Digestive Diseases and Sciences, Vol. 51, No. 7 (July 2006), pp. 1294–1296 (© 2006)
DOI: 10.1007/s10620-006-8052-5

Pancreatic Adenocarcinoma That Mimics Groove Pancreatitis: Case Report of a Diagnostic Dilemma

CHUN-HAI TAN, MBBS,* PIERCE K. H. CHOW, MBBS, MMed, FRCS (ED), FAMS, PhD,*
CHOON-HUA THNG, MBBS, FRCR, FAMS,† ALEX Y. F. CHUNG, MBBS, FRCS (Ed), FAMS,*
and WAI-KEONG WONG, MBBS, FRCS (Ed), FAMS*

KEY WORDS: groove pancreatitis; groove pancreatic carcinoma.

Groove pancreatitis is a specific form of pancreatitis that causes sheetlike scarring of the groove area located between the pancreatic head, duodenum, and common bile duct. Although this was first described in 1973 (1), there have been few reports, possibly because of a lack of general awareness of this pathologic entity (2). The largest published report described groove pancreatitis in 30 patients of 123 patients subjected to pancreatoduodenectomy for chronic pancreatitis (3).

Patients with groove pancreatitis often present with abdominal pain and vomiting secondary to duodenal obstruction and obstructive jaundice secondary to compression of the common bile duct. It is crucial to differentiate groove pancreatitis from carcinoma developing in the groove between the pancreatic head, duodenum, and bile duct because management and prognosis are very different. This discrimination is, however, often difficult—even impossible—in some patients (4). We report a case of suspected groove pancreatitis that eventually turned out to be groove pancreatic carcinoma. The clinical and radiologic features of the conditions as well as the importance of awareness of the possibility that groove pancreatitis can mimic groove pancreatic carcinoma are discussed in this report.

Manuscript received February 20, 2005; accepted April 21, 2005.

From the *Department of General Surgery, Singapore General Hospital and the †Department of Diagnostic Radiology, National Cancer Center, Singapore.

Address for reprint requests: Dr Pierce Chow, Department of General Surgery, Singapore General Hospital, Outram Road, Singapore 169608; gsupc@singnet.com.sg

CASE REPORT

A 69-year-old woman presented to us with a 10-day history of constant epigastric pain associated with nausea but no vomiting. She had loss of appetite and had lost 5 kg over a 2-week period. She was also noticed to be jaundiced and complained of tea-colored urine with pale stools. Physical examination revealed a temperature of 37.6°C and icteric sclera. The abdomen was soft but tender in the epigastrium and no abnormal masses were palpable. Abnormal investigations were an elevated white cell count of 13.27×10^9/L and serum amylase level of 1832 U/L. Liver function tests showed elevated bilirubin of 207 UMOL/L, as well as raised alkaline phosphatase 180 U/L, alanine transaminase 373 U/L, and aspartate transaminase 202 U/L. CA19-9 was elevated at 3631 U/ML, but other tumor markers were unremarkable. The patient was initially managed as for acute pancreatitis. An ultrasound of the hepatobiliary system showed dilated intrahepatic ducts and the distal common bile duct was noted to taper distally near the pancreatic head. No biliary stones were evident on the ultrasound. An 1.8-cm nodule with indeterminate characteristics was noted in segment 6/7 of the liver.

Magnetic resonance imaging (MRI) of the abdomen was then ordered and it showed a hypointense lesion lying in the groove between the duodenum and the head of the pancreas. No cystic elements were seen within the mass. The likely diagnoses were a groove carcinoma or groove pancreatitis with biliary obstruction. The pancreatic duct was not dilated and the rest of the pancreatic parenchyma appeared normal. Multiple small rim enhancing lesions seen in the liver could represent metastases or abscesses. Endoscopic retrograde cholangiopancreaticography (ERCP) was technically difficult and attempts failed. The duodenal mucosa was, however, noted to be normal.

Because the distinction between metastases or abscesses in the liver is clinically important, fluoroguided percutaneous biopsy of 1 of the liver nodules was carried out and this yielded a histologic diagnosis of metastatic adenocarcinoma. A diagnosis of groove pancreatic carcinoma over groove pancreatitis was thus established. Meanwhile, the patient developed a temperature of 38.5°C and percutaneous drainage of the biliary tree was carried out to decompress the biliary system. Both bilirubin levels and

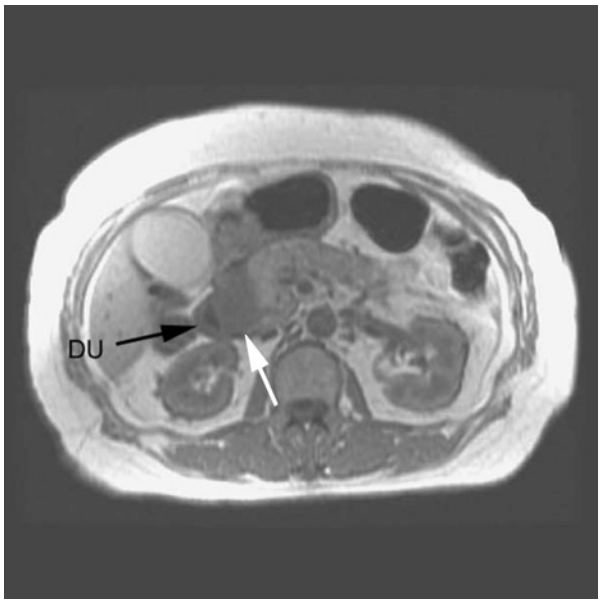

Fig 1. Precontrast axial T_1-weighted in-phase gradient echo image shows a hypointense sheetlike mass (*white arrow*) between the pancreas and the duodenum.

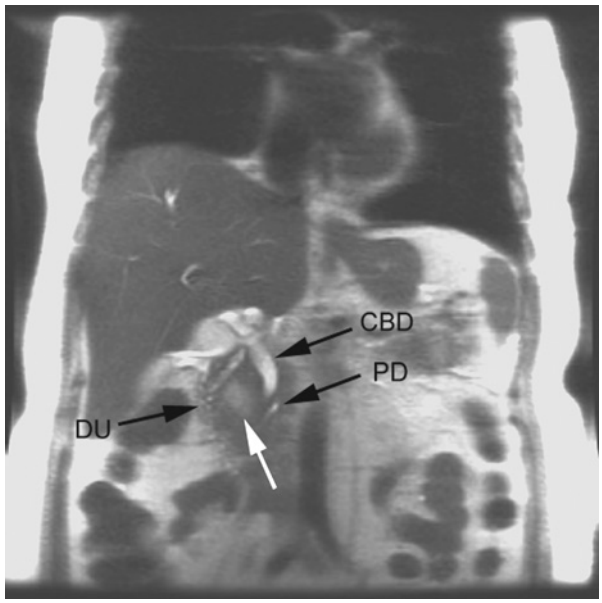

Fig 3. Coronal T_2-weighted single-shot fast spin-echo image. The mass (*white arrow*) is hyperintense on T_2-weighted scan. It is located in the groove between the duodenum and the pancreas/common bile duct (CBD). Note that the pancreatic duct (PD) is not dilated.

temperature improved and she subsequently underwent triple bypass surgery and prophylactic celiac axis injection. Intraoperative findings confirmed a bulky tumor in the groove between head of pancreas and duodenum with multiple liver metastasis. Her postoperative recovery was slow and was complicated by pneumonia; she was discharged 3 weeks later.

DISCUSSION

Groove pancreatitis is a variant form of pancreatitis in which sheetlike scarring of the groove area between the pancreatic head, common bile duct, and duodenum

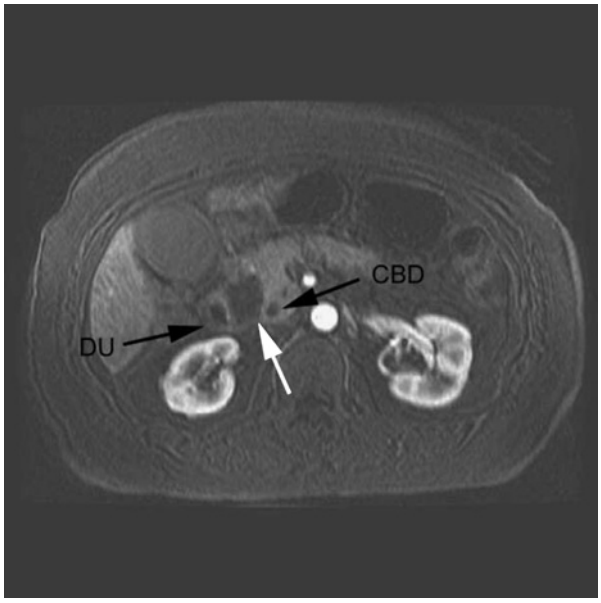

Fig 2. Hepatic arterial phase fat-suppressed axial T_1-weighted image. The mass did not show significant arterial enhancement.

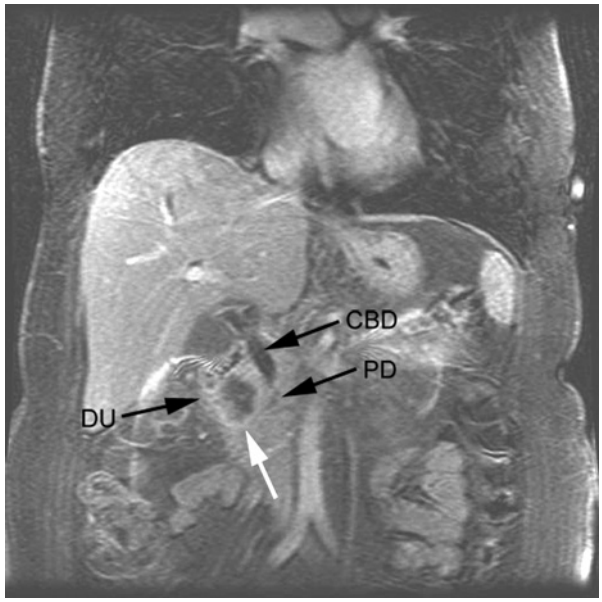

Fig 4. Late-phase fat-suppressed coronal T_1-weighted image. The mass (*white arrow*) shows progressive rim enhancement.
Abbreviations: DU, duodenum; CBD, common bile duct; PD, pancreatic duct.

occasionally mimics pancreatic carcinoma. Becker and Mischke (5) classified it into a pure form and segmental form. Groove pancreatitis in pure form involves the groove only, with preservation of pancreatic parenchyma and main pancreatic ducts. The segmental form of groove pancreatitis involves both the groove and the pancreatic head with stenosis of the pancreatic duct causing upstream dilatation. The sole peculiarity of groove pancreatitis lies in its topography and this has a bearing on the degree and spread of the diseases. Preoperative differentiation between groove pancreatitis and pancreatic carcinoma is difficult, sometimes impossible (4). In most of the cases reported previously, major surgery in the form of pancreaticoduodenectomy was performed because pancreatic carcinoma was suspected. In our case, the histologic confirmation of metastatic carcinoma in the liver pointed toward the diagnosis of metastatic pancreatic groove carcinoma and guided our decision to do a triple bypass.

Scarring of the duodenal wall and stenosis of the duodenal lumen are very common in groove pancreatitis (3), although in this patient, duodenal mucosa was noted to be normal at endoscopy. Pancreatic head carcinoma, on the other hand, arises from the epithelium of the main pancreatic duct or a side branch. When the ductal carcinoma increases in size, it usually invades the main pancreatic duct with dilatation of the distal portion. However, in the case of pancreatic carcinoma arising from the groove region, the main pancreatic duct is occasionally spared tumor invasion.

It is difficult, based on radiologic features alone, to differentiate groove pancreatitis and groove pancreatic carcinoma. Gabata *et al.* (6) report 9 cases of pathologically proven carcinoma of the head of pancreas found in the groove area whose imaging findings resembled those of groove pancreatitis. Platelike masses within the groove region were seen in all cases, which showed hypointensity on T_1-weighted images and slight hyperintensity on T_2-weighted MR images. On MRCP, stenosis of intrapancreatic common bile duct was seen in all patients, whereas stenosis of the main pancreatic duct was seen in only 3 cases. Endoscopy revealed luminal narrowing of the duodenum in all patients and duodenal mucosal biopsy demonstrated adenocarcinoma in 7 patients. Abdominal arteriography showed serrated encasement of peripancreatic arteries in 7 patients who received angiographic examinations. In our case, there was a hypointense lesion located in the groove area causing obstruction of the distal central bile duct. The main pancreatic duct was not dilated and the rest of pancreatic parenchyma was normal. Stolte *et al.* (3) report that cystic lesions, either true cysts or pseudocysts in the groove area, were frequently noted in groove pancreatitis. In this patient, no cystic features were seen within the mass on radiologic imaging. Our diagnostic dilemma was made easy by the evidence of adenocarcinoma metastatic deposits found in liver percutaneous biopsy.

Two other case reports describe the difficulty of differentiating groove pancreatitis from pancreatic groove carcinoma. Shudo *et al.* (7) reported the presence of impacted protein plugs in Santorini's duct and suggested that this is a pathogenic factor in the development of groove pancreatitis and hence such findings on ERCP are important in the diagnosis of groove pancreatitis. Suehara *et al.* (8) describe detection of telomerase activity in the pancreatic juice preceding the emergence of clinical evidence of pancreatic cancer. Telomerase activity in the pancreatic juice may be a sensitive marker for the early diagnosis of pancreatic ductal carcinoma before it is possible to detect tumors by various imaging modalities.

CONCLUSION

Although the diagnosis is difficult, it is crucial to differentiate between groove pancreatitis and groove pancreatic carcinoma because appropriate management of the 2 conditions differs significantly. Groove pancreatitis should be kept in mind as a differential diagnosis of pancreatic head tumor. Awareness of the possibility of groove pancreatitis may influence the clinician to perform further necessary investigations before radical surgery is attempted.

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