Hepatic Abscess: A Rare Presentation of Sump Syndrome After Choledochojunostomy

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ABSTRACT

Sump syndrome is a rare complication of choledochoenterotomy. Patients with sump syndrome often have abdominal pain, recurrent cholangitis, pancreatitis, malabsorption, fever, an abnormal liver function test, and, rarely, hepatic abscess. Roux-en-Y choledochojunostomy or hepaticojunostomy has been advocated to prevent sump syndrome. We report an 80-year-old man who presented with a hepatic abscess secondary to sump syndrome 26 years after a Roux-en-Y choledochojunostomy for recurrent cholangitis. Sump syndrome should be considered for patients who underwent biliary diversion surgery, regardless of the type of procedure or time from surgery.

INTRODUCTION

Before the development of endoscopic retrograde cholangiopancreatography (ERCP), the management of a common bile duct (CBD) obstruction was accomplished by a side-to-side choledochoduodenostomy. Occasionally, the bile duct distal to the anastomosis would collect enough debris over time ("sump") to obstruct the opening between the CBD and duodenum.1 Patients with sump syndrome often have abdominal pain, recurrent cholangitis, pancreatitis, malabsorption, fever, an abnormal liver function test, and, rarely, hepatic abscess.2–4 Roux-en-Y (RNY) choledochojunostomy or hepaticojunostomy has been advocated to prevent sump syndrome by either creating a larger opening for biliary flow or a complete diversion of biliary flow. We report an 80-year-old man who presented with a hepatic abscess secondary to sump syndrome 26 years after a side-to-side RNY choledochojunostomy.

CASE REPORT

An 80-year-old man with a loop recorder presented to our emergency department with a week-long history of fever but no other complaints. Comorbidities included contrast allergy, chronic kidney disease, and coronary artery disease. His surgical history was significant for a left hemicolectomy for diverticulitis, cholecystectomy, recurrent cholangitis treated with biliary stent, and RNY choledochojunostomy (the duodenum could not be used because of edema) for failed biliary stent, all of which took place in the late 1980s. The patient also had a radiologic history of multiple small liver abscesses that spontaneously resolved approximately 1 year earlier. Physical examination was only significant for a dental abscess, which was deemed to be the source of infection. He was admitted to the hospital and started on broad-spectrum antibiotics. Initial leukocytosis was 18,300/m3, which by the fourth day of hospitalization, stabilized at 19,500/m3. Blood cultures grew Prevotella loescheii, and he was discharged to home on 10-day course of amoxicillin-clavulanate with an outpatient dentistry follow-up.

The patient returned the following day because of altered mental status. Physical examination and vital signs were unremarkable, but leukocytosis had worsened to 20,100/m3. Alkaline phosphatase was elevated to 630 U/L with normal transaminase levels. A computed tomography (CT) scan of the abdomen showed a 6.5-cm abscess in the right lobe of the liver.
A percutaneous drain was placed by interventional radiology, and 15 cc of pus was expressed. Leukocytosis trended upward to 25,500/m³, and the patient underwent an ERCP for suspected cholangitis. A widely patent choledochoenterostomy was noted, and filling defects in the distal CBD were consistent with the sump syndrome (Figure 2). An endoscopic sphincterotomy with balloon extraction was performed (Figure 3).

The patient’s liver function tests improved, and the leukocytosis resolved. Cultures grew *Klebsiella pneumoniae*, *Citrobacter freundii*, *Escherichia coli*, *Streptococcus viridans*, and *Pseudomonas aeruginosa*. He was discharged to home on a 4-week course of intravenous levofloxacin and metronidazole. Four days later, he returned because of extreme fatigue and poor oral intake. He had leukocytosis of 18,000/m³, and a CT scan showed increased size of the hepatic abscess. The hepatic drain no longer had any output. The patient was admitted, and the interventional radiologist upsized the drain. Broad-spectrum antibiotics were started. A contrast CT or magnetic resonance image could not be obtained because of the patient’s history of contrast allergy, chronic kidney disease, and a loop recorder.

**Figure 1.** (A) Axial view and (B) coronal view of the hepatic abscess (perimeters indicated by white arrows).

**Figure 2.** Endoscopic retrograde cholangiopancreatography immediately after contrast injection. Small bowel lumen with plicae circularis (white triangles), anastomosis site (dashed circle), mid-common bile duct and distal common bile duct with intact major papillae (solid circle) and debris/stone collection immediately postanastomosis (solid white arrow) creating a “sump”. Drain in the abscess is also shown (black arrow).

**Figure 3.** A wire with balloons is passed through an intact common bile duct (dashed black arrow) into the roux limb of the choledochojejunostomy and loops back out (solid black arrows) through the anastomosis (solid circle) to enter the biliary tree (dashed white arrow). Staples from the remote cholecystectomy near the anastomosis site.
The surgical service recommended a long-term antibiotics and percutaneous drain. The patient was discharged to a nursing home on 6 weeks of intravenous antibiotics. The drain was removed because of no output. He completed antibiotics and was discharged home. Follow-up CT of the abdomen 6 months later showed that the hepatic abscess had decreased in size, and a year later, completely resolved.

DISCUSSION

Sump syndrome is an uncommon condition with an incidence of 0.4%–15.7% after choledocho-duodenostomy and less commonly after a cholecchojejunostomy. In an end-to-side choledochojejunostomy, the CBD is ligated, and consequently, there is no distal stump to form a "sump" (Figure 4). With side-to-side choledochojejunostomy, as was done with our patient, the CBD distal to the anastomosis is intact and can become a "sump" (Figure 5). Our patient's ERCP findings showed the sump and the presence of a side-to-side RNY choledochojejunostomy, despite the absence of the original operative report or enhanced imaging modalities. Sump syndrome after hepaticojejunostomy has been reported. In 1 case, fistula formation between a cystic duct and the jejunal Roux limb proximal to the anastomosis led to a sump syndrome. In another report, a migration of food stuff into a short Roux limb resulted in cholangitis, although this is not a true "sump" development. Proper drainage of the abscess is the most important component of therapy. Endoscopic sphincterotomy with balloon clearance of stones and debris is the treatment of choice. However, we could not resolve the abscess using this approach, likely because of thick and purulent material in the abscess, which was also the likely explanation for the failed percutaneous drain. Subsequently, the patient declined the next step, surgical intervention.

We believe that our patient had chronic sump syndrome. Chronic biliary stasis probably created small fistulous communications between intrahepatic ducts, leading to a hepatic abscess. This belief is supported by the finding of contrast entry into the abscess during the initial ERCP. The patient's history of small transient hepatic abscesses was probably because of chronic intermittent biliary stasis, which likely resolved as the bile flow improved. The patient's initial presentation was unusual in that he did not have the typical symptoms associated with sump syndrome. Most reported cases presented with chronic and intermittent symptoms. This unusual presentation caused the initial treatment to focus on his dental abscess rather than possible gastrointestinal etiology. Currently, indications for these procedures include recurrent cholangitis, chronic hepatitis, and liver transplant. Sump syndrome should be in the differential diagnosis of patients with a history of biliary diversion surgery, regardless of the type of procedure or time from surgery.

DISCLOSURES

Author contributions: H. Kim wrote the manuscript and is the article guarantor. D. Triplett edited the manuscript. S. Kauffman provided the images. G. Beck approved the final manuscript.

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