

## Present status of biliary surgery in China

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Progresses of biliary surgery in China in recent years were focused on the epidemiology of biliary stone diseases, the development of laparoscopic surgery, diagnosis and treatment of biliary diseases, and bile duct cancer.

### CHOLELITHIASIS

In the 1950s, one of the characteristics of biliary tract stone in China was the frequent occurrence of primary bile duct stone which accounted for 50% of the total stone cases. The relative incidence of intrahepatic stones was about 38%, as was found postmortemly. The first national surgery of clinical epidemiology of cholelithiasis in 1983-1985, revealed that the relative incidence of primary bile duct stones lowered to 36.2%, coinciding the increasing incidence of gallbladder stone since the 1970s. Ten years later, tendency of changing pattern of biliary cholelithiasis became even more conspicuous as the relative incidence of gallbladder rose from 69.3% to 78.9% in 1992, while that of primary duct stone further lowered from 30.7% to 21.1%. Furthermore, in some metropolitan cities in China, such as Beijing and Shanghai and in Northern China, the relative incidence of intrahepatic stone fell to 4.5%, 4.8% and 4.1%, respectively.

However, intrahepatic lithiasis is not a vanishing disease in China. It is still prevalent in most of the inland provinces of China, i.e. in Kuangxi Province the relative incidence of gallbladder stone increased from 12.7% to 19.8% within 10 years, while that of primary bile duct stone dropped from 55.2% to 41.8%, intrahepatic lithiasis is still the challenging problem of daily practice of surgery.

Formerly, we were accustomed to the late manifestations of advanced intrahepatic lithiasis such as biliary obstruction, infection and widespread liver parenchymal damage. But, at the present, owing to improved nutritional status of the people, the improved health care and the early use of antibiotics, especially when early diagnosis of intrahepatic lithiasis is no more difficult with the modern modalities of imaging diagnostic facilities, more and more early cases of intrahepatic stones were recognised at their early stage. Intrahepatic stone formation at its early phase was commonly a localized disease, most often found in the hepatic segments VI, VII and II, and the other part of the liver and the extrahepatic bile duct was normal. Therefore, surgery of intrahepatic stone at its early phase may offer a cure instead of only symptomatic relief.

Hepatic lobectomy has been proved to be the most effective approach for treatment of intrahepatic lithiasis, which has been the routine procedure in cases of left-sided disease. Hepatic lobectomy was reported as the chief operation in 11%-31%, averaging 18%, in the recent literatures of China. But in some of the hepatobiliary surgical centers, lobectomy was used in about 50% of the cases operated upon. However, as to the kind of hepatic resections, most of them were confined to left-sided hepatectomy, especially the left lateral lobe or segment of the liver. Resection of the right lobe or segment of the liver was unusual, at most to about 10% of the total resections. This may be the reason responsible for the unsatisfactory result in the treatment of right-sided intrahepatic stones. Recently, we advocated the adoption of "systemic regular segmentectomy" in the treatment of intrahepatic stones in which regular segmentectomy may be performed on the right liver as well as on the left side or on both sides.

Cases of hepatic bile duct carcinoma associated with intrahepatic lithiasis was reported to be increasing over the recent years. The incidence of hepatic duct carcinoma as a complication of intrahepatic lithiasis ranged from 0.36% to above 10%, the average figure of 6 series recently reported in Chinese literature was 2.4%. Our records was that bile duct cancer occurred in 1.5% of all the operations for intrahepatic stones, in some of the cases, the intrahepatic ducts were free from stones, but, however, bile stasis and chronic infection were found. This fact also supports the concept that intrahepatic stones needs to be treated early and radically.

### INJURY AND STRICTURE OF THE EXTRAHEPATIC BILEDUCT

Since the first total cholecystectomy performed in 1882, open cholecystectomy has become one of the most frequently adopted operations and was considered as the "gold standard" of surgical treatment of gallstones. In Roslyn (1993) report, the one-year overall mortality rate of 42 474 open cholecystectomy for stone was 0.17% in North America, with a bile duct injury rate of 0.2%. In a nationwide survey conducted by the Chinese Association of Surgery the operative mortality rate of open cholecystectomy for gallstone was 0.16%.

Laparoscopic cholecystectomy carried a somewhat higher bile duct injury rate than that of conventional cholecystectomy. Laparoscopic cholecystectomy was first introduced to China in 1991. In a collective review of Chinese literature from 1991-1995, the bile duct injury rate was 0.32% and the biliary complications rate was 0.6% in 39238 cases of laparoscopic cholecystectomies. In fact, the real incidence of bile duct injury may be higher than that reported.

At present, in the era of laparoscopic cholecystectomy, management of bile duct injuries and the late biliary strictures deserved special attention because of the high level injury, the thermo-coagulative nature of injury, and the extensive tissue injury often complicated with vascular damage were the prominent features peculiar to laparoscopic bile duct injuries. Such complicated injuries should be handled by an experienced biliary surgeon at the first setting.

## **SURGERY OF BILIARY TRACT CANCER**

In recent years, cases of biliary carcinoma appeared to be increased. A nationwide survey organized by the Chinese Association of Surgery in 1989 showed that 75.2% were bile duct cancer in 1098 cases of extrahepatic biliary cancer operations, while 24.8% were gallbladder cancer. In a recently reported series from Xi'an Medical

University Hospital in China, carcinoma of gallbladder occurred in 72.4%, and bile duct carcinoma in 27.6%. This reflected the variations of disease prevalence in different parts of China.

Carcinoma of hilar bile duct is the most frequent site of extrahepatic bile duct cancer in China. The resectability rate of hilar bile duct cancer was about 10% generally in the past, but has been increased to about 60% since 1990 with a low operative mortality rate of below 5%. This was due to the improvement of surgical technique as well as the employment of modern imaging modalities for early diagnosis. The result of surgical treatment of hilar bile duct cancer is still far from satisfactory. A series of 66 cases of hilar bile duct cancer reported from the General Hospital of PLA, the cumulative 5-year survival rate after resection was 13.2%.

Primary carcinoma of the gallbladder is a more common malignancy of the biliary tract in the Northern part of China. In China, carcinoma of gallbladder accounted for 1.1%-4.0% of gallbladder operations, with a median of 2.0%. In the 2300 surgical cases of gallbladder cancer, the peak age incidence was 57 years, with a female to male ratio of 2:1, and 60% of the cases were complicated with gallbladder stones. Recently a few cases of extended resection including hepato-pancreaticoduodenectomy were reported, but this can hardly change the poor outlook of the disease as a whole.

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