

CASE REPORT

An Intra-Hepatic Pancreatic Pseudocyst Successfully Treated by Endoscopic Transpapillary Drainage Alone

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ABSTRACT

Context An intra-hepatic pseudocyst is a very rare complication of acute and chronic pancreatitis with less than thirty cases described in the literature. Successful resolution of intra-hepatic pseudocysts with endoscopic transpapillary nasopancreatic drain placement has not previously been described.

Case report We report the case of a 34-year-old male with chronic idiopathic non-calcific pancreatitis, anomalous pancreatobiliary junction and a large intra-hepatic pancreatic pseudocyst along with a large abdominal pseudocyst who was successfully treated by endoscopic transpapillary nasopancreatic drainage alone.

Conclusion Pancreatic pseudocysts can present as intra-hepatic cystic lesions and communicating intra-hepatic pseudocysts can be successfully treated by endoscopic transpapillary nasopancreatic drainage alone.

INTRODUCTION

An intra-hepatic pancreatic pseudocyst is a very rare complication of pancreatitis with less than thirty cases described in the published literature; most of these cases have

been managed surgically or by percutaneous drainage [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]. A search of the literature did not disclose any published reports on the endoscopic management of intra-hepatic pancreatic pseudocysts. We describe the case of a 34-year-old male with chronic idiopathic non-calcific pancreatitis, anomalous pancreatobiliary ductal junction and a large intra-hepatic pancreatic pseudocyst along with a large abdominal pseudocyst who was successfully treated by endoscopic transpapillary nasopancreatic drainage alone.

CASE REPORT

A 34-year-old male presented with a dull pain of 3 month duration localized in the upper abdomen. There was no history of alcohol ingestion, use of parenteral analgesics, acute abdominal pain or abdominal trauma. On examination, the liver was palpable 3 cm below the costal margin.

Investigation revealed normal hemoglobin, total leukocyte count, liver function tests, renal function tests and serum electrolytes. Serum amylase, calcium and triglyceride levels were within normal limits. Ultrasonogram (US) and contrast-enhanced computerized tomography (CECT) of the abdomen revealed a cystic collection of 7 cm diameter near the tail of pancreas and a 9 cm cystic collection in the left lobe of the liver



Figure 1. Contrast-enhanced computerized tomography (CECT) of the abdomen reveals a large intra-hepatic pseudocyst (arrow) along with an intra-abdominal pseudocyst.

(Figure 1). No gallstones were noted on US. US-guided fine needle aspirate from the hepatic lesion yielded clear fluid with an amylase level of 16,200 IU/L (reference range: 0-160 IU/L) and a total bilirubin level of 0.4 mg/dL (reference range: 0.2-1.0 mg/dL). Upper gastrointestinal endoscopy revealed no esophageal or gastric varices. Informed consent was obtained and endoscopic retrograde cholangiopancreatography (ERCP) was performed. The major papilla was cannulated and a pancreatogram

revealed an anomalous long common channel; the pancreatic duct was dilated and irregular, with the contrast leaking from the disruption at the tail end of the pancreatic duct and tracking towards the intra-hepatic and intra-abdominal pseudocysts (Figure 2) which indicated a diagnosis of chronic pancreatitis. Due to high amylase and low bilirubin levels in the aspirated fluid from the intra-hepatic cystic lesion along with the disruption at the tail end of the pancreatic duct which communicated with both cystic lesions, a diagnosis of communicating intra-hepatic and intra-abdominal pancreatic pseudocysts which complicated the chronic idiopathic non-calcific pancreatobiliary ductal junction was made. As the disruption was located in the tail region and we intended to place the transpapillary nasopancreatic drain (NPD) across the disruption, a 5 Fr NPD was placed across the disruption. Following this, the patient had a gradual subjective improvement and the abdominal pain subsided. Serial ultrasonograms revealed a progressive decrease in the size of both pseudocysts. After 6 weeks of NPD placement, a repeat CECT of the

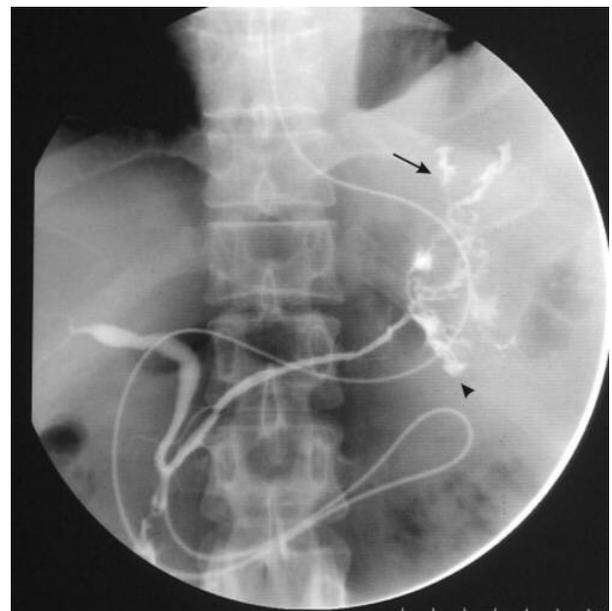


Figure 2. A nasopancreatogram shows a dilated and irregular pancreatic duct with disruption at the tail region and the contrast seems to track towards the pseudocyst in the left lobe of the liver (arrow) and the intra-abdominal pseudocyst (arrowhead). A long common channel is also noted.

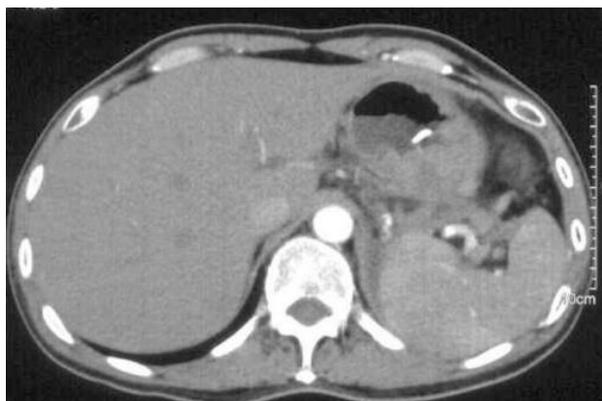


Figure 3. Contrast-enhanced computerized tomography (CECT) of the abdomen at 6 weeks documents complete resolution of the intra-hepatic and the intra abdominal pseudocysts.

abdomen revealed complete resolution of both pseudocysts (Figure 3). The pancreatogram obtained through the NPD (nasopancreatogram) after 6 weeks demonstrated healing of the ductal disruption (Figure 4) and the NPD was removed. After 6 months of follow up, the patient is symptom-free.

DISCUSSION

Pancreatic pseudocysts have been described in virtually every organ depending upon where the activated pancreatic enzymes are released and what path enzymatic digestion takes, but an intra-hepatic pancreatic pseudocyst is a very rare complication of chronic pancreatitis with less than 30 cases described in the literature [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11].

Intra-hepatic pseudocysts are usually single and most commonly involve the left lobe, but multiple intra-hepatic pseudocysts have also been described [4, 6, 8]. Two pathophysiological mechanisms have been described for the intra-hepatic extension of pseudocysts [1, 6]. The first mechanism consists of the accumulation of the pancreatic juice in the pre-renal space and thereafter eroding through the posterior layer of the parietal peritoneum and into the lesser sac. The lesser sac collection then tracks along the lesser omentum or gastrohepatic ligament toward the liver leading to the formation of left lobe subcapsular collections as seen in our

case [6]. The second mechanism consists of tracking the pancreatic juice along the hepatoduodenal ligament from the head of the pancreas to the porta hepatis resulting in the formation of intraparenchymal collections [1]. An intra-hepatic pseudocyst which formed as a consequence of both these mechanisms is associated with different imaging findings. Subcapsular pseudocysts formed as a result of the first mechanism are located just beneath the liver capsule and are biconvex in shape. Intraparenchymal pseudocysts formed as a result of the second mechanism are located away from the liver capsule and are located near the porta hepatis branches [2].

Diagnosing an intra-hepatic pseudocyst is difficult as it is usually not considered in the differential diagnosis of cystic hepatic lesions. Moreover, when an intra-hepatic pseudocyst develops long after an episode of pancreatitis, or when the pancreas appears normal on imaging studies, it is rarely diagnosed. The aspiration of amylase-rich fluid and the documentation of a communication with the disrupted pancreatic duct on ERCP will confirm the diagnosis of an intra-hepatic pseudocyst as illustrated in the present case.

There are no definite guidelines on the management of intra-hepatic pseudocysts. Surgical drainage or radiologically guided percutaneous drainage/aspiration has been

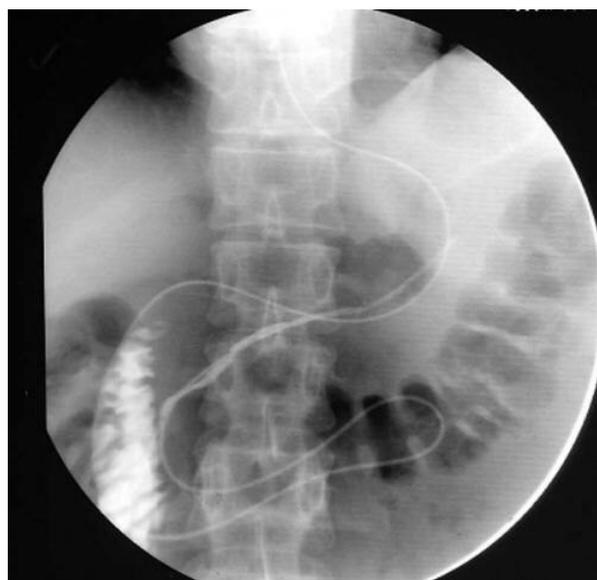


Figure 4. A nasopancreatogram at 6 weeks reveals healing of the ductal disruption.

successfully used for the management of intra-hepatic pancreatic pseudocysts [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11].

While there are reports that endoscopic procedures such as transpapillary and transmural (transgastric and transduodenal) drainage have been successful in the management of pancreatic pseudocysts [12, 13, 14, 15, 16], there are no reports on the endoscopic management of intra-hepatic pancreatic pseudocysts. We have described a case of idiopathic chronic pancreatitis complicated by intra-hepatic and intra-abdominal pseudocysts which were successfully treated with endoscopic transpapillary nasopancreatic drainage alone. As in the case of a stent, the placement of a transpapillary nasopancreatic drain could facilitate the healing of ductal disruptions by partially occluding the leaking duct or by traversing the pancreatic sphincter converting the high-pressure pancreatic duct system [17] to a low-pressure system with a preferential flow through the NPD.

There are no studies in the published literature which have compared the efficacy of a transpapillary stent with nasopancreatic drainage. While we prefer a stent over an NPD for pancreatic duct strictures, pancreas divisum and a single pancreatic pseudocyst, we employ a nasopancreatic drain for patients with complex clinical situations such as communicating multiple pancreatic pseudocysts, ascites and pleural effusion, where we feel that an NPD gives us the following advantages:

- a. a blocked NPD can be opened up by flushing and aspiration and therefore obviating the need of a repeat ERCP and stent replacement as in the case of a blocked stent;
- b. repeated pancreatograms can be obtained to demonstrate the healing of ductal disruption without resorting to repeated ERCPS;
- c. after demonstrating the healing of duct disruption after performing an NPDgram, an NPD can be removed without necessitating another endoscopy.

These advantages outweigh patient discomfort caused by an NPD and our patients tolerated an NPD well.

To conclude, an intra-hepatic pancreatic pseudocyst is a rare complication of chronic pancreatitis and conventional treatment is surgical or radiological drainage. However, transpapillary drainage in a communicating intra-hepatic pancreatic pseudocyst may be successful.

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Keywords Cholangiopancreatography, Endoscopic Retrograde; Liver; Pancreatic Pseudocyst; Pancreatitis; Tomography, Emission-Computed

Abbreviations CECT: contrast enhanced computerized tomography; NPD: nasopancreatic drain

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