

## Original Article

# A histopathological analysis of cutaneous malignancies in a tropical

## African population

<sup>1</sup>M.O.A Samaila and S.A<sup>2</sup>Adewuyi

<sup>1</sup>Departments of Pathology and <sup>2</sup>Radio-oncology Ahmadu Bello University Teaching Hospital,( AB.U.T.H) Zaria-Nigeria

*Request for Reprints to Dr M.O.A Soetan Samaila Department of pathology  
A.B.U.T.H, Zaria Postal code: 810001 Nigeria.*

**Email: mamak97@ yahoo.com**

### Abstract

**Aim:** To establish the prevalence of cutaneous malignancies in Zaria, Northern Nigeria.

**Method:** This is a histopathological analysis of three hundred and eighty two cases of cutaneous malignancies seen and diagnosed in the department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria from January 1991 to December 2000. The specimens were fixed in formalin, processed in paraffin wax and stained with haematoxylin and eosin. The slides were studied and the lesions were characterized.

**Results:** Three hundred and eighty two cutaneous malignancies were analysed. The M: F ratio of all the tumours was 1.9:1.0.

Nonmelanoma skin tumours were the commonest and accounted for 254 (66.8%). They comprised of squamous cell carcinoma 239 (62.9%), basal cell carcinoma 15 (3.9%) and malignant adnexal tumours which were the least common accounting for 2 (0.5%). Sarcomas accounted for 72(18.9%) and kaposi sarcoma 41(10.7%), was the commonest in this group. Malignant melanoma cases were 54 (14.1%). There were two peak age distributions in the 4<sup>th</sup> and 6<sup>th</sup> decades (63.6%) for all tumours. The lower limb was the prevalent site of distribution of all the tumours with sixty five percent cases.

**Conclusion:** Cutaneous malignancies are common in our setting and the commonest was squamous cell carcinoma. Prompt and adequate treatment of chronic leg ulcers and burns injury as well as control of HIV infection should help to reduce the burden of these cancers.

**Key Words:** Cutaneous Malignancy Squamous cell carcinoma Sarcomas

### Introduction

The many different kinds of cells in the skin can give rise to a wide variety of tumours. Genetic and environmental factors may play a role in the development of skin tumours.<sup>2</sup> There is some evidence that the susceptibility of the skin to carcinogenic agents may be genetically determined.<sup>3</sup> The most important environmental cause is exposure of susceptible people to sunlight of the spectrum 290-

330nm, which effect is cumulative.<sup>4</sup> Among Black Africans, however several environmental factors such as burns scars and chronic leg ulcers significantly lead to cancer.<sup>5</sup> More recently immunodeficiency states such as AIDS also have direct association with some types of cutaneous malignancies.<sup>6-8</sup> This is a report on the histopathology of cutaneous malignancies in a tropical African population.

## Materials And Methods

Patients with confirmed histopathological diagnosis of a cutaneous malignancy from the histopathology laboratory of the Department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria between January 1991 and December 2000, were studied. All relevant slides stained with Haematoxylin and Eosin (H&E) were retrieved and reviewed by a Pathologist. Special stains such as Masson Fontana for melanin, Perls' for iron and Periodic Acid Schiff (PAS) for mucin and Reticulin were used when necessary in further characterization of the tumours. Clinical data on age, sex, and anatomic sites were obtained from the accompanying request cards.

The tumours were classified according to the World Health Organization 's classification of skin tumours.<sup>1</sup>

## Results

The 382 cutaneous malignancies studied formed 10.8% of all the 3545 cutaneous neoplasms seen during the ten-year period. The overall M: F ratio of all tumours was 1.9:1.0. (Table I) The 382 tumours were: - Non-melanoma tumours – 256 (67.0%), Sarcomas – 72 (18.9%) and Malignant melanoma –

54 (14.1%). (Fig1) Non-melanoma tumours comprised of the following: Squamous cell carcinoma formed the bulk of the non-melanoma tumours with 239 cases (62.9%). Of these 188 (79%) were well differentiated, 161 (67.4%) had chronic leg ulcers, 46 (19.2%) had burns scars and 32 (13.4%) presented with a fungating tumour. There were two peak age distributions in the 4<sup>th</sup> and 5<sup>th</sup> decades. The lower limb, foot inclusive was the prevalent site of occurrence with 165 (69.0%) cases. Basal cell carcinoma accounted for 15 (3.9%) of non-melanoma tumours and 10 (66.7%) occurred in the face. The malignant adnexal tumours were the least in this group with 2 (0.5%) cases. (Tables II&III) Sarcomas accounted for 72 (18.9%) of the cutaneous malignancies. Kaposi sarcoma was the commonest sarcoma with 41 (56.9%) cases. 23 (56.0%) peaked in the 3<sup>rd</sup> and 4<sup>th</sup> decades. Eighteen of the cases were confirmed HIV positive patients. The remaining patients were not subjected to HIV screening. (Tables II&III). Malignant melanoma accounted for 54 (14.1%). 4 (7.4%) cases were amelanotic and 39 (72.2%) were Clark's levels 3&4 tumours. 18 (33.3%) cases peaked in the 6<sup>th</sup> decade. 43 (79.6%) were prevalent in the foot. (Tables II&III)

Table I: Histological Types And Sex Distribution

Tumour	Male	Female	Total [%]
Squamous cell carcinoma	151	88	239(62.6)
Basal cell carcinoma	10	5	15(3.9)
Sweat gland carcinoma	2	0	2(0.5)
<b>Dermatofibrosarcoma</b>	7	7	14(3.7)
Fibrosarcoma	2	1	3(0.8)
Malignant fibrohistiocyoma	2	0	2(0.5)
Neurofibrosarcoma	1	0	1(0.3)
Liposarcoma	3	3	6(1.6)
Kaposi sarcoma	36	5	41(10.7)
	2	0	2(0.5)
<b>MHEA*</b>			
Angiosarcoma	1	0	1(0.3)
Malignant schwannoma	2	0	2(0.5)
Malignant melanoma	30	24	54(14.1)
<b>TOTAL</b>	<b>249</b>	<b>133</b>	<b>382</b>

\* Malignant Hemangioendothelioma

**Table II: Age distribution**

TUMOUR TYPE	AGE (years)									Total[%]
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	>71	unk	
Squamous cell carcinoma	5	5	30	58	58	37	23	8	15	239 (62.6)
Basal cell carcinoma	0	1	0	1	7	1	3	2	0	15(3.9)
Sweat gland carcinoma	0	0	0	0	1	0	1	0	0	2(0.5)
<i>Dermatofibrosarcoma</i>	1	1	0	5	4	3	0	0	0	14(3.7)
Fibrosarcoma	0	0	1	1	1	0	0	0	0	3(0.8)
Malignant fibrohistiocyoma	0	0	1	1	0	0	0	0	0	2(0.5)
Neurofibrosarcoma	0	0	1	0	0	0	0	0	0	1(0.3)
Liposarcoma	0	0	0	5	0	1	0	0	0	6(1.6)
Kaposi sarcoma	1	2	13	10	7	4	0	1	3	41(10.7)
	0	0	0	2	0	0	0	0	0	2(0.5)
<b>MHEA*</b>										
Angiosarcoma	0	0	1	0	0	0	0	0	0	1(0.3)
Malignant schwannoma	0	0	2	0	0	0	0	0	0	2(0.5)
<b>Malignant melanoma</b>	0	1	4	6	12	18	10	1	2	54(14.1)
<b>TOTAL</b>	<b>7</b>	<b>10</b>	<b>53</b>	<b>89</b>	<b>90</b>	<b>64</b>	<b>37</b>	<b>12</b>	<b>20</b>	<b>382</b>

\*MHEA =Malignant Hemangioendothelioma

**Table III: site distribution**

Tumour Type	Site					Perineum	Genital	Lower limb	Foot	Total[%]
	Face	Scalp	Neck	Trunk	Upper limb					
Squamous cell carcinoma	16	19	0	9	9	15	6	150	15	239(62.6)
Basal cell carcinoma	10	3	0	0	0	1	1	0	0	15(3.9)
Sweat gland carcinoma	0	0	0	2	0	0	0	0	0	2(0.5)
<i>Dermatofibrosarcoma</i>	0	3	0	4	1	0	1	5	0	14(3.7)
Fibrosarcoma	0	3	0	0	0	0	0	0	0	3(0.8)
Malignant fibrohistiocyoma	0	0	0	1	0	0	0	1	0	2(0.5)
Neurofibrosarcoma	0	0	0	0	0	0	0	1	0	1(0.3)
Liposarcoma	0	0	0	2	0	1	0	3	0	6(1.6)
Kaposi sarcoma	0	0	0	10	9	2	0	12	8	41(10.7)
<b>MHEA*</b>										
Angiosarcoma	0	0	1	0	0	0	0	0	0	1(0.3)
Malignant schwannoma	0	0	0	0	0	0	0	2	0	2(0.5)
Malignant melanoma	1	1	0	0	1	1	0	7	43	49(12.8)
<b>TOTAL</b>	<b>27</b>	<b>29</b>	<b>1</b>	<b>28</b>	<b>21</b>	<b>20</b>	<b>8</b>	<b>182</b>	<b>66</b>	<b>382</b>

\*MHEA= Malignant Hemangiendthlioma

## Discussion

Cutaneous malignancies accounted for 10.8% of cutaneous neoplasms seen during the study period in our department. This incidence rate is comparable to the 11.4% recorded by Edington in his cancer survey in the northern savannah of Nigeria; the same geographical setting as this study and to studies done in Jos, Kano, Maiduguri and Ibadan all in Nigeria.<sup>7-12</sup> Buckley reported 6.8% at Ishaka Hospital, Uganda.<sup>13</sup> The prevalence in Nigeria appear relatively high. Squamous cell carcinoma was the commonest cutaneous tumour. Its prevalence in the lower limbs is related to chronic leg ulcers in our mainly rural farming population. Our findings are similar to reports from Nigeria and Tanzania.<sup>8,9,14-16</sup> Malignant melanoma was the second commonest cutaneous tumour in this study. Our findings on melanoma are comparable to studies from Nigeria and other parts of Africa.<sup>8, 14,15,17-24</sup> The anatomical site distribution of melanoma has been useful in understanding its aetiology. In the United States, the rates for invasive melanoma have increased for the trunk among men, and among women in the same analysis, the largest increases were noted for melanoma of the trunk and lower extremities whereas in Canada, the most recent increases in melanoma were observed for the upper limbs, followed by the trunk, for both sexes.<sup>3</sup> Most studies have shown that intermittent sun exposure on unexposed skin is important in the aetiology of melanoma. Gender differences also play a role, because clothing styles have varied by gender over the

years.<sup>3</sup> The prevalence of high Clark's histological grading in the present report can be attributed to late presentation. Kaposi sarcoma comprised 10.7% of the tumours in this report. The 43.9% HIV positivity rate is important as previously reported.<sup>6,16</sup> Basal cell carcinoma is uncommon in Africans because of the protective skin pigmentation from UV radiation.<sup>3, 5</sup> Our findings are comparable to reports from other parts of Nigeria.<sup>8-10, 14</sup> However 22% has been reported from Lagos.<sup>15</sup> The actual incidence rate of basal cell carcinoma worldwide and in Caucasians population in particular is not accurate because most patients are treated in Physician's consulting rooms.<sup>25, 26</sup> Its incidence depends on phenotype and higher UV levels. Malignant skin adnexal tumours are rare in Nigeria and worldwide.<sup>8, 15,27,28</sup> Paties et al in their Clinicopathologic study of apocrine carcinoma of the skin concluded that the most reliable histopathologic criteria for identifying malignant adnexal tumours appear to be decapitation secretion, periodic acid schiff positive, diastase resistant material in the cells or lumen and immunoreactivity with gross cystic disease fluid protein 15.<sup>29</sup> In conclusion, this study has shown that squamous cell carcinoma is the commonest cutaneous malignancy as in other studies done in Nigeria and other parts of Africa. Prompt and adequate treatment of chronic leg ulcers and burns injury as well as control of HIV infection should help to reduce the burden of these cancers

## References:

1. Seldam R.E.J, Helwig E B, Sobin L H, Torloni H In: Histological typing of skin
2. tumours. International Histological Classification of Skin Tumours no 12. World
3. Health Organization, Geneva. 1974: Pp 1-10
4. Rosai J. Skin Tumours and Tumour like conditions In: Ackerman's Surgical Pathology. Mosby Philadelphia.1996; Pp 106-168
5. Sanderson KV. Tumours of the skin In: Textbook of Dermatology. Rook
6. Wilkinson Ebling Blackwell. 1972; Pp 1911-1987.
7. Marks R. Nonmelanotic skin cancer and solar keratosis. Int. J. Dermatol.
8. 1987; 12: 201-205.
9. Feldman S.R, Dempsey J.R, Grummer S. Implication of a utility model for ultraviolet exposure behaviour [Abst]. J.Am. Acad. Dermatol.2001; 45:718-722.
10. Bergfelt L, Larko O, Blohme I. Skin disease in immunosuppressed patients in relation to epidermal Langerhan's cells. Acta.Der.Venereol. Stockh. 1993; 73: 330-334.
11. Edington GM.The pattern of cancer in the Northern Savannah with reference to primary liver cell carcinoma and Burkitts lymphoma. Nigerian Medical Journal1980; 8:281-288.
12. Mandong B.M, Orkar K.S, Sule A.Z, Dakum N.L. Malignant skin tumors in Jos University Teaching Hospital, Jos. Nigeria Journal of Surgical Research. 2001; 3: 29-33.
13. Ochicha O, Edino S.T, Mohammed A.Z, Umar A.B. Dermatological malignancies
14. in Kano, Northern Nigeria: A histopathological review. Annals of African Medicine 2004; 3: 188-191
15. Ngadda H.A, Naacaya H.U,Ali N.A. A histological analysis of malignant tumours of the skin in University of Maiduguri Teaching Hospital,Nigeria. Highland Medical Research Journal 2003; 1:38-40.
16. Rafindadi A.H. A study of 1959 solid cancers seen in ABUTH,Zaria 1990-1995. Nigeria Journal of Surgery. 1998; 5:45-48
17. Edington G.M and MacLean C.M.U: A cancer rate survey in Ibadan, Western

18. Nigeria 1960-1963. *B. J Cancer* 1965; 19:471-481.
19. Buckley R M. Patterns of cancer at Ishaka Hospital in Uganda. *East Afr Med J* 1967; 44: 466-469.
20. 1967; 44: 466-469.
21. Yakubu A, Mabogunje OA. Skin cancer in Zaria, Nigeria. *Trop Doc.*1995;
22. 25 [suppl. 1]: 63-67.
23. Adeyi O, Banjo A. Malignant tumors of the skin: A 6 year review of Histologically diagnosed cases [1990-1995]. Nigeria. *Quarterly Journal of Hospital Medicine.*1998; 8[2]: 99-102.
24. Amir H, Kwesiagbo G, Hirji K. Comparative study of superficial cancer in Tanzania. *East Afr Med J* 1992; 69:88-93.
25. Suseelan A .V and Gupta I.M: Malignant melanoma in Nigeria-Pathological studies. *Afr J Med Sci* 1977; 6:209-213.
26. Mohammed A, Manasseh A N, Mandong B M, Edino S T. Histopathological study of malignant melanoma in highlanders. Nigeria *Journal of Surgical Research* 2003; 5 [1&2]: 18-22.
27. Nggada H A, Olasode B J. Histopathologic review of malignant melanoma in Ile-Ife, Nigeria. *Niger J Med* 2000; 9: 89-91.
28. Onuigbo W B. Malignant melanoma in the igbos of Nigeria. *Br J Plast Surg.* 1975; 28:114-117.
29. 1975; 28:114-117.
30. 51.
31. Kakande I. Malignant melanoma in Kenyatta National Hospital, Nairobi. *East Afr Med J* .1980; 57: 475-483.
32. Afr Med J .1980; 57: 475-483.
33. Igun G.O: Critical decisions in surgical management of malignant melanoma of the foot. *Niger Postgrad Med J*1998; 5: 86-88.
34. the foot. *Niger Postgrad Med J*1998; 5: 86-88.
35. Kaplan I, Youngleson J. Malignant melanoma in the South African Bantus. *Br J Plast Surg.* 1972; 25:65-69.
36. J Plast Surg. 1972; 25:65-69.
37. Desmond R A, Soong S. Epidemiology of malignant melanoma. *Surg Clin Nor Am* 2003; 83: 247-267.
38. Am 2003; 83: 247-267.
39. Jones W O, Harman C R, Ng A K T. Incidence of malignant melanoma in Auckland, New Zealand. Highest rates in the world. *Surg* 1999; 23:732-735.
40. Surg 1999; 23:732-735.
41. Elder D E. Skin Cancer. Melanoma and Other Specific Nonmelanoma Skin Cancers. *Cancer* 1995; 75:245-256.
42. Cancer 1995; 75:245-256.
43. Cooper PH: Carcinoma of sweat glands. *Pathol Annu* 1987; 22[PE 1]: 83-124.
44. Pathol Annu 1987; 22[PE 1]: 83-124.
45. Janota I. Adnexal Skin tumors in Nigeria. *Br. J. Dermatol.* 1967; 79:259-270.
46. Br. J. Dermatol. 1967; 79:259-270.
47. Paties C, Taccagni C I, Papotti M, Valente G, Zangrandi A, Aloisio F. Apocrine carcinoma of the skin. A clinicopathologic, immunocytochemical and ultrastructural study. *Cancer* 1993; 7: 375-381.
48. Cancer 1993; 7: 375-381.
49. 375-381.
50. 375-381.