

Unusual Complications of Gallstones

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KEYWORDS

• Gallstones • Complications • Lost stones • Fistula • Obstruction

KEY POINTS

- Extrinsic compression of the bile duct from gallstone disease is associated with bilio-biliary fistulization requiring biliary-enteric reconstruction.
- Biliary-enteric fistulas are associated with intestinal obstruction at various levels. The primary goal of therapy is relief of intestinal obstruction; definitive repair is performed for selected patients.
- Hemobilia from gallstone-related pseudoaneurysms is preferentially controlled by selective arterial embolization.
- Rapidly increasing jaundice with relatively normal liver enzymes is a diagnostic hallmark of bilhemia.
- Acquired thoraco-biliary fistulas are primarily treated by percutaneous and endoscopic interventions.

INTRODUCTION

Gallstones are a routine commodity for general surgeons. Symptomatic disease presentations in their common forms of biliary colic, acute cholecystitis, choledocholithiasis, and gallstone pancreatitis are well known. This does not imply that these daily conditions are without difficult challenges, even for the most experienced biliary surgeons. However, when stones migrate to involve adjacent viscera or vascular structures, the clinical challenge is far less familiar. Biliary eruption into the gut, into the chest, or into the pelvis is a confounding situation; and, in circumstances that violate major blood vessels, a rapidly catastrophic one. Most surgeons will encounter few, if any, of these baffling patients during the course of their career. Yet, such occurrences have been recognized for centuries and will continue. This article is a simple primer to aid in the recognition and management of some of these gallstone oddities.

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BILIARY FISTULA

Biliary fistulas are abnormal communications of the biliary system to an internal or external location. These conditions share a common pathophysiology of biliary obstruction, infection, necrosis, and fistulization. Internal fistulas can form to the gastrointestinal (GI) tract, thoracic cavity, genitourinary (GU) structures, or the vascular system. External fistulas are communications of the biliary system to the skin either spontaneously or by way of operatively lost stones. Bowel obstruction can result on passage of large stones through bilioenteric fistulas with entlodgement in the small intestine or colon (gallstone ileus) or the pyloric region (Bouveret syndrome). Fistulization between the gallbladder and extrahepatic bile ducts can also occur (Mirizzi syndrome). Although rare, these conditions may cause significant morbidity and mortality that warrant attention.

Internal Fistula

Bilio-biliary fistula

Mirizzi syndrome

Background Although Hans Kehr¹ in 1905 first reported on patients with partial bile duct obstruction due to an impacted stone in the gallbladder, it was Pablo Luis Mirizzi's article in 1948 entitled "Sindrome del conducto hepatico"² that called attention to this condition.

Pathophysiology The eponym Mirizzi syndrome (MS) is used to describe mechanical obstruction of the common hepatic duct due to extrinsic compression (with or without an associated fistula) from stones in the gallbladder or cystic duct. The actual obstruction is usually from a large impacted stone in the gallbladder neck or infundibulum adjacent to the extrahepatic ducts (**Fig. 1**). Sometimes the extrinsic obstruction is caused by a small stone impacted in the cystic duct that has a long parallel course to the common hepatic duct or even by a tensely distended gallbladder itself. In his famous article, Mirizzi² incorrectly postulated a functional spasm of the common hepatic duct as the cause of the bile duct obstruction. MS occurs in approximately 0.2% to 1.5% of patients with gallstones. Beltran³ theorized that the external compression of the bile duct and the later development of cholecystobiliary and cholecystoenteric fistulas are different stages of the same disease process.

Classification Classification schemes are founded on the presence or absence of fistulous erosion between the gallbladder and common bile duct and the extent of

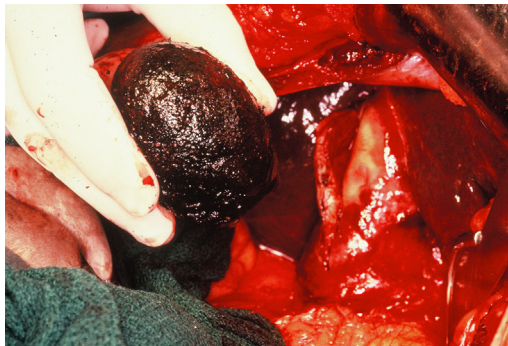


Fig. 1. An intraoperative picture of a large stone removed from the infundibulum of a patient with Mirizzi syndrome.

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