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Case reports

Enterobiliary fistulae: A potential cause of a false-negative hepatobiliary study in the diagnosis of acute cholecystitis

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Abstract. Cholescintigraphy has gained widespread acceptance in detection of acute cholecystitis (AC). Gallbladder (GB) visualization within 4 h effectively rules out A.C. with a high degree of specificity. We present a case of A.C. in a patient who had a normal scintigraphic appearance of the G.B. at 30 min with what appeared to be entero-gastric reflux, and which retrospectively proved to be A. C with a cholecystocolic fistula.

The role of cholescintigraphy in the evaluation of suspected acute cholecystitis has been well established [2–5]. The sensitivity of hepatobiliary imaging in the detection of acute cholecystitis exceeds 95% [1]. In order to maintain this high degree of sensitivity, the interpreter must be aware of all situations and conditions that could potentially result in a false-negative study.

We describe the cholescintigram of a patient with acute cholecystitis and a cholecystocolonic fistula – recognition of which could prevent a false-negative scan interpretation.

Case report

An 80-yearl-old man was admitted to the hospital complaining of anorexia and weakness of 5 days duration. He had recently been discharged from the hospital following admission for dehydration and an ileus which was felt to be secondary to fecal impaction. On readmission, he had a low-grade temperature and intermittent diahrrea. Physical examination and laboratory studies showed nothing remarkable. Upper gastrointestinal (GI) series and a barium enema were normal. Abdominal ultrasound examination revealed a focal collection of inhomogeneous echoes in the region of the gallbladder compatible with a gangrenous gallbladder and/or a pericholecystic abscess. A hepatobiliary study performed immediately following the ultrasound examination was originally misinterpreted as demonstrating a normal gallbladder, enterogastric reflux and a photopenic area within the right lobe of the liver; in actuality, it demonstrated activity within the colon (cholecystocolic fistula) – a nonobstructed, low-pressure, acutely inflammed gallbladder and an intrahepatic abscess (Fig. 1).

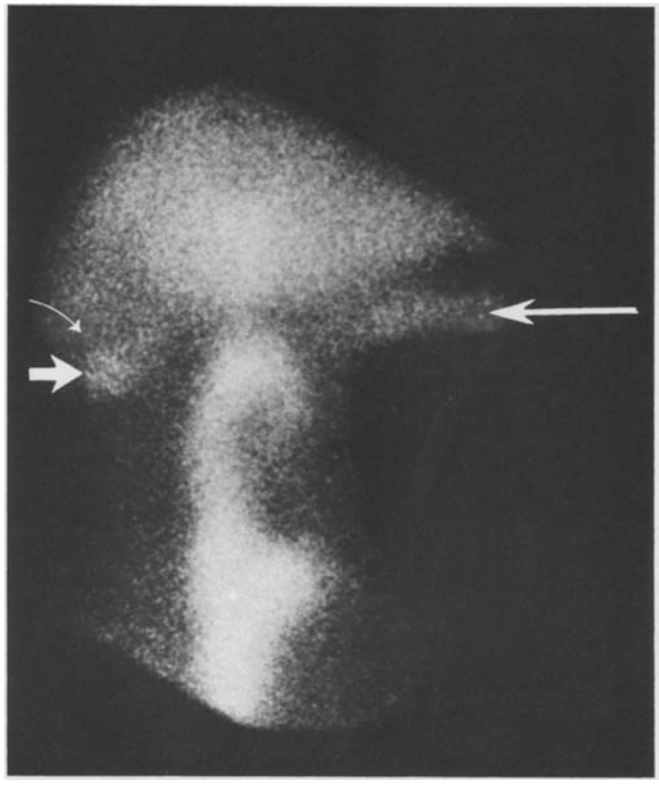

Fig. 1. A 30-min anterior hepatobiliary image of cholecystocolic fistula showing the gallbladder (*short arrow*), an hepatic abscess (*curved arrow*) and the transverse colon (*long arrow*)

Discussion

Biliary fistulae occur when an abnormal connection exists between any portion of the biliary tree and some other area. Of these, 90% are caused by biliary calculi, 6% are due to peptic ulcer disease, and the remainder are associated with inflammatory bowel disease, trauma, or malignancy of the bowel, biliary tract, or pancreas.

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Fig. 2. Barium enema of the patient shown in Fig. 1 demonstrating the position of the transverse colon

A biliary fistula may be external, with communication to the surface of the skin, or internal, communicating with an adjacent structure. The most common kinds of internal biliary fistulae are, in decreasing order, cholecystoduodenal, cholecystocolic, cholecystogastric, and choledochoduodenal.

Internal biliary fistulae are insidious, as the inciting inflammation or neoplasm is usually present over a long period of time. Clinically, the patient may demonstrate inanition and weight loss. This results from the external loss of bile, which in turn, produces a problem of malabsorption and diahrrea, and which may be associated with dehydration, electrolyte imbalance, and carbohydrate and protein loss.

Our case demonstrates a potential pitfall in the diagnosis of acute cholecystitis when there is an associated enterobiliary fistula. Initially, the Hepatobiliary Image (HBI) was though to demonstrate normal visualization of the gallbladder with enterogastric reflux; however, retrospectively, the HBI was found to correspond with the surgical finding of a cholecystocolonic fistula. The linear activity inferior to the liver represented tracer in the transverse colon. The position of the colon was verified by a barium enema (Fig. 2). As another consideration, the possibility of enterogastric reflux could not be excluded as the upper GI series demonstrated the superimposition of the colon on the stomach. However, on closer examination of the scintigram, one can clearly see that the activity inferior to the liver appears simultaneously with the gallbladder activity. This would suggest a direct communication between the gallbladder and colon, or the gallbladder and stomach.

The fact that the gallbladder visualized at all is not surprising, because the enterobiliary fistula developed over a relatively long period of time and created a low-pressure system within the nonobstructed (patent cystic duct) gallbladder. The photopenic rim surrounding the activity within the gallbladder represented hepatocytes displaced by an hepatic abscess.

In summary, in patients referred for the evaluation of acute cholecystitis, an enterobiliary fistula may be a potential cause of a false-negative study. In an appropriate clinical setting, the finding of simultaneous gallbladder and enteric activity should arouse the suspicion of a nonobstructive acute cholecystitis and an enterobiliary fistula.

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