



Abnormality of the Bile Tract (Luschka Duct): Case Report and Literature Review

Flores-García, A. E.

General Surgery Department Specialty Hospital
"Manuel Ávila Camacho" IMSS, Puebla, Puebla, Mexico

Ramírez-Vázquez, J. L.

General Surgery Department Specialty Hospital
"Manuel Ávila Camacho" IMSS, Puebla, Puebla, Mexico

Blaz-Zavala, R. A.

General Surgery Department Specialty Hospital
"Zona 2ª Troncoso" IMSS, Puebla, Puebla, Mexico

Alonso de la Rosa, J. E.

General Surgery Department Specialty Hospital
"Manuel Ávila Camacho" IMSS, Puebla, Puebla, Mexico

Díaz Méndez, M. F.

General Surgery Department Specialty Hospital
"Dr. Eduardo Liceaga" Mexico City, Mexico

Flores-García Luis Raymundo

General Surgery Department Specialty Hospital
"Hospital General de Zona 194" IMSS, Mexico City, Mexico

ABSTRACT

Introduction: They are accessory bile ducts, less than 2 mm in diameter, they are in contact with the gallbladder bed, they depend on the right hepatic lobe most frequently. **Clinical case:** A 41-year-old male patient without comorbidities underwent laparoscopic cholecystectomy, during which bile leak from the accessory duct was detected. Double ligation was performed. During the postsurgical period, the patient presented a good clinical evolution. No evidence of collections, fistulas or any complications. **Discussion:** Different case series demonstrate that injuries during laparoscopic cholecystectomy are usually recognized during the procedure or more commonly in the immediate postoperative period. In the immediate postoperative period, the presence of bile output through a drain or peritoneal signs should imply a biliary injury. Localized accumulation of bile can produce a sterile bilioma, subhepatic or interhepatophrenic abscess. **Conclusions:** Surveillance must be exercised before any cholecystectomy, whether open or laparoscopic, since the presence of bile leak,

its clinical presentation, diagnosis, classification, complexity and adequate treatment can reduce morbidity and mortality in the patient.

Keywords: Accessory duct, bile leak, cholecystectomy, gallbladder.

INTRODUCTION

The Luschka duct was mentioned by the author as a tubular structure in relation to the wall of the gallbladder, it has been designated to describe any duct found in the biliary region that does not directly belong to a variation of the extrahepatic bile duct. (1,2).

They are accessory bile ducts, less than 2 mm in diameter, they are in contact with the gallbladder bed, they depend on the right hepatic lobe most frequently, draining into the right hepatic duct or the common hepatic duct (3).

Leaking of bile through the drain the day after a cholecystectomy is an unexpected finding and occurs in 0.2 to 2.1% of patients. The origin of the bile leak may in some cases be due to injury to the common bile duct, the common hepatic duct, or one of the hepatic ducts. Despite this, in most cases it comes from the stump of the cystic duct, an accessory duct or a Luschka duct, and results in a subhepatic or subphrenic collection, an external biliary fistula, and localized or generalized peritonitis. Causing great morbidity in the patient, and sometimes death of the patient (4,5).

Clinical manifestations vary depending on the type of injury, the presence of a drain or not, and the amount of bile leak. Patients may be asymptomatic or present with nausea, vomiting, pain, jaundice, fever or abdominal distension.

CLINICAL CASE

This is a 41-year-old male patient, with no significant history of current illness. He reports discomfort lasting 4 months, with colicky pain in the right hypochondrium, accompanied by nausea, without vomiting, without fever, jaundice, or any added symptom, requires attention in the emergency area. Laboratory and imaging studies are performed, with the presence of blood count, blood chemistry, clotting times within normal limits, normal liver function tests, and no elevation in bilirubin. With the presence of Ultrasound of the liver and bile ducts with the presence of a 7 mm wall, with multiple 1 mm stones inside, without dilation of the intra or extrahepatic bile duct, common bile duct without evidence of dilation. Therefore, a complete pre-surgical protocol is carried out, and a laparoscopic cholecystectomy is scheduled.

laparoscopic port placement is performed with a Veress needle to create pneumoperitoneum, supraumbilical port placement, and the rest of the ports under direct vision. A diagnostic laparoscopy is performed with subsequent localization of the gallbladder. Performing retrograde cholecystectomy with correct visualization of structures, ligation and cutting of the cystic artery without visible delay and ligation of the anterior cystic artery are performed (figure 1).

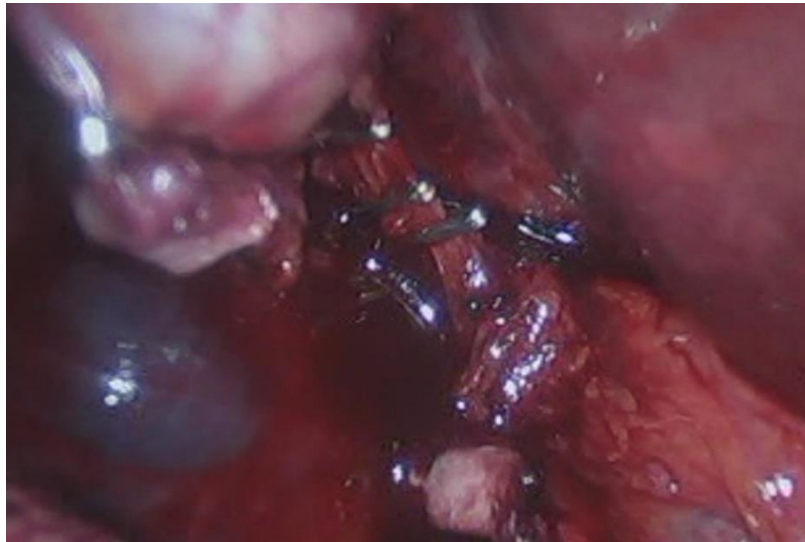


Figure 1: Central part of the image with ligation in its proximal part (two staples) to distal part (one staple), of the cystic duct and cystic artery.

The gallbladder was removed from the gallbladder bed with adequate hemostasis without evidence of apparent leak. The surgical piece is removed with an extractor bag and hemostasis of the gallbladder bed is verified again, where there is visualization of fluid with bile stain, so the cystic stump is verified with correct ligation and no evidence of leak (figure 2).

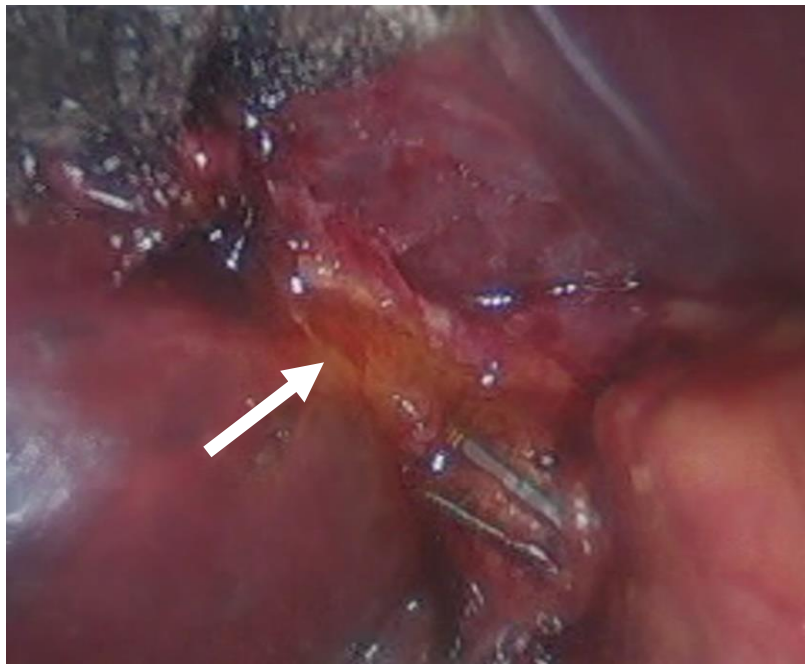


Figure 2: Biliary stain in the gallbladder bed with cystic stump and artery with double ligation without evidence of leak. In the upper part (white arrow) the accessory duct is identified with evidence of leakage of bile material.

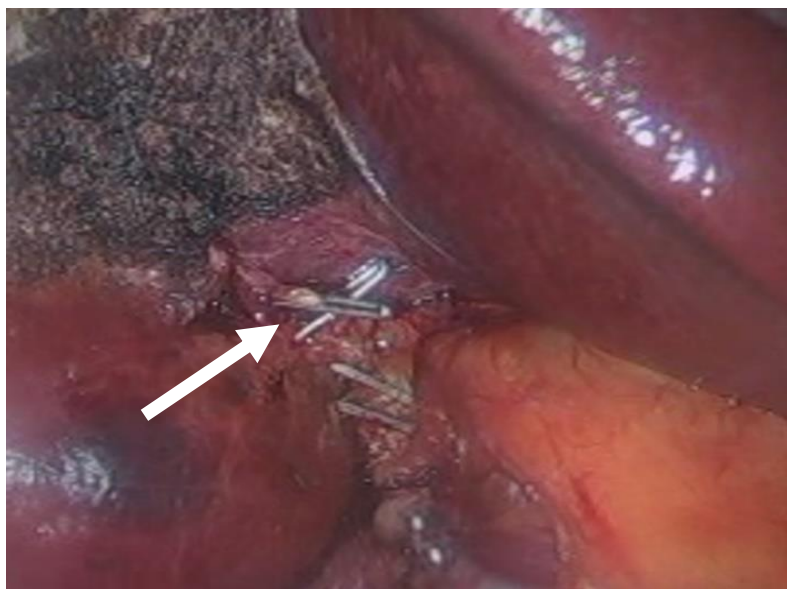


Figure 3: Double ligation of accessory duct (white arrow)

is placed in the gallbladder bed, which is impregnated with bile dye in the middle part, so a search for the accessory duct is carried out, which is visualized and its ligation is carried out with a double clip with adequate duct coaptation (figure 3). Without evidence of leakage from any other site, a Penrose-type drain was placed in the hepatic bed, with a counter opening on the right flank.

Patient who completes three days of surveillance, with low drainage output and serohematic characteristics, adequate tolerance of the oral route, without signs of peritoneal irritation or abdominal pain, discharge is assessed, with control USG in three weeks in which it is reported without evidence of collections. Result of histopathological report with mention of chronic cholecystitis without evidence of malignancy, which is why he was discharged by the surgery and control service in his family unit.

DISCUSSION

Stone cholecystitis continues to be one of the most common diseases of the digestive system in Western societies. Cholecystectomy is the most frequently performed non-emergency surgical procedure in the world today, and of these procedures, bile leaks are a frequent cause of morbidity and mortality. They can occur in between 0.3 and 2.7% of patients. These occur most frequently in the cystic duct. (1,2)

During cholecystectomy, various complications can occur at different stages of the intervention. Minor bile leaks can originate from the cystic duct or the hepatic bed; in the first case, they occur due to failure of duct occlusion, necrosis of the cystic duct, an injury proximal to the clip or due to ligation in a very wide cystic duct.(3) In the hepatic bed they can also originate from injury to a small branch of the right hepatic duct, when the dissection plane is deep, from an accessory duct that can drain directly to the right hepatic duct, from the common hepatic duct, from the cystic duct, from the gallbladder. biliary or a Luschka duct, present between 5 and 30% of individuals. They have a caliber of 1 to 2 mm and can be found within

the connective tissue of the gallbladder bed, more frequently in the center, in the lateral peritoneal reflection and less frequently in the wall of the gallbladder. (4)

Associated stones in the common bile duct are found in a third of cases. Injuries to the Luschka bile ducts are the second most common cause of postcholecystectomy bile leaks. They are called subvesicular ducts, they are small ducts that originate from the right hepatic lobe, course along the gallbladder fossa and usually drain into the extrahepatic bile ducts. (5,6)

Different case series demonstrate that injuries during laparoscopic cholecystectomy are usually recognized during the procedure or more commonly in the immediate postoperative period. In the immediate postoperative period, the presence of bile output through a drain or peritoneal signs should imply a biliary injury. Localized accumulation of bile can produce a sterile bilioma, subhepatic or interhepatophrenic abscess (7).

Jaundice in the immediate late postoperative period should always raise suspicion of the presence of primary bile duct injury. Recurrent cholangitis is another form of complications. Only in very delayed cases, the patient tends to manifest advanced cirrhosis and portal hypertension (8).

Specifically, bile leaks through Luschka ducts are usually not diagnosed intraoperatively, since the effect of anesthesia decreases bile drainage; Therefore, it is usually suspected in the first postoperative week. Bile leak depends on the connection and increases if there is obstruction in the hepatic ducts. Postcholecystectomy bile leak is reported to be 0.4% to 25%; Thus, considering that bile leak through the subvesicular ducts is the second cause of bile leak, causing the formation of biliomas and biloperitoneum that can lead to the death of the patient if they are not treated adequately (9).

subvesicular or Luschka ducts that are detected postoperatively are recommended for image-guided drainage or the use of a catheter as external drainage. Cases of low bile filtration respond well to decompression of the bile duct through endoscopic placement of a prosthesis (10).

In the case of detecting leaks intraoperatively through intraoperative cholangiography, ligation or clipping is recommended depending on the size of the duct; However, decompression must be considered by removing the stones in the extrahepatic bile duct, since, if the origin of the leak is from the subvesicular duct that communicates with the central biliary tree and this is affected by an obstruction bile drainage will be greater. In these cases, endoscopic retrograde cholangiopancreatography (CPRE) with sphincterotomy and stenting is the best method of diagnosis and treatment since it is a relatively simple and effective method for this type of injury, with success rates of 70%-95. % (10, 11).

CONCLUSION

Surveillance must be maintained before any cholecystectomy, whether open or laparoscopic, since the presence of bile leak, its clinical presentation, diagnosis, classification, complexity and appropriate treatment; But above all, in order to prevent complications, strict knowledge of the different anatomical variants is relevant. Therefore, the term subvesicular ducts allow a better spatial location when naming the small bile ducts located in the bile fossa.

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