Albanian Journal of Trauma and Emergency Surgery (2023) 7/2: 1304-1307
DOI: 10.32391/ajtes.v7i2.260

CASE REPORTS

Scrotal Kaposi's Sarcoma in HIV-negative Patient: A Case Report and Review of the Literature.

Teona Bushati [2, 3, 4 *], Leart Berdica [1, 2, 3], Albina Ndoja [3, 4, 5], Erion Sukaj [3, 4, 6], Ilirian Ibrushi [7], Leon Kaza [8]

Received: 23 January 2023 / *Accepted:* 12 February 2023 / *Published online:* 20 July 2023
This article is published with open access at ***https://journal.astes.org.al***

Abstract

Background: Kaposi's sarcoma (KS) is an indolent angio-proliferative tumor proliferation with spindle cells originating from endothelial and immune cells infected with human herpes virus type 8. (HHV-8: also known as Kaposi sarcoma herpes virus [KSHV]). HHV-8 was identified as the causative agent of KS. This virus is present in 95-98% of cases with KS. Kaposi's sarcoma was first described by a Hungarian dermatologist 1872 named Moritz Kaposi.[1]

The lesions are characterized by the proliferation of spindle cells of endothelial origin, which present different degrees of abnormal vascularization, inflammatory infiltrates, and fibrosis. Kaposi's Sarcoma (KS) is a malignancy that generally affects the skin, and can be systemic with internal organ involvement. It originates from the vascular endothelium. KS's relationship with human immunodeficiency virus (HIV) infection is well known.

In this article, we will present a 73-year-old male patient with 3 purple scrotal lesions up to 0.5 cm in size.

Conclusion; Kaposi's sarcoma of the scrotum in a negative patient is a rare pathology. However, in cases of scrotal lesions that last over time, a differential diagnosis should be made and Kaposi's sarcoma should be taken into consideration. Also, a screening for other accompanying lesions, especially a detailed examination of the gastrointestinal tract is important in cases of Kaposi's sarcoma of the scrotum.

Keywords: Kaposi's Sarcoma, Human herpes virus, HIV, Scrotal Kaposi

Introduction

Kaposi's sarcoma (KS) is an indolent angio-proliferative tumor proliferation with spindle cells originating from endothelial and immune cells infected with human herpes virus type 8.

(HHV-8: also known as Kaposi sarcoma herpes virus [KSHV]). HHV-8 was identified as the causative agent of KS. This virus is present in 95-98% of cases with KS. Kaposi's sarcoma was first described by a Hungarian dermatologist in 1872 named Moritz Kaposi.[1]

The lesions are characterized by the proliferation of spindle cells of endothelial origin, which present different degrees of abnormal vascularization, inflammatory infiltrates and fibrosis. Red blood cells and hemosiderin deposits give the lesions their purplish appearance. Spindle

Original article, no submission or publication in advance or in parallel

* ***Corresponding author:***
Teona Bushati MD, PhD
✉ *bushatiteona@gmail.com*

1 *Head of Pathology Department American Hospital Network, Tirana, ALBANIA*
2 *Lecturer of Pathology, School of Medicine, Medical University of Tirana, ALBANIA*
3 *Lecturer of Histology & Pathology, Western Balkans University. Tirana, ALBANIA*
4 *Department American Hospital Network, Tirana, ALBANIA*
5 *Municipality Hospital of Pogradec. ALBANIA*
6 *Regional Hospital of Shkodra, ALBANIA*
7 *Regional Hospital Center "Xhaferr Kongoli", Elbasan, ALBANIA*
8 *Regional Hospital of Lezhe, ALBANIA*

cells are infected with HHV-8. HHV-8 encodes for a number of genes that induce proliferation, cytokine production and angiogenesis thus contributing to tumor pathogenesis. Kaposi's sarcoma has a variable clinic from minimal mucocutaneous lesions to extensive organ involvement. The skin lesions are classically characterized by macules, plaques and nodules that are of a purple, red, blue, dark brown or black appearance. Penile KS is relatively common, while isolated scrotal KS has rarely been seen.[2] In this article, we will present a 73-year-old male patient with 3 purple scrotal lesions up to 0.5 cm in size.

Case report

In this case report we will address a 73-year-old male with 3 dark-colored nodular scrotal lesions with a diameter of 0.3, 0.5 and 0.4 cm (Figure 1). The lesions appeared 2 years ago and during this period they were treated several times

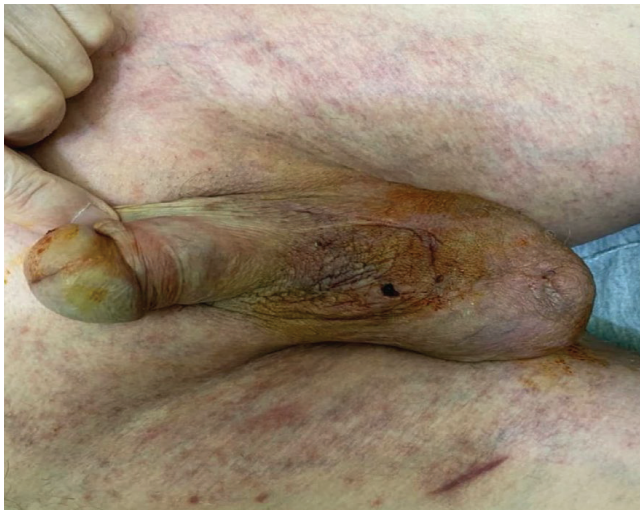

Figure 1. Macroscopic appearance of the lesion.

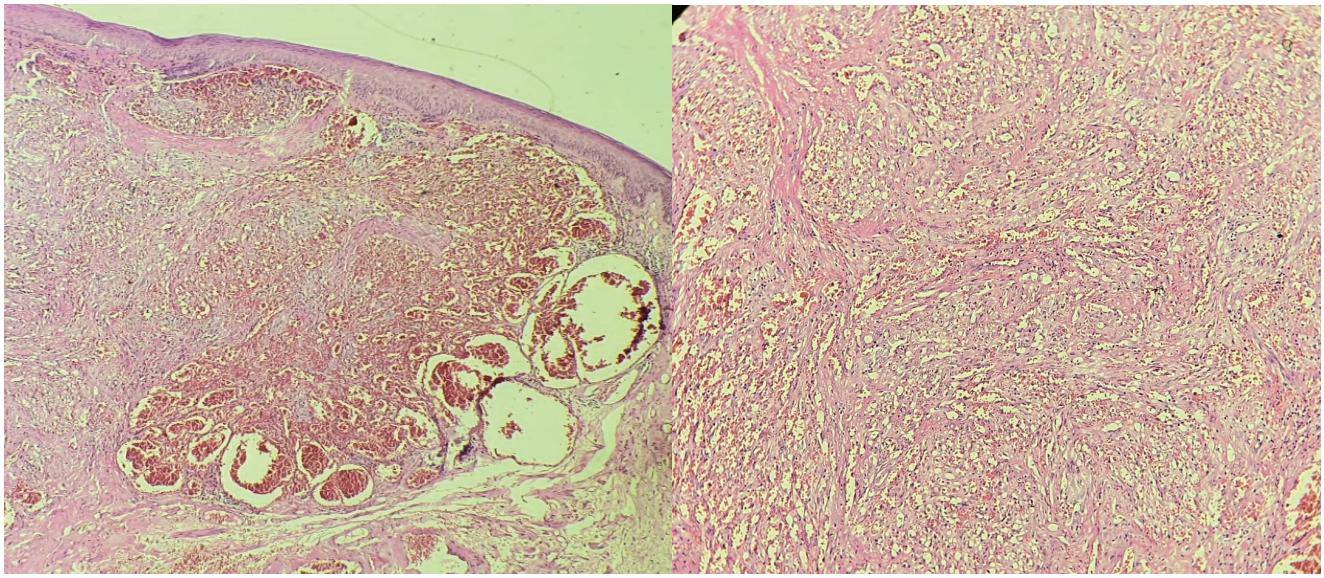

Figure 2. The view in Hematoxylin-Eosin Staining

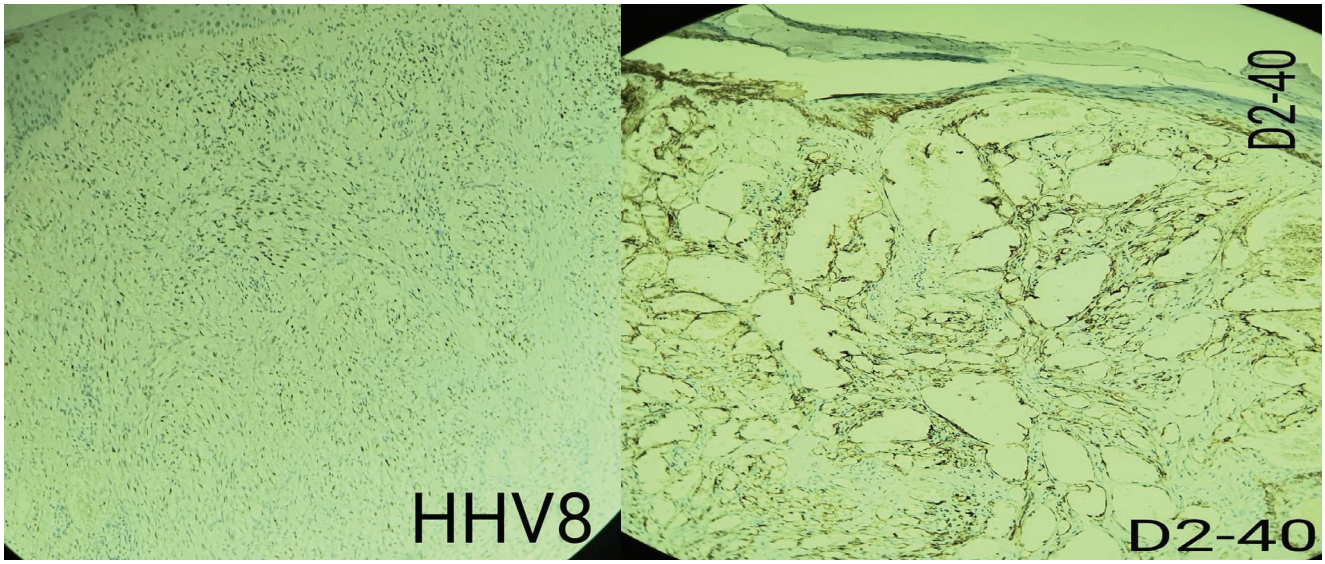

Figure 3. Immunohistochemistry. HHV8 (+++), D2-40 (+++)

by a dermatologist with local agents but without results. The patient is diagnosed with diabetes mellitus type 2, hypertension and also with rheumatoid arthritis for which has being treated with immunosuppressors (Methotrexate). No other similar lesions were seen in other part of the body. Routine laboratory tests were all normal. After the failure of treatment with conservative methods, surgical excision of the lesions was performed. The excision of the lesions was performed with spinal anesthesia and the material is sent for histopathological examination. In the Hematoxylin – Eosin staining the lesion make it easier to see different parts of the cell under a microscope.

Also, the immunohistopathological examination are performed and the lesions are: HHV8 (+++), D2-40 (+++), CD34 (+--), Ki67 20 %, MelanA (---), S100 (---). (Figure 3). In this way the diagnosis of Kaposi Sarcoma is established. The patient underwent a total body CT and also a gastric endoscopy. The results of these examination are normal and no regional lymphadenopathy was observed. The serological tests for HIV, HbsAg, anit-HCV, TPHA and VDRL were negative.

After surgery the patient was follow - up for any recurrence. No local recurrence or systemic lesions was observed during last year of follow up.

Discussion

Kaposi's sarcoma is caused by an uncontrolled proliferation of spindle cells which are thought to originate from endothelial cells. Regardless of their heterogeneity, the tumor consists of HHV-8 genetic material with immunohistochemical markers of endothelial, spindle and lymphoid cells. [3]

Previous molecular studies suggested that Kaposi's Sarcoma originated from a single clonal cell rather than a multifocal origin. However, a current study with data from 98 patients with primary cutaneous Kaposi's Sarcoma analyzing HHV-8 viral DNA in tumors showed that approximately 80% of tumors originate from multiple cell-independent tumors.[4]

Kaposi sarcoma may be caused by HHV-8 (KSHV) with stimulation by autocrine and paracrine growth factors secreted by the spindle cells themselves as well as the supporting network of mononuclear and endothelial cells. Coinfection with HIV may create a more aggressive course, which is mitigated by effective antiretroviral therapies. Indeed, the risk of Kaposi sarcoma development is amplified 500-10,000 times in patients coinfected with KSHV and HIV. [5]

In summary, complex immune dysregulation is the center theme for the pathogenesis of Kaposi sarcoma. This includes cellular immunity defects, [6, 7] humoral immunity defects and abnormalities of vascular endothelial growth factor. Apparent overlapping mechanisms for upregulation of multiple pathways produce the malignant phenotype.

Kaposi Sarcoma is characterized by few or widespread multifocal, brown-violescent or dark red patches and papules, plaques and/or deep nodular skin lesions. Its classical form is often seen in older male patients of Mediterranean or Ashkenazi descent and it is localized in the mucocutaneous tissues, more commonly affecting the lower extremities and feet with its nodular lesions and presents as a clinical entity rarely showing visceral involvement. [8] In the genital region, cases of penile involvement are more frequent, while Kaposi's sarcoma of the scrotal region in HIV negative patients is very rare and only a few cases have been reported in the literature. From our search in the English literature, it appears that the first case of Kaposi's sarcoma in the scrotal region was first described by *Vyas S et al.* in 1976 [9].

Cases with Kaposi's sarcoma of the scrotal region in HIV negative patients after our research results: *Ozmen H et.al* in 2014 [10], *Bayoumi M E et.al* in 2018 [11], *Yenice M G et.al* in 2018 [12], *Al Aboud D et.al.* in 2022 [13].

This means that our case is the sixth case of scrotal Kaposi's Sarcoma in HIV negative patient reported in English literature.

Cases of involvement in the organs of the gastrointestinal tract, according to a Greek study, are high in Kaposi's Sarcoma cases, therefore screening with endoscopic examination is recommended. [14].

The diagnosis of Kaposi's sarcoma is an immunohistopathological diagnosis, therefore the role of the pathologist is very important. Kaposi's sarcoma goes through several stages: 1. Patch stage, 2. Plaque stage, 3. Tumor (nodular) stage. [15, 16].

In the examination with immunohistochemistry, Kaposi's Sarcoma is positive for: HHV8, CD34, CD31, D2-40 and negative for: SMA, Desmin, Cytokeratins, S100, MelanA, HMB45.

The differential diagnosis should include: angiosarcoma, hobnail hemangioma, spindle cell hemangioma, Kaposi form hemangioendothelioma, which are HHV8 negative. [17, 18, 19].

Conclusion

Kaposi's sarcoma of the scrotum in a negative patient is a rare pathology. However, in cases of scrotal lesions that last over time, a differential diagnosis should be made and Kaposi's sarcoma should be taken into consideration. Also, a screening for other accompanying lesions, especially a detailed examination of the gastrointestinal tract is important in cases of Kaposi's sarcoma of the scrotum.

COI Statement: This paper has not been submitted in parallel. It has not been published nor submitted for consideration beforehand.

This research received no specific grant from any funding agency in the public, commercial, or non-profit sectors. There are no relevant or minor financial relationships from authors, their relatives or next of kin with external companies.

Disclosure: The authors declared no conflict of interest. No funding was received for this study.

References

1. Braun M. Classics in Oncology. Idiopathic multiple pigmented sarcoma of the skin by Kaposi. CA Cancer J Clin. 1982 Nov-Dec;32(6):340-7. doi: 10.3322/canjclin.32.6.340. PMID: 6812893.
2. Rescigno P, Di Trolio R, Buonerba C, De Fata G, Federico P, Bosso D, Virtuoso A, Izzo M, Policastro T, Vaccaro L, Cimmino G, Perri F, Matano E, Delfino M, De Placido S, Palmieri G, Di Lorenzo G. Non-AIDS-related Kaposi's sarcoma: A single-institution experience. World J Clin Oncol. 2013 May 10;4(2):52-7. doi: 10.5306/wjco.v4.i2.52. PMID: 23696963; PMCID: PMC3659264.
3. DeVita V. AIDS-related malignancies. DeVita V, Vincent T Jr, eds. Cancer: Principles and Practice of Clinical Oncology. 5th ed. Philadelphia, Pa: Lippincott, Williams, & Wilkins; 2008. Vol 8: 2404-2407.
4. Duprez R, Lacoste V, Brière J, Couppié P, Frances C, Sainte-Marie D, et al. Evidence for a multiclonal origin of multicentric advanced lesions of Kaposi sarcoma. J Natl Cancer Inst. 2007 Jul 18. 99(14):1086-94.
5. Paulose-Murphy M, Ha NK, Xiang C, Chen Y, Gillim L, Yarchoan R, et al. Transcription program of human herpesvirus 8 (kaposi's sarcoma-associated herpesvirus). J Virol. 2001 May. 75(10):4843-53.
6. Biggar RJ, Chaturvedi AK, Goedert JJ, Engels EA, HIV/AIDS Cancer Match Study. AIDS-related cancer and severity of immunosuppression in persons with AIDS. J Natl Cancer Inst. 2007 Jun 20. 99 (12):962-72..
7. Brown EE, Whitby D, Vitale F, et al. Virologic, hematologic, and immunologic risk factors for classic Kaposi sarcoma. Cancer. 2006 Nov 1. 107(9):2282-90.
8. Schwartz RA, Micali G, Nasca MR, Scuderi L. Kaposi sarcoma: a continuing conundrum. J Am Acad Dermatol 2008; 59:179-208. [CrossRef]
9. Vyas S, Manabe T, Herman JR, Newman HR. Kaposi's sarcoma of scrotum. Urology. 1976 Jul;8(1):82-5. doi: 10.1016/0090-4295(76)90063-7. PMID: 945927.
10. Ozmen H, Baba D, Kacagan C, Kayikci A, Cam K. Case report: HIV negative isolated scrotal Kaposi's sarcoma. Int J Surg Case Rep. 2014;5(12):1086-7. doi: 10.1016/j.ijscr.2014.11.019. Epub 2014 Nov 13. PMID: 25460481; PMCID: PMC4275971.
11. The Egyptian Journal of Hospital Medicine (January 2018) Vol. 70 (5), Page 801-805
12. Yenice MG, Varnalı E, Şeker KG, Kavak A, Tuğcu V. Scrotal Kaposi's Sarcoma in HIV-negative patient: A case report and review of the literature. Turk J Urol. 2018 Mar;44(2):182-184. doi: 10.5152/tud.2017.68366. Epub 2017 Dec 11. PMID: 29511591; PMCID: PMC5832383.
13. Al Aboud D. Scrotal Kaposi's sarcoma in an immunocompetent patient: A case report and review of the literature. Our Dermatol Online. 2022;13(e):e57.
14. Stratigos AJ, Malanos D, Touloumi G, et al. Association of clinical progression in classic Kaposi's sarcoma with reduction of peripheral B lymphocytes and partial increase in serum immune activation markers. Arch Dermatol. 2005 Nov. 141(11):1421-6.
15. Radu O, Pantanowitz L. Kaposi sarcoma. Arch Pathol Lab Med. 2013 Feb;137(2):289-94. doi: 10.5858/arpa.2012-0101-RS. PMID: 23368874.
16. Balachandra B, Tunitsky E, Dawood S, Hings I, Marcus VA. Classic Kaposi's sarcoma presenting first with gastrointestinal tract involvement in a HIV-negative Inuit male--a case report and review of the literature. Pathol Res Pract. 2006;202(8):623-6. doi: 10.1016/j.prp.2006.03.002. Epub 2006 May 8. PMID: 16682127.
17. Whisman M, Gardner JM. Kaposi sarcoma. PathologyOutlines.com website. https://www.pathologyoutlines.com/topic/softtissuekaposi.html. Accessed October 23rd, 2022.
18. Uccini S, Ruco LP, Monardo F, Stoppacciaro A, et al. Co-expression of endothelial cell and macrophage antigens in Kaposi's sarcoma cells. J Pathol. 1994 May. 173(1):23-31.
19. Kimball LE, Casper C, Koelle DM, Morrow R, Corey L, Vieira J. Reduced levels of neutralizing antibodies to Kaposi sarcoma-associated herpesvirus in persons with a history of Kaposi sarcoma. J Infect Dis. 2004 Jun 1. 189(11):2016-22.