Double Gallbladder Originating from Left Hepatic Duct: A Case Report and Review of Literature

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ABSTRACT

Background: Double gallbladder is a rare anomaly of the biliary tract. Double gallbladder arising from the left hepatic duct was previously reported only once in the literature.

Case Report: A case of symptomatic cholelithiasis in a double gallbladder, diagnosed on preoperative ultrasound, computed tomography (CT) and endoscopic retrograde cholangiopancreatogram (ERCP) is reported. At laparoscopic cholangiography via the accessory gallbladder no accessory cystic duct was visualized. After conversion to open cholecystectomy, the duplicated gallbladder was found to arise directly from the left hepatic duct; it was resected and the duct repaired.

Conclusions: We emphasize that a careful intraoperative cholangiographic evaluation of the accessory gallbladder is mandatory in order to prevent inadvertent injury to bile ducts, since a large variety of ductal abnormality may exist.

Key Words: Double gallbladder, Biliary anomalies, Laparoscopic cholecystectomy.

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INTRODUCTION

Double gallbladder is a rare anomaly of the biliary tract, occurring in about 1 per 3800 cases at autopsy.[1] Two cases of double gallbladders managed laparoscopically have been reported previously.[2,3] We report herein another patient in whom laparoscopic cholecystectomy was attempted. The case represents a very rare variety of a double gallbladder, only once previously reported in the literature.[4] It highlights possible anomaly of the accessory biliary system, emphasizing the need for an intraoperative cholangiography in order to prevent iatrogenic injuries to the bile ducts.

CASE REPORT

A 69-year-old female presented with several months history of right upper abdominal and epigastric pain. Ultrasonography revealed a gallbladder containing multiple stones and a normal-size common bile duct. In addition, a cystic structure was noted lateral to the left hepatic duct, raising the possibility of an accessory gallbladder. Computed tomography (CT) and endoscopic retrograde cholangiopancreatogram (ERCP) confirmed the presence of an accessory, partially intrahepatic gallbladder, which also contained stones **(Figure 1)**. No ductal stones were visualized, and liver function tests were normal. Since the accessory gallbladder did not have an identified cystic duct on ERCP, the laparoscopic procedure started with a double cholangiogram through the cystic duct of the normal gallbladder and the accessory gallbladder **(Figure 2)**. No accessory cystic duct was, however, visualized, and the laparoscopic procedure was converted to an open procedure. Cholecystectomy of the primary gallbladder was completed, and a cholecystectomy of the accessory gallbladder was performed in a retrograde fashion. The accessory gallbladder was found to have no cystic duct and originated directly from the distal left hepatic duct. It was dissected off the lateral wall of the left hepatic duct, and the resulting 3 mm defect was closed with 5-0 polydioxanone. Completion cholangiogram revealed several small stones in the distal common bile duct, which was then explored **(Figure 3)**. Recovery was uneventful, and the T-tube cholangiogram was normal. Pathology report described a 3 x 4 cm

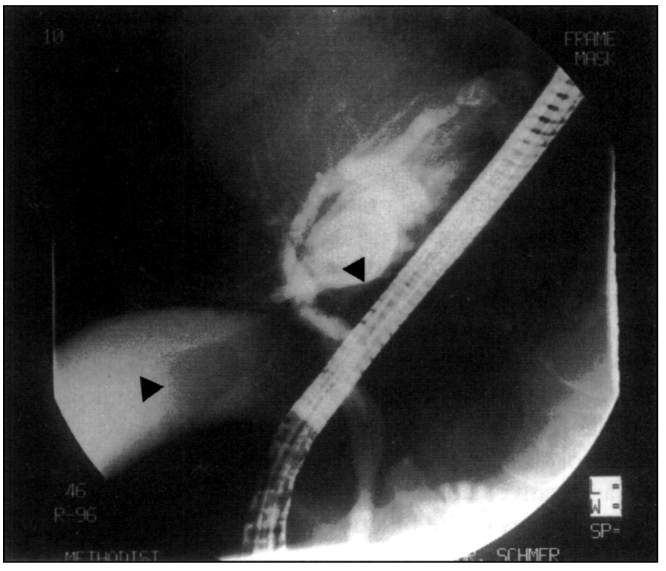

Figure 1. Preoperative ERCP demonstrating double gallbladder with stones. (See arrows.)

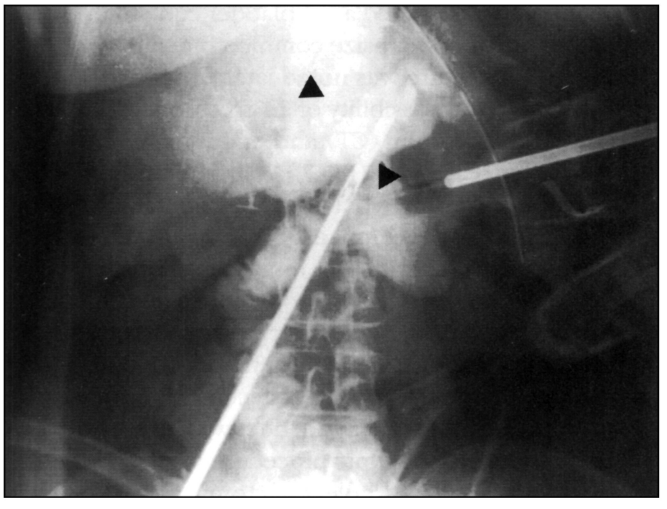

Figure 2. Intraoperative cholangiogram performed via the accessory gallbladder. (Upper arrow shows the left hepatic duct. Lower arrow points at the accessory gallbladder.)

accessory gallbladder containing three stones. Histology revealed chronic cholecystitis with a mild dysplasia of the mucosa.

DISCUSSION

Double gallbladder is a biliary anomaly usually not diagnosed preoperatively. Instead, it often represents an intraoperative surprise[2] or is missed during the operation, only to be diagnosed at postoperative ERCP, performed for persistent biliary symptoms.[5,6] In our case, both gallstone-containing gallbladders were probably symptomatic. The presence of the accessory gallbladder was suggested by the sonogram and confirmed on preoperative ERCP and CT scan. The operation was started laparoscopically, but was converted to an open procedure due to the absence of the accessory cystic duct.

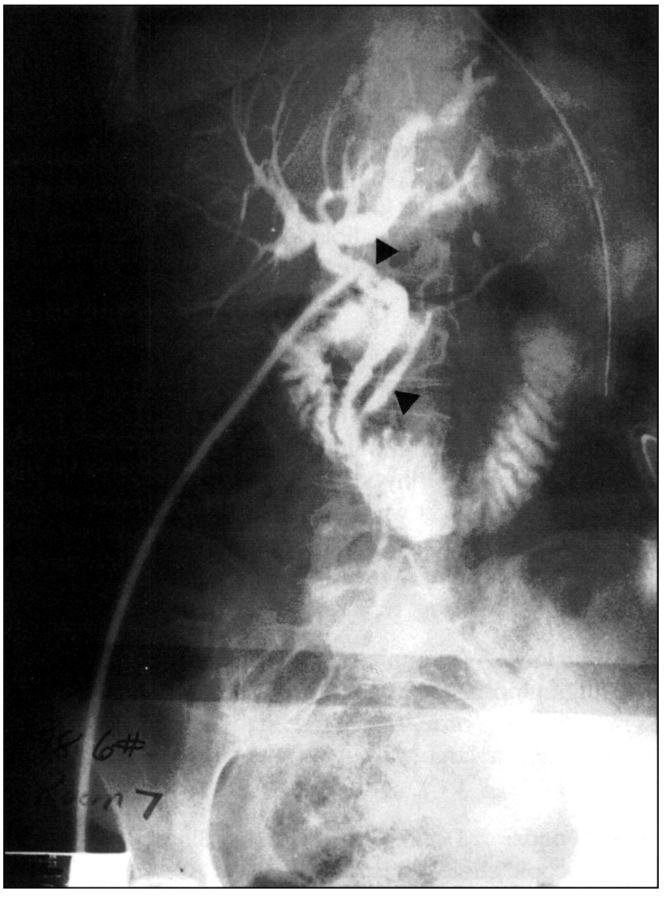

Figure 3. Completion T-tube cholangiogram showing continuity of the biliary tree. (Upper arrow shows the left hepatic duct. Lower arrow points at the pancreatic duct.)

This case represents a type VI in the large spectrum of accessory gallbladders as proposed by Mochizuki[7] **(Table 1)**, or type C as proposed by Harlafits et al. **(Table 2)**. This rare variety of the accessory gallbladder has been reported only once.[4] Among 207 cases

Table 1.
Classification of double gallbladder.
Adopted from Mochizuki S, Makita T[7]

Type	Description of the anatomy
Type I	Diverticulum of the cystic duct
Type II	Diverticulum of the neck of the main gallbladder
Type III	A sac attached to the neck of the main gallbladder via a small cystic duct
Type IV	Connection of the accessory sac to the middle of the hepatic duct via a small cystic duct
Type V	Duplicated fundus of the gallbladder
Type VI	Accessory sac attached to a hepatic duct of lateral left lobe of the liver

Table 2.
Classification of double gallbladder.
Adopted from Herlaftis N, Gray SW, Skandalakis JE[4]

Types	Anatomic description
A (The split primordium group)	Single cystic duct entering the common bile duct
B (The accessory gallbladder group)	Two or more cystic ducts open ing separately into the CBD
C (Miscellaneous anomalies)	Other rare anomalies not included in A or B group

reviewed by Harlafits et al.,[4] the majority of the anomalies consisted of duplicated gallbladders sharing the same cystic duct (Type A), or accessory gallbladders, with two cystic ducts entering common bile duct separately (Type B). The large spectrum of ductal anomalies associated with a double gallbladder mandates an intraoperative cholangiogram prior to the resection of the accessory gallbladder. Such an approach would minimize the risks of inadvertent injury to the biliary ductal system.

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