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Persistent Obstructive Jaundice Associated with Chronic Pancreatitis

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Persistent obstructive jaundice due to stenosis of the distal common bile duct by chronic pancreatitis has been documented in 13 patients of 253 for whom the diagnosis of chronic pancreatitis has been established. All 13 cases required operation; obstructive jaundice was present at surgery in nine; four had recurring jaundice for prolonged periods. None had associated biliary lithiasis. All cases showed evidence of excess alcohol intake. The jaundice, often associated with mild to moderate pain, was disabling and life-endangering and was relieved by operation. In these patients carcinoma must always be ruled out by diagnostic studies, operation, and the elapse of time. Choledochoenterostomy is considered the operative procedure of choice. Other complications of chronic pancreatitis which may also require operative procedures include pancreatic duct obstruction with disabling pain (three patients), pseudocyst formation (one patient), and duodenal obstruction (one patient).

Although jaundice occurs occasionally in patients with acute pancreatitis, it is usually transient and related to obstruction of the distal common bile duct due to edema in the head of pancreas. Obstructive jaundice may also be associated with pancreatitis related to biliary lithiasis, although at present this is rare. Alcoholic hepatitis or hepatic cirrhosis is not usually related etiologically to jaundice in a patient with alcoholic pancreatitis.

Persistent jaundice of the obstructive type is an unusual but significant complication of chronic alcoholic pancreatitis. We have observed this complication in 13 patients, in whom the obstruction was due to constriction of the intrapancreatic segment of the common bile duct secondary to scarring from chronic alcoholic pancreatic cirrhosis. Our experience indicates that obstructive jaundice, which may be intermittent in some patients, produces debilitating complications and can be relieved by choledochoenterostomy.

The anatomy of the lowest portion of the common bile duct and its relation to the pancreas are pertinent to this complication of chronic pancreatitis. In most individuals the terminal portion of the common bile duct is completely enclosed in the posterior aspect of the head of the pancreas (Fig. 1), while in others, it lies within a groove on the posterior surface of the head. The intrapancreatic segment ("pars pancreatica") can be distorted and narrowed by progressive fibrosis of the surrounding pancreatic tissue, or it can be compressed by the pressure of an enlarging pseudocyst (See Case 3).

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Clinical Material

From 1968 through 1975, 884 patients were treated for pancreatitis at Henry Ford Hospital. The diagnosis for 253 cases was chronic alcoholic pancreatitis, of whom 13 presented with persistent jaundice or recurrent obstructive jaundice related to chronic pancreatitis without associated biliary lithiasis. Of these 13 patients, 11 were known to consume large quantities of alcoholic beverages and two were suspected of this. Their ages ranged from 30 to 70 years; eight were men. Eight patients had well documented histories of many years of pancreatitis. Of the 13, nine patients had clinical and laboratory evidence of obstructive jaundice at surgery, while the other four had had recurrent episodes of jaundice. Eleven patients had histories of significant pain in the upper abdomen.

No patient showed evidence of biliary lithiasis. Five patients presented with histories of significant weight loss, and four were found to have a palpable mass in the epigastrium. Serum amylase and lipase determinations were normal in seven patients and elevated in one; serum lipase alone was elevated in four patients. When upper gastrointestinal studies were done, five patients showed widened duodenal sweep and narrowing or distortion of the second and third portions of the duodenum. The ultrasound examination demonstrated enlargement of the head of pancreas in seven of eight patients studied; diffuse enlargement was identified in one. Preoperatively, ten patients revealed constriction of the intrapancreatic segment of the common bile duct. In three patients an intravenous cholangiogram revealed a dilated common bile duct with narrowing of the lower or intrapancreatic segment. Since endoscopic retrograde cholangiopancreatography was not successful for three patients, percutaneous transhepatic cholangiogram was performed on the day of operation and also showed a distended bile duct with narrowing of the distal portion (Fig. 2). Endoscopic retrograde cholangiopancreatography was successful in five patients; it showed evidence of dilatation of the common bile duct and narrowing of the distal part. Three patients also had dilated pancreatic ducts.

Results

Surgery to relieve obstructive jaundice included choledocystojejunostomy for six patients and choledochoduodenostomy for five. Roux-en-Y pancreaticojejunostomy was performed in three patients with pain and dilation of the pancreatic duct. One patient with clinical and radiologic signs of duodenal obstruction and in whom a long narrowed segment of duodenum was found required, in addition to the biliary procedure, a gastrojejunostomy and vagotomy. A pancreatoduodenectomy relieved the jaundice of another patient, in whom carcinoma of the head of the pancreas could not be ruled out during surgery.

Absence of biliary lithiasis was confirmed during surgery in all 13 patients. Five had dilated gallbladders; nine had marked dilatation of common bile duct. Chronic pancreatitis was diagnosed by palpation in one patient and by biopsy in 12. The head of the pancreas was primarily involved in six patients, diffuse involvement was present in six, and extensive scarring and contraction in one patient. Intraoperative cholangiograms performed for three patients (Fig. 3) confirmed dilatation of the common bile duct with narrowing of the distal end. Duodenal narrowing of the first to the third portion was also found in three patients (Fig. 4), and a pseudocyst arising from the head of the pancreas was present in one patient, who required choledocho- and cholecystoduodenostomies as well as a pancreatocysto-duodenostomy.

One patient was followed for 12 years, two patients for more than seven years, three for four years, and seven for three years after operation to relieve the jaundice. These time periods excluded carcinoma as an etiologic factor. Jaundice recurred in one patient who later required gastric resection elsewhere for confirmed carcinoma originating in the stomach. When jaundice recurred, an exploratory operation performed at Henry Ford Hospital found no evi-
Jaundice With Pancreatitis

Case Reports

Case 1
This 49-year-old man with a several-year history of symptomatic chronic pancreatitis presented with jaundice and debility. Abdominal pain, according to the patient, was "unbearable." He had a history of excessive alcohol consumption. Serum bilirubin ranged between 5.4 and 9.2 mg%. Serum amylase and lipase levels were within the normal limits. Blood hemoglobin was 10.2 gm%. X-rays of the abdomen showed calcification in the region of the pancreas; an echogram identified a dilated common bile duct and gallbladder with no evidence of stones. The pancreatic duct was dilated by endoscopic retrograde cholangiopancreatography.

At operation, findings of chronic pancreatitis accompanied by a markedly dilated common bile duct, evidence of chronic cholecystitis, and no evidence of a pancreatic pseudocyst were observed. Cholecystectomy, intraoperative cholangiogram (Fig. 5), choledochoduodenostomy and partial pancreatectomy, and pancreatojejunostomy were performed.

The patient had an uneventful postoperative course. Serum bilirubin was 2.2 mg% when he was discharged from the hospital, but it subsequently returned to normal and has remained so. The patient has experienced no pain for two and one-half years.
Case 2

This 37-year-old man with chronic pancreatitis for several years, associated with alcoholism, complained of abdominal pain, nausea, vomiting, and loss of weight. He had experienced two previous episodes of jaundice and was poorly nourished. A large, tender mass in the right upper quadrant of the abdomen and epigastrium appeared to be separate from the liver. Serum alkaline phosphatase was elevated at 290 units (Normal: less than 115 units). Serum bilirubin was within normal limits; SGOT, SGPT, and LDH were slightly elevated.

X-rays revealed calcification in the pancreatic head, and an echogram showed marked enlargement of the pancreas. Compression and widening of the duodenal sweep appeared in upper gastrointestinal x-ray studies. Endoscopic retrograde cholangiopancreatography showed a dilated, tortuous pancreatic duct (Fig. 6).

A distal pancreatectomy, pancreateojunostomy, gastrojejunostomy, vagotomy, and cholecystojunostomy were performed to relieve the areas of obstruction in the intrapancreatic portion of the common bile duct. The patient had an uneventful postoperative course. He has been maintained with pancreatic replacement but has not needed insulin. When he was examined by echogram at three and six months postoperatively, the size of the pancreas had decreased (Fig. 7). The blood alkaline phosphatase (140 units) and liver enzymes have improved over a two-year period without problems.

Case 3

A 54-year-old man with a history of recurrent pancreatitis for several years was hospitalized for one year because of persistent jaundice. His serum bilirubin was 5.7 mg% and later increased to 6.7. The SGOT, SGPT, and blood phosphatase were also elevated. Echograms documented a cystic mass in the head of the pancreas. Endoscopic retrograde cholangiopancreatography demonstrated dilatation of bile duct radicals cephalad to stenosis of the lower common bile duct. The pancreatic duct was not visualized. At surgery, the patient underwent pancreateico-cystoduodenostomy, cholecystoduodenostomy, and choledochoduodenostomy. Postoperatively, except for a Gram-negative pneumonia, the patient recovered satisfactorily. The serum bilirubin decreased to 1.4 mg% by the time he was discharged. The patient has had no further jaundice and has gained weight during a four-year follow-up period; however, he has developed pancreatic exocrine insufficiency and diabetes mellitus.
Discussion
Criteria for the diagnosis of obstructive jaundice due to constriction of the common bile duct by pancreatitis include: 1) the jaundice is obstructive; 2) chronic pancreatitis is evident; 3) constriction of the intrapancreatic segment of the common bile duct is demonstrated by endoscopic retrograde cholangiopancreatography, percutaneous transhepatic cholangiography, operative cholangiography and ultrasound studies; 4) carcinoma of the head of the pancreas can be ruled out during a lengthy follow-up period. Anatomic and histologic study have not been able to define the precise nature of the obstruction; it could be due to cicatricial stenosis involving the common bile duct itself or compression by the surrounding pancreatitis which contracts around the duct. The obstruction usually involves the entire intrapancreatic segment. In one of our patients a pseudocyst in the head of the pancreas was definitely not the only cause of bile duct obstruction.

Jaundice related to alcoholic pancreatitis persisted in nine patients; four others experienced intermittent jaundice unrelated to any exacerbation of acute pancreatitis. Snape and colleagues (1) have reported partial occlusion in the distal common bile duct by calcific pancreatitis. The permanent nature of bile duct obstruction is demonstrated in one of our patients who became jaundiced again more than five years after a cholecystoduodenostomy closed, although it had relieved jaundice in the meantime. In a recent review of 125 cases of jaundice associated with pancreatitis, Bradley and Salam (2) described 13 cases needing choledochoduodenostomy to relieve permanent obstruction.

The jaundice in our patients was severe and potentially life-endangering. Weight loss and disabling pain produced a poor outlook for life, but corrective surgery reversed these changes. Although suppurative cholangitis did not occur in this series, it is a potential complication that requires emergency operation.

It was not always possible to separate pain due to bile duct obstruction from pain due to chronic pancreatitis. Mild to moderate pain that appeared with the onset of jaundice usually was relieved when the biliary tract obstruction was corrected surgically. However, for patients with long-term pain attributable to chronic pancreatitis, additional procedures to correct this problem were usually carried out. Thus, in addition to correcting obstructive jaundice, the surgeon must consider the need to eliminate the disabling pain of chronic pancreatitis.

Carcinoma of the head of the pancreas as a cause of obstructive jaundice must always be considered. Biopsy evidence and findings at operation can often distinguish an underlying carcinoma. However, this is not always possible, and a pancreaticoduodenectomy was performed for one of our patients. Also, a patient who was not included in this report died with persistent jaundice due to bile duct obstruction, but at autopsy was found to have acute pancreatitis and a carcinoma in the body of the pancreas. Therefore, the possible presence of pancreatic carcinoma cannot be ruled out, and appropriate time after by-pass operation is required to insure that carcinoma is not present.

Experience has indicated that the dilated common bile duct should be used for by-pass procedures. Although cholecystoenterostomy will usually relieve the obstructive jaundice, there is always concern that the cystic duct is involved so that jaundice cannot be adequately relieved. Also, stenosis of a cholecystoenterostomy can occur later. Although choledochoduodenostomy may be technically and physiologically simpler, choledochojejunostomy by the Roux-en-Y loop technique also has been effective.

If the alcoholism of these patients can be eliminated or controlled, their chances for recovery are greater. In particular, their nutritional levels usually improve after they stop drinking. On occasion, pancreatic exocrine deficiency and diabetes mellitus may require treatment.

Although occlusion* of the distal common bile duct by chronic pancreatitis is uncommon, it must be considered for patients with jaundice and these clinical symptoms (3-5).

References