Original Article

Demographic and Clinicopathological Characteristics of Head Basal Cell Carcinoma: A Retrospective Study

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Abstract

Background: Basal cell carcinoma is the common type of skin malignancies. The global annual incidence is 2.75 million cases. Ultraviolet light is one of the main risk factors. Basal cell carcinoma appears in multiple clinical and microscopic presentations and could affect any site. The head region is reported as a common area involved. Surgical intervention is the most common approach for treatment.

Objective: The objective of this study is to assess the demographic and clinicopathological characteristics of head basal cell carcinoma cases.

Methods: Pathological reports were reviewed to confirming diagnoses of Basal cell carcinoma in the head region from 2013 to 2023 at Al-Wasity Teaching Hospital, Iraq. From each report, clinicopathological features were recorded. The microscope slides of each case were examined to verify the diagnosis.

Results: The total cases were 209 (Female: 108 and male: 98) with no significant difference between both sexes. 56.5 years was the mean age. Half of the cases were found in patients aged between 50 and 70 years. The nose appeared on the top site involved. The nodular subtype accounted for 77% of the cases.

Conclusion: Basal cell carcinoma incidence did not differ between males and females, and increasing age was associated with the risk of developing the cancer. The nasal area was the most common site affected. The nodular subtype was the most prevalent subtype, which leads to a prediction of a good prognosis after treatment. A large survey covering all Iraqi governorates is needed to highlight the incidence, prevalence of basal cell carcinoma.

Keywords: Basal cell carcinoma, skin cancer, Iraq.

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Introduction

Basal cell carcinoma (BCC) is the common form of skin malignancies. Skin cancer is classified into two categories: melanoma and non-melanoma. Non-melanoma skin cancers include BCC and squamous cell carcinoma (SCC). BCC accounts for almost two-thirds of all non-melanoma skin malignancies.[1] Globally, there are 2.75 million cases of BCC reported annually. The annual incidence of BCC is consistently rising by 10%, which can be attributed to increase in outdoor activities and sun exposure, shifts in clothes preferences, and advances in methods for detecting skin cancers.[2] BCC is a multifactorial condition influenced by both hereditary and environmental factors. Multiple risk factors have been found for basal cell carcinoma. Exposure to ultraviolet light (UV), particularly UVB, is one of the primary risk factors. Therefore, the probability of getting basal cell carcinoma is elevated with greater exposure to sunlight. Additional risk factors encompass UV irradiation for cosmetic purposes, ionizing radiation, inherited diseases, and immunosuppression.[3] BCC usually develops from the deepest layers of the epidermis or arises from the outer root sheath of the pilosebaceous unit. It is a slow-growing, non-aggressive tumor and rarely shows metastasis, the risk of metastasis increases when there is perineural and vascular invasion. Its adverse significance stems from the

high relapse rate and its typical diagnosis in the head and neck area.[4] BCC appears in multiple clinical and microscopic presentations. It is classified based on microscopic features, which include nodular (the most common), cystic, micronodular, infiltrating, superficial, morphoeiform (sclerosing), adenoid, and basosquamous. BCC can affect any site on the skin. The head region reported as a common area involved with BCC.[5] Surgical intervention is the most common effective approach for BCC treatment.[6] No previous study in Iraq deals with BCC in head region, therefore, the objective of present study is to assess the demographic and clinicopathological features of head BCC cases among Iraqi patients.

Methods

The current study was a retrospective study conducted between December 2023 and March 2024. The ethics committee at Dijhla University College approved the study (Ref: 96, 1-11-2023) in accordance with ethical standards. The study design relied on prior research.

For this study, we gathered and reviewed pathology reports confirming diagnoses of BCC in the head region from 2013 to 2023 at Al-Wasity Teaching Hospital, Ministry of Health, Iraq.

The inclusion criteria included each BCC case diagnosed in the head region and its microscopic slide being available. The omitted cases were BCC cases diagnosed in sites other than the head region, recurrent cases, and cases where the relevant microscopic slide or paraffin-embedded block was not available.

From each report, the age, sex, site, and histological subtype of BCC were recorded. Hematoxylin and eosin microscope slides of each BCC case were examined to review microscopic images of BCC and verify the diagnosis.

Table 1: *The clinicopathological features of basal cell carcinoma.*

Variables		
Sex [a]		**P -value** *
Male	98, 47.6	0.486
Female	108, 52.4	
Age		
Min - Max	10 – 86	
Mean ± Standard deviation (Total)	56.53 ± 15.393	
Mean ± Standard deviation (Male)	56.91 ±14.504	
Mean ± Standard deviation (Female)	56.19 ± 16.216	
Age Groups [a]		**P -value** *
< 50	60, 29.1	
50 -70	112, 54.4	**< 0.001**
> 70	34, 16.5	
Anatomic Locations [a]		**P -value** *
Cheek	31,15.0	
Chin	3,1.5	
Ear	7, 3.4	
Eye	48, 23.3	
Forehead	8, 3.9	**< 0.001**
Lower Lip	3, 1.5	
Nose	82, 39.8	
Scalp	11, 5.3	
Temporal Region	4, 1.9	
Upper Lip	9, 4.4	
Histopathological Subtypes [a]		**P -value** *
Pigmentated	3, 1.5	
Adenoid	3, 1.5	
Basosquamous	22, 10.7	
Infiltrative	6, 2.9	**< 0.001**
Micronodular	11, 5.3	
Nodular	159, 77.2	
Superficial	2, 1.0	

a: frequency, percentage
*:bold font indicates significant by chi square test at $p < 0.05$

Results

The statistical analysis comprises both descriptive and inferential analysis. The descriptive analysis involves the calculation of frequency and percentage as well as mean and standard deviation. The Chi square test was used to determine the difference between the variables. The significance level was set at $p < 0.05$.

The total BCC cases were 209 cases (Female: 108 and male: 98). However, female was more than male, the significant difference was absent between both sexes. The mean age of BCC patients was 56.5 years. The age was classified into three groups (< 50, 50 -70, and > 70). Half of the cases (54.4%) were found in patients aged between 50 and 70 years. According to the anatomical site, the

difference was significant, and the nose appeared on the top site involved with BCC followed by eye and check regions. The chin and lower lip were the least effected sites. The nodular subtype accounted for 77% of the cases followed by basosquamous subtype (10.7%). The least microscopic subtype was superficial (1.0%). Table 1 represents the clinicopathological features of basal cell carcinoma and figure 1 showed the anatomical distribution of basal cell carcinoma subtypes.

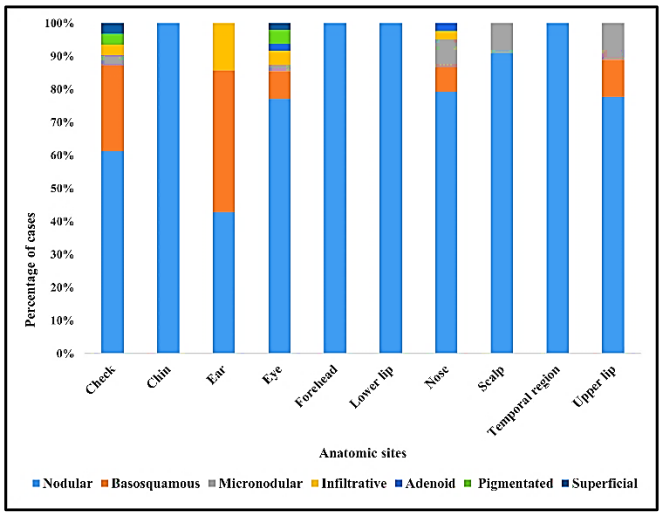

Figure 1: *Basal cell carcinoma subtypes distribution along head anatomical sites.*

Discussion

The present study showed no significant difference between males and females regarding BCC. This result agrees with previous studies conducted in Iraq,[7] China,[8] Bosnia and Herzegovina [9], and Singapore.[10] Several studies reported that men suffer from BCC more than women.[11] The discrepancy in results between the current study and previous investigations may be attributed to the diversity in the geographical environment and the rising number of female patients seeking medical care. Women exhibit a greater interest in their physical appearance compared to men, the growing utilization of tanning beds that emit UV, and men with suspected BCC may delay seeking a physician [12] may be contributing factors to the increase in occurrences of BCC among women, which could surpass the incidence of BCC among men.[13]

In the present study, 54.4% of BCC cases occurred in individuals aged between 50 and 70 years. Additionally, the mean age of BCC patients was estimated to be 56 ± 15.393 years. This result is consistent with the research conducted by Hossein and his colleagues, who determined that the mean age of Iranian BCC patients was 56 ± 8.871 years.[14] The current findings support that advancing age is associated with a decrease in the effectiveness of the immune response and the ability to repair genetic material.[15]

The nose, among all head subregions, appeared to be highly involved, with BCC at 39.8%, followed by the eye region at 23.3%, and the cheek at 15.0%. Most previous studies conducted in Iraq and worldwide also found that the central face, represented by the nose, eye, and cheek, were common sites for BCC.[7,9,16] Bartoš and Milada (2016) reported that the midface region received the highest sunlight exposure compared to other body regions.[15c]

The nodular microscopic subtype accounted for more than two-thirds of BCC cases (77.2%) in the present study. Several studies have confirmed this finding, indicating that the most common histological subtype of BCC among the studied samples is nodular.[9,14,17] BCC with the superficial subtype had the lowest frequency in the studied cases. The percentage of superficial subtypes varied between previous studies. Emina and his team found that the superficial subtype was the second most common type of BCC,[9] whereas a study conducted in India revealed that the number of superficial BCC cases was higher than that of the nodular type.[18] The explanation for the low frequency of superficial BCC cases in the current study is that it focused on BCC cases in the head region, where the superficial type of BCC is less predominan.t.[19] The primary limitation of this study was that it was conducted within a single institution and relied solely on pathological reports. Despite this, it represents the pioneering research in Iraq focusing specifically on BCC in the head and maxillofacial region. To gain a comprehensive understanding of BCC incidence and prevalence in the head region, a large nationwide survey is required.

Conclusion

The incidence of BCC in the head region did not differ between males and females, and increasing age was associated with a higher risk of developing BCC. The nasal area was the most common site affected by BCC. The nodular subtype was the most prevalent among BCC subtypes, which leads to a prediction of a good prognosis after treatment. A large survey covering all Iraqi governorates is needed to highlight the incidence, prevalence, and clinicopathological characteristics of BCC in the head region.

Ethical Approval: The ethics committee at Dijhla University College approved the study (Ref: 96, 1-11-2023).

Conflict of Interest: There was no conflict of interest to be declared by any author.

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Author's Contribution

MA: Conception & design, analysis & interpretation of data, drafting of article, critical revision for important intellectual content, final approval.

SMK: Conception & design, critical revision for important intellectual content, final approval.

MWAK: Critical revision for important intellectual content, final approval.

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