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OLGU SUNUMU/CASE REPORT

A case of lymphoma presented with acute renal failure

Akut böbrek yetmezliği ile prezente olan lenfoma olgusu

Mustafa Yaprak[1], Gül İlhan[2], Feyyaz Bay[3], Ümran Gezici Güneş[3], Faruk Turgut[1]

[1]Mustafa Kemal Üniversitesi Tıp Fakültesi, İç Hastalıkları Anabilim Dalı, Nefroloji Bilim Dalı, [2]İç Hastalıkları Anabilim Dalı, Hematoloji Bilim Dalı, [3]İç Hastalıkları Anabilim Dalı Hatay, Turkey

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Abstract
Acute renal failure (ARF) in patients with malignancy occurs due to causes such as prerenal, renal and post renal as in normal population. Tumor infiltration of kidneys is usually uncommon. However, renal function may be impaired in fast-growing hematological malignancies such as acute leukemia or lymphoma, depending on tumor involvement. Herein, we presented a case of ARF and later diagnosed as B-cell Non-Hodgkin's lymphoma. 54-year-old male patient was admitted due to ARF. Although development of ARF due to tumor infiltration is rare, in cases who did not have risk factors for development of ARF, leukemic or lymphomatous infiltration should be considered.
Key words: Acute renal failure, lymphoma, Infiltration, hydronephrosis.

Öz
Kanser hastalarında da akut böbrek yetmezliği (ABY), normal popülasyonda olduğu gibi prerenal, renal ve postrenal nedenlere bağlı olarak ortaya çıkmaktadır. Böbreğe tümör infiltrasyonu genellikle yaygın değildir. Fakat akut lösemi veya lenfoma gibi hızlı büyüyen hematolojik malignitelerde tümör tutulumuna bağlı böbrek fonksiyonları bozulabilmektedir. Burada akut böbrek yetmezliği ile başvuran ve daha sonra lenf nodu biyopsisi ile B hücreli Nonhodgkin lenfoma tanısı alan bir olgu sunulmuştur. Tümör infiltrasyonuna bağlı ABY gelişmesi nadir olmakla birlikte, akut böbrek yetmezliği gelişimi açısından risk faktörü bulunmayan olgularda lösemik veya lenfomatöz infiltrasyon düşünülmelidir.
Anahtar kelimeler: Akut böbrek yetmezliği, lenfoma, infiltrasyon, hidronefroz.

INTRODUCTION

Renal damage may occur due to malignancies themselves or malignancy treatments in patients with malignancies[1]. Kidney involvement in malignancies is usually multifactorial. However, acute renal failure (ARF) in patients with malignancies occurs due to prerenal, renal and post renal causes as in normal population[1]. Tumor infiltration of kidneys (metastasis) is generally uncommon. However, in fast-growing hematological malignancies such as acute leukemia or lymphoma, renal function may be impaired due to tumor involvement[2,3]. In the affected patients, usually ARF, proteinuria and/or hematuria may be seen[1]. Herein, we presented a case of ARF due to renal involvement of B-cell Non-Hodgkin's lymphoma (Follicular lymphoma).

CASE

A 54 year-old male patient applied to another center with complaints of dyspnea and weight loss. In his laboratory examinations, glucose, blood urea nitrogen (BUN), creatinine, sodium, potassium, calcium, total protein, albumin, leucocyte, hemoglobin was found 122 mg/dL (70-105), 77 mg/dL (8.4-25.7), 18.5 mg/dL (0.57-1.25), 140 mEq/L (136-145), 5.04 mEq/L (3.5-5.1), 8.7 mg/dL (8.4-10.2), 6.6 g/dL (6.4-8.3), 3.5 mg/dL (3.5-5.0), 7550/mm^3 (3900-10900), 9.6 g/dL (13.5-16.9), respectively. He treated by hemodialysis for 3 sessions and then referred to our hospital. The patient was accepted to Nephrology Clinic with the diagnosis of ARF. In his medical history, there were 7 years of chronic obstructive pulmonary disease (COPD) and 30 pack years of smoking cessation. In his physical examination, he was conscious, was

Yazışma Adresi/Address for Correspondence: Dr. Mustafa Yaprak, Mustafa Kemal University Faculty of Medicine, Department of Iinternal Diseases, Science of Nephrology, Hatay, Turkey. E-mail: drmustafayaprak@yahoo.com
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fully cooperated and his blood pressure was 110/70 mmHg. In his respiratory tract examination, diffuse rhonchus and wheezing were determined. There was no pathological finding in cardiovascular system examination. There was no pretibial edema. In peripheral lymph node examination; diffuse lymphadenopathy (LAP) was found, the largest one was 2x3 cm in size in the inguinal and axillary areas. His laboratory results in our hospital were BUN 73 mg/dL (8.4-25.7), creatinine 4.78 mg/dL (0.57-1.25), sodium 135 mEq/L (136-145), potassium 5.5 mEq/L (3.5-5.1), calcium 8.3 mg/dL (8.4-10.2), total protein 6.8 g/dL (6.4-8.3), albumin 3.4 mg/dL (3.5-5.0). Urinalysis was normal. Thoracic and abdominal computerized tomography was performed. Packed LAPs were detected in paraaortic area of the abdomen. There was no lymphadenopathy in thoracic area. Excisional lymph node biopsy was performed from the axillary area. Salbutamol nebul 4x5 mg/day, budesonid nebul 2x1 mg/day and metil prednisolone 40 mg/day were started intravenously because of bronchospasm due to COPD.

In renal ultrasound performed in terms of ARF etiology; the length of right kidney was 110 mm and the length of left kidney was 105 mm, bilateral renal parenchymal echogenicity was grade 1 increased and bilateral grade 1 hydronephrosis were found. Daily urine output was 1500-2000 cc in the follow-up period. Lymphoma and renal infiltration were considered with the available findings. His kidney function tests were fixed gradually after the steroid treatment (Table 1). Furthermore, He was diagnosed B-cell non-Hodgkin's lymphoma (Follicular lymphoma) by pathological findings of lymph node biopsy. He was transferred to hematology service with creatinine of 1.44 mg/dL for the chemotherapy treatment. For lymphoma staging, bone marrow aspiration and biopsy were performed. Lymphoma infiltration was not seen in bone marrow. R-CHOP-21 regimen (cyclophosphamide 750 mg/m², doxorubicin 50 mg/m², vincristine 1·4 mg/m² and rituximab 375 mg/m² on day 1, and oral prednisolone 40 mg/m² on days 1–5, every 21 days) was planned for him. Because his creatinine clearance rate was 53 ml/min, we didn't need to make dose reduction of the drugs. After the first course of chemotherapy, his creatinine declined to 1.09 mg/dL. He had no need for dialysis. He is still being followed-up and treated by Hematology Department. At his last visit, he had the fourth course of chemotherapy, he had partial metabolic response according to PET CT, and his creatinine is 1.06 mg/dL.

Table 1 Time course of laboratory results of patient

Date	Cre mg/dL	BUN mg/dL	Na mmol/L	K mmol/L	Ca mg/dL
Application Day	4.78	73	135	5.5	8.3
3. Day	3.59	89	130	4.3	-
6. Day	2.38	71	132	4.5	8.5
9. Day	1.56	37	135	4.3	7.8
13. Day	1.44	36	135	4.8	8.0
17. Day	1.22	42	132	5.5	10.1
After 1st course of chemotherapy	1.09	11	139	4.5	9.6

DISCUSSION

Leukemias and lymphomas are the malign diseases involving the kidney parenchyma[4-6]. In an autopsy study, it was revealed that only 0.5 % of those who had kidney involvement developed ARF[6]. Early diagnosis of ARF due to lymphomatous infiltration is quite important. Because it will contribute to start the treatment earlier and the earlier treatment results the better positive response to treatment[7]. We performed peripheral LAP biopsy and confirmed the diagnosis of lymphoma.

Renal involvement occurs much more commonly in patients with non-Hodgkin's lymphomas. Diffuse lymphomas infiltrate kidneys more frequently than nodular forms. These lymphomas are generally of B-cell origin[8]. However, in follicular lymphoma, other extranodal involvement is rare[9]. Our patient was diagnosed B-cell non-Hodgkin's lymphoma (Follicular lymphoma). In this case, togetherness with renal involvement of lymphoma and partial ureteral obstruction due to LAPs could contribute the ARF. Furthermore, applying the steroid

treatment earlier because of COPD may provide the rapid improvement in kidney functions.

When big kidneys are detected together with ARF in a patient without a previous malignancy history, the diagnosis can be performed via kidney biopsy[10]. However, kidney biopsy may be risky because both decreased kidney function and tumor infiltration will cause bleeding tendency in these patients[11]. Thus, diagnosis in these patients may be performed via involving more superficial organ biopsies. Hence, we diagnosed our patient via lymph node biopsy. Although nevertheless we did not perform kidney biopsy to our patient, we think that the cause of ARF was lymphoma tumor infiltration and/or partial ureteral obstruction due to LAPs in abdomen in our patient. Because, our patient did not have prerenal causes such as nausea vomiting, oral intake deficiency and nephrotoxic drug use history that would cause ARF.

Renal prognosis in these patients is associated with response of tumor to radiotherapy or chemotherapy[2]. If the tumor gives a good response to the treatment, kidney functions may improve within a few days. On the other hand, it is necessary to be careful in terms of tumor lysis syndrome after the chemotherapy because tumor burden may be higher in these patients[12]. Intravenous fluid and allopurinol treatment were applied together with chemotherapy to our patient. Tumor lysis syndrome did not develop and kidney functions returned to normal rapidly.

In conclusion, although ARF due to tumor infiltration is rare, in cases that do not have risk factors for development of ARF, leukemic or lymphomatous infiltration should be considered as a rare cause of ARF.

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