

## ORIGINAL ARTICLE

## Patterns in Skin Cancers in Tikur Anbessa Hospital

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## ABSTRACT

**Background:** *The ratio of skin cancer in dark skinned population is reported to be 10 - 20 times lower than lighter- skinned populations. The aim of this study was to assess the anatomic distribution and patterns of skin cancers such as Squamous cell carcinoma, Basal cell carcinoma, and cutaneous melanoma in Ethiopians in a teaching hospital.*

**Methods:** *This retrospective study was performed in 1999-2000 for the years 1985-1998 in Tikur Anbessa teaching hospital. Age, sex, site of occurrences as well as histopathological proofs of squamous cell carcinoma, cutaneous melanoma, and basal cell carcinoma were retrieved from the Department's registration books and request forms. The standard haematoxylin and eosin stains were used for the paraffin embedded biopsies. Data were entered, grouped and analyzed by using EPI info version 6 statistical soft-ware package.*

**Results:** *Out of 228 histopathologically proven skin cancers, the mean ages in years were 47.6 (SD=16.7), 52.9(SD=14.0), and 50.6 (SD=17.4) for squamous cell carcinoma, basal cell carcinoma and cutaneous melanoma respectively. As age of patients increased there was slight increase in squamous cell carcinoma and basal cell carcinoma frequencies ( $P>0.05$ ), however, there was no significant age trend association for cutaneous melanoma ( $P>0.05$ ). The over all male to female ratio was 1.6:1. Squamous cell carcinoma was the most commonly diagnosed tumour (55.2%) and the lower limbs were the most common sites (53.2%). Cutaneous melanoma was detected in (67.2%). However, Basal cell carcinoma was most frequently observed on the face region, in 39.5%.*

**Conclusion:** *This study showed that the patterns of skin cancers in our patients are partly different from those in the western world. With the lower limbs being the most common site of skin cancers, further studies need to be undertaken in order to determine some of the predisposing risk factors in our patients.*

**Key words:** *Skin cancer, squamous cell carcinoma, cutaneous melanoma, basal cell carcinoma, histopathology.*

## INTRODUCTION

Skin cancers are the most common malignant tumours in humans (1). SCC arise from the keratin forming cell layer of epidermis whereas CM and BCC arise from

melanocyte and proliferating basal cells of the basal cell layers respectively (2). There has been a world-wide increase in incidence of all forms of skin cancers among whites

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(3). Risk factors for skin cancers in whites include cumulative exposure of sunlight, male sex, older age, a fair complexion and out door occupations (4). Nevertheless, the incidence of skin cancer within African populations remain relatively low. This may be due to melanin protection against ultraviolet rays (5-8). The ratio of skin cancers in dark skinned populations are reported to be 10 to 20 times lower than lighter- skinned populations (4). However, the rate of skin cancer for African blacks despite their pigmented skin, is occasionally reported to be higher than that for Asians (9). The site distribution of different types of skin cancers can be an important source of etiologic clues (10). Head and neck for instance, were the commonest sites of localization for SCC & BCC in whites which may be associated with increased sun- light exposure (11). The diagnosis and management of cutaneous cancers is well within the province of all physicians and these tumours are highly visible, have distinctive physical characteristics and are easily biopsied (12) It was reported that SCC and CM are aggressive and virulent tumours in black patients (5). However, if skin cancers are diagnosed early cure rate for SCC and BCC exceed 95% and 5 year survival rate for early cutaneous melanoma exceeds 80% (12).

Hence, knowledge of the pathology and biologic behaviour of the skin cancers is essential for accurate diagnosis and effective treatment (13). The aim of this study was to describe the distribution patterns of different types of skin cancers diagnosed histopathologically in a teaching hospital, Addis Ababa.

## **MATERIALS AND METHODS**

A retrospective cross sectional study was conducted between 1999-2000 on patient

records of January 1985 and December 1998 within Tikur Anbessa teaching hospital, (Pathology Department, Medical faculty, Addis Ababa University), and the pathology department where nearly four thousand biopsies are diagnosed yearly. All skin biopsies were retrieved from the department's registration books and request forms and the relevant variables of the study such as age, sex, and site of occurrence as well as histopathological proofs of squamous cell carcinoma, Basal cell carcinoma and cutaneous melanoma were included in the study. Twelve cases that did not fulfill more than two variables were excluded from the study which is the usual limitation of such type of studies. Skin tumours other than aforementioned ones and inflammatory skin lesions were also excluded from the study. The 4<sup>th</sup> digit of the code of the international classification of diseases, ninth version (ICD-9) was used to group the body sites into five groups: face, neck and scalp, trunk, upper limbs (which include the shoulders) and the lower limbs (14).

Formalin fixed, and paraffin embedded tissue biopsies were cut to 4mm thickness with a rotary microtome and the flattened out ribbons were put onto slides and stained using the standard haematoxylin and eosin method and finally visualized under light microscopy by certified pathologists. In this study the slides were not reviewed for second opinions.

Data were entered cleaned, processed and analyzed by using EPI Info, version 6 soft- ware statistical package. Descriptive statistics were used to describe the skin cancers distribution by age, sex and sites of cancers and Chi -squares test were used where necessary to compare between groups.



## RESULTS

Of the 1087 skin biopsies performed during the stated period of time, 228 patients with skin cancers were reviewed in this study. The mean ages were 47.6 years for SCC (SD=16.7), 50.6 years for CM (SD=17.9) and 52.9 years for BCC (SD= 14.0). The male to female ratio was 1.6:1 for all tumour types in general and 1.2:1 for BCC, 1.6:1 for SCC and 1.8:1 for CM (Table1). The percentage of patients who were older than 40 years of age were 32/38 (84.2%), for BCC and 86/126 (68.2%) for SCC and 48/64 (75.0%) for CM. As age of patients increased there was an increase in SCC and BCC frequencies ( $p>0.05$ ) and there was no significant age trend association with CM ( $p>0.05$ ) (Table 2). SCC was the most common of all skin cancers encountered 126/228 (55.2%). It was most frequently 67/126 (53.2%) seen in the lower limbs followed by face 19/126 (15.1%) (Table3). BCC was the least common encountered cancer 38/228 (16.7%), and was seen most frequently on the face in 15/38 (39.5%), with the other cases distributed fairly evenly between the remaining sites of the body. BCC to SCC ratio was (38/126) 1:3.3. CM was registered in 64/228 (28.1%) of all skin cancers and the lower limbs (feet) were responsible for 43/64 (67.2%) of these

cases followed by roughly equal distributions to the rest of the body. The lower limbs were the most frequent site of all types of skin cancers 114/228 (50.0%), followed by the face region 42/228 (18.4%). The upper limbs were more commonly affected by SCC 15/21 (71.4%) than the other two types of skin cancers (Table3).

**Table 1.** Distribution of skin cancers by sex. Tikur Anbessa Hospital, 1999-2000.

Type of skin ca	M (n)	F (n)	Total (n)	%
SCC	79	47	126	55.2
CM	41	23	64	28.1
BCC	21	17	38	16.7
TOTAL	141	87	228	100

Ca = cancer, SCC = Squamous cell carcinoma, CM= Cutaneous melanoma, BCC= Basal cell carcinoma

**Table 2.** Diagnosis of skin cancers by age: Tikur Anbessa Hospital, 1999-2000.

Age (year)	SCC n (%)	CM n (%)	BCC n (%)	Total n (%)
<20	6(60)	4(40)	0 (0)	10 (100)
20-29	10 (77)	2(15)	1(8)	13 (100)
30-39	18(54.5)	10(30.3)	5(15.2)	33(100)
40-49	22(56.4)	11(28.2)	6(15.4)	39(100)
50-59	32(53.3)	18(30.0)	10(16.7)	60(100)
>60	38(52.1)	19(26.0)	16(21.9)	73(100)

Abbreviations as in table 1,  $P=0.77$ ,  $\chi^2=6$

**Table 3.** Diagnoses of skin cancers by site of origin: Tikur Anbessa Hospital, 1999-2000.

	SCC n (%)	CM n (%)	BCC n (%)	Total n (%)
Face	19(45.2)	8(19.0)	15(35.7)	42 (100)
Neck and scalp	16(59.3)	4(14.8)	7(25.9)	27(100)
Trunk	9(39.1)	6(26.1)	9(39.1)	23(100)
Lower limbs	67(58.8)	43(37.7)	4(3.5)	114(100)
Upper Limbs	15(71.4)	3(14.3)	3(14.3)	21(100)
Total	126	64	38	228

Abbreviations as in table 1.



## DISCUSSION

The incidence of malignant skin tumours is higher in Caucasians than in blacks because melanin by absorbing ultraviolet radiation prevents sunburn and cancer formation. Basal cell carcinoma is extremely rare in blacks, malignant melanoma uncommon and squamous cell carcinoma not infrequent (7). In this study, the age distribution for BCC was older than that for patients with SCC and CM. It was found that 84.2%, 68.2%, and 75.0% of patients with BCC, SCC and CM respectively were older than 40 years of age. Although, the average life expectancy in Ethiopia is 46 years of age most of these skin cancers were observed in our older (>40 years) populations. Similarly Smooller *et al* (15) stated that cutaneous malignancies were reported to be the most common tumours seen in the elderly populations. Other studies conducted elsewhere revealed the preponderance of skin cancers particularly SCC and BCC in the elderly patients (9,16-18). SCC and BCC frequencies increased as age of patients increased, however, CM did not show such trends with age. Similarly it was reported that SCC and BCC, like most malignancies, increase in incidences with increasing age (3,19). The M:F sex ratio for all types of skin cancer was 1.6:1, which was consistent with other studies (13, 15, 20). In this study males were more commonly affected with SCC than females (1.6:1) and Franceis *et al* (10) reported similar findings. SCC was the most common skin cancer encountered; Fleming (5) and Halder (21) disclosed that skin cancers are rare in blacks and SCC was the most common skin cancer encountered in blacks and similar reports were also surfaced in Africa and elsewhere in Africa (7, 18, 22). However, the most

common cancer differed in whites in whom BCC was the most common variety (11). SCC was most commonly seen in lower extremities which was consistent with reports by Yakubu- A (18) in Zaria (Nigeria) and Lindtjorn (23) from Sidamo, stating that SCC was the most frequently seen cancer in the lower limbs. However, in whites SCC was most consistently reported in the head and neck region due to cumulative sun light exposure (11). BCC was the least commonly diagnosed cancer and was most frequently noticed in the face region. BCC was similarly reported to be the least common of the three skin cancers in blacks as reported in various literatures (18,23). However, anatomic distribution for BCC is similar to that seen in whites (11,18). The BCC: SCC ratio was 1:3.3 which is the converse to that reported in whites (20). Cutaneous melanoma is the second most common diagnosed skin cancer of the three and it was most frequently encountered in the feet. Makoto-s and *et al* reported from Japan that the incidence and sites of occurrences of cutaneous melanomas vary profoundly among different racial groups. Among Japanese patients sites of occurrences are the hands and the feet while in Caucasians melanomas occur on the trunk and the face however, in blacks melanomas occur on the plantar surfaces. Similar studies in blacks (5,21,23) disclosed the predilection of melanomas to lower limbs. About one half of all skin cancers in this study were encountered in the lower limbs and this may be ascribed to chronic trauma and scar formations as reported by Lindtjorn (23) and Yakubu (18) in African studies.

In summary, in this study, the lower limbs were found to be the most common site for SCC and CM but the least favoured site for BCC. The upper part of the body



(the face region) was the most consistent focus for BCC and it was the second most frequent site for SCC and CM. The upper extremities were predominantly affected by SCC which accounted for about three-quarters of all skin cancers registered on the site. The trunk skin surfaces were generally much less favoured sites for skin cancers.

In conclusion, these findings suggest that clinico-pathologic patterns of skin cancers in our patients differ partly from those in white patients. With the lower extremities being the most frequent sites for skin cancers, further studies need to be undertaken in order to determine some of the predisposing risk factors in generating these skin cancers in our patients.

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