

Emergency Imaging

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Figure 1



Figure 2

A 63-year-old woman with a history of cholecystectomy presents to the emergency department with severe, sharp, right upper quadrant and epigastric pain that has been present for 1 day. Associated symptoms include nausea and vomiting. Physical exam reveals right upper quadrant tenderness to palpation without signs of peritonitis.

A right upper quadrant ultrasound is performed at bedside and does not reveal any abnormality. A CT examination with intravenous and oral contrast is ordered to evaluate for pancreatitis (Figures 1 and 2).

What is your diagnosis?

What is the most appropriate imaging study to obtain next?

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ANSWER



Figure 3



Figure 4

The axial CT image reveals a round collection of air and debris (white arrows, Figure 3) directly adjacent to the second portion of the duodenum (red arrow). Note that the pancreas, which is well depicted on the same image (red asterisk), is normal. The coronal image confirms the collection (white arrows, Figure 4) and its relationship to the duodenum (black arrow). The coronal image also demonstrates inflammation (red asterisk) in the surrounding fat and mild dilatation of the intrahepatic

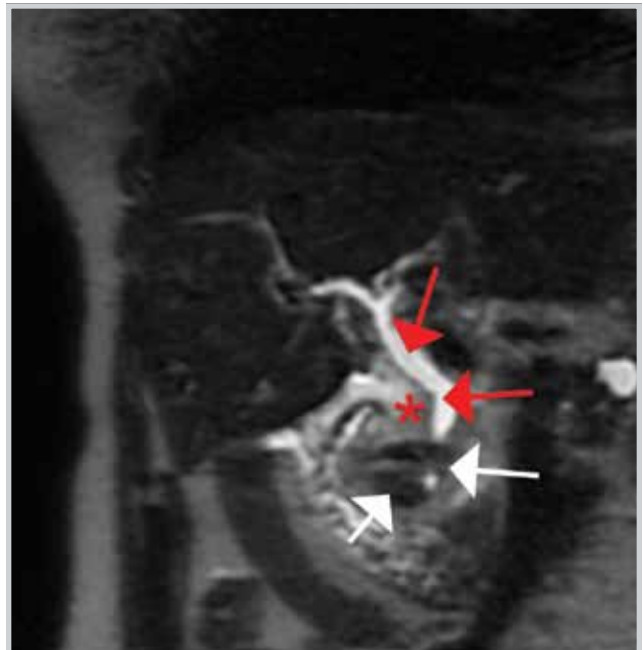


Figure 5

bile ducts (red arrows). These findings indicate the presence of duodenal diverticulitis.

Duodenal diverticula are acquired lesions that are most commonly incidental findings on CT examinations. While some autopsy reports suggest duodenal diverticula are present in up to 22% of the population, only 1% or less produce complications requiring treatment.^{1,2} Duodenal diverticula most commonly arise from the second part of the duodenum, likely due to inherent weaknesses in the wall at the duodenal entries of the pancreatic and biliary ducts.³ The most common complications include perforation, gastrointestinal hemorrhage, diverticulitis, and biliary obstruction.⁴ Given their common juxta-ampullary location, duodenal diverticula can be associated with biliary obstruction and ascending cholangitis (Lemmel syndrome). MRI/magnetic resonance cholangiopancreatography (MRCP) is the test of choice to evaluate for this condition. A coronal T2-weighted image from a MRCP evaluation performed in this patient revealed the proximity of the collection (white arrows, Figure 5) to the common bile duct (red arrows) and associated inflammation (red

asterisk). This explains the biliary duct dilatation seen on the CT image (Figure 4).

Timely diagnosis of duodenal diverticulitis and the more emergent concomitant biliary obstruction and ascending cholangitis is essential to reduce morbidity and allow appropriate treatment to be initiated. Laboratory evaluation can be nonspecific because reactionary pancreatic inflammatory changes from duodenal diverticulitis can cause elevated pancreatic enzymes in one-third of patients.⁴ In the absence of cholangitis, duodenal diverticulitis is managed conservatively with parenteral antibiotics.⁵ In the presence of secondary cholangitis, management consists of endoscopy with sphincterotomy of the ampulla and stenting of the common bile duct, along with administration of parenteral antibiotics.⁶

Because the patient presented in this case had evidence of biliary duct dilatation, she was placed on an-

tibiotics and underwent endoscopic retrograde cholangiopancreatography and stenting. She was subsequently discharged following a short hospital stay with all symptoms resolved. **EM**

References

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