



Need to identify the risk factor for stone recurrence after common bile duct exploration

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Cholelithiasis and cholecystitis are among the most common surgical conditions in the hepato-pancreato-biliary section. The recurrence of common bile duct (CBD) stones is considered an unsolved problem after cholecystectomy. In the setting of recurrent CBD stones, the management approach is regular follow-up after surgery in patients with the risk factors of recurrence. Many contributing factors also predispose the patient to the formation of recurrent primary CBD stones. Therefore, it is essential to evaluate the more influential risk factors and their role in predicting the occurrence of CBD stones.

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Between 10% and 18% of people undergoing cholecystectomy for gallstones have common bile duct (CBD) stones. Bile duct stones can be treated by open cholecystectomy plus an open CBD exploration or laparoscopic cholecystectomy plus laparoscopic CBD exploration. On the other hand, the stones can be treated with pre- or postcholecystectomy endoscopic retrograde cholangiopancreatography (ERCP) in two stages, usually combined with either endoscopic sphincterotomy (EST) or sphincteroplasty (papillary dilatation) for CBD clearance. The benefits and harm of the different approaches are not known [1].

Generally, the recurrence rate of CBD stone has been quoted in the literature as between 4% and 25% [2–6]. Nevertheless, CBD stone recurrence is considered an unpredictable problem after cholecystectomy. Several trials have investigated CBD stone re-

currence after ERCP with EST, but it is insufficient to explain CBD stone recurrence after cholecystectomy. Yoo et al. [7] reported CBD stone recurrence factor that the CBD stone number (≥ 2), presence of cholesterol stones, and sharp bile duct angulation ($<145^\circ$) were associated with CBD stone recurrence after cholecystectomy, while the presence of the perampullary diverticulum (PAD) was not. In contrast, Oak et al. [8] reported that the risk factors for CBD stone recurrence after cholecystectomy were the presence of type I or II PAD and multiple CBD stones. The data result about CBD stone recurrence risk factors can be confusing. Basically, the CBD stone recurrence risk factor may predispose a patient to bile stasis and promote stone formation. Stasis is believed to play an important role in the pathogenesis of cholesterol gallbladder stone for retention of cholesterol su-

persaturated bile in the gallbladder long enough to provide time for nucleation and precipitation of cholesterol crystals and retention of crystals to allow them to grow into stones. Ekici et al. [9] demonstrated that patients with leukocytosis have an increased rate of conversion to open cholecystectomy during laparoscopic cholecystectomy.

In the article of Choi et al. [10] in this issue of *Journal of Minimally Invasive Surgery*, the author concluded that ‘the preoperative white blood cell count elevation could be associated with recurrent choledocholithiasis.’ Worsening leukocytosis is a more universal sign of systemic inflammation and infection; however, its role in predicting CBD stone occurrence in the setting of the risk factors for postoperative CBD stones has not been established. Therefore, further study with a larger sample size will be needed to reach more definitive conclusions.

NOTES

Conflict of interest

The author has no conflicts of interest to declare.

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