RENAL LYMPHOMA DIAGNOSED BY PERCUTANEOUS RENAL BIOPSY

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Renal lymphoma is in general secondary to lymphomatous infiltration of the kidneys in disseminated lymphoma. Occult renal lymphoma clinically mimicking renal medical disease constitutes a diagnostic challenge to nephrologists, radiologists, and oncologists. The clinical and radiological findings, mostly nonspecific or inconclusive, seldom obviate the need for a renal biopsy. Here, we describe a 69-year-old man presenting with enlargement of bilateral kidneys. Physical examination and image studies revealed enlarged lymph nodes at para-aorta area. Under high suspicion of systemic infiltrative diseases involving bilateral kidneys because of atypical renal images, percutaneous renal biopsy was performed and showed renal T-cell non-Hodgkin’s lymphoma. After six courses of chemotherapy with cyclophosphamide, doxorubicin, vincristine and prednisolone (CHOP) therapy, there was no evidence of lymphoma in this patient. (Acta Nephrologica 2005; 19: 131-134)

Key words: renal lymphoma, percutaneous renal biopsy

INTRODUCTION

Percutaneous renal biopsy is essential in the diagnosis of glomerular, vascular, and tubulointerstitial diseases of the kidney, providing information that is invaluable in prognosis and patient management, although the indications for biopsy vary within the nephrology community. Renal lymphoma is in general secondary to lymphomatous infiltration of the kidneys in disseminated lymphoma and advanced Stage IV disease. Coggins in 1980 presented the first patient with lymphoma diagnosed by percutaneous renal biopsy. After then, percutaneous renal biopsy provides the most expedient means of establishing the diagnosis in those patients with symptoms due to diffuse bilateral renal lymphoma whose extrarenal lymphomatous lesions are not demonstrable nor easily accessible. We would like to present an interesting case of an elderly man who had malignant T-cell non-Hodgkin’s lymphoma diagnosed by percutaneous renal biopsy.

CASE REPORT

A 69-year-old male, 155 cm and 52.5 kg, was admitted to nephrology ward with fever, general malaise and soreness for about one week. He went to a local clinic for help but the symptoms did not improve. Thereafter, he came to our hospital for assistance. Urinalysis showed pyuria and hematuria. Under the impression of urinary tract infection, he was admitted for further survey and managements. Physical examination did not reveal any peripheral lymphadenopathy or hepatosplenomegaly. Serum laboratory tests of blood urea nitrogen was 27 mg/dL, creatinine was 0.8 mg/dL, albumin was 3.1 g/dL, globulin was 3.6 g/dL, LDH was 231 IU/L, uric acid was 4.6 mg/dL, total calcium was 2.1 mmol/L and fasting glucose was 90 mg/dL. His serum white blood cell was 14,900 /ul, hemoglobin was 11.9 g/dL, platelet was 335,000 /ul and there was no atypical lymphocyte. The urinalysis showed 32-35 white blood cells/high-power-field, 8-10 red blood cells/high-power-field, and one plus proteinuria. After admission, empirical antibiotics with cefazolin 1 gm every 8 hours per day and gentamicin 80 mg every 12 hours per day were administered for his urinary tract infections.
infection. Fever subsided and urine culture later yielded evident Escherichia Coli with bacterial growth greater than $10^5$/ml. Renal ultrasound showed enlargement of bilateral kidneys (right kidney was 13 cm long and 6.45 cm wide and left kidney was 12 cm long and 5.68 cm wide) with a hyperechogenic parenchyma and poorly differentiated corticomедullary junction with no tumor, stone, hydronephrosis or cyst found (Fig. 1A). Because of atypical image of renal ultrasound, abdominal computed tomography was performed and showed enlargement of bilateral kidneys with heterogeneous enhancement and enlarged lymph nodes at para-aorta area (Fig. 1B). Under the suspicion of systemic infiltrative diseases involving the kidney, other immunologic studies were performed. Tests for HBsAg, anti-HCV, HIV antibody, ANA, anti-double strand DNA, rheumatoid factor, cryoglobulin, panendoscopy and colonfibroscopy were performed with biopsies and all showed negative findings. Under oncologist’s suggestion, chest computed tomography and bone marrow biopsy were arranged but all were unremarkable. Percutaneous renal biopsy was then performed and revealed atypical lymphoid cells within renal interstitium, but the glomeruli and renal tubules were almost intact (Fig. 2A). The immunohistochemistry stain showed positive of ubiquitin carboxyl-terminal hydrolase isozyme L-1 (UCHL-1) stain and negative of L-26 (CD20) stain. Renal T-cell lymphoma was diagnosed (Fig 2B). Patient received six courses of chemotherapy with cyclophosphamide, doxorubicin, vincristine, and prednisolone (CHOP), and the follow-up abdominal computed tomography showed right kidney 10 cm in length and left kidney 9 cm in length and the positron emission tomography revealed no evidence of lymphoma.

Fig. 1. (A) Renal ultrasound shows bilateral enlarged kidneys with increased echogenicity and poorly differentiated corticomедullary junction. (B) Abdominal computed tomography shows enlargement of bilateral kidneys with heterogeneous enhancement and enlarged lymph nodes at para-aorta area.

Fig. 2. (A) Hematoxylin and eosin stain shows diffuse infiltration of renal parenchyma by atypical lymphoid cells by renal biopsy (original magnification $× 400$). (B) Immunohistochemistry stain shows positive ubiquitin carboxyl-terminal hydrolase isozyme L-1 (UCHL-1) stain, cells stained in red, in the kidney (original magnification $× 400$).
DISCUSSION

Involvement of the kidneys as a part of systemic lymphoma is frequent, but is usually only seen in advanced diseases. Renal involvement is much more common in non-Hodgkin’s lymphomas than Hodgkin’s disease. Involvement of the kidneys by non-Hodgkin’s lymphoma is seen in 5.8% of cases. In a review of autopsy studies, 48% of the patients with non-Hodgkin’s lymphoma have renal involvement. Often, an unanticipated diagnosis is made at imaging. Renal lymphoma is usually clinically silent and occurs late in the course of the disease. Occasionally, patients present with nonspecific signs and symptoms including flank pain, weight loss, hematuria, or a palpable mass. Reviews of 37 adult cases revealed 56.7% with nephrotic-range proteinuria and 64.8% with impaired renal function, and are often severe. Loss of renal function and range of proteinuria depend on the extent and the type of intrarenal tumor infiltration. Ultrasound remains the modality of choice for noninvasive imaging of the renal parenchyma and computed tomography remains the most sensitive, efficient and comprehensive examination for evaluation of the kidney. Renal lymphoma presents most commonly as multiple medium-sized (1-3 cm) homogeneous masses within the parenchyma. Other presentations include diffuse involvement with renal enlargement, solitary inhomogeneous masses resembling renal cell carcinoma, and infiltration by adjacent retroperitoneal masses. On ultrasound, lymphoma is usually hypoechoic with little sound through transmission, reflecting the homogeneous nature of the tumor. However, renal lymphoma may clinically mimic renal medical disease and even escapes detection in the routine investigations including ultrasound and computed tomography. Thus, lymphoma constitutes a noteworthy different diagnostic alternative in patients undergoing percutaneous renal biopsy. In our case, apart from enlargement of bilateral kidneys found by renal ultrasound and abdominal computed tomography, there were no other remarkable findings. Therefore, systemic infiltrative diseases involving the kidney were highly suspected. The differential diagnoses of bilateral enlarged kidneys include diabetic nephropathy, amyloidosis, acute glomerulonephritis, polycystic kidneys, myeloma kidneys, lymphoma, and metastatic tumors. The findings of laboratory tests, urinalysis, past history and family history exclude diabetic nephropathy, glomerulonephritis, polycystic kidneys and myeloma kidneys. Because of clinical and radiological findings were nonspecific for differentiating amyloidosis from lymphoma or metastatic tumors, renal biopsy was performed to elucidate the causes of diffuse infiltration in the kidney, to substantiate the diagnosis and to select the appropriate therapy.

There are many different classification systems for lymphoma, but one of the most widely used currently is the Revised European American Lymphoma (REAL) classification. This separates lymphomas into B-cell lymphomas, T-cell lymphomas and Hodgkin’s disease, and then further subdivides all these three types. Numerous investigators have confirmed the lymphoma diagnosis by immunohistochemical staining showing a B-cell lineage in the great majority of cases and a T-cell immunophenotype in only a few. In our case, the lymphoma was sub-classified into T-cell type by positive UCHL-1 specific immunohistochemical stains and negative of L-26 immunohistochemical stains. It was T-cell type non-Hodgkin’s lymphoma.

Histologically, renal lymphoma can be classified into interstitial lymphoma and intraglomerular lymphoma. Patients with intraglomerular lymphoma frequently have moderate (> 2 g/d) to nephrotic range (> 3.5 g/d) proteinuria and interstitial lymphoma shows only mild (< 1 g/d) or no proteinuria. In our case, percutaneous renal biopsy revealed atypical lymphoid cells within renal interstitium, but renal tubules and glomeruli were almost intact. Therefore, it is interstitial renal lymphoma.

At present, chemotherapy composed of cyclophosphamide, doxorubicin (adriamycin), vincristine and prednisolone (CHOP), is considered the standard treatment for renal lymphoma. Renal function can respond very well to chemotherapy, but only 41% of patients with advanced disease are alive and disease-free at a median follow-up of 3 years. When non-Hodgkin’s lymphoma relapses following standard treatment, high-dose chemotherapy with peripheral blood stem cell or bone marrow support may still cure a significant proportion of patients. Our patient received six courses of chemotherapy with CHOP. There was no evidence of lymphoma in the follow-up abdominal computed tomography and positron emission tomography of the whole body.

In summary, we report a patient with diffuse kidney infiltration by T-cell non-Hodgkin’s lymphoma with bilateral renal enlargement that mimics renal medical diseases. This case underlines the importance of renal biopsy in obtaining a correct diagnosis and in selecting an appropriate therapy. Subsequent chemotherapy has led to complete remission of the non-Hodgkin’s lymphoma in this patient.

REFERENCE


