ORIGINAL ARTICLE

Basal cell carcinoma-clinico-pathological study in Eastern India in correlation with different risk factors

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ABSTRACT

Objectives: To study the histological variants and mimickers of basal cell carcinoma (BCC) alongwith different risk factors among a group of patients from eastern India. **Methods:** The specimen for the study was sent by the dermatology department for histopathology after skin biopsy. **Results:** Out of 42 patients, 15 patients studied were males and the rest of the cases were females. The male to female ratio was 0.55:1. Maximum (15 cases) cases were in the age group of 50–59 years. Apart from sunlight, chronic arsenic exposure is an important risk factor of BCC. Basal cell hyperplasia and squamous cell carcinoma are the histological differential diagnosis of nodular BCC and basosquamous BCC. **Conclusion:** BCC is a disease of the older age group and with female preponderance in our study. Nodular basal cell carcinoma was the most common histologic type of basal cell carcinoma. The face was the most common site for BCC followed by the scalp. UV radiations and Arsenic do play role in the pathogenesis of BCC. CD10 helps differentiate superficial BCC from basal cell hyperplasia.

KEY WORDS: Arsenic exposure and CD 10, basal cell hyperplasia, BCC

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INTRODUCTION

Basal cell carcinoma (BCC) is the most common malignant tumor of human beings. This occurs in the sun-exposed areas of the skin leading to its damage. BCC is a slow-growing tumor with very few cases of metastasis. Rarely, it could be destructive locally, if diagnosis and treatment are delayed. Clinically, morphology of lesion varies from pink colored to pearly papules with ulceration or telangiectatic vessels. The most common site of BCC is the head and neck region but can also involve trunk and extremities.[1,2] Figure 1 show BCC present on trunk.

In the literature, more than 26 types of BCC are described but common clinicopathological subtypes are nodular, ulcerative, superficial, morpheaform, infiltrative, and fibroepithelial. Morphologically, single or multiple subtypes could be present in a single case. Lesions could vary from highly pigmented (dark in color) to slightly dark in color.

BCC is currently treated through electrodesiccation and curettage, cryosurgery, and Mohs micrographic surgery.

MATERIAL AND METHODS

The present study was conducted on 42 BCC cases, consisting of - patients attending the Dermatology OPD, suspected cases were submitted for histopathological examination in the Department of Pathology, Medical College, Kolkata. Histopathological diagnosis was established on routine hematoxylin and eosin staining of the section, the study period was between January 2013 to June 2014.

This study aimed to identify the spectrum of histology of BCC along with clinicopathological correlation. Inclusion criteria consisted of histologically confirmed cases of BCC and exclusion criteria consisted of cases that do not

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Figure 1: Lesion present on the trunk of the patient, showing blackish area in the center

Figure 3: Nodular-ulcerative lesion near the angle of mandible

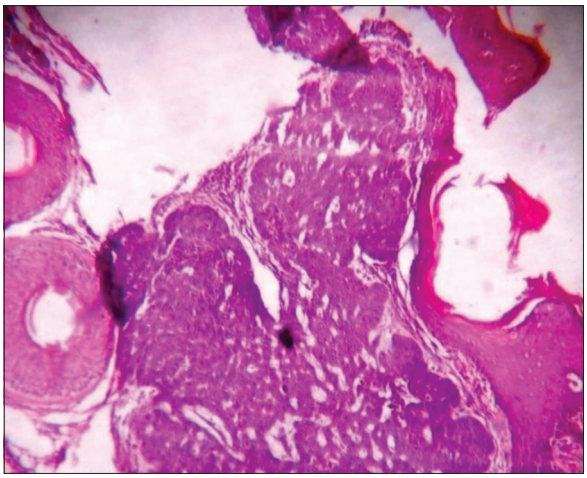

Figure 5: Adenoid bcc showing glandular differentiation (H &E, 100x)

show histopathological features and patients who do not provide informed consent for biopsy and the inclusion in the study.

Figure 2: Nodulo – ulcerative lesion over forehead

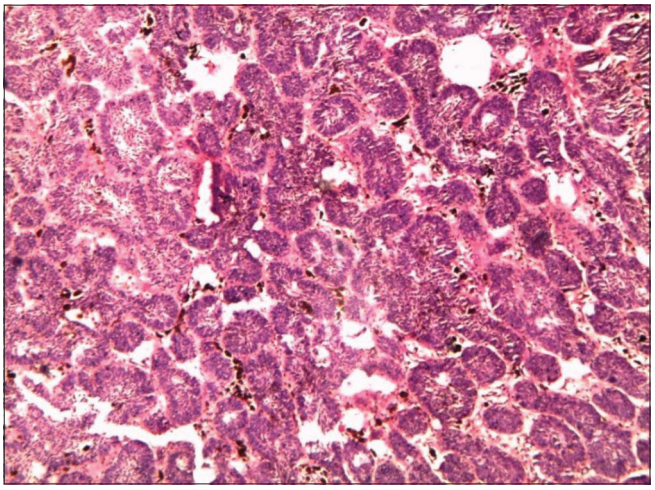

Figure 4: Basoloid cell arranged in nodules and small amount of brownish black pigment present in nodular BCC (H & E 100x)

Figure 6: Superfical lesion of BCC on side of the face near the lateral side of an eye

OBSERVATIONS

Out of 42 patients, the skin color of 34 patients were brown, while remaining eight patients had a wheatish. Only one patient had

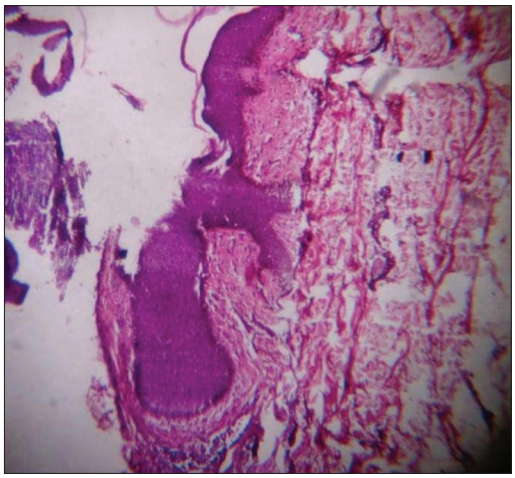

Figure 7: Showing only superficial infiltration of basoloma cells in superficial BCC. (H&E 100x)

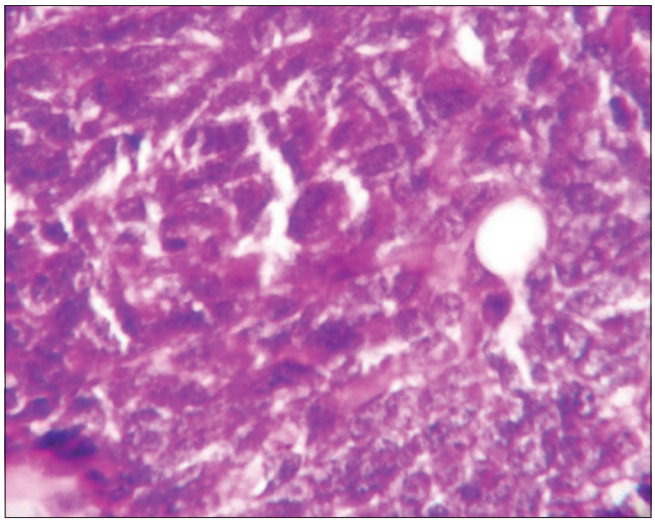

Figure 8: Showing cells with abundant eosinophilic cytoplasm in center and basoloid cells in lower bottom in basosquamous BCC.(H & E 400x)

a family history of BCC and had early onset of BCC at an age of 30 years. The oldest patient in this study was a 78-year-old male. One patient had xeroderma pigmentosum and he was the second youngest case in the study (31 years). The mean and median age of patients in this study was 54.23 ± 11.74 years and 52.5 years, respectively.

Out of the 42 cases, 29 cases had nodular BCC and only 1 case each of basosquamous and sclerosing BCC. Hence, the most common type of histology encountered was nodular type whereas sclerosing and basosquamous were the least common. Figures 2 and 3 illustrate the clinical appearance of Nodular BCC and Figure 4 depicts its histological picture.

After nodular, the most common histology of BCC was adenoid (five cases) followed by two cases of superficial BCC. Figure 5 shows adenoid BCC in which tumor cells show glandular differentiation.

The most common site was the face (21 cases, 50%), followed by the scalp (17 cases, 40.48%). If we combine cases of scalp and face regions to make it under a single category under the head region, then the total number of cases amounts to 38 (90.47%). Therefore, the most common site was the head region. Only one case (2.38%) was reported to be from the upper limb and three (7.14%) cases from the trunk.

The study showed a correlation between the presence and absence of sunlight exposure in BCC cases. Patients working outdoors had plentiful exposure to sunlight. Cases working indoors had comparatively less amount of exposure to sunlight. Out of 42 cases, 23 (54.77%) had a history of direct sunlight exposure for a long duration and 19 (45.23%) cases were found, spending most of their time indoors.

Table 1 demonstrates that out of 42 BCC cases 18 (42.85%) had a history of exposure to arsenic and 24 (57.15%) cases did not have exposure history. A single case of morphea had a history of arsenic exposure. Twelve out of 29 cases of nodular BCC had an exposure history.

Table 1: History of exposure to arsenic

Diagnosis	*Present*	*Absent*	*Total*
Nodular	12 (66.66%)	17 (70.83%)	29
Pigmented	1 (5.55%)	3 (12.5%)	4
Sclerosing	1	0	1
Superficial	1	1 (4.17%)	2
Adenoid	2 (11.11%)	3	5
Baso-sqamous	1	0	1
Total	18 (42.85%)	24 (57.15%)	42

Arsenic exposure through contaminated water is quite prevalent in eastern India, therefore, determining its history is very important. Arsenic plays a vital role in the pathogenesis of BCC.

In one case of basal cell hyperplasia, the expression of CD 10 was reported as negative while the expression of CD 10 was present in superficial BCC. Figure 6 shows clinical and Figure 7 show histology of superficial BCC. Similarly, baso-squamous BCC as shown in figure 8 could be a diagnostic challenge considering basoloid squmous cell carcinoma as differential.

DISCUSSION

BCC is a cancer of hair-bearing skin areas, especially in the head and neck region. In some pockets of eastern India and Bangladesh region, the amount of arsenic present in water exceeds the safe level.[3]

Chronic arsenic exposure is considered a risk factor of BCC. Thus, amount of BCC cases in this arsenic belt will be more as compared to other areas of the Indian subcontinent.

Therefore, we took proper history for the presence of the excessive amount of arsenic in water at these places. In the present study

out of 42 patients, 18 (42.85%) patients were from this arsenic belt area. Cheng *et al*.[4] also reported thatthe BCC risk increases by 3-4 times when drinking water is contaminated by arsenic. Therefore, we should always take a proper history of arsenic contamination in water.

Clearly, more outdoor work means more exposure to UV radiations and more chances of BCC[5] In the present study, patients working outdoors were considered as subjects for chronic UV exposure, for example, farmers, building workers, fishermen, or roadside hawkers, etc., In our study, 23 (54.77%) cases out of 42 worked outdoors.

The differential diagnosis for superficial BCC is basal cell hyperplasia and basosquamous BCC for squamous cell carcinoma, for which CD 10 could be used for differentiation. It was noted that the expression is present in superficial BCC and absent in basal cell hyperplasia. CD 10 expression could also be used to differentiate between trichoepithelioma and BCC. In BCC, focal positivity was seen in tumor cells whereas stromal positivity was present in trichoepithelioma.[6] Similarly, squamous cell carcinoma (SCC) could be confused with basosquamous BCC. In basosquamous BCC dual population of cells are present, cells with scanty cytoplasm and cells with a relatively moderate amount of cytoplasm but in SCC cells with a similar (moderate) amount of cytoplasm are present.

CONCLUSION

BCC is a disease of the older age group. It affects both males and females with female preponderance in our study population. Nodular BCC was the most common histologic type. The face was the most common site for BCC followed by the scalp. Sunlight exposure and arsenic are important risk factors for BCC, especially in eastern India. CD 10 could be used to differentiate with basal cell hyperplasia.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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