

CHOLEDOCHOLITHIASIS: WHITHER SURGERY?

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SUMMARY

CHOLEDOCHOLITHIASIS IS A COMMON CONDITION. IT HAS BEEN ESTIMATED THAT AS MANY AS 24% OF PATIENTS WITH CHOLELITHIASIS HAVE STONES IN THE COMMON BILE DUCT.

Until the last decade, the 'gold standard' for treatment has been surgery. Because of the reported high incidence of morbidity and mortality associated with surgical exploration of the bile duct clinicians have turned their attention to other modalities of treatment. These recent advances for the management of choledocholithiasis are reviewed.

The prevalence of gallstones in the Western world is on the increase. In the

United Kingdom, it is estimated that 1 in 10 of the adult population suffer from cholelithiasis. Before the menopause, the male: female ratio is 1:2-3. In patients over the age of eighty, the prevalence rises to 33%¹.

Crumpreported that in his large autopsy series of more than 1000 patients with cholelithiasis, 24% of these had stones in the common bile duct (CBD) and that the prevalence increased with age². These similar findings were obtained in Leiber's autopsy series. In an operative series³, where gallstones were symptomatic, choledocholithiasis was found in 6% of the younger age group rising to 33% in the >80 years of age⁴. From this data, Johnson et al⁵ conclude that not only are CBD stones more common in the elderly but a far greater proportion are symptomatic.

To most surgeons, stones in the CBD may present either pre-operatively with abnormal LFT's, jaundice or even as acute pancreatitis. Pre-operatively stones may be encountered incidentally during laparotomy or during routine cholecystectomy. Post-operatively stones may present early following T-tube cholangiography or late as recurrent stones. Millbourn⁶ and Wenchert and Robertston⁷ have shown that if left untreated about 55% of patients will develop complications

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directly attributable to the disease. Clearly, therefore, treatment should not be withheld.

In 1885, Lawson Tait, in his reappraisal of surgical advances of his time wrote: "I claim that there is none so certain, nor so free from risk, nor so brilliantly successful as the surgical treatment of gallstones"⁸. To date, this is still the most effective form of treatment for CBD stones if encountered pre or post operatively. It has been suggested that if surgical intervention is coupled with cholangiography^{9,10} or choledochoscopy^{11, 12, 13}, the number of retained stones is virtually eliminated. If this postulate is correct, Cahill's survey¹⁴ makes interesting reading. By means of a postal interview, he established the attitude of the London surgeons to routine preoperative cholangiography. He found that only 84% of surgeons performed this procedure as routine, 12% only sometimes and 4% never use routine cholangiography.

It is arguable whether operative cholangiography should be routine. The evidence suggests that over-exploration rather than underexploration takes place⁵. It is known from the work of Den Besten et al¹⁵ and Kakos et al¹⁶ that about 25% of patients with cholelithiasis will have exploration of the CBD. However, only 60% of the ducts explored contain stones. More recently, the Mayo Clinic experience showed that in 104 patients undergoing concomitant cholecystectomy and exploration of the CBD, stones were only retrieved in 17 patients, all of whom had clearly positive findings on cholangiography. Of the 87 patients who had negative results, 57 underwent exploration of the CBD on the basis of clinical factors and 21 on the basis of equivocal cholangiographic findings¹⁷. Grundy reviewed the literature on surgical exploration of the CBD. He concluded on the evidence available that this has a *prima facie* detrimental effect on the patient. He found that the mortality rate rose from 0.1-2% for

simple cholecystectomy to 3.4-43% when CBD exploration was undertaken¹⁸. Other studies do confirm this increased mortality^{16,19} associated with duct exploration. It must however be emphasized that those who require exploration are usually older patients with complications of biliary tract disease. McSherry and Glenn²⁰ have carefully analysed the causes of death after biliary surgery for benign disease and found no evidence that negative exploration is harmful in the younger fit patient. There was 1 death in 221 negative explorations, exactly the same mortality as for cholecystectomy.

Older patients are therefore at risk. The technique of endoscopic retrograde cholangio pancreatography (E.R.C.P.) coupled with endoscopic sphincterotomy (E.S.) is an alternative procedure. This technique, introduced by Classen and Demling fourteen years ago, may be of value in 3 situations:

1. as the sole procedure for the treatment of choledocholithiasis, leaving the gallbladder in situ. Much has appeared in the recent literature about this concept. It has been suggested²¹ that surgery for the retained gallbladder is rarely required provided the bile duct is cleared at the time of sphincterotomy. This technique is therefore suitable for the older and frail patient. The reported success rate of complete duct clearance after E.S. is 96%^{22,23}. However, the authors warn that the incidence of serious complications (biliarycolic, cholecystitis and even jaundice) arising from the retained gallbladder is 15-25%.

2. prior to cholecystectomy. Two recent studies have addressed this modality of treatment. Preoperative endoscopic sphincterotomy and surgical exploration of the common duct were compared both prospectively²⁴ and retrospectively²⁵. The morbidity and mortality rates were not significantly different between the two groups studied. This therefore suggests that E.S. carries no less risk in the

young patient. The authors conclude that "fit patients should be treated by surgery alone without routine preoperative E.S."²⁶.

3. the definitive procedure after cholecystectomy ('recurrent' stones). Johnson et al⁵ reviewed the results of 7 major publications on the subject. Of a total of 5253 patients undergoing E.R.C.P. and E.S., 935 had a successful E.S. and 87% (or 82% of the total) had complete duct clearance. Mortality was low but the complication rate varied from 7.2% in the cold case to 19% in recently operated patients.

The case for E.S. is convincing enough and one would indeed be entitled to ask whether surgery?

Miller et al²⁷ compared the results of operative surgery and E.S. He analysed 237 patients with stones in the CBD of whom 120 still had the GB in situ. Of this group, 59% underwent cholecystectomy and CBD exploration and 41% E.S. alone. Of the 107 cholecystectomized patients, 102 underwent E.S. The complication, success and death (3%) rates were similar, but whereas the complications of surgery were mainly cardiorespiratory, those from the E.S. group were directly related to the procedure. Multivariate analysis showed that the complication rate in the > 70's was independent of the procedure used²⁶.

Following E.S., stones may either be allowed to pass spontaneously or extraction may be performed using a balloon catheter or a Dormia basket. Mechanical lithotripsy may be performed for the larger stones and success rate is about 80%. The Erlangen²⁸ group have indeed shown an overall success rate of 87.6% in 209 patients treated between 1982 and 1987. This included 79.1% for CBD stones greater than or equal to 20mm and 67.6% for stones greater than or equal to 25mm. The introduction of stronger baskets

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