Original Article

Histopathological Review of Dermatological Malignancies in Makurdi, North Central Nigeria

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Abstract

Objective: Dermatological malignancies are among the common forms of cancer worldwide, especially Caucasians, and are noted to be in the skins of Africans and Negroid. The study aims to determine the frequency and patterns of dermatological malignancies in Benue State University Teaching Hospital (BSUTH), Makurdi, Nigeria. **Methods:** This was a 5-year retrospective study of skin samples seen at the Department of Anatomical Pathology, BSUTH, Makurdi, between March 2012 and February 2017. **Results:** A total of 215 skin biopsies were seen at the department during the study. Of these, 151 cases were dermatological malignancies constituting 70.2% of all skin lesions. Majority of these malignancies occurred between the fourth and fifth decades with a male-to-female ratio of 1.4:1. Kaposi sarcoma (KS) was the most common dermatological malignancy (*n* = 78; 52%). Squamous cell carcinoma constituted second majority (n = 30, 20%), followed by malignant melanoma (n = 22.1, 14.7%), dermatofi brosarcoma protuberans (n = 17, 11.3%), and basal cell carcinoma (n = 9, 6%). Leg, foot, and forearm were the common sites affected. **Conclusion:** KS was the most common dermatological malignancy in the study. Nearly all patients were HIV/AIDS positive. The findings in this study are similar to those from other parts of Africa and Nigeria. Therefore, HIV/AIDS control can substantially reduce the incidence, morbidity, and mortality of KS.

Keywords: Dermatological malignancies, Kaposi sarcoma, Makurdi

Introduction

Dermatological malignancies are the most common disorders worldwide.[1,2] In the white population, the incidence is on the increase but lower among the dark-pigmented people of developing countries of the world.[3] The major reason for this racial difference in the distribution of skin cancer is the protection from ultraviolet (UV) radiation provided by melanin in the dark-pigmented races.[4] The skin happens to be the largest organ in the body and is composed of many types of cells and is in contact directly or indirectly with a lot of carcinogens such as UV radiation and chemical carcinogens.[5,6] Sun exposure is the major risk factor in white people, albinism and immune suppression are risk factors of some skin cancers in black Africans.[7] This study is aimed at defining the frequency and morphological patterns of dermatological malignancies in Benue State University Teaching Hospital (BSUTH). Data derived from this study would be useful in the management of these lesions and moreover serve as baseline data for further research.

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Studies done within and outside Nigeria have documented the preponderance of Kaposi sarcoma (KS) as the most common dermatological malignancy in some parts of the world. In Europe, North America, and Australia, KS accounts for over 50% of all skin malignancies, especially in sunny tropical climates.[6] The findings in our study are higher than studies in other parts of Nigeria.[6,8]

BSUTH, Makurdi, is one of the tertiary health centers offering histopathology services in Benue state with an estimated population of 8 million people.

This study examines the frequency and pattern of dermatological malignancy in Makurdi and compares them with those in the general population and other parts of the world.

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Methods

This is a 5-year (March 2012 to February 2017 inclusive) descriptive, retrospective study of 215 histologically diagnosed skin specimens received at the Department of Anatomical Pathology, BSUTH, Makurdi.

All specimens were fixed in 10% formalin solution, processed, and stained with hematoxylin and eosin. The results obtained were analyzed with respect to age, sex, and type of tumor. Data analysis was performed using the Statistical Package for the Social Sciences version 16 (SPSS Inc., South Wacker Drive, Chicago, Illinois, USA).

Results

During the 5-year study, 215 skin specimens were received at the Department of Anatomical Pathology, BSUTH, Makurdi. Of these, 151 specimens were dermatological malignancies.

KS thus accounted for 78 (52%) of cases while squamous cell carcinoma (SCC) constituted the second majority with 20%. Malignant melanoma ranked third at 22 (14.7%) of cases. Dermatofi brosarcoma protuberance comprised 12 (11.3%) patients and ranked fourth; basal cell carcinoma (BCC) (9, 6%) was the last.

Table 1: Histopathological pattern of skin biopsies in Benue State University Teaching Hospital (March 2012-February 2017)

Histopathological type	Male, *n* (%)	Female, *n* (%)	Total (%)
Malignant			
KS	26 (33.3)	52 (66.7)	78 (36.3)
SCC	20 (66.7)	10 (33.3)	30 (14.0)
MM	12 (54.5)	10 (45.5)	22 (10.2)
DFSP	7 (58.3)	5 (41.7)	12 (5.6)
BCC	2 (22.2)	7 (77.8)	9 (4.2)
Inflammatory			0
Psoriasis	8 (44.4)	10 (55.6)	18 (8.4)
Lichen planus	5 (41.7)	7 (58.3)	12 (5.6)
Seborrheic diseases	6 (75)	2 (25)	8 (3.7)
Infections			0
Molluscum contagiosum	4 (40)	6 (60)	10 (4.7)
Condyloma accumunatum	3 (37.5)	5 (62.5)	8 (3.7)
Dermatitis herpetiformis	4 (50)	4 (50)	8 (3.7)
Total	97	118	215 (100.0)

KS: Kaposi sarcoma, SCC: Squamous cell carcinoma, MM: Malignant melanoma, DFSP: Dermatofibrosarcoma protuberance, BCC: Basal cell carcinoma

Table 2: Histopathological types of dermatological malignancies (*n*=151)

Histopathological type	Male, *n* (%)	Female, *n* (%)	Total (%)
KS	26 (33.3)	52 (66.7)	78 (51.7)
SCC	20 (66.7)	10 (33.3)	30 (19.9)
MM	12 (54.5)	10 (45.5)	22 (14.6)
DFSP	7 (58.3)	5 (41.7)	12 (7.9)
BCC	2 (22.2)	7 (77.8)	9 (6.0)
Total	67	84	151 (100.0)

KS: Kaposi sarcoma, SCC: Squamous cell carcinoma, MM: Malignant melanoma, DFSP: Dermatofibrosarcoma protuberance, BCC: Basal cell carcinoma

Table 3: The proportion of histological subtypes of dermatological malignancies from various sites of the body (*n*=151)

	KS	SCC	MM	DFSP	BCC	Total (%)
Head/neck	10	4	-	-	-	14 (9.3)
Upper limb	20	2	2	3	-	27 (17.9)
Trunk	12	-	-	4	-	16 (10.6)
Lower limb	26	18	12	5	9	70 (46.4)
Perineum	10	6	8	-	-	24 (15.9)
Total	78	30	22	12	9	151 (100.0)

KS: Kaposi sarcoma, SCC: Squamous cell carcinoma, MM: Malignant melanoma, DFSP: Dermatofibrosarcoma protuberance, BCC: Basal cell carcinoma

Discussion

Dermatological malignancies accounted for 43% of all histopathologically diagnosed skin lesions seen during the studied [Table 1]. This figure is comparable to Caucasian studies in Europe, North America, and Australia, where skin cancer accounts for over half (>50%) of all malignancies, especially those living in sunny tropical climates.[6] Our prevalence is higher than studies in other parts of Nigeria, 6.18% in Jos, but lower than 10% in Calabar, 14% in Lagos, 12.4% in Zaria, and 12.7% in Kano. The higher prevalence in Zaria and Kano may be explained by high environmental temperature and low humidity in these cities.[8]

KS (78, 51.7%) is the most common dermatological malignancy in our center followed by SCC (30, 19.9%) [Tables 1 and 2]. This is in contrast with the reports from the United States and other Western world countries which favor BCC as the most common dermatological cancer.[9] The prevalence of KS in Makurdi, Benue State, Nigeria, is generally on the increase [Table 3]. This is partly attributed to the increased prevalence and incidence of HIV/AIDS-associated KS in Nigeria, Sub-Saharan Africa, and all over the world.[10] High incidence of dermatological malignancies in Caucasian population has been attributed to the lower levels of oncoprotective skin melanin which renders them more vulnerable to carcinogenic solar UV radiation and ozone layer depletion which filters UV radiation.[11]

This study has shown that KS is more often seen in HIV/AIDS patients. Many accumulated evidence indicates that human herpesvirus type 8 is an important cofactor in the pathogenesis of AIDS-associated KS. The virus is reported to be present in >90% of KS lesions.[12] The virus releases cytokines as well as HIV tat protein which contribute to the pathogenesis of KS. Contrary to the fact that KS is seen exclusively in men,

Figure 1: Clinical photograph of Kaposi's sarcoma in a HIV/AIDS patient showing generalized fungating skin nodules over the hand

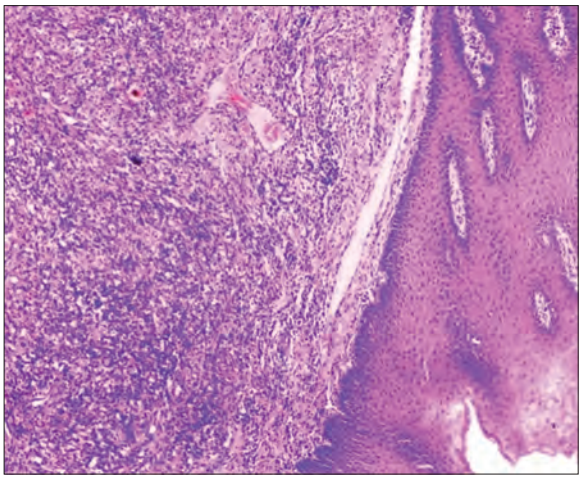

Figure 2: Section of the skin shows a stratified squamous epithelium with a fibrocollagenous stroma within which are seen proliferating plumped spindle cells lined by slit-like vascular channels (H and E, ×20)

we found AIDS-associated KS affecting both sexes and with female preponderance [Tables 1 and 2].

AIDS-associated KS can affect any area of the skin [Figures 1 and 2] as well as the genitourinary area; the most common site in this study was the lower limb, upper limb, trunk, head and neck, and perineum [Table 3]. Involvement of multiple sites was noticed in some patients.[13]

KS can present at any time in HIV infection and generally occurs at CD4 count <200 cell/mm^3 and viral load of >10,000 log RNA copies/ul.[14]

SCC was the second most prevalent malignancy in our locality comprising 10% of skin cancer [Table 2], which is in contrast to a previous study in Tanzania and other African countries that reported SCC as the most common dermatological malignancy as reported by Amir *et al*., Yakubu and Mabogunje, Adayi and Banjo, Mandong *et al*., and Diepgen and Mahler.[15] Many of these studies reported SCC arising from chronic ulcers as a major risk factor.[16] Our finding is in agreement with these findings where about 60% of SCC arose from chronic ulcers from the lower limbs [Table 2].

In general, SCC is the second most common nonmelanoma skin cancer (NMSC) preceded in frequency by BCC. It originates from epidermal keratinocytes or adnexal structures of eccrine glands or pilosebaceous units.[17]

Conventionally, skin cancers have been divided into two major groups: melanoma and NMSC.

SCC is estimated to have a lifetime incidence of 7%–11% in the USA, whereas that of BCC is 28%–33%.[17] In the USA, the average age of onset is the mid-sixth decade, but individual may be as young as 20–30 years of age. The disease has predilection for males, but the incidence of SCC originating on the leg is greater in females. In this study, more males were affected than females [Table 2].

Factors that increase the risk for SCC include UV radiation, lightly pigmented people, exposure to herpes simplex virus types 16, 18, and patients treated with psoralen and UV A for psoriasis.[18]

Other factors include actinic keratosis in transplant recipient patients, possession of human leukocyte antigen, immunosuppressive agents, and inherited conditions such as albinism and xeroderma pigmentation.[19]

Conclusion

Dermatological malignancies, especially KS, are more prevalent in our setting; HIV/AIDS, chronic ulcer, albinism, and burn scars are associated risk factors; and surgeons should always biopsy all suspected lesions.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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