Percutaneous liver biopsy: retrospective study of primary and secondary hepatic lymphoma in twenty-one patients

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BACKGROUND: Hepatic lymphoma (HL) is categorized as primary and secondary hepatic lymphoma (PHL and SHL). This disorder can present as hepatic mass or mass-like lesion. Chemotherapy often is the first line treatment for patients with HL. Thus, an accurate pre-management histological diagnosis is essential to potentially improve clinical outcomes. The present study was to explore the prevalence of HL in ultrasound guided liver biopsies for hepatic mass or mass-like lesions, to investigate HL associated clinicopathological features, to raise the awareness of early recognition and proper diagnosis of this entity, and to assess specimen adequacy in needle core biopsy.

METHODS: Twenty-one cases of HL were enrolled. Clinical and pathological characteristics were evaluated, quality of biopsies was assessed and pertinent literature was reviewed.

RESULTS: HL was diagnosed in 0.94% of 2242 liver biopsy cases with ambiguous clinical presentation, laboratory tests and image studies. There were two cases of PHL (0.09%), and nineteen cases of SHL (0.85%). Histopathologically, diffuse large B-cell lymphoma was the most common type, followed by B-cell lymphoma not otherwise specified, T-cell lymphoma, Hodgkin's lymphoma, and B-cell chronic lymphocytic leukemia/small lymphocytic lymphoma. Additionally, three lymphocytic infiltration patterns were documented microscopically. The nodular infiltration was the most common type.

CONCLUSIONS: HL is a rare entity and histopathology along with ancillary tests remains the only way to make the diagnosis. Clinicians' awareness of this entity and early liver biopsy are essential in patient management.

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KEY WORDS: hepatic lymphoma; primary and secondary; percutaneous needle core biopsy

Introduction

The incidence of hepatic lymphoma (HL), including primary (PHL) and secondary (SHL), is increasing recently.[1, 2] Most of the HLs are secondary as a result of systemic spreading of the disease. PHL is a rare entity and is confined in the liver at the early stage of lymphoma without infiltration of other locations.[3, 4] The clinical presentations of HL are often nonspecific. Intrahepatic solitary/multiple lesions or diffuse infiltration are the most common radiological findings. These features resemble other intrahepatic neoplasm, i.e. metastatic cancer, hepatocellular carcinoma (HCC), etc. Since HL patients require chemotherapy instead of surgical excision, an accurate histopathological diagnosis is essential in patients with hepatic mass or mass-like lesion.

Several methods, including surgical biopsy (open or laparoscopic), needle core biopsy (percutaneous or transjugular) and fine needle aspiration are available in assessing histological changes. Among all the listed methods, surgical biopsy is only used when patients are having an abdominal procedure for other medical conditions. Ultrasound-guided fine needle aspiration has recently been applied in evaluating liver mass.[3] However, cytological material alone bears its limitation and cannot be used for complete histological and sometimes immunophenotypic assessment. Ultrasound-guided percutaneous liver needle core biopsy, safe in both in- and outpatients,[5] is a well-established method in the diagnosis of patients with medical liver diseases, mass-like lesions

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and liver transplant assessment. Compared to the surgical open biopsy, liver needle core biopsy is less invasive and highly effective in diagnosing HL.[6]

According to the location and amount of the neoplastic lymphocytes, three basic and two additional patterns of lymphocytic infiltration have been described.[7] In portal infiltration pattern, the neoplastic lymphocytes are confined to the portal tracts; in nodular infiltration pattern, the neoplastic lymphocytes are present in the hepatic lobules and form nodules; in sinusoidal infiltration pattern, the neoplastic lymphocytes are dispersed in the sinusoids with preserved lobular architecture. Furthermore, depending on the density of the lymphocytes, both portal and nodular infiltrating types can be divided into loose and dense infiltration. The present study was to explore the prevalence of HL in ultrasound guided liver needle biopsies for hepatic mass or mass-like lesions, to investigate HL associated clinicopathological features, to raise the awareness of this entity among the clinicians, and to assess specimen adequacy of needle core biopsy.

Methods

We reviewed 2242 consecutive percutaneous liver needle core biopsies for liver mass or mass-like lesion at the Department of Pathology, the First Affiliated Hospital, Zhejiang University School of Medicine, from January 2007 to December 2014. All liver biopsies with a diagnosis of hepatic lymphoproliferative disorder or lymphoma were included in the study. Additionally, patient demographics, clinical history, laboratory and radiology studies were retrieved from the hospital electronic medical records. This project was approved by the hospital ethics committee.

Twenty-four patients were diagnosed as HL; three were eliminated from the study due to insufficient clinical history and/or inadequate biopsy material. The biopsies were performed routinely by the radiologists under ultrasound guidance, using an 18 G Tru-Cut needle. The diameter and total length of the biopsy cores were measured. All routine hematoxylin and eosin (H/E) and immunohistochemical (IHC) stained slides, and other ancillary testing results were reviewed by two pathologists. Different types of lymphoma were diagnosed according to the WHO lymphoma classification.[8]

Results

Clinical characteristics

Of the enrolled 21 patients, there were two cases of PHL and nineteen cases of SHL. The prevalence of PHL and

Table 1. Clinicopathological characteristics of HL

No.	Age (yr)	Gender	Pathology diagnosis	Clinical presentation	No. of mass radiology	Hepatomegaly/ splenomegaly	BM biopsy	Biopsy tissue length (mm)
1	61	F	DLBCL (PHL)	Fever	No mass	+/+	-	11
2	43	F	DLBCL (PHL)	PE	M	NA/NA	-	30
3	36	F	B-cell lymphoma	PE	S	-/-	-	28
4	43	F	DLBCL	Back pain	S	-/-	NA	11
5	46	M	DLBCL (PTLD)	Fever, PLTx 3 yr	No mass	-/NA	NA	17
6	50	F	B-cell lymphoma	PE	S	-/-	-	5
7	33	F	T-ALL/LBL	Fever	M	+/-	+	13
8	57	M	DLBCL	AD	S	+/+	+	9
9	58	M	B-cell lymphoma	AD	M	-/-	NA	7
10	68	M	B-cell lymphoma	PE	M	-/-	NA	18
11	60	F	DLBCL	Fever	M	-/-	-	17
12	61	F	DLBCL	PE	S	-/+	NA	10
13	56	M	B-cell lymphoma	AD	S	-/-	-	11
14	38	F	T-cell lymphoma	Fever	No mass	+/+	-	24
15	50	F	Hodgkin's lymphoma	Fever	M	+/+	+	14
16	61	M	B-CLL/SLL	Pleural effusion	S	+/-	+	16
17	62	M	B-cell lymphoma	AD	M	NA/NA	NA	17
18	42	M	Hodgkin's lymphoma	Fever	M	-/-	-	10
19	49	F	Hepatosplenic T-cell lymphoma	Fever	No mass	-/+	+	27
20	70	M	DLBCL	Inguinal lump	S	-/-	-	13
21	79	F	DLBCL	AD	M	NA/NA	NA	17

HL: hepatic lymphoma; BM: bone marrow; DLBCL: diffuse large B-cell lymphoma; PHL: primary hepatic lymphoma; PTLD: post-transplant lymphoproliferative disorder; T-ALL/LBL: precursor T lymphoblastic lymphoma/lymphoblastic leukemia; B-CLL/SLL: B-cell chronic lymphocytic leukemia/small lymphocytic lymphoma; PE: physical examination; PLT: post-liver transplantation; AD: abdominal discomfort; M: multiple lesions; S: single lesion; NA: not available; -: negative; +: positive.