

RECURRENT BASAL CELL CARCINOMA OF HEAD AND NECK REGION - A 5 YEAR RETROSPECTIVE ANALYSIS

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ABSTRAC

Background: The most prevalent cutaneous malignancy in white individuals is BCC, while SCC is the most prevalent among those with darker skin tones, including Indians. The head and neck region is predisposed to BCC. Unlike melanoma, BCC normally does not cause life-threatening disease, although it is locally invasive and can cause significant morbidity and complications. Surprisingly, recurrence in BCC is observed even after complete excision with a clear margin. Therefore, further studies are required for a better understanding of these recurrent cases and to improve the treatment approach.

Methods and Material: This retrospective study was conducted at the Plastic and Reconstructive Surgery department. The study included all patients admitted with BCC of the head and neck region for a period of five years.

Results: A total of 42 patients with BCC lesions of the head and neck region, were identified. There were 24 males and 18 females. The majority of patients were noted in the 50 – 80 age group. Tumours most commonly involved the cheek region. The majority of the examined primary BCCs were nodular clinically. On confirmation by histopathology, most of the lesions were nodular. Multiple recurrences of the disease were observed in one patient.

Conclusions: The clinical and histological pattern of BCC in this area of India is presented in this study. The most likely risk factors in this population are ageing and long-term sun exposure. The primary risk factors of the recurrent disease are the site, histopathologic subtype, and margin status.

Keywords: Basal cell carcinoma, Recurrence, Cutaneous malignancy.

INTRODUCTION -

It is usual practice to classify cutaneous malignancy into two major categories: melanomas and non-melanoma skin cancers (NMSCs), which include basal cell carcinomas (BCC) and squamous cell carcinomas (SCC). Contrary to malignant melanoma, BCC normally does not cause life-threatening disease, although it is locally invasive and can cause significant morbidity and complications. The

Indian population is less affected by NMSCs than the western population is. ⁽¹⁾ The Northeast region has the highest incidence of NMSCs, according to the literature. ^(2,3)

The most prevalent cutaneous malignancy in white individuals is BCC, while SCC is the most prevalent among those with darker skin tones, including Indians. ⁽⁴⁾ The head and neck region is predisposed to BCC. ⁽⁵⁾ The incidence in India is lower than that in the West, despite regional variances. However, morbidity and treatment-related expenses place a major strain on healthcare systems. ⁽²⁾ Surgical and medical methods can be used as treatment options. Typically, surgical excision with adequate surgical margins is the first treatment option.

Clinically, recurrent BCCs are typically more aggressive than primary lesions. ⁽⁶⁾ Recurrence is more common, especially when the peripheral margins are positive. Recurrence rates in patients with incomplete excisions ranged from 26 to 67%. ⁽⁷⁾ In the literature, positive surgical margins of primary BCC surgical excision in the head and neck region ranged from 20 to 30%. Surprisingly, even after complete excision with a clear margin, a recurrence of BCC can be seen. Therefore, additional research is needed to better understand such recurrent cases and to enhance the treatment approach.

AIMS AND OBJECTIVES -

The aim is to evaluate the clinical and histopathological characteristics of head and neck BCC and recurrence cases with preceding histologically clear margins.

The objectives are to -

- Study epidemiological, clinical, and histopathological features of completely excised lesions of the head and neck region.
- Study the recurrence rates of complete excision.
- Study the clinical and histopathological features of recurrent cases.

SUBJECTS AND METHODS -

This retrospective study was conducted in the Plastic and Reconstructive Surgery department. The study included all patients admitted with BCC of the head and neck region for a period of five years from 1st January 2018 to 31st December 2022. All patient-related documents and preoperative and postoperative photographs were thoroughly analysed. The patients were categorised with regard to age, sex, personal and family history, skin type, tumour site, size, clinical type and histopathological subtypes, method of reconstruction, and recurrence rates. The quantitative data was summarised and depicted on graphs and charts using descriptive statistics.

For systematic analysis, the head and neck region was subdivided into 8 units: scalp, frontotemporal, orbital, nose, cheek, auricle, perioral, and chin-neck area. The diagnosis of BCC was mostly clinical, however, when in doubt a biopsy was performed. The margin of excision was

planned, depending on the clinical features, size, and location of the lesion. While the 3 mm safe margin excision was used in small and well-defined lesions, where up to 10 mm safe margins were chosen for large tumours and unclear borders. Deep margins were located in the subcutaneous tissue or deeper, according to the tissue characteristics of the region. Incomplete excision was defined as a tumour that was still there or close to it within 1 mm of the lateral or deep incision margins. These cases were excluded. All excision specimens were sent for histopathological examination. Methods of reconstruction were primary closure, skin grafts, and flaps. Routine outpatient visits were planned for our patients postoperatively at one week, one month, three months, six months, and one year. Afterwards, patients were called for yearly follow up. In some cases, extra control visits were added due to recurrence or a patient's need.

RESULTS -

A total of 42 patients, presenting with 43 BCC lesions of the head and neck region, were identified. There were 24 (57%) males and 18 (43%) females. The male- to- female ratio was 1.33:1. When the subunits were evaluated, males were predominantly involved in the cheek region followed by the orbital and nose region, while in females the cheek, orbital and frontotemporal region. The mean age was (57.4 +/- 12.9). 27 (64.2%) patients were noted in the 50 – 80 age group. The mean age of males was (57.9 +/- 12.5) years and females was (56.7 +/- 13.4) years. (Figures 1, 2, 3)

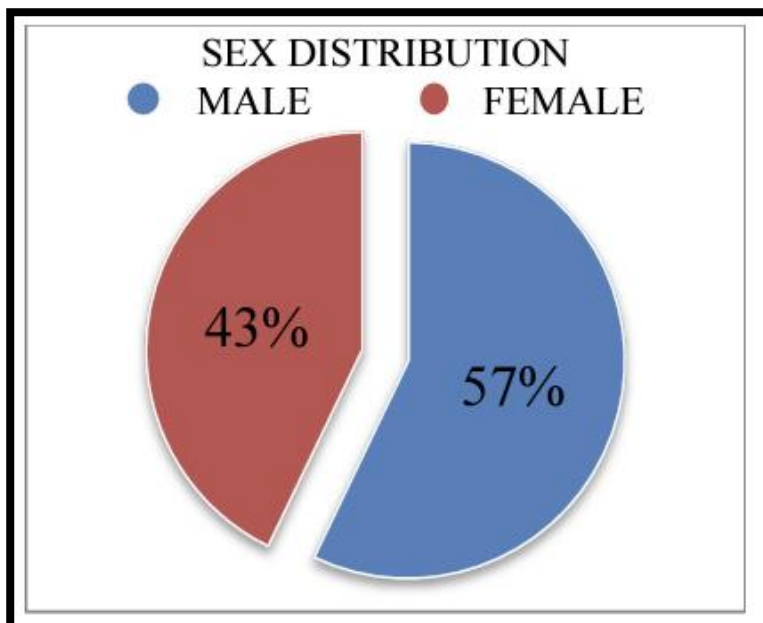


FIGURE 1

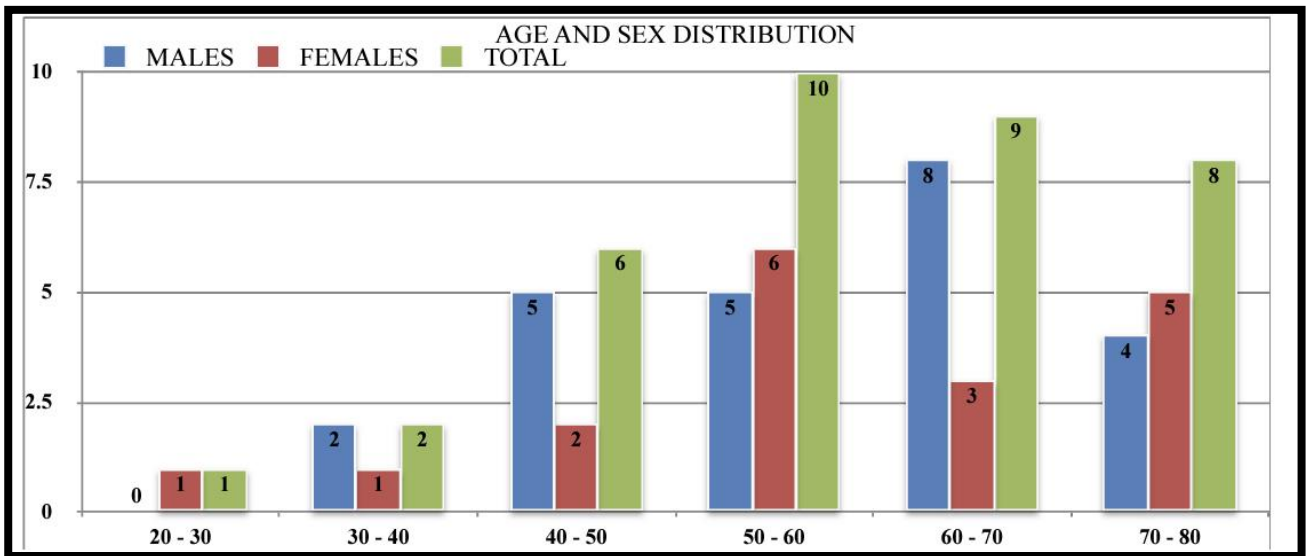
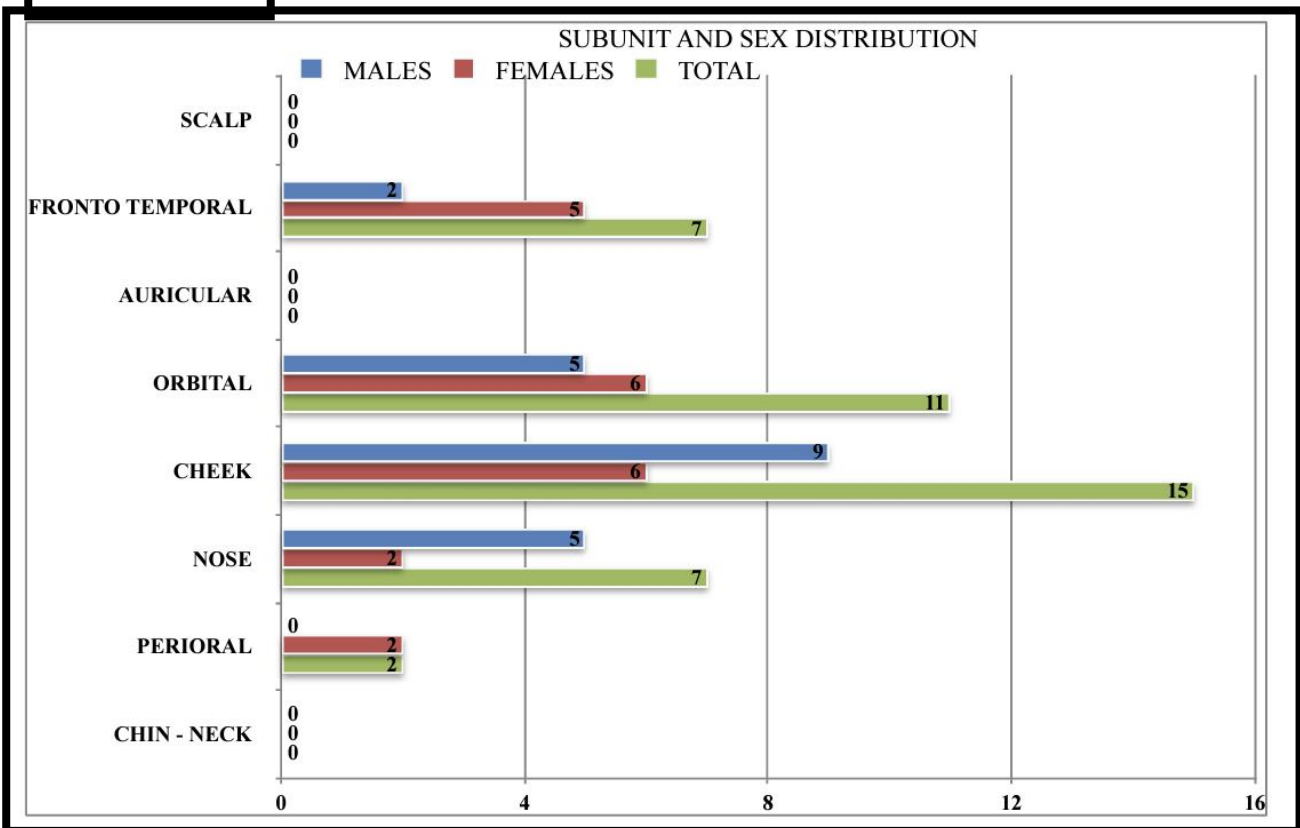


FIGURE 2

FIGURE 3



The total duration of the lesion before the presentation was variable and ranged from 6 months to 8 years. The mean duration was 42.5 months. A personal history of chronic sun exposure which is defined as spending every working day in open areas due to occupational or recreational reasons

was reported in 24 (58%) patients. 15 (35.7%) patients had a co-morbid systemic illness. None had a family history of skin cancer. 17 (42%) patients were smokers for more than ten years. The Fitzpatrick classification of the patient's skin type had rarely type 2 and commonly type 3, and type 4 skin.

Tumours most commonly involved the cheek region, with 15 cases, followed by the orbital, nose, and frontotemporal region in descending order. (Figure 3) The lesions ranged in size from small pearly papules measuring 0.5×0.5 cm to large hyperpigmented lesions measuring 8×5 cm. On clinical evaluation, the majority of the examined primary BCCs were of the nodular type and were either ulcerated or pigmented. (Image 1, Figure 4) The classical rodent ulcer having indurated edge and ulcerated centre was observed in 6 patients. (Image 2)

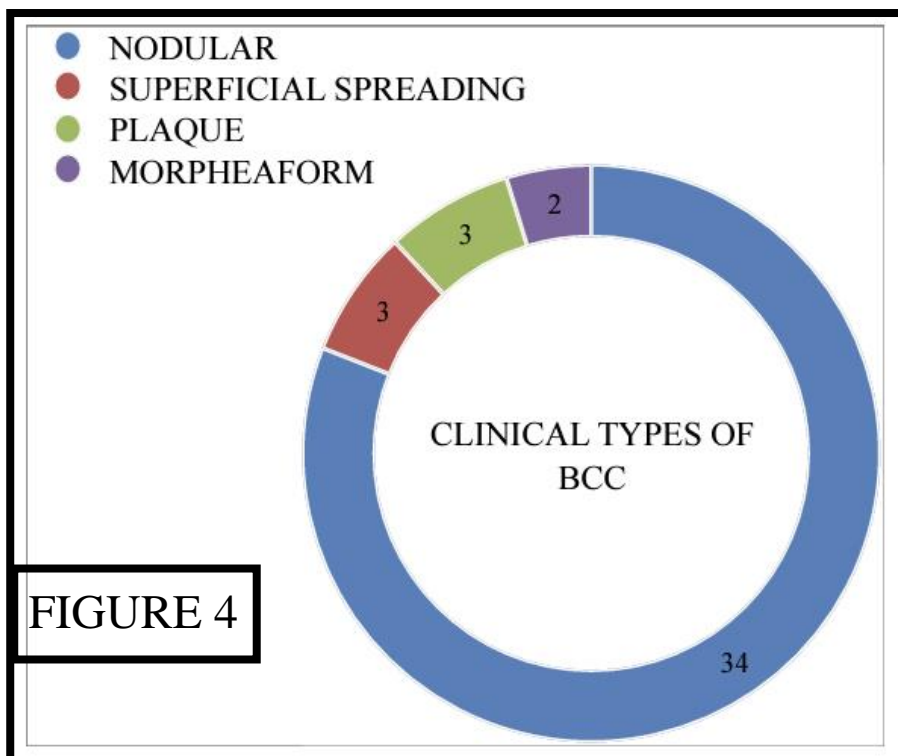
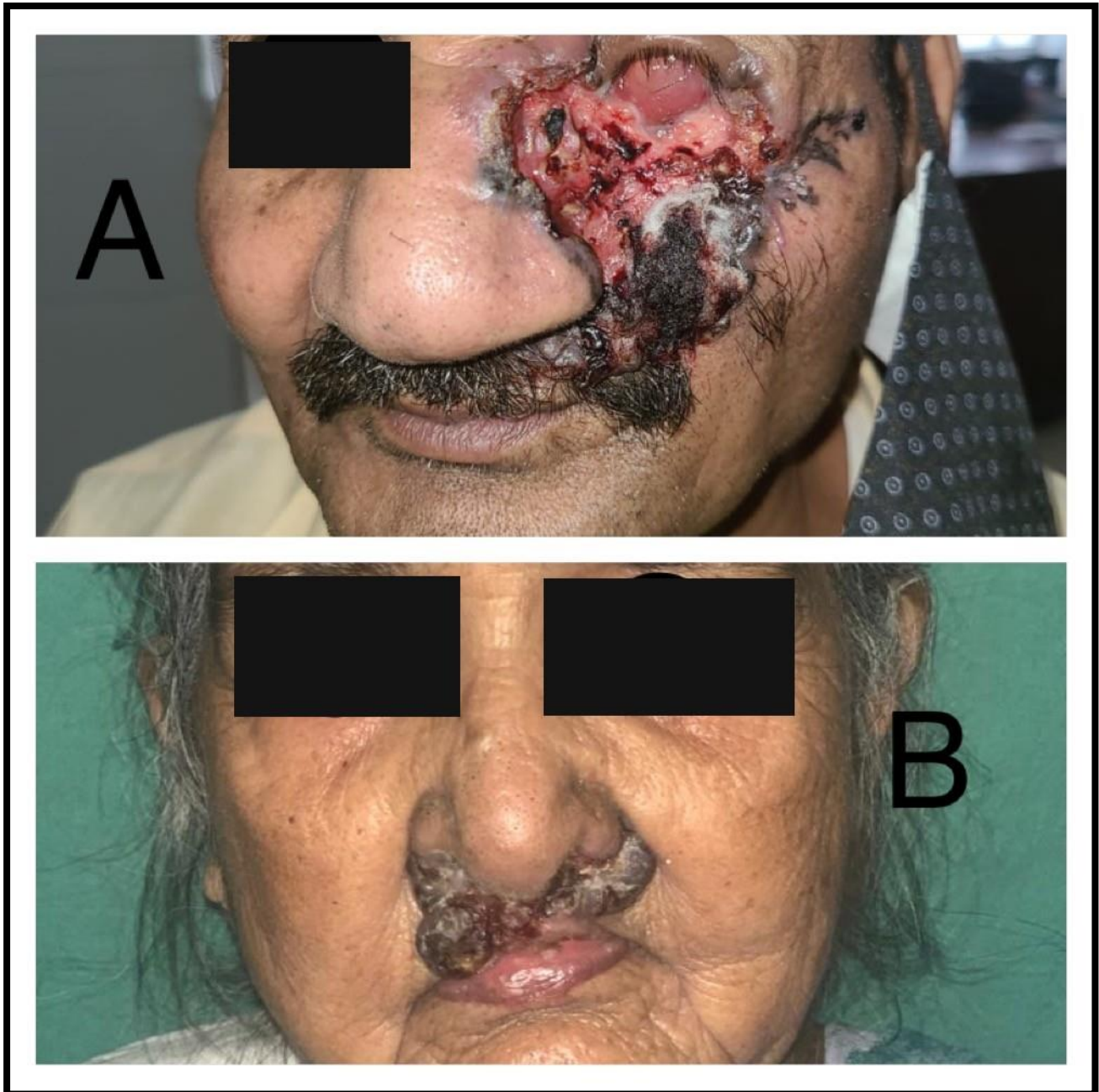




IMAGE 1

IMAGE 2



18 (41.8%) were done under local anaesthesia, and 25 (58.1%) under general anaesthesia. The reconstructive method depending on the size of the defect comprised primary closure in 5 cases, full-thickness skin grafting in 10 cases, and local and/or regional flaps in 28 cases. (Figure 5) With a confirmation on histopathological analyses, 3 were superficial type; 2 were adenoid type; 1 was a

keratotic type; 2 were infiltrative type; 2 were a basosquamous type of BCC. The rest of the 33 lesions were reported as being of the nodular type. (Figure 6)

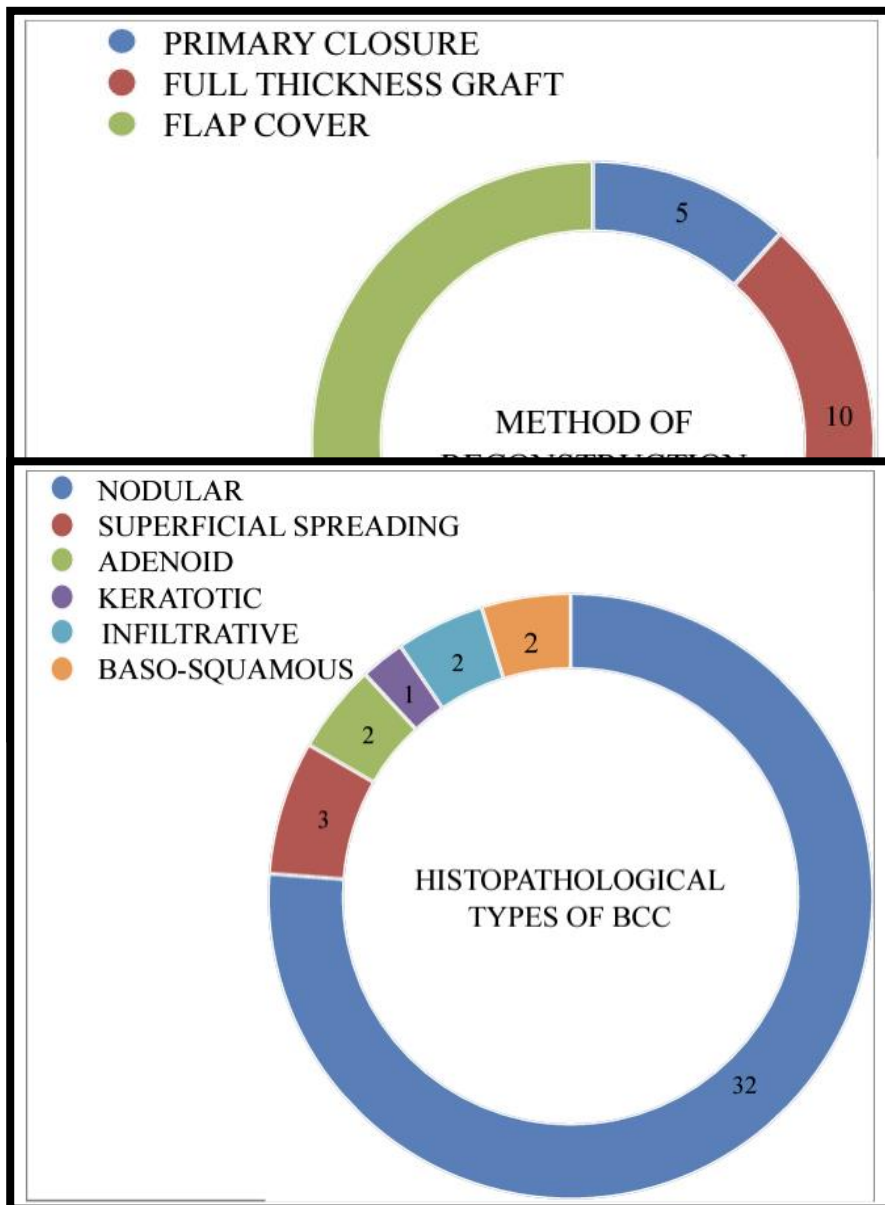


FIGURE 5

FIGURE 6

Multiple recurrences of the disease were seen in one patient. This patient had a second-time recurrent lesion and had undergone an excision and flap cover in 2019. The patient gave an h/o surgery twice for a similar lesion in the same location previously elsewhere. After 3 years in 2022, she again presented with a recurrence at the lateral canthal region of the left upper eyelid. There was a noduloulcerative lesion. Wide excision of the lesion was done and reconstructed with the lower eyelid switch flap in 2 stages. The HPE of the specimen was an infiltrative type of BCC. Overall, the patient had recurrence 3 times and was treated successfully. Now the patient is on follow-up without any recurrence for the last 6 months. (Image 3)



IMAGE 3

DISCUSSION -

In India, cutaneous malignancies are rare. There are currently no epidemiological data from India. ⁽¹⁰⁾ In Indians, 1%–2% of skin tumours are NMSCs, however in Caucasians, NMSCs represent one-third of skin tumours. ⁽¹⁾ The Northeast region, especially Nagaland, has the highest prevalence of NMSCs. This area has the greatest prevalence of NMSC overall, with rates of 5.14 for males and 3.98 for females per 100,000 inhabitants. The strong UV radiation in this region, together with the prevalent skin types, can explain why there are more cases of skin cancer here. ^(2,3) Equatorial latitudes have a higher incidence of BCC than polar latitudes do. The equatorial region is relatively close to this area of the country. ⁽¹¹⁾

Male patients predominated in our study, which is consistent with the literature. This is probably because they are exposed to more sunlight at work and even during rest. A remarkable female preponderance has been seen in some studies from India. ^(5,12-15) In our study, the cheek, nose, and orbit were the sites of 78.5% of the lesions. The head and neck are exposed to sunlight. Our findings regarding the distribution of age and size are consistent with the literature. ⁽¹²⁻¹⁵⁾

All of the lesions in our study had no precursors. Infrequently BCCs exacerbate underlying scarring processes or chronic dermatoses; the majority of them develop spontaneously.⁽¹⁶⁾ The two potential risk factors in this area are advancing age and sun exposure. The threat to the increase in the overall incidence of malignancies comes from the ageing population and improved survival rates. In our analysis, 24 individuals (58%) reported having a personal history of continuous sun exposure. A risk factor for the occurrence of skin cancer has been recognised as UV-B radiation, which is radiant energy from the sun.^(2,3,17) It is anticipated that as the ozone layer in the stratosphere thins, UV-B radiation exposure will increase on Earth's surface. As a result, skin cancers are becoming more common.⁽¹⁸⁾ The patients often had type 3 and type 4 skin, with type 2 skin developing occasionally. Because telangiectasis and pearly tumour margins are difficult to see in individuals who have dark skin, BCC often manifests in an advanced stage. Coloured skin had 44.2% pigmented tumours compared to 5% in Caucasians. These lesions were frequently misdiagnosed as seborrheic keratoses, malignant melanoma, or sebaceous nevus due to their pigmentation.⁽¹⁹⁾

Despite the lack of a universally acknowledged classification scheme, the clinical types nodular, superficial, plaque, and morpheaform are widely accepted.^(9,19,20) The latter three types may be associated with nodular BCC. Nodular BCC was the most common clinical form in our study. Infiltrative, nodular, micronodular, superficial, adenoid, and keratotic histopathologic patterns are also observed.^(19,21) In our study, nodular was the most prevalent form. Other Indian studies have reported similar results.^(13-15,22,23) All of our patients clinically had nodular BCC; most lesions were nodular on histopathology. Basosquamous cell carcinoma was a rare histologic variation that was observed. It has characteristics of both BCC and SCC, is locally aggressive, and has a history of distant metastasis.⁽²⁴⁾

The primary goal of BCC treatment is to clear the tumour using the safest and most economical method possible while also producing an outcome that is both functional and aesthetically pleasing. Although various treatment options for BCC have been discussed, surgical excision is still the most commonly chosen method for tumour removal.⁽²⁵⁾ According to the literature, a 3 mm surgical margin is sufficient to eradicate 85% of small, well-defined BCCs, and a 4-5 mm margin will increase this to 95%.⁽⁸⁾ It has been demonstrated that loupe magnification can help to lower the rates of incomplete excision.⁽²⁶⁾

Recurrence of the disease was observed in one patient during our study, with a recurrence rate of 2.3%. It has been observed that the west suffers a 5–14% recurrence rate for primary BCCs.^(6,8) Our study's recurrence rate is consistent with those reported in the literature.⁽⁵⁾ An obvious risk factor for recurrence is incomplete excision.^(7,21,28) Our study differs significantly from other studies because it accurately assesses the factors that determine the recurrence of BCCs that have been completely excised.

The location and histopathologic subtype, rather than age, sex, and lesion size, were shown to be the risk factors for recurrence in our study. Compared to lesions in the trunk and extremities, lesions in the head and neck area have a higher risk of recurrence.^(6,8,27) The lesion in our patient was first detected in the frontotemporal region and then extended to the orbital region. The increased rates of recurrence at embryonic fusion planes are associated with this.^(19,29-31) Our patient had a BCC of the infiltrative type. According to current studies, the most common histological subtypes of recurrent tumours were infiltrative, micronodular, and keratotic, which are more difficult to treat and have an increased likelihood of recurring.^(5,9,32) The relatively low rates of histopathologically aggressive subtypes, excision with appropriate margins, and no postoperatively positive surgical margins have perhaps attributed to the low overall recurrence rate in our study.

CONCLUSION -

The clinical and histological pattern of BCC in this region of India is presented in this study. In order to reduce the overall recurrence rates, we would like to emphasise the importance of the preoperative evaluation of the patient taking into account epidemiology and clinical features, defining the surgical margins, and encouraging the patient to return for follow-up visits to evaluate outcomes and determine recurrences. The most likely risk factors in this population are ageing and long-term sun exposure. The major risk factors for recurrent disease are the location, histopathologic subtype, and margin status. Our long-term aim is to establish and maintain a cancer registry that will include relevant data on cutaneous malignancies

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