

COMPARATIVE ASSESSMENT OF BILE DUCT DECOMPRESSION METHODS IN PATIENTS WITH OBSTRUCTIVE JAUNDICE

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Introduction: According to WHO, obstructive jaundice (OJ) is one of the most common diseases of the digestive system observed in 10-15% of the world's population [1, 2]. The benign genesis of OJ is preconditioned by choledocholithiasis, stenotic papillitis, chronic fibrous pancreatitis, strictures of the bile ducts, parapapillary diverticula, and other diseases. The discussion regarding a choice among the methods of biliary decompression is still underway. Most clinical institutions prefer a two-stage treatment method. Perhaps, a single-stage treatment approach is being increasingly used as the experience is gained and surgical techniques are improved [3, 4]. However, both single-stage and two-stage methods of bile duct decompression lead to a progression of hepatic insufficiency after bile duct restoration [5, 6].

The aim: To determine a tempo of biliary decompression after external and internal drainage of bile ducts, endoscopic transpapillary interventions in patients with OJ.

Materials and methods: In the period from 2002 to 2020 210 patients with OJ of non-tumor genesis received treatment. 127 (60.5%) patients were females and 83 (39.5%) patients were males. There were 15 (7.1%) patients of a younger age, 45 (21.4%) patients of a middle age, 70 (33.3%) elderly patients, 74 (35.2%) senior patients, and 6 (2.9%) long-livers. The average age was $52 \pm 6,0$ years. The duration of OJ up to 14 days was diagnosed in 108 (51.4%) patients, from 14 to 28 days – in 76 (36.2%) patients, and more than 28 days – in 24 (11.4%) patients. The average duration of OJ was $19 \pm 3,5$ days.

The OJ underlying diseases were: choledocholithiasis – in 149 (70.9%) patients, Myrizzi's syndrome – in 16 (7.6%) patients, common bile duct stricture – in 8 (3.8%) patients, stenotic papillitis – in 19 (9.0%) patients, chronic fibrous pancreatitis – in 10 (4.8%) patients, pancreas head cyst – in 5 (2.4%) patients, duodenal ulcer penetrated in hepatoduodenal ligament – in 3 (1.4%) patients.

In the course of the study, the patients were divided into three groups: group I (103 patients), where endoscopic methods of biliary decompression were used, group II (52 patients), where biliodigestive anastomosis was formed, and group III (55 patients), in which external drainage of bile ducts was performed.

Results and discussion: In group I patients, the endoscopic methods of biliary decompression were used in 103 (49.0%) cases. At the first stage, endoscopic papillary balloon dilatation was performed in 4 (1.9%) patients with single concretions up to 5 mm in diameter located in the distal common bile duct portions. Incomplete endoscopic papillosphincterotomy (EPST) (up to 1.0 cm) was performed in 24 (11.4%) patients

with choledocholithiasis, which enabled a self-discharge of calculi with diameters up to 10 mm. In addition, we used incomplete EPST in 19 (9.0%) patients with stenotic papillitis. A complete EPST (over 1.0 cm) was performed in 20 (9.5%) patients, which enabled the lithoextraction using a Dormia. After complete EPST, a mechanical lithotripsy was performed in 12 (5.7%) cases of 10-20 mm calculi, followed by removal of fragmented concrements with Dormia basket.

Endobiliary transpapillar stenting was performed for prolonged biliary decompression in 4 (1.9%) patients with a stricture of common bile duct terminal portion. In case of purulent cholangitis, a nasobiliary drainage was performed in 20 (9.5%) patients, which made it possible to decompress and sanitation bile ducts. Laparoscopic cholecystectomy (LCE) was performed at stage II, after treatment of OJ and purulent cholangitis.

Group II patients were subjected to internal drainage of bile ducts in 52 (24.8%) cases. In obstruction of distal common bile duct portions, a choledochoduodenoanastomosis was formed using an intraoperative technique for prevention of reflux of duodenal contents (patent of Ukraine No. 85986). Areflux choledochoduodenostomy was performed in 41 (19.5%) patients: in 26 (12.4%) cases of choledocholithiasis combined with stenotic papillitis, in 10 (4.8%) cases of chronic fibrous pancreatitis, and in 5 (2.4%) cases of the pancreas head cyst. Combined areflux hepaticojejuno duodenostomy (patent of Ukraine No.112735) was formed in 11 (5.2%) patients, i.e. 4 (1.9%) individuals with common bile duct stricture and 7 (3.3%) patients with Mirizzi`s type II syndrome.

In group III patients we performed the external drainage of bile ducts in 55 (26.2%) cases. LCE with cysticolitotomy with a Fogarty catheter was performed in 15 (7.1%) patients with up to 5 mm concrements below the point where the cystic duct run into the common hepatic duct. LCE with external drainage of common bile duct was performed in 9 (4.3%) patients with Mirizzi`s type I syndrome.

Open cholecystectomy (OCE) with choledocholithotomy was performed in 28 (13.3%) patients with over 20 mm concrements that could not be removed transpapillary. In 20 (9.5%) patients, a probe-obturator of extrahepatic bile duct was used (patent of Ukraine No. 104826). In the postoperative period, the volume of the obturator balloon was gradually reduced for 7-10 days, which made it possible to carry out dose-controlled decompression of bile ducts and to prevent a post-decompression liver dysfunction. A separation of ulcer defect was performed in 3 (1.4%) patients with duodenal ulcer penetrated in hepatoduodenal ligament. T-shaped drainage-balloon (patent of Ukraine No.104469) was used to prevent the formation of a common bile duct stricture after the duct defect suturation. The balloon dilatation at the level of common bile duct plastics lasted 3 months. No common bile duct stricture signs were present after 2 years after the surgery interventions.

Gradual decrease of bilirubin and alkaline phosphatase levels on Days 1, 3, and 5 after endoscopic interventions, and reaching the normal level on Day 7 was observed in group I patients. Alanine aminotransferase (ALAT) and aspartate aminotransferase (ASAT) decreased to the standard levels on Day 5. No significant violations of the functional state of the liver were observed after endoscopic transpapillary interventions.

The group II patients demonstrated a decrease of bilirubin and alkaline phosphatase levels on Day 1 after formation of biliodigestive anastomoses, gradual increasing of the levels on Days 3, 5, and 7, and normalization thereof on Day 14. The ALAT activity restored on Day 10, ASAT – a day earlier. The formation of areflux choledochoduodenoanastomosis and combined areflux hepaticojejuno duodenostomy was accompanied by a moderate rate of decompression of bile ducts due to the presence of a valve mechanism.

The group III patients demonstrated a rapid decrease of bilirubin and alkaline phosphatase levels on Day 1 after external drainage of bile ducts, their gradual increase on Days 3, 5, and 7, a decrease on Days 10, 14, and normalization on Day 28. The level of transaminases (ALAT, ASAT) reached the norm earlier – on Days 23 and 21, respectively (fig. 5). The external decompression of the biliary system was accompanied by a rapid decrease of pressure in bile ducts, which led to post-decompression liver dysfunction, required a dose-controlled decompression of bile ducts for 7-10 days.

Conclusions: 1. No significant violations of the functional state of the liver were observed after endoscopic transpapillary interventions.

2. The formation of areflux biliodigestive anastomosis was accompanied by a moderate rate of biliary duct decompression due to the presence of a valve mechanism.

3. The external drainage of biliary ducts was characterized by a rapid rate of biliary decompression, which led to a post-decompression syndrome, and required a dose-controlled decompression of bile ducts.

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