Bulky Kidneys and Pyuria Mimicking Pyelonephritis in Non-Hodgkin Lymphoma of Kidney

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Dear Editor,

A male in his fourth decade with no previous comorbidities presented with fever, flank pain, decreased urine output, and dysuria for 2–3 months. For similar complaints, he had been evaluated 1 month back at a local hospital, where he was diagnosed as a case of bilateral pyelonephritis with acute kidney injury (AKI) based on urinalysis and ultrasonography, suggestive of bilateral bulky kidneys with perinephric stranding. During this time, his serum creatinine was 7 mg/dl with urinalysis showing sterile pyuria. Urine acid-fast bacilli were negative (repeated thrice). The patient was managed with intravenous antibiotics for 2 weeks and started on hemodialysis. He underwent a kidney biopsy after 3 weeks that was reported as acute interstitial nephritis. The patient was started on 1 mg/kg prednisolone, but there was no response in symptomatology. He then came to our hospital. Laboratory investigations revealed: hemoglobin 6 g/dl, total leukocyte count 3900 cells/µl, platelet count 173 × 10^9/l, serum creatinine 9.38 mg/dl, serum albumin 2.8 g/dl, lactate dehydrogenase 790 U/l, serum uric acid 10.2 mg/dl, and urine analysis showing field full of pus cells with sterile culture. Contrast-enhanced computed tomography (CT) scan showed hepatomegaly (17.4 cm) and bilateral nephromegaly (16.4 cm), along with bilateral adrenomegaly [Figure 1a and b]. Viral markers, serum protein electrophoresis, urine for malignant cytology, *Histoplasma* urine antigen, antinuclear antibody, and serum IgG4 levels were normal. A kidney biopsy was repeated that showed the entire renal parenchyma replaced with atypical mononuclear cells that were CD20, MUM1, and BCL6 positive and CD3, CD5, CD10, and Cyclin D1 negative, with tubular destruction suggestive of high-grade diffuse large B-cell lymphoma (DLBCL) [Figure 1c and d]. Bone marrow aspiration and trephine biopsy showed infiltration with lymphomatous cells (with similar immunophenotype as renal biopsy) suggestive of bone marrow lymphoma. The patient was continued on twice-weekly hemodialysis and was started on R-mini-CHOP chemotherapy (rituximab 375 mg/m^2, cyclophosphamide 400 mg/m^2, vincristine 1 mg, doxorubicin 25 mg/m^2, and prednisolone 40 mg/m^2) on days 1–5. At 3 months, patient's serum creatinine had decreased to 3.5 mg/dl, B symptoms resolved, and he did not require hemodialysis. The patient is receiving three-weekly chemotherapy cycles with regular monitoring of blood counts and renal function tests.

Sterile pyuria is the persistent finding of white cells in the urine in the absence of bacteria. Common causes of sterile pyuria include sexually transmitted infections, renal stones, recent use of antibiotic, genitourinary tuberculosis, urinary tract neoplasm, interstitial nephritis, and inflammatory diseases like systemic lupus erythematosus.[1] It can rarely be seen in infiltrative renal disorders like lymphomas as in our case. The differentials for bilateral renomegaly include obstructive uropathy, human immunodeficiency virus (HIV) nephropathy, lymphomas, renal tumors, and hematological malignancies. Lymphocytic infiltration of kidney parenchyma (LIK) occurs commonly in lymphoma patients (up to 34%); however, only 0.5% of these patients present with AKI.[2,3] Absence of clinical signs leads to underdiagnosis. The usual hematological malignancies with renal infiltration are lymphomas (both low-grade B-cell Non Hodgkin Lymphoma (NHL) and DLBCL), lymphoblastic leukemia, and, rarely, myeloid neoplasms.

LIK with AKI is an uncommon presenting manifestation of DLBCL. Based on marrow

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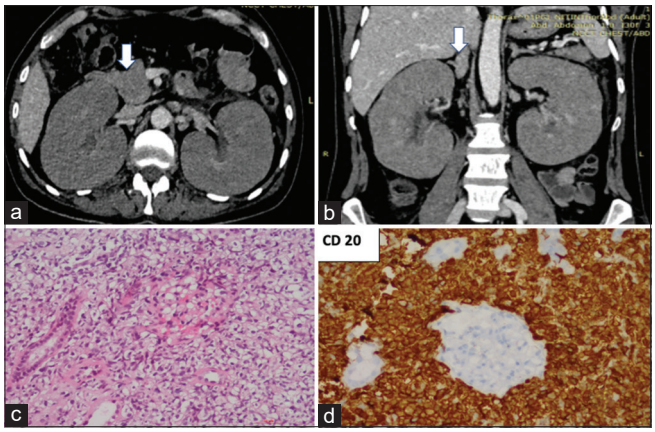

Figure 1: (a and b) CECT abdomen. (a) Axial and (b) coronal images showing bilateral nephromegaly (16.4 cm) with globular outline and reduced nephrographic density with bilateral adrenomegaly (bold white arrow). (c) Renal biopsy depicting dense infiltration by tumor cells with condensed nuclear chromatin and clear cytoplasm (200×, hematoxylin and eosin). (d) On immunohistochemistry, tumor cells show intense membranous expression for CD20 immunostaining (400×). CECT = contrast-enhanced computed tomography.

involvement with secondary renal and likely adrenal spread, this case is diagnosed as Stage IV DLBCL as per the World Health Organization (WHO) classification.[4] Because of the high incidence of central nervous system (CNS) involvement, DLBCL with renal involvement at the time of diagnosis is likely to be associated with a poor prognosis. Hence, early spinal fluid testing for evaluation of the presence of CNS disease is crucial in this patient group. One should suspect causes other than pyelonephritis in a patent with massive nephromegaly and sterile pyuria. This case reaffirms the importance of kidney biopsy to diagnose nonresolving AKI.

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Conflicts of interest

There are no conflicts of interest.

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