Clinical Case Report

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Primary mucosa-associated lymphoid tissue lymphoma of the hilar bile duct resulting in fluctuant jaundice

A case report

Zhaobo Liu, MD[a], Yunjin Zang, MD[a], Xinxin Wang, MD[b], Ning Li, MD[a,c,*], Dongdong Lin, MD[a,*]

Abstract

Rationale: Primary mucosa-associated lymphoid tissue (MALT) lymphomas rarely originate in the hilar bile duct. Preoperative diagnosis of a primary MALT lymphoma of the hilar bile duct is difficult owing to the rarity of this disease. Differentiating between obstructive jaundice caused by MALT lymphoma of the hilar bile duct and hilar cholangiocarcinoma (the most common form of bile duct cancer) is challenging.

Patient concerns: A 57-year-old man presented to our hospital in August 2012 with fluctuant obstructive jaundice.

Diagnoses: Contrast-enhanced abdominal computed tomography and magnetic resonance cholangiopancreatography showed a hilar liver mass measuring 23 × 28 mm along with intrahepatic biliary dilatation indicating hilar bile duct obstruction with a high index of suspicion for hilar cholangiocarcinoma.

Interventions and Outcomes: Based on frozen section examination, he was intraoperatively diagnosed with chronic nonspecific inflammation. Histopathological and immunohistochemical examinations confirmed a diagnosis of malignant lymphoma, specifically classified as an extranodal marginal zone B-cell lymphoma of MALT type.

Lessons: A primary MALT lymphoma of the bile duct should be considered among the differential diagnosis in patients with a hilar tumor who present with fluctuating jaundice and are preoperatively diagnosed with suspected hilar cholangiocarcinoma, and/or an intraoperative diagnosis of chronic nonspecific inflammation (based on frozen section examination) assessed for stenosis or obstruction of the bile duct.

Abbreviations: CT = computed tomography, DBil = direct serum bilirubin, MALT = mucosa-associated lymphoid tissue, MRCP = magnetic resonance cholangiopancreatography, TBil = total serum bilirubin.

Keywords: Hilar bile duct, Hilar cholangiocarcinoma, Jaundice, Lymphoma, MALT lymphoma

1. Introduction

Mucosa-associated lymphoid tissue (MALT) lymphomas are an extranodal variant of marginal zone B-cell lymphomas and constitute < 8% of all types of lymphomas.[1] Primary MALT lymphomas rarely originate in the hilar bile duct. Preoperative diagnosis of a primary MALT lymphoma of the hilar bile duct is extremely difficult owing to the rarity of this disease. Differentiating between obstructive jaundice caused by MALT lymphoma of the hilar bile duct and hilar cholangiocarcinoma (the most common form of bile duct cancer) is challenging. We report a case of a patient presenting with fluctuant obstructive jaundice secondary to primary MALT lymphoma resembling hilar cholangiocarcinoma. Additionally, we have reviewed the relevant literature.

2. Case presentation

A 57-year-old man presented to our hospital in August 2012 with obstructive jaundice. He denied any relevant medical history, and

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DL and NL contributed equally to this work.

Beijing YouAn Hospital, Capital Medical University Ethics Committee approves and consents to publish this case report.

The patient has provided informed consent for publication of the case.

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[a] General Surgery Center, [b] Department of Pathology, Beijing YouAn Hospital, Capital Medical University, Fengtai District, [c] Beijing Institute of Hepatology, Beijing, China.

[*] Correspondence: Dongdong Lin, General Surgery Center, Beijing YouAn Hospital, Capital Medical University, 8 Xitoutiao, Youanmenwai, Fengtai District, Beijing 100069, China (e-mail: ldd1231@126.com); Ning Li, Beijing Institute of Hepatology and General Surgery Center, Beijing YouAn Hospital, Capital Medical University, 8 Xitoutiao, Youanmenwai, Fengtai District, Beijing 100069, China (e-mail: liningbjyah@vip.sina.com).

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his family history was noncontributory. Physical examination revealed jaundice with scleral icterus without lymphadenopathy or hepatosplenomegaly. Laboratory studies showed evidence of cholestasis with a total serum bilirubin (TBil) level of 89.3 μmol/L, direct serum bilirubin (DBil) level of 65.2 μmol/L, serum alanine aminotransferase level of 131 U/L, serum albumin level of 34.3 g/L, and serum amylase level of 34 U/L. Serum levels of tumor markers alpha-l-fucosidase, alpha-fetoprotein (AFP), and cancer antigen 19–9 (CA 19–9) were 105.6 U/L, 3.07 ng/mL, and 88.65 U/mL, respectively. Viral markers assessed included hepatitis B surface antigen (−) and anti-hepatitis C virus antibody (−). Contrast-enhanced abdominal computed tomography (CT) (Fig. 1) and magnetic resonance cholangiopancreatography (MRCP) (Fig. 2) showed a hilar liver mass measuring 23 × 28 mm along with intrahepatic biliary dilatation indicating hilar bile duct obstruction with a high index of suspicion for hilar cholangiocarcinoma. Additionally, we detected diffuse enlargement of the pancreatic body and tail and a duodenal diverticulum. The patient was admitted to our hospital for further treatment.

Radiological features identified by CT and MRCP suggested a hilar cholangiocarcinoma (Bismuth type IIIR), and the patient was scheduled for surgery. The day before the operation we observed a dramatic spontaneous decrease in the patient's bilirubin levels (TBil 37.3 μmol/L, DBil 20.2 μmol/L). Of note, fluctuant jaundice observed in this patient was not consistent with hilar cholangiocarcinoma, and primary sclerosing cholangitis and hepatic portal inflammatory lesions were considered potential differential diagnoses. The operation was delayed, and CT and MRCP were repeated. Repeat imaging showed an obstructive hilar liver mass concomitant with intrahepatic biliary dilatation, consistent with our previous findings. The patient's bilirubin level increased again (TBil 53.7 μmol/L, DBil 30.2 μmol/L), with his serum CA 19–9 level elevated to 104.5 U/mL.

Laparotomy was performed to relieve the patient's obstructive jaundice and to establish a definitive histopathological diagnosis. A hard mass was palpated at the main hepatic duct junction without evidence of ascites, lymphadenopathy, or dissemination of malignancy. Although he was preoperatively diagnosed with suspected cholangiocarcinoma of the main hepatic duct junction,

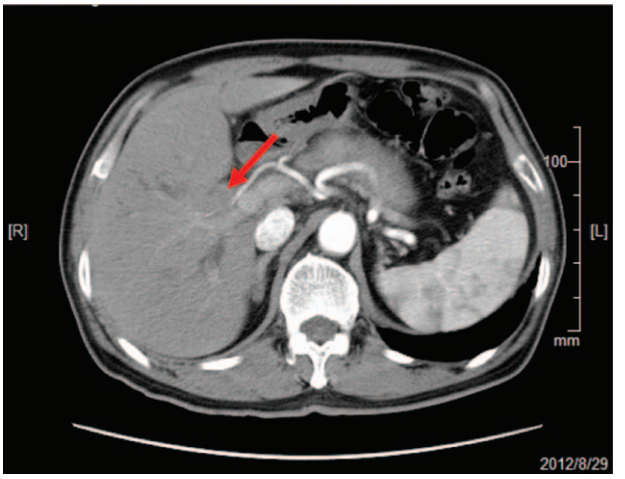

Figure 1. Contrast-enhanced abdominal CT during the arterial phase showed a circumscribed, slightly heterogeneous mass (indicated by the arrow) at the main hepatic duct junction and dilatation of intrahepatic bile ducts. CT = computed tomography.

intraoperative diagnosis (based on frozen section examination) showed chronic nonspecific inflammation. Owing to complete obstruction of the hilar bile duct, the patient underwent right hemihepatectomy combined with resection of the bile duct and hepatoduodenal dissection. Roux-en-Y hepaticojejunostomy was performed for biliary tract reconstruction.

Macroscopic examination showed a dense, white nodular mass (1.5 × 2.0 cm) at the main hepatic duct junction, and the extrahepatic bile ducts showed diffuse wall thickening with smooth inner and outer surfaces (Fig. 3). Histopathological examination revealed small lymphoid cell and reactive lymphocytic infiltration within the common bile duct. Lymphoid cells infiltrates were observed within the epithelium lining the bile ducts and a portion of the peripheral nerves. Immunohistochemical examination showed the tumor cells stained positive for CD20 and CD79a markers and negative for

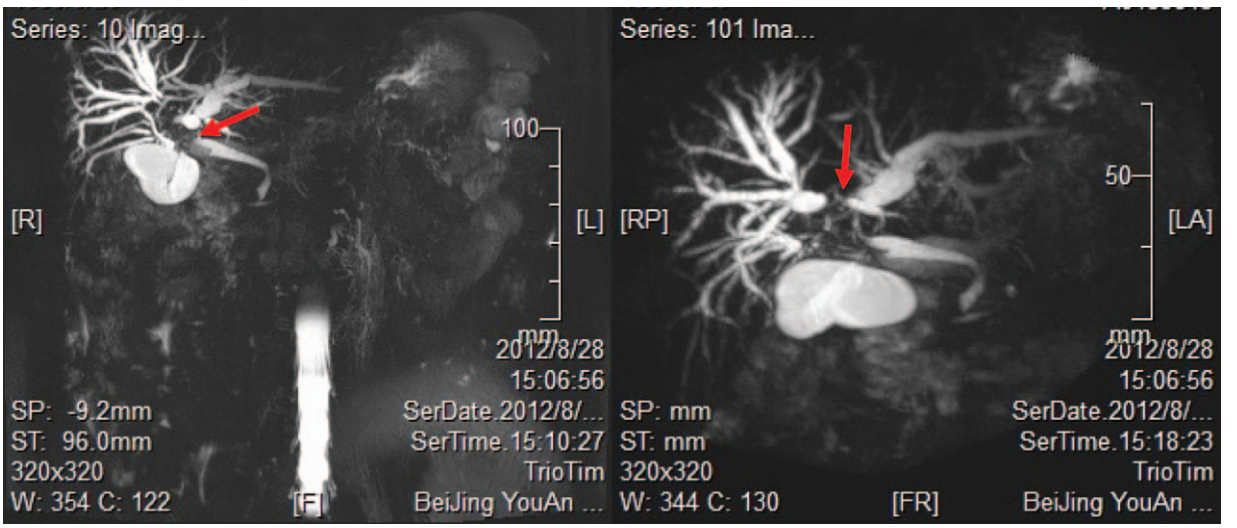

Figure 2. MRCP showed obstruction (as shown by the arrow) of the main hepatic duct junction with dilatation of intrahepatic bile ducts. MRCP = magnetic resonance cholangiopancreatography.

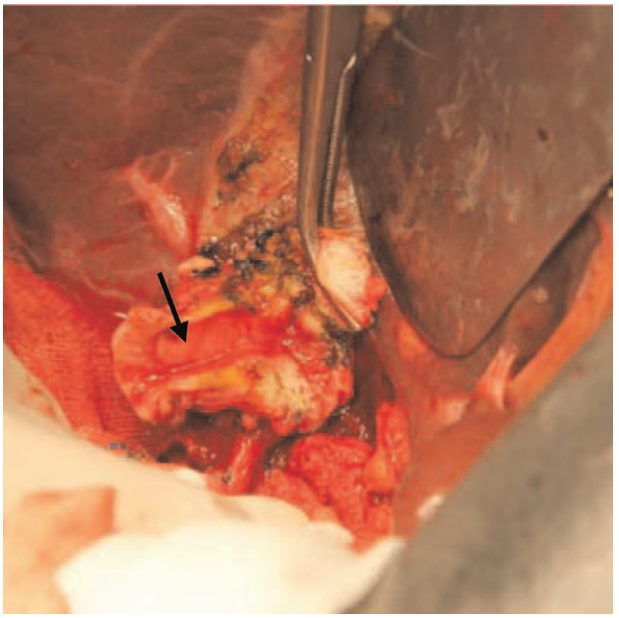

Figure 3. Macroscopically, a dense white nodular mass (1.5 × 2.0 cm) was found at the main hepatic duct junction, and the extrahepatic bile duct showed diffuse wall thickening with smooth inner and outer surfaces (as shown by the arrow).

immunoglobulin-G4 (Fig. 4). Histopathological and immunohistochemical examinations confirmed a diagnosis of malignant lymphoma, specifically an extranodal marginal zone B-cell lymphoma of MALT variant.

The patient refused postoperative combination chemoradiation therapy. He has remained healthy without evidence of recurrence 60 months after the aforementioned surgery.

3. Discussion

Primary MALT lymphomas rarely originate in the extrahepatic bile ducts, particularly the hilar bile duct. To our knowledge, to date, only 5 cases reported in the English literature have described such tumors.[2–6] As reported by previous studies, differentiating between a MALT lymphoma of the hilar bile duct and a hilar cholangiocarcinoma (the most common form of bile duct cancer) is challenging.

To summarize, although preoperative diagnosis of a primary MALT lymphoma of the hilar bile duct is difficult owing to the rarity of this disease, this diagnosis should be considered among the differential diagnosis in patients with a hilar tumor and the following presentation:

1. CT and MRCP findings typical of hilar cholangiocarcinoma but associated with clinically fluctuating jaundice, which is inconsistent with the progressive painless jaundice associated with hilar cholangiocarcinoma (as was typically observed in our patient). Spontaneous reduction in jaundice has been reported in 2 previous cases of primary MALT lymphoma of the hilar bile duct.[3,4] A possible pathomechanism underlying this clinical presentation may be that MALT lymphoma induces diffuse thickening of the bile duct wall with smooth inner surfaces.[5] Therefore, such lesions do not completely obstruct the biliary tract. In contrast, a hilar cholangiocarcinoma demonstrates invasive growth and completely obstructs the hilar bile duct. Thus, fluctuating jaundice or spontaneous remission of jaundice in a patient with a preoperative diagnosis of suspected hilar cholangiocarcinoma should lead to a suspicion of primary MALT of the bile duct.

2. Previous investigators describing primary MALT lymphoma of the bile duct have reported that intraoperative diagnosis (based on frozen section examination) showed chronic nonspecific inflammation and non-epithelial malignant neoplasm in such lesions.[3] The intraoperative diagnosis in our patient (based on frozen section examination) showed chronic nonspecific inflam-

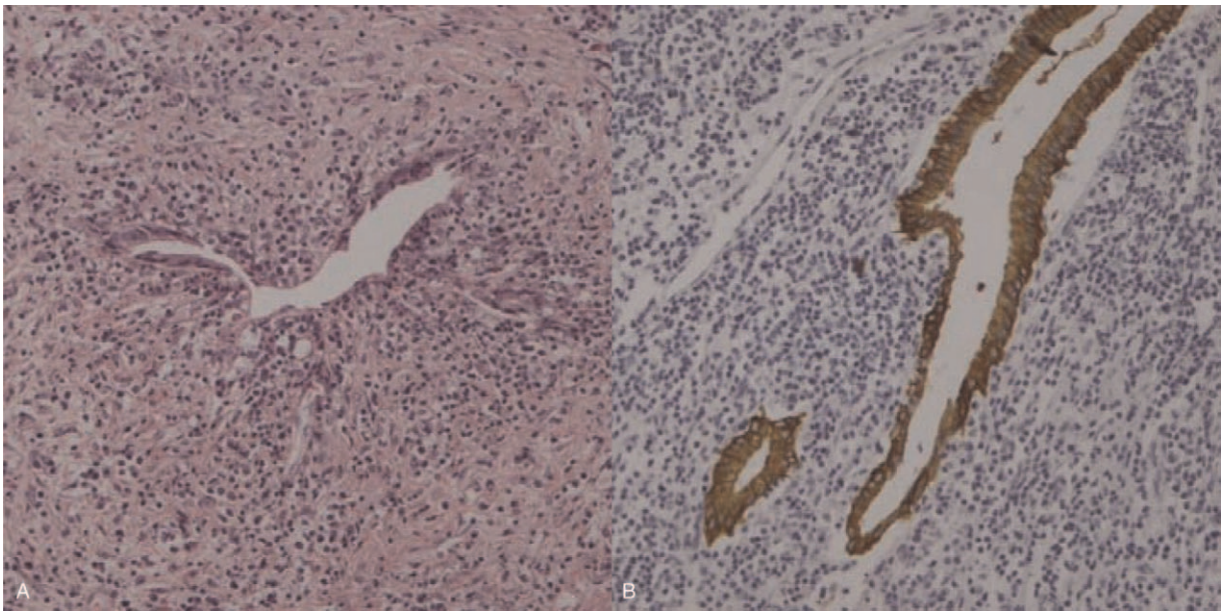

Figure 4. Histological examination revealed that the common bile duct was occupied by many small-sized lymphoid cells and a number of reactive lymphocytes. The lymphoid cells had infiltrated the epithelium of the bile duct and a portion of the peripheral nerves. Immunohistochemical studies were positive for the markers CD20 and CD79a markers and negative for IgG4. A focus of lymphoepithelial lesions (HE, × 200) (A). Lymphoepithelial lesions highlighted via cytokeratin 7 immunostaining (IHC, × 200) (B).

mation at the resected edge, which concurs with the previous studies. A primary MALT lymphoma of the bile duct should be considered among the differential diagnosis in patients preoperatively diagnosed with a suspected hilar cholangiocarcinoma but who are being evaluated for stenosis or obstruction of the bile ducts and show an intraoperative diagnosis of chronic nonspecific inflammation (based on frozen section examination).

4. Conclusion

Primary MALT lymphoma of the bile duct should be considered among the differential diagnosis in patients with fluctuating jaundice who are preoperatively diagnosed with suspected hilar cholangiocarcinoma but when assessed for stenosis or obstruction of the bile duct are intraoperative diagnosis of chronic nonspecific inflammation (based on frozen section examination).

Author contributions

Dongdong Lin and Ning Li contributed equally to this work.
The authors report no conflicts of interest.
Conceptualization: Zhaobo Liu, Dongdong Lin.
Data curation: Zhaobo Liu, Xinxin Wang.
Formal analysis: Zhaobo Liu.
Funding acquisition: Dongdong Lin, Ning Li.
Investigation: Zhaobo Liu, Xinxin Wang.
Methodology: Zhaobo Liu.
Project administration: Dongdong Lin, Ning Li, Yunjin Zang.
Resources: Dongdong Lin, Ning Li, Yunjin Zang.
Software: Zhaobo Liu.
Supervision: Dongdong Lin, Ning Li, Yunjin Zang.
Validation: Zhaobo Liu.
Visualization: Zhaobo Liu.
Writing – original draft: Zhaobo Liu.
Writing – review & editing: Dongdong Lin, Ning Li.
Zhaobo Liu orcid: 0000-0002-4993-5910.

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