

## CASE REPORT

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# Acute Portal Vein Thrombosis and Massive Necrosis of the Liver. An Unusual Complication After Stenting for Chronic Pancreatitis

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### ABSTRACT

**Context** ERCP can provide information which is invaluable in managing chronic pancreatitis but it is associated with infrequent, although significant, complications and rare mortality. The complications uniquely associated with diagnostic ERCP include pancreatitis and sepsis (primary cholangitis).

**Case report** A 32-year-old man presented with severe upper abdominal pain radiating to the back, associated with vomiting and abdominal distension. The patient was diagnosed as having had chronic calcific pancreatitis recently and had undergone ERCP with pancreatic duct stenting elsewhere. Two days after the procedure, the patient developed severe abdominal pain, vomiting and abdominal distention, and patient was referred to our hospital 7 days after the procedure. Investigation revealed massive liver necrosis and portal vein thrombosis. This patient had a life-threatening complication following pancreatic duct stenting for chronic pancreatitis and was managed medically.

**Conclusion** Therapeutic pancreatic endoscopy procedures are technically demanding and should be restricted to high volume centers. There is a continuing need

for evaluation and comparison with alternative strategies. In a good surgical candidate, it is better to avoid stenting.

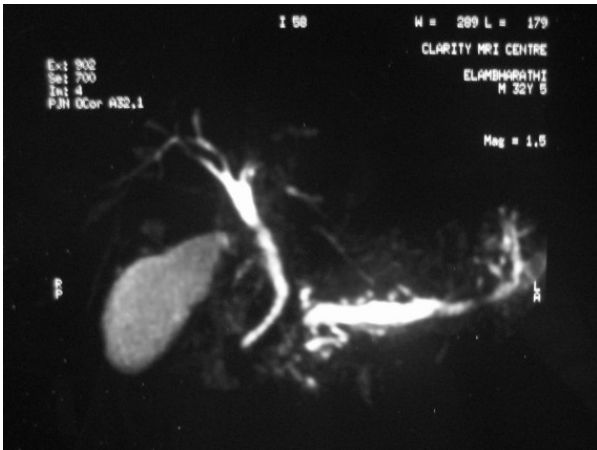
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### INTRODUCTION

ERCP can provide information which is invaluable in managing chronic pancreatitis but it is associated with infrequent, although significant, complications and rare mortality. The complications uniquely associated with diagnostic ERCP include pancreatitis and sepsis (primary cholangitis). We report an unusual complication after stenting for chronic pancreatitis, acute portal vein thrombosis and massive necrosis of the liver.

### CASE REPORT

A 32-year-old man presented with severe upper abdominal pain radiating to the back, associated with vomiting and abdominal distension. The patient was diagnosed as having had chronic calcific pancreatitis recently (Figure 1) and had undergone ERCP with pancreatic duct stenting elsewhere. Two days after the procedure, the patient developed severe abdominal pain, vomiting and abdominal distention and patient was referred to our hospital seven days after the procedure.



**Figure 1.** Pre-procedural magnetic resonance cholangiopancreatography shows a dilated main pancreatic duct and secondary ducts.

On admission, the patient was febrile, dehydrated, and icteric. Abdominal examination revealed distension, diffuse tenderness and free fluid. Liver function tests showed elevated bilirubin (18 mg/dL; reference range: 0.4-0.8 mg/dL), SGOT (800 IU/L; reference range: 0-41 IU/L), SGPT (1,000 IU/L; reference range: 0-31 IU/L), serum alkaline phosphatase (400 IU/L; reference range: 100-290 IU/L), serum total protein (6.2 g/dL; reference range: 4.0-6.0 g/dL) and albumin (2.4 g/dL; reference range: 2.0-4.0 g/dL). Serum amylase was 1,400 IU/L (reference range: 0-96 IU/L) and serum lipase was 600 IU/L (reference range: 0-190 IU/L). Upon trans-abdominal ultrasound examination, the liver showed a diffuse coarsening of echo texture. The intra- and extra-hepatic biliary passages were not dilated. The pancreas was enlarged with multiple calculi in

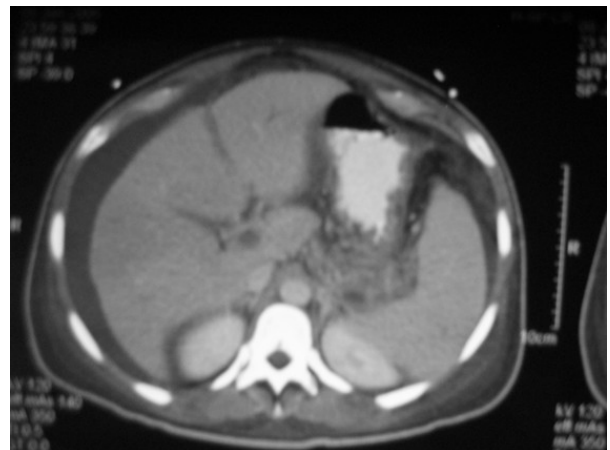


**Figure 2.** Abdominal CT scan showing acute pancreatitis with peripancreatic fluid collections.



**Figure 3.** Abdominal CT scan showing massive liver necrosis; splenomegaly is also noted.

the pancreatic duct. There was evidence of peri-pancreatic fluid collections. A contrast-enhanced computerized tomogram revealed an enlarged pancreas, the pancreatic duct was prominent and multiple peripancreatic fluid collections were noted (Figure 2). The liver showed an ill-defined hypodense area in segments VI and VII. There was evidence of thrombus in the right and the left branches of the main portal vein and splenic vein (Figures 3 and 4). The superior mesenteric vein was



**Figure 4.** Abdominal CT scan showing portal vein thrombosis.

not thrombosed. Splenomegaly, gross ascites and bilateral pleural effusion were noted. Upper gastrointestinal endoscopy revealed no varices but pus was pouring out of the ampulla; hence, an ERCP was carried out and a biliary stent was placed. There was no leak noted in the pancreatic duct. Ascitic fluid amylase was 200 IU/L. The patient was managed medically by intravenous fluids, a nasogastric tube, fresh frozen plasma and broad-spectrum antibiotics. Fourteen days after the procedure, the patient developed a fever with rigidity and generalized edema of both lower limbs. The ascitic fluid was sent for culture and sensitivity, and appropriate antibiotics given. The fever abated, but ascites persisted. Fresh frozen plasma and antibiotics were continued. Two months post-procedure, the patient developed abdominal pain and fever (high grade with rigors). An ultrasound revealed a focal organized septate collection in the umbilical region and the pelvis. The collection was aspirated by ultrasound guidance, pus was sent for culture and sensitivity, and appropriate antibiotics were started. The patient's general condition improved and abdominal distension decreased. Liver function tests returned to normal. Three months post-procedure, a contrast-enhanced computerized tomogram (CECT) was carried out; it revealed an enlarged liver with an ill-defined hypodense lesion in the right lobe of the liver. The rest of the liver was normal. The hepatic veins were normal. The spleen was enlarged. The portal vein and splenic veins were not visualized. Multiple collateral vessels were seen at the splenic hilum, short gastric and left gastric regions. The pancreatic parenchyma thinned out with a dilated MPD and calculi. Upper gastrointestinal endoscopy showed no varices. Although this patient is asymptomatic at present and is on follow-up, he may need surgery after completely recovering from the crisis.

## DISCUSSION

ERCP plays an important diagnostic and therapeutic role in the management of chronic pancreatitis. The ultimate role of these

therapeutic interventions for chronic pancreatitis will depend upon prospective randomized data demonstrating their efficacy and safety in comparison to surgery [1].

Although ERCP can provide information which is invaluable in managing chronic pancreatitis, it is associated with infrequent, although significant, complications and rare mortality. The complications uniquely associated with diagnostic ERCP include pancreatitis and sepsis (primary cholangitis). Post-ERCP pancreatitis is associated with multiple forceful pancreatic duct injections, normally while the clinician is struggling with a difficult cannulation [2].

The importance of post ERCP pancreatitis cannot be overstated. Prospective studies have reported an overall pancreatitis rate of 1-15% [3, 4, 5, 6, 7, 8, 9]. Most cases are mild, but severe, life-threatening pancreatitis can occur. Diagnostic ERCP is associated with a 1.38% complication rate and 0.21% mortality. On the other hand, therapeutic ERCP was associated with a 5.8% incidence of major complications and a 0.49% mortality rate. Other than pancreatitis and cholangitis, the major complications seen after therapeutic ERCP include hemorrhage, duodenal perforation (with retro-peritoneal sepsis) and several other rare complications [10].

Our patient developed severe acute pancreatitis after ERCP and pancreatic duct stenting, and developed a rare life-threatening complication due to sequelae of acute pancreatitis. Yamashita *et al.* reported hepatic infarction together with a portal thrombus in a patient with chronic pancreatitis and cirrhosis; this patient died from hepatic failure and the autopsy revealed splenic and portal vein thrombosis, multiple hepatic infarction and evidence of chronic pancreatitis. They reported that the main risk factors of portal thrombosis are liver cirrhosis and chronic pancreatitis; our patient had chronic pancreatitis, but did not have portal vein thrombosis in the pre-procedural investigations [11].

We were the first to report another rare but life-threatening complication presenting as massive hemoptysis following ERCP and ESWL in a patient with chronic pancreatitis,

which was due to a splenic artery pseudo aneurysm. This patient needed surgical management for correction of the problem [12].

The potential application of endoscopic treatment is limited to a subgroup of patients with amenable pancreatic ductal anatomy. These are patients with dilated pancreatic ducts who also have a single dominant stricture or obstructing stone in the head of pancreas, with dilation of the duct upstream to the stone or stricture [13]. Our patient had multiple stones and a dilated pancreatic ductal system making him a good surgical candidate and stenting was perhaps not the correct choice.

In a surgical candidate, pre-operative pancreatic stents increase operative mortality. Patients undergoing pancreatic stenting who require surgical drainage at a later point have a threefold increased risk for peri-operative complications. An increase in intra-abdominal complications is related to stent associated pancreatic duct injuries, stent occlusion and bacterial colonization of the stent. [14].

Therapeutic pancreatic endoscopy procedures are technically demanding and should be restricted to high volume centers; there is a continuing need for evaluation and comparison with alternative strategies [15]. In a good surgical candidate, it is better to avoid stenting.

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**Keywords** Cholangiopancreatography, Endoscopic Retrograde; Massive Hepatic Necrosis; Pancreatitis, Chronic

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