

bile duct. Perhaps the preoperative demonstration of the anatomy by IVC or ERCP may prevent difficulties in these cases.

Operative cholangiography is also of value to demonstrate ductal damage and allow immediate repair. It also encourages emptying of the cystic duct of any small stones or debris. Operative cholangiography has its problems; it is theatre time and technology consuming, it may damage a short cystic duct making clipping difficult and it has a failure rate of 5–50%. This failure rate will become minimal if practised frequently.

It is important to know that major bile duct damage leads to considerable morbidity and the mortality may reach 8% (4). It should therefore be obligatory for all cholecystectomists, open or endoscopic, to identify the confluence of the ducts before finally dividing any ductal structure. It would seem wise until further information becomes available to continue using operative cholangiography in all cases unless there is a very strong reason not to.

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The recent paper by Gillams *et al.* (*Annals*, July 1992, vol 74, p248) addresses one of the most important issues in laparoscopic cholecystectomy. Their results show that preoperative ultrasonography will identify a large proportion of patients with stones in the common bile duct. These stones can then be dealt with endoscopically before surgery.

What the paper fails to address is whether an operative cholangiogram will reduce the risk of serious ductal injury by providing a 'road map' of Calot's triangle. The paper they refer to when they state that the bile duct is often injured before cholangiography dealt with *open* cholecystectomy. This difference is crucial as the common bile duct is not always visualised at laparoscopic cholecystectomy and the cholangiogram may provide the only indication of the proximity of the cystic duct (marked by the holding clip) to the common duct (1).

This is an important question and is given added weight by recent reports from the USA of ductal injury at laparoscopic cholecystectomy. For example, Stewart and Way recently reported their experience in a referral centre of 16 patients with bile duct injuries after laparoscopic cholecystectomy (2). The duct injury in five of these patients was from clip application to the common bile duct to control bleeding—not a common problem at the open procedure.

At the very least it should be apparent that the question of the role of operative cholangiography at laparoscopic cholecystectomy is unanswered. Given this situation it seems unwise to disregard the guidelines for safe removal of the gallbladder evolved over many years of open biliary surgery (3).

One eventual compromise may be the development of a policy of selective cholangiography based on the assessment of risk factors as described by Montariol *et al.* (4). Given that there are no controlled studies comparing the incidence of ductal injury at laparoscopic cholecystectomy with or without operative cholangiography, the answer to the question posed by the authors in their title must remain 'do not know'.

References

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Laparoscopic operative cholangiography: a simple, successful, cost-effective method

We read with interest the technique of Fligelstone *et al.* for laparoscopic operative cholangiography (*Annals*, July 1992, vol 74, p252). We have attempted a similar technique using a size 6G Chevaseau ureteric catheter to cannulate the cystic duct with a Medicut® needle to puncture the anterior wall. We encountered several problems. This method requires coordination between two operators. Cannulation of the cystic duct often required several attempts due to the natural recoil of the catheter, often resulting in a crushed or deformed catheter which was functionally useless. This occurred despite the presence of a stilette which seemed to offer little protection. In addition, when applying a clip across the cystic wall, the margin between complete catheter occlusion and achieving a secure position was small.

Our preference is to use an Olson clamp with a size 6G Chevaseau catheter. The clamp consists of a hollow lightweight aluminium cylinder approximately 30 cm long with a calibre which fits a 5 mm port snugly. The distal end of the clamp consists of a pair of opposing U-shaped jaws parallel to the long axis of the instrument which are controlled using a finely graduated ratchet mechanism in the handle of the clamp. The gallbladder is put on stretch superiorly and laterally using the midclavicular and midline port thus aligning the cystic duct with the clamp, which is introduced through the midaxillary port and advanced to the site of the incision in the cystic duct. The catheter with the stilette *in situ* is inserted and advanced down the clamp until it appears between the open jaws of the instrument. The cystic duct is cannulated and the clamp advanced over the catheter to a position allowing approximation of the jaws over both the cystic duct and the catheter within it. If need be, the clamp can be released gently allowing the catheter to be advanced or withdrawn within the cystic duct without fear of inadvertent extubation. Once in position, the stilette can be withdrawn and a 20 ml syringe of normal saline connected using a rubber seal. Aspiration of bile excludes air and confirms catheter patency. This technique has been attempted on 31 consecutive occasions with uniform success.

We believe the stilette provides a useful degree of catheter