



Histopathological Study of BCC in Rizgari Teaching Hospital

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Abstract

This study include (66) case of Basal cell carcinoma (BCC). The age of the patients ranged from (21 – 80) year. The highest percentage of patients was seen related to the age group (61 – 70) year. The total male to female ratio was 1.1:1. The most common histological type was the solid and the most common site of occurrence was the nose. No significant difference was found between site distribution and sex of the patients. The percentage of cases with apparent palisading pattern was (83.1%) and mostly seen related to the solid type. Significant difference was found between peripheral palisading pattern and histological types of BCC. Most cases showed apparent inflammatory reaction, no pigmentation, and involved margin by tumor cells. No significant difference was found between inflammatory reaction, presence of pigmentation, involvement of surgical margins, and histological types of BCC.

Key wards: Skin cancer, BCC.

Introduction

BCC is an epithelial tumor of the skin that usually arises from basal cells of the surface epidermis. The tumor arises in consequence to an impaired ability of basal cells to mature and keratinize, a defect that prevents the cells from being shed by the normal process of keratinization ^(1,2,3,4,5). In general, it is true that the likelihood of BCC occurrence appears to be directly proportionate to the sun light exposure of the skin and generally inversely proportionate to the degree of pigmentation of the skin. Persons who occupationally or otherwise were exposed to greater amounts of sun shine are more prone to develop BCC. Dark skinned persons, or those avoiding sunlight were significantly less prone to develop this tumor ⁽⁶⁾.

Since the carcinogenic action of environmental carcinogens both physical and chemical becomes manifest only upon repeated chronic exposures, it is not surprising to find BCC to be more predominant in older persons, as in the case with most cancers. There was a slight preponderance of men developing this tumor than women, with a male to female ratio of 3:2, presumably due to greater outdoor exposures of men ⁽³⁾.

BCC might cause significant morbidity if allowed to progress. Loss of vision or orbital involvement might occur, perineural spread could result in loss of nerve function, as well as much deeper and extensive invasion of the tumor occurred. Death due to BCC is extremely rare. There was a 50% recurrence rate after treatment of tumors, treated inadequately in the first

instance. Tumor locations, histological type, and the tumor size were the factors that play an important role of recurrence rate^(7,8,9,10).

This study is established to find the most common affected age group, male to female ratio, histological types, site distribution, and discuss the multiple histological parameters like the presence of palisading pattern within the tumor masses, the presence of inflammatory reaction, pigmentation and the involvement of the surgical margins by tumor cells in all histological types of BCC.

Materials and methods

The materials for this study include (66) specimen of BCC received in the Department of Histopathology at Rizgari Teaching Hospital in Erbil city. The materials received were either incision or excisional biopsies under either local or general anesthesia. The materials were already fixed in 10% formalin accompanied by clinical data in a special form which include the information like: Laboratory serial number, patient name, age, sex, site, clinical diagnosis, and date of taking the biopsy. The material was processed, embedded in paraffin, sectioned, and stained by the hematoxylin and eosin. The histological pictures were sub-typed into: Solid, cystic, adenoid, morpheaform, multifocal, and basosquamous⁽¹¹⁾. The head region was divided into five anatomical areas as seen in figure – 1⁽¹²⁾.

Results

The samples included in this study were (66) cases of BCC, among them one case of BCC was found on the back, and excluded from the study, and (65) cases were involved the head region. The ages of the patients were

ranged from (21-80) year, they were (34) males (52.3%), and (31) females (47.7%), the mean age was (61.4) years. The highest percentage of patients was seen related to the age group (61-70) year (37%), followed by the age group (51-60) year (24.7 %), and the least percentage of patients was seen related to the age group (21-30) year (1.5%). The total male to female ratio was 1.1:1. The highest number (31) case of (47.7%), was seen related to the solid type, followed by adenoid type (11) case of (17%), followed by cystic, multifocal, and basosquamous types (6) cases of (9.2%), and finally the morpheaform type (5) cases of (7.7%).

The highest percentage of cases involved the male was seen in the nose (18.5%), followed by cheek (15.3%), forehead and eye (9.2%), upper and lower lips (6.2%), and finally the scalp and ear (3.1%). The highest percentage of cases involved the females were seen in the nose (24.7%), followed by forehead and eye (12.2%), cheek (6.2%), upper and lower lips (3.1%), and finally the scalp and ear (1.5%) as seen in table – 1. Chi – square test showed non significant difference between site distribution and sex of the patients at level of significance (1%).

The highest percentage of cases involved the scalp, ear, and retroauricular region were seen within the age group (61-70) year with (3.1%). The highest percentage of cases involved the forehead and eye were seen within the age group (51-60) year with (6.1%). The highest percentage of cases involved the nose were seen within the age group (61-70) year with (21.4%). The highest percentage of cases involved the lips and angles of the mouth were seen within each of the age group (41-50) year and (71-80) year with (3.1%). And finally, the highest percentage of cases involved the cheek were seen

within the age group (61-70) year with (7.7%) as seen in table –2.

The number and percentage of apparent palisading arrangement were higher than that of the non – apparent in all histological types, except the morpheaform type which showed one case only (1.5%) with apparent peripheral palisading pattern, and four cases (6.1%) without apparent peripheral palisading pattern. The highest percentage of palisading arrangement were seen related to the solid type (figure – 2). Chi – square test showed significant difference between peripheral palisading pattern and histological types of BCC at level of significance (1%).

The number and percentage of cases with apparent inflammatory reaction were higher than that with non apparent inflammatory reaction in all histological types except the morpheaform type which showed only one case (1.5%) with apparent inflammatory reaction and four cases (6.1%) without apparent inflammatory reaction. The highest percentage of cases with inflammatory reaction (40%) seen related to the solid type (figure –3). Chi – square test showed non significant difference between the presence of inflammatory reaction and histological types of BCC at level of significance (1%).

The number and percentage of non pigmented cases were higher than that of the pigmented cases in all histological types. There were five cases (7.7%) of solid type and two cases (3.1%) for each of adenoid and basosquamous types were pigmented. All the cases of cystic, morpheaform, and multifocal showed no pigmentation (figure – 4). Chi – square test showed non significant difference between the presence of pigmentation and histological types of BCC at level of significance (1%).

The most cases of solid, cystic, and adenoid types had highest number of cases with free margins of tumor cells, while the morpheaform and basosquamous types had highest number of cases with involved margins by tumor cells. The multifocal type had equal number for each of cases with free and involved margins (figure –5). Chi – square test showed non significant difference between the involvement of the surgical margins and histological types of BCC at level of significance (1%).

Discussion

Epidemiological studies had demonstrated that the incidence of skin cancer had been increasing rapidly over the last decades, The increase in the incidence of BCCs might be due to real increase in incidence rate, increased rates of diagnosis, or improved efficiency of registration ⁽¹³⁾.

This study showed that from (65) cases, (34) case (52.3%) were males, and (31) cases (47.7%) were females, giving the M:F ratio of 1.1:1. The ratio varies from country to another and there is a slight male predominance in all these studies. This comes in disagreement with some authors ^(12,14,15,16) in which they found the incidence of BCCs was higher in women. This might be due to actinic rays exposure because of outdoor occupations of the females.

The average age of BCC occurrence in a study ⁽¹⁷⁾ was (51) year and the age range from (24 – 84) year. Other study found ⁽¹²⁾ that the mean age of the patients with BCC was (59.5) year for both sexes. All these studies come in agreement with our study which reveals that the BCC occur mainly in older people and this can be attributed to increase exposure to sun light as the age increased.

The results showed that the solid type was the most common histological type and forming (47.7%). In some studies ⁽²⁾ the nodular or noduloulcerative type form about (60%) of cases while other ⁽³⁾ found that the nodular type accounts for more than (70%) of histological types and nests of basaloid cells in different sizes are present and the tumor cells show peripheral palisading.

The most common site involved in this study was the nose (43.2%), followed by the forehead, eye (21.5%), and cheek (21.5%), upper and lower lips (9.2%), and lastly the scalp, ear and retroauricular region (4.6%). This result come in agreement with the results of some authors ⁽¹⁷⁾. They found that the central area of the face are mostly affected by BCC. A study ⁽¹³⁾ found that the most skin cancers were appear on the face (67%) in men, and (54%) in women, and cancer of the leg was the next most common site in women (25%), and that of the ear in men (15%). Other study ⁽³⁾ found that solar radiation exposure is the most important etiological factor in the genesis of BCC and most commonly arises in lower eyelid (48.9 – 72.1%), followed by medial canthus (9.62 – 27.6%), the upper eyelid, and the lateral canthus, while other study ⁽¹⁸⁾ found that the most common sites of BCC were the nose (mostly the base of it), orbital area (mostly the medial quadrant of the orbit), and lastly the ear (mostly the retroauricular fold), and there were no correlation between prominent UV– exposed facial contours and particular histological type. Several studies on the site distribution of BCCs ^(19,20,21) showed some variation among the site distribution, however, they all agree with our findings in that the head and neck are the commonest sites of this type of cancer.

The highest percentage of cases of BCCs (83.1%) showed apparent palisading pattern and (16.9%) had no apparent palisading pattern. The highest percentage (43%) was seen related to solid type, and all cases of adenoid showing palisading pattern. A study ⁽¹²⁾ reported that regular and apparent peripheral palisading was observed with high frequency in the nodular histological subtype. However, it was the least so in the infiltrative variety. Other studies ⁽²²⁾ had correlated this association with aggression of the latter.

The results showed that (86%) of cases had no pigmentation, and (13.9%) of cases had pigmentation. All the cases of cystic, multifocal, and morpheaform showed no pigmentation. The melanin pigmentation was seen in (7.7%) of solid type which was higher than that in any other subtype. A study ⁽¹²⁾ found that there was a significant association present between palisading arrangement, melanin pigmentation and nodular variety, while others found the pigmentation of BCC do not seem to have any relation to the color of the skin nor to the tumor behavior ⁽¹¹⁾. According to an electron microscopic study, the presence of melanin is due to the presence of melanocytes and melanin containing macrophages within the tumor stroma. This is due to the fact that melanocytes are not only confined to the surface epithelium, but also in hair matrix.

The results also showed that (73.8%) of cases had inflammatory reaction and (26.2%) of cases are without inflammatory reaction. The solid type showed the highest percentage (40%) of cases with inflammatory reaction. A study ⁽²³⁾ found that many primary cutaneous carcinoma are accompanied by a cellular infiltrate which is accepted as evidence of a host tumor immunological response and many

investigators had confirmed that the infiltrate surrounding BCC consists predominantly of T lymphocytes, this suggest that an immune mechanism is acting to control tumor proliferation. Others ⁽²⁴⁾ found that small, well localized tumors were associated with a high T cell level and a moderate to heavy infiltrate.

On the other hand, large deeply invasive tumors were associated with low T cell levels and an absence of infiltrate; they suggested that depressed cellular immunity would create condition favoring more aggressive growth and invasion of BCC. A study ⁽¹⁷⁾ found a defect in cellular immunity may contribute to the development of large BCC and their potential to metastasize.

The percentage of free margins was (49.2%) and involved margins by tumor cells were (50.8%). All cases of morpheaform type have involved margin and most cases of basosquamous type have involved margin. From (25) case of BCC, eight cases extended to the margin of the specimen, and (41%) of these incompletely excised BCCs (positive margin) recurred after a mean follow up period of two years ⁽¹⁷⁾. Other ⁽²⁴⁾ reported that the morpheaform and infiltrative subtypes are more aggressive in nature with higher recurrence rate. They comprise approximately (10%) of BCC, they showed highest rates of recurrence and positive margins after excision.

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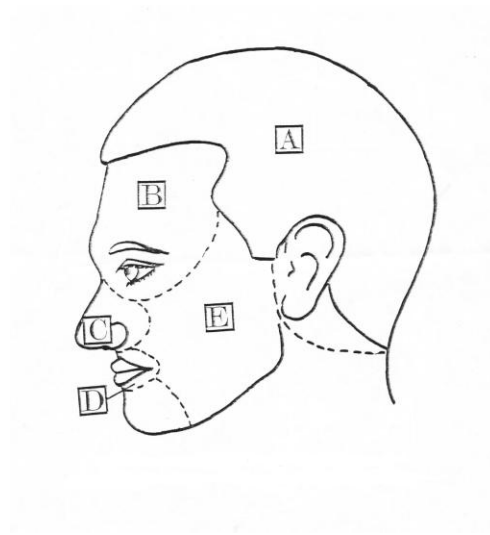


Figure – 1: The five anatomical areas for the site distribution of BCC within the head region.

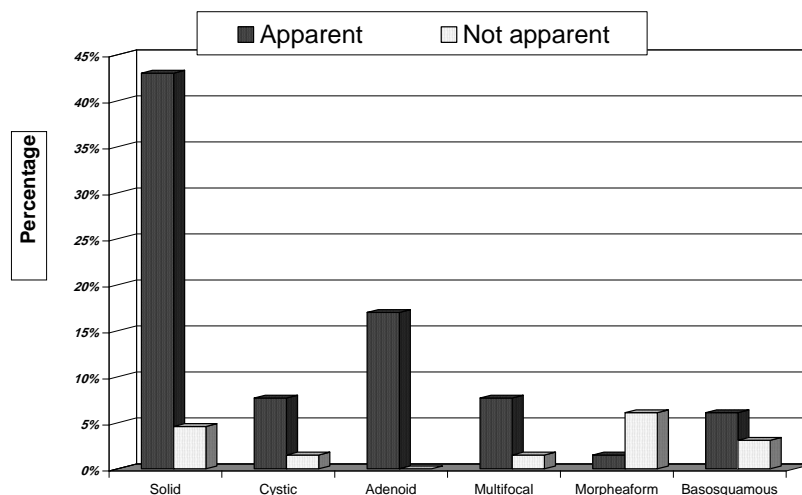


Figure - 2: Percentage of peripheral palisading pattern.

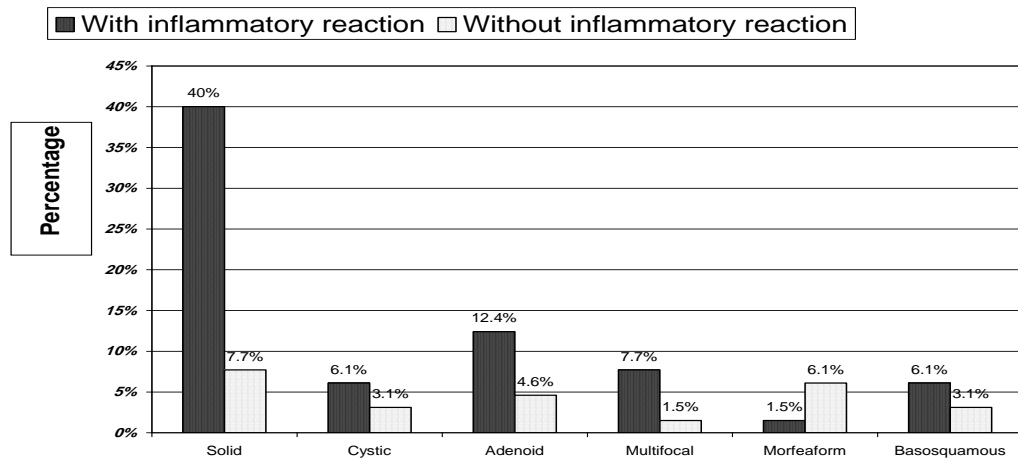


Figure - 3: The percentage of the inflammatory reaction.

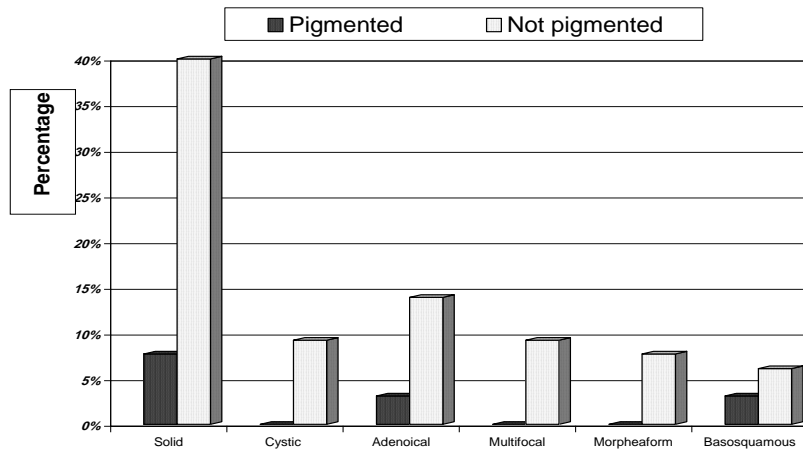


Figure - 4: The percentage of pigmentation.

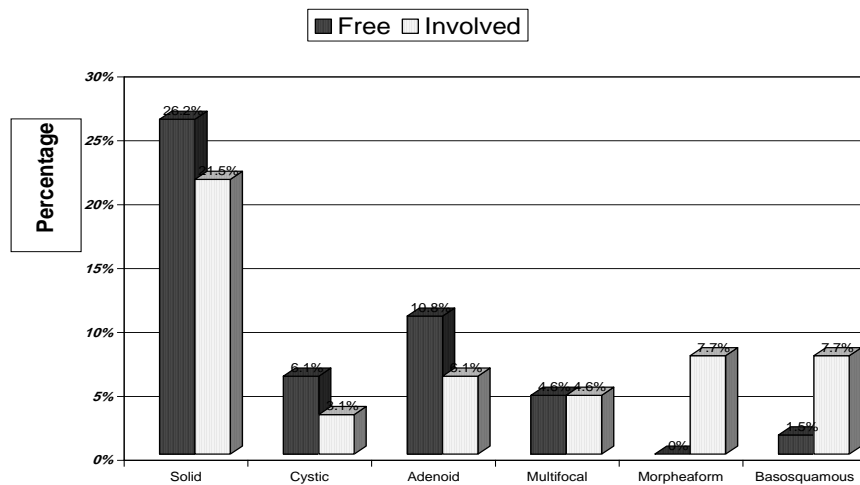


Figure - 5: The percentage of surgical margins involvement.

Table – 1: Site distribution in each sex.

Site	Male		Female		Total		MF
	No.	%	No.	%	No.	%	
A	2	3.1	1	1.5	3	4.6	2:1
B	6	9.2	8	12.2	14	21.5	0.75:1
C	12	18.5	16	24.7	28	43.2	0.75:1
D	4	6.2	2	3.1	6	9.2	2:1
E	10	15.3	4	6.2	14	21.5	2.5:1
Total	34	52.3	31	47.7	65	100	1.1:1

Table – 2: Site distribution in each age group.

Age group	A		B		C		D		E		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
21 -30	0	0	1	1.5	0	0	0	0	0	0	1	1.5
31 -40	0	0	1	1.5	1	1.5	1	1.5	2	3.1	5	7.7
41 -50	0	0	3	4.6	4	4.6	2	3.1	3	4.6	12	18.5
51– 60	0	0	4	6.1	9	13.8	0	0	3	4.6	16	24.6
61 - 70	2	3.1	2	3.1	14	21.4	1	1.5	5	7.7	24	37
71 - 80	1	1.5	3	4.6	0	0	2	3.1	1	1.5	7	10.8
Total	3	4.6	14	21.5	28	41.3	6	9.2	14	21.5	65	100