

Cholecystostomy may be performed for patients who have a high operative risk. Antibiotics are typically used when fever or leukocytosis is present. Expectant management is reserved for patients with uncomplicated disease who are not good operative candidates and those in whom the diagnosis is not clear.

Acalculous Cholecystitis

Acalculous cholecystitis is an acute inflammatory condition in patients without gallstones. It accounts for approximately 5% of all cases of acute cholecystitis and carries higher morbidity and mortality rates than acute calculous cholecystitis. Acalculous cholecystitis is classically associated with the triad of prolonged fasting, immobility, and hemodynamic instability; such as may occur in critically ill patients, especially if they have required total parenteral nutrition or blood transfusions. Gallbladder ischemia and stasis are considered important in the pathogenesis. It is also seen in patients with AIDS, often in association with cytomegalovirus or *Cryptosporidia* infection. Abdominal pain, fever, and leukocytosis in a patient with the classic triad along with ultrasonographic features of a thickened gallbladder wall and a positive Murphy's sign in the absence of gallstones raises suspicion for this entity. As in acute cholecystitis, the gallbladder is not visualized on HIDA scanning. Management includes administration of antibiotics and cholecystectomy. If the patient is seriously ill, the gallbladder can be drained percutaneously as a temporizing measure.

Chronic Cholecystitis

Chronic cholecystitis is a term used by pathologists to describe chronic inflammatory cell infiltration of the gallbladder on histopathology. Chronic cholecystitis is thought to be an evolving inflammatory process, caused by repeated episodes of low-grade gallbladder obstruction over a period of days to years resulting in recurrent mucosal trauma and inflammation. The symptoms are those of biliary colic without clinical features of acute cholecystitis. Gallstones are the causative agent in most patients. However, there is little correlation between the number of gallstones and the degree of gallbladder wall inflammation. In approximately 12% of patients with chronic cholecystitis, there are no demonstrable stones. The diagnosis is made in a patient with gallstones who has the clinical signs and symptoms with no other obvious cause. Transabdominal ultrasound is the best initial test, and EUS may be used to demonstrate microlithiasis (gallstones ≤ 3 mm) if gallstones are not seen on initial imaging. The treatment is laparoscopic cholecystectomy, but conversion to open cholecystectomy is required in up to 5% of cases.

Gallbladder Polyps

Gallbladder polyps are outgrowths of the gallbladder mucosal wall that are seen in up to 5% of normal subjects undergoing gallbladder ultrasonography. Most of these lesions are not neoplastic but are hyperplastic or represent lipid deposits (cholesterolosis). The differential diagnosis includes cholesterol polyps, adenomyomatosis, inflammatory polyps, adenomas, and gallbladder cancer. Factors associated with increased risk of malignancy include size greater than 1 cm, presence of gallstones, age greater than 60 years, and increased size on subsequent imaging. Cholecystectomy is indicated if one or more of these

risk factors are present or if the patient has biliary symptoms. Polyps that are smaller than 1 cm should be monitored with periodic ultrasound examination.

Gallbladder Carcinoma

Gallbladder carcinoma is relatively uncommon but has a high case fatality rate. The incidence and mortality are higher in Latin American countries (e.g., Chile) and in Southeast Asia. Carcinoma of the gallbladder often produces advanced disseminated disease with weight loss, jaundice, pruritus, and a large right upper quadrant mass. Symptoms may resemble those of acute or chronic cholecystitis, particularly if the tumor is small. Risk factors include gallbladder polyps, porcelain gallbladder, choledochal cysts, gallstones, and anomalous pancreaticobiliary junction. Although early-stage tumors can be treated surgically, most cases are diagnosed at an advanced stage and are incurable.

Gallbladder Dyskinesia

A disorder caused by abnormal motility or contraction of the gallbladder in the absence of gallstones resulting in symptoms of biliary colic. Laboratory studies and abdominal imaging findings are usually normal. HIDA scanning may show a decreased gallbladder ejection fraction, or there may be reproducible pain with administration of cholecystokinin (CCK). Cholecystectomy commonly shows acalculous cholecystitis.

BILIARY TRACT DISORDERS

Choledocholithiasis

In Western countries, most stones found in the common bile duct (choledocholithiasis) originate in the gallbladder. Up to 15% of individuals with cholelithiasis develop choledocholithiasis (Fig. 44-4). Less commonly, stones may form *de novo* in the biliary tree. Common bile duct stones may be asymptomatic (30% to 40%), or they may produce biliary colic and jaundice. Two major complications are acute cholangitis and acute



FIGURE 44-4 Cholangiogram obtained on endoscopic retrograde cholangiopancreatography demonstrates a common bile duct stone.