Original Article

CLINICOPATHOLOGICAL ANALYSIS OF BASAL CELL CARCINOMA OF THE SKIN IN A NIGERIAN TERTIARY HEALTH CENTER

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Abstract

Background: Basal cell carcinoma (BCC) is the most common skin cancer worldwide representing 70–80% of skin cancers in white populations. However, in sub-Saharan Africa, squamous cell carcinoma takes predominance over basal cell carcinoma as reported by many workers. This study aims at analyzing the prevalence and clinicopathological profile of basal cell carcinoma as well as the socio-demographic characteristics of the patients in a sub-Saharan country. **Materials and Methodology:** A retrospective and descriptive analyses of all skin biopsies specimen received in the Histopathology department of National Hospital Abuja from January 2004 to December 2019 were carried out. Patients' data were retrieved from the departmental register and slides reviewed as appropriate. **Result:** A total of 400 malignant cutaneous neoplasms were diagnosed in the department within the 15-year period. During this time, basal cell carcinoma accounted for 215 cases (52.9 %) of all cutaneous malignancies. A significant portion of the cases (N=58, 27%) were albinos. Males accounted for 113 cases (50.8%) whilst females are 102 in number (49.2%) given a slight male preponderance. The most affected age cohort is the 31 – 45 group with 78 cases (63.9%). The commonest site is the head and neck region with 136 (63.2%) cases. Histologically the predominant subtype of BCC in this study is the keratotic variant (N=41, 19.1%) followed by the sclerosing (N=35, 16.3%) subtype. **Conclusion:** The incidence of basal cell carcinoma in NHA is higher than in other centers of the country possibly due to large population of albinos attending the NHA. The commonest histological variant is the keratotic subtype

Keyword: Basal cell carcinoma, Clinicopathological profile, Patients' demographics.

INTRODUCTION

Basal cell carcinoma (BCC) is the most common skin cancer worldwide accounting for 70–80% of skin cancers.[1] Furthermore, mounting epidemiological evidences from numerous centers worldwide suggest BCC incidence is on the rise by about 3 to 10% annually. [2] BCC is a non-melanocytic skin malignancy (NMSC) arising from basal cells of the epidermis or follicular structures and is seen mostly on sun-exposed areas, especially head and neck, occasionally over the trunk and limbs, and rarely on the palms, soles, mucous membranes, and genitals. [2,3]

BCC incidence rate is difficult to estimate especially in low- and medium-income countries (LMIC) due to poor registration practice, as many centers do not record incidence or just register the first case of BCC, or lumped BCC cases under 'NMSC'. [4-8] BCC incidence is reported to be higher in men than in women, and in the year 2000 the world standardized incidence was 93.9/100,000 person-year in men and 77.4/100,000 person-year in women. [9,10]

A recent estimate of BCC incidence for Australia (2011–2014) from a population-based cohort stated annual incidence of BCC to be 770 per 100,000 (656 per 100,000 in women and 899 per 100,000 in men). [11] Furthermore in both sexes, over 50% of BCCs occur on head and neck (mostly the face, especially eyelid, lip and nasolabial fold, followed by ears, nose and cheek), [12] approximately 25% on the trunk and approximately 10% each on the upper and lower limbs. [13]

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Studies conducted in sub-Saharan Africa reported that squamous cell carcinoma was the most common malignancy followed by Kaposi sarcoma. The largest review reported SCC and KS to constitute 44% and 25% respectively of the cutaneous malignancies and BCC's only 7%. [14,16] The epidemiology and distribution of BCC may validate the perception that risk factors of basal cell carcinoma include racial and geographic disposition as well as environmental factors like solar and artificial UV radiation, arsenic ingestion, smoking, alcohol, diet, and viruses. [16]

This study reviewed the clinicopathological profile of basal cell carcinoma, based on the anatomical location, sex, age and other demographics of the study participants. The finding could enrich the data on BCC in developing countries.

MATERIALS AND METHODOLOGY

This is a retrospective and descriptive analyses of all incisional or excisional skin samples diagnosed as BCC between January 2004 to December 2019 in the department of histopathology National Hospital Abuja (NHA). Data were exported from the department software in comma separated value (CSV) format. The data analyzed demographics and other clinico-pathological characteristics as quantitative and qualitative variables.

All patients were characterized according to their age, sex, and tumour location. Anatomical regions of the body were classified into four categories viz: head and neck, upper limb, trunk and lower limb, for comparative purposes. Skin area were also divided into several topographic areas, including mandible, arm, face, elbow, thigh, neck, leg, shoulder, ear, lip, abdomen, back, nose, and chest.

Data is presented as charts and frequency distribution generated for all categorical variables and mean and standard deviation were determined for quantitative variables. Inferential statistics (Chi-square test, fisher exact test) were applied between demographics, clinical features and tumour location. P-value of less than 0.05 was considered statistically significant. SPSS version 23.0 (Chicago IL) for windows; for statistical analyses was used.

RESULTS

A total of 400 malignant cutaneous neoplasms were diagnosed in the department within the 15-year period. Basal cell carcinoma accounted for 215 cases (including 58 albinos) representing 54% of all cutaneous malignancies. The age range of affected patients is 13 to 76 years with a mean of 36.73 and standard deviation of 12.484. There are 113 male and 102 females giving a M:F ratio of 1.1:1. The most affected age cohort is the 31 – 45 group followed by the 16 – 30-year group. The least affected age group is above 75 years cohort. This is depicted in Figure 1 below.

The predominantly affected region of the body is the head and neck accounting for 142 cases followed by trunk, upper and lower limbs with 47, 11 and 7 cases respectively. Majority of the head and neck lesions are located in the face (N=56, 36.8%) followed by the eyelid (N=12, 7.8%) and the neck, scalp and temple with 11 cases each.

Most of the truncal lesions were located in the upper shoulder (N = 16), the back (N=13) and chest (N=6) while exhibiting an overall male preponderance (M:F 1.6:1). Seven cases presented with multiple

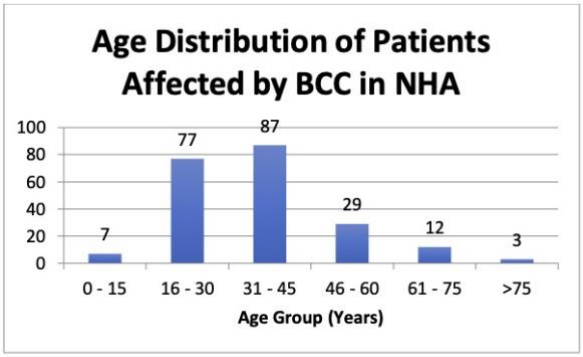

Figure 1: Chart showing the age distribution of patients affected by BCC in NHA during the study period.

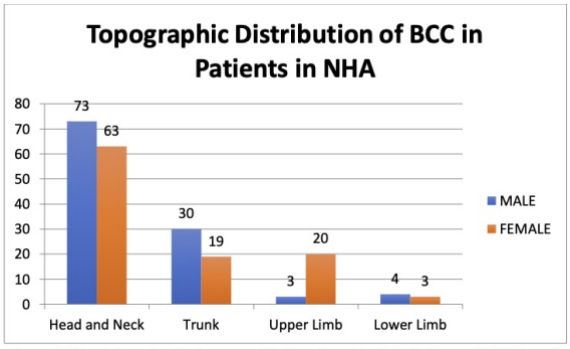

Figure 2: Chart showing the topographical and gender distribution of BCC in patients in NHA during the study period.

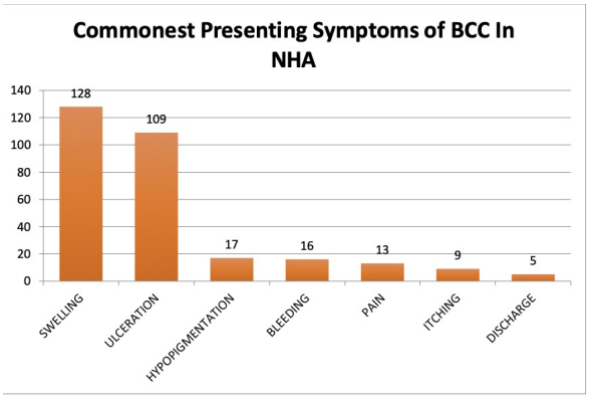

Figure 3: Chart showing the commonest symptoms of BCC encountered in NHA.

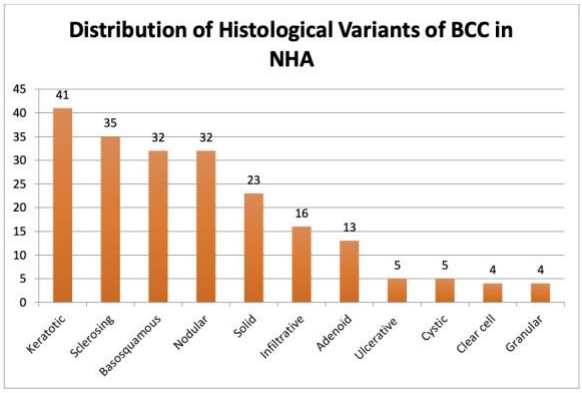

Figure 4: Chart showing the frequencies of the various histological variants of BCC encountered.

affected regions. This is shown in figure 2 below. A male preponderance is noted in the frequency of tumour in all the regions of the body. The upper limb located tumours, however show a distinct female predomination (F:M 6:1) considered statistically significant (X^2= 10.51753281 and P= 0.0011). 2 cases were found in the vulva in 70- and 50-year-old females while a single case was detected in the parotid gland of a 53-year-old female.

The commonest presenting symptoms and signs recorded were swelling and ulceration accounting for 43.5% and 37.1% respectively. Other symptoms included hypopigmentation, bleeding, pain, itching and hyperpigmentation in descending frequency as depicted in figure 3.

The major histological variant of basal cell carcinoma encountered is the keratotic subtype with 41 (19.1%) cases. Other variants seen were the sclerosing (16.3%), basosquamous (14.9%), nodular (14.9%), solid (10.7%) and adenoid (6.0%). This is depicted in figure 3 below. Other histological types encountered albeit in smaller quantities are the granular, (4) pigmented (2) and pleomorphic (2) variants with singular cases each of fibroepitheliomatous, infundibulocystic and morpheic types. A significant male predominance is noted in the keratotic variant while female predominate in the basosquamous subtype.

DISCUSSION

Basal cell carcinoma accounted for 54% of all cutaneous malignancies studied in the National Hospital Abuja (NHA), Nigeria from January 2004 to December 2019; this being in marked contrast to 70-80% reported in Whites. [17-19] Furthermore, this result is significantly higher than the percentages reported from Kano [20] Jos [21], Benin [22], with 4%, 3.9%, 10%, as well as 2% and 4.9% in Maiduguri [23] and Calabar [24] respectively. This may be attributable to various factors principal of which might be the fact that the NHA attends to most of the typically high-risk albinos than all the other centers. Numerous studies suggest basal cell carcinomas and other skin malignancies are commoner in albinos than in the general population. [25,26] Other plausible reasons for the sharp contrast may be the NHA been a referral center and an apex hospital receiving complicated samples from the peripheral sites including most of the aforementioned centers. Also, the availability of radiotherapy for treatment of these conditions in NHA may contribute to the larger frequency of this malignant neoplasm in the center.

The average age of the studied population was approximately 36 years and this is slightly younger than findings from the southern part of the country. [24] This may be a pointer to the role of environmental factors in initiating the lesion earlier in the Sahelian north as against the tropical south.

The occurrence of cutaneous malignancies in black patients is relatively infrequent, with BCC being particularly uncommon. [24,26] The major reason for this racial difference in the distribution of skin cancer is the protection from UV radiation provided by melanin in the darker races. [20]

Majority of the cases of basal cell carcinoma were located on the head and neck in this study, which is in concordance with findings from studies in Portugal, Jordan. [29,30] Few cases, considered rare sites in the literature were accosted in this study - 2 cases in the vulva involving 50- and 70-year-old females and 1 case in the parotid gland of a 53-year-old female.

The sex distribution of BCC in our study shows only a slight male preponderance (50.8 to 49.2%). Findings from this study tallies with reports from Australia, where the sex distribution is similar to this study. [31,32] However reports from Punjab in India suggest a significant female predominance of basal cell carcinoma with about 64%. [33] On the other hand, Weshah, et. al.[30], opined that men have greater risk of developing BCC, since they are involved more in outdoor activities and jobs with chronic prolonged exposure to sunlight. The reason for this variation was attributed to the evidence ascribed, that female patients tend to wear clothes that cover the head, face and most parts of the body; according to religious and traditional beliefs. [30]

The biological behavior of the tumour quite often influences treatment decisions and certain histological variants of BCC are known to be aggressive and exhibit higher recurrence. Determination of the histological subtype of BCC contributes immensely to the knowledge of prognosis, biological behavior and even therapy of the disease. [34] The infiltrative, basosquamous, sclerotic and micronodular are traditionally reported to be more aggressive than the other histologic subtypes and associated with more frequent recurrence. [35] Furthermore the basosquamous variant which in our study is commoner in females is reported to have higher metastatic potential (conventionally metastasis is a rare phenomenon in BCC) [36] whilst the infiltrative variant has reportedly been associated with perineurial and endoneurial invasion. Some studies suggest the biopsy technique used (punch or shave) does not confer any

differential advantage in determining the subtype [37]. Other studies however emphasize the superiority of the punch biopsy over the shave. The relative incidence of the subtypes as demonstrated by different studies. Metastasis in BCC when they do occur are said to be commonly associated with tumours with perineural spread and those located on sun-protected skin. [38] Tumours of the ear were reported to be more aggressive than tumours of other parts of the head and neck region. [39] while tumours of the nasolabial fold, postauricular region and inner canthus are reported to be more associated with recurrence than other sites. This was attributed to their highly infiltrative pattern and the short resection margins. [40,41]

CONCLUSION

Based on the evidence provided from this study on diagnosis of BCC we conclude that BCC is fairly prevalent Limitations

This study considered only tumours that were biopsied and sent for histopathological investigations and therefore excludes BCC tumours that were diagnosed by means other than biopsies. The study may therefore under-represent cases of basal cell carcinoma encountered in the hospital. Furthermore, this study did not discriminate between the incidences of BCC in albinos as compared to the general population and therefore cannot demonstrate a higher occurrence of BCC in albinos – although albinos are acknowledged to have a higher predisposition for BCC in other studies. [25,26]

Limitations of the Study

Based on the evidence provided from this study on diagnosis of BCC we conclude that BCC is fairly prevalent, in NHA than most of the other centers in the country possibly due to a larger albino population attending NHA on referral.

Furthermore, the study shows BCC is commonly located in the head and neck region of the body in NHA and shows only slight male preponderance.

Conflict of Interest

Nil

Disclosure

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