

Side-to-side choledochoduodenostomy in the management of choledocholithiasis

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SUMMARY

Sixty patients with choledocholithiasis (either single or multiple stones of the biliary tree) were treated with lateral choledochoduodenostomy. Of these cases 83.3 per cent were followed up for from 1 to 7 years. Only 1 patient developed cholangitis, which responded well to conservative treatment. The other cases have been asymptomatic following surgery. The diameter of the common bile duct is not an important problem in constructing a functional anastomosis.

CERTAIN benign disorders related to the biliary tract, such as choledocholithiasis, are responsible for much serious morbidity and mortality. One of the major problems of biliary surgery is the removal of stones within the common bile duct. Despite most careful surgical exploration (Smith et al., 1957; Jolly et al., 1968) and operative cholangiography, the rate of retained or reformed common duct stones may be high in the postoperative period (Johnson et al., 1954; Jones et al., 1963; Jolly et al., 1968). There are many approaches which can be selected to solve this problem, the most useful of which is lateral choledochoduodenostomy.

The objective of this paper is to demonstrate by clinical data that lateral choledochoduodenostomy is the operation of choice after removal of common duct stones in the definitive treatment of choledocholithiasis.

Patients and methods

The series was compiled from the hospital records of 60 patients who had had one or more gallstones of the common bile duct. All these patients were treated by lateral choledochoduodenostomy in a 15-year period from 1960 to 1975 at the Department of Surgery in the University of Hacettepe Medical Centre.

There were 60 patients who underwent operation because of gallstones in the common bile duct. The youngest patient was 26 years old and the oldest was 77, with the average age being 50 (Fig. 1). The sex ratio was 1.8 : 1 females to males. The most common presentation was right upper quadrant pain with nausea and vomiting, occurring in 23 patients (38.3 per cent); in 19 cases (31.7 per cent) the presenting complaint was jaundice; 16 patients (26.7 per cent) had had an intermittent attack of cholangitis with jaundice; 2 patients (3.3 per cent) presented with an external biliary fistula after cholecystectomy and common bile duct exploration.

In 38 cases (63.3 per cent) lateral choledochoduodenostomy with cholecystectomy was carried out as the primary operation. The remaining 22 patients (36.6 per cent) had had a previous cholecystectomy or common bile duct exploration in another institution. In these cases choledochoduodenostomy was the second, third and fourth operation on the common bile duct in 16, 5 and 1 cases respectively.

In 29 cases exploration revealed that the diameter of the common duct was less than 2 cm, while in 31 cases it was larger than 2 cm (Fig. 2). In 50 patients a single layer of sutures was used for the anastomosis; in the remaining 10 patients two layers of sutures were preferred. However, all the anastomoses were of adequate size.

In our series of 60 cases, the early postoperative complication rate was 13.3 per cent—7 had wound infections and 1 patient developed cholangitis on the second postoperative day

which responded well to conservative treatment. Barium meal studies done later demonstrated an adequate stoma in this case.

There were 3 deaths in the immediate postoperative period; 2 had cardiorespiratory failure and 1 had dehiscence of the anastomosis and developed massive haemorrhage. This patient was subjected to emergency re-exploration and the stoma was re-established. The patient died 48 h later, however, from cardiopulmonary failure.

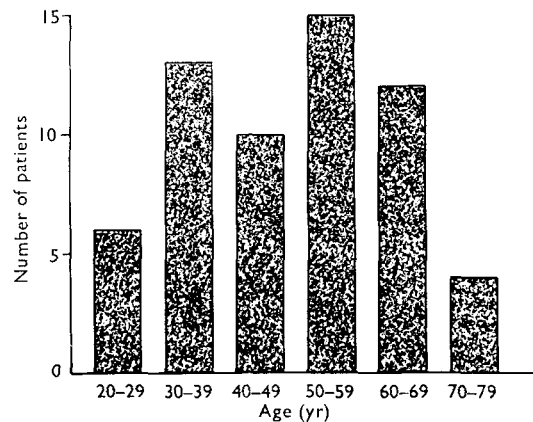


Fig. 1. Age distribution of the 60 patients.

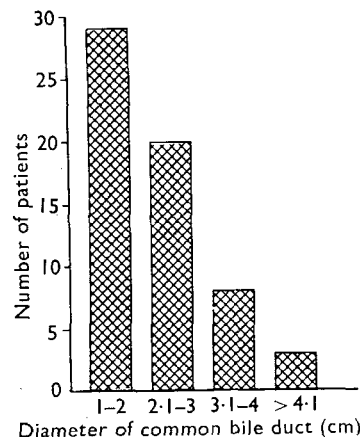


Fig. 2. Diameter of the common bile duct in the 60 patients.

Results

Ten patients could not be traced. The remaining 47 patients were followed up for from 1 to 7 years, approximately 80 per cent of whom were followed up for over 3 years. Three of the 47 cases complained of dull right upper quadrant pain following the operation. These patients had been followed up for 2-4 years and were considered to be uncomplicated subjects at the

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end of this observation period. The other cases have been asymptomatic following surgery and none required any dietary restrictions.

Discussion

The presence of the great majority of common bile duct stones is demonstrated either by preoperative cholangiography or by surgical exploration of the common duct, including operative cholangiography. Nevertheless, none of these methods is accurate in every case. When both methods are used, stones are demonstrated in only 88 per cent of cases (Wall and Peartree, 1957; Hight et al., 1959; Jones et al., 1963). Stones in the hepatic ducts or in the upper parts of the biliary tree are frequently missed at exploration (White et al., 1972). The incidence of retained stones after removal of single or multiple biliary stones is about 9.3–11 per cent (Gleen, 1952; Longmire, 1963). One-third of the retained stones have been subsequently demonstrated to be in the hepatic radicles (Wall and Peartree, 1957). Very occasionally, such stones, which are technically impossible to remove, later migrate to the lower end of the common duct and produce obstruction (Best, 1944; Jones et al., 1963). Furthermore, some of the residual bile duct stones may form from retained mud and sludge in the ductal system (Cole and Pisillo, 1966). In such patients the best prophylactic procedure seems to be lateral choledochoduodenostomy. The stoma should be of sufficient diameter to allow large stones which may descend from the upper biliary tract to traverse the anastomosis. In spite of the fact that in 48.3 per cent of our patients the common duct diameter was less than 2 cm (Fig. 2), there was no technical problem in performing the anastomosis. An important objection to lateral choledochoduodenostomy is the risk of ascending cholangitis (Barner, 1966). This complication is believed to result from obstruction of the anastomosis and not from regurgitation of the duodenal contents into the biliary tree (Barner, 1966; Madden et al., 1970). Postoperative barium meal studies were carried out in 20 patients, when reflux of barium into the biliary tract was demonstrated. Except for 1 patient, however, there was no other instance of cholangitis. The other frequently stated objection to lateral choledochoduodenostomy is the

possible formation of a blind pouch distally in the duct (Madden et al., 1970). However, none of our patients had any complication related to this problem. We must emphasize that in most of our cases the distal end of the common bile duct was patent, although fibrosed and narrowed.

In conclusion, lateral choledochoduodenostomy, in addition to the removal of stones, should be used in the prevention and treatment of stones in the biliary ductal system.

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