

# Kaposi Sarcoma in a Chronic Renal Failure Patient Treated by Hemodialysis

## *Kronik Renal Yetmezlik Nedeniyle Hemodiyaliz ile Renal Replasman Tedavisi Alan Hastada Gelişen Kaposi Sarkomu*

### ABSTRACT

Kaposi sarcoma (KS) is a neoplasm characterized by abnormal angiogenesis that can present with cutaneous lesions. It requires infection with Human Herpes Virus 8 (HHV-8) and is associated with a dysfunctional immune system. Here, we report the case of KS in a patient who underwent hemodialysis (HD) to treat chronic renal failure (CRF). This case is another example of CRF- and HD-associated immunologic dysregulation possibly resulting in the development of KS due to activation of HHV-8.

**KEY WORDS:** Kaposi sarcoma, Chronic renal failure, Hemodialysis, Immunologic dysfunction, Human Herpes Virus 8

### ÖZ

Kaposi sarkomu (KS); İnsan herpes virüs 8 (HHV-8) enfeksiyonu sonucunda gelişen abnormal anjiogenezin oluşturduğu cilt lezyonlarıyla prezente olan tümöral bir hastalıktır ve immün sisteminin bozukluklarıyla ilişkilidir. Bu olguda kronik böbrek yetersizliği (KBY) nedeniyle hemodiyalizle (HD) renal replasman tedavisi alan hastada ortaya çıkan KS sunulmuştur. Bu olgu, KBY ve HD' in çeşitli immünolojik bozukluklara neden olarak HHV-8 aktivasyonu ile birlikte KS gelişimine neden olabileceğinin başka bir örneğidir.

**ANAHTAR SÖZCÜKLER:** Kaposi sarkomu, Kronik böbrek yetmezliği, Hemodiyaliz, İmmünolojik bozukluklar, Human Herpes Virus 8

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### INTRODUCTION

CRF has many cutaneous manifestations and very rare skin disorders as skin cancers may be seen in this group of patients.

Kaposi sarcoma is a neoplasm characterized by abnormal angiogenesis that may involve the skin, mucosa, and viscera. Classic KS, African endemic KS, Iatrogenic KS and AIDS-related KS are the four epidemiologic-clinical subtypes of this disease (1). KS requires infection with a human herpes virus, HHV-8 (2), along with host immune dysfunction (3). KS can present in dialysis patients, however, due to some pathologic mechanism leading to a disturbed immunologic system in CRF patients (4). Here, we present a case of Kaposi Sarcoma in CRF patient treated by HD.

### CASE REPORT

An 81-year-old man who had been on regular HD to treat CRF for 13 months visited our nephrology clinic to continue renal replacement treatment in our HD unit. The patient's medical history was remarkable for the diagnosis of hypertension (10 years), CRF (7 years), congestive heart failure (3 years) and coronary artery disease (3 years). Physical examination was unremarkable except chronic venous stasis and deep purplish, reddish blue, or dark brown/black skin lesions (macules, nodules, plaques) along both shins on the lower extremities (Figure 1).

He noticed that lesions had appeared within six months. Laboratory investigation revealed that his white blood cell and platelet count were normal. Biochemical



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tests revealed high plasma creatinine and blood urea nitrogen and normal levels of C-reactive protein, electrolytes and liver function tests. Serologic test for Hepatitis B, Hepatitis C and human immunodeficiency virus were negative. Investigations for systemic vasculitis -namely, complement, anti nuclear antibody, and anti-neutrophil cytoplasmic antibody- were normal. Chest x-ray detected an enlarged cardiac silhouette but no parenchymal lung lesion. Abdominal ultrasonography revealed bilateral small kidneys and no lesion in any other visceral organ. We took skin biopsies on suspicion of KS. The specimen from the lower extremities showed tumoral cell proliferation consisting of spindle nucleated cells with cytoplasmic extensions forming fascicles by crossing each other (Figure 2). HHV8 was detected in tumoral cells by positive immunohistochemical staining (Figure 3), and KS was diagnosed at the lower extremity lesions.

### DISCUSSION

Although the majority of dermatological disorders in CKD are relatively benign, a few rare skin diseases as skin cancer have the potential to cause serious morbidity and mortality and physical examination remains an important method of early detection of malign skin lesion particularly for dialysis patients as they have a high prevalence of cutaneous disorders. In this case, the patient has been on regular HD to treat CRF for seven months and medical treatment with a 7-year history of CRF and KS had been diagnosed at the lower extremity lesions.

The development of KS is intimately tied to a dysfunctional immune system, and AIDS-related KS and Iatrogenic immunosuppression-associated KS represent two well-known examples. However, KS can also develop in patients with CRF who are undergoing HD (5,6).

Uremic toxins are active solutes that accumulate during renal failure and are responsible for uremic syndrome. These toxins can suppress cellular and humoral immunity (7,8), while hemodialysis is also known to disturb immune function (9). Additionally, metabolism of the immune system regulators erythropoietin and calcitriol is dysregulated in patients with CRF, which may cause further immunologic abnormalities (10,11).

Reactive hyperproliferation induced by chronic inflammation is also associated with KS (12), and CRF and hemodialysis may cause an acute and chronic pro-inflammatory state (13). The causes of inflammation are multifactorial and include patient-related factors and hemodialysis-related factors (14). Physical examination of the patient revealed chronic venous stasis of the lower extremities due to congestive heart failure, and KS lesions on the stasis region which we attributed to venous stasis-induced chronic inflammation (15).

In conclusion, immune dysfunction is strongly correlated with KS and CRF may lead to both immunosuppression and chronic inflammation. Additional factors such as chronic venous stasis



Figure 1: Reddish-brown patches and crusts of KS lesions on the skin.

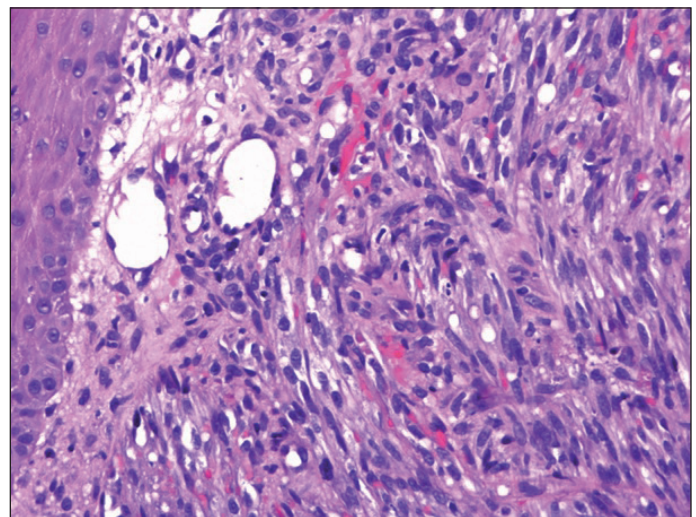


Figure 2: The biopsy specimen showed tumoral cell proliferation consisting of spindle nucleated cells with cytoplasmic extensions forming the fascicles by crossing each other. (H&E, 400).

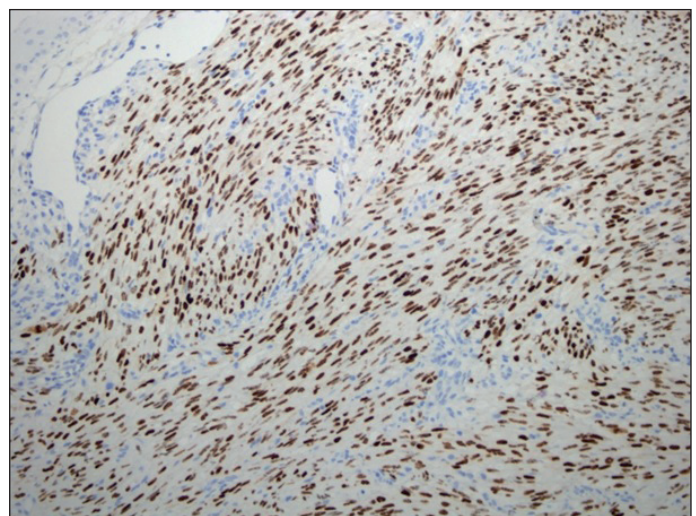


Figure 3: Immunohistochemical staining for HHV-8 was positive (HHV-8 stain,  $\times 100$ ).

may also contribute to progression of the lesions. Periodic physical examination of the skin in CKD patients can be extremely helpful in making the diagnosis of rare skin disorders such as cancers and decreases morbidity and mortality.

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