
Common bile duct stones: Endoscopy or surgery?

Clayton ESJ, Connor S, Alexakis N, Leandros E. (Department of Surgery, Christchurch Public Hospital, Christchurch, New Zealand; Department of Surgery, University of Athens School of Medicine, Athens, Greece.) Meta-analysis of endoscopy and surgery versus surgery alone for common bile duct stones with the gallbladder *in situ*. *Br J Surg* 2006;**93**:1185–91.

SUMMARY

This meta-analysis of the available level I evidence in the literature on the strategies for management of cholelithiasis with associated choledocholithiasis identified 12 randomized trials from 1987 to 2006 comparing endoscopic therapy and surgery versus open common bile duct (CBD) surgery (7 trials) or laparoscopic CBD surgery (5 trials). It showed that there were no differences between the two groups in the success rate of stone clearance (77.1% v. 80.1%), mortality (1.7% v. 0.9%), major

morbidity (8.9% v. 6.1%) or requirement for additional procedures (12.5% v. 8.2%). There was also no significant difference in the above outcome measures between the endoscopic and laparoscopic surgery groups. The authors concluded that treatment for patients with cholelithiasis and choledocholithiasis should be determined by local resources and expertise.

COMMENT

The primary challenge in the management of CBD stones in association with gallstones is to select the best strategy with regard to success, morbidity and cost-effectiveness. The standard of care for management of CBD stones has continuously evolved over the past decade-and-a-half. Open cholecystectomy with CBD exploration was the standard treatment for gallstones and CBD stones. The minimally invasive era saw growth in expertise and availability of endoscopic methods for CBD stone clearance and, simultaneously, there was a rapid increase in laparoscopic cholecystectomy, which became the standard of care for gallstone disease. This meta-analysis looked at 7 trials comparing endoscopy for CBD stones and surgery for gallstones with open surgery for gallstones and

CBD stones. The results in terms of success rate, morbidity and mortality were no different between the two groups. Thus, the endoscopic method, being less invasive and as successful as surgery, comprising preoperative endoscopic therapy followed by laparoscopic cholecystectomy was accepted as the therapeutic strategy of choice for CBD stones.

The initial limitations of endoscopic therapy were overcome by aggressive interventional strategies that required multiple sessions for stone clearance and the use of expensive equipment and accessories. Interestingly, the success rate of CBD stone clearance has plateaued at 80%–85% in randomized trials, whereas there has been a distinct increase in the number of days of hospitalization and cost of therapy. Moreover, the endoscopic approach, though safe, was associated with an increase in the number of procedures¹ and statistically increased the likelihood of complications as two procedures had to be performed in a patient, thus raising serious concerns.

The next era saw a quantum improvement in laparoscopic techniques and, with increasing expertise, surgeons were comfortable with laparoscopic techniques of CBD surgery. A single procedure (both for gallstones and CBD stones), which could be performed by a minimally invasive technique, was an attractive proposition compared with multiple interventions with its attendant risks. Randomized trials comparing endoscopic CBD stone clearance followed by laparoscopic cholecystectomy and laparoscopic gallbladder and CBD surgery showed no difference between the two strategies in terms of success rate and morbidity.¹ Laparoscopic CBD surgery, however, is time-consuming, and requires patience and expertise, fluoroscopic facilities in the operating theatre and accessories for stone extraction. In addition, it may not be feasible in cases where the CBD diameter is <6 mm. Thus, by default, preoperative endoscopic stone clearance followed by laparoscopic cholecystectomy has become the standard of care where facilities are available.

There are several issues concerning this strategy—what is the optimal timing of cholecystectomy following an endoscopic stone clearance? Are the costs and risks inherent with the

performance of two procedures (endoscopy and surgery) acceptable? What is the optimal strategy for patients who do not have access to advanced endoscopic and laparoscopic procedures? This is especially pertinent in the Indian scenario.

Morino *et al.*² compared sequential treatment (preoperative endoscopic retrograde cholangiography [ERC] followed by laparoscopic cholecystectomy) with the laparoendoscopic rendezvous method of laparoscopic cholecystectomy and intraoperative ERC with stone extraction as a one-time therapy for gallstones and CBD stones. The rendezvous method had a higher success rate (95.6% *v.* 80%), shorter hospital stay (4.3 days *v.* 8 days) and lesser cost (€2829 *v.* €3834). The major limitation seems to be logistical—coordinating the endoscopic procedure in the operating theatre.

Considering the variety of therapeutic options available for management, a critical appraisal and decision-making is required. In a setting where all facilities are available a laparoendoscopic rendezvous method is perhaps the best option. If the stone is detected preoperatively and is associated with jaundice and cholangitis, a sequential preoperative endoscopic clearance followed by laparoscopic cholecystectomy is appropriate. Open CBD surgery is safe and effective, and should be reserved for cases where concomitant open surgery is needed, or where minimally invasive modalities are not available or not suitable for the patient.

REFERENCES

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