Splenic abscess complicating endoscopic retrograde cholangiopancreatography

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ABSTRACT

We present a case of splenic abscess as a probable complication following endoscopic retrograde cholangiopancreatography (ERCP). Based on a literature review, there have been 11 documented cases of splenic injury following ERCP; however, only one of those involved splenic abscess. Proposed mechanisms of injury and abscess are likely a combination of complicating factors, including manipulation of the endoscope in patients with a history of chronic pancreatitis and/or previous abdominal surgeries.

KEYWORDS Endoscopic retrograde cholangiopancreatography; methicillin-sensitive *Staphylococcus aureus*; pancreatitis; splenic abscess

Splenic abscesses are rare, with an estimated incidence of 0.14% to 0.7% of hospitalized patients based on autopsy studies.¹ If left untreated, they are often fatal. Abscesses of the spleen are commonly a result of seeding from bacterial endocarditis due to *Streptococcus* species followed closely by *Staphylococcus aureus*. Due to the high mortality rate, splenectomy with adjuvant antibiotic therapy remains the main treatment. In rare circumstances, percutaneous intervention can be utilized; however, this treatment is based on limited evidence in patients with small abscesses (≤ 3 cm) or those who are deemed high surgical risk. The purpose of this article is to make clinicians aware of a rare and serious complication following endoscopic retrograde cholangiopancreatography (ERCP).

CASE REPORT

A 39-year-old man (height 1.68 m, weight 78.2 kg, body mass index 27.8 kg/m^2) with hypertension, gastroesophageal reflux, type 2 diabetes mellitus, and chronic pancreatitis secondary to alcohol use presented with a 2-day history of abdominal pain, nausea, and emesis. The pain quality was described as sharp and located in the epigastric and left upper quadrant with radiation to the back. Six days prior to presentation, ERCP was performed with a pancreatic duct stent exchange as well as removal of several pancreatic stones without noted complications. His last reported alcoholic exposure was 6 months prior to presentation. When compared with previous imaging, computed tomography (CT) of the abdomen demonstrated placement of a pancreatic duct stent, multiple pancreatic

calcifications with minimal peripancreatic stranding suggestive of mild acute-on-chronic pancreatitis, and interval development of a 7.7-cm hypoattenuated lesion located along the inferior portion of the spleen, reflective of infarct versus abscess (Figure 1).

During hospital admission, the patient met sepsis criteria and was started on vancomycin and piperacillin/tazobactam. Initial laboratory work was significant for a white blood cell count of $15.7 \times 10^9/\text{L}$ (with a granulocytic predominance), hemoglobin 13.6 g/dL, hematocrit 40.6%, and platelets of $509 \times 10^9/\text{L}$. His lipase (11 IU/L) and lactic acid (1.7 mmol/L) were within normal laboratory reference range. Surgery was consulted but elected for conservative management. Due to the large size of the abscess, the decision against surgical intervention, sepsis, and overall clinical presentation, the decision was made to request drain placement by interventional radiology. A 10-French catheter was successfully placed without complication. Wound cultures grew methicillin-sensitive *Staphylococcus aureus*. Antibiotic therapy was de-escalated to amoxicillin/clavulanic acid at the time of discharge with close follow-up. Blood cultures drawn at admission remained negative.

Thirty days after discharge, the pancreatic stent was removed due to continued abdominal pain. Approximately 2 weeks after stent removal, the patient noted purulent drainage from the catheter drain and was readmitted. Repeat imaging revealed a persistent but shrunken abscess. Repeat wound cultures were obtained. A transthoracic echocardiogram ruled out infective endocarditis and was negative for valvular

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Figure 1. CT, both (a) axial view and (b) coronal view, showing hypoattenuation of the spleen, measuring approximately 7.7 cm (arrows). Pancreatic calcifications are also present (arrowhead).

vegetations. Wound cultures grew methicillin-sensitive *Staphylococcus aureus*, *Enterococcus faecalis*, and *Escherichia coli*. He was treated with 3 weeks of intravenous ampicillin/sulbactam. The drain was eventually removed and repeat CT imaging showed resolution of the abscess.

DISCUSSION

Though rare, splenic abscess is presumed to be a complication following ERCP, as evidenced by several case reports.^{2–4} It should be noted that scopes are routinely cultured to screen for pathogens. The proposed mechanism by which abscess or injury occurs is via microvascular tears obtained during instrumentation. One theory for mechanism of injury is through the induction of microvascular tears transmitted via mechanical stresses initially placed on gastric mucosa during torsion maneuvers of the endoscope. This is due to the close proximity of the spleen to the stomach. These stresses could be further exacerbated by adhesions formed following previous abdominal surgeries or manipulations. These adhesions limit free mobility of the spleen, keeping it in close proximity to the stomach. Previous case reports of splenic injury share a commonality in that all patients were diagnosed with chronic pancreatitis.³ It is believed that increased inflammation from the pancreatitis can spread to the spleen due to close proximity, resulting in an increased rate of complications. It is also likely that other chronic diseases such as diabetes or immunocompromising conditions

could predispose patients to a higher likelihood of developing such complications.

This case is unique because only one other case of splenic abscess complicating ERCP has been reported. Nearly all other previously reported complications were related to splenic injury and/or hematoma formation as opposed to an abscess. Because of the high mortality rate, splenic abscesses should be identified quickly. Splenectomy or drainage of the abscess with adjuvant antibiotic therapy should be performed in a timely manner. When undergoing procedures such as ERCP, risks and benefits should be carefully weighed, particularly in cases of chronic pancreatitis. Awareness of this rare complication in such cases is important in quickly diagnosing injury or abscess.

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