Gallbladder Fossa Abscess Masquerading As Cholecystitis Post Cholecystectomy

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Abstract:

We present a case of a 59-year-old female, status-post cholecystectomy, found to have an abscess within the gallbladder fossa. A hepatobiliary scan utilizing technetium 99m-DISIDA demonstrated a characteristic ‘rim sign’; a photopenic defect surrounded by a rim of mildly increased activity immediately adjacent to the gallbladder fossa. The ‘rim sign’ visualized is thought to be the result of reactive inflammatory findings in the hepatic tissue adjacent to a postoperative abscess within the gallbladder fossa.

Keywords: hepatic abscess, liver abscess, hepatobiliary abscess, correlative imaging

Hepatobiliary scintigraphy is a reliable noninvasive technique for the detection of postoperative bile leak as well as other hepatobiliary pathology. The visualization of the ‘rim sign’ on hepatobiliary scintigraphy...
is a fairly specific finding of acute cholecystitis. Here we present a case of a postoperative abscess in the gallbladder fossa following a cholecystectomy, resulting in a ‘rim sign.’

Case Report:

In this article we describe a 59-year-old female with a ‘rim sign’ resulting from a postoperative abscess in the gallbladder fossa following open cholecystectomy. The patient had a remote history of gastric bypass and underwent an unsuccessful ERCP for suspected choledocolithiasis, followed by placement of a percutaneous cholecystostomy drain and subsequent cholecystectomy. Twenty-four days postoperatively the patient was seen in her primary care physician’s office and had persistent leukocytosis despite absence of abdominal pain or systemic symptoms. An ultrasound done the same day revealed pneumobilia, common bile duct measuring 1.3 cm, and dilated intrahepatic and pancreatic ducts. Abdominal CT with contrast showed a complex fluid collection with some air in the gallbladder fossa thought to be either a biloma or abscess. A hepatobiliary scan was performed which showed no evidence of biloma, however a photopenic defect surrounded by a rim of mildly increased activity within the liver immediately adjacent to the gallbladder fossa was demonstrated.

Discussion:

While hepatobiliary scintigraphy is typically used to evaluate pathology or postprocedural iatrogenic injury of the biliary tree and gallbladder (1), it may also demonstrate any abnormality in hepatic parenchymal tissue. The photopenic area in the gallbladder fossa does not show any filling of the radiotracer and is surrounded by increased activity in the pericholecystic area known as a ‘rim sign,’ which is seen in approximately 32% of patients with acute cholecystitis and has a positive predictive value of 94% when seen in conjunction with nonvisualization of the gallbladder (2). The ‘rim sign’ occurs secondary to several mechanisms such as increased blood flow and extraction of radiotracer by the liver as well as decreased clearance from edema and inflammation of biliary canaliculi leading to bile stasis (3).

Since the ‘rim sign’ is typically associated with a more emergent clinical picture, the importance of obtaining a proper patient history and correlative imaging cannot be underestimated in this case. If, for example, the scintigraphic findings were taken in isolation from a septic and unresponsive patient whose medical history was unavailable, the reader may erroneously identify this as a case of acute cholecystitis. This would, of course, be impossible due to the prior cholecystectomy, leaving the much more likely diagnoses of bile leak or hepatic abscess in the differential. On abdominal CT, a surgical clip is seen at the proximal cystic duct which may hint that not only was a prior surgical procedure performed, but that gallbladder fossa contains air, thus making the diagnosis of abscess more likely.

Conclusion:

Since the ‘rim sign’ is not unique to acute cholecystitis and may be seen in hepatic abscess (4) or chronic cholecystitis as well (5), it is reasonable to believe that an abscess in the gallbladder fossa would cause
reactive inflammatory findings in the adjacent hepatic tissue similar to an emphysematous or gangrenous gallbladder.

References:


Figure 1. CT scan of the abdomen and pelvis performed at an outside hospital showed a thick-walled heterogeneous fluid collection within the gallbladder fossa that also contained small pockets of air. Pictured below are axial and reformatted coronal images demonstrating the abscess in the gallbladder fossa with adjacent surgical clips.
Hepatobiliary scintigraphy was ordered to rule out the possibility of a bile leak and images were obtained every 2 minutes following the intravenous injection of 5.1 mCi of technetium 99m-DISIDA. Shown here are images at 20, 30, and 60 minutes.
Figure 3. Percutaneous aspiration of the abscess revealed Enterococcus faecalis, a microbe commonly found in the lower gastrointestinal tract.