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IMAGE OF THE MONTH

Jaundice 8 years after left hemi-hepatectomy for hepatocellular carcinoma

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KEYWORDS

Traumatic neuroma;
Hepatocellular carcinoma;
Hemi-hepatectomy;
Biliary obstruction

Case presentation

A 65-year-old man presented with a 2-month history of repeated jaundice. His past history included an operation for hepatocellular carcinoma. Because of multiple nodules in the left liver, he had received left hemi-hepatectomy 8 years previously. Physical examination showed mild jaundice. Laboratory test results revealed the following: total bilirubin level: 40.5 $\mu\text{mol/L}$ (normal: < 28.0 $\mu\text{mol/L}$), direct bilirubin level: 33.6 $\mu\text{mol/L}$ (normal: < 8.0 $\mu\text{mol/L}$), alanine aminotransferase level: 147 IU/L (normal: < 50 IU/L), and aspartate aminotransferase level: 92 IU/L (normal:

< 40 IU/L). The serum carbohydrate antigen 19-9 (CA19-9) level was 356.80 U/mL (normal: < 22.0 U/mL). The alpha-fetoprotein level was within the normal range. Magnetic resonance imaging revealed a 1 \times 1.5 cm mass in the right bile duct close to the bifurcation of the intrahepatic bile duct (Fig. 1). Cholangiocarcinoma was considered preoperatively. During the surgery, a small white-grey nodule was found in the right bile duct close to the original convergence of the left and right bile ducts. Several small stones in the common bile duct were also observed. Examination of the frozen section indicated the presence of spindle cells without malignant cells. Combined with the operation history, this indicated that the nodule might be a traumatic tumour. Hence, we suggested that extracting the stones using a choledochofibrescope and stenting of the right bile duct could relieve the jaundice. However, the patient's family refused this treatment. The patient underwent resection of the mass and Roux-en-Y hepaticojejunostomy. Postoperative histological analysis revealed that the nodule was a

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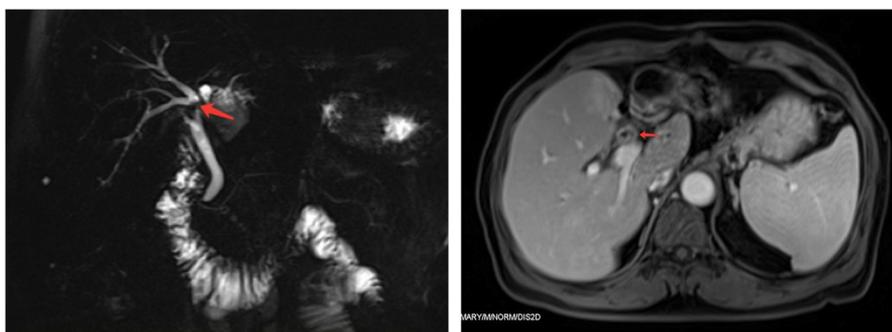


Figure 1 Magnetic resonance (MR) image shows a mass (1.5×1.0 cm) in the right bile duct closed to the bifurcation of the intrahepatic bile duct.

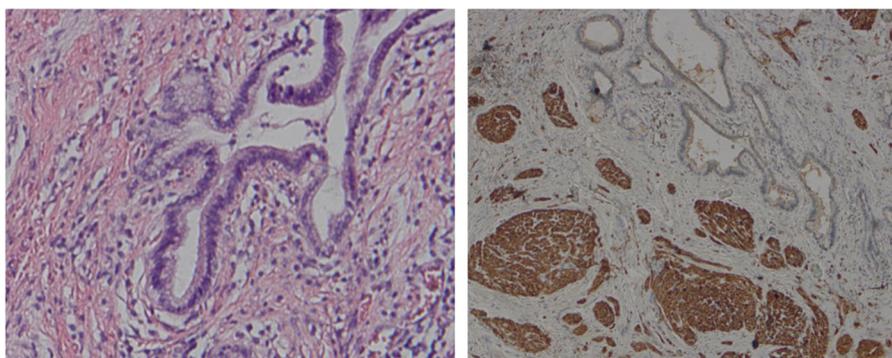


Figure 2 Hematoxylin and eosin staining and S-100 protein immunohistochemical staining show the proliferation of nerve fibers highlighted by S-100 immunohistochemical stain.

traumatic neuroma (Fig. 2). His postoperative course was uneventful. He is still alive without recurrence.

Discussion

Traumatic neuroma, a nodular lesion rather than a solid neoplasm, is a result of hyperproliferation of the end of a severed nerve fibre. It is extremely rare in the biliary system. Most traumatic neuromas in the bile ducts arise from remnant cystic ducts after cholecystectomy or biliary anastomosis after orthotopic liver transplantation. Most traumatic neuromas are generated on the basement membrane by the combing action of surgical amputation of the nerve and chronic inflammation [1]. Further, it has been hypothesised that traumatic neuromas may form after cholecystectomy and orthotopic liver transplantation. The plentiful nerve supply around the common bile duct may predispose to the inappropriate regeneration of nerves in patients treated with immunosuppressants, such as tacrolimus [2]. This is the first case of traumatic neuroma of the right bile duct 8 years after left hemi-hepatectomy for hepatocellular carcinoma.

The manifestation of traumatic neuroma is extremely similar to that of cholangiocarcinoma; both cause obstruction of the biliary system. Elevated serum CA19-9 levels are not indicative of the nature of the nodule. Therefore, it is difficult to diagnose traumatic neuroma before

surgery. Hence, although it is a benign lesion, needless extended resection is always performed. Examination of frozen sections and biopsy with cholangioscopy may help avoid needless extended resection [1,3]. The optimal treatment of traumatic neuroma in the bile duct is still uncertain. Although the therapeutic effect of surgical resection is good, it is worthwhile to think about the necessity of surgery due to the slow growth of most traumatic neuromas.

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Author contributions

Yang SS and Xian Wu collected the data and wrote the manuscript; Lu Jiong and Cheng NS designed, organised, and supervised the writing of the manuscript; all authors approved the final manuscript as submitted.

Disclosure of interest

The authors declare that they have no competing interest.

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