

## Case Report

# Benign schwannoma of the hepatoduodenal ligament: a case report

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Received March 23, 2016; Accepted August 20, 2016; Epub October 15, 2016; Published October 30, 2016

**Abstract:** We report a schwannoma of the hepatoduodenal ligament in a 43-year-old man who was diagnosed as hilar tumor and choledocholithiasis. He presented with repeatedly right upper quadrant swelling pain more than 7 years, aggravated in 1 month and had a previous history of gallbladder excision. His family history and physical examination were devoid of significance. Computed Tomography scan showed a mass about 4.0 cm in diameter in the portahepatis and multiple small stones in the lower segment of common bile duct. In surgery, two encapsulated mass were found and then two portahepatis tumor excision and choledocholithotomy were finally accomplished. The tumor tissue was found full of spindle cells and no typical appearance by pathological analysis. Immunohistologically, S-100 protein was positive in tumor cells and then the lesions were finally diagnosed as schwannoma.

**Keywords:** Schwannoma, hepatoduodenal ligament, immunohistochemistry

### Introduction

Schwannomas are uncommon neoplasms. In the body, it may occur nearly anywhere, such as, the neck, the head, and the upper and the flexor surfaces of the limbs [1]. Schwannoma in the hepatoduodenal ligament is extremely rare and only two cases can be grabbed in Pubmed [2, 3]. We herein report such an extremely rare case.

### Case report

A 43-year-old man was admitted to our hospital on May 04, 2015, presenting with repeatedly right upper quadrant swelling pain more than 7 years and aggravating for 1 month. He had a previous history of gallbladder excision. The physical examination revealed that abdomen was soft, no mass was touched and no evidence of skin and sclera subicteric.

Laboratory tests showed that: WBC  $8.5 \times 10^9/L$  (3.5-9.5), RBC  $4.99 \times 10^{12}/L$  (4.30-5.80), Hb 153 g/L (130-175), PLT  $199 \times 10^9/L$  (125-350), TP 71.1 g/L (65.0-85.0), ALB 46.3 g/L (40.0-55.0), TB 15.9  $\mu\text{mol/L}$  (3.4-20.0), DB 4.8  $\mu\text{mol/L}$

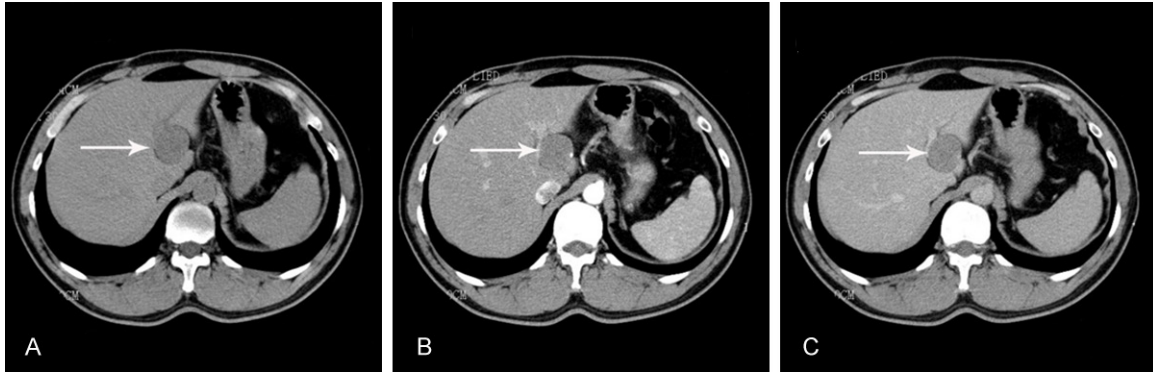
L (0.0-7.2), AST 24 IU/L (15-40), ALT 45 IU/L (9-50), CRP 1.7 mg/L (0.0-8.0), AFP 3.7 ng/mL (0.0-13.4), CEA 4.2 ng/mL (0.0-5.2), CA19-9 < 0.6 U/mL (0.0-39.0) and CA72-4 1.3 U/mL (0.0-8.2).

Computed Tomography (CT) scan showed a mass with a diameter of 4.0 cm located in the portahepatis, displaying clear border and homogeneous density; and multiple small stones in the low segment of common bile duct. The mass presented persistently moderate strengthening after enhancement scan (**Figure 1**).

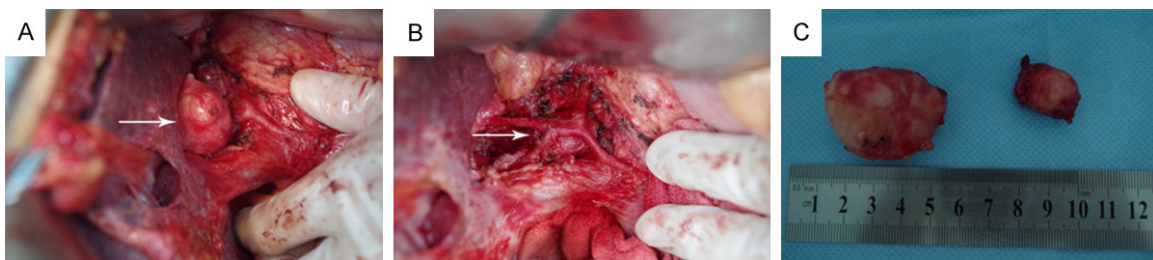
The patient underwent laparotomy one week after admission. During operation, two encapsulated mass were found beneath hepatic artery in the left segment of the hepatoduodenal ligament. One tumor size was about 4.5×4.0 cm and the other was about 1.5×1.0 cm (**Figure 2**). Two portahepatis tumors excision and choledocholithotomy were finally accomplished.

The tumor tissue was found to be full of spindle cells and no typical appearance was observed by pathological analysis. Immunohistologically,

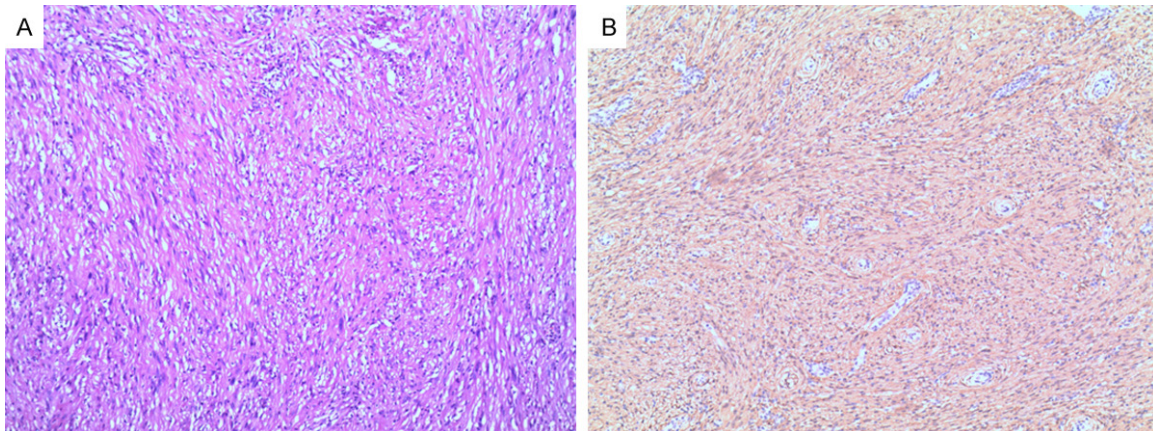
## Schwannoma of the hepatoduodenal ligament



**Figure 1.** A: CT scan showing a mass located in the portahepatis. B, C: The mass presented persistently moderate strengthening after enhancement scan.



**Figure 2.** A-C: During operation, two encapsulated masses were found in the hepatoduodenal ligament. One size was about 4.5×4.0 cm and the other was about 1.5×1.0 cm.



**Figure 3.** A: Pathological examination revealed that the tumor consisted of spindle cells without atypical appearance. B: Immunohistologically, tumor cells were positive for S-100 protein.

S-100 protein was positive in tumor cells and the histopathological diagnosis of the resected specimen was confirmed to be schwannoma (Figure 3).

The patient's postoperative course was uneventful and discharged 10 days after operation. After 8 months of follow-up, no relapse was observed.

### Discussion

As benign neurogenic tumor, schwannoma arise from the neurolemma of peripheral nerves. The tumor is usually surrounded by stretched nerve fibers and inclines to be encapsulated. Middle-aged adults are susceptible population of schwannoma and the prevalence in women is considered as twice as men [2]. It

is extremely rare that neurogenic tumors appear in the hepatoduodenal ligament. There were only two cases of schwannoma in the hepatoduodenal ligament have been reported in Pubmed [2, 3].

On CT imaging, the schwannoma usually appears as a well-defined oval or round mass which often showed remarkable calcification and cystic degeneration. It displays heterogeneous or variable homogeneous enhancement at contrast-enhanced CT [4-6], which is in accordance with the CT findings of this case. Due to lacking of specificity in CT performance, it is very hard to give precise diagnosis just by CT examination.

By histologic analysis, the schwannoma is usually divided into two types: Antoni type A, tumor areas are highly cellular that composed of spindle cells; Antoni type B, the lesion is usually loose myxoid tissue containing cuboidal cells [1].

By immunohistochemistry, schwannomas typically show diffuse, strong expression of S100 protein [7]. In our case, the tumor showed dominant Antoni A area and positive staining for S-100 protein, which supported the benign schwannoma of this tumor.

### Acknowledgements

The work was supported by the following project's financial support: Jiaxing Science and Technology Projects (grant no. 2013AY21042-5); Jiaxing Science and Technology innovation team projects (grant no. 2013-03); and major projects of Zhejiang Province on the transformation of the appropriate technical achievements of primary health care (grant no. 2013T301-12 and 2013T301-15).

### Disclosure of conflict of interest

None.

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### References

- [1] Rha SE, Byun JY, Jung SE, Chun HJ, Lee HG and Lee JM. Neurogenic tumors in the abdomen: tumor types and imaging characteristics. *Radiographics* 2003; 23: 29-43.
- [2] Nagafuchi Y, Mitsuo H, Takeda S, Ohsato K, Tsuneyoshi M and Enjoji M. Benign schwannoma in the hepatoduodenal ligament: report of a case. *Surg Today* 1993; 23: 68-72.
- [3] Pinto J, Afonso M, Veloso R, Tente D, Fernandes S, Proenca L, Carvalho J, Pontes JM and Fraga J. Benign schwannoma of the hepatoduodenal ligament. *Endoscopy* 2011; 43 Suppl 2 UCTN: E195-196.
- [4] Kim SH, Choi BI, Han MC and Kim YI. Retroperitoneal neurilemoma: CT and MR findings. *Am J Roentgenol* 1992; 159: 1023-1026.
- [5] Kinoshita T, Naganuma H, Ishii K and Itoh H. CT features of retroperitoneal neurilemmoma. *Eur J Radiol* 1998; 27: 67-71.
- [6] Cohen LM, Schwartz AM and Rockoff SD. Benign schwannomas: pathologic basis for CT inhomogeneities. *Am J Roentgenol* 1986; 147: 141-143.
- [7] Weiss SW, Langloss JM and Enzinger FM. Value of S-100 protein in the diagnosis of soft tissue tumors with particular reference to benign and malignant Schwann cell tumors. *Lab Invest* 1983; 49: 299-308.