

# When Are Patients With Common Bile Duct Stones Referred for Surgery?

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In this issue of the journal, Shojaiefard et al. report the results of surgery upon 186 patients in which endoscopic removal of common bile duct (CBD) stones had failed.<sup>1</sup>

Endoscopic Retrograde Cholangiopancreatography (ERCP) is considered the standard primary treatment for CBD stones in patients with previous cholecystectomy. Even in patients with gall bladders, ERCP together with cholecystectomy is a well-accepted method.<sup>2</sup> Laparoscopic CBD exploration is time consuming, requires more expertise, and is associated with increased morbidity including biliary strictures. Thus, surgeons often prefer to have the CBD stones removed endoscopically either before or after cholecystectomy.<sup>3</sup> A meta-analysis on non-cholecystectomy subjects with CBD stones looked at 7 trials comparing open surgery for removing both the gallbladder and the CBD stones vs. cholecystectomy and endoscopic removal of CBD stones. The results in terms of success rate, morbidity and mortality were no different between the two groups. Thus, the endoscopic method (followed by laparoscopic cholecystectomy), being less invasive and as successful as surgery was recommended as the therapeutic strategy of choice for CBD stones.<sup>4</sup>

When is surgery performed to remove CBD stones? Obviously, one occasion is when endoscopic treatment fails. Shojaiefard et al. report that among 1462 cases with CBD stones, 186 failed endoscopic treatment.<sup>1</sup> The success rate for removal of CBD stones with ERCP is 80 to 90%. Failures might be due to bile duct strictures, unusual anatomy such as duodenal diverticuli, stones being beyond the reach of wire basket, or stones being too large.<sup>5</sup> Failure of cannulation of ampulla occurs in 5% of ERCPs. The success rate is 76 and 80% at second and third attempt respectively. Although by expertise, the success rate might approach 100% on the second attempt.<sup>6</sup> Needle knife sphincterotomy increases the success rate by 25%. But occasionally, blocking of the endoscopic view due to bleeding might cause failure.<sup>6</sup> Needle-knife fistulotomy is another technique which might assist in difficult cases.<sup>7</sup> In patients with large CBD stones, mechanical lithotripsy can increase the success rate to 95%. If mechanical lithotripsy fails too, extracorporeal shock wave lithotripsy (ESWL) can be successful in another 80%.<sup>8</sup>

As discussed above, when initial ERCP fails, there is still a very good chance of success with repeated attempts using appropriate techniques. Nevertheless, sometimes patients are referred for surgery immediately after the first failure.

A few other factors are involved in the decision of when to give up on non-surgical management. Endoscopists tend to refer patients with simultaneous gallbladder and CBD stones for surgery earlier than those who have already had their gallbladder removed.

On the one hand, the former will eventually need surgery to remove the gallbladder, even if ERCP is successful in removing the CBD stones, so a second or third endoscopic attempt to remove the CBD stones might not be justified in light of the overloaded ERCP department with many emergency patients in line. The relatively large number of non-cholecystectomy patients referred for surgery in this study (76%) might be a reflection of this fact. On the other hand, subjects who have already undergone cholecystectomy can be spared surgery if endoscopic treatment is successful. Thus, multiple attempts at removing the CBD stones endoscopically is well justified.

It is also frequently observed that patients with less operative risk are more readily referred for surgery.

In patients who are poor surgical risks, ERCP without cholecystectomy might lead to less morbidity and mortality. If the CBD stones cannot be removed, even after trying mechanical lithotripsy and ESWL, stenting of the CBD without removing the stones can still resolve symptoms in a majority of cases.

A few newer techniques have also evolved. When ERCP is not performed before cholecystectomy, during surgery a standard ERCP catheter can be secured in the cystic duct instead of a T-tube. The catheter can be used to do cholangiography after surgery and if a stone is found, ERCP would be successful in removing the stone in 97% with only 1% complication rate. Transcystic stenting of the CBD during cholecystectomy, or placing a guidewire via the cystic duct and using the so-called 'rendezvous technique' are among other methods with promise. The 'facilitated ERCP' performed after such surgeries has a much higher success rate of 95% and results in shorter hospital stay.<sup>9</sup>

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