

## CYSTIC DUCT LEAKAGE AFTER LAPAROSCOPIC CHOLECYSTECTOMY: DEMONSTRATED BY SPIRAL CT CHOLANGIOGRAPHY

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### ABSTRACT

Bile leakage from the cystic duct stump, was demonstrated by spiral CT cholangiography. The patient was 55 years old and was underwent laparoscopic cholecystectomy. Spiral CT cholangiography is a simple and quick imaging study to detect such leakage.

### INTRODUCTION

Laparoscopic cholecystectomy is now widely accepted as the procedure of choice for removal of the gallbladder. It offers the shorter hospital stays, less postoperative pain and lowered hospital costs (1). Injury to bile ducts and cystic duct stump leak had been demonstrated by radionuclide imaging (1-4), endoscopic retrograde cholangiography (ERC) and transhepatic cholangiography (THC) (4,5). This is the first case report of cystic stump leak, illustrated by spiral CT cholangiography.

### CASE REPORT

A 55-year old male patient was underwent a laparoscopic cholecystectomy for chronic calculous cholecystitis. Ascites was detected in the postoperative period. Spiral CT cholangiography was performed to identify the site of bile leakage. The spiral CT scanner was Elscint CT twin. The contrast medium used was endocistobil 50%, 20 cc. in 100 cc. of normal saline. The mixed fluid was i.v. dripped in 30 minutes. Scanning was performed immediately afterwards. It showed distended cystic duct stump. Leakage of the contrast medium was shown from the

stump to subhepatic region (Fig. 1a, b, c). Surgery revealed leakage of the bile from the cystic duct stump. There was an evidence of necrotic area near the stump. Large amount of bile fluid was noted at the left subhepatic and right subdiaphragmatic spaces. The metallic clamp was intact. The cystic duct was ligated close to the common bile duct.

### DISCUSSION

Cystic duct leaks after laparoscopic cholecystectomy (LC) may develop for one of the three reasons: (1) misplaced or lost clips as in our case; (2) tear in the remnant proximal to the surgical clips; or (3) failure of short, necrotic ductal remnant to close because of acute inflammation (6).

Three-dimensional spiral CT cholangiography enables noninvasive volumetric imaging of the biliary tract (7). The normal-sized biliary tract was adequately depicted during three-dimensional spiral CT cholangiography (8). The use of iodinated cholangiographic agents is not indicated in the patient with known allergy, hepatic or renal failure, gamma-globulinopathies or elevated bilirubin levels (9). A relation has been shown between serum bilirubin concentration and nonvisualization of bile ducts on IV cholangiograms

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(10). IV cholangiography has not been recommended in patients who have a serum bilirubin concentration greater than 51  $\mu\text{mol/l}$  (3mg/dl) (9). In the case of bile leakage as in this case, there is no problem of obstruction. In the absence of hemolysis or hepatic

damage, there will be no obstacle to the study. Slow infusion cholangiography is a safe technique (11).

In conclusion, it shows that the three-dimensional spiral CT cholangiography is a feasible method for imaging the bile leak after laparoscopic cholecystectomy.



Fig. 1a. Maximum intensity projection (MIP) image of the bile duct showed a leak from the cystic duct stump.



Fig. 1b. Rotating MIP image of the bile duct showed a leakage tract to subhepatic region

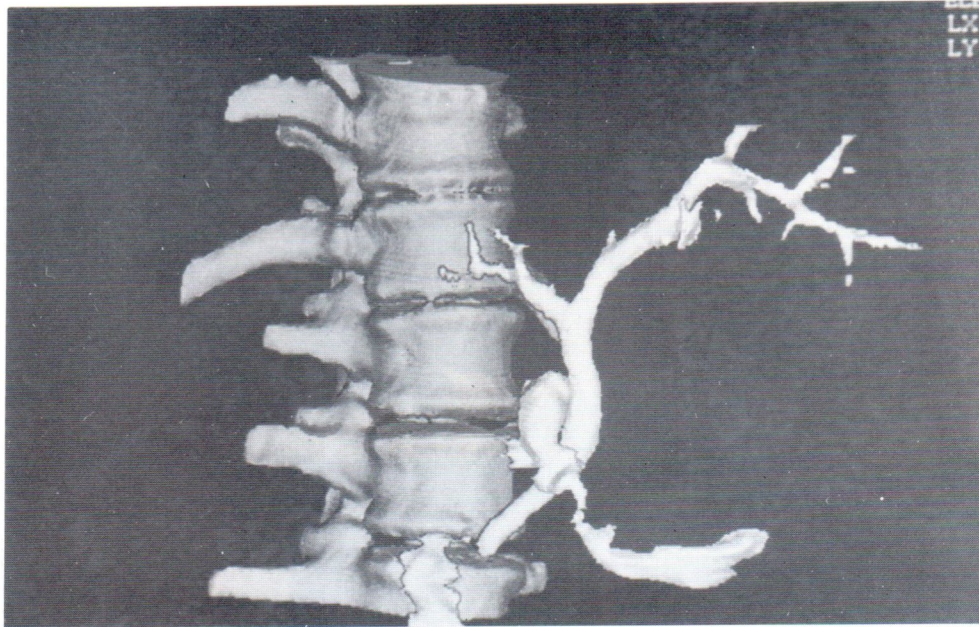


Fig. 1c. Oblique view 3D reconstruction of the bile duct showed a leak from the cystic duct stump and a tract of contrast medium from the leakage site to the subhepatic region

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