

# Postlaparoscopic Cholecystectomy Bile Leak Secondary to an Accessory Duct of Luschka

J. M. Ramia, PhD, K. Muffak, MD, A. Mansilla, PhD, J. Villar, PhD,  
D. Garrote, PhD, J. A. Ferron, PhD

## ABSTRACT

Complications produced by the sectioning of a nonvisualized duct of Luschka are uncommon during laparoscopic cholecystectomy. From 1999 through 2003, we performed 1351 laparoscopic cholecystectomies in our department and observed 2 cases (0.15%) of bile leakage due to duct of Luschka injury. Injury during laparoscopic cholecystectomy is usually produced by an excessively deep plane of dissection and by the anatomical localization of this accessory duct. Clinical symptoms are scarce after duct of Luschka injury. Numerous diagnostic methods have been used to detect these injuries. Nevertheless, careful clinical examination is still of the utmost importance.

Noninvasive treatments are usually effective. In patients who present with acute abdomen, as in our cases, or who are not cured by noninvasive treatments, exploratory laparotomy is the best approach. The surgical treatment consists of a lavage of the abdominal cavity, closure of the duct of Luschka, and intraoperative cholangiography to confirm that the biliary tree is intact.

**Key Words:** Luschka, Laparoscopy, Cholecystectomy, Review.

## INTRODUCTION

The gold standard treatment for cholelithiasis is currently laparoscopic cholecystectomy (LC). During the learning curve phase, LC bile duct injuries appear to be more numerous and severe than those caused by open cholecystectomy.<sup>1</sup> Currently, the biliary complication rate of these 2 procedures is similar.<sup>2,3</sup> Complication produced by the sectioning of a nonvisualized duct of Luschka are uncommon during LC, although the true incidence is unknown, especially because published studies focus on so-called major biliary lesions.<sup>1,3,4</sup> From 1999 through 2003, we performed 1351 LCs in our department and observed 2 cases (0.15%) of bile leakage due to duct of Luschka injury. We present these 2 cases and discuss the appropriate diagnostic and therapeutic approach.

## CASE 1

A 51-year-old man was referred to our department for repeated colic abdominal pain in the right hypochondrium. He had a history of hepatic and renal polycystosis that produced severe chronic renal insufficiency. He underwent a surgical laparoscopy that revealed multiple cysts of various sizes on both lobes of the liver. Laparoscopic defenestration of the dominant hepatic cysts and laparoscopic cholecystectomy were performed. In the postoperative period, the patient was afebrile and experienced diffuse moderate pain of the whole abdomen, with no other symptoms. Two abdominal ultrasound scans showed a small amount of liquid in the abdominal cavity; the blood analysis results were normal. The liquid was assumed to derive from the fenestrated cysts. On the sixth postoperative day, the patient reported the abrupt onset of intense abdominal pain, and a new ultrasound scan showed an increase in the abdominal liquid. An exploratory laparotomy revealed biliary peritonitis due to bile leakage from the duct of Luschka in the liver bed. An intraoperative cholangiography confirmed that the biliary tree was intact. The duct of Luschka was then closed, with thorough lavage of the abdominal cavity. The second postoperative period was free of complications, and the patient was discharged from the hospital 5 days after the second surgery.

Liver Transplantation and Hepatobiliary Unit, Department of Surgery, Hospital Universitario Virgen de las Nieves, Granada, Spain (all authors).

Address reprint requests to: J. M. Ramia, PhD, C/Buensuceso 6, 4D, 18002 Granada, Spain. Telephone: 0034958536859, E-mail: jose\_ramia@hotmail.com

© 2005 by JSLS, *Journal of the Society of Laparoendoscopic Surgeons*. Published by the Society of Laparoendoscopic Surgeons, Inc.

## CASE 2

A 74-year-old man with a history of prostatism, right inguinal herniorrhaphy, and traumatic subdural hematoma was referred to our department for repeated biliary colic and recurrence of a right inguinal hernia. Laparoscopic cholecystectomy and right inguinal hernioplasty were performed. The immediate postoperative period was unfavorable: the patient was afebrile but presented with nausea, vomiting, and diffuse abdominal discomfort of low intensity. On the fourth postoperative day, an ultrasound scan showed free intraabdominal liquid. Emergency laparotomy revealed generalized choleperitoneum due to biliary leakage from a duct of Luschka, which was sutured. Intraoperative cholangiography confirmed that the main bile duct was intact. The second postoperative period was satisfactory, and he was discharged from the hospital 5 days after the second surgery.

## DISCUSSION

The duct of Luschka, first described in 1863, is an accessory bile duct originating in the right hepatic lobe, which is located very close to the gallbladder bed and drains into the right or common hepatic duct.<sup>2</sup> Duct of Luschka injury can cause a choleperitoneum, biloma, or subphrenic or subhepatic intraabdominal abscess.<sup>5</sup> The true frequency of the duct of Luschka in the population is unknown and ranges from 1% to 50% according to published series.<sup>2</sup> Injury during LC is usually produced by an excessively deep plane of dissection and by the particular anatomical localization of this accessory duct.

In the classification of iatrogenic injuries of the biliary tree by Strasberg et al,<sup>6</sup> wider than the classification by Bismuth, duct of Luschka injury is included in type A. The real incidence is difficult to estimate. A systematic review by Strasberg et al<sup>6</sup> reported 270 iatrogenic injuries of the biliary tree and classified 62 as type A, of which 15% (12 cases) were duct of Luschka leaks, 4.4% of all of the iatrogenic bile duct injuries and 0.047% of the LCs performed.<sup>6</sup> A review by Deziel<sup>1</sup> described 48 injuries to aberrant bile ducts (10.4% of total bile duct injuries and 0.06% of LCs studied). The incidence in our series was 0.15%.

A Strasberg type-A bile duct injury is not usually identified during an LC and clinically manifests in the first postoperative week. Three clinical patterns of presentation exist: abdominal pain with fever and symptoms of local or

general sepsis, or both, external bile fistula, and mild nonspecific symptoms. Very elevated bilirubin levels are uncommon in these patients. Among type A injuries, latent clinical symptoms are more common in the duct of Luschka than in cystic duct leakage,<sup>2</sup> as in the present cases.

Numerous diagnostic methods have been used to detect these injuries, including abdominal ultrasound and computed tomography, endoscopic retrograde cholangiopancreatography, percutaneous transhepatic cholangiography, and hepatic iminodiacetic acid scan.<sup>1,6</sup> Nevertheless, careful clinical examination is still of utmost importance. In our first case, a correct diagnosis was delayed by our assumption that the scant abdominal liquid derived from fenestrated cysts.

Treatment with sphincterotomy, endoscopic insertion of a biliary stent, and percutaneous drainage of the biloma is usually effective in a large percentage of patients.<sup>2,6</sup> In patients who present with acute abdomen, as in our cases, or who are not cured by noninvasive treatments, exploratory laparotomy is the best approach and is carried out in 30%<sup>6</sup> to 56% of cases.<sup>1</sup> The surgical treatment consists of a lavage of the abdominal cavity, closure of the duct of Luschka,<sup>6</sup> and intraoperative cholangiography to that confirm the biliary tree is intact.

## References:

1. Deziel DJ, Millikan DW, Economou SG, Doolas A, Ko ST. Complications of laparoscopic cholecystectomy: a national survey of 4292 hospitals and analysis of 77604 cases. *Am J Surg.* 1993;165:9-14.
2. Frakes JT, Bradley SJ. Endoscopic stent placement for biliary leak from an accessory duct of Luschka after laparoscopic cholecystectomy. *Gastrointest Endosc.* 1993;39:90-92.
3. Russell JC, Walsh SJ, Mattie A, Lynch JT. Bile duct injuries 1989-1993. *Arch Surg.* 1996;131:382-388.
4. Richardson MC, Bell G, Fullarton GM. Incidence and nature of bile duct injuries following laparoscopic cholecystectomy. *Br J Surg.* 1996;83:1356-1360.
5. McQuillan T, Manolas SG, Hayman JA, Kune GA. Surgical significance of the bile duct of Luschka. *Br J Surg.* 1989;76:696-698.
6. Strasberg SM, Hetl M, Soper NJ. An analysis of the problem of biliary injury during laparoscopy cholecystectomy. *J Am Coll Surg.* 1995;180:101-125.