Case 17175

Acute cholangitis with hepatic abscesses and intrahepatic portal vein thrombosis
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Section: Abdominal imaging
Area of Interest: Abdomen Liver
Imaging Technique: CT
Case Type: Clinical Cases
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Patient: 65 years, female

Clinical History:
A 65-year-old woman, with history of cholelithiasis, was admitted with acute pain in the right hypochondrium and positive Murphy’s sign, but no fever or vomiting. Laboratory tests revealed raised levels of C-reactive protein, leukocytosis, increased total bilirubin, direct bilirubin, Alkaline Phosphatase and GGT enzymes. An abdominal contrast-enhanced CT scan was performed.

Imaging Findings:
Computed tomography (CT) of the abdomen revealed the presence of two large obstructive calculi within the common bile duct (with 15- and 16-mm diameter) and dilated intrahepatic and common bile ducts (CBD), with wall enhancement, suggesting acute cholangitis. It also showed the presence of three centrally hypodense lesions with peripheral enhancement (measuring 20 mm, 12 mm and 7 mm), within the III liver segment, suggesting liver abscesses. On the portal venous phase, a hypodense filling defect was seen within the portal vein branches in segments III, V and VIII, indicating the presence of intraluminal thrombus. These imaging findings point towards the diagnosis of acute cholangitis caused by obstructive stones, which complicated by hepatic abscesses and portal vein branch thrombosis.

Some calcified stones were also seen within the gallbladder, without thickened wall or mucosal hyperenhancement.

Discussion:
Acute cholangitis, also known as ascending cholangitis, is a potentially life-threatening condition, clinically characterised by fever, jaundice, and abdominal pain (Charcot’s triad) that develops as a result of stasis and infection in the biliary tract [1-3]. Nevertheless, the frequency of Charcot’s triad varies and has been described to be present in 15.4–72.0% of patients, highlighting the importance of laboratory data and imaging findings [1].

The most frequent causes of biliary obstruction in patients with acute cholangitis without bile duct stents are biliary stones, malignancy and benign biliary stricture [3, 4]. Choledocholithiasis is responsible for up to 80% of cases of acute cholangitis. Risk factors for development of cholangitis in patients with biliary stones include neurologic disease, advanced age (>70 years) and periampullary diverticula [2].
Imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI), are commonly used when acute cholangitis is suspected, given their reliability in detecting intra and extrahepatic bile ducts dilatation and its aetiology, such as cholelithiasis [3, 5].

Liver abscesses can result from ascending cholangitis and may present as a single non-loculated fluid collection, multifocal lesions, multiseptated or a solid (phlegmonous) process. The most common finding at contrast-enhanced CT is a well-defined, round, low-attenuation mass with rim enhancement. The existence of an enhancing peripheral rim on CT scan is indicative of abscess rather than biloma. When the diagnosis is unclear, sonographically guided aspiration can be useful [6, 7]. Gas may also be present in liver abscesses, allowing a high degree of confidence in the diagnosis. It may present either as an air-fluid level or in the form of bubbles [7].

Finally, acute thrombosis of the portal vein and its branches can complicate abdominal infections, such as acute cholangitis or liver abscesses. Acute thrombosis is seen as a filling defect totally or partially obstructing the vessel [8].

**Differential Diagnosis List:** Acute cholangitis with hepatic abscesses and intrahepatic portal vein thrombosis, Extra-hepatic cholangiocarcinoma with liver abscesses, Acute cholecystitis with liver abscesses, Extra-hepatic cholangiocarcinoma with liver metastases

**Final Diagnosis:** Acute cholangitis with hepatic abscesses and intrahepatic portal vein thrombosis

**References:**

Figure 3

Origin: © Department of Radiology, Centro Hospitalar Universitário do Porto, Portugal, 2020
Figure 5

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