Treatment of Common Bile Duct Stones—is the Role of ERCP Changed in Era of Minimally Invasive Surgery?

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1. INTRODUCTION

In 0-15% of the patients that underwent cholecystectomy, common bile duct stones were found either during the preoperative, intraoperative or postoperative evaluation. Their treatment traditionally was based on open approach and extraction of calculi, with development of endoscopic procedures we have ERCP with endoscopic sphincterotomy, but due to rapid development of laparoscopic procedures nowadays we have other therapeutic options such as laparoscopic transcystic extraction and laparoscopic choleodochotomy. Methods During the period between 2007-2009 we treated 168 patients with common bile duct stones. Age span was 21-78 years, 105 female and 63 male patients. We have performed 47 open explorations, 9 laparoscopic transcystic exploration, as well as 112 ERCP and ES. We monitored the rate of success (%) of these procedures, intra- and postoperative complications. Results: The success rate of the cases of open exploration was 95%, in 2 cases postoperative cholangiogram showed concrement residues that were successfully treated later on with ERCP+ES. Out of 9 transcystic LCBDE we have performed, in 4 cases extraction was successful, 3 patients underwent conversion into open exploration, and 2 patients were successfully treated with postoperative ERCP. A total of 69 patients were treated with ERCP and ES with the 82% success rate of stone extraction. Conclusion Even though laparoscopic and endoscopic procedures have revolutionized treatment of common bile duct stones, the role of ERCP is not changed. Treatment in general hospital settings largely depends on availability of endoscopic and laparoscopic equipment and expertise, and must be individualized according to methods that are available. In our settings we have found that best summary of these demands are achieved by ERCP and laparoscopic approach.

Key words: ERCP, Choledocholithiasis, Laparoscopic cholecystectomy.

2. MATERIALS AND METHODS

During the period between 2007-2009 we treated 168 patients with common bile duct stones. We included patients that were admitted for elective cholecystectomy as well as other patients admitted with suspicion of common bile duct stones. Age span was 21-78 years, 105 female and 63 male patients. We have performed 47 open explorations, 9 laparoscopic transcystic exploration, as well as 112 ERCP and ES. We monitored the rate of success (%) of these procedures, intra- and postoperative complications.

3. RESULTS

The success rate of the cases of open exploration was 95%, in 2 cases postoperative cholangiogram showed concrement residues that were successfully treated later on with ERCP+ES.
Out of 9 transcystic LCBDE we have performed in 4 cases extraction was successful, 3 patients underwent conversion into open exploration, and 2 patients were successfully treated with postoperative ERCP.

A total of 69 patients were treated with ERCP and ES (preoperatively and postoperatively) with the 82% success rate of stone extraction (57 successful extractions). In cases where ERCP and ES failed we opted for open exploration. When it comes to ERCP and ES, we achieved greatest success with cases of CBDs after cholecystectomy (60% of patients in ERCP group, totally 42 patients). In any group we have not noticed any intra- and post-operative complications (Table 1).

4. DISCUSSION

The treatment of common bile duct stones (CBDs) continues to raise numerous discussions. Open exploration still remains valuable and effective method in cases of stones detected during open cholecystectomy, or large and impacted stones, or in a need for bilioligdise by pass and finally in cases of failure of other methods. We give advantage to this method in cases of portal hypertension, cholangitis with septic shock or periporal inflammation.

ERCP and endoscopic sphincterotomy can be performed as preoperative, intraoperative or postoperative method. In most cases is used when common bile duct stones are stones preoperatively, in cases of acute cholangitis or biliary pancreatitis, or in patients with high risk of general anesthesia. This method showed high efficiency in patients with common bile duct stones after performed cholecystectomy. Disadvantages of ERCP include need for endoscopic equipment and experts, in a fact that it is a two stage procedure, and for its complications (pancreatitis, haemorrhage, secondary cholangitis, perforation).

Laparoscopic common bile duct exploration (LCBDE) can be achieved through transcystic approach or by performing cholecystotomy. Transcystic approach is less invasive but has it's limitations due to anatomical variations (relation between cisticus and common bile duct) and by the size (>6mm) and number of stones. In such cases method of choice is laparoscopic choledochotomy and extraction. Laparoscopic procedure has all the advantages of minimally invasive procedure (less pain, cosmetic effect, shorter hos-pitalisation) and is done as one stage procedure, and is as effective as ERCP. Failure to extract stones during LCBDE can result in open extraction in same act. In our opinion main disadvantages are prolonged operative time, and lack of trained personal for this complex procedure, especially for laparoscopic choledochotomy and extraction (5). Vast number of published papers have compared effectivness of mentioned procedures, and debate is still in progress (Table 2). Open exploration even though most invasive, still remains effective method (6, 7). It demands no additional procedures and is method of choice if other methods fail or are unavailable. Comparison of ERCP+ES and LCBDE haven't proven differences in effectiveness, mortality and morbidity (4, 6, 7). LCBDE needs less procedures and has shown shorter hospital stay than ERCP i ES (4, 6, 8).

Even though laparoscopic and endoscopic procedures have revolutionized treatment of common bile duct stones, the role of ERCP is not changed. Treatment in general hospital settings largely depends on availability of endoscopic and laparoscopic equipment and expertise, so every treatment must be individualized according to methods that are available and which are determined by efficiency, morbidity, mortality, cost effectiveness and patients preferences. In our settings we have found that best summary of these demands are achieved by ERCP and laparoscopic approach.

REFERENCES