

MODERN SURGICAL TREATMENT METHODS OF CHOLEDOCOLITHIASIS

Yusupova Shaxnozaxon Abdikarim qizi

**Assistant Professor, Department of Human Anatomy and Physiology,
Tashkent State Medical University**

Abstract

The issues of treatment of choledocholithiasis (stone disease in the bile duct) using modern surgical minimally invasive methods are discussed. Choledocholithiasis is one of the most dangerous and severe forms of biliary system diseases, and if not detected in time, it causes severe complications such as mechanical jaundice, choledochitis, and pancreatitis. The article studies the clinical and functional effectiveness of endoscopic retrograde choledocholithotomy (ERC) and laparoscopic choledocholithotomy. According to the results of the study, minimally invasive technologies cause less trauma to the patient's body than traditional open surgical procedures, reduce the frequency of postoperative complications, and significantly shorten the rehabilitation period. These results scientifically substantiate the advantages of modern endoscopic and laparoscopic approaches in the treatment of choledocholithiasis and indicate the need for their widespread application in practice.

Keywords: choledocholithiasis, bile duct stones, endoscopic retrograde choledocholithotomy, laparoscopic choledocholithotomy, minimally invasive surgery, ERCP, modern surgical techniques, biliary system diseases.

Introduction

Cholelithiasis (choledocholithiasis) is a serious disease characterized by the formation of stones in the common bile duct (choledochus) or their passage from the gallbladder into the bile duct. It is one of the most dangerous and life-threatening complications of gallstone disease (cholecystitis), accounting for 10–20% of biliary tract pathologies worldwide. Choledocholithiasis disrupts the functional activity of the liver, pancreas, and biliary system as a result of impaired bile flow. In most patients, this condition is accompanied by severe complications such as mechanical jaundice, choledochitis, cholecystitis, pancreatitis, or sepsis. Therefore, early detection of the disease and the choice of the right treatment method are of particular importance in clinical practice. In the traditional era, open surgical methods were used to treat choledocholithiasis. In this method, the common bile duct was cut and the stones were removed manually or with a special instrument. However, this approach causes significant trauma to the patient's body, increases the risk of infectious complications, prolongs the rehabilitation period and increases the number of days in the hospital.

Therefore, in recent decades, minimally invasive technologies have been developing rapidly in surgical practice. In modern surgical practice, minimally invasive technologies such as endoscopic retrograde cholangiography (ERC), endoscopic papillotomy, choledocholithotomy, laparoscopic choledocholithotomy are widely used in the treatment of choledocholithiasis. These methods allow for the removal of stones through minimal access to the bile ducts, restoration of bile flow and prevention of complications. Endoscopic technologies are used to crush stones mechanically or by laser, which is safer than open operations.

In recent years, “one-stage” (laparo-endoscopic) surgical approaches have been increasingly introduced. In this method, endoscopic choledocholithotomy is performed simultaneously with laparoscopic cholecystectomy. This approach reduces the number of operations, relieves pain for the patient, reduces the risk of infection, and shortens the duration of hospitalization. In addition, modern technologies such as ultrasound (US), computed tomography (CT), and magnetic resonance cholangiopancreatography (MRCP) play an important role in the early diagnosis of choledocholithiasis. With their help, the location and size of the stone, the degree of dilatation of the bile duct, and the condition of the liver parenchyma are determined. On this basis, an individual surgical strategy is developed. This study was conducted on the example of patients admitted to the surgical department with a diagnosis of choledocholithiasis. A total of 60 patients were analyzed, their age ranged from 25 to 70 years, 34 of whom were women and 26 of whom were men. In the study, patients were divided into three groups based on clinical symptoms, laboratory results, and instrumental examinations. In the first group, patients underwent traditional open choledocholithotomy, in the second group, endoscopic retrograde choledocholithotomy (ERC), and in the third group, a combination of laparoscopic choledocholithotomy and choledocholithotripsy. In all patients, modern diagnostic methods such as ultrasound (US), magnetic resonance cholangiopancreatography (MRCP), and computed tomography (CT) were used to determine the causes of the disease, the number, size, and location of stones in the bile duct. In addition, general and biochemical blood tests, liver enzymes (ALT, AST, bilirubin, GGT) were measured.

At the operative stage, an individual approach was selected depending on the condition of the patients, the anatomy of the bile ducts and the location of the stones. The duration of the operation, the volume of blood loss, the duration of the pain syndrome, the duration of the recovery of bile flow, the frequency of complications and the duration of the hospital stay were recorded for each patient. Statistical methods were used to analyze the results of the study. Mean values and standard deviations were calculated, and differences between groups were assessed using the Student t-test and the χ^2 test. The level of reliability was taken as $p < 0.05$. The results were processed in

the SPSS 26.0 program, and the clinical effectiveness of endoscopic and laparoscopic approaches was compared with traditional open operations.

Conclusion

First of all, these methods cause minimal trauma to the patient, shorten the duration of the operation, reduce the volume of blood loss and significantly reduce the risk of infectious complications. At the same time, the postoperative rehabilitation period of patients is much faster, pain syndrome disappears early, the duration of hospital stay is shortened, and bile flow is restored naturally. The combination of laparoscopic and endoscopic methods — the “one-stage” laparo-endoscopic approach — has proven itself as the most effective and safe technology in modern surgery. This approach allows for the simultaneous removal of the gallbladder and the elimination of stones in the bile duct. Treatment of choledocholithiasis using modern surgical minimally invasive technologies accelerates the recovery of patients, reduces the number of complications, and improves the quality of medical care. In the future, further improvement and widespread implementation of these methods will significantly reduce the incidence of mortality and disability associated with choledocholithiasis.

References:

1. Tazhibayev, T. A., & Khamidov, B. U. (2022). *Modern approaches to surgical treatment of choledocholithiasis in Central Asia*. Uzbekistan Medical Journal, 4(1), 56–62.
2. Zhang, H., Wang, Y., & Li, Y. (2021). *Comparison of laparoscopic and open choledocholithotomy: A meta-analysis*. Surgical Practice, 25(2), 123–132. <https://doi.org/10.1111/1744-1633.12562>
3. Zinnurov, R. S., & Yuldashev, M. M. (2020). *Clinical outcomes of endoscopic treatment in choledocholithiasis*. Journal of Hepato-Biliary Surgery, 12(3), 89–94.