Original paper

Histopathologic Study for Skin Basal Cell Carcinoma

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Abstract

Background: Basal cell carcinoma (BCC) is the most common Worldwide cutaneous cancer; approximately 75% of all skin cancers. It arises from the basal cells of the epidermis and pilosebaceous units. It has a long evolution, slow growth rate with up to 70% of primary BCCs occurring in head or neck region. Although it rarely results in death or metastatic disease, BCC can cause significant morbidity due to destructive local spread.

Aims of the study: To determine the frequency of various histopathologic types of BCCs encountered in practice, to delineate the spectrum in setup, anatomical location, site predilection, and annual age and sex incidence each year.

Materials and Methods: The analysis included two hundreds and five cases of skin tumors, 88 cases were basal cell carcinoma from Department of Histopathology, Al Hussain Medical City/ Karbala. The study was retrospective and done during the period of January 2012 to June 2016. After careful review of the Hematoxylin and Eosin (H and E) stained sections, statistical analyses were done.

Results: Out of (205 cases of skin tumors) only 88 were of BCC and accounted for 42.92% of all the malignant tumors of skin. majority (87.51.%) of the lesions of BCC were located on head and neck region, solid nodular type was most common histopathologic type and average age of cases was 64 5years.

Conclusion: In the present study majority (87.51.%) of the lesions of BCC were located on head and neck region, average age of cases of basal cell carcinoma was 64.5years, and solid nodular type of BCC was most common type.

Keywords: Skin, basal cell carcinoma, histopathological subtype; nodular solid.

Introduction

Skin cancers are now much more common than cancers in the location of another organ or tissue [(1)].

They are generally classified into malignant melanoma and a collection of non-melanoma skin cancers (NMSC), including squamous cell carcinoma (SCC) and basal cell carcinoma (BCC). NMSC tend to be less aggressive and are rarely lethal [(2)].

Basal cell carcinoma (BCC) is the most common Worldwide cutaneous cancer; approximately 65 to 75% of all skin cancers [(3)].

It arises from the basal cells of the epidermis and pilosebaceous units. It has a long evolution, slow growth rate [(3)], with up to 70% of primary BCCs occurring in head or neck region [(3)].

Although it rarely results in death or metastatic disease, BCC can cause significant morbidity due to destructive local spread. [(3,4)]

Synonyms; Basal cell epithelioma, trichoblastic carcinoma and rodent ulcers [(4)].

Global studies showed a marked geographic variability in the incidence of NMSC, mostly bcc [(5)]. It has been attributed to be most prevalent cancer type among white-skinned populations worldwide [(6,7)].

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In Iraq, according to Iraqi cancer registry, NMSC cancer accounts for about 2.59% of all cancer cases [9]; bcc represents about 53.2% of all skin cancers [10].

Thus, skin cancer incidence varies according to the geographic areas, these epidemiological differences being largely attributable to the different customs prevailing in each region, above all with respect to the prevalence of known risk factors [8].

Histopathology

BCCs can be classified into two broad categories on the basis of histopathologic features: indolent-growth and aggressive-growth subtypes [13].

Indolent-growth subtypes include nodular and superficial, corresponding to the clinical nodular and superficial subtypes, respectively. Aggressive-growth subtypes, which have a higher recurrence rate and tend to cause extensive local destruction, include morpheaform, infiltrative, micronodular, and basosquamous [14].

Pathogenesis

The vast majority of BCCs occur sporadically, but there is one rare heritable disorder in which patients have a marked susceptibility to developing BCCs. This is basal-cell nevus syndrome (BCNS, also known as Gorlin's syndrome or nevoid basal-cell carcinoma syndrome (NBCCS) is an autosomal dominant disorder that manifests as multiple BCCs, pits of the palms and soles, jaw keratocysts, various other tumors, and developmental abnormalities [15].

Subsequently, loss of heterozygosity in the same region was discovered to be important for the pathogenesis of sporadic BCCs [15]. This pattern was consistent with the gene being a tumor suppressor.

Material and methods

The study samples included eighty eight formalin – fixed, paraffin – embedded tissue blocks, which have been diagnosed as basal cell carcinoma (BCC) dated from (January, 2012 till June, 2016).

The study samples were obtained from the archives of the department of Histopathology in Al-Hussien Medical city /Kerbala and private laboratories. Data were translated into a computerized database structure. An expert statistical advice was sought for. Statistical analyses were done using SPSS version 20 computer software (Statistical Package for Social Sciences) in association with Microsoft excel 2010.

Results

The results presented in this study were based on the analysis of 88 cases diagnosed histopathologically as BCC and accounted for 42.92% among 205 malignant tumors of skin belonged to the age group of 6th to 8th decades. Table (1) showed the relative frequency of different site wise distribution of BCC for each sample, (87.51%) % of cases of BCC were located on head and neck region and majority were seen in the nose which was the most frequent topographical region affected by the basal cell carcinoma.

The histopathological evaluation was obtained after a critical review of the Hematoxylin and Eosin (H & E) stained sections of all specimens by two expert pathologists. In the present study we study BCC cases with specific histopathological sub types as: solid subtype (fig.1), however, all subtypes of BCC share in common the presence of aggregations of basaloid keratinocytes which resemble the basal keratinocytes of normal epidermis and are characterized by intensely basophilic (blue-staining), large, relatively uniform nuclei with peripheral palisading, and scant cytoplasm. In many cases, artefactual retraction of the stroma around tumor islands creates microscopically visible clefts. As shown in the chart (fig.2) of histological types frequent, solid variant of BCC was the commonest (41%) histological type. Figure 3 shows distribution of BCC on years of study. As shown in this table & fig, the numbers of

BCC cases were up going in relation to different variables as sex, age, topographic site.

Although, in 2015 was the largest percentage (26.13%) but 2016 considered also elevated percentage in which (21.61%) was counted just in the first six months of the year .

According to chi-square test, the results of this study in BCC cases showed statistically non-significant correlation regarding BCC subtypes frequency in relation to the age (p-value =0.655), sex (p-value=2.966), tumor site (p-value =4.7).

Table 1. Site wise distribution of basal cell carcinoma

Site	Number of cases	Percentage
Head and neck(Eye lid)	10	11.36
Nose	28	31.81
Forehead	12	13.63
Cheek	5	5.68
Ear front	4	4.54
Scalp	1 4	15.95
Post auricular	4	4.54
Trunk	7	7.95
Limb	4	4.54
Total	88	100

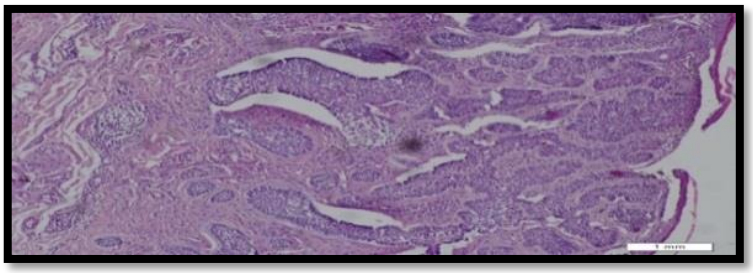

Figure 1. Basal Cell Carcinoma. Solid Circumscribed. Tumor masses of various sizes and shapes embedded in the dermis. The peripheral cell layer of the tumor masses often shows a palisade arrangement. 100x,H&E.

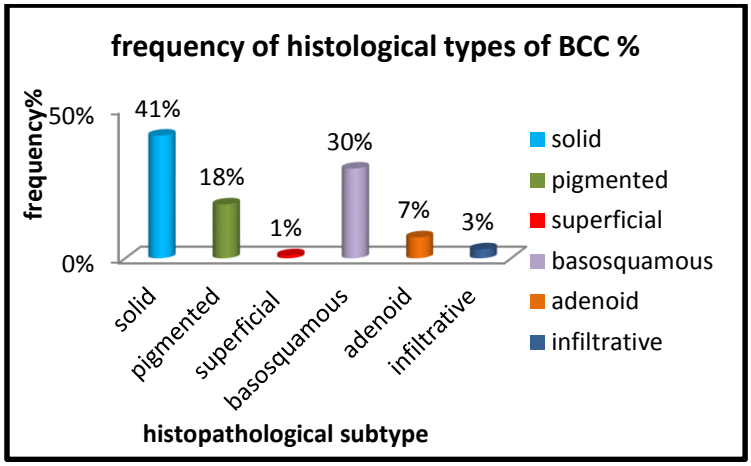

Figure 2. Histological types of basal cell carcinoma.

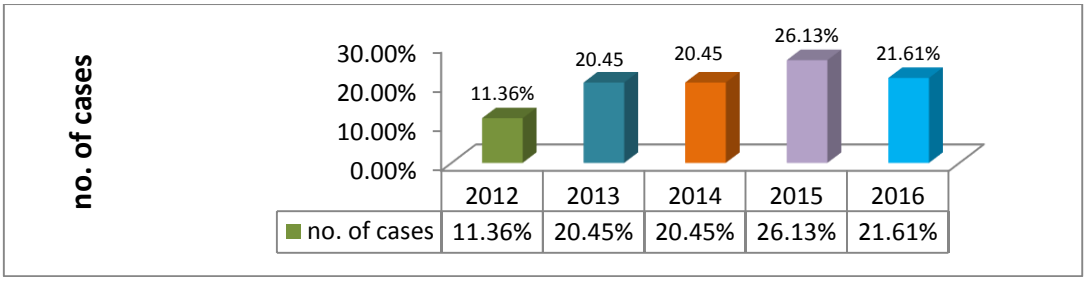

Figure 3. Distribution of bcc on years of study

Discussion

BCCs constitute a small but significant proportion of patients with cancer. The diagnosis of BCCs presents unique difficulties, in part, related to the wide variety of tumors and the complicated nomenclature. Histopathological study is one of the most valuable means of diagnosis in dermatopathology

Regarding the frequency of occurrence of BCC with respect to malignancies of skin, we found that 42.92% of all the malignant tumors of skin were BCC. Our findings are comparable to Gundalli et al [15].

Evaluation of tumor anatomical distribution in our series revealed that the head and neck (87.51%) were the most frequent sites of tumor occurrence in both sexes, which is similar to the observations of Gundalli et al [15] (85%) .

We demonstrated that men may have a higher incidence of BCCs than women with1.15:1 male to female ratio, as supported by some previous studies [16]. However some studies have shown no significant gender difference in the BCC rates [16]. This may be due to the difference of sun exposure in men and women in different geographical areas according to the job status, clothing style (veil) in our region and other religious customs [17].

Our study results showed different patterns of age-related incidence rates for BCC.

The mean age was (64.5 years) and this finding was comparable to others [11]. In contrast; Yap [17] reported that lesions of BCC may typically arise in younger patients and are more common in men than women.

According to our findings, solid form was the most frequent subtype, with 41% of all BCCs, followed by basosquamous type (29.5%), pigmented type (18.3%) and superficial type (1.1%). Nodular BCC as the most frequent subtype of BCC was in accordance with previous studies. [15-16,18]

The rate was lower than as seen in previous reports, where nodular BCCs comprised between 60% and 70% of all BCCs [16]. In contrast with other studies where superficial BCC comprised a higher frequency (9.0% to 17.5%) of tumors [4] it was not as common among our population and accounted for only 1.1% of our series.

It is mostly related to difficulty in making rigorous comparisons between published studies, mainly because of the variety of definitions of subtypes from one study to another.

Also, variations in inclusion criteria may likely be accounted for a part of the difference in distribution of BCC subtypes as observed in the literature.

Regarding basosquamous type BCCs; our findings revealed that most of the basosquamous subtype has a nodular component by exploring the pathologic features and considering it a mixed type BCC. This is logical, as nodular BCC is the most common subtype of BCC [12].

According to literature, basosquamous and infiltrative types of BCC are considered aggressive forms of the tumor [19], so this study supports previous findings [4, 18]. But it was in contrast with some others [19].

Further, recent studies suggest that BCC is not a single entity. It has been hypothesized that BCC occurring at certain body sites or

that BCC of a particular histopathological subtype may define certain clinical behavior and may even have a different pathogenesis.(11)

Finally the quintessence of the subject of study of basal cell carcinomas is its vastness, its enormity and its interesting histomorphology.

Conclusion

In the present study majority (87.51.%) of the lesions of BCC were located on head and neck region, and average age of cases of basal cell carcinoma was 64.5years with male to female ratio was (1.1: 1).

- The most frequent topographical region affected by the basal cell carcinoma was the nose (31.81%).
- Latitude and the resulting sun exposure along with the regional clothing style may be some of the major causes which contribute in the histological heterogeneity of the lesions; the most frequent histological subtype diagnosed in basal cell carcinoma was nodular type (44.6%).

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