Cholestatic Liver Disease

Andrea A. Gossard, MS, CNP*, Jayant A. Talwalkar, MD, MPH

KEYWORDS

• Cholestasis • Biliary tract disease • Bile duct obstruction • Primary biliary cirrhosis • Primary sclerosing cholangitis • Cholestatic liver disease

KEY POINTS

- Cholestasis may be identified through blood work or may be clinically evident.
- Causes of cholestasis require a thorough review of the patient's medical and surgical history, medication list, and symptomatology.
- Initial evaluation of the cholestatic patient should include imaging of the liver and biliary tree.
- Management of reversible conditions may require endoscopic or surgical intervention.
- Chronic cholestatic liver disease may contribute to fatigue, pruritus, fat-soluble vitamin deficiencies, and bone loss.

INTRODUCTION

Cholestatic liver disease may involve both extrahepatic and intrahepatic bile ducts, or may be limited to one or the other. Cholestasis may be due primary bile duct disease or secondary causes such as stones or tumors. Care of the patient with cholestasis depends on identifying the probable cause, initiating appropriate treatment or intervention, and the recognition and management of potential complications.

DIAGNOSIS AND MANAGEMENT

Symptoms

Patients with cholestatic liver disease may present with pruritus, fatigue, jaundice, dark urine, and/or acholic stools. Many patients; however, are entirely asymptomatic and are diagnosed with cholestatic liver disease only after the incidental discovery of liver test abnormalities on blood work.

Cholestatic patients may present with conjugated hyperbilirubinemia. In fact, extrahepatic biliary obstruction will cause conjugated hyperbilirubinemia in 80% of patients.

Cholestatic Liver Disease Study Group, Division of Gastroenterology and Hepatology, Mayo Clinic, 200 First Street SW, Rochester, MN, USA
* Corresponding author.
E-mail address: Gossard.andrea@mayo.edu

Med Clin N Am 98 (2014) 73–85
http://dx.doi.org/10.1016/j.mcna.2013.09.002 **medical.theclinics.com**
0025-7125/14/$ – see front matter

Cholestasis is considered chronic when present for longer than 6 months. It may be further defined as primarily intrahepatic or extrahepatic, and many cases are acute on chronic. Most chronic cases of cholestasis are intrahepatic, and approximately 50% of these patients will demonstrate conjugated hyperbilirubinemia.

Diagnosis

Clinically, a cholestatic disorder can often be differentiated from a primarily hepatocellular disorder by the liver enzyme pattern. If there is a proportionally greater elevation in the alkaline phosphatase when compared with the aminotransferases, the profile is more consistent with cholestasis. If alkaline phosphatase is elevated in isolation, isoenzyme fractionation may be warranted. The level of γ–glutamyltranspeptidase (GGT) is also often elevated in cholestasis. Serum bile acids are the most sensitive test for cholestasis, but testing is usually not readily available in the clinical setting.

A history of fever, especially when accompanied by rigors or right upper quadrant abdominal pain, is more suggestive of cholangitis, owing to obstructive processes such as choledocholithiasis. These symptoms may be seen in alcoholic disease and, rarely, in the setting of viral hepatitis.[1] Recent surgery in the region of the biliary system may have resulted in an inadvertent injury to a bile duct, and should also be considered as a possible cause.

Abdominal ultrasonography (US) is often the initial imaging performed when evaluating cholestasis. The advantages of US include its relatively low cost, noninvasiveness, and the absence of radiation. US can effectively evaluate for intrahepatic and extrahepatic bile duct dilation and the presence of mass lesions; however, operator variability can be an issue. In addition, technical limitations include the inability to penetrate bone, limitations associated with obesity, and bowel gas obstructing the view. US can differentiate between intrahepatic and extrahepatic causes of biliary tract disease, and can readily identify gallbladder abnormality.[2]

Computed tomography (CT) is less operator dependent than US, is more effective when imaging obese patients, and is less susceptible to obscuring bowel gas when evaluating the distal bile ducts. CT is more accurate than US at identifying the level (88%–97% vs 23%–95%) and the cause (70%–94% vs 38%–94%) of biliary obstruction if present.[3] Disadvantages of CT include its decreased ability to identify choledocholithiasis, and exposure of the patient to radiation.[4]

Magnetic resonance imaging (MRI) is useful in the distinguishing chronic from acute etiology of cholestasis. Use of magnetic resonance cholangiopancreatography (MRCP) is considered a safe, noninvasive tool for evaluating the biliary tree. Advantages include the lack of radiation and sharp contrast resolution between normal and abnormal tissues. The accuracy of MRCP is comparable with that of endoscopic cholangiography. In fact, a review of 67 studies found that for the diagnosis of biliary obstruction, MRCP sensitivity and specificity are 95% and 97%, respectively.[5,6] As the bile ducts are visualized in their normal physiologic state, MRCP may be a better indicator than endoscopic cholangiography of their true caliber. The sensitivity for biliary strictures, however, is lower.[6]

When suspicion is high or signs on cross-sectional imaging suggest mechanical obstruction, direct cholangiography, either endoscopically or percutaneously, may be necessary. The primary advantage of direct cholangiography, such as endoscopic retrograde cholangiopancreatography (ERCP), is the ability to both diagnose and intervene therapeutically when indicated. Unfortunately, 3% to 5% of all patients who undergo ERCP will experience complications such as pancreatitis.[7] Percutaneous transhepatic cholangiography (PTC) should be reserved for patients in whom ERCP is precluded for anatomic reasons.