ORIGINAL ARTICLE

DEMOGRAPHICS OF BASAL CELL CARCINOMA AND ITS SURGICAL MANAGEMENT

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Background: Basal cell carcinoma (BCC) is the most common, slow growing epidermal skin tumour and an increase in its incidence has been noticed in the past decades. Different treatment options include surgical and non-surgical measures. Surgical options include surgical excision, cryosurgery, curettage, electrodessication and Mohs micrographic surgery. Non-surgical treatments options are 5-flourouracil, photodynamic therapy, immunomodulation and radiotherapy. This study was conducted to determine the demographics of facial BCC and its rate of incomplete excision and recurrence. **Methods:** Clinically diagnosed facial BCCs were included in this prospective descriptive study. Tumours were excised with 3–5 mm clinically palpable safe margins and were sent for histopathological confirmation and margin clearance. All patients were followed for a minimum of two years to look for any recurrence. The demographic data, site, clinical presentation, size of the lesion, excision margins, reconstructive options, complications, histopathological margin clearance and recurrence was recorded and analysed. **Results:** A total of 139 cases were recruited in this study. Four cases were lost in follow-up. Out of remaining 135 patients including 78 males and 57 females with a mean age of 58.6 years were studied. The commonest site of involvement was nose (45.9%), followed by periocular (28.1%) and cheek (15.6%) regions. The most common clinical type was nodular (51%) followed by ulcerative (38.5%). In majority of the cases, the resulting defect after excision was reconstructed with local flaps (57.8%). Majority (77.8%) of tumours had histopathologically clear margins while 20% had tumour involvement. During 2 years follow-up period, 8.9% patients had tumour recurrence.

Keywords: Basal cell carcinoma, excision, recurrence, tumour

INTRODUCTION

Basal cell carcinoma (BCC) is the most common, slow growing epidermal skin tumor.[1] An increase in its incidence has been noticed in the past decades.[2] They are mostly found on the head and neck area.[3] Exposure to ultraviolet light, ionising radiation, fair skin, male gender, immunosuppression, tendency to freckle in childhood and chronic exposure to certain toxic substances like arsenic are the likely causative factors.[4]

The different subtypes of BCC are nodular, ulcerative, cystic, superficial, sclerosing, pigmented and basesquamous BCCs.[5] Most BCCs cause local tissue destruction in a 3D plane and does not metastasise.[6] However morpeaform (sclerosing) and infiltrative variants are very aggressive tumours and if not properly managed, they frequently recur.[7]

Different treatment options include surgical and non-surgical. Surgical options include surgical excision, cryosurgery, curettage, electrodessication, and Mohs micrographic surgery. Non-surgical treatments are 5-flourouracil, photodynamic therapy, immunomodulation, and radiotherapy.[8] An ideal treatment option should totally cure the BCC, produce optimal aesthetic outcome and with no recurrence rate.[9] Curettage, electrodessication, cryosurgery and radiation utilise multiple treatment cycles, have risk of scarring and therefore have less desirable outcome. In contrast, topical 5-FU, imiquimod 5% cream are only effective for superficial tumours. Mohs micrographic surgery though ideal with lowest recurrence rate, requires specialised training, and has long operative time.[10]

This study aimed to determine the demographics of facial BCC and its rate of incomplete excision and recurrence.

MATERIAL AND METHODS

This study was carried out at department of plastic and reconstructive surgery, Hayatabad Medical Complex, Peshawar, after taking approval from hospital ethical review board, from January 2007 to June 2009. All the patients were enrolled from Out Patients' department or referrals from other units. Informed consent was taken from all patients enrolled in the study. All the patients of either gender, any age and with clinically diagnosed single facial BCC, both primary and recurrent cases were included in the study. Those cases who received pre-operative radiotherapy which could bias clinical assessment of BCC margin were excluded from the study.

After hospital admission, detailed clinical history, examination and investigations were performed. Clinically the BCCs were diagnosed on the basis of typical prolonged history of lesion on the facial area having physical characteristics of rolled

over edges of the ulcer formation and nodularity. All tumors were excised with 3-5mm clinically palpable safe margins and deeper at subcutaneous level. The biopsy specimens being marked at 12 O′ clock position were sent for histopathological confirmation and margin clearance.

Patients were followed for a minimum duration of two years to look for any recurrence. Data were analysed with the help of SPSS-14.

RESULTS

A total of 139 were recruited in this study. Four cases were lost in follow up. Out of remaining 135 patients 78 (57.8%) were male and 57 (42.2%) female, with male to female ratio of 1.4:1. The age of patients ranged from 31–84 (58.6±8.6) years.

Nose was the commonest site of involvement (45.9%), followed by periocular region (28.1%) and cheek with 15.6% (Table-1). Nodular BCC was the most common clinical type encountered (51.1%) followed by ulcerative type was 38.5% (Table-2). Lymph nodes were clinically not palpable in any of the case. All of the tumours were excised with 5 mm clinically palpable margins. Local flaps (57.8%) were used for reconstruction of the excised tumours followed by full thickness skin graft (FTSG) (19.3%), and direct closure (17%), (Table-3).

The majority (112, 83%) of reconstructive procedures, were uneventful. Ectropion was noticed in 9 (6.7%) cases, dehiscence in 8 (5.9%), distal flap necrosis in 4 (2.96%), and wound infections in 2 (1.5%) cases. In 77.8% of BCCs the margins were histologically clear of tumour, while in 20% margins were not clear. Margin clearance status was not mentioned in 2.2% cases. The patients with positive tumour margins were sent for radiotherapy and were later on observed at three months interval for two years. Over two years of follow up period, 123 (91.1%) cases had no recurrence of tumour, and 12 (8.9%) had recurrence.

Table-1: Frequencies of Basal Cell Carcinoma at different sites (n=135)

Location	Frequency	Percentages
Nose	62	45.9
Peri-ocular region	38	28.1
Cheek	21	15.6
Periauricular	11	8.4
Lip	3	2

Table-2: Frequencies of different types of basal cell carcinoma

Type	Frequency	Percentage
Ulcerative BCC	52	38.5
Nodular BCC	69	51.1
Pigmented BCC	14	10.4
Total	135	100

Table-3: Basal cell carcinoma Post-excision reconstruction pattern

Type of closure	Frequency	Percentage
Local Flaps	78	57.8
FTSG	26	19.3
Direct Closure	23	17
Regional Flaps	6	4.1
Distant Flaps	2	1.8

DISCUSSION

Basal cell carcinoma is the most common of all skin neoplasms and although mortality attributable to BCC is not high, yet the disease is responsible for considerable morbidity. Thus, it imposes a great burden on health care services. Among the many risk factors, solar radiation is regarded as the main predisposing factor for the disease.[3]

The age of patients in our studied population was 31–84 years which is consistent with study of Khan FT *et al*[11] who observed the age range to be from 37–89 years with mean of 69.2 years. Shah SA *et al*[12] in their series showed age range from 30–100 years. Memon GA *et al*[13] and Smeets *et al*[14] also reported similar results in their series from Sindh and Netherlands respectively.

In the current study 57.8% were male, and 42.2% were female patients with male to female ration of 1.4:1 which is comparable with the observations of Smeets *et al*[14] of 56% males and 44 % females. Lalloo MT *et al*[15] also showed similar results in their series from UK. In contrast to our study Shah SA *et al*[12] showed a female predominance in his study with 34 females and 22 males patients in their series.

In our series Nose was observed to be the most common site for BCC (45.9%) followed by periocular (28%) and cheek (15.6%) which are supported by Weshah S *et al*[1] Rustemeyer *et al* [16], Smeets *et al*[14] and Shah *et al*.[12]

Clinically the nodular type was the most common having a frequency of 51% followed by ulcerative type with a frequency of 38.5% in our patients which is comparable to the studies of Rubin *et al*[17], Ceilley *et al*[8] from USA, Spraul *et al*[18] and Shah SA *et al*[12].

Despite the availability of a wide variety of treatment options (i.e., curettage, cryosurgery, laser ablation, Moh's micrographic surgery and radiotherapy) for BCC, the surgical excision is considered the first line treatment and is highly effective for primary BCC.[19,20] In surgical excision, the tumour is removed with a clinically normal surrounding tissue of variable dimensions. In general, small BCC (<2 Cm) are excised with a safety margin of 3 mm with 85% success rates and 4–5 mm peripheral safety margin will increase the success rates to 95%. A larger excision safety margins are required for the excision of Morphoeic, and large BCC.[10] The resultant wound after excision can be closed

with direct closure, local flaps, full thickness skin grafts and regional flaps.[9,13] In this series the surgical wound was closed using local flaps in 57.8% cases, full thickness skin grafts in 19.3% cases and primary closure in 17% cases.

In our patients, margin clearance rate was 77.8% while in 20% cases the margins were affected by the tumour. In 2.2% cases the margin status was not reported. In our series the affected margins rate is higher than other studies by Telfer NR *et al*[10], Ceilley RI *et al*[8], and Shah SA *et al*[12]. The higher rates in this study may be due to the consistent margin of safety (5 mm) for all cases including large BCC and lack of information about the pre-operative histological aggressiveness of the tumour (histopathology was done after excision).

The complications observed were ectropion, wound dehiscence and distal flap necrosis. Memon GA *et al*[13] reported distal flap necrosis in 2.04% cases in their study and ectropion in 9.52% cases.

The overall recurrence rates after 2 years follow up was 8.9% our series which is much lower than that observed by Ceilley *et al*[8] and Telfer *et al*[10] after 5 years follow up. These lower rates of recurrence in this study may be due to the comparatively shorter duration of follow-up.

CONCLUSION

Being the most common of all skin neoplasms, the ideal therapy for managing BCC should have the capability of clearing the tumour both at peripheral and deep margins with minimum recurrence rates. Surgical excision with optimal reconstruction is a good treatment option with acceptable success rates for facial BCCs. To decrease the incomplete excision rates multicentre randomised controlled trials are required to determine the optimal surgical safety margin.

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