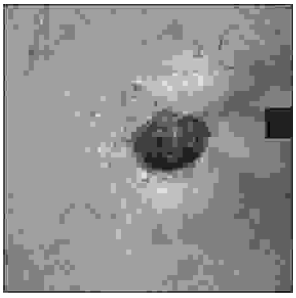
ORIGINAL PROF-1043

BASAL CELL CARCINOMA;

VARIOUS SURGICAL OPTIONS IN THE MANAGEMENT



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ABSTRACT… farrukhaf2001@yahoo.com. **Introduction**:- Basal cell carcinoma is the most common skin malignancy, accounting for about 80% of all skin cancers and may be lethal. Its recognition and management should be familiar to all the general surgeons. **Objective**:- To describe the prevalence, mode of presentation and various surgical options of reconstruction in the management of basal cell carcinoma (BCC) with a local perspective. **Setting:-** Nishtar Hospital, Multan. **Duration:-** One year (October 2002 to September 2003). **Sample size:-** 60 patients. **Study design:-** Descriptive study. **Results**:- Out of sixty cases, 50 (83%) were male and 10 (17%) were female. Majority of the patients presented to us above the age of 45 years and the incidence of BCC increases with the age. The male to female ratio was 5:1. Out of 60 cases 26 (20 male, 6 female) 43.3% were farmer, 16 (all male) 26.6% was construction workers, 10 (8 male, 2 female) 16.6% were unemployed and 8 (all female) 13.3% were household. No patient presented before 5 years after the development of the lesion. 34 (30 male, 4 female) 56.6% for the last 6-10 years, 20 (16 male, 4 female) 33.3% for the last 11-15 years, 2 (all male) 3.3% for 16-20 years and 4 (2 male, 2 female) 6.6% had lesions for > 20 years. All the lesions encountered in present study occurred on exposed head and neck region as is evident from the table-III. Most of the patients had the nodular pigmented type of BCC and majority of them were male. None of them have Gorlin's syndrome (Table-IV). Common variant on histopathology was found to be solid type with adenocystic type being the commonest lesion. After the excision of the lesion the skin defect most of the time was closed by the mean of split skin graft. Direct closure was done in quarter of the patients. A number of postoperative complications were observed after various reconstructive procedures. Wound was found to be commonest complication; with majority of cases getting only minor wound infection. **Conclusion**:- Delay in presentation has an overall negative effect on the outcome. A simple excision, excision biopsy with adequate margin clearance gives surgeon more freedom for reconstruction.

Key words: Skin cancer, Basal cell carcinoma, Reconstruction, Biopsy.

INTRODUCTION

Basal cell carcinoma is the most common skin malignancy, accounting for about 80% of all skin cancers and may be lethal. Their recognition and management should be familiar to all the general surgeons[1]. The role of general surgeons in these cases is first to diagnose the patient and secondly to chalk out the proper management plan.

Basal cell carcinoma, which arises from the epidermal layer of the skin, is the commonest malignancy in Caucasians[2]. Pakistan is a developing country and South Punjab is a backward area with a scarce health facilities. Most of our farmers and others having outdoor occupations having maximum exposure to the sunlight and the chances of development of BCC in them is great as compared to the people sitting idle or household workers. So due to low socio-economic status and negligible health services in rural areas, people neglect initial stage of the disease and take treatment from the local hakims and quacks, and fail to reach the tertiary care hospitals in early stages which then ultimately progress to advanced disease[3].

The most important risk factor is exposure to ultraviolet radiation in the sunlight, but the other risk factors are, like skin damage by irradiation or chemicals. Ingestion of arsenic and immunosuppressant for instance in the case of renal transplant patients, may result in multiple BCC. Male have more affection for the disease as compared to the female[4].

The peak incidence of BCC occurs in 7th decade of the life. The age group commonly affected is 5th decade but patients of all ages can be affected, including children, which are usually associated with congenital defects[5].

Fair skinned, easily sun burnt individuals living at high altitudes and having outdoor occupations are at the greatest risk. Genetic predisposition also plays an important role. A defective, tumour suppressor gene (P-53) is implicated in the overproduction of UV-mutated tumour cells[3]. There are certain pre-malignant conditions give rise to BCC, like sebaceous naveus of Jodassohn[4].

Basal cell carcinoma is a fibro-epithelial tumour having interdependent stromal and epithelial components. Neoplastic epithelial cells originates from pluripotent cells in the basal layer of the epidermis and less frequently from other cutaneous appendages like outer hair follicle sheath, sebaceous and sweat glands, or apocrine glands[1].

The proportion of stroma present varies with clinical types of the BCC. Clinically BCC consists of nodular ulcerative 50-54%, superficial spreading 9-11%, cystic 4-8%, pigmented 6% and morphemic 2%.

The nodulo-ulcerative type of the most common variety, while pigmented BCC need to be distinguished by biopsy from melanoma. It grows slowly but becomes locally invasive and penetrates the deeper tissue hence given the name of rodent ulcer[6]. BCC occurs, most commonly in the head and neck region in about 85% of the cases[7].

Metastasis and death are extremely rare. Although rarely metastasizing to lymph nodes or distant organs, the real menace is local tissue destruction leading to disfigurement or functional loss. These are clinically more aggressive and hence difficult to manage[8]. Patient present with non-healing ulcer. Typically these tumour have a nodular appearance with typically pearly rolled edges which is apparent on stretching the skin and telengiectatic vessles[2].

PURPOSE OF STUDY

To evaluate the prevalence, mode of presentation and various surgical options available in the management of basal cell carcinoma with local perspective at Nishtar Hospital, Multan.

To see the postoperative complications associated with the reconstructive procedures done to correct the defects by the excision of BCC.

MATERIAL AND METHODS

Setting
Nishtar Hospital, Multan.

Duration
One year (October 2002 to September 2003)

Sample size
60 patients

Study design
Descriptive study.

Inclusion criteria
- Patient of both sexes.
- Patient of more than 12 years of age.
- Patients who were compliant with the management.
- Patient in whom surgery can be performed.

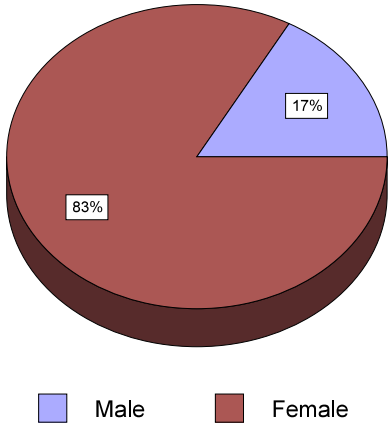
Exclusion criteria
- Patient less than 12 years of age.
- Patients who were not compliant with the management.
- Patient who presented to us with some co-morbidity like heart disease, diabetes or respiratory disease.

Data Collection
A separate file was maintained for each patient. A thorough history and full physical examination was conducted, relevant investigations were carried out. All this was recorded in data collection form and data analysed to find frequencies and percentage using SPSS-10.

RESULTS
A total of 60 patients were managed during the period of one year i.e. October 2002 to September 2003 in Nishtar Hospital, Multan.

Out of sixty cases, 50 (83%) were male and 10 (17%) were female (Fig-1). Majority of the patients presented to us above the age of 45 years and the incidence of BCC increases with the age. The male to female ratio was 5:1 (Fig-2).

Fig-1. Sex distribution



Out of 60 cases 26 (20 male, 6 female) 43.3% were farmer, 16 (all male) 26.6% wee construction workers, 10 (8 male, 2 female) 16.6% were unemployed and 8 (all female) 13.3% were household (Table-I).

No patient presented before 5 years after the development of the lesion. 34 (30 male, 4 female) 56.6% for the last 6-10 years, 20 (16 male, 4 female) 33.3% for the last 11-15 years, 2 (all male) 3.3% for 16-20 years and 4 (2 male, 2 female) 6.6% had lesions for > 20 years (Table-II).

All the lesions encountered in present study occurred on exposed head and neck region as is evident from the table-III. Most of the patients had the nodular pigmented type of BCC and majority of them were male. None of them have Gorlin's syndrome (Table-IV). Common variant on histopathology was found to be solid type with adenocystic type being the commonest lesion (Table-V).

After the excision of the lesion the skin defect most of the time closed by the mean of split skin graft. Direct closure done in quarter of the patients (Table-VI).

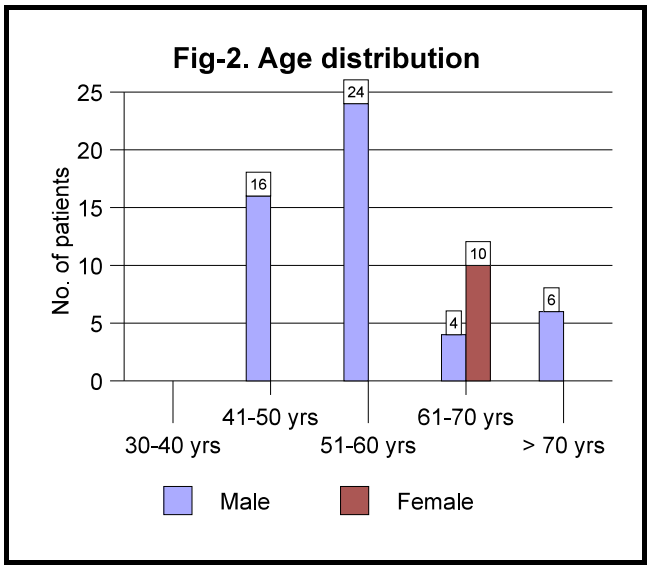


Table-I. Distribution of patients according to occupation

Occupation	Male	Female	Total	%age
Farmer	26	-	26	43.3
Construction worker	16	-	16	26.6
Unemployed	08	02	10	16.6
Household	-	08	08	13.3
Total	50	-	-	-

A number of postoperative complications were observed after various reconstructive procedures. Wound was found to be commonest complication; with majority of cases getting only minor wound infection (Table-VII).

Out of the 60 cases of BCC, in 2 (all male) 3.3% cases lesion size was < 1 cm, in 18(14 male, 4 female) 30% 1-2 cm, in 28(26 male, 2 female) 46.6% 2-4 cm and in 12(8 male, 4 female) lesion size was > 4 cm.

Table-II. Delay in presentation

Time in years	Male	Female	Total	%age
< 5	-	-	-	-
6-10	30	04	34	56.6
11-15	16	04	20	33.3
16-20	02	-	02	03.3
> 20	02	02	04	06.6
Total	50	10	60	-

Table-III. Site of lesion

Site	Male	Female	Total	%age
Cheek	10	02	12	20.0
Nose	12	02	14	23.3
Eyelids/Orbit	18	02	20	33.3
Hands	-	-	-	-
Pinna	-	-	-	-
Forehead	06	-	06	10.0
Involving > 1 area	04	04	08	13.3
Total	50	10	60	-

Table-IV. Clinical type

Type	Male	Female	Total	%age
Nodular	08	02	10	16.6
Superficial	02	02	04	06.6
Nodular pigmented	32	04	36	60.0
Morphaeform	08	02	10	16.6
Gorlin's syndrome	-	-	-	-
Total	50	10	60	-

Most of the patients i.e. 20 (16 male, 4 female) 33.3% were given local anaesthesia and in remaining 40 (34 male, 6 female) 66.6% patients were given general

anaesthesia. After one week all 60 (50 male, 10 female) patients came for follow-up, after two weeks 56 (46 male, 10 female) 93.3% patients reported, after one month 44 (36 male, 8 female) 73.3% patients come and after three months one 24 (20 male, 4 female) 40% patients come for follow up.

Table-V. Histological variant

Histological variant	Male	Female	Total	%age
Solid type	32	04	36	60.0
Adenocystic	16	02	18	30.0
Keratotic	02	02	04	06.6
Superficial spreading	-	02	02	03.3
Total	50	10	60	-

Table-VI. Mode of reconstruction

Method	Male	Female	Total	%age
Direct closure	12	02	14	23.3
Skin graft	20	04	24	40.0
Forehead flap	08	02	10	16.6
Cheek flap	10	02	12	20.0
Total	50	10	60	-

Table-VII. Follow up

Complications	Male	Female	Total	%age
Minor wound infection	04	02	06	10.0
Wound dehiscence	02	02	04	06.6
Nerve damage	02	-	02	03.3
Flap necrosis	-	-	-	-
Secondary procedure	02	-	04	06.6

DISCUSSION

Basal cell carcinoma of the skin is the single most common malignancy seen today and its incidence continues to increases. A spectrum of risk factors, environmental and congenital is linked to development of the disease and need to be elicited from the patient being evaluated a BCC.

Basal cell carcinoma usually discovered on sun-exposed area. Upto 85% of all BCC discovered in head and neck region, with 30% being found on the nose alone. The incidence of skin cancer has risen steadily during the past several decades. The number of new cases per year currently approaching one million in the United States alone. About more than 800,000 new cases have been diagnosed in 1996 in USA, which would be more than one third of all new cancer cases expected[9]. According to one study in USA, the annual incidence of BCC us about 900,000 in which 550,000 are male and 350,000 are female. The importance of BCC as a public health problem has been disregarded because its mortality rate is low. It is associated with considerable morbidity in term of loss of function and disfigurement along with substantial financial burden in term of its treatment. Metastatic BCC is rare, the incidence varying in reports from 0.0028% to 0.1%[10]. Metastatic BCC is 2 times more common in men than in women and has an earlier age of onset[11].

Surgical excision is the most commonly used method of tumour treatment by surgeon. Cure rate is 95%, approaching 99% when histopathological margins are negative[12]. Advanced skin cancer of the head and neck region is best managed by multidisciplinary approach. The goal is to control the quality of life. The reconstructive surgeon brings specialized expertise in modern techniques of tissue transfer to provide the optimal restoration for patient following the resection of the tumour.

Reconstruction of facial defects poses the interesting challenges of finding the most satisfactory flap both aesthetically and functionally. It requires not just a

knowledge of the flap, but an ability to think and plan in three dimensions[13].

BCC is the more common skin malignancy reporting to our OPD. The age related data revealed that the most vulnerable age group of the patients presented to us were adults with age ranging from 51-60 years (40%) and majority of them were male. No patient came below the age of 40 years. About 14 (24%) cases of the study belonged to the age above 61 years. But in elders this study shows the equal ratio of sex incidence. In this study the average male to female ratio is 5:1, which is much higher than the American study, over the sex incidence in BCC, which was about 3:2[14]. The reason for this difference is that in our setup male has maximum exposure to the outdoor activities as compared to the female. In contrast to this in United States female also took part in the outdoor activities and wear light clothes and have maximum exposed areas of the body to the sunlight, leads to the increase incidence in them which has been reported to be the single most important causative factor[15]. The mean age group in this study was 49.5 years.

It is a widely established fact that fair skinned people exposed more to the sunlight, are at a greatest risk of developing BCC[16,17]. This was further proved in present study, where most of the patients (70%) were outdoor workers. This is why the reason the incidence of BCC is less in female who were household and sit idle at home. But again this study shows difference from the study conducted in USA where female also involved in outdoor activities and have higher incidence of BCC as compared to our females. Majority of the patients were farmers (43%) and construction workers (26%).

Most of the patients about 56% presented 5-10 years after first noticing the lesion. The maximum time lapse was 25 years shown in 6% cases. No patient reported earlier than 5 years. This delay in presentation led to the development of large disfiguring lesions in many of out patients, which affect the prognosis, mode of treatment and recurrence rate. About 33% cases presented 11-15 years after the appearance of the lesion. But in the international studies the average time lapse between the appearance of the lesion and presentation to the consultant surgeon was very short because people were very conscious about their health status, latest medical facilities were available and awareness programmes have been instituted regularly about health I their community. That is why the reason the late presentation and advance disease is rare and the cure rate is better than here.

Most of the lesions were of 2-4 cm in size in about 47% patients. Only 4% patients presented early with a lesion size of 0.9 cm. Thirty per cent patients have tumour size range between 1-2 cm. Few patients (20%) present with advanced lesions disfiguring the face which were due to the late presentation of the patients. As reported in literature large lesions tend to be more difficult to excise and reconstruct, so have great tendency to recur[18].

BCC is reported to occur anywhere on the body, especially on the sun-exposed area like face, neck and extremities. About 85% of the BCC occur in head and neck region only[7]. In present study, all the patients presented had lesions on different part of the face area only. In 13% of our patients had the involvement of more than one area on the face. All of them had extensive tissue destruction requiring wider excision margins and complex method of reconstruction. One of the patients had lost his left eye during the disease process. About 23.3% patients with lesion over the nose area, the incidence of which was nearly equal to the study conducted in USA, which showed about 26% incidence of BCC over nose[19]. In the same way about 20% cases had lesions over the cheek region, which also comparable to the American study having 16% incidence in cheek region[19]. Maximum patient presented with a lesion in the area of periorbital region (34%)[20]. We have also a comparison incidence of this area with another American study. No lesion seen over the ear and extremities. Forehead and scalp region involved in only 10% of the patients, which is a quite notorious area in term of recurrence.

Out of many proposed biopsy techniques, we applied excisional biopsy in all but one case where incisional biopsy was performed prior to the definitive excision. We excised the lesion with normal looking margins of 5 mm or more. The specimen was mapped with sutures for convenience of reporting. In only 6 cases we had to re-excise the reportedly involved margins. Most common variant found on histopathology was of solid type in about 60% cases showing little or no differentiation. Both keartotic and adenocystic variety seen in almost 7% and 30% cases respectively which were well differentiated[21].

Majority of small lesions (< 2 cm), which were on cheek and nose, were excised and reconstructed under local anaesthesia, which constitutes about 34% cases. For all the rest 67%, we had to employ general anaesthesia due to the lengthy and complexity of the procedure for reconstruction.

In Nishtar Hospital, Multan for different methods of reconstruction applied to different patients according to the site and size of the lesions and the age of the patient after the excision of the lesion. In majority of the patients (40%) skin grafting were employed. It was simple split skin graft usually taken from the supraclavivular fossa to match with the colour of face skin. In most of the patients 24% direct primary closure done after simple excision especially in those who have lesions < 2 cm not infiltrating to the deeper structures. Of this procedure, some required only a small amount of mobilization of skin. But extensive lesions whose excision resulted in major defects, required extensive mobilization of the skin for the required flap for example cheek rotation in 20% cases forehead flap rotation done 17% cases. More extensive the skin mobilization, more are the chances of this flap being associated with complications like flap necrosis. In a study flap necrosis rate has been reported 2.9%. But in present study there was no incidence of flap necrosis. This shows that careful planning of skin flaps and appropriate handling of the tissue can minimize the damage to the flap resulting in lower rate of flap necrosis.

Massive amount of skin mobilization in the region of cheek is associated with other complication like damage to the facial nerve. This occurred in only 3.33% cases of the study. Flaps on the face are associated with complications of pin cushioning. This occurs because of the contours of the face as well as the amount of excessive fat in the flap. Secondary procedures are done to defat the flap. In present study secondary procedures were required in 6.66% of the cases. This is higher as compared to the rate of secondary procedures reported by Schleiphak et al, which is 4.7%[22].

The commonest complication associated with all the surgical procedures is the infection of the wound. An overall rate of 16.6% was found in our study compared to the study in which the rate was 2.29%[23]. Of 16.6% cases, a major portion i.e. 10% was formed by minor infections like stitch abscesses whereas rest of the 6.66% were the major wound infection resulting in wound dehiscence. This shows proper sterilization techniques in our operation theaters.

Follow-up was done for three months and no recurrence was found in present study. This shows that the method of excision i.e. keeping a margins of 0.5-1 cm of healthy skin followed by frozen section histological study of the specimen is a satisfactory method, as no recurrence has been observed over a period of three months. But long-term follow-up is mandatory as the recurrence may occur even after 3 years of excision[24]. Follow-up especially indicated in cases of lesion being located at the sites where they tend to be lesions, in histologically aggressive lesions and where the lesions have been excised incompletely.

CONCLUSION

It is concluded that an earlier diagnosis of lesion can reduce the rate of complication. Preventive measures should be taken to avoid the occurrence of this lesion such as using the sun screens, protective clothing and education programmes, as they relate to the hazards and potential sequelae of sun exposure and tanning parlors. It also includes information on the status of clinical and laboratory investigation in the development of agents to

prevent skin cancer in high-risk individuals.

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