American Journal of Dermatology and Venereology 2016, 5(2): 34-37
DOI: 10.5923/j.ajdv.20160502.03

The Changing Pattern of Kaposi's Sarcoma in Sudan: Experience in a Single Center

Lamyaa A. M. EL Hassan[1,2,*], Waleed M. ELamin[3], Ameera Adam[4], Khalid O. Alfarouk[4,5], Anilkumar Mithani[6], Adil H. H. Bashir[4,*], Ahmed M. Elhassan[2,4]

[1]School of Medicine, Ahfad University for Women, Omdurman, Sudan
[2]EL Hassan Histopathology Laboratory, Khartoum, Sudan
[3]Faculty of Medical Laboratory Sciences, Alzaeim Alazhari University, Khartoum, Sudan
[4]Institute of Endemic Diseases, University of Khartoum
[5]Faculty of Pharmacy, AL-Neelain University, Khartoum, Sudan
[6]Faculty of Medicine, University of Bahri, Khartoum, Sudan

Abstract The first cases of Kaposi's sarcoma were described by Moritz Kaposi, a Hungarian dermatologist, in 1872. Ever since many facts about Kaposi's sarcoma were addressed in the world literature. These included epidemiology, clinical manifestations, etiology, pathology, pathogenesis, and treatment. The tumour has been divided into several subtypes that include the original classic, Endemic (African) Kaposi's sarcoma, Immunosuppression-Associated, Transplantation-Associated Kaposi's Sarcoma and Epidemic or AIDS-Associated, Kaposi's sarcoma. The tumour is caused by the Human Papilloma Virus (HPV). In this communication, we describe our experience with Kaposi's sarcoma in Sudan. Before the HIV pandemic, the cases were of the classic and endemic African subtypes. After the HIV pandemic, we encountered AIDS-Associated KS and KS in renal transplant patients under immunosuppressive therapy. The classic and African types are still also seen. The clinical manifestations, the pathology, and pathogenesis of KS in Sudan are described and discussed

Keywords Kaposi's sarcoma, Sudan, Clinical features, Epidemiology, Pathology

1. Introduction

The first cases of Kaposi's sarcoma were described by Moritz Kaposi, a Hungarian dermatologist, in 1872 [1, 2]. Ever since many facts about Kaposi's sarcoma were addressed in the world literature. These included epidemiology, clinical manifestations, etiology, pathology and treatment [2]. The tumour has been divided into several subtypes that include classic, endemic or African, Immunosuppression-associated, transplantation-associated and Epidemic or AIDS-Associated Kaposi's Sarcoma [1, 2]. In this article, we review Kaposi's sarcoma in a single center in Khartoum, Sudan. We show the changing features of the disease since it was described for the first time in Sudan in1967 [3].

2. Material and Methods

All cases seen over the past 40 years in our center were reviewed regarding the epidemiology and clinical manifestations before and after the HIV pandemic.

* Corresponding author:
lamyaahmed@hotmail.com (Lamyaa A. M. EL Hassan)
Derma55@yahoo.com (Adil H. H. Bashir)
Published online at http://journal.sapub.org/ajdv

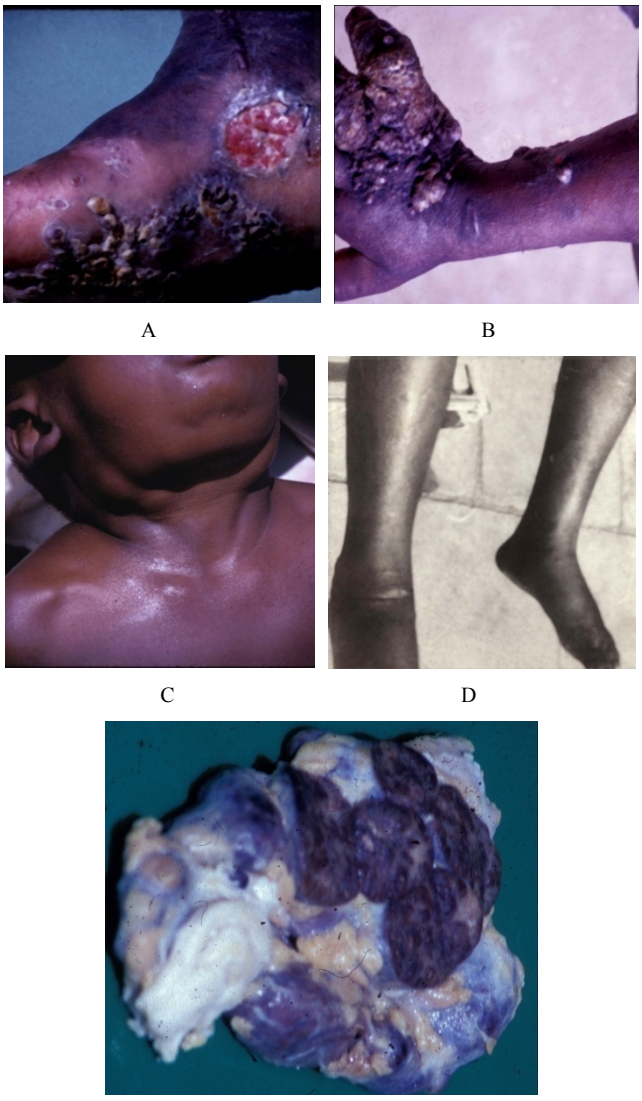
3. Results

Kaposi sarcoma before the HIV infection

In the mid-sixties a total of 11 of biopsy-proven patients with KS were seen in the Department of Pathology, Faculty of Medicine, University of Khartoum and the Department of Medicine Khartoum Civil Hospital [3]. All were males in the age range of 32-70 years. Duration was from 1 to 9 years. All presented with skin nodules and sensation of heat in the soles. Their general condition was good. Seventy per cent had non-pitting edema. Seven of the 11 patients were born in or lived for years in parts of Sudan south of Lat 12° north. At the time, this suggested that KS might be due to an infectious agent. Based on this we attempted to transplant K S in outbred mice. The tumour was taken from a patient who died of KS and was transplanted subcutaneously into the mice. It took initially but was later rejected as a xenograft. It is now known that that there is an inbred mouse susceptible for KS. In the late sixties, a patient with KS died six months after the onset of the disease. He had visceral involvement at autopsy. More cases were seen (ten) up to 1980. Some of the cases were over 60 corresponding to original cases of Kaposi we

reported before. However, the majority of the ten cases were young individuals (<40) and the tumor was aggressive corresponding to the majority of cases of endemic KS in Africa.

In a paper entitled "Superficial cancer in the Sudan in 1974 we reported the frequency of KS in comparison with other skin cancers A study of 1225 primary malignant superficial tumours showed that the most common tumor was squamous cell carcinoma followed by malignant melanoma and basal cell carcinoma 4. KS was the least common. It formed 1.6% and 13.8% of all superficial cancers in the Sudan and South Sudan respectively [4].



A B C D E

A. Nodules and ulcers in the sole.

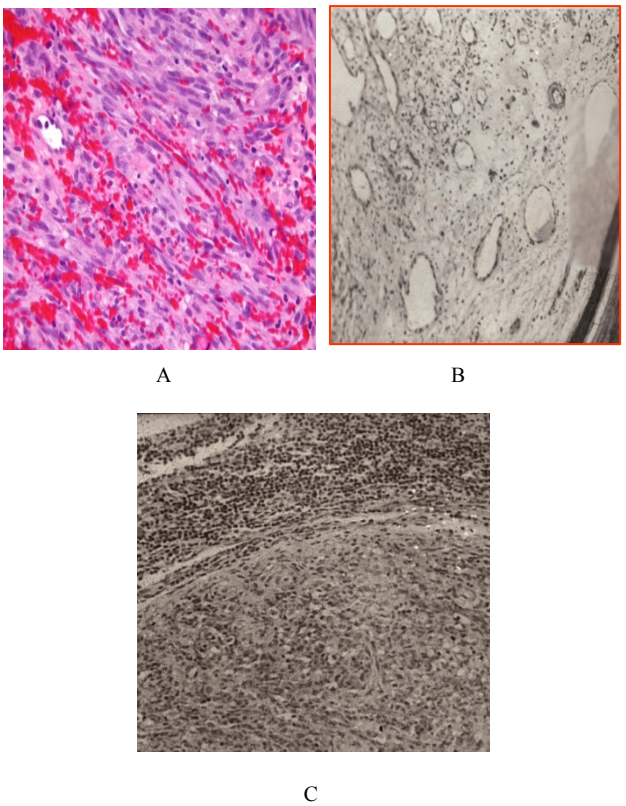
B. Nodules and edema of the hand and arm.

C. A child showing KS involving cervical lymph nodes.

D. Marked edema of lower limbs

E. Autopsy finding of aggressive case showing KS in axillary lymph nodes.

Figure 1. Clinical features of KS before the HIV Pandemic



A B C

A. Proliferating spindle shaped endothelial cells. Red cells are within and between vessels

B. Dilated lymphatics underneath the thin epidermis.

C. A lymph node containing Kaposi's Sarcoma. The cells at the top are normal lymphocytes

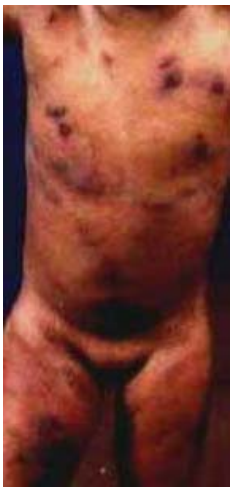
Figure 2. Pathology of Kaposi's sarcoma

As mentioned above KS was most common in males. Depending on the subtype of the tumor the duration varied between 1 and 9 years. Lesions were nodules mainly affecting the limbs (Fig 1). The nodules varied in size (Fig 1A, 1B). Edema was often present and sometimes obscured the nodules (1 E). In children KS affected the lymph nodes and there were no nodules in the subcutaneous tissue. However some cases were aggressive and the patients died because of their disease. One patient died 6 months after developing KS. He had extensive nodules in the limbs, involvement of the abdominal and axillary lymph nodes and ulcerations in the small intestine (Figures 1B and C). This patient was seen before the HIV pandemic.

Pathology (Fig 2): From a clinicopathological features the pathology of Kaposi's sarcoma is divided into 4 epidemiologic groups: Classic, Epidemic (HIV- associated) Immunosuppression associated and African (endemic) 5.

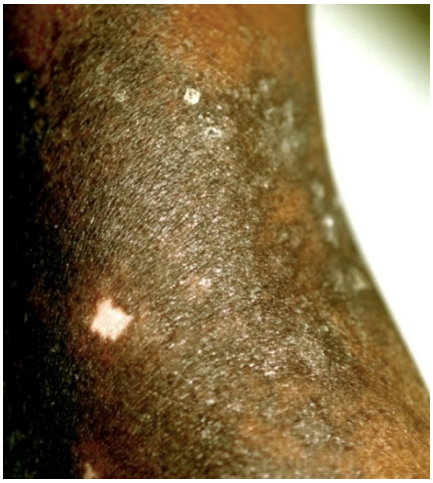
The tumour in the dermis consists of spindle shaped endothelial cells arranged in a fascicular pattern forming slit-like spaces containing red cells. The slit-like spaces are more prominent in the superficial part of the tumour. Red cells are also seen in the spaces between vessels. Dilated lymphatics are also seen just beneath the epidermis. The latter shows different combinations of hyperkeratosis, acanthosis and ulceration. Hyaline globules are seen in

plaques and nodules. There is usually lymphocytic and plasma cell infiltrate in lesions.



A

B



C

A. Multiple plaques and nodules in an HIV infected girl.

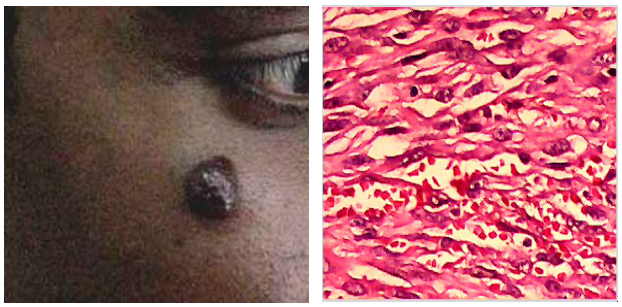
B. She had periorbital edema.

C. Large un-ulcerated dark infiltrative skin lesion in a patient with aids an L major infection in the lesion

Figure 3. Kaposi's sarcoma in two HIV infected patiets

Kaposi's sarcoma in Sudan after the HIV/AIDS pandemic

We started seeing cases of Kaposi's sarcoma associated with HIV infection. The first case was in a 5 years old female (Fig 3). She presented with multiple dark infiltrative lesions all over the body. She had periorbital oedema which is one of the manifestations of HIV/KS. Her mother was HIV positive but she was symptomless. Another patient was a 45 years old lorry driver from the western part of the country who was complaining of loss of weight and lesions in his face and leg (Fg 3). The lesions in the face were around the mouth. They were infiltrative and unlucerated. There was a large dark infiltrative lesion in the leg. Sections from this showed typical Kaposi's sarcoma and leishmania parasites within macrophages. The leishmania proved to be *Leishmania major* by PCR.



A B

A. Nodule of Kaposi's sarcoma in the face. Patient had nodules in other parts of the body. Histopathology of the lesion showing spindle shaped cells capillaries containing red cells (H&E X40)

Figure 4. Kaposi's sarcoma in a renal transplant patient

Kaposi's sarcoma in a renal transplant patient

A 56 years old male was diagnosed as chronic renal disease in 2008. He underwent a pre-emptive renal transplant in 2010. The transplant was from his son and there were 3 mismatches. The induction was by Bailiximab (Simulect®) was given at the time of transplantation. He was then maintained on prednisilone, cyclosporine and azathioprine. The patient was readmitted to hospital three months after transplantation with anemia, severe urinary tract infection and a skin rash. He was found to have multiple skin nodules in the skin that were non-irritant and dark in color. A biopsy from a lesion showed the appearances of Kaposi's sarcoma. The immunosuppressant medications were modified. Cyclosporine and azathioprine were substituted by Sirolimus 2mg/day and Mycophenolate 500 mg twice a day. The tumor regressed significantly and his transplant function was stable [5].

4. Discussion

Moritz Kaposi in 1872 was the first to describe a condition subsequently named Kaposi's sarcoma (KS) as a disease in elderly men of Mediterranean or Jewish descent [1]. KS was described in different parts of the world where in most the disease was more common in adult males. In 1981, KS was report in patients infected with HIV/AIDS in homosexual men with AIDS. It was later realized that AIDS associated KS affects females and children and in those with other forms of immunosuppression such particularly renal transplant patients. In the cases presented here we saw all four forms of Kaposi's sarcoma [6]. Before the HIV the cases fitted into the classic and African forms. In the last few

years, we started to see KS in association with AIDS and in renal transplant patients under receiving immunosuppressive drugs.

Compelling epidemiologic evidence, including the peculiar geographic distribution of Kaposi's sarcoma, prompted speculation about an infectious cause as well as the possibility of sexual transmission. In 1994, Chang and colleagues identified DNA fragments of a previously unrecognized herpesvirus, which has been called Kaposi's sarcoma–associated herpesvirus (KSHV, also known as human herpesvirus) [7], in a Kaposi's sarcoma skin lesion from a patient with AIDS [7–10]. Over 95 percent of Kaposi's sarcoma lesions, regardless of their source or clinical subtype, have been found to be infected with KSHV. The pathogenesis and development of KS lesion has received a lot of attention particularly after the discovery of the Human Papilloma Virus (HPV) that causes the disease. KS lesions develop in three stages: the earliest is the patch that changes into a nodule [6]. The patch is a diffuse infiltration of the skin by inflammatory cells that include B and T lymphocytes, macrophages, spindle cells and proliferating blood vessels. We described this early lesion in the two patients with aids. In the child whose color was pale, the lesions were reddish brown. In the adult patient,who had darker skin, the lesion was black. It is interesting that the lesion in this patient was KS and cutaneous leishmaniasis caused by *L. major*.

After the patch lesion the plaque stage follows [6]. This is more indurated than the patch and is often edematous. The vascularity is marked and there is leakage of red cells from the capillaries into the interstitial tissue and the presence of hemosiderin. Proliferation of spindle cells leads to the nodular stage 5. The spindle cells are believed to be derived from endothelial cells and are regarded as the target for the HPV. We and others have shown that the spindle cells express the endothelial marker CD34.

REFERENCES

[1] Idiopathisches multiples Pigmentsarkom der Haut. Arch Dermatol Syph 1872; 4: 265–73.

[2] Karen Antman and YC. Kaposi's Sarcoma. N Engl J Med 2000; 342: 1027–38.

[3] A Wasfi AME. Kaposi's sarcoma in the Sudan. Sudan Med J 1967; 5:213.

[4] Malik MOA, Hidaytalla A, Daoud EH, el Hassan AM. Superficial Cancer in the Sudan. A Study of 1225 Primary Malignant Superficial Tumours. Br J Cancer 1974; 30: 355–64.

[5] Yousif ME ElhA. Regression of Kaposi's sarcoma in a Sudanese kidney transplant recession after conversion to Sirolimus: a focus on a common clinical problem. Arab J Nephrol Transplantation 2011; 4:49–52.

[6] Roy S. Kaposi's Sarcoma n.d.

[7] Chang Y, Cesarman E, Pessin MS, Lee F, Culpepper J, Knowles DM, et al. Identification of herpesvirus-like DNA sequences in AIDS-associated Kaposi's sarcoma. Science 1994; 266: 1865–9.

[8] Cesarman E, Chang Y, Moore PS, Said JW, Knowles DM. Kaposi's sarcoma-associated herpesvirus-like DNA sequences in AIDS-related body-cavity-based lymphomas. N Engl J Med 1995; 332: 1186–91.

[9] Frisch M. Human Papillomavirus-Associated Cancers in Patients With Human Immunodeficiency Virus Infection and Acquired Immunodeficiency Syndrome. J Natl Cancer Inst 2000; 92: 1500–10.

[10] Moore PS, Chang Y. Detection of herpesvirus-like DNA sequences in Kaposi's sarcoma in patients with and without HIV infection. N Engl J Med 1995;332:1181–5.