the duodenal lumen.⁵

Various imaging modalities are present for the diagnosis of groove pancreatitis, which include trans-abdominal ultrasonography, magnetic resonance imaging (MRI), computed tomography (CT) and endoscopic ultrasound (EUS). On abdominal ultrasonography, a hypoechoic mass is often noted adjacent to the pancreatic head with thickening of the second part of the duodenum and widening of the periduodenal interface with the pancreatic head. On a CT scan, paraduodenal pancreatitis can be manifest in four forms: 1) Solid variant - A hypoattenuating poorly enhancing soft tissue mass in the pancreatoduodenal groove with or without calcific specks. 2) Cystic variant - cysts in the duodenal wall and/or the groove may occur in isolation or as part of the solid variant. 3) Pure form - the appearance can range from ill-defined fat stranding and inflammatory change in the groove between the pancreatic head and

Table 1: Clinical and demographic features of the 5 patients

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
AGE/SEX	39/M	47/M	45/M	62/M	37/M
COMPLAINTS/HISTORY	Abdominal pain for 1 year, aggravated by meals, and associated with non-bilious vomiting, and 20 kg weight loss.	Abdominal pain for 7 years.	Abdominal pain for 3 months, aggravated by meals, loss of appetite, 5 kg weight loss.	Abdominal pain for 11 months, aggravated by meals, 7 kg weight loss.	Abdominal pain for 4 years, loss of appetite, weight loss. Required daily analgesics.
PREVIOUS TREATMENT	Tramadol SOS for pain relief	Underwent Beger's duodenum-preserving pancreatic head resection in 2007.	Tramadol SOS for pain relief	Tramadol SOS for pain relief	ERCP and pancreatic duct stenting in Dec 2012. Records of that admission not available
COMORBIDITY		Diabetes mellitus		Diabetes mellitus, hypertension	
CLINICAL EXAMINATION	Tender globular mass 10cm in diameter in epigastric region.	Upper mid line scar. Epigastric tenderness.	Vague resistance in left upper abdomen and epigastric region.	Liver palpable 4cm below costal margin.	Unremarkable
ALCOHOL USE	No	Yes	Yes	No	Yes
SMOKING	No	Yes	No	No	Yes
BILIRUBIN (mg/dL)	Total: 0.4. Direct: 0.2.	Total: 0.5. Direct: 0.2.	Total: 0.8 Direct: 0.3	Total: 0.4. Direct: 0.1	Total: 0.5. Direct: 0.2.
PROTEIN (gm/dL)	Total :8.2 Albumin :3.3	Total :6.8 Albumin:3.7	Total :8.3 Albumin:5.0	Total : 5.9 Albumin:3.3	Total : Albumin
ENZYMES (IU/L) SGOT/SGPT/ALP	30/19/110	28/18/120	19/22 /142	16/13/127	38/15/139
CT ABDOMEN (Fig 1-5)	Multiloculated thin walled cystic lesion in pancreaticoduodenal groove region, with perilesional mesenteric fat stranding and haziness around head of pancreas. Pancreatic duct measured 3 mm in the head of the pancreas.	Hypodense area in theuncinate process region with calcific specks and altered attenuation involving the pancreatic head and the adjacent pancreatico - duodenal groove with secondary changes in the periaampullary region, distal common bile duct and pancreatic duct. Pancreatic duct measured 1.8 mm in the head of the pancreas.	Findings suggestive of segmental acute on chronic pancreatitis involving uncinate process and head with involvement of the duodeno - pancreatic groove associated with cystic duodenal dystrophy. Pancreatic duct measured 3.3 mm in the head of the pancreas.	Loss of fat plane in the pancreatico duodenal groove with mucosal thickening and nodularity in the ampullary portion of the duodenum. Peripancreatic mesenteric fat stranding with minimal free fluid in the abdomen. Pancreatic duct measured 4 mm in the head of the pancreas	Thickening of duodenal wall with cystic changes in the medial wall, a small pseudocyst in the pancreatic head region with haziness in head region. No calcification or pancreatic duct dilatation, Rest of pancreas normal. Prominent common bile duct with minor stricture at lower end.
THERAPY		Celiac plexus block done.			Radiofrequency ablation of splanchnic nerve and celiac plexus block.

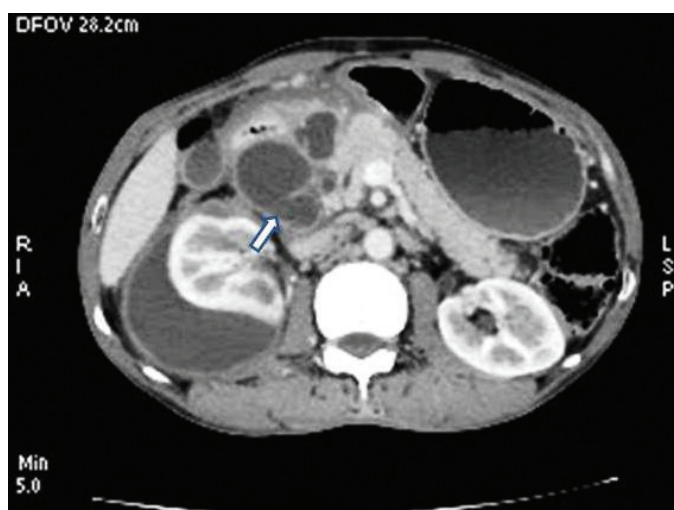


Figure 1: Axial multidetector contrast enhanced computed tomography (CECT) scan showing cysts with inflammatory changes.

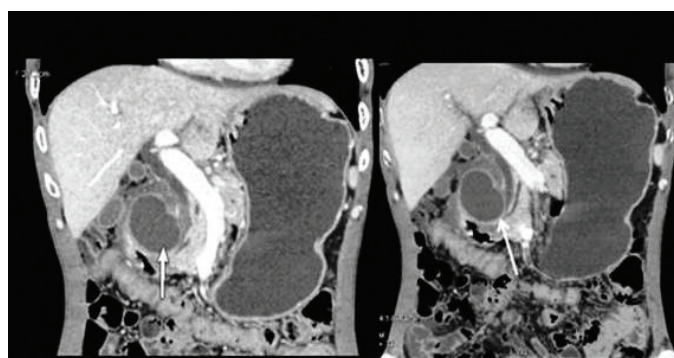


Figure 2: Axial and coronal multidetector CECT image showing inflammatory changes in the groove with cyst formation displacing the common channel (arrow) medially and the second part of the duodenum laterally.

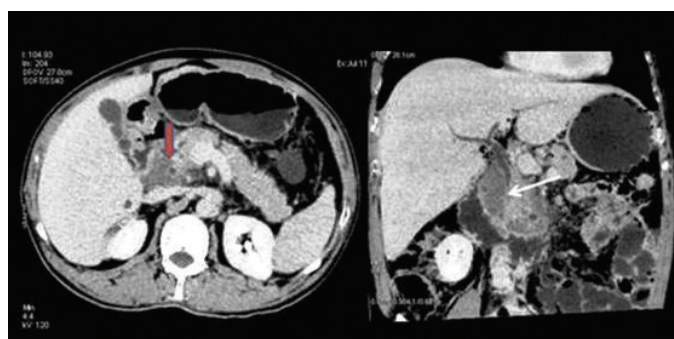


Figure 3: Axial CECT delayed images showing hypodense soft tissue in the groove (thick arrow) with smooth tapering of the distal common bile duct (thin arrow).



Figure 4: Coronal and axial CECT images showing a sheet of heterogeneously enhancing soft tissue in the groove with secondary changes in the second part of the duodenum (arrow).

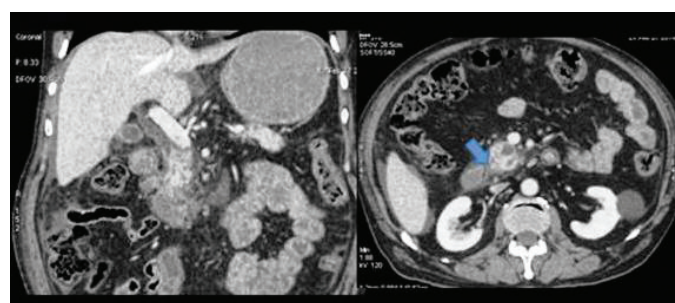


Figure 5: Coronal and axial CECT images showing irregular sheet of soft tissue in the groove (arrow).

duodenum, to frank crescentic soft tissue in the groove. 4) Segmental form - mass like enlargement of the pancreatic head is seen this form which is commonly confused with a pancreatic head mass. Ductal dilation is uncommon in groove pancreatitis, thus distinguishing it from pancreatic adenocarcinoma. MRI with MR cholangiopancreatography (MRCP) shows a sheet-like mass corresponding to the fibrous scar in the groove, which is hypointense to the pancreas on T1W images with minimal delayed enhancement on contrast enhanced MR. Cysts appear as T2 hyperintense areas. Smooth long segment common bile duct tapering can be also noted.⁶

Treatment of groove pancreatitis depends on the clinical presentation. Patients who present acutely are managed similar to those of acute pancreatitis. There are reports of pain relief after minor duct stenting but such treatments are often temporary. Surgery is the preferred approach because it may give a prolonged pain relief

and helps to rule out a pancreatic head malignancy. Surgical procedures comprise pancreatoduodenectomy (Whipple procedure) or pylorus-preserving pancreatoduodenectomy.⁷

Groove pancreatitis is often treated as chronic pancreatitis without recognition of its features, as seen in one of our patients. We present this series of five cases to draw attention to this relatively uncommon condition, which can be more easily diagnosed with advances in radiological imaging.

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