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Histopathological Pattern Of HIV/AIDS-Related Kaposi's Sarcoma In Jos. North Central Nigeria

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Abstract

Objective*: Kaposi's sarcoma (KS) is an important mucocutaneous neoplasm with few well known clinicopathologic types. KS may flare as part of the immune reconstitution inflammatory syndrome in HIV patients or develop in the context of immunosuppression.*

Although clinical presentations are usually characterized by purplish to red, cutaneous, polymorphous lesion i.e macules, nodules and plagues localized on extremities, face, trunk and rarely genitals, the clinical course of AIDS-related KS can be highly variable with progression ranging from slow to explosive.

This present study attempted to evaluate the incidence of Kaposi sarcoma and correlate its association in HIV patients with CD4 counts as well as viral load.

Method*: This was a one year prospective cross-sectional histopathological analysis of 150 cases of skin manifestations of HIV/AIDS diagnosed in the department of pathology, Jos University Teaching Hospital. Punched biopsies of skin were taken from HIV/AIDS patients with skin lesions. Their CD4 counts and viral load were traced in their folders.*

Results: *Sixty eight cases of histologically confirmed KS were prospectively studied from December 2010 to November 2011. There were 24 (35%) men and 44 (64%) female giving a male to female ratio of 1:2. Their age ranged from 30-40 years. Multiple lesions were a common presentation with more affectations to the lower limbs, trunk, upper limbs and genitalia.*

Most skin lesion developed with CD4 lower than 200 cell/ul and high viral load greater than 10,000 log RNA copies/ul.

Conclusion*: This study demonstrates that Kaposi sarcoma is associated with HIV/AIDS and has an inverse relationship to CD4-count and viral loads and is more common on the lower limb.*

Keywords: *Kaposi sarcoma, HIV/AIDS, Jos, North-Central Nigeria.*

I. Introduction

Kaposi sarcoma is a cutaneous neoplasm of endothelial origin first described by Moritz Kaposi in 1872 as pigmented cutaneous plagues of the lower extremities in older men.[1] It is presented in four main clinical forms as respectively classic, or mediteranian KS, epidemic or acquired immunodeficiency Syndrome (AIDS)-associated KS, iatrogenic in post-transplanted KS, and endemic or African KS.[2] It is associated with human herpesvirus(HHV-8) infection and represents the most frequent malignant disease in patients with acquired immunodeficiency syndrome (AIDS)[3,4].

Although clinical presentations are usually characterized by purplish to red, cutaneous, polymorphous lesions on the extrimities, face trunk and rarely the genitalia, the clinical course of AIDS-related KS can be highly variable with progression ranging from slow to explosive.

The first case of endemic or AIDS-associated KS was reported in 1981.[5] Kaposi sarcoma is an AIDS-defining illness and is associated with HIV/AIDS pandemic in sub-Saharan Africa. Many HIV positive patients are developing the tumour.[6,7] What is known about the aetiology of KS has evolved. Viruses are implicated in the aetiopathogenesis and the most convincing evidence is the discovery of DNA sequences of Human herpes virus 8 (HHV8) in KS lesions of virtually all AIDS patients.[8]

II. Materials And Methods

This was a prospective study of 150 HIV/AIDS patients attending Aids Preventive Initiative of Nigeria (APIN) clinic in the Teaching Hospital in Jos who had skin changes that are characteristic of HIV/AIDS for a period of one year from December 2010 to November 2011.

A total of 150 punched skin biopsies were taken and analysed in the Department of Pathology of Jos University Teaching Hospital, Jos North Central Nigeria in a 10% formalin and processed in paraffin wax. Histology slides stained with hematoxylin and eosin (H and E) were reviewed. Clinical information and bio-data of patients such as HIV screening results confirmed by ELISA methods,CD4+ lymphocytes as well as viral load counts were extracted from patients folders.

III. Results

A total of 150 skin biopsies were histologically examined over a period of one year and 68 cases were confirmed as Kaposi sarcoma. Out of these cases 24 were males and 44 were females (M:F,1:2)

Table I shows the histopathologic pattern of skin lesions in HIV/AIDS and Kaposi sarcoma remains the commonest disorder in the study.

Table II shows age and sex distribution of Kaposi sarcoma and is commoner among the sexual active group. Table III shows the anatomic distribution of the lesions and the commonest site in both sexes was the lower limb followed by trunk, upper limb, genitourinary area and the face.

Table 1: Histopathological patterns of skin manifestation analysis in HIV & AIDS.

Histological diagnosis	Male	Female	Total	(%)	p-value
MALIGNANT					
Kaposi sarcoma	24 (32.4)	44 (59.5)	68	(91.9)	
Malignant melanoma	2 (2.7)	3 (4.1)	5	(6.8)	0.743
Squamous cell carcinoma	0 (0.0)	1 (1.4)	1	(1.4)	
INFLAMMATORY					
Psoriasis	2 (5.3)	14 (36.8)	16	(42.1)	
Lichen planus	4 (10.5)	9 (23.7)	13	(34.2)	0.318
Eosinophilic folliculitis	3 (7.9)	3 (7.9)	6	(15.8)	
Seborrhoiec dermatosis	1 (2.6)	2 (5.3)	3	(7.9)	
INFECTIONS					
Molluscum contagiosium	3 (10.3)	10 (34.4)	13	(44.8)	
Condyloma accuminatum	2 (6.9)	6 (20.7)	8	(27.6)	0.759
Dermatitis herpetiformis	3(10.3)	5 (17.2)	8	(27.6)	
OTHERS					
Pemphigus vulgaris	2 (33.3)	3 (50.0)	5	(83.3)	
Nervous sebaceous	1 (16.7)	0 (0.0)	1	(16.7)	0.273
TOTAL	**50**	**100**	**150**	**(100)**	

Table II: Age and sex distribution for Kaposi sarcoma.

Age	Male	Female	Total
11-20	1	1	2
21-30	4	6	10
31-40	11	24	35
41-50	7	11	18
51-60	1	2	3
Total	24	44	68

Table III: Anatomical distribution of Kaposi sarcoma in 68 patients.

Anatomical site	Male	Female
Face	3	4
Upper limb	3	10
Trunk	6	12
Lower limb	12	18
Total	24	44

Table IV: Relationship between the presence of KS and CD4 count and viral load

	Presence of KS	Absence of KS	p-value
CD4 count	Freq (%)	Freq (%)	
<200	20	33	0.384*
200-449	32	33	
>500	16	16	
Viral load			
<10,000	43	81	0.0065**
10,000 – 100,000	12	10	
>100,000	4	0	

*Chi-square

**Fischer's exact. Note: The occurrence of KS is NOT statistically significant with CD4 count but is statistically significant with viral load. All the patients were on Highly Active Anti Retroviral Therapy (HAART) so present with an improve CD4 lymphocyte count.

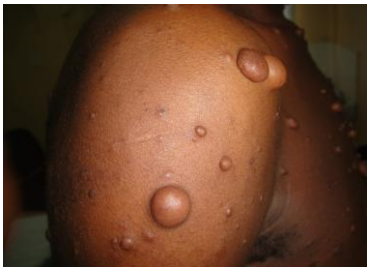

Figure I: Clinical photograph of Kaposi's sarcoma in a HIV/AIDS patient showing generalized skin nodules over the body.

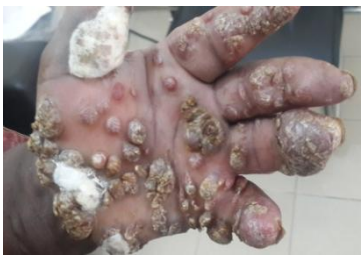

Figure II: Clinical photograph of Kaposi's sarcoma in a HIV/AIDS patient showing generalized fungating skin nodules over the hand.

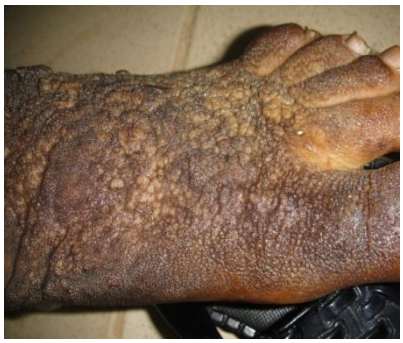

Figure III: Clinical photograph of the foot, showing diffused variegated firm to hard nodules.

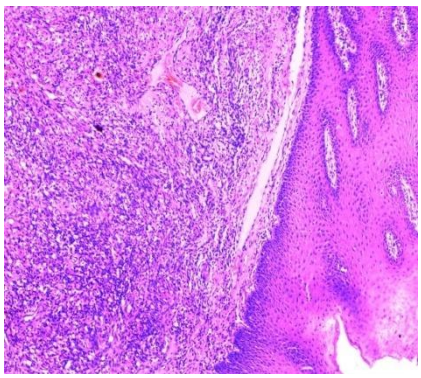

Figure IV: Photomicrograph of the skin showing a stratified squamous epithelium with a fibrocollagenous stroma within which are seen proliferating plump spindle cells with slit-like vascular channels (H & E stain x 20).

IV. Discussion

The first case of AIDS-associated KS was reported in Africa well over 25 years. This could be as a result of lack of expertise of cancer-registry units or non-existent. Contrary to the earlier report in Nigeria that KS is not associated with HIV infection,[9] this study has shown that KS is more often seen in HIV/AIDS patients.

Many accumulated evidence indicates that Human Herpes Virus type 8 (HHV-8) is an important cofactor in the pathogenesis of AIDS-associated KS. The virus is reported to be present in more than 90% of Kaposi sarcoma lesion. The virus releases cytokines as well as HIV tat protein which is believed to contribute to the pathogenesis of Kaposi sarcoma. Contrary to the earlier report that KS is exclusively a disease of men,[10,11] we found AIDS-associated KS affecting both sexes and with a female predominance. This is because more women attend the HIV clinic.

The mean age of 35 years reported in this study is similar to both Caucasian and Nigerian studies.[12,13]

AIDS –associated KS can affect any area of the skin as well as the genitor urinary area. The most common site in this study was the lower limb, trunk, Upper limb, and the face. Multiple sites involvement was noticed in some patients.

KS can present at any time during the course of HIV infection and generally occurs at CD4 count <200 cells/mm.[3] [14] In our study most of the patients with AIDS-associated KS presented with a CD4 lymphocyte count <200 cell/ul and viral load of >100,00log RNA copies/ul. All patients were on Highly Active Anti-RetroviralTherapy (HAART), so they presented with a high CD4 lymphocyte count.

Lesions of KS can be asymptomatic and may start as macule, papule, plague and then nodules. Differential diagnosis of KS include, bacillary angiomatosis, pyogenic granuloma, angiodermatitis, coccidiodomycosis, hemangiomas, drug eruption.[15]

Histopathology usually confirms the diagnosis, the early stage of the disease is similar to granulation tissue but the classical diseases is characterized by profuse proliferation of spindle cells lined vascular slit-like spaces with presence of solid cords.

Immunohistochemistry is a gold standard in confirmation of the disease. CD31, CD34 antigens as well as FVIII-Rag are important for the diagnosis.[16] But none of these antigens was applied because the centre has not started its application.

Many patients did not develop KS despite low CD4-counts because all the patient were on their various stages of Highly active Antiretroviral therapy. (HAART). Which would be associated with improved immune function and reduced risk of AIDS-associated cancers such as KS.

In conclusion, this study has demonstrated that KS is associated with HIV/AIDS with both sexes affectation though with female preponderance. KS is also a late presentation of the HIV/AIDS disease with varied clinical manifestations. There is need to develop health education programmes for proper understanding of the spread of the disease.

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