

# Acute Biliary Disease



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## KEYWORDS

- Emergency surgery • Acute care surgery • Biliary • Cholelithiasis • Cholecystitis
- Choledocholithiasis • Gallstone pancreatitis • Cholecystectomy

## KEY POINTS

- This article will discuss the work-up and diagnosis of biliary diseases including cholelithiasis, cholecystitis, biliary dyskinesia, choledocholithiasis, gallstone pancreatitis, and gallstone ileus.
- This article will review the management of acute presentations of biliary disease for the emergency general surgeon.
- This article will describe the management of biliary disease in unique populations, such as pregnant women, and post bariatric surgery individuals.

## INTRODUCTION

Approximately 700,000 to 800,000 cholecystectomies are performed in the United States annually making it the most common elective abdominal operation at present.<sup>1</sup> Given the prevalence of biliary disease, it is important for the general surgeon to be able to recognize its many manifestations and how to manage them. Acute biliary-related presentations are typically secondary to the presence of gallstones and can range from simple symptomatic cholelithiasis to cholangitis causing septic shock. In addition, surgeons often encounter gallbladder disease in complicated populations, such as pregnant women or patients who have had bariatric surgery. This article discusses the work-up, diagnosis, and management of the varying pathologies that make up biliary disease including cholelithiasis, cholecystitis, biliary dyskinesia, choledocholithiasis, cholangitis, gallstone pancreatitis, gallstone ileus.

## CHOLELITHIASIS

In the United States, 10% to 15% of the population have gallstones. Of this group, about 10% to 25% develop symptoms related to their gallstones with the risk of asymptomatic gallstones becoming symptomatic at 1% to 2% per year. Incidental gallstones are commonly noted on routine imaging. In patients who are otherwise asymptomatic, it is not recommended to proceed with an elective prophylactic

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cholecystectomy. Multiple studies have been performed to identify prognostic factors to predict the need for cholecystectomy in patients with gallstones, but they have all been inconclusive. Currently, the only relative indications for prophylactic cholecystectomies for asymptomatic cholelithiasis are in post heart transplant patients, or patients with sickle cell anemia or hereditary spherocytosis who need a splenectomy, and patients who are found to have a single gallstone that is greater than 1 cm, which has been shown to be a risk factor for malignancy.<sup>2</sup>

### ***Diagnosis***

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Symptomatic cholelithiasis typically presents with right upper quadrant abdominal pain that occurs after eating, usually fatty foods, and lasts for about 30 minutes. It is also associated with nausea and emesis. This disease is also known as biliary colic. It is caused by intermittent obstruction of the cystic duct or neck of the gallbladder by a gallstone. Symptoms can be mistaken for other gastrointestinal processes, such as gastroesophageal reflux disease or irritable bowel disease. Transabdominal ultrasound remains the best initial diagnostic imaging study for biliary pathology and has been proven to have the best sensitivity and specificity for evaluating gallstones.<sup>3</sup> Gallstones are often seen on computed tomography (CT) scans but although CT scans are helpful in evaluating for other biliary pathology, it is less sensitive than ultrasound for identifying gallstones. MRI is equivalent to ultrasound for visualizing gallstones; however, because of the increased cost and timeliness of this study, it is of low benefit as an initial diagnostic modality. Both CT scans and MRIs are more often used to evaluate for complex biliary disease.<sup>4</sup>

### ***Management***

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Unlike asymptomatic cholelithiasis, the indication for surgery for biliary colic is clear. Laparoscopic cholecystectomy is recommended for symptomatic cholelithiasis in appropriate surgical candidates, because these patients can go on to develop further complications of cholelithiasis, such as choledocholithiasis or cholecystitis. It is important to rule out concurrent choledocholithiasis because this changes the treatment plan. This is typically done by obtaining a hepatic function panel, specifically concerning the total bilirubin and alkaline phosphatase, and evaluating the diameter of the common bile duct on ultrasound. Any indication of possible biliary obstruction, including enzyme elevation or a dilated common bile duct, should prompt further work-up for choledocholithiasis. Although cholecystectomy for symptomatic cholelithiasis is typically an elective procedure, patients do often present to the emergency department with severe pain from biliary colic and it is not unreasonable to proceed with a semiurgent cholecystectomy in that situation.

## **ACUTE CALCULOUS CHOLECYSTITIS**

Acute calculous cholecystitis occurs when a gallstone obstructs the cystic duct leading to inflammation, gallbladder distention, and eventual ischemia. Symptoms typically include right upper quadrant abdominal pain, nausea, vomiting, and fever. A common finding on physical examination is Murphy sign, which is defined as inspiratory arrest caused by pain during deep palpation in the right upper quadrant of the abdomen. Its sensitivity and specificity for acute cholecystitis has been reported as 62% and 96%, respectively.<sup>5</sup> It is important to consider other diagnoses when confronted with this clinical presentation, which is somewhat generalized. Peptic ulcer disease, acute pancreatitis, gastroenteritis, nephrolithiasis, and even myocardial ischemia can present in a similar fashion.

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