Primary renal diffuse large B-cell lymphoma with central nervous system involvement: a rare case report and literature review

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Abstract: Primary renal lymphoma is a rare entity. Of these, diffuse large B-cell lymphoma is the most common pathological type and, R-CHOP regimen was the preferred chemotherapy for it. Here we present an adult case of primary renal diffuse large B-cell lymphoma.

Keywords: Lymphoma, diffuse large B-cell type, primary renal lymphoma, central nervous system involvement

Introduction

It has been reported that renal involvement has been reported in 30-60% of all patients diagnosed with non-Hodgkin’s lymphoma (NHL) [1]. However, primary renal lymphoma (PRL) is an uncommon entity [2], which accounts for less than 1% of lesions in the kidney. Moreover, B-cell lymphoma is the relatively common pathological type of it [3]. Here we report a case of primary renal diffuse large B-cell lymphoma in an 84-year-old man who presented with a 10-cm solid mass in the left kidney. Biopsy revealed a primary renal diffuse large B-cell lymphoma. Although his condition gained remission to some extent, he suffered recurrence of central nervous system involvement with complaint of hoarseness and numbness of lower limbs at 58 days after 5 courses of R CHOP (cyclophosphamide, vincristine, doxorubicin, rituximab, and prednisolone).

Case report

Here we present a case of primary renal diffuse large B-cell lymphoma, which showed recurrence of central nervous system involvement at 58 days after 5 courses of R CHOP.

A 84-year-old Chinese man was admitted in 2014.02 with the mass in the left lower quadrant of the abdomen, night sweats and moderate weight loss. On examination, the mass was about 10-cm, showing tenderness and good movement. Given this patient is 84-year-old and surgery was not preferred, he was performed biopsy and the pathological characteristics was classified as diffuse large B-cell type (DLBCL).

The laboratory data were as follows: Serum lactate dehydrogenase was 691 U/L (0–250 U/L). Serum β2 micro-globin was 4.86 mg/L (0.7-1.8 mg/L). Blood routine examination and erythrocyte sedimentation rate were normal. Urine occult blood was positive. Urea was 7.95 mmol/L (1.07-7.14 mmol/L), uric acid was 491 μmol/L (210-416 μmol/L) and free fatty acid was 824 μmol/L (129-769 μmol/L).

The PET-CT showed a huge mass in the left kidney area (red arrow) with elevated 18-FDG activity (Figure 1).

Kidney biopsy showed DLBCL with AE1/AE3 (+), CK (-), CD3 scatter (+), CD20 diffuse (+), CD5 (-), CD56 (NK-1) (-), Ki-67 (85%), Cyclin D1 (-), Mum-1 (+), Bcl-6 (+), and CD10 (-). It was classified as diffuse large B-cell lymphoma (activated B-cell origin). The proliferation fraction as detected by Ki-67 was 85%+ (Figure 3).
Then he underwent 5 courses R CHOP rather than 8 courses because of his general condition and, his condition gained remission to some extent. However, he suffered recurrence of central nervous system involvement with complaint of hoarseness and numbness of lower limbs. Reexamination of PET-CT showed the intracranial (red arrow) and intraspinal (red arrow) mass with elevated 18-FDG activity (Figure 2).

**Figure 1.** The PET-CT (positron emission tomography-computed tomography) shows a mass in the left kidney (red arrow).

**Discussion**

Although whether primary renal lymphoma (PRL) is an entity or not remained controversial since the kidneys are devoid of lymphatic tissue [2, 4, 5], there is increasing evidence showing that PRL dose exit [5, 6]. Moreover, renal cell carcinoma (RCC) and diffuse large B-cell lymphoma (DLBCL) could coexist. Yilmaz et al reported a case of a 63-year-old Turkish man
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with RCC and DLBCL who showed severe hypercalcemia accompanied by elevation of serum parathyroid hormone-related protein (PTH-rP) as the initial presentation [7].

Stallone et al illustrated that cases diagnosed as RPL must fulfill the three diagnostic criteria and underwent complete diagnostic screening, including renal biopsy, bone marrow biopsy and thoraco-abdominal computerized tomography (CT) [5]. Laurence B et al reviewed 28 cases of PRL and concluded that [1] it is reasonable to assume that renal lymphoma can be a primary lesion; [2] almost all patients with primary renal lymphoma will develop extrarenal lymphomatous disease shortly after diagnosis of their renal tumor; and [3] survival for more than 1 year after diagnosis is rare [6].

The most common histology of PRL is DLBCL and the symptoms of it include: pain and a mass in the abdomen, weight loss, anorexia, nausea, vomiting, fever, etc. It usually affects adults, however, Akira et al reported that a 12-year-old girl presenting with gross hematuria was diagnosed as primary renal DLBCL after abdominal ultrasonography and imaging, right nephrectomy and pathological examination.

Figure 2. The PET-CT shows masses in the brain and high signal in the C7-T6 spinal cord (red arrow).

Figure 3. Immunohistochemistry staining of the mass tissue. The antibodies used were as listed in the right below boxes of each representative graph (×200).
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was performed [8], which, as far as what we have known, is the only child with primary renal DLBCL.

PRL reportedly progress rapidly and the prognosis is poor [9]. In the present case, this patient underwent R-CHOP for 5 courses other than standard 8 courses because of severe complications. Although his condition gained remission to some extent, he suffered recurrence of central nervous system involvement with complaint of hoarseness and numbness of lower limbs 58 days later. Rong et al also reported a similar case, which reported a 27-year-old Chinese woman with central nervous system leukemia due to PRL at 26 days after 6 courses of R-CHOP [10]. In addition, recurrence of PRL have been found to be involved in thyroid gland [8], right psoas muscle and the mesentery of the transverse colon [11], and bilateral adrenal [12].

Although the prognosis of PRL is poor, combination and intensive therapy such as chemotherapy followed by radiation may significantly increase the lifespan [13], namely, patients who did not receive standard courses of chemotherapy and/or radiation because of severe complications may have limited disease free survival.

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Disclosure of conflict of interest

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