

## **SURGICAL APPROACH FOR TREATMENT OF PATIENTS WITH OBSTRUCTIVE JAUNDICE OF THE NON-TUMOR GENESIS**

**Karyi Yaroslav,**

Associate Professor

National Pirogov Memorial Medical University, Vinnytsya

Surgery Department of the Medical Faculty No. 2

**Introduction:** Obstructive jaundice (OJ) patients account for one of the most challenging categories of patients with abdominal pathologies [1, 2]. Along with significant advancement in treatment of OJ patients, biliary decompression is often accompanied by development of post-operative liver failure [3]. Today, minimally invasive interventions are used along with open methods of bile ducts decompression. Biliary surgery today sustains the trend of multi-stage minimally invasive interventions considering the severity of OJ patients' condition [4, 5]. However, the pivotal question of biliary surgery remains a choice of bile ducts decompression technique for patients of different age groups.

**The aim:** To study the efficacy of minimally invasive and open bile ducts decompression techniques for treatment of patients with OJ of the non-tumor genesis.

**Materials and methods:** In the period from 2002 to 2021 220 patients with OJ of non-tumor genesis received treatment. 135 (61.4%) patients were females and 85 (38.6%) patients were males. There were 18 (8.2%) patients of a younger age, 52 (23.6%) patients of a middle age, 70 (31.8%) elderly patients, 74 (33.6%) senior patients, and 6 (2.7%) long-livers. The average age was  $52 \pm 6,0$  years. The duration of OJ up to 14 days was diagnosed in 114 (51.8%) patients, from 14 to 28 days – in 80 (36.4%) patients, and more than 28 days – in 26 (11.8%) patients. The average duration of OJ was  $19 \pm 3,5$  days.

The OJ underlying diseases were: choledocholithiasis – in 159 (72.3%) patients, Myrizzi's syndrome – in 16 (7.3%) patients, common bile duct stricture – in 8 (3.6%) patients, stenotic papillitis – in 19 (8.6%) patients, chronic fibrous pancreatitis – in 10 (4.5%) patients, pancreas head cyst – in 5 (2.3%) patients, duodenal ulcer penetrated in hepatoduodenal ligament – in 3 (1.4%) patients.

Study patients were attributed to two groups: Group I (young and middle-age patients) consisting of 70 persons, and Group II (elderly, senile, and long-living patients) consisting of 150 subjects.

**Results and discussion:** 30 (13.6%) Group I patients with hyperbilirubinemia below  $200 \mu\text{mol/l}$ , OJ duration up to 14 days, compensated or subcompensated concomitant pathology with no signs of purulent cholangitis and biliary pancreatitis underwent single-stage minimally invasive surgical interventions. Laparoscopic cholecystectomy (LCE) with lithoextraction involving Fogarty balloon-tipped catheter

was used in 17 (7.7%) patients having calculi up to 5 mm positioned below the confluence of the cystic duct into the common hepatic duct. LCE with external common bile duct (CBD) drainage was performed in 9 (4.1%) patients with Mirizzi's syndrome type I. Endobiliary transpapillary stenting was used for long-term decompression of bile ducts in 4 (1.8%) patients with terminal CBD stricture.

106 (48.2%) Group II patients with bilirubin count over 200  $\mu\text{mol/l}$ , OJ duration over 14 days, concomitant diseases in the stage of decompensation, complicated by OJ purulent cholangitis and biliary pancreatitis were subjected to two-stage minimally invasive surgical interventions. At the first stage, endoscopic papillary balloon dilation was performed in 5 (2.3%) patients with single calculi up to 5 mm in size localized in the distal CBD departments. Incomplete EPST (up to 10 mm) was performed in 28 (12.7%) patients with choledocholithiasis, thus ensuring spontaneous passage of calculi up to 10 mm in diameter. Incomplete EPST was also used in 19 (8.6%) patients with stenotic papillitis. Complete EPST (over 10 mm) was performed in 22 (10.0%) patients, which made it possible to perform lithoextraction with a Dormia basket. Complete EPST was also followed by mechanical lithotripsy in 12 (5.4%) patients with 10-20 mm concretions. 20 (9.1%) patients with signs of purulent cholangitis underwent EPST with a nasobiliary drainage. At the second stage, LCE was performed following the OJ, purulent cholangitis and biliary pancreatitis management. The second stage was performed on Day 5-14 depending on the severity of patients' condition.

84 (38.2%) Groups I and II patients were subjected to one-stage open surgical interventions on bile ducts, when it was impossible to eliminate OJ by minimally invasive methods. 32 (14.5%) patients with concretions larger than 20 mm that was impossible to remove transpapillary underwent open cholecystectomy (OCE) with choledocholithotomy. In case of obstruction of distal CBD departments, a choledochoduodenoanastomosis was formed using intraoperative technique for prevention of duodenal contents reflux (Ukraine patent No.85986). 38 (17.3%) patients underwent areflux choledochoduodenostomy, including choledocholithiasis, chronic fibrous pancreatitis, and pancreatic head cyst in 23 (10.4%), 10 (4.5%), and 5 (2.3%) cases, accordingly. Combined areflux hepaticojejunoduodenostomy (Ukraine patent No.112735) was used in 11 (5.0%) patients with OJ, including CBD stricture and Mirizzi's syndrome type II in 4 (1.8%) and 7 (3.2%) cases, accordingly. 3 (1.4%) patients with duodenal ulcer that penetrated hepatoduodenal ligament underwent ulcer excision and duodenoplasty.

Complications following minimally invasive surgery ( $n = 136$ ) in patients of both age groups were observed in 7 (5.2%) cases, including clipping the common hepatic duct - 1 (0.7%), cystic duct stump inefficiency - 2 (1.5%), major duodenal papilla bleeding - 2 (1.5%), and stent obstruction - 2 (1.5%). No lethal cases were registered.

Post-open surgery complications ( $n = 84$ ) in patients of different age groups were observed in 10 (11.9%) cases: CBD damage - 1 (1.2%), cystic duct stump inefficiency - 1 (1.2%), CBD suture insufficiency - 2 (2.4%), biliodigestive anastomosis failure - 3

(3.6%), external biliary fistula - 1 (1.2%), and cholemic bleeding - 2 (2.4%). 2 (2.4%) OJ patients died for transmural myocardial infarction.

**Conclusions:** 1. The use of minimally invasive surgical interventions for treatment of patients different ages with OJ of the non-tumor genesis reduces the incidence of postoperative complications by 6.7% ( $p < 0.05$ ).

2. Two-stage surgical approach to treatment of OJ patients of senior age groups is a priority option. Single-stage correction is reasonable to use for young and middle-aged patients with bilirubin count under  $200 \mu\text{mol/l}$ , OJ duration less than 14 days, compensated or subcompensated comorbidities not burdened by purulent cholangitis and biliary pancreatitis.

### References:

1. Olsson G, Frozanpor F, Lundell L et al. Preoperative biliary drainage by plastic or self-expandable metal stents in patients with periampullary tumors: results of a randomized clinical study. *Endosc Int Open*. 2017; 5(9): E798-E808.

2. Sha J, Dong Y, Niu H. A prospective study of risk factors for in-hospital mortality in patients with malignant obstructive jaundice undergoing percutaneous biliary drainage. *Medicine (Baltimore)*. 2019; 98(15): e15131.

3. Celotti A, Solaini L, Montori G et al. Preoperative biliary drainage in hilar cholangiocarcinoma: Systematic review and meta-analysis. *Eur J Surg Oncol*. 2017; 43(9): 1628-1635.

4. Wang L, Yu WF. Obstructive jaundice and perioperative management. *Acta Anaesthesiol Taiwan*. 2014; 52(1): 22-29.

5. Tang Z, Yang Y, Meng W et al. Best option for preoperative biliary drainage in Klatskin tumor: A systematic review and meta-analysis // *Medicine (Baltimore)*. 2017; 96(43): e8372.