CASE REPORT

Old is still gold

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SUMMARY

Common bile duct injury is infrequent but a serious complication of cholecystectomy. Variable biliary anatomy has an increased risk of iatrogenic injury. Intraoperative cholangiogram can be performed to provide a clearer picture of biliary anatomy. We report a case of a 71-year-old lady who underwent cholecystectomy for symptomatic gallstones. Anatomy initially was misinterpreted at laparoscopy when common bile duct was identified as a cystic duct, and a hole in what appeared to be Hartmann's pouch was in fact in common hepatic duct. If continued laparoscopically, further misconception could have led to the complete excision of the biliary system. Instead, procedure was converted to an open and intraoperative cholangiogram performed, which confirmed a diagnosis of Mirizzi syndrome. Following the identification of structures, subtotal cholecystectomy was completed. The patient made an uneventful recovery. This case highlights the limitations of laparoscopy and the importance of an intraoperative cholangiogram. Despite advances in surgical techniques, we continue to advocate a low threshold for its use during cholecystectomy as a useful tool in evaluating and minimising the extent of biliary injury.

BACKGROUND

Gallstones are the commonest problem of the hepatobiliary system, with many patients undergoing laparoscopic cholecystectomy. Common bile duct (CBD) injury is an infrequent complication reported to occur in 0.2–0.4%. Injury to the CBD is an important complication as it has been shown to have a significant impact on the quality of life.¹ Biliary anatomy can be variable, and the variation in key structures increases the risk of iatrogenic injury during cholecystectomy. One tool to reduce the risk is the use of an intraoperative cholangiogram (IOC). This gives the surgeon images of the biliary tree to help establish anatomy, diagnose common bile duct stones, biliary injury and also guide treatment if injury to the biliary tree is encountered.²

We present a case of CBD injury to highlight the limitations of laparoscopy and the importance of an intraoperative cholangiogram on minimising the extent of injury.

CASE PRESENTATION

A 71-year-old lady was listed for laparoscopic cholecystectomy for recurrent episodes of biliary colic for 6 months. Her ultrasound scan showed multiple gallstones in a normal looking gallbladder and normal biliary tree. Preoperatively, liver function was always normal.

At laparoscopy, the colon and duodenum were found to be densely adherent to the gallbladder. While attempting to separate the duodenum, a small hole was made in what appeared to be Hartmann's pouch (small arrow). Further dissection was carried till a ductal structure was seen to be entering Hartmann's pouch just below the hole (large arrow), giving the impression of a cystic duct. However, further dissection to demonstrate a 'critical view of safety' was difficult and deemed unsafe. At this point, a decision to convert to open operation was taken.

At open operation, anatomy was displayed as shown in figure 1 (and schematic diagram in figure 2). Despite conversion to open operation, CBD could not be demonstrated satisfactorily, and hence an intraoperative cholangiogram was performed through the previously made hole. The cholangiogram revealed that the hole thought to be in the gallbladder was in fact in the common hepatic duct (CHD) and confirmed a diagnosis of Mirizzi syndrome. In Mirizzi syndrome, the gallbladder is either densely adherent to (as in this case) or fistulates into the CHD.

The structure that was initially identified as a cystic duct was actually CBD.

Following the demonstration of anatomy by a cholangiogram, subtotal cholecystectomy was performed and T-tube was placed through the hole made in CHD. The patient made an uneventful recovery.

DISCUSSION

In this case, anatomy was not sufficiently demonstrated at laparoscopy, and hence conversion to open procedure carried out. Despite this, IOC was necessary to fully identify structures. Our case highlights the limitations of laparoscopy and the value of IOC on encountering the difficult gallbladder.

Figure 1 Gallbladder at open cholecystectomy. Small arrow, inadvertent injury to the common hepatic duct and large arrow, common bile duct.

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Figure 2 Schematic diagram of a gallbladder at open cholecystectomy. Small arrow, inadvertent injury to the common hepatic duct and large arrow, common bile duct.

IOC can provide a clearer picture of the anatomy and hence reduce the risk of injury to CBD. There are two approaches to its use, routine in all patients and selective in those thought to be at high risk of injury to CBD or with a suspicion of CBD obstruction. Nickkholgh *et al*³ and Buddingh *et al*⁴ found that the rate of major bile duct injury decreased following the introduction of routine IOC. Routine use, however, is associated with exposure to radiation, cannulation of the biliary tree, increased operative time and cost. Some argue that due to these risks and given the low incidence, the selective use of IOC is more appropriate. A recent systematic review of intraoperative cholangiography in cholecystectomy found similar outcomes with both routine and selective use of IOC.⁵

In our case, anatomy could not be adequately demonstrated at laparoscopy or during open procedure. The vertical structure entering Hartmann's pouch, initially misinterpreted as a cystic duct, was in fact CBD. If this had been clipped and ligated, dissection would continue in the same plane, when CBD was encountered, it could have been thought to be an accessory duct, and hence complete excision of the biliary system could

have occurred. Despite conversion to open operation in this case, anatomy could still not be adequately identified. It was only at the cholangiogram that the anatomy could be truly identified.

Routine use of IOC remains controversial. However, we advocate a low threshold in cases of 'difficult' gallbladder to identify and minimise the extent of injury to CBD.

Learning points

- ▶ A vertical structure entering the 'difficult' gallbladder should be considered to be a common bile duct till proven otherwise, and dissection should be avoided on the medial side of this structure.
- ▶ An intraoperative cholangiogram should be performed early to identify variations in the anatomy and to minimise the extent of injury to the common bile duct.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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