

## CASE REPORT

# Kaposi Sarcoma Associated With Systemic Corticosteroid Therapy

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**Abstract.** Kaposi sarcoma (KS) was first described in 1872 by Moritz Kaposi. Its epidemiology is suggestive of an infectious disease and in 1994 Chang and coworkers identified DNA sequences corresponding to a previously unidentified herpes virus—human herpes virus 8 (HHV-8)—in AIDS-associated KS biopsies. It is now believed that the presence of HHV-8 is a necessary condition but not sufficient on its own to cause KS. Other factors such as immunosuppression should also be considered and it is known that immunosuppressive therapy increases the risk of KS. We describe a patient who developed KS after prolonged prednisone therapy for temporal arteritis.

**Key words:** Kaposi sarcoma, temporal arteritis, glucocorticoids, immunosuppression.

## SARCOMA DE KAPOSI ASOCIADO A CORTICOTERAPIA SISTÉMICA

**Resumen.** El sarcoma de Kaposi (SK) fue descrito por Moritz Kaposi en 1872. Las características epidemiológicas del SK apuntan a una probable causa infecciosa. Se han identificado fragmentos de ADN que corresponden a un virus herpes no identificado previamente, el virus herpes humano tipo 8, en biopsias de SK asociado a sida. Se considera un factor necesario pero no suficiente, siendo conveniente tener en cuenta otros factores como la inmunosupresión. Los tratamientos inmunosupresores se asocian con un mayor riesgo de desarrollar SK. Describimos el caso de un paciente que desarrolló SK tras recibir tratamiento prolongado con prednisona con motivo de la arteritis de la temporal que padecía.

**Palabras clave:** sarcoma de Kaposi, arteritis temporal, glucocorticoides, inmunosupresión.

## Introduction

The use of immunosuppressant drugs, particularly in kidney transplants, is associated with an enhanced risk of developing Kaposi sarcoma (KS).<sup>1</sup> An increased risk of KS has also been observed—although less frequently—in patients with other diseases who receive immunosuppressants at lower doses. In 1981, Leung et al<sup>2</sup> described the first case of KS in a patient who had been receiving prednisone for 6 months as treatment for temporal arteritis.

## Case Description

We report the case of a male patient aged 82 years, referred to our department for evaluation of slow-growing, asymptomatic facial skin lesions that had begun to develop

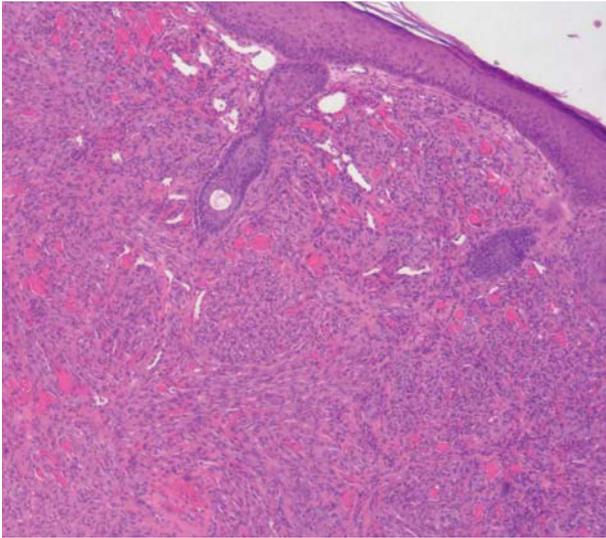


**Figure 1.** Violaceous tumorous lesions of the nasal dorsum.

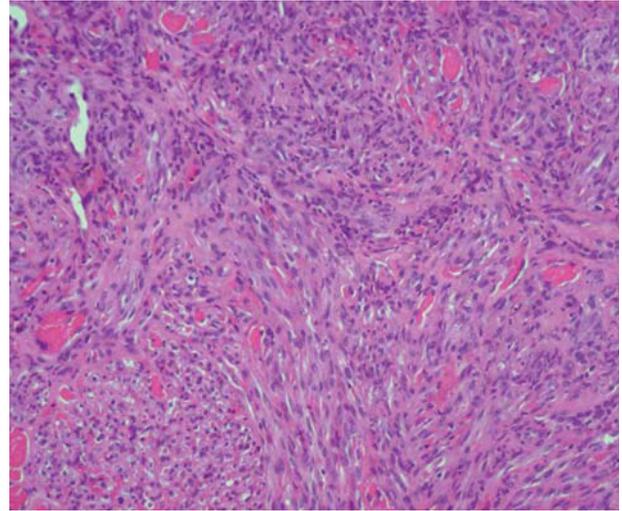
3 months earlier. The patient's history included temporal arteritis, for which he had been receiving 20 to 30 mg/d oral prednisone for the previous 13 months. A physical examination revealed 4 or 5 violaceous tumorous lesions on the face (Figure 1) and on the arms. A biopsy of one of the lesions in the nasal dorsum revealed a biphasic vascular spindle-cell growth occupying the entire thickness of the dermis that was characteristic of tumor-phase KS (Figures 2

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**Figure 2.** Low-magnification view of a tumor occupying the dermis with pseudovascular spaces containing abundant red blood cells (hematoxylin-eosin, original magnification  $\times 100$ ).



**Figure 3.** Spindle-cell proliferation with formation of pseudovascular spaces containing abundant red blood cells (hematoxylin-eosin, original magnification  $\times 200$ ).

and 3). Laboratory tests revealed that the patient was seropositive for human herpesvirus type 8 (HHV-8) and seronegative for human immunodeficiency virus. An analysis of tumor extension that included a chest x-ray, abdominal ultrasound, and colonoscopy revealed no visceral involvement.

Cryotherapy was prescribed for the lesions and treatment with corticosteroids was suspended. The lesions resolved after 4 months, with the exception of the violaceous macular lesions in the nasal dorsum. In 2 years of follow-up visits, the patient developed no new lesions suggestive of KS, although he periodically continues to take low doses of prednisone (5-10 mg/d) for management of the underlying disease.

## Discussion

KS is classified in terms of 4 clearly differentiated variants: classic, endemic, AIDS-related, and iatrogenic.<sup>3</sup> Although the clinical patterns and epidemiological characteristics for these variants are different, the fact that histology findings are similar would suggest a common etiology.

HHV-8 was identified in 1994, initially in AIDS-associated KS lesions,<sup>4</sup> and subsequently in all subtypes of KS.<sup>5,6</sup> Its role in the pathogenesis of this process as yet remains unclear, however.

Beneficiaries of solid organ transplants constitute a group with an enhanced risk of KS. This is particularly the case with kidney transplant patients, who typically receive combined immunosuppressant treatment.<sup>1</sup> Also considered to be a risk factor for developing KS—although to a lesser degree—is treatment with corticosteroids for a range of

underlying conditions, autoimmune and otherwise. Although corticosteroids act to induce or trigger the disease, it is only in the case of the autoimmune diseases that KS resolves after suspension of treatment with corticosteroids.<sup>7</sup>

Although the mechanism through which these drugs induce or aggravate KS is not fully understood, it may be linked to direct or indirect stimulation of cell proliferation. It has been demonstrated that corticosteroids inhibit activation of transforming growth factor  $\beta$  (TGF- $\beta$ ). TGF- $\beta$  inhibits epithelial and lymphocyte proliferation, thereby permitting KS cell proliferation.<sup>8</sup> It has likewise been observed that corticosteroids activate the lytic cycle of HHV-8, thereby causing greater viral replication and gene expression.<sup>9</sup>

The clinical course of iatrogenic KS varies, depending on the degree of immune suppression. When immune suppression remains low, the symptoms are reminiscent of classical KS, with the lesions likely to resolve on suspending treatment with the drug and with a latency period estimated at around 1 year.

When the level of immune suppression is greater, symptoms are more aggressive—possibly even fulminant—and the latency period is shorter.<sup>5</sup>

Both types of iatrogenic KS are more frequent in geographic regions where classic KS and endemic KS are more prevalent (the Mediterranean area, central Africa, and eastern Africa). Consequently, it is assumed that factors other than immunosuppressant treatment and HHV-8 intervene in the development of KS.

A total of 5 cases of iatrogenic KS associated with corticosteroid treatment of patients with temporal arteritis have been reported to date.<sup>2,10-13</sup> Classical SK lesions were present in 2 of those cases, and the disease progressed on

receiving treatment with glucocorticoids.<sup>2,13</sup> Our patient had lesions with an atypical location—the face. These lesions resolved following local cryotherapy and suspension of corticosteroid treatment.

Patients receiving immunosuppressant treatment have an enhanced risk of developing KS that will depend on the drug used and the doses received, which, in turn, will determine the degree of immune suppression. The group at increased risk of KS should therefore also include patients who receive varying doses of corticosteroids as treatment for any of a range of conditions.

### Conflicts of Interest

The authors declare no conflicts of interest.

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