

TABLE 369-3 DIAGNOSTIC EVALUATION OF THE BILE DUCTS

Diagnostic Advantages	Diagnostic Limitations	Contraindications	Complications	Comment
Hepatobiliary Ultrasound				
Rapid	Bowel gas	None	None	Initial procedure of choice in investigating possible biliary tract obstruction
Simultaneous scanning of GB, liver, bile ducts, pancreas	Massive obesity Ascites			
Accurate identification of dilated bile ducts	Barium			
Not limited by jaundice, pregnancy	Partial bile duct obstruction			
Guidance for fine-needle biopsy	Poor visualization of distal CBD			
Computed Tomography				
Simultaneous scanning of GB, liver, bile ducts, pancreas	Extreme cachexia Movement artifact	Pregnancy	Reaction to iodinated contrast, if used	Indicated for evaluation of hepatic or pancreatic masses Procedure of choice in investigating possible biliary obstruction if diagnostic limitations prevent HBUS
Accurate identification of dilated bile ducts, masses	Ileus			
Not limited by jaundice, gas, obesity, ascites	Partial bile duct obstruction			
High-resolution image				
Guidance for fine-needle biopsy				
Magnetic Resonance Cholangiopancreatography				
Useful modality for visualizing pancreatic and biliary ducts	Cannot offer therapeutic intervention	Claustrophobia Certain metals (iron)	None	
Has excellent sensitivity for bile duct dilatation, biliary stricture, and intraductal abnormalities	High cost			
Can identify pancreatic duct dilatation or stricture, pancreatic duct stenosis, and pancreas divisum				
Endoscopic Retrograde Cholangiopancreatography				
Simultaneous pancreatography	Gastroduodenal obstruction	Pregnancy	Pancreatitis	Cholangiogram of choice in: Absence of dilated ducts ? Pancreatic, ampullary or gastroduodenal disease Prior biliary surgery Endoscopic sphincterotomy a treatment possibility
Best visualization of distal biliary tract		? Acute pancreatitis	Cholangitis, sepsis	
Bile or pancreatic cytology	? Roux-en-Y biliary-enteric anastomosis	? Severe cardiopulmonary disease	Infected pancreatic pseudocyst	
Endoscopic sphincterotomy and stone removal			Perforation (rare)	
Biliary manometry			Hypoxemia, aspiration	
Percutaneous Transhepatic Cholangiogram				
Extremely successful when bile ducts dilated	Nondilated or sclerosed ducts	Pregnancy Uncorrectable coagulopathy Massive ascites ? Hepatic abscess	Bleeding Hemobilia Bile peritonitis Bacteremia, sepsis	Indicated when ERCP is contraindicated or failed
Best visualization of proximal biliary tract				
Bile cytology/culture				
Percutaneous transhepatic drainage				
Endoscopic Ultrasound				
Most sensitive method to detect ampullary stones				

Abbreviations: CBD, common bile duct; ERCP, endoscopic retrograde cholangiopancreatography; GB, gallbladder; HBUS, hepatobiliary ultrasound.

affecting the extrahepatic and/or the intrahepatic bile ducts. The disorder occurs up to 75% in association with inflammatory bowel disease, especially ulcerative colitis. It may also be associated with autoimmune pancreatitis; multifocal fibrosclerosis syndromes such as retroperitoneal, mediastinal, and/or periureteral fibrosis; Riedel's struma; or pseudotumor of the orbit.

Immunoglobulin G4 (IgG4)-associated cholangitis is a recently described biliary disease of unknown etiology that presents with biochemical and cholangiographic features indistinguishable from PSC, is often associated with autoimmune pancreatitis and other fibrosing conditions, and is characterized by elevated serum IgG4 and infiltration of IgG4-positive plasma cells in bile ducts and liver tissue. In contrast to PSC, it is not associated with inflammatory bowel disease and should be suspected if associated with increased serum IgG4 and

unexplained pancreatic disease. Glucocorticoids are regarded as the initial treatment of choice. Relapse is common after steroid withdrawal, especially with proximal strictures. Long-term treatment with glucocorticoids and/or azathioprine may be needed after relapse or for inadequate response (**Chap. 371**).

Patients with primary sclerosing cholangitis often present with signs and symptoms of chronic or intermittent biliary obstruction: RUQ abdominal pain, pruritus, jaundice, or acute cholangitis. Late in the course, complete biliary obstruction, secondary biliary cirrhosis, hepatic failure, or portal hypertension with bleeding varices may occur. The diagnosis is usually established by finding multifocal, diffusely distributed strictures with intervening segments of normal or dilated ducts, producing a beaded appearance on cholangiography (**Fig. 369-2D**). The cholangiographic techniques of choice in suspected