INTRODUCTION
Ectopic hepatocellular carcinoma is defined as hepatocellular carcinoma located in an extraparenchymal organ or tissue. Ectopic liver sites include the gallbladder, spleen, retroperitoneum, pancreas, adrenal gland, and the diaphragm. The incidence of ectopic liver has been reported to be 0.24% - 0.47%. Ectopic liver tissue is subject to the same various carcinogenous insults as the liver. Ectopic hepatocellular carcinoma is rare, and less than 30 cases have been reported till now.

Here, we present a case of ectopic hepatocellular carcinoma which had grown in intrahepatic bile ducts, which underwent surgical treatment.

CASE REPORT
A 63-year male was admitted with abdominal pain, fever and jaundice. The contrast-enhanced computed tomography, magnetic resonance cholangiopancreatography and endoscopic retrograde cholangiography showed a mass in the hepatic hilar region with dilation of the intrahepatic bile duct. The left branch of portal vein was also compressed by the mass (Figure 1A). Magnetic resonance cholangiopancreatography showed the abnormal sign in the hepatic hilar region and dilation of intrahepatic bile duct in the left lobe of the liver (Figure 1B). Endoscopic retrograde cholangiography revealed a round, 15 x 25 mm defect in the common hepatic duct. Immunostaining showed hepatocyte(+), AFP(+/-), CK(+/-), which indicated that the cancerous tumor cells were derived from hepatocytes but not from bile duct epithelial cells. The final diagnosis of this patient was hepatocellular carcinoma growing in the intrahepatic bile duct.

revealed a 15 x 25 mm round defect in the common hepatic duct (Figure 1C). These findings supported the diagnosis of hilar cholangiocarcinoma. The patient underwent left hemihepatectomy together with right hepatic duct jejunum anastomosis (Roux-en-Y) combined with hepatoduodenal ligament lymphadenectomy. A 3 x 2 x 2 cm mass was found in the left intrahepatic bile duct extending into the common hepatic bile duct. No tumor was detected in the liver parenchyma. The left portal vein was found compressed by the tumor during surgical exploration. The intraoperative frozen section showed that the cut margin of the bile duct was a negative, and the mass was poorly differentiated adenocarcinoma. Postoperative histopathological diagnosis was hepatocellular carcinoma grown in intrahepatic bile duct (Figure 1D). The stage was TNM II stage, and immunohistochemical staining showed hepatocyte(+), AFP(+/-), CK(+/-), which indicated that the cancerous tumor cells were derived from hepatocytes and not from bile duct epithelial cells. Bile leak developed for one week postoperatively by about 50 ml per day with no symptoms. AFP decreased to 250 ng/ml and CA19-9 reduced to 320 U/L two weeks after operation. Four weeks after operation, the patient was discharged.

Six cycles of chemotherapy were given as once-a-month-regime, starting at the sixth postoperative week. The chemotherapy was the same as hepatocellular carcinoma (oxaliplatin 0.2 mg day 1+ fluorouracil 0.5 mg day 1-3+ four calcium folinate 0.2 mg day 1-3). The patient was followed-up once 3 months until he died 13 months after operation, because of blood dyscrasia.

**DISCUSSION**

Ectopic hepatocellular carcinoma growing in the intrahepatic bile duct is rare; only few cases of ectopic liver cancer in the intrahepatic bile duct have been reported previously. Oncogenesis is still unclear and researchers believe that its mechanism is that liver tissue grows ectopically during the embryonic development period, and develops to the hepatocellular carcinoma finally, as the ectopic hepatocyte is dysfunctional. As reported cases are rare, the actual mechanism need be further researched.

Ectopic hepatocellular carcinoma growing in the intrahepatic bile duct is difficult to be diagnosed pre-operatively and usually misdiagnosed as hilar cholangiocarcinoma or intrahepatic cholangiocarcinoma. It has the same clinical manifestation such as fever, jaundice and abdominal pain, when the mass block up the bile duct like cholangiocarcinoma. The mass usually found in the bile duct but not in the liver, which is easy to result in misdiagnosis. The serum tumor marker AFP and the hepatitis B surface antigen are useful for diagnosis because they will usually be normal or slightly increased in cholangiocarcinoma. The serum AFP > 3000 ng/ml and the hepatitis B surface antigen is positive in this case. Thus ectopic hepatocellular carcinoma should be considered if the image findings resemble the bile duct cancer with serum AFP significantly raised and the hepatitis B surface antigen positive. Cross-sectional imaging provides little help in the differential diagnosis between the cholangiocarcinoma and the ectopic hepatocellular carcinoma, as the findings of ectopic hepatocellular carcinoma is almost the same as cholangiocarcinoma, which manifests as a mass or a filling defect in the bile duct and the proximal bile duct usually dilated. Hepatic angiography is useful for the differentiational diagnosis between cholangiocarcinoma and the ectopic hepatocellular. Schmelze reported a case of cholangiocarcinoma firstly diagnosed by the image findings and the serum tumor markers, eventually was diagnosed as ectopic hepatocellular carcinoma growing in the intrahepatic bile duct by the bile duct brushing cytology, thus the bile duct brushing cytology is useful for the diagnosis of ectopic hepatocellular carcinoma.

Surgical resection is indicated for the ectopic hepatocellular carcinoma growing in the intrahepatic bile duct. As the mass usually grow into the porta hepatis, the operative method is the same as the Bismuth type III hilar cholangiocarcinoma and the liver resection with lymph node dissection should be chosen. In this case, as the mass had grown in the left intrahepatic bile duct and had spread to the common hepatic bile duct, the hilar cholangiocarcinoma resection with left hemihepatectomy and right hepatic duct jejunum anastomosis (Roux-en-Y) and hepatoduodenal ligament lymph node dissection was chosen. The difficulties of the operation depends on that if the tumor invades the portal vein and hepatic artery; once the blood vessels are invaded, vascular reconstruction should be undertaken. Some reports showed the survival of 3 - 42 months after liver resection for the ectopic hepatocellular carcinoma. Percutaneous transhepatic cholangial drainage or metal stent placement can be taken for the patients who have no chance to accept the radical resection, but the effect is unsatisfactory as the tumor will grow to the stent and finally leading to the obstruction. Whether the liver transplantation is useful, it has still not been reported in these cases. There is no report on the prognosis of patients with ectopic HCC.

Ectopic hepatocellular carcinoma growing in the intrahepatic bile duct was rare and difficult to diagnose pre-operatively. Cross-sectional imaging, combined with AFP and hepatitis B surface antigen, is helpful for the diagnosis. The application of bile duct cytology and hepatic artery angiography is still remained to be confirmed. The operation technique depends on the position of the tumor.
REFERENCES


