

# Clinical Approach to Patients With Obstructive Jaundice

Kunjam Modha, MD

**Obstructive jaundice is a clinical symptom that results from cholestasis. Cholestasis can be extrahepatic or intrahepatic and is typically associated with biochemical abnormalities in the liver function tests. Once these abnormalities are identified, more extensive imaging tests can be performed to determine the nature, etiology, and level of obstruction. This information is essential for clinicians as they decide on management and treatment strategies.**

Tech Vasc Interventional Rad 18:197-200 Published by Elsevier Inc.

**KEYWORDS** obstructive jaundice, choledocholithiasis, extrahepatic, intrahepatic

Obstructive jaundice, previously known as surgical jaundice, is a manifestation of cholestasis. Cholestasis is defined as impairment in the formation of bile or bile flow out of the porta hepatis through the biliary ducts into the duodenum. Cholestasis often results in conjugated hyperbilirubinemia and may or may not be accompanied by clinical jaundice. Common symptoms of cholestasis include fatigue, pruritus, pale-colored stools, and xanthomas. Abdominal pain may or may not be present depending on the underlying cause of the liver disease.

Cholestasis is generally identified through abnormal findings on biochemical tests of the liver, such as elevated alkaline phosphatase, 5'-nucleotidase, and  $\gamma$ -glutamyl transferase levels and variable levels of bilirubin and prothrombin time. However, elevated alkaline phosphatase levels are not completely specific for cholestasis. The level of this enzyme can be elevated by less than 3 times the normal limit in virtually any type of liver disease. Similarly, the level of alkaline phosphatase can be mildly elevated as a physiological variation in elderly patients, pregnant women (placental isoenzyme), and adolescents (because of rapid bone turnover leading to high bone alkaline phosphatase levels). The degree of elevation of alkaline phosphatase level also does not help in identifying the cause of cholestasis. Elevation in the level of this enzyme without hyperbilirubinemia or transaminitis may be seen in cases of early cholestasis or in patients with

infiltrative conditions of the liver such as tumor infiltration or granulomas from sarcoidosis.

Once cholestasis is identified by the liver function tests, the next step is to determine whether the cholestasis is intrahepatic or extrahepatic. Extrahepatic cholestasis can be caused by intraluminal obstruction of the biliary ducts, obliteration of the biliary ducts themselves, or extrinsic compression of these ducts (Table 1). Intrahepatic causes include intrinsic parenchymal disorders such as acute viral hepatitis, primary biliary cirrhosis, drug-induced liver injury, and cystic fibrosis (Table 2). Jaundice caused by intrahepatic cholestasis is sometimes difficult to distinguish from jaundice caused by extrahepatic biliary obstruction. However, the latter can be correctly identified in approximately 90% of cases through clinical parameters such as a thorough history, physical examination, and laboratory tests.<sup>1</sup> Nevertheless, radiologic imaging plays an important role in evaluating the etiology of obstructive jaundice and determining treatment strategies.

## Etiology

### Extrahepatic

In suspected choledocholithiasis, transabdominal ultrasound (TUS) is the initial imaging modality of choice for suspected common bile duct (CBD) stones. This modality is readily available, inexpensive, noninvasive, and safe, as it does not require ionizing radiation.

A normal CBD is believed to measure 5 mm in diameter. A millimeter can be added for every decade after the age of 50 years. Thus, a dilated CBD is usually found in the elderly and in patients who have undergone

Department of Hospital Medicine, Cleveland Clinic, Cleveland, OH.  
Address reprint requests to Kunjam Modha, MD, Department of Hospital  
Medicine, Cleveland Clinic, 9500 Euclid Ave, M2 Annex, Cleveland,  
OH 44195. E-mail: modhak@ccf.org

**Table 1 Causes of Extrahepatic Cholestasis**

<b>Intraluminal or Intramural</b>
Cholangiocarcinoma
Choledocholithiasis
Primary or secondary sclerosing cholangitis
Benign biliary strictures
Choledochal cyst
Parasites
Hemobilia
<b>Obliteration of the biliary ducts</b>
Bile duct atresia
Caroli disease
<b>Extramural</b>
Pancreatic carcinoma
Pancreatic pseudocysts
Gallbladder carcinoma
Pseudotumoral chronic pancreatitis
<b>Obstruction at ampulla of Vater</b>
Duodenal diverticulum
Ampullary carcinoma
Ampullary scars
Heterotropic gastric mucosa

cholecystectomy. A “double-barrel shotgun” sign can be seen on TUS when the CBD is dilated. The CBD runs superior to the portal vein. The probe of the US is placed in such a way that the portal vein is seen in the long axis. When the CBD is dilated, it appears large and almost equal in diameter to the portal vein. The 2 entities seen next to each other have an appearance similar to that of a double-barrel shotgun. CBD stones are not always seen, but a dilated CBD in an appropriate clinical scenario indirectly suggests their presence.

TUS has a high accuracy in detecting extrahepatic obstruction and differentiating it from intrahepatic biliary

**Table 2 Causes of Intrahepatic Cholestasis**

<b>Intrinsic</b>
Drug-induced hepatitis
Autoimmune hepatitis
Acute viral hepatitis
Primary sclerosing cholangitis
Alcoholic hepatitis
Sickle cell crisis
<b>Infiltrative</b>
Sarcoidosis
Lymphoma
Tuberculosis
<b>Systemic</b>
Sepsis
Total parenteral nutrition
Cholestasis of pregnancy
Benign recurrent intrahepatic cholestasis
<b>Space-occupying lesion</b>
Abscesses
Parasitic cysts
Primary or secondary malignancy

dilation. Further imaging tests such as endoscopic US (EUS), magnetic resonance cholangiopancreatography (MRCP), computed tomography (CT), or endoscopic retrograde cholangiopancreatography (ERCP) are usually needed to detect the level and cause of obstruction. The disadvantages of TUS are that it is highly operator dependent, has a low sensitivity, and provides poor-quality images both of retroperitoneal structures and in obese patients.

Over the last decade or so, CT cholangiography has been found to be a highly accurate test for the detection of choledocholithiasis and other biliary tract disorders. This modality has demonstrated a higher sensitivity (95.5%) than unenhanced CT (60%) and TUS (27.3%) have demonstrated<sup>2</sup> for detection of choledocholithiasis. Sensitivity with CT cholangiography has been reported to be somewhat lower for cholesterol stones than for pigment stones. This might be a limiting factor in Western countries where cholesterol stones are more common.<sup>3</sup>

MRCP is an excellent noninvasive imaging modality for evaluation of the biliary ducts that does not involve the use of contrast agent or exposure to radiation. A meta-analysis concluded that this modality has an overall sensitivity rate of 95% in detecting biliary obstruction.<sup>4</sup> The sensitivity and specificity rates of MRCP in diagnosing biliary ductal stones specifically are reported to be 92%-93% and 97%-98%, respectively.<sup>5</sup> MRCP lacks the therapeutic advantage offered by ERCP and cannot be used in patients who are claustrophobic or have metallic foreign bodies or devices.

For choledocholithiasis, EUS has a sensitivity rate comparable to or higher than that of MRCP, with reported sensitivity and specificity rates close to 93%.<sup>6</sup> EUS can detect small CBD stones with high accuracy, as well. However, the use of EUS requires expertise and training, special equipment, and conscious sedation, and this technique is fairly invasive.

Various prediction models for assessing the pretest probability of CBD stones have been proposed. The American Society of Gastrointestinal Endoscopy has devised a diagnostic approach in patients with symptomatic cholelithiasis based on the presence of cholangitis, serum bilirubin level, and dilated CBD seen on TUS.<sup>7</sup> Based on these factors, patients are classified into groups of low, intermediate, and high likelihood of choledocholithiasis. Patients with a low likelihood are recommended to undergo cholecystectomy, as the costs and risks of further preoperative testing outweigh the benefits. Patients with a high likelihood should undergo preoperative ERCP. Patients with an intermediate likelihood can undergo an intraoperative cholangiogram or laparoscopic US or EUS/MRCP.

Failure of endoscopic retrograde cholangiography (ERC) can be caused by anatomical variations, tumor infiltration, impacted stones, and ductal stenosis or tortuosity. ERC cannot be performed in the presence of Roux-en-Y biliary enteric anastomosis and is contraindicated in patients who are pregnant or who have multiple comorbidities. In patients with multiple comorbidities, percutaneous transhepatic cholangiogram is indicated. This technique has the advantages of being highly successful

Download English Version:

<https://daneshyari.com/en/article/4251503>

Download Persian Version:

<https://daneshyari.com/article/4251503>

[Daneshyari.com](https://daneshyari.com)