

Jaundice Secondary to Spilled Gallstone During Laparoscopic Cholecystectomy

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Advantages of laparoscopic cholecystectomy (LC) in terms of shorter hospital stay, less pain, and diminished disability are well documented.¹⁻³ Less well documented are the long-term complications of this procedure. We report a patient who developed obstructive jaundice 8 months following LC from a spilled gallstone. In our review of the literature using MEDLINE from January 1990 to June 1995, we did not find this complication reported.

CASE REPORT

A 74-year-old male with symptomatic gallstones was scheduled to have elective LC. While awaiting hospital admission, he had an episode of abdominal pain with elevated serum amylase and lipase. He underwent endoscopic retrograde cholangiopancreatography (ERCP) for suspected choledocholithiasis. During ERCP, pancreatic duct was cannulated and found normal. Bile duct could not be cannulated because of a periampullary duodenal

diverticulum. Subsequently he underwent LC with intraoperative cholangiography. Cholangio-gram showed normal sized ducts without filling defects and a free flow of the dye into the duodenum. He was discharged home the next day.

Six months later he consulted a dermatologist for itching skin but no cause was identified. Eight months following LC he noticed yellow discoloration of his skin without fever or chills. Results of liver function tests were compatible with obstructive jaundice. Abdominal sonogram

showed intra- and extrahepatic bile duct dilatation. Common bile duct measured 1.6 cm. A computerized tomographic scan demonstrated dilatation of the common bile duct to the level of pancreatic head. At this level a faint ovoid calcified mass was seen which was interpreted as a retained common bile duct stone.

Instead of ERCP, because of previous difficulty with the procedure, he underwent exploratory laparotomy. Adjacent to the common bile duct at the level of cystic duct entrance a 1.5-cm gallstone

surrounded by dense adhesions causing extrinsic obstruction to the common bile duct was seen. Operative cholangiogram showed a narrowed segment of common hepatic and common bile duct at the level of extrinsic compression from the stone. Proximally the duct was dilated and distally it was of normal caliber. The stone was released from common bile duct and removed from the peritoneal cavity. A T-tube was left in the common bile duct. His postoperative course was uncomplicated. Postoperative cholangiogram showed ducts of normal size, without any filling defects. The T-tube was removed subsequently and the patient remained asymptomatic.

DISCUSSION

LC has replaced open cholecystectomy as the procedure of choice for the treatment of symptomatic cholelithiasis because of the well documented advantages.¹⁻³ Delayed complications resulting from LC are not well known. Targarona et al⁴ in a review of the literature from 1991-1994 collected 49 cases of delayed complications related to spilled stones. The complications included intra-abdominal abscess, trocar site abscess, cutaneous fistula, biliary peritonitis, intestinal obstruction, abdominal mass, ovarian mass, dyspareunia, bronchopleural fistula, and acute abdomen. However, there was no case of obstruction to the bile duct from extrinsic compression or from scar resulting from a spilled stone.

Perforation of the gallbladder allows its contents (bile and stones) to spill. Spillage occurs either during dissection of the gallbladder from the gallbladder fossa or during its extraction through the abdominal wall. The reported incidence of spillage is as high as 30%.⁵⁻⁶ The incidence of stone spillage is lower than that of bile (1-20%).^{6,7} In our patient there was no perforation during dissection of gallbladder from the gallbladder fossa. The stone must have been spilled during extraction through the abdominal wall and was unrecognized.

There is controversy as to the management of spilled stones during LC. During the era of open cholecystectomy this was not a problem since the spilled stones were removed. In the early days of LC spilled gallstones were considered innocuous and therefore it was thought that the

stones could be left behind without ill effects.^{5,8,9-11} However, subsequent experience has shown that spilled gallstones can cause complications requiring additional operation^{4,12} as happened in our patient. In view of the potential for complications from spilled stones in the peritoneal cavity it is preferable to retrieve all stones to prevent subsequent complications. Measures recommended for avoiding spillage and retrieval of spilled stones include (a) decompression of tense gall bladder, closure of gallbladder perforation,⁶ (b) copious irrigation and aspiration with a large bore cannula if the stones are small and multiple,⁶ (c) use of mechanical devices such as bags, basket or "shuttle device"^{6,13} and (d) enlargement of trocar wound when the stone is larger than the trocar wound.¹⁴

The most frequent causes of jaundice following LC include bile duct injury and retained common duct stone.¹⁵ Jaundice secondary to scarring around a spilled gallstone adjacent to common bile duct is unusual. If the patient did not have periampullary duodenal diverticulum rendering ERCP impossible, the diagnosis probably could have been established prior to exploratory laparotomy.

The patient had a preventable complication. It could have been prevented by retrieving the spilled stone. If it is not possible to retrieve all stones or if a stone gets lodged in an inaccessible area like the hepatorenal pouch, between liver and the diaphragm, or between the loops of small bowel the stone can be retrieved by opening the abdomen. At present it is not clear as to whether all patients with spilled stones or only selected patients should be opened. Both the clinical and experimental data^{4,5,8,9-12,16,17} have been controversial. Some series^{5,8} reported no complications from spilled stones whereas others^{4,6,17} reported many complications.

It is worthwhile examining the gallbladder for a tear after it is extracted. If a tear is found, there is a possibility of spilled stones and a careful search must be made to retrieve the spilled stone. If this practice had been followed, the patient could have been saved from the complication. If stones are left behind in the peritoneal cavity, it should be documented in the operative notes. This information can be very useful in proper assessment of a

complication if it were to develop. **STI**

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