Research Article

Basal cell carcinoma: Histopathological spectrum at a tertiary care center

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ABSTRACT

Background: Histologically, various subtypes of basal cell carcinoma (BCC) have been described which include superficial, nodular, keratotic, basosquamous, adenoid, cystic, and morpheiform. **Objectives:** The objectives of this study were as follows: (1) To find out the histological types of BCC prevalent in our population and (2) to study the clinical profile of these patients regarding age, sex, location, and clinical diagnosis. **Materials and Methods:** A 3-year retrospective study was carried out in the histopathology section of a tertiary care teaching hospital. The clinical data pertaining to the cases were compiled and studied. H and E stained slides were reviewed and some were recategorized according to the WHO classification. The results were analyzed using descriptive statistics. **Results:** Of a total of 67 skin tumors, 34 were malignant. Of these, BCC comprised 44.1% (15 cases). The most common location of BCC was the face (53.3% of the cases). The average age of the patients was 54.5 years. Histological types included nodular, adenoid, infiltrative, nodulocystic, basosquamous, keratotic, superficial, and BCC with adnexal differentiation. Nodular BCC was the most commonly encountered type in our setting, followed by adenoid BCC. Clinical diagnosis correlated with histopathologic findings in 33.3% of cases. **Conclusion:** This study highlights the morphological spectrum of BCC in our population and emphasizes the role of histopathological examination to prevent misdiagnosis of these tumors.

KEY WORDS: Basal cell carcinoma; Variants; Histopathology

INTRODUCTION

Basal cell carcinoma (BCC) has been defined as a group of malignant cutaneous tumors characterized by the presence of lobules, columns, bands, or cords of basaloid cells.[1] Considered the most common skin malignancy, the incidence in Asian and African people is much lower than in the Caucasian population.[2,3] Clinical types of BCC include noduloulcerative, pigmented, morphea-like or fibrosing BCC, superficial (multifocal), and fibroepithelioma of Pinkus.[4] Histologically, various subtypes have been described which include superficial, nodular, keratotic, basosquamous, adenoid, cystic, and morpheiform. Nodular BCCs occur at a later age than superficial BCCs and they are more common on the head while the most common location for superficial tumors is the trunk.[1] Our study was undertaken to find out the histological types of BCC prevalent in our population and also to find the clinical profile of these patients regarding age, sex, location, and clinical diagnosis.

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MATERIALS AND METHODS

A 3-year retrospective study was carried out in the histopathology section of a tertiary care teaching hospital in Northeast India. All histologically confirmed cases of BCC were included in the study. The clinical data pertaining to the cases were compiled and studied. H and E stained slides were reviewed and some were recategorized according to the WHO classification. Since it was a retrospective study from archival data, ethical clearance was not needed. The results were analyzed using descriptive statistics.

RESULTS

Of a total of 67 skin tumors diagnosed during this period, 34 were malignant. Of these, BCC comprised 44.1% (15 cases). The most common location of BCC was the face (53.3% of the cases). Other sites of occurrence included leg, back, occipital region, presternal region, and also the vulva. 10 cases occurred in male patients and the remaining five were female. The average age of the patients was 54.5 years. Histological types included nodular, adenoid, infiltrative, nodulocystic, basosquamous, keratotic, superficial, and BCC with adnexal differentiation. Nodular BCC was the most commonly encountered type in our setting, followed by adenoid BCC. Five of the variants were pigmented. Clinical diagnosis correlated with histopathologic findings in 33.3% of cases while the rest were diagnosed clinically as melanomas, ulcers, squamous cell carcinomas, nevi, and even as sebaceous horn [Figures 1-4].

DISCUSSION

In our study, BCC comprised 44.1% of skin malignancies. Metib and Aboud found BCC to comprise 42.92% of skin malignancies while in the study by Gundalli *et al*. it comprised 26.25% of skin cancers.[5,6] Head and neck was the most common site of occurrence, comprising 60% of the tumors. Head and neck has been described as the most common location in various other studies.[5-7]

BCCs have been seen to occur typically in adults though cases in children have also been reported. Older men have reported a higher incidence of BCC than women.[1] In our study, the average age of the patients was 54.5 years, 66.6% of the cases occurring in males with a male:female ratio of 2:1. Metib and Aboud[5] found the average age to be 64.5 years which is comparable to our study. Studies by Yaldýz *et al*.,[8] Bastiaens *et al.,*[9] and Raasch *et al*.[10] reported the percentage of male patients as 62.8%, 54%, and 58.6%, respectively. Our study also reported a higher occurrence rate of BCC in male patients as compared to females.

The most common manifestation of BCC is nodular, consisting of papules or nodules with telangiectasias and sometimes central ulcerations. The other common clinical manifestation is a superficial form with well-circumscribed erythematous macules and a fine filamentous pearl rim.

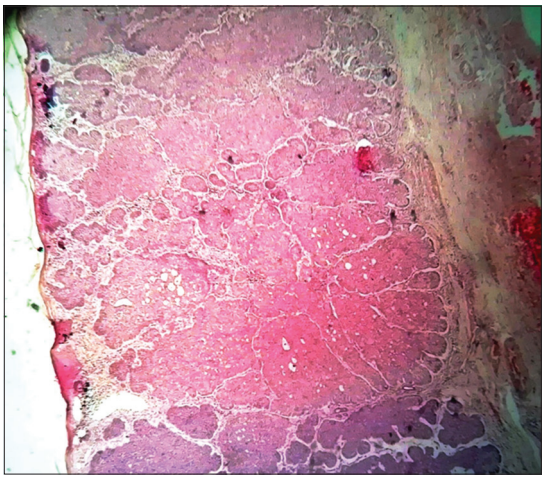

Figure 1: Basal cell carcinoma nodular type H and E, ×10

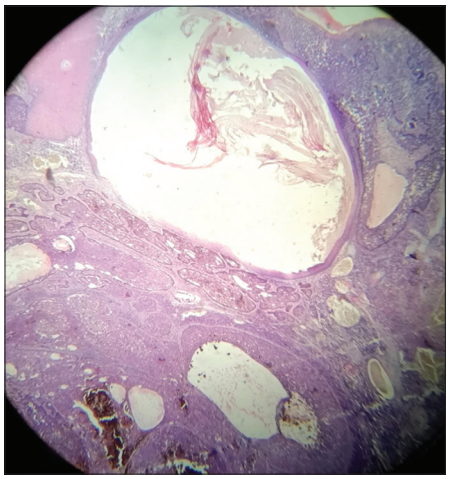

Figure 3: Keratotic basal cell carcinoma, pigmented

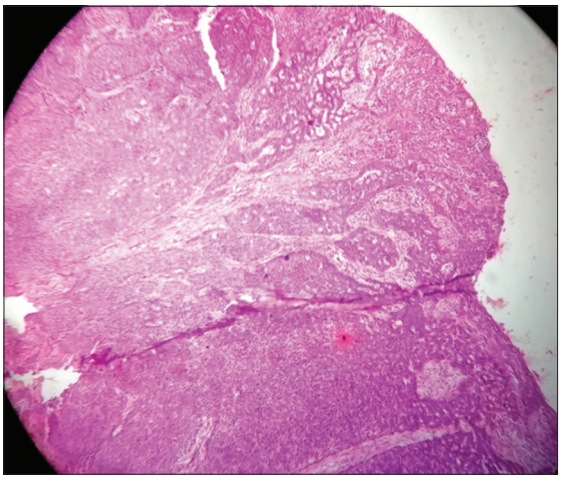

Figure 2: Adenoid basal cell carcinoma

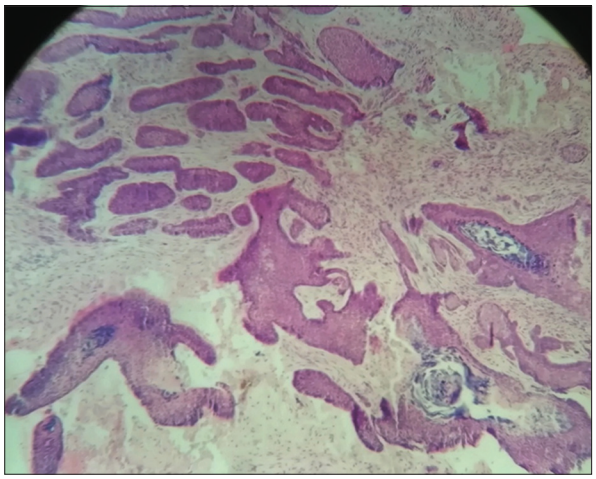

Figure 4: Basal cell carcinoma with adnexal differentiation

A third clinical type is the sclerosing or morphemic form. Some of the BCC lesions may sometimes be pigmented.[11] In our patients, 33.3% of the cases presented as a pigmented lesion and some were mistaken for melanoma and nevi.

Histologically, the different variants of BCC show the common histological feature of lobules, columns, bands, and cords of basaloid cells ("germinative cells") associated with scant cytoplasm and a peripheral palisading of cells surrounded by a loose fibromucinous stroma.[12,13] Artifactual retraction spaces between the tumor and surrounding stroma are often seen. The morphological subtypes according to the WHO classification include superficial, nodular (solid), micronodular, infiltrating, fibroepithelioma, BCC with adnexal differentiation, basosquamous, and keratotic types although it is not uncommon to encounter a tumor with a mixed pattern.[1]

In our institute, nodular type was the most common type; histologically, a finding corroborated in several other studies.[5,6,14] The other morphological types encountered in our study included adenoid, BCC with adnexal differentiation, infiltrative, nodulocystic, basosquamous, keratotic, and superficial. Pigmented BCC was fairly common comprising 33.3% of the cases; however, these were typed according to their primary morphologic type. Mixed histology was seen in four cases; however, these were again typed according to the predominant histological type.

Clinically, many of these tumors were misdiagnosed as tumors of melanocytic origin, possibly due to heavy pigmentation seen in some of these cases. Although a diagnosis of BCC can be suspected from features like pearly appearance with telangiectasia in a papular or nodular lesion, these features may be subtle. Dermoscopy can also help in analyzing these tumors.[1] However, confirmation of diagnosis requires histopathologic examination of biopsy.[15,16]

Although we have been able to identify the common subtypes of basal cell carcinoma in our population and their clinical aspects, a larger study with more cases would perhaps throw more light on the same. Pigmentation in BCC has been a common pitfall clinically in misdiagnosing several of these cases as lesions of melanocytic origin.

CONCLUSION

Nodular BCC was the most common type of this tumor on histopathologic examination, with adenoid BCC being the second most common type. Pigmented BCC was also commonly seen, with many of these tumor types showing pigmentation and these were commonly misdiagnosed clinically as melanocytic lesions. This study highlights the morphological spectrum of BCC in our population and emphasizes the role of histopathological examination to prevent misdiagnosis of these tumors.

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