



# Management of bile leak from the subvesical duct (Luschka's) during laparoscopic cholecystectomy

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A 60-year-old female patient with resolved biliary pancreatitis was planned for laparoscopic interval cholecystectomy. Before surgery, her vitals were normal and physical examination was unremarkable. There was no associated comorbidity. Her liver function test and serum amylase level were within normal limit. A recent abdominal ultrasound scan had revealed a solitary stone impacted at the neck of gallbladder. At laparoscopy, pericholecystic adhesions were present and gallbladder (GB) was thick-walled. Cholecystectomy was completed after dissection of the Calot's triangle and division of the cystic duct and artery.

Intraoperative inspection of the GB bed revealed continuous bile leak from a small subvesical duct (of Luschka) (Figure 1). Clipping the offending subvesical duct successfully obliterated the bile leak (Figure 2-4) (Supplementary video file 1). An abdominal drain was placed in the subhepatic region. The patient had an uneventful post-operative course. She was discharged on day 3 following surgery after removal of the abdominal drain. At 1 month follow-up, the patient was symptom-free and had normal liver function test. Histopathological examination of the gallbladder specimen was suggestive of chronic cholecystitis.

Post-cholecystectomy bile leak can occur in 0.3–2.7% of cases (1). Cystic duct stump and aberrant subvesical bile duct are the most common sites for bile leak following cholecystectomy (2). It is estimated that approximately 27% of clinically significant bile leaks occur secondary to subvesical bile duct injury. Usually, bile leakage from the subvesical duct tends to be minor and often resolve spontaneously. However, it may seldom cause persistent bile leak resulting in localized or generalized peritonitis with potentially life-threatening consequences (3).

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**Figure 1.** Laparoscopic image showing bile leak from aberrant subvesical bile duct.



**Figure 2.** Clip being applied after delineating leaking subvesical duct.



**Figure 3.** The duct is grasped and gently pulled for proper application of clip.



**Figure 4.** Obliterated aberrant subvesical bile duct after clip placement.

Intraoperative detection of the severed subvesical duct is rare, and most of the cases present during the first postoperative week (2). Common presentations include abdominal distention, pain, fever and occasionally jaundice.

When detected postoperatively, management includes control of the sepsis, drainage of biloma and decompressing the bile ducts. Endoscopic sphincterotomy and biliary stenting is highly effective in treating the persistent bile leaks (4).

Intraoperative detection of the subvesical bile duct injury provides a unique opportunity for timely control of the bile leak and preventing serious complications. Obliteration of the leaking subvesical duct can be achieved with sutures, clip or fibrin glue. Clipping is safe, effective and faster way of managing the bile leak, provided the duct can be clearly delineated.

To conclude, a surgeon should be aware of the risk of subvesical bile duct injury during cholecystectomy and should be prepared to manage it tactfully if detected intraoperatively.

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