

The Discovery of a Choledochal Cyst During a Single-Port Cholecystectomy With Intra-Operative Cholangiogram

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Abstract

Choledochal cyst is a rare congenital malformation, which is most often discovered in pediatric patients. Perioperative cholangiography is routinely performed in our institution during standard or single-port cholecystectomies. We report the case of a 25 year-old woman with a choledochal cyst identified during a single-port cholecystectomy with cholangiogram. The case illustrates the feasibility and usefulness of single-port intra-operative cholangiogram.

Keywords: Single site laparoscopic surgery; Cholecistectomy; SILS

Introduction

Choledochal cysts (CCs) are the most frequent malformations of the extrahepatic bile duct, but remain extremely rare with an estimated yearly incidence of 0.5/million. About 3,000 cases have been reported in the literature thus far, with a higher female prevalence (female/male: 3/1) [1-3].

The pathogenesis of CCs remains unclear, but may be related to an abnormal pancreaticobiliary duct junction, leading to a chronic inflammation and damages to the duct wall [4]. The initial investigation of the bile duct tree should include an ultrasound. Subsequently, a CT scan, ERCP and/or MRCP can help better understand the anatomy [5].

In some patients, the cyst remains asymptomatic and

can be discovered during investigations performed for other reasons or during surgery. We illustrate this possibility by reporting the case of a patient with a CC discovered during a single-port cholecystectomy with cholangiogram. We also discuss the usefulness and safety of single-port cholangiogram.

Case Report

A 25-year-old woman with symptomatic cholelithiasis has been admitted for an elective cholecystectomy. An abdominal ultrasound has been performed and revealed gallstones without signs of inflammation or abnormality of the bile duct anatomy. Liver function tests were normal.

A single-port cholecystectomy has been performed with cholangiogram. A clip was placed proximally on the cystic duct, a small incision made and a cholangiography catheter (Cook™ type) inserted. The cholangiogram images were



Figure 1. Large choledochal cyst with dilated intrahepatic bile duct.

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further acquired similar to the standard procedure [6] and a large CC with a dilated intrahepatic bile duct was discovered (Fig. 1). The cholecystectomy was successfully completed and the patient discharged within 24 hours.

Due to the presence of a dilated intrahepatic bile duct and the risk of cancer degeneration, the patient has been suggested to undergo the resection of the cyst and the extrahepatic bile duct with choledoco-jejunostomy. While being non symptomatic, she declined the offered management.

Discussion

Intraoperative cholangiogram can be very useful for the detection of common bile duct stone, a better assessment of the bile duct anatomy and a safer dissection with lower rates of bile duct injury during cholecystectomy [7, 8]. In addition, it can help detecting bile duct injury earlier. Based on these observations and in order to improve safety, our institutional policy includes an intraoperative cholangiogram for all cholecystectomies, whether standard or single-port. Of note, while more difficult during single-port procedures, a cholangiogram was successfully performed in 87% out of 175 consecutive single-port cholecystectomies [9].

The case reported herein further illustrates the usefulness of this strategy in a patient undergoing single-port cholecystectomy. While the patient was non symptomatic, the intraoperative cholangiogram was the best way to detect and characterize the described CC. While rare, the detection of CC is critical as it is linked to a significant risk of malignant degeneration [10-11]. A review of 73 Japanese institutions has identified 154 cases of malignancy in 881 patients with choledochal cysts (prevalence of 17%) [12].

Conclusion

The present report illustrates the feasibility and usefulness of intraoperative cholangiogram during single-port cholecystectomy. We would suggest performing cholangiogram in all patients (or at least with low threshold) even during single-port surgery.

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