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DERMATOLOGICAL MALIGNANCIES IN KANO, NORTHERN NIGERIA: A HISTOPATHOLOGICAL REVIEW

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Abstract
Background: Globally, dermatological malignancies are among the most common form of cancer but there has been no formal study in our locality.
Method: This is a five year (1998-2002) retrospective review of 125 histologically diagnosed skin malignancies to document the pattern of skin cancer in Kano, the largest city in Northern Nigeria.
Results: Malignant skin tumours comprised 12.7% of all histologically diagnosed cancers. As in other Negroid populations, squamous cell carcinoma was the most common constituting 40%, followed by melanomas comprising 34%. Cutaneous malignancies were most prevalent in the 6th and 7th decades of life and males were slightly preponderant (M: F = 1.2:1). The lower limbs were the most frequent site accounting for 70% of all malignant cutaneous neoplasms.
Conclusion: Our findings were similar to most studies from other parts of Africa but significantly at variance with Caucasian populations in the developed world. Proper wound care, protective footwear and human immunodeficiency virus (HIV) control can substantially reduce the incidence, morbidity and mortality of skin cancer in Kano.

Key words: Skin cancer, squamous cell carcinoma, melanoma

Introduction

Malignant skin tumours are among the most common form of cancer, [1, 2] in fact in White populations it is the commonest malignancy and the incidence is rising. [3, 4] In the last four decades the prevalence of Melanoma in White Americans has increased by over 300%. [4, 5] Among the darker pigmented peoples of the developing world the incidence is much lower. [1, 2, 4]

The major reason for this racial difference in the distribution of skin cancer is the protection from ultra violet radiation provided by melanin in the darker pigmented races. [1 - 3, 6] This racial disparity of skin cancer is not only evident in prevalence but also histological types[2, 7-12]. While Basal cell carcinoma is undisputedly the commonest dermatological malignancy among Caucasians in Europe, North America and Australia, [7, 8] In Africa several studies reveal a preponderance of squamous cell carcinoma. [1, 2, 9-12]

Even among Africans there are significant differences in the pattern of skin cancer. Plantar melanomas are quite common in sub-Saharan Africa but much less common among African-Americans. [4, 5] In Tanzania Kaposi sarcoma is the second commonest dermatological malignancy whereas melanomas are more common in Nigeria. [9, 11-13] Similarly there are notable regional differences in the prevalence of skin malignancies within Nigeria. [11-13] In Jos skin tumours comprised only 6.81% of all cancers while in Maiduguri they accounted for up to 20.9%. [11, 13] Thus it is obvious that skin cancer data from other parts of the country may not reflect the pattern in Kano. Hence it is pertinent to document and evaluate the pattern of malignant cutaneous tumours in Kano, the largest Northern Nigerian city.

Materials and Methods

This is a retrospective study of all histologically diagnosed malignant skin lesions seen over a five year period (1998-2002) at the histopathology laboratories of Aminu Kano Teaching Hospital, Murtala Mohammed Specialist Hospital and National Orthopaedic Hospital, Kano, Nigeria. These hospitals are the only tertiary health institutions offering histopathology services to Kano and the neighbouring Jigawa states.

Histology slides of cases within the study period were reviewed and clinical data (age, sex, and site) obtained from the histopathology request forms/register. All slides had been routinely stained

with haematoxylin/eosin and special stains like Masson-Fontana employed where necessary. In addition, histopathology records of all malignancies during the study period were reviewed to determine the relative frequency of skin cancer.

Results

One hundred and twenty five histologically diagnosed dermatological malignancies were reported during the period under review. This comprised 12.7% of all histologically diagnosed cancers in Kano. Sixty seven (54%) were males and 57 females (M: F=1.2:1)

Table 1 shows the relative frequency and age distribution of the various skin malignancies in Kano. Squamous cell carcinoma was the most common constituting 40% followed by melanoma 34.4% and dermatofibrosarcoma 8.8%. Malignant skin tumours most frequently occurred in the 6th and 7th decades and there were no cases in the first decade of life.

Table 2 shows the site distribution of skin malignancies. The lower limbs were by far the commonest site accounting for over 70%. More than two thirds of our squamous cell carcinomas (34 cases - 68%) were well differentiated tumours secondary to chronic leg ulcers. Over 90% (40 cases) of our melanomas were nodular hyperpigmented plantar tumours and all were >10mm in thickness. Half (5) of the Kaposi sarcomas cases in this series were from human immunodeficiency virus (HIV) positive patients.

Table 1: Relative frequency and age distribution of skin cancer in Kano

Histological type	No.	%	Age (years)					
			11 – 20	21 - 30	31 - 40	41 - 50	51 – 60	>60
Squamous cell carcinoma	50	40.0	2	3	6	12	14	13
Melanoma	43	34.4	-	3	4	7	20	9
Dermatofibrosarcoma	11	8.8	-	1	1	4	3	2
Kaposi sarcoma	10	8.0	1	6	2	1	-	-
Basal cell carcinoma	5	4.0	-	-	-	1	2	2
Others	6	4.8	-	2	2	2	-	-
Total (%)	125	100	3 (2.4)	15 (12.0)	15 (12.0)	26 (20.8)	40 (32.0)	27(21.6)

Table 2: Sex and site distribution of skin cancers in Kano

Histological type	Sex		Site					
	M	F	Lower limb	Scalp	Face	Anogenital region	Trunk	Others
Squamous cell carcinoma	27	23	34	3	6	4	2	2
Melanoma	22	21	40	-	1	-	-	2
Dermatofibrosarcoma	7	4	5	-	-	-	4	2
Kaposi sarcoma	6	4	6	-	-	-	2	2
Basal cell carcinoma	2	3	2	2	2	-	-	-
Others	3	3	2	2	-	-	2	-
Total (%)	67 (54.0)	58 (46.0)	88 (70.4)	6 (4.8)	8 (6.4)	3 (2.4)	10 (8.0)	8 (6.4)

Discussion

Dermatological cancers comprised 12.7% of all malignancies in Kano. This is comparable to 12.3% in Zaria, [14] a neighbouring city but higher than 6.81% in Jos[11] and lower than 20% in Maiduguri. [13] Even with the differing figures from these Nigerian studies, the relative frequency of skin cancer is much lower than in White populations where skin cancer accounts for over half (>50%) of all malignancies especially among those living in sunny tropical/subtropical climates and the incidence continues to rise alarmingly. [1,3,6,15] Lower levels of oncoprotective cutaneous melanin in Caucasians render them more vulnerable to carcinogenic solar ultra violet (UV) radiation particularly from recreational sun exposure, more so with the current depletion of the ozone layer which filters solar UV radiation. [1,3,6,7]

While sun exposure is the major aetiological factor in Whites, chronic ulcers and inflammation appear to be leading risk factor in Blacks. [9-11] Numerous reports from Nigeria and other parts of Africa document squamous cell carcinoma (SCC) secondary to chronic ulcers as the commonest cutaneous malignancy. [9-11] This is consistent with our findings in this review where squamous cell carcinoma was the most common accounting for 40%. SCC is also the commonest dermatological malignancy among Black Americans and interestingly in African Albinos. [13,16,17] It is expected that since sun exposure is the major aetiological

factor in the hypopigmented African Albinos, [1,16,17] the prevalent histological type among them would be as in white folks, basal cell carcinomas (BCC). [2, 7, 8] Perhaps other non-pigment related genetic factors in Africans render us prone to SCC.

BCC comprised only 4% of skin cancers in this review in marked contrast to 70-80% in Whites. [1, 2, 4] Again our findings are comparable to 3.9% in Jos[11], 2% in Zaria[9] and 2% in Maiduguri. [13] Only two (40%) of our five BCCs occurred in the face in contradistinction to Whites among whom the facial BCC constitutes up to 90%.[8]

Melanomas are the most lethal cutaneous malignancy accounting for more than three quarters (79%) of all skin cancer deaths. [2] These highly aggressive tumours were the second most prevalent dermatological malignancy in this study constituting 34% which is comparable to other Nigerian studies[9,11-13] but relatively more than 5-10% in Caucasians. [1,2] It is noteworthy that although Melanomas comprise a relatively large fraction of malignant cutaneous tumours in Negroids, they are in fact 10-20 times more common among the fair skinned Caucasians. [2,4,5]

As in other black populations in Africa and in Diaspora, the sole of the foot was overwhelmingly the commonest site in this study constituting 93%. This plantar predilection of Negroid melanomas has prompted speculation of trauma as an aetiological factor[5, 19] whereas among Whites UV radiation again appears to be the major culprit as the sun exposed parts of the body; head, trunk and legs are the favoured sites. [1,2,4,5] Plantar melanomas are less common in black Americans than in black Africans[4, 5] presumably because the latter that have lower standard of living are less likely to wear protective footwear.

The major prognostic determinant of these deadly neoplasms is the depth of invasion. Melanomas >3.65mm thick have poor prognosis as 60% will develop metastases and die from the disease.[4] Unfortunately due to late presentation all our cases were nodular melanomas more than 1.0cm thick in contrast to Melanomas in White people which are predominantly non-invasive - superficial spreading or lentigo maligna. [4, 5] Thus although melanomas are commoner in Whites the prognosis is poorer in Blacks[18]. A comparative study in South Africa found 20% five year survival for blacks and 42% for Whites. [18]

Kaposi Sarcoma (KS) was the 4th most prevalent skin malignancy in our locality comprising 8% of skin cancer which is lower than 11% in Jos[11] and 16% in Maiduguri. [13] According to the 1999 national HIV sentinel survey, the north central and the north east geographic zones to which Jos and Maiduguri respectively belong have higher HIV infection rates (7.0% and 4.5%) than Kano (3.2%). [20] This may explain our relatively lower rate of Kaposi sarcoma as only half of our cases were HIV positive. In Tanzania where HIV infection rate is even higher, Kaposi sarcoma was the second most common dermatological cancer after squamous cell carcinoma.[10] Similarly in Zimbabwe, there has been a significant rise in skin cancer due to increased number of HIV related Kaposi sarcoma. [21] Thus it is obvious that successful HIV control will go a long way to reduce the incidence of this vascular malignancy.

References

1. Diepgen TL, Mahler V. The epidemiology of skin cancer. Br J Dermatol 2002; 61 (suppl):1-6.
2. Boni R, Schuster C, Nehrhoff B, Burg G. Epidemiology of skin cancer. Neuroendocrinol Lett 2002; 2 (suppl):48-51.
3. Marks R. An overview of skin cancer: Incidence and causation. Cancer 1995; 75 (suppl):607.
4. Sober AJ, Koh HK, Tran NT, Washington CV. Melanomas and other skin cancers. In: Harrison's principles of internal medicine. McGraw Hill, New York. 1998; 543-549.
5. Koh HK. Cutaneous melanoma. N Engl J Med 1991; 325:171.
6. Kricker A, Amstrong BK, English DR. Sun exposure and non-melanocytic skin cancer. Cancer Causes Control 1994; 5:367-392.
7. Urbach F. Incidence of nonmelanoma skin cancer. Dermatol Clin 1991; 9:751-755.
8. Mann CV, Russel RCG. Malignant diseases of the skin. In: Bailey and Love's short practice of surgery. Chapman and Hall, London. 169-182.
9. Yakubu A, Mabogunje A. Skin cancer in Zaria, Nigeria. Trop Doct 1995; 25 (suppl): 63-67.
10. Amir H, Kwesiagbo G, Hirji K. Comparative study of superficial cancer in Tanzania. East Afr Med J 1992; 69: 88-93.
11. Mandong BM, Orkar KS, Sule AZ, Dakum NL. Malignant skin tumours in Jos University Teaching Hospital, Jos, Nigeria (hospital-based study). Nigerian journal of Surgical Research 2000; 3:29-33.
12. Adeyi O, Banjo AA. Malignant tumours of the skin: a six year review of histologically diagnosed cases (1990-1995). Nigerian Quarterly Journal of Hospital Medicine 1996; 2:99-102.
13. Nggada HA, Na'aya HU, Ali N. A histological analysis of malignant tumours of the skin in University of Maiduguri Teaching Hospital, Nigeria. Highland Medical Research Journal 2003; 1:38-40.
14. Rafindadi AH. A study of 1959 solid cancers seen in ABUTH, Zaria 1990-1995. Nigerian Journal of Surgery 1998; 5:45-48.
15. Sitas F, Terblanche M, Madhoo J. Incidence and geographical distribution of histologically diagnosed cancer in South Africa, 1990 and 1991. National Cancer Registry of South of Africa, Johannesburg. 1996; 11-12.
16. Yakubu A, Mabogunje OA. Skin cancer in African albinos. Acta Oncol 1993; 2:621-622.

17. Kromberg JG, Castle D, Zwane EM, Jenkins T. Albinism and skin cancer in southern Africa. Clin Genet 1989; 36:43-52.
18. Rippey JJ, Rippey E. Epidemiology of malignant melanoma of the skin in South Africa. S Afr Med J 1984; 65: 595-598.
19. Edington GM, Gilles HM. Malignant melanoma. In: Pathology in the tropics. Blackwell, London. 1979; 707-709.
20. 1999 HIV/syphilis sentinel seroprevalence survey in Nigeria. National AIDS and STD control programme. Federal Ministry of Health, Abuja. 2000.
21. Watt ST, Siziya S, Chokunonga E. Cancer of the skin in Zimbabwe 1986-1992. Cent Afr J Med 1997; 43:181-184.