SAGE Open Medical Case Reports
Volume 8: 1–4

DOI: 10.1177/2050313X20938249
journals.sagepub.com/home/sco
SAGE

A case of classic Kaposi sarcoma in an immunocompetent human immunodeficiency virus–negative Dominican man

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Abstract

Kaposi sarcoma is an uncommon tumor that primarily arises in the skin and mucosal surfaces, but may metastasize to the internal organs. Four main variants of Kaposi sarcoma are recognized as the following: classic Kaposi sarcoma, which occurs in middle-aged or elderly men; epidemic Kaposi sarcoma, associated with human immunodeficiency virus infection; iatrogenic Kaposi sarcoma seen in patients on immunosuppressive drug therapy; and endemic Kaposi sarcoma. This report is of a case of classic Kaposi sarcoma in 55-year-old immunocompetent and human immunodeficiency virus–negative Dominican man who had lived in the United States for 2 years, who presented with a 2-year history of skin lesions on his lower extremities and soft palate. Biopsy of the soft palate was consistent with Kaposi sarcoma. The patient was treated with paclitaxel with a good response. This case report demonstrates the importance of recognizing that classic Kaposi sarcoma, first described almost 150 years ago, can still present in immunocompetent middle-aged men of all ethnicities.

Keywords

Infectious diseases, oncology, Kaposi sarcoma, human herpesvirus-8

Date received: 1 April 2019; accepted: 3 June 2020

Introduction

Kaposi sarcoma (KS) is a vascular neoplasm composed of proliferating endothelial cells that form vascular channels. KS is more prevalent in middle-aged or elderly men, aged 70 years or older, and only 4%–8% of cases developed in younger individuals.[1] The pathogenesis of KS involves infection with human herpesvirus-8 (HHV-8), which might explain the increased prevalence of classic and endemic KS in countries that have a high incidence of HHV-8.[2–4]

KS mainly arises in the skin and mucosal surfaces and can metastasize to the internal organs. Four main variants of KS are recognized; classic KS, which occurs in middle-aged or elderly men; epidemic KS, associated with infection with human immunodeficiency virus (HIV); iatrogenic KS, seen in patients on immunosuppressive drug therapy (including transplant recipients); and endemic KS, which occurs in sub-Saharan Africa and is associated with lymphadenopathy.[5–7] Since 1981 the majority of cases of KS in the United States have been seen in patients with HIV (the epidemic form). The pathogenesis of KS is also strongly associated with either immunosuppression or changes in immune function, which may be associated with chronic infection, autoimmunity, or malnutrition, but the strongest association is with HHV-8 infection. The transmission of HHV-8 is primarily via the saliva but is also transmitted by sexual contact and blood.[8,9]

We report a case of classic KS in 55-year-old immunocompetent and HIV-negative Dominican man.

Case presentation

A 55-year-old Dominican man presented with a 2-year history of skin lesions on both his lower extremities. He reported having resided in the United States for 2 years. He had a

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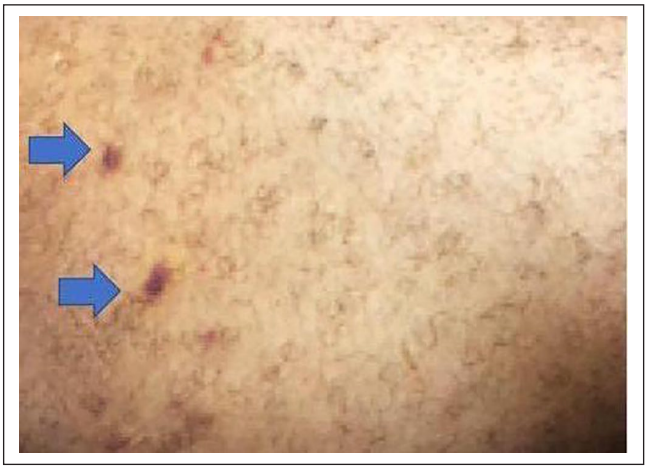

Figure 1. A 55-year-old man with nodules of Kaposi sarcoma (KS) in the skin of the medial aspect of the right thigh. Purple, raised skin nodules (arrows) are present in the skin of the inner aspect of the right thigh, consistent with Kaposi sarcoma (KS).

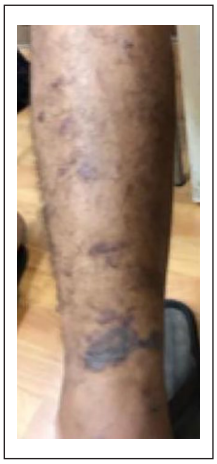

Figure 2. A 55-year-old man with purple, raised nodules of Kaposi sarcoma (KS) in the skin of the right lower extremity.

known history of diabetes mellitus and hypertension but was otherwise healthy. The patient had previously been treated with antibiotics for a presumed skin infection and had also been treated with topical steroid injections for presumed dermatitis, without clinical improvement.

On physical examination, the vital signs were found to be stable with a temperature of 98.4 °F, blood pressure of 120/70 mmHg, pulse rate of 88 beats/min, and a respiratory rate of 16 breaths/min. Examination of the skin showed a cluster of dark nodular lesions on his medial right thigh and purple plaques of varying size below the knees (Figures 1 and 2). He also had left lower limb edema. A violaceous lesion was found on examination of the soft palate (Figure 3). No lymphadenopathy was noted. Auscultation of both lungs was clear and the heart sounds were normal. On abdominal examination, no hepatosplenomegaly was found.

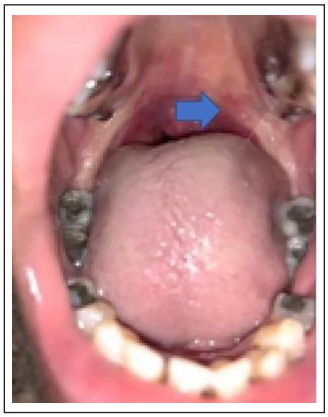

Figure 3. A 55-year-old man with violaceous areas of Kaposi sarcoma (KS) in the mucosa of the soft palate (arrow).

Laboratory investigations on admission showed normal hemoglobin 13.7 g/dL (normal range, 13.1–15.5 g/dL), hematocrit 42% (normal range, 39%–47%), white blood cell count 4.9×10^9/L (normal range, 4.8–10.8×10^9/L), and platelet count of 224×10^9/L (normal range, 130–400×10^9/L). Chemistries on comprehensive metabolic panel were within normal range. Serologic tests for HIV were negative, and the CD4 count was 350 cells/mm^3 with a CD4/CD8 ratio of 1.10 and CD4% of 32%. A biopsy of the soft palate was performed. Histopathology showed spindle cells forming slit-like spaces, some of which contained red blood cells (Figure 4(a) and (b)), which supported the diagnosis of KS and excluded some of the possible differential diagnoses, including bacillary angiomatosis, benign hemangioma, and angiosarcoma. Routine diagnostic immunohistochemistry confirmed the presence of HHV-8 (Figure 4(c)), and there was positive immunostaining of the spindle cell populations for the endothelial cell marker CD34.

The patient was treated with systemic chemotherapy because of the presence of disseminated disease. Pegylated liposomal doxorubicin (PLD), which is usually the first-line treatment for classic KS, was not used due to the presence of a reduced left ventricular ejection fraction (LVEF) of 45%. The patient was treated with paclitaxel. At 5-month follow-up, his skin lesions were noted to be markedly smaller in size.

Discussion

KS is a vascular neoplasm that was first described in 1872 by Moritz Kaposi,[10] a Hungarian dermatologist, who described it as idiopathic multiple pigmented sarcoma of the skin. There are four variants of KS, depending on the origin and clinical presentation, but classic KS mainly presents in men of Eastern European or Mediterranean origin with a median age at diagnosis of 67 years[11] and is commonly indolent, with patients living more than 10 years after diagnosis.[12]

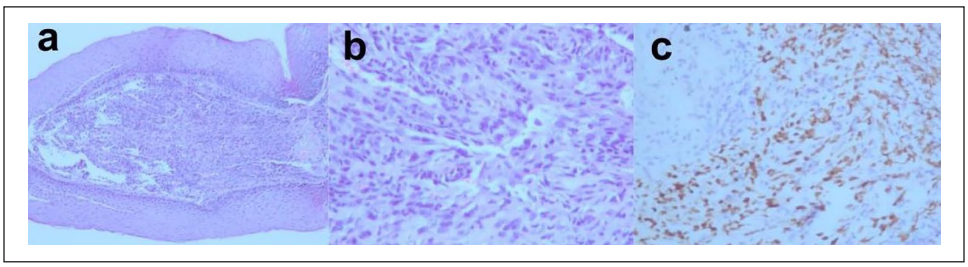

Figure 4. Photomicrographs of the histology and immunohistochemistry of Kaposi sarcoma (KS) in the soft palate biopsy showing: (a) low power view of nodular skin lesion with atypical spindle cell proliferation (H&E, 40×), (b) atypical spindle cell proliferation with extravasation (100×), and (c) positive immunostaining with an antibody to human herpesvirus-8 (HHV-8)-positive for spindle cells (100×).

The incidence of the classic variant of KS in North America is rare, with a reported incidence of 2.6–4.1/million for men and 0.6–0.9/million for women, compared with 50/million for men and 28/million for women in Italy, and 16.9/million for men and 6.3/million for women in Israel.[13] Hiatt et al.[14] reported the findings from a retrospective study that included 438 cases of classic KS in North America and found that 38% of patients were Caucasian, 22% of patients were of Mediterranean ethnicity, 18% of patients were of South American Hispanic ethnicity, 10% were of African American ethnicity, and 12% were of other ethnicities including Western-European, middle-Eastern, and Scandinavian. Miter et al.[15] reported a case of an immunocompetent 68-year-old HIV-negative Han Chinese man, born and raised in Taiwan, with classic KS of the trunk and extremities and found that only 1% of classic KS cases occurred in the Han Chinese population of Taiwan.

In patients with the classic variant of KS, the most commonly affected organs are the skin, lower limbs, and feet.[11,16] Classic KS usually presents with multiple cutaneous nodules or plaques, which may be dark-brown or purple and begin with a focal area of reddening, which becomes elevated and darker in color, resulting in the formation of a nodule and can progress to plaque formation.[17] Also cutaneous involvement of the thighs is typically seen in patients with AIDS-related KS, but may also be seen in classic KS. In this case, the patient has skin lesions on both of his extremities. His pattern was very similar to that described in HIV patients. Involvement of the oral mucosa can also occur, especially the palate, which was also found in this patient.[17,18] However involvement of the oral mucosa is far less common than in patients with HIV associated KS.[19] Classic KS rarely involves the internal organs, however a study conducted in Greece reported asymptomatic involvement of the stomach in 82% of patients with classic KS.[20]

The definitive diagnosis of KS is made with lesion biopsy and histopathology. The features of KS are those of a vasoformative spindle cell sarcoma, with specific diagnostic features that include slit-like vascular channels that contain red blood cells within a network of collagen and reticulin fibers in the dermis.[16,17] Brambilla et al.[21] have recently proposed a staging system for classic KS, based on the distribution of skin lesions, localization, the speed of progression, and the complications.

Currently, the treatment of KS is symptomatic, with the aim of reducing the size and number of cutaneous and visceral lesions, preventing complications, and reducing the overall progression of the disease. A study by Regnier-Rosencher showed that patients with early stage classic KS remained asymptomatic for a relatively long period, and 34% of patients studied were progression-free after 2 years.[22] Surgery, radiotherapy, and localized chemotherapy are effective in patients with limited disease, and other localized treatments, including intralesional vincristine, interferon alpha-2, imiquimod, and nicotine patches have been used, with varying degrees of success, in patients with classic KS.[23,24] However, the recommendation for the use of systemic chemotherapy in patients with more advanced or disseminated KS has been based on retrospective studies or have been based on studies done on the more common HIV/AIDS variant of KS. In our case, the patient was treated with paclitaxel. In a previously reported randomized controlled trial in patients with the HIV/AIDS variant of KS, there was no significant difference in efficacy between PLD and paclitaxel,[21] which has been shown to be effective as both first-or second line therapy for non-HIV-related KS.[25] However, the occurrence of serious side effects was more common in the group treated with paclitaxel.[21] Notably, in patients with AIDS, the response to treatment depends on the improvement in immune function with effective antiretroviral therapy (ART). Other chemotherapeutic agents used to treat KS include etoposide and vinca alkaloids, which have also been reported to have varying efficacy.[1,22]

Conclusion

Classic KS is an uncommon disease, which has previously been considered to be a sarcoma found primarily in Mediterranean and Eastern European populations. This case report demonstrates the importance of recognizing that classic KS, first described almost 150 years ago, can still present in immunocompetent middle-aged men of all ethnic groups.

Acknowledgements

The authors are grateful to the patient for granting permission to present this case, to Dr Yingxian Liu for use of pathology images, and to the clinical staff of The Brooklyn Hospital Center, New York.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

Ethical approval to report this case was obtained from Institutional Review Board (ID 1401960-1).

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Informed consent

The written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

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