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EFFECTIVENESS AND RESULTS OF SURGICAL TREATMENT OF PATIENTS WITH MIRIZZI SYNDROME

Relevance: Argentine surgeon Pablo Luis Mirizzi in 1948 described a local spasm of the muscle layer of the common hepatic duct (CHD) in response to a stone wedging into the neck of the gallbladder (GB). Although muscle fibers in CHD were never found, the syndrome was named Mirizzi C.K. McSherry et al. in 1982, two types of Mirizzi syndrome (SM) were identified: CHD compression with a GB neck stone or cystic duct (type I) and pempholedocheal fistula (type II). A. Csendes et al. in 1989, two more were added to the above types, taking as a basis the degree of destruction by the pempholedocheal fistula of the AKI wall. Currently, the latter classification is the most common. T. Nagakawa et al. in 1997, they proposed their own classification, according to which in type IV, in addition to fistula, inflammatory narrowing of AKI was isolated, requiring excision and hepatocoeunostomy.

Mirizzi syndrome is difficult to diagnose and treat as a complication of gallstone disease. Cholecystectomy in SM often ends with intraoperative damage to AKI with the formation of a defect in its wall. Sometimes the narrow distal part of the common bile duct (ORP) located under the stone is mistaken for the cystic duct, and the dilated part of the AKP for the continuation of the Hartmann pocket.

Purpose of the study: Improve treatment outcomes for patients with Mirizzi syndrome by optimizing surgical tactics depending on its type.

Research materials and methods: In a retrospective study from 2011 to 2022, 52 patients were diagnosed with SM in the surgical department of the 1-clinic SamGMI, which is 2.5% in relation to the number of patients with cholelithiasis - 2042. The age of patients ranged from 32 to 86 years and averaged 61.8 ± 2.6 years. There were 18 men, 34 women. The duration of the disease before admission to the clinic was 3.6 ± 0.2 years. The clinical picture of the disease was characteristic of acute and chronic cholecystitis, 41 (78.8%) patients had jaundice, 11 (21.2%) had cholangitis.

All patients underwent ultrasound. At the same time, attention was paid to the diameter of the VSD, as well as possible signs of SM, such as the close location of the gall bladder neck containing stone to the AKI, the combination of the expanded proximal part of the AKI and intrahepatic ducts with an undeveloped VSD, the presence of a wrinkled LJ. Of the 41 patients with mechanical jaundice, 7 (17.1%) patients underwent RFH and 22 (53.6%) patients underwent magnetic resonance pancreatocholangiography (MRCG). During the analysis, such signs as the presence of a cystic-choledocheal fistula, a short and wide cystic duct or its absence, the size of the gallbladder, the combination of dilated intrahepatic ducts with non-expanded VSD, the presence of stones in the GB and ducts were taken into account. Patients retrospectively, including data from surgery protocols, were divided into 4 groups according to the degree of change in VCI (A. Csendes et al. (1989):

Type I - a stone embedded in the neck of the LCD or in the cystic duct, squeezing AKI or AKI - 25 patients; Type II - there is a fistula between the neck of the GB and AKI or ORI, which occupies less than one third of the duct circumference - 14 patients; type III - fistula occupies two-thirds of the circle - 8 patients; Type IV - the wall of AKI or ORI is completely destroyed –

5 patients.

7 patients with mechanical jaundice and cholangitis began treatment with RCPD, 1 patient underwent endoscopic papillosphincterotomy (EPST) with an unsuccessful attempt at endoscopic lithoextraction, which required conversion.

In laparoscopic cholecystectomy, SM occurred in 5 (9.6%) observations, in mini-access cholecystectomy - in 6 (11.5%) and in open cases - in 41 (78.9%) cases. Cholecystectomy from the neck was performed in 13 (25%) patients, from the bottom - in 39 (75%), of which according to Pribram - in 11 (28.2%).

In case of suspected SM during surgery, presence of infiltrate in the area of LP neck and absence of cystic duct, cholecystectomy was started from the bottom. In 11 patients, the GB lumen was opened, stones were removed and, using the Pribram technique, access to the GB neck was performed. Having pierced the GB wall in the projection of the cystic artery, the latter was cut off at the level of its neck and then the cystic-cholechoanal junction was audited to protect the duct wall from damage. With type I, SM tried to remove GB. In type II, the LP was removed and the opening in the duct wall was sutured with separate interrupted sutures (prolen 5/0 on the atraumatic needle) or the duct was plastered with the LP neck wall. In all cases, stones were previously removed and Ker drainage was introduced into the VSD distal to the sutured fistula. In the III and IV types of SM, first the VSD was opened, stones were removed, and only after a thorough assessment of the situation did the issue of the nature of the fistula opening plastic, that is, a defect in the wall of the CHD or VSD, be resolved. For plasticity, the GB neck wall was used or the neck was sutured, thus covering the cholecysto-cholechoanal fistula. The Ker drainage was introduced distal to the fistula or through the sutured GB neck and fistula in the duct. Hepatocystostomy was performed in patients with severe CHD destruction (SM type IV), as well as with iatrogenic intersection of CHD. Immediate and long-term treatment outcomes were evaluated.

Study results: We did not find a dependence of the development of different types of SM on the age of patients and the duration of the disease. The diagnostic sensitivity of ultrasound was low and amounted to 9.6%, allowing to suspect SM in 5 patients. The diagnostic sensitivity of RXPG in SM was 14.3% - in 1 case, a cystic-cholechoanal fistula was detected. However, the RCPG findings did not take into account the combination of such available signs as the expansion of the proximal AKP section over a stone with an undrafted distal section or an undrafted VZP. Taking into account such signs would increase the diagnostic sensitivity of the method by up to 68%. Thus, according to ultrasound and RCGM, the CM before surgery was detected in 6 out of 52 (11.5%) patients, that is, the level of pre-operative diagnosis was extremely low. Therefore, in case of calculatory cholecystitis complicated with mechanical jaundice, MRCH was added to the diagnostic methods, which was performed by 22 patients. The diagnostic sensitivity of this study method was higher and amounted to 54.5%, i.e. SM before surgery was detected in 12 patients. During surgery before removal of the gallbladder, SM was suspected in 15 (28.8%) patients, if a defect was detected in the CHD wall after cholecystectomy, in 9 (17.3%). The diagnosis in 7 (13.5%) patients was made only with a retrospective analysis of the medical history.

In cholecystectomy "from the neck" (13 patients), duct damage occurred in 4 patients (all patients with type I SM). In cholecystectomy "from the bottom" (39 patients, 11 of them according to Pribram's method), traumatic damage occurred in four patients with type IV of SM, when the expanded CHD was mistaken for Hartmann's pocket. In type I of SM (25 patients), a tangential CHD injury occurred in four (in two - with laparoscopic cholecystectomy and in two - with cholecystectomy from the mini-access). In these patients, ultrasound did not expand VZD, therefore, MRHD was not performed. In none of these cases was SM diagnosed either before surgery or before gallbladder removal.

Of the 22 patients with types II and III of SM, 19 had a vesicocholechoanal fistula and choledocholithiasis with a significant expansion of ORP to 1.5 ± 0.14 cm ($p < 0.05$) and increased

to 107.6 ± 17.7 mmol/L bilirubinemia. SM was suspected during surgery in 5 patients. However, the presence of a dense infiltrate in the area of the GB neck forced the surgeon to perform a cholecystectomy "from the bottom" using the Pribram method in 11 patients, while there were no damage to the duct. However, in 2 patients, the detection of a lateral defect in the wall of the ORP after cholecystectomy was regarded by the surgeon as an iatrogenic injury. In fact, there was probably a separation of the vesicholechochal fistula. All 5 patients with SM type IV had mechanical jaundice (total serum bilirubin was 137.7 ± 33.8 mmol/L). The diameter of the VSD according to ultrasound was 1.2 ± 0.07 cm with a significant expansion of the intrahepatic bile ducts and the presence of a corrugated gallbladder (in 4 out of 5). Two of them were diagnosed with a Clatskin tumor in ultrasound, which was excluded in MRHD. In four patients for surgery, the expanded part of the ORP was taken for the continuation of the shrunken GB, and the narrow part - for the cystic duct. As a result, OZP along with GB was excised. Data analysis indicates that there are no reliable methods for diagnosing SM during surgery. Its presence may be evidenced by signs such as adhesions between the GB neck and CHD, a dense infiltrate in the GB neck, a combination of wrinkled GB and a wide VC, a combination of a wide CHD with a narrow VC in patients with choledocholithiasis, more often, with significant destruction of the duct wall. If the ducts were damaged in patients with SM type I, the following operations were used: 2 patients with a small lateral tangential wound of the VSD had several nodal sutures on the wall defect, and the operation was completed by external drainage of the duct along Ker or Vishnevsky. Two others underwent hepaticocoeunostomy with the jejunal loop turned off by Ru. In types II and III of SM, there was no damage to the ducts. Of the 5 patients with SM type IV, CHD was excised in 4. The operations were completed with hepaticocoeunostomy.

In the early postoperative period, 1 patient died of pulmonary embolism due to varicose veins of the lower extremities and atrial fibrillation.

Postoperative complications developed in 15 patients: pneumonia; wound suppuration; bile sharpening in the subhepatic space, removed by puncture under ultrasound control; endoscopically resolved resident choledocholithiasis; gastrointestinal bleeding in a patient with long-existing mechanical jaundice. Long-term results were studied in 29 (55.8%) patients. Of the 6 patients who underwent hepaticocoeunostomy due to duct excision, one had anastomosis stricture. Repeated hepaticocoeunostomy was performed. Another 1 patient with type IV SM without duct damage developed a stricture of the lower part of the ORP a year after the removal of the T-shaped drainage - the patient also had hepaticoejunostomy with a good long-term result. In the remaining 27 (93.1%) patients, the result was satisfactory. Follow-up dates ranged from 9 months to 10 years.

Conclusion: SM is not a common complication of gallstone disease. The experience of surgeons, more often, does not exceed 20-30 observations. The largest number of patients with SM (91) is represented by V.I. Revyakin, who considers mainly the endoscopic aspects of this syndrome.

Prevention of iatrogenic bile duct damage in SM is the primary task of the surgeon. In this case, pre-operative diagnostics play an important role. According to the literature [10], it is difficult to make a correct diagnosis before surgery and it is possible only in 21.9% (according to our data, before the use of MRPD it was 33.3%, after the use of MRPD - 54.5% of observations), which significantly complicates the problem of surgical treatment.

Ultrasound at SM is not informative. According to our data, only 2 signs - the combination of shrunken LC with bile hypertension and the combination of dilated intrahepatic bile ducts with narrow GB in choledocholithiasis, can help the surgeon suspect SM.

The information content of the HCP is higher than the ultrasound. However, the danger of causing an increase in intra-current pressure when the contrast agent is administered is probably often the reason for the absence of an image of cholecysto-cholechochal fistula and GB. During the study of R.E. England and D.F. Martin [11] in 4 out of 25 patients after endoscopic interventions in SM, the development of acute cholecystitis, bronchopneumonia, liver abscesses

was noted. It is possible that repeated contrasting of the ducts after stone extraction would increase the frequency of detection of the junction between CHD and CHD.

The efficacy of MRCPG in the diagnosis of SM was higher and amounted to 54.5%. MRCPG is a method that has a greater resolution in the diagnosis of Mirizzi syndrome and allows determining the morphological type of this pathology with high diagnostic sensitivity.

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