

Results Of Surgical Treatment of Patients with Mirizzi Syndrome

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ABSTRACT

Relevance. The results of surgical treatment of 52 patients with cholelithiasis complicated by Mirizzi's syndrome were analyzed. At the same time, type I was detected in 25 patients, type II - 14, type III-8 and type IV - 5. In the preoperative diagnosis of Mirizzi syndrome, MRCP is the most effective, which made it possible to determine the morphological type of this pathology in 54.5%. Tactical and technical aspects of surgical treatment are optimized depending on the type of Mirizzi syndrome.

Purpose of the study. To improve the results of treatment of patients with Mirizzi syndrome by optimizing surgical tactics depending on its type.

Materials and research methods. From 2009 to 2019, 52 patients diagnosed with SM were operated on in the surgical department of the 1st clinic of the Samara State Medical Institute. The age of the patients ranged from 32 to 86 years and averaged 61.8 ± 2.6 years. There were 18 men and 34 women.

Research results. In calculous cholecystitis complicated by obstructive jaundice, MRPCG was added to the diagnostic methods, which was performed in 22 patients. The diagnostic sensitivity of this research method was higher and amounted to 54.5%, i.e. SM was detected before surgery in 12 patients.

Conclusions. If SM is suspected, the best results are obtained by removing the gallbladder "from the bottom" using the Pribram method, which allows assessing the situation "from the inside" of the gallbladder neck. At the same time, depending on the type of SM, complete removal of the gallbladder (type I), removal of the bladder with suturing of the duct wall with separate sutures (more often, with type II SM), plastic surgery of the defect in the wall of the duct with the wall of the neck of the gallbladder, suturing the neck of the gallbladder over the fistulous course (with II and III types).

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Результаты Хирургического Лечения Больных Синдромом Мириizzi

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Аннотация.

Актуальность. Проанализированы результаты хирургического лечения 52 больных ЖКБ осложненной синдромом Мириizzi. При этом у 25 больных выявлен I тип, II – 14, III-8 и IV тип - 5. В дооперационной диагностике синдрома Мириizzi наиболее эффективно МРПХГ, позволившей в 54,5% определить морфологический тип данной патологии. В зависимости от типа синдрома Мириizzi оптимизированы тактико - технические аспекты хирургического лечения.

Цель исследования. Улучшить результаты лечения больных синдромом Мириizzi путем оптимизации хирургической тактики в зависимости от его типа.

Материалы и методы исследования. С 2009-го по 2019 г. в хирургическом отделении 1-клиники СамГМИ прооперировано 52 пациентов с диагнозом СМ. Возраст больных колебался от 32 до 86 лет и в среднем составил $61,8 \pm 2,6$ года. Мужчин было 18, женщин – 34.

Результаты исследования. При калькулезном холецистите осложненной механической желтухой к методам диагностики добавлена МРПХГ, которая была выполнена 22 больным. Диагностическая чувствительность этого метода исследования оказалась выше и составило 54,5%, т.е. СМ до операции была выявлена у 12 больных.

Выводы. При подозрении на СМ лучшие результаты дает удаление ЖП “от дна” с использованием метода Прибрама, позволяющего оценить ситуацию “изнутри” шейки ЖП. При этом, в зависимости от типа СМ, могут быть выполнены полное удаление ЖП (I тип), удаление пузыря с ушиванием стенки протока отдельными швами (чаще, при II типе СМ), пластика дефекта стенки протока стенкой шейки ЖП, ушивание шейки ЖП над свищевым ходом (при II и III типах).

Ключевые слова: желчнокаменная болезнь, синдром Мириizzi, холецистэктомия.

Relevance. Argentine surgeon Pablo Louis Mirizzi in 1948 described a local spasm of the muscular layer of the common hepatic duct (CHP) in response to a stone in the neck of the gallbladder (GB). Despite the fact that muscle fibers were never found in AKI, the syndrome was named Mirizzi S.K. McSherry et al . in 1982, two types of Mirizzi syndrome (SM) were identified: compression of AKI with a stone of the gallbladder neck or cystic duct (type I) and vesicocholedochal fistula (type II). A. Csendes et al . in 1989, two more types were added to the above types, taking as a basis the degree of destruction of the AKI wall by the vesicocholedochal fistula. 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 the fistula, an inflammatory narrowing of the AKI was identified, requiring excision and hepaticojejunostomy (cited by F.G. Nazyrov et al .). [one].

Mirizzi syndrome is a complication of gallstone disease that is difficult to diagnose and treat [2,3]. Cholecystectomy for SM often ends intraoperative damage to the OPP with the formation of a defect in its wall. Sometimes the narrow distal part of the common bile duct (CBD) located under the stone is mistaken for the cystic duct, and the dilated part of the AKI is the continuation of Hartmann's pouch [4,5,6].

Purpose of the study. To improve the results of treatment of patients with Mirizzi syndrome by optimizing surgical tactics depending on its type.

Material and research methods. In a retrospective study from 2009 to 2019 in the surgical department of the 1st clinic of SamGMI , 52 patients were diagnosed with SM, which is 2.5% in relation to the number of

patients with cholelithiasis - 2042. The age of the patients ranged from 32 to 86 years and averaged 61.8 ± 2.6 years. There were 18 men and 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 CBD, as well as possible signs of SM, such as the proximity of the gallbladder neck containing the stone to the AKI, the combination of dilated proximal AKI and intrahepatic ducts with non-dilated CBD, and the presence of a shrunken gallbladder.

Of the 41 patients with obstructive jaundice, 7 (17.1%) patients underwent RPCP and 22 (53.6%) patients underwent magnetic resonance cholangiography (MRCP). The analysis took into account such signs as the presence of a vesicocholedochal fistula, a short and wide cystic duct or its absence, the size of the gallbladder, a combination of dilated intrahepatic ducts with a non-dilated CBD, the presence of stones in the gallbladder and ducts.

Patients retrospectively, including the data of the protocols of operations, were divided into 4 groups according to the degree of change in the CBD (A. Csendes et al. (1989) [1]); Type II - there is a fistula between the GB neck and AKI or CBD, occupying less than one third of the circumference of the ducts - 14 patients; Type III - fistula occupies two thirds of the circumference - 8 patients; Type IV - the wall of the AKI or CBD is completely destroyed - 5 patients.

7 patients with obstructive jaundice and cholangitis were treated with ERCP, 1 patient underwent endoscopic papillosphincterotomy (EPST) with an unsuccessful attempt at endoscopic lithoextraction, which required conversion.

With laparoscopic cholecystectomy SM occurred in 5 (9.6%) cases, cholecystectomy from the mini-access - in 6 (11.5%) and open - 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%).

If SM was suspected during surgery, if there was an infiltrate in the area of the gallbladder neck, and if there was no cystic duct, cholecystectomy was started from the bottom. In 11 patients, the lumen of the gallbladder was opened, stones were removed, and, using the Pribram technique, access was made to the neck of the gallbladder. Having flashed the wall of the gallbladder in the projection of the cystic artery, the latter was cut off at the level of its neck, and then the vesicocholedochal junction was revised to protect the duct wall from damage.

In type I SM, they tried to remove the gallbladder. In type II, the gallbladder was removed and the hole in the duct wall was sutured with separate interrupted sutures (prolene 5/0 on an atraumatic needle) or the duct was plasty with the wall of the gallbladder neck. In all cases, stones were previously removed and Kera drainage was introduced into the CBD. distal to the sutured fistula.

In type III and IV SM, the CBD was first opened, stones were removed, and only after a thorough assessment of the situation, the question of the nature of the fistula plasty, that is, a defect in the wall of the AKI or CBD, was decided. For plasty, the wall of the GB neck was used or the neck was sutured, thus closing the cholecystocholedochal fistula. The Kera drainage was introduced distal to the fistulous opening or through the sutured neck of the gallbladder and the fistulous opening in the duct (3).

Hepaticojejunostomy was performed in patients with severe destruction of the AKI (type IV SM), as well as with iatrogenic transection of the AKI (6). The immediate and long-term results of treatment were evaluated. Research results. We did not find any dependence of the development of various 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 SM to be suspected in 5 patients.

The diagnostic sensitivity of ERCP in SM was 14.3% - in 1 case, a vesicocholedochal fistula was detected. However, the conclusions of the ERCP did not take into account the combination of such existing features as the expansion of the proximal AKI over the stone with its non-expanded distal segment or non-expanded CBD. Accounting for such features would increase the diagnostic sensitivity of the method up to 68%. Thus, according to the data of ultrasound and ERCP, SM was detected before surgery in 6 out of 52 (11.5%) patients, that is, the level of preoperative diagnosis was extremely low. In this connection, in calculous

cholecystitis complicated by obstructive jaundice, we added MRPCG to the diagnostic methods, which was performed in 22 patients. The diagnostic sensitivity of this research method was higher and amounted to 54.5%, i.e. SM was detected before surgery in 12 patients.

During surgery prior to removal of the gallbladder, SM was suspected in 15 (28.8%) patients; if a defect was found in the wall of the AKI after cholecystectomy, in 9 (17.3%) patients. Diagnosis in 7 (13.5%) patients was made only by retrospective analysis of the medical history.

At cholecystectomy "from the neck" (13 patients), damage to the duct occurred in 4 patients (all patients with type I SM). During cholecystectomy "from the bottom" (39 patients, 11 of them according to the Pribram method), traumatic injury occurred in four patients with type IV SM, when the extended AKI was mistaken for Hartmann's pocket.

In type I SM (25 patients), tangential injury of AKI occurred in four (in two - with laparoscopic cholecystectomy and two - with cholecystectomy from a mini-access). In these patients, the CBD was not dilated on ultrasound, so MRCP was not performed. In none of these cases, SM was diagnosed either before surgery or prior to removal of the gallbladder.

Of 22 patients with types II and III of SM, 19 had vesicocholedochal fistula and choledocholithiasis with a significant expansion of the CBD up 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 cholecystectomy "from the bottom" using the Pribram method in 11 patients, while there was no damage to the duct. However, in 2 patients, the detection of a lateral defect in the wall of the CBD after cholecystectomy was regarded by the surgeon as an iatrogenic injury. In fact, probably, there was a dissociation of the vesicocholedochal fistula.

All 5 patients with type IV SM had obstructive jaundice (total serum bilirubin was 137.7 ± 33.8 mmol / l). The diameter of the CBD according to ultrasound was 1.2 ± 0.07 cm with a significant expansion of the intrahepatic bile ducts and the presence of a shrunken gallbladder (4 out of 5). Two of them were diagnosed with Klatskin's tumor by ultrasound, which was excluded by MRCP. In four patients during the operation, the expanded part of the CBD was taken as a continuation of the wrinkled gallbladder, and the narrow part was taken as the cystic duct. As a result, the CBD together with the GB was excised.

analysis shows that there are no reliable methods for diagnosing SM during surgery. The presence of it may be indicated by such signs as adhesions between the neck of the gallbladder and AKI, a dense infiltrate in the neck of the gallbladder, a combination of a wrinkled gallbladder and a wide CBD, a combination of a wide AKI with a narrow CBD in patients with choledocholithiasis, more often with significant destruction of the duct wall.

In case of damage to the ducts in patients with type I SM, the following operations were used: in 2 patients with a small lateral tangential wound of the CBD, several interrupted sutures were applied to the wall defect, and the operation was completed with external drainage of the duct according to Kehr (1) or according to Vishnevsky (1). Two others underwent hepaticojejunostomy with the loop of the jejunum turned off according to Roux. There were no damage to the ducts in types II and III of SM. Of the 5 patients with type IV SM, AKI was excised in 4. Operations were completed by hepaticojejunostomy.

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

Postoperative complications developed in 15 patients: pneumonia (5); suppuration of the wound (7); flow of bile into the subhepatic space, removed by puncture under ultrasound control (1); residual choledocholithiasis, resolved endoscopically (1); gastrointestinal bleeding in a patient with long-term obstructive jaundice (1).

Long-term results were studied in 29 (55.8%) patients. Of the 6 patients who underwent hepaticojejunostomy for excision of the duct, stricture of the anastomosis occurred in one. A repeated hepaticojejunostomy was performed. Another 1 patient with type IV SM without duct injury developed a stricture of the lower part of the CBD a year after the removal of the T-shaped drainage - the patient also underwent hepaticojejunostomy with a good long-term result. In the remaining 27 (93.1%) patients, the result was satisfactory. The follow-up period ranged from 9 months to 10 years.

Conclusion. SM is not a common complication of gallstone disease. The experience of surgeons [7,8], more often, does not exceed 20–30 observations. The largest number of patients with SM (91) is represented by V.I. Revyakin [9], who mainly considers the endoscopic aspects of this syndrome.

Prevention of iatrogenic injuries of the bile ducts in SM is the main task of the surgeon. Preoperative diagnosis plays an important role in this. 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 MRPCH it was 33.3%, after the use of MRPCH it was 54.5% of cases), which greatly complicates the problem of surgical treatment.

Ultrasound in SM is uninformative. According to our data, only 2 signs - a combination of a shrunken gallbladder with biliary hypertension and a combination of dilated intrahepatic bile ducts with a narrow CBD in choledocholithiasis, can help the surgeon suspect SM.

The information content of ERCP is higher than that of ultrasound. However, the risk of causing an increase in intraductal pressure with the introduction of a contrast agent is probably often the reason for the lack of image of the cholecystocholedochal fistula and gallbladder. When conducting a study by RE England and DF Martin [11], 4 out of 25 patients after endoscopic interventions for SM noted the development of acute cholecystitis, bronchopneumonia, and liver abscesses. It is possible that re-contrasting of the ducts after stone extraction would increase the incidence of an anastomosis between the AKI and the gallbladder.

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

Intraoperative diagnosis of SM is also difficult. Infiltrate or adhesions in the neck of the gallbladder, the absence of the cystic duct, the combination of a shrunken gallbladder with a wide AKI or CBD may alert the surgeon and force him to change the standard cholecystectomy plan. It is also impossible to neglect the rule of mandatory identification of the elements of the Calot triangle and the comparison of the diameters of the OPP and OBP.

One of the main issues in the treatment of SM is the choice of the method of surgery. First of all, it must be emphasized that the suspicion of SM before surgery is a contraindication to laparoscopic cholecystectomy, and the identification of signs of the syndrome during surgery is an indication for conversion to open surgery.

If SM is suspected, the best results are obtained by removing the gallbladder “from the bottom” using the Pribram method, which allows assessing the situation “from the inside” of the gallbladder neck. At the same time, depending on the type of SM, complete removal of the gallbladder (type I), removal of the bladder with suturing of the duct wall with separate sutures (more often, with type II SM), plastic surgery of the defect in the wall of the duct with the wall of the neck of the gallbladder, suturing the neck of the gallbladder over the fistulous course (with II and III types). In this case, as a rule, after the removal of stones, a T-shaped drainage inserted distally to the fistulous opening should be left. Finally, in type IV SM, especially in wide AKI, the operation should be completed with hepaticojejunostomy. The main provisions of this tactic are supported in their research by LW Johnson et al. [12], as well as OJ Shah et al. [thirteen].

In case of injuries of AKI or CBD, surgical tactics largely depended on the size of the defect in the duct wall. With small tangential wounds of the non-dilated duct, as a rule, with type I SM, a precision suture was placed on the T-shaped Kerah drainage, which gave good long-term results. However, if the defect in the duct wall was significant and the plastic on the drainage was performed with tension, hepaticojejunostomy was preferred. In types II and III, the fistula was sutured due to the left wall of the gallbladder neck, choledocholithotomy was performed distally, and the duct was drained with a T-shaped Kerah drainage. In type IV (with a large diameter AKI), good results were obtained after hepaticojejunostomy

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