Pancreatic Pseudocyst with Fistula to the Common Bile Duct: Radiological Diagnosis and Management

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Abstract. A patient was found to have fistulization of a pancreatic pseudocyst with the common bile duct. Resolution of the pseudocyst and the attendant biliary obstruction was achieved with percutaneous biliary drainage alone. The clinical and radiological features of this case are herein presented along with a brief review of the subject.

Key words: Pancreatitis, complications — Bile ducts, interventional procedure — Fistula, pancreatic-biliary.

Case Report

A 53-year-old man with chronic alcoholic pancreatitis presented with right upper quadrant, fever, chills and jaundice. On admission his serum total bilirubin was (155.6 µmol/L), and other laboratory abnormalities included elevated alkaline phosphatase (1480 U/L), GGT (2188 U/L), ASAT (104 U/L), and glucose (13.0 mmol/L). There was no laboratory evidence of active pancreatitis (serum amylase and lipase were normal). Ultrasound and computed tomographic (CT) examinations revealed a pseudocyst in the head of the pancreas. An endoscopic retrograde pancreatogram (ERCP) followed by CT showed communication of the large pseudocyst with the common bile duct (Figs. 1 and 2). In addition, there was smooth narrowing of the extrahepatic bile duct in its midportion. Visceral angiography revealed splenic vein thrombosis and gastric varices.

Initial treatment was by intravenous antibiotics and percutaneous biliary drainage. An 8-French Ring biliary catheter was placed with its tip in the duodenum (Fig. 3), and external drainage of bile was instituted. The patient’s symptoms improved and elective splenectomy was scheduled. Even prior to surgery it was evident by CT that the pseudocyst had been completely decompressed (Fig. 4). At the time of splenectomy excessive bleeding from venous collateral vessels was encountered, and the planned bypass was precluded. The patient was discharged with continued external diversion of bile. After 4 months without recurrent symptoms he was reexamined by cholangiography, and no residual fistula or ductal abnormality was found. The biliary catheter was removed and the patient has remained well and free of laboratory abnormalities at last follow-up, 5 months after tube removal.

Discussion

Pancreatic pseudocysts occur in approximately 20% of patients with pancreatitis, with a higher incidence in those with chronic inflammation [1]. Pseudocysts are caused by disruption of pancreatic ducts with extravasation of pancreatic enzymes and blood. Such disruption may be due either to an acute event (trauma or gallstone passage) or repeated insults from pancreatitis. About 30% of acute pseudocysts resolve spontaneously, but thick-walled chronic pseudocysts tend to persist and enlarge despite conservative therapy [2]. If untreated, both acute and chronic pseudocysts can lead to catastrophic complications, such as rupture with peritonitis, sepsis, or hemorrhage. Other less dramatic but serious complications include biliary ductal stenosis, compression of the common bile duct, and fistulization of the pseudocyst to the gastrointestional tract. Patients with persistent obstruction of the common bile duct are prone to develop cholangitis and biliary cirrhosis [3].

Although fibrotic strictures of the common bile duct due to pancreatitis and pseudocyst are common, direct compression of the duct by a pseudocyst, or fistulization of a pseudocyst to duct or other viscera are rare events [1, 4–7]. The organs most often involved with a pseudocyst fistula are colon, duodenum, stomach, and, less commonly, esopa-
Biliary fistulae are distinctly rare, and our review of the literature found only nine documented cases [5, 9–15]. In most of these reports, biliary fistulization was discovered at surgery. In only one case was it documented prior to surgery, and, in that instance, ERCP made the diagnosis. ERCP has been proposed as a study useful for the evaluation of patients with pseudocysts, to determine the status of the common bile duct and to demonstrate any possible pseudocyst communication with the main pancreatic duct or surrounding organs [6, 7]. Intraoperative cholangiograms aided many of the surgical diagnoses in the cases reviewed. None of the reported patients had undergone percutaneous drainage of the biliary system or of the pseudocyst. In our patient the biliary communication of the known pseudocyst was diagnosed by ERCP and confirmed by CT performed immediately afterward. Percutaneous biliary drainage was originally requested as a temporizing measure, to allow elective surgical bypass.

Therapy of pseudocysts and their attendant complications has been primarily surgical. More recently, percutaneous pseudocyst drainage has been used in selected cases, with reported efficacy and complication rates comparable to surgical results [16, 17]. None of the previously reported biliary fistulae was treated by a percutaneous approach. One patient found at surgery to have a pseudocyst draining into the biliary system was successfully treated by placement of a biliary decompression tube alone [14].

In our patient percutaneous drainage of the biliary system was effective in resolving both the biliary obstruction and the pseudocyst. This may be ascribed to a communication between pseudocyst and