



# SURGICAL Laparoscopy Endoscopy & PERCUTANEOUS TECHNIQUES

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## Primary Intrahepatic Lithiasis: Report of a Case Treated by Laparoscopic Bilioenteric Anastomosis

Machado, Marcel Autran C. M.D.; Herman, Paulo M.D., F.I.C.S.; Rocha, Julio R. M. M.D.; Machado, Marcel C. C. M.D., F.A.C.S.

From the Department of Gastroenterology, University of Sao Paulo Medical School, Sao Paulo, Brazil.

Received August 8, 1998; revision received January 20, 1999; accepted January 26, 1999.

Address correspondence and reprint requests to Dr. Marcel Autran C. Machado, Al. Casa Branca 438 #101, 01408-001, Sao Paulo, Brazil.

### Summary: [TOP](#)

Recent advances in videolaparoscopic surgery have made this method the treatment of choice for many biliary diseases. However, it has not been used in certain cases, such as primary intrahepatic lithiasis. The authors report a case of a 62-year-old woman with a history of several episodes of cholangitis. Investigation revealed dilated intra- and extrahepatic bile ducts with intrahepatic stones. The patient underwent laparoscopy, and intraoperative cholangiography disclosed an enlarged common duct with absence of stones and the presence of multiple calculi in the intrahepatic biliary tree. A choledochotomy followed by choledochoscopy was performed, which revealed several intrahepatic pigmented stones that were completely retrieved, followed by a laterolateral choledochoduodenostomy to decompress the biliary tree and to allow the migration of residual or recurrent stones. The patient had an uneventful recovery and was discharged on the fourth postoperative day. After 15 months of follow-up the patient is asymptomatic with normal results of liver function tests. Late postoperative upper digestive endoscopy showed a patent choledochoduodenostomy.

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Videolaparoscopic surgery has become the treatment of choice for many biliary diseases. Biliary drainage procedures such as bilioenteric anastomosis is a recent advance in minimally invasive surgery that can be performed safely by experienced surgeons. Laparoscopic treatment has not been reported in some instances, such as primary intrahepatic lithiasis, which is a rare disease in the western world.

The authors report a case of a 62-year-old woman with primary intrahepatic lithiasis treated laparoscopically. Complete stone clearance and a bilioenteric anastomosis were performed.

## CASE REPORT [TOP](#)

A 62-year-old woman with a 10-year history of right upper quadrant abdominal pain and intermittent episodes of abdominal pain, jaundice, and fever was referred for treatment. Physical examination showed a jaundiced patient with tenderness in the right upper quadrant. Laboratory tests revealed increased bilirubin (3.8 mg/dL), alkaline phosphatase (313 IU/L), and  $\gamma$ -glutamyl transferase (290 IU/L) levels. Abdominal ultrasound disclosed dilated intra- and extrahepatic bile ducts with intrahepatic and gallbladder stones. Computed tomographic scan showed intrahepatic biliary stones and atrophy of liver segments III and V.

## Technique [TOP](#)

While under general anesthesia, the patient was placed in the Lloyd-Davis position with reverse Trendelenburg tilt, and the operating surgeon stood between the patient's thighs. Pneumoperitoneum was induced with an open technique via a 12-mm subumbilical incision and a 30° laparoscope was introduced. Three other working ports were inserted ([Fig. 1](#)). Laparoscopy disclosed a normal liver with atrophy of segments III and V. The gallbladder was full of stones, and the common bile duct was dilated. After dissection of the cystic duct, intraoperative cholangiography was performed, which disclosed dilated intra- and extrahepatic bile ducts with absence of stones in the common duct but with several small stones in both lobes, especially in secondary bile ducts from segments III and V. A flexible choledochoscope was inserted through a transverse choledochotomy in the lower third of the common duct. Several small pigmented stones and mud from the intrahepatic ducts were retrieved by flushing with saline. A basket catheter was used to retrieve larger stones. The biliary tree was completely cleared of stones at the end of the procedure. A bilioenteric anastomosis was accomplished to decompress the biliary tree and to allow the migration of residual or recurrent stones. A laterolateral choledochoduodenostomy was performed using a running absorbable suture with delayed duodenal opening and an intracorporeal knotting technique ([Figs. 2-5](#)). The gallbladder was removed after completion of the choledochoduodenostomy because its upper traction was helpful in exposing the structures of the hepatic hilum.

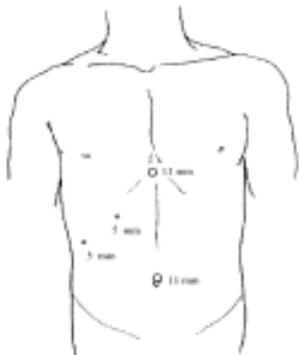


FIG. 1. Sites of the four ports used for choledochoduodenostomy.



FIG. 2. After retrieval of the intrahepatic bile duct stones, the choledochoduodenostomy is begun. The duodenum is sutured to the distal wedge of the common bile duct opening using a continuous absorbable suture without opening the duodenum wall.



FIG. 3. The duodenum is opened with scissors.



FIG. 4. After opening the duodenum, its wall is included in the continuous suture.

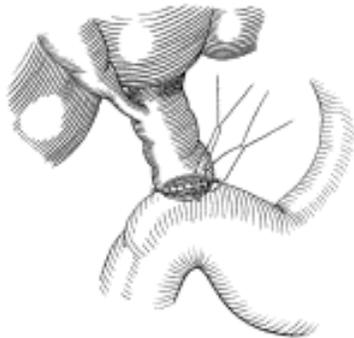


FIG. 5. The choledochoduodenostomy is completed with interrupted stitches.

The patient had an uneventful recovery and was discharged on the fourth postoperative day. After 15 months of follow-up, the patient is asymptomatic with normal results of liver function tests. Late upper digestive endoscopy showed a patent choledochoduodenostomy and a common bile duct free of stones.

## DISCUSSION [TOP](#)

Primary intrahepatic lithiasis is a condition frequently found in southeast Asia [\(1\)](#) but rarely in the western world. Intrahepatic stones usually are found in recurrent pyogenic cholangitis, a condition with unknown etiology in which stones are found in the intra- and extrahepatic ducts.

The presence of these stones leads to progressive biliary obstruction and recurrent infection, resulting in liver abscesses and biliary strictures. Severe liver dysfunction, cirrhosis, and portal hypertension can be the final manifestations of the disease.

The main symptoms are right upper quadrant or epigastric pain, jaundice, and fever. Chills, rigors, and nausea can be present. At laboratory evaluation leukocytosis and increased serum levels of alkaline phosphatase and  $\gamma$ -glutamyl

transferase are found. Distinction between primary hepatolithiasis and other diseases causing biliary obstruction and infection is not possible based only on clinical and laboratory evaluation.

Diagnosis is established using ultrasound and computed tomographic scan (2). Cholangiography is the gold standard for diagnosis and is essential for accurate location of stones and complete evaluation of the biliary tree (1,3). Primary intrahepatic stones usually are found in both lobes of the liver. In 30% of cases, when the presence of stones is unilateral, left lobe stones are found more frequently. Common bile duct and gallbladder stones are present in 50% and 30% of patients, respectively (1,4).

Surgical treatment of primary intrahepatic lithiasis should be on an individual basis depending on the presentation of the disease (3,5-8). When the stones are located in only one lobe and especially when they are associated with liver atrophy, hepatic resection is indicated. When stones are found in both lobes, a drainage procedure such as bilioenteric anastomosis is indicated. In the present case, stones were found in both lobes of the liver but there was no significant atrophy of the parenchyma. The treatment of choice was a biliary drainage procedure and a cholecystectomy.

In our previous experience with the surgical treatment of 39 patients with primary intrahepatic lithiasis (11 with unilateral stones and 28 with bilateral disease), 28 underwent bilioenteric anastomosis and 11 liver resection. Twenty-eight (71.8%) patients presented good late results. Surgical morbidity, represented mainly by wound infections, was 16%. There was no operative mortality (9).

Laparoscopic surgery is known to be associated with improved postoperative pulmonary function, less pain, and earlier hospital discharge when compared to open laparotomies. This technique has become the procedure of choice for the surgical management of many biliary diseases. However, to our knowledge, laparoscopic surgery has never been reported for the treatment of primary intrahepatic lithiasis. We believe that in selected patients in whom a biliary drainage procedure is indicated, laparoscopic treatment could be performed. In the present case we performed a laparoscopic choledochoduodenostomy as a biliary drainage procedure, which allowed further endoscopic biliary tree evaluation and the clearance of recurrent stones.

Laparoscopic bilioenteric anastomosis is not the treatment of choice for patients with primary intrahepatic lithiasis but, in selected patients, it can be useful. The laparoscopic approach is indicated for patients with a long history of cholangitis and for those with recurrent disease, because choledochoduodenostomy allows postoperative endoscopic clearance of recurrent stones. This method should be added to the therapeutic armamentarium for the treatment of intrahepatic lithiasis.

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**Keywords:**

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### Laparoscopic Roux-en-Y Choledochojejunostomy for Benign Biliary Disease.

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Han, Ho-Seong MD; Yi, Nam-Joon MD

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