On Postcholecystectomy Syndrome

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Introduction

10% to 20% of patients who accepted cholecystectomy would have the symptoms such as recurrent upper abdomen or right upper quadrant pains, dyspepsia, or abdominal distension after the meal, or even infection of biliary tract and obstruction of biliary tract and so on several months, or years after the surgery\textsuperscript{[1,2]}. The disease is clinically referred to as “postcholecystectomy syndrome”, and it refers to a group of diseases caused by a series of physiological and pathophysiological changes in human body after the gall bladder is excised. With the development of medical science and the deepened understanding of biliary tract diseases, some independent diseases that cause postcholecystectomy syndrome are identified and they are diagnosed and treated appropriately. Therefore, some scholars at home and abroad suggested that this ambiguous and vague diagnostic name should be abandoned; however, because the syndrome still contains a lot of diseases with unknown etiology, the term is still of clinical significance and it can’t be abandoned. However, this means that, when we treat this kind of patients, we need to thoroughly investigate his medical history, and try to find out the specific etiological factor through modern imageological examinations and provide reasonable treatments to the patients.

Clinically, the postcholecystectomy syndrome can be divided into two parts of diseases, that is, those outside biliary system and those inside biliary system.

Disease outside Biliary System

These diseases have already existed before the excision of gall bladder, but they are neglected, and the patients are diagnosed as having gallbladder disease, and then they accept the cholecystectomy. They are probably diseases that develop postoperatively. Therefore, they should be differentiated from the biliary system diseases, to perform correct diagnosis and treatment. The common diseases outside biliary system contain: ①reflux esophagitis, hiatal hernia; ②gastric diseases, including ulceration and tumor; ③gastroduodenal disorders, such as thelitis and peripapillary diverticulum; ④pancreatic diseases, including chronic pancreatitis and pancreatic neoplasms. As long as the possibility of these diseases is considered, relevant medical history must be carefully scrutinized, and they should be identified through ultrasound, CT, and endoscopy.
Diseases inside Biliary System

Most of these diseases develop after the cholecystectomy, or have been existed when the cholecystectomy is performed, but they are missed during surgery and remain untreated. Common disease includes the following.

Remaining Small Gall Bladder and Remanent Gallstone

As large, medium and small hospitals start to adopt the cholecystectomy, some operators who aren’t very well experience would cause the Calot Triangle blurred and indistinct due to local inflammation, edema and adhesion etc. when they perform complicated cholecystectomy. The operators performed partial cholecystectomy to avoid biliary tract injury, and they excised the gall bladder at Hartmann cyst, or leave the length of cystic duct too long (greater than 1 cm). The gallbladder remnant is formed after the surgery or the patients have symptoms caused by stones. Because the remaining small gall bladder still have the secretion function, and it becomes the basis of secondary infection of gall bladder and recurrent calculus. The repeated inflammation and the stone stimulation may cause the recurrent cholecystitis, Mirizzi syndrome or even cancer[3]. Therefore, if the patients have upper abdomen or right upper quadrant discomfort, pains, nausea, vomit, or even chills and fever, jaundice or acute cholecystitis after the cholecystectomy, the Postcholecystectomy Syndrome can be considered. The patients can be diagnosed by carefully inquiring medical history, and through ultrasound, MRCP, ERCP and other tests, and the resection is suggested in treating the disease. During the second operation, the repeated inflammations would cause difficulties in topography, and the operation should be carefully performed, in case the biliary tract injury occurs, and during the operation, it is necessary to perform quick freezing microtome section to rule out the cancer.

Choledocholithiasis

It is difficult to discriminate between residual stones and recurrent stones clinically, and it is generally believed that cholangitis, jaundice etc. that develop early, which is accompanied by stones, can be diagnosed as residual stones. During 2013 to 2017, our department has received 52 cases of patients who have choledocholithiasis after the cholecystectomy, in which 34 cases (65.4%) develop symptoms 3 months after the operation, and 9 cases (17.3%) develop symptoms 6 months after the operation, and 5 cases (9.6%) develop symptoms 1 year after the operation, and 4 cases (7.7%) develop symptoms 1 year after the operation. Missed diagnosis is the primary cause of residual stones, and small stones enter common bile duct due to the intraoperative squeezing, which is also important reason of choledocholithiasis after the cholecystectomy. Its clinical symptoms is not different from the primary choledocholithiasis, and it can be identified through imagological examinations such as ultrasound, CT, and MRCP[4]. The stone can be removed through ERCP or second operation. For diagnosed residual stones of common bile duct, if the diameter of common bile duct is smaller than 8mm, and the stones are small, ERCP Balloon Dilatation collection is preferred treatment. If the diameter of choledochectasia equals or exceeds 8mm, it is necessary to consider whether the sphincter of Oddi dysfunction should be preserved; the exploratory operation of common bile duct will be a good choice, and the preferred surgical method is laparoscopic common bile duct lithotomy.
**Biliary Tract Injury**

In 1987, Mouret performed the first case of laparoscopic cholecystectomy (LC), and now LC is the standard surgical procedure which is most frequently adopted to treat benign gallbladder disease. However, with the adoption and popularization of laparoscopic cholecystectomy, the incidence of biliary tract injury in all levels of hospitals has increased. If any biliary tract injury is found during the operation, corresponding treatment should be made in time; if sequela is caused due to improper operation, then it is easy to identify the complications of biliary tract injury related to the cholecystectomy. Jaundice and bile spill during early period of post-operation are also symptoms of biliary tract injury. After the cholecystectomy, for the delayed and recurrent symptoms of cholangitis, they might be caused by biliary tract injury, stenosis of bile duct, poor bile drainage after the surgery and the diagnosis can be made through specific examinations such as ultrasound, MRCP, and ERCP and so on. In treatment, bile duct end-to-end anastomosis, t-tube drainage, roux-y cholangiojejunostomy etc. can be adopted, and ERCP stent treatment or stenosed segment excision can be performed for stenotic pathologic change.

**Sphincter of Oddi dysfunction, SOD**

In normal cases, when the gall bladder shrinks due to cholecystokinin - pancreozymin (CCK-PZ) secreted by uodenal mucosa, it is accompanied by relaxation of Oddi’s sphincter, while Oddi’s sphincter shrinks when the gall bladder relaxed. Besides, the gallbladder motility is also regulated by vagus, which stimulates the nerve and relaxes Oddi’s sphincter. On the contrary, if the nerve is cut, the gall bladder dilates and Oddi’s sphincter shrinks. This kind of activities is subject to the dual regulation of nerve and internal secretion in terms of their functional coordination. After cholecystectomy, the original coordination function between gall bladder and Oddi’s sphincter is damaged, and the sphincter is of spasticity, and it is difficult to discharge the bile spill. The choledochectasia occurs and the wall tension is increased, and then the pains of right hypochondrial region occur, in which the tension of duct wall plays the role of “trigger” in the development of pains. Especially, when the patient is satiated or eats oily foods, he will have symptoms such as upper abdomen or right upper quadrant glutted, dyspepsia and so on, or the Oddi’s sphincter spasm will be caused which leads to pains. Especially, the patients who accepted the cholecystectomy when they have normal gallbladder function will easily develop the above symptoms. Diagnostic Criteria of sphincter of Oddi dysfunction is Rome IV standard in the world, and the diagnosis must include all the following conditions[5]: ① meet the Diagnostic Criteria of biliary pains. ② Liver enzymes increases or choledochectasia, but they don’t develop at the same time. ③ There is no cholangitis stones or other structural abnormalities. Support criteria are: ① Normal amylase or lipase. ② Sphincter of oddi manometry, SOM is normal. ③ Nuclein courage raster display is abnormal. Tzovaras and Rowland[6] believe that the sphincter of Oddi dysfunction can be divided into two kinds: ① Sphincter of Oddi stenosis. It is an abnormality of tissue and structure, and stenosis of all or part of sphincter might be caused because the small stones pass through the papilla, or due to injury exploration of common bile duct during the operation, or chronic inflammation, or fibrosis. ② Sphincter of Oddi dyskinesia. It is intermittent and functional, and the blockage of high pressure belt of sphincter is caused due to sphincter thickening or neuro-spasm. To treat dyskinesia of Oddi’s sphincter, generally the alimentary control is adopted to limit the intake of oils and fats, and the spasmylytic and cholagogue are administrated. In our department, Pinaverium Bromide Tablets is administrated to treat the
patients, and we have achieved good results. Pinaverium Bromide Tablets is a highly selective calcium channel antagonist acting on regional digestive tract, and studies have shown that, it can effectively inhibit spasm of Oddi’s sphincter, and its action intensity is dose-dependent. It also reduces the common bile duct pressure of patients after the cholecystectomy[7]. Pinaverium Bromide Tablets have no Anticholinergic activity, and it doesn’t cause side effects of cardiovascular system, and its safety is similar to placebo[8]. However, for those difficult cases displaying poor effect after conservative treatment, it is necessary to perform endoscopic Oddi’s endoscopic sphincterotomy or Oddi’s sphincteroplasty.

References


