Primary Liver Lymphoma with Hypercalcemia: A Case Report

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Primary liver lymphoma is extremely rare. The diagnosis depends on the physician's suspicions and histological examination. We report the case of a man aged 38 years who suffered from abdominal discomfort and hypercalcemia. Sonography showed a huge, solid liver tumor, and magnetic resonance imaging showed the tumor had characteristics of hypointensity on T1-weighted and hyperintensity on T2-weighted imaging. Primary liver lymphoma was diagnosed by histological examination from biopsy. We report this rare type of liver tumor and review the clinical presentation and treatment of the disease.

Key Words: hypercalcemia, liver tumor, lymphoma
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Although secondary liver involvement of lymphoma in the advanced stage is common, primary liver lymphoma (PLL), which is confined to the liver without lymph node or bone marrow involvement, is extremely rare. PLL comprises approximately 0.01% of non-Hodgkin's lymphomas [1]. The rarity of the disease causes problems in diagnosis and management. We report an interesting case with PLL who initially presented with hypercalcemia and a large liver mass.

Case Presentation

A 38-year-old man came to our hospital having experienced general malaise, abdominal fullness and constipation for several days. Physical examination revealed marked hepatomegaly without other lymphadenopathy. Sonography showed a huge solid tumor (15.2 cm in diameter) with mixed iso- and hypoechoic density, without a cirrhotic basis. Magnetic resonance imaging (MRI) showed a well-defined mass with hypointensity on T1-weighted imaging and hyperintensity on T2-weighted imaging in relation to the liver without other metastatic lesions (Figure 1). Biochemistry tests revealed the following results: aspartate aminotransferase, 36 IU/L (normal, <42 IU/L); alanine aminotransferase, 93 IU/L (normal, <40 IU/L); alkaline phosphatase, 740 IU/L (normal, <92 IU/L); γ-glutamyltranspeptidase, 524 IU/L (normal, <64 IU/L); creatinine, 2.43 mg/dL (normal, 0.6–1.4 mg/dL); α-fetoprotein, 1.7 ng/mL (normal, <20 ng/mL); and ionized calcium, 9.68 mg/dL (normal, 4.5–5.6 mg/dL). Serologic tests for hepatitis B virus (HBV) and hepatitis C virus (HCV) infections were all negative.

Because a liver tumor was suspected, a liver biopsy was performed and the histological examination revealed a diffuse large B-cell malignant lymphoma, which was positive for CD20 staining (Figure 2). Bone marrow examination showed normal marrow without lymphoma involvement. The patient was treated with hydration and bisphosphonate for hypercalcemia and the symptoms improved with recovery of renal function. Because of the unresectable status of

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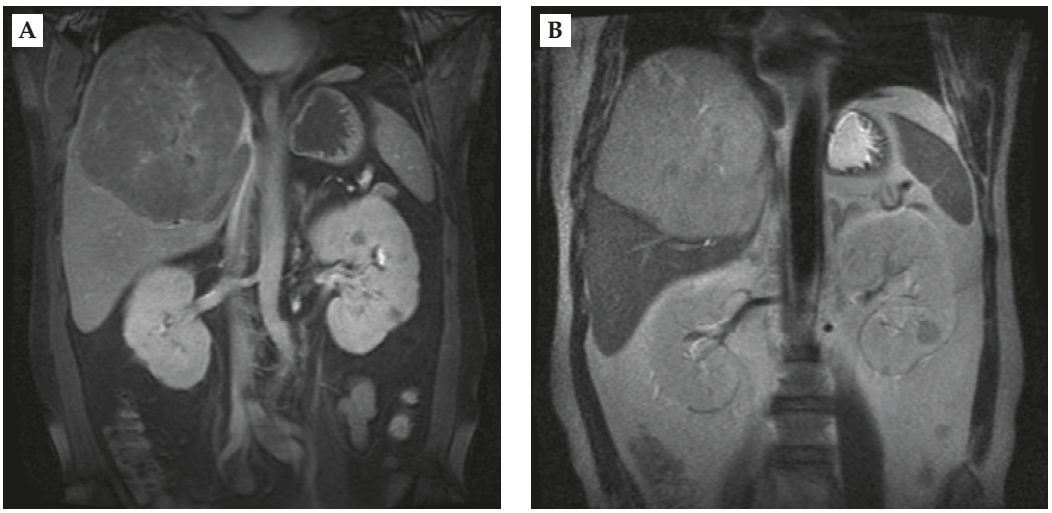

Figure 1. *Magnetic resonance imaging showed a well-defined mass with (A) hypointensity on T1-weighted imaging, and (B) hyperintensity on T2-weighted imaging.*

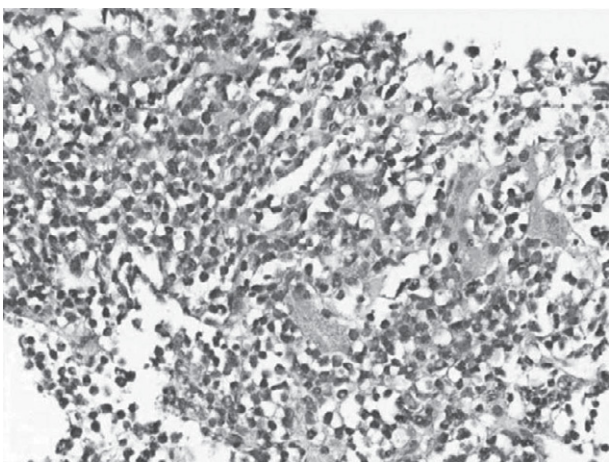

Figure 2. *Histologic analysis revealed diffuse large B cell lymphoma (hematoxylin & eosin, 100×).*

the tumor, systemic chemotherapy with rituximab plus cyclophosphamide, pharmorubicin, vincristine and prednisone was prescribed. However, poor response to the therapy was noted from the follow-up imaging studies, and recurrence of hypercalcemia was also found later. The patient died 1 month afterwards due to neutropenic infections.

Discussion

PLL confined to the liver without lymph node or bone marrow involvement is extremely rare, comprising approximately 0.01% of non-Hodgkin's lymphomas [1]. We suggest that our case was PLL because we found neither lymphadenopathies nor marrow lesions, except for the liver tumor. The positive staining for CD20, which is specific for B cell lymphocytes, confirmed the diagnosis of malignant B cell lymphoma. Although the reported cases are limited, there is a trend towards male predominance, and the clinical presentation and laboratory findings are generally nonspecific in such cases [2,3]. Although hypercalcemia is a common complication of malignancies in various tumors, such as hepatocellular carcinoma, in an advanced stage or metastatic status, hypercalcemia is rare in PLL, according to a review of the literature [4–6]. The real pathomechanism of hypercalcemia in PLL is unclear because of the paucity of the cases; however, some reports have suggested that it may result from secretion of calcitriol and may withstand a high tumor burden in PLL [4]. Therefore, accurate diagnosis relies on the physician's suspicions and histological examination because of the nonspecific clinical presentation.

The pathogenesis of PLL is still not clear and some reports showed that it might be associated with hepatitis, cirrhosis, and immunosuppressive drugs [7–9]. Some reports also showed a higher prevalence of HCV infection in PLL patients [3]. However, our patient had no HBV and HCV infection. The diagnosis of PLL should be made very carefully in an area such as Taiwan, where there is a high prevalence of HBV and HCV infection, which may cause hepatocellular carcinoma.

Imaging studies can provide some information to help differentiate PLL from other diseases. As in our case, PLL is usually a hypoechoic tumor in sonography and shows hypointensity on T1-weighted and hyperintensity on T2-weighted imaging in MRI [2]. However, many diseases still have similar imaging patterns, including metastatic tumors. Therefore, the final diagnosis of PLL relies on histological examination. The treatment of PLL includes surgery, chemotherapy and radiation; however, the optimal therapy is still unclear and the outcomes are uncertain [2,3]. One large review of 72 patients showed the median survival to be 15.3 months (range, 0–123.6 months) and suggested that surgical resection might improve survival when an operation is feasible [2].

In conclusion, we present a rare case of PLL with hypercalcemia. Although the response was not good in our patient, to the best of our knowledge, this is the first reported case where an anti-CD20 agent (rituximab) was used as part of the treatment regimen.

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原發性肝臟淋巴瘤合併高血鈣症之病例報告

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原發性肝臟淋巴瘤是非常少見的疾病，其診斷依賴醫師們的小心推敲及病理檢查確定。我們報告一位 38 歲的男性因腹部不適及高血鈣症來求診，腹部超音波顯示肝臟內有一個巨大的腫瘤，而核磁共振檢查顯示此一腫瘤有低的 T1 影像及高的 T2 影像之特徵。經切片檢查後病理確診為原發性肝臟淋巴瘤。因此我們報告此一罕見的肝臟腫瘤並回顧此一疾病之臨床症狀和治療。

關鍵詞：高血鈣症，肝臟腫瘤，淋巴瘤

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