Case Report
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Non-Hodgkin's Lymphoma Mimicking a Locally Advanced Renal Mass: A Case Report

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Abstract

Renal masses can be categorized as benign and malignant lesions. Among the renal malignancies, renal cell carcinoma is the most common malignancy. However, other rare malignant lesions should be considered in differential diagnosis.

Primary renal lymphoma is quite rare and might be mistaken for renal cell carcinoma. Due to lack of lymphatic tissue in the kidney, pathogenesis of renal lymphoma is controversial. In the present case, a 75- year-old man presented with a locally advanced renal mass and after resection of the mass, a diagnosis of Non-Hodgkin's lymphoma was confirmed.

Keywords: Non-Hodgkin's lymphoma, Renal mass, Primary renal lymphoma, Renal cancer

Introduction

Non-Hodgkin's lymphoma (NHL) is a hematologic malignancy with various manifestations that include peripheral or central lymphadenopathies, fever, and night sweats. However, primary renal lymphoma (PRL) is a rare entity which occurs in less than 1% of renal neoplasms.[1]

Most cases of renal lymphomas are due to a secondary involvement. CT scans performed for lymphoma staging have shown renal involvement in 3%-15% of patients.[2] Here, we reported a case of NHL of the kidney with spleen and pancreas involvement that simulated a locally advanced renal mass.

Case report

A 75-year-old man presented with a 2-month history of left flank and left upper quadrant (LUQ) abdominal pain. His past medical history included a cardiac pacemaker.

Physical examination revealed mild left flank and LUQ abdominal

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tenderness with a palpable mass-like lesion. There was no peripheral lymphadenopathy. The laboratory findings were: Hb: 12.5 g/dl, HCT: 41.2%, WBC: 3.6×1000 mm^3 (neutrophils: 64%, lymphocytes: 27%, monocytes: 8%, eosinophils: 1%), PT: 13.5sec, PTT: 30.7 sec, creatinine: 1.6 mg/dl, BUN: 16 mg/dl, Na: 142 meq/L, and K: 4.9 meq/L. Liver function tests were normal. Urinalysis was normal except for microhematuria.

Chest X-ray was unremarkable except for the shadow of his cardiac pacemaker. Abdominopelvic ultrasonography demonstrated a solid mass in the left kidney and LUQ abdomen. Helical CT scan showed a homogenous solid left renal mass with minimal enhancement and another larger solid mass in the medial aspect of the left kidney (Figure1). Thus, with a preliminary diagnosis of a locally advanced renal malignancy, he underwent an abdominal exploration. Through a midline incision, left radical nephrectomy, splenectomy and partial pancreatectomy were performed due to involvement of the spleen and tail of the pancreas by the mass.

Histopathology examination showed that the mass was composed of numerous discohesive neoplastic lymphoma cells, diffusely arranged in the intrestitium, surrounding the tubules and glomeruli. (Figure 1)

High power microscopic examination of the tumor cells revealed immature lymphoid cells with a high nuclear cytoplasmic ratio, inconspicuous nucleoli as well as coagulative necrosis of the majority of renal tubules.

Immunohistochemistry (I.H.C) study showed strong positivity for LCA and B-cell markers (Figure 2). The epithelial markers (cytokeratins) were negative. The proliferative marker (Ki-67) was elevated (approximately 80%; Figure3). The same pathologic findings were seen in the spleen and pancreas.

At the three-month follow-up, the patient remained well without any surgical complications.

Discussion

Primary renal lymphoma is a rare entity, comprising 0.1%-0.7% of the extra nodal lymphomas.[3,4] Secondary renal lymphomas are more common than PRL. An autopsy series has shown renal involvement in 30%–60% of patients with systemic lymphoma.[5]

The etiology of PRL has not been fully explained because the normal kidney does not have lymphoid tissue. A study suggests that chronic inflammation leads to the recruitment of lymphoid cells into the renal parenchyma, during which an oncogenic event takes place.[6] Another study has revealed that because the renal capsule is rich in lymphatics, PRL originates from the renal capsule and then penetrates the renal parenchyma.[7] Another hypothesis suggests that the lymphomatous process in the perirenal adipose tissue with secondary involvement of the kidney causes PRL.[8]

Imaging study of choice for evaluation of renal masses including renal lymphoma is the helical CT scan. In the helical CT scan, renal lymphoma has five common patterns: multiple renal masses, solitary renal mass, renal invasion from contiguous retroperitoneal disease, perirenal disease, and diffuse renal infiltration.[2]

The most common pattern consists of multiple masses which occur in approximately 60% of patients.[2] Solitary lymphomatous renal mass is the rarest pattern and may resemble other benign and

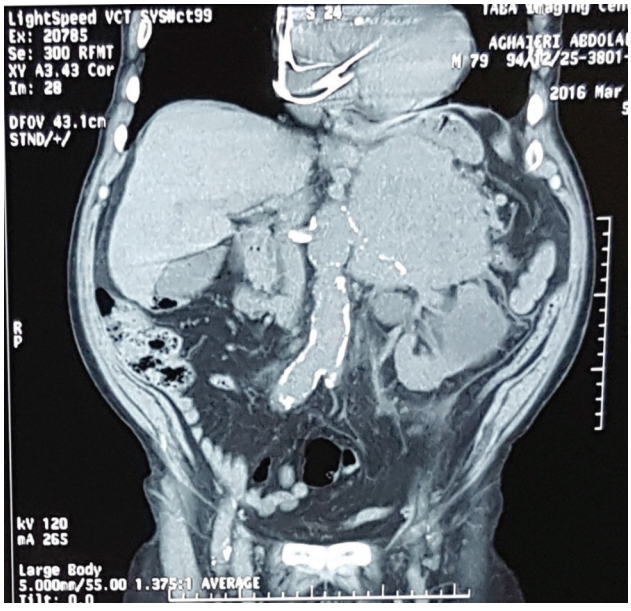

Figure1. Helical CT scan showed a homogenous left renal mass and another large mass in the medial aspect of the left kidney with minimal enhancement.

malignant renal masses such as oncocytoma, xanthogranulomatous pyelonephritis, angiomyolipoma, transitional cell carcinoma, and renal cell carcinoma (RCC).[9]

Lymphomatous masses are typically hypovascular and demonstrate minimal enhancement following administration of contrast material. In contrast, RCC is typically hypervascular and enhanced following contrast material injection.[2,9] Papillary and chromophobe subtypes of RCC or renal sarcoma present as hypovascular masses.[10]

Although absence of retroperitoneal lymphadenopathy is more suggestive of RCC, there are many cases of RCC with retroperitoneal lymph node enlargement due to metastasis or inflammation. Hence, absence or presence of lymph node enlargement may not be useful for differentiation of RCC from lymphoma.

Although helical CT scan is the imaging modality of choice for renal lymphoma, MRI may be useful in patients with renal failure or allergic reactions to contrast medium. Renal lymphoma usually shows a low-to-intermediate signal intensity on T1- and T2-weighted sequences. However, heterogeneous high signal intensity may be observed on T2-weighted images.[11]

Diffuse large B-cell lymphoma is the most common subtype of lymphoma which involves the kidneys. Most cases are male with a mean age of 50 years.[1, 12]

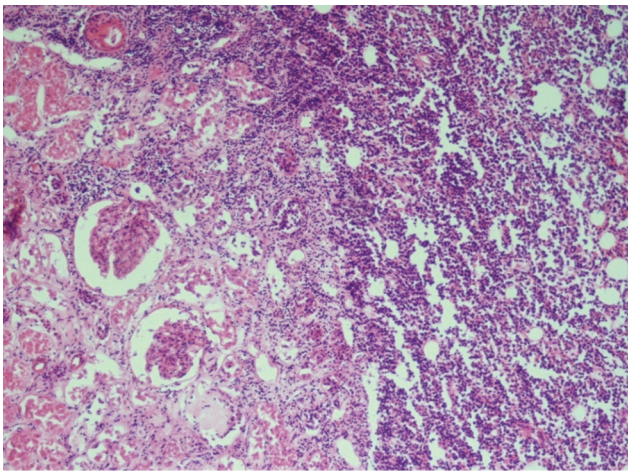

Figure 2. Lymphomatous involvement of the renal paranchyma accompanied by tubular coagulative necrosis (H&E; 100×).

For locally advanced renal masses, radical nephrectomy with excision of the involved adjacent organs is the treatment of choice. On the other hand, the preferred treatment for lymphoma is chemotherapy. Evidence shows that combined rituximab (a monoclonal antibody that targets the membrane antigen CD20) + cyclophosphamide, doxorubicin, vincristine and prednisolone (CHOP) regimen has a better efficacy than CHOP alone. The R-CHOP regimen prolongs the disease-free period and increases the survival rate.[1] Therefore, combined surgery and chemotherapy seem to be the best management plan for PRL.

In conclusion, although PRL is an extremely rare disease, it should be considered in the differential diagnosis of any renal mass. Early

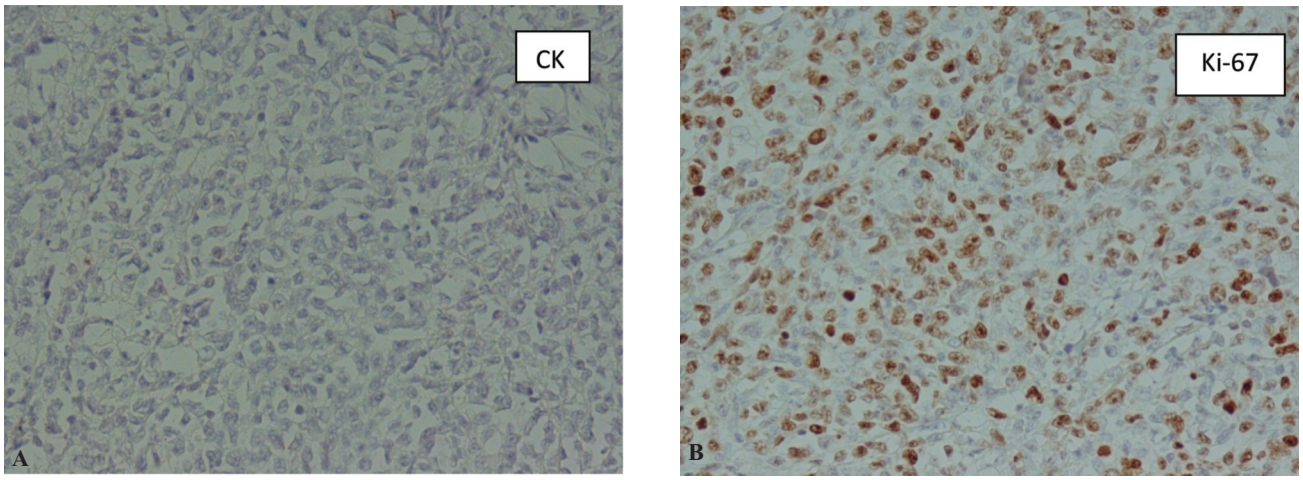

Figure3. Immunohistochemical staining showed negative cytokeratin (A) and positive Ki-67 (B) (H&E; 400×).

diagnosis and management can improve the prognosis in these patients.

Conflicts of interest

No conflicts of interest to declare.

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