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EVALUATION OF ERCP IN THE DIAGNOSIS OF HEPATOCELLULAR CARCINOMA INVADING BILE DUCTS

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Abstract: Endoscopic retrograde cholangiopancreatography(ERCP) was performed preoperatively on 29 patients suffering from hepatocellular carcinoma (HCC) invading bile ducts .The outstanding features were: 1. Most of the filling defects were situated within the common , right or left hepatic duct associated with proximal bile duct dilatations(17 cases); 2. Tumor encasement resulted in localised or diffused irregular strictures and dilatations (9 cases); 3. Displacement and stretching of the intrahepatic ducts by pressure of tumor mass(3 cases) . These features are different from that in cholangiocarcinoma. ERCP should be considered as an important diagnostic procedure for HCC. It is especially useful for cases with obscure intrahepatic duct dialatation and /or an increase of AFP, and will help early diagnosis of HCC.

Key words: endoscopic retrograde cholangiopancreatography(ERCP), hepatocellular carcinoma, diagnosis, cholangiocarcinoma

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INTRODUCTION

Mucunne was the first to use ERCP (Endoscopic Retrograde Cholangiopancreatography) in the diagnosis of diseases of bile ducts and pancreas in 1968. With improvement of endoscopic equipment, the technique was developed rapidly. There are few reports in the world on the use of ERCP for diagnosis of hepatocellular carcinoma invading bile ducts and even fewer reports on its use for correct diagnosis of this medical problem before operation or autopsy, so we studied some references and the cases of 29 patients from our hospital suffering from hepatocellular carcinoma, on all of whom ERCP was performed before operation and autopsy and also studied the ERCP image features of hepatocellular carcinoma invading bile ducts and inquired into its effectiveness for diagnosis (Lee et al., 1984; Rohrmann et al., 1977; Sonnenberg et al, 1979).

MATERIALS AND METHODS

Clinical data

There were 23 male and 6 female patients suffering from hepatocellular carcinoma. Their ages ranged from 21 to 79. The average age was 52. The results of liver function analysis showed that 26 patients had obstructive jaundice. The AFP in serum of 9 patients was above 500μg/L, of 14 patients was 20 – 50μg/L, of 6 patients was < 20μg/L. Ultrasonography or computer tomography(CT) of 6 patients showed there was correct preoperative diagnosis of only a patient. Two patients had liver cirrhosis, three had gallstone. All patients were diagnosed by examination of the histopathology of the operation or autopsy specimen.

Methods

ERCP was performed on 27 patients before operation or autopsy. The examination was without complication in all patients. Except that amylase in serum went up briefly after examination, there were no serious complications such as injection pancretitis, severe upper digestive tract hemorrhage and perforation.

RESULTS

Among the 29 patients, only 7 patients were diagnosed correctly, 3 patients were approxi-

mately diagnosed, and 19 patients were incorrectly diagnosed, by ERCP. The outstanding features were: (1) There were 17 cases with filling defects: 5 cases were located in the left or right hepatic duct; 10 cases were located in the common hepatic duct; and 2 cases were located in the common hepatic and bile duct. Most of filling defect shapes were spear-like, circle-like and lobular. The verge was often smooth or irregular. The content was different because of different obstructive location. The common or left and right hepatic duct and their branches often contained tumor tissues. Only 2 cases were associated with blood coagulation and granulation tissue. The filling defects were all associated with proximal bile duct dilatations; (2) There were 9 cases wherein tumor encasement resulted in a localised or diffused irregular strictures and dilatations; (3) There were displacement and stretching of the intrahepatic ducts by pressure of the tumor mass. There were not a few irregular strictures of bile duct.

DISCUSSION

The occurrence frequency of hepatocelluar carcinoma leading to jaundice was about 10 – 40% (Han Benli, 1991). Its mechanism included: (1) Injury to hepatic cells damaged the structure of the hepatic lobule in patients with liver cirrhosis, and led to difficulty with absorption, combination and excretion of vilirubin; (2) Hepatocellular carcinoma invading liver mass; (3) carcinoma or transferred lymphnode pressing on or invading bile duct; (4) Droppings of dead carcinoma tissue or of blood mass from bleeding bile ducts, led to blockage of the ducts. The above conclusions were derived from case reports of early references (Rohrmann et al., 1977). In fact, even if there was no reference report of this, the occurrence frequency of bile duct invasion not leading to jaundice was certainly larger than that leading to jaundice. By autopsy, we found that hepatocellular carcinoma invaded easily different branches of intrahepatic bile ducts and proximal bile ducts displaced and stretched by pressure of intrahepatic carcinoma. Moreover, there was a case without jaundice in this study. ERCP showed small hepatocarcinoma with filling defects in the left hepatic duct and proximal hepatic ducts dilatations. Because hepatocellular carcinoma very easily invades bile ducts and ERCP can show clearly the image of the whole intrahepatic and extrahepatic bile ducts, ERCP can be an important method for diagnosing hepatocarcinoma.

The concentration of AFP in serum is negative ($< 20\mu g/L$) in about 10 – 30 percent of hepatocellular carcinomas. Because of factors such as anatomy, pathology, technique, etc., Ultrasonography or CT examination often led to wrong diagnosis. In 2 cases the carcinoma focus was not found preoperatively. Five times examination of Ultrasonography and one time examination of CT images only showed partly dilatated intrahepatic bile duct, but the ERCP images showed clearly the carcinoma focus. For example, the ERCP image in a case showed a circle-like, smoothly filling defect in the left hepatic duct and slightly dilated proximal bile duct. There was a 3 cm × 3 cm grayish-white tubercule with capsule in the left duct while operation (Fig. 1). The pathology diagnosis was a 2.5 cm × 3 cm hepatocellular carcinoma in the hepatic left intralobule (Cai Jianting, et al., 1993) (Fig. 2). Tumor tissue could be seen in the bile ducts. ERCP should be performed on patients with intrahepatic bile duct dilatation not revealed by Ultrasonography and /or CT examination.

The ERCP image of hepatocellular carcinoma invading bile duct showed intratubular filling defects, which were often located in the common, left and right hepatic duct and their branches. Filling defect seldom appeared in the common bile duct. If it had filling defect would be bound

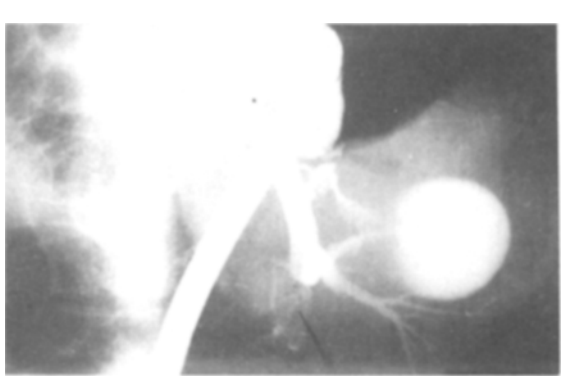

Fig. 1 The filling defect was located at the liver gate associated with proximal bile duct dilatation. There was a 3 cm × 3 cm size grayish-white tubercule with capsule in the left liver.

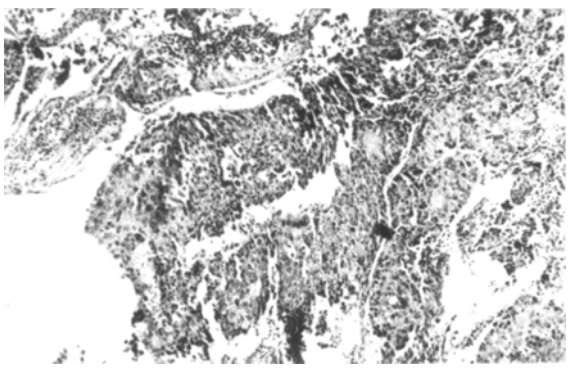

Fig 2. The pathologic diagnosis was a 2.5 cm × 3 cm size hepatocellular carcinoma in hepatic left intralobule

to appear in the common hepatic duct or left and right hepatic ducts. However, the image showed slight dilatations in the proximal bile ducts. Seventeen in our 29 cases showed the above features. Tumor encasement invaded bile ducts and resulted in localised or diffused strictures and dilatations in bile duct and displacement and stretching of the intrahepatic bile ducts. The features were different from those of bile duct carcinoma and cholelithiasis. The typical ERCP images of bile duct carcinoma were localized or irregular strictures of bile duct. The disease often appeared in old age but was not obviously associated with liver cirrhosis. Hepatomegaly and ascites were very few in bile duct carcinoma patients. Irregularly shaped filling defects often occurred in bleeding bile ducts invaded by dead carcinoma tissue. When the filling defects' edges are unclear, we must distinguish the bile duct defect from cholelithiasis. The differentiation is not difficult by examination of Ultrasonography and AFP. However, the rate of erroneous ERCP diagnosis of hepatocellular carcinoma was very high (65.5%) in our clinic (19 of our 29 cases were diagnosed incorrectly as bile duct carcinoma or cholelithiasis). This was associated probably with our insufficient experience in ERCP image diagnosis of hepatocellular carcinoma.

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