

Cutaneous Malignancies: Presentation and Outcome in a Plastic Surgical Unit

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Objective: The study was undertaken to document the presentation and outcome of cutaneous malignancies in our set up.

Study Design: Descriptive study.

Place and Duration: This study was carried out in the Department of Plastic and Reconstructive Surgery, Pakistan Institute of Medical Sciences (PIMS), Islamabad during the period from July 01, 2006 to June 30, 2008.

Materials and Methods: All patients who presented with various cutaneous malignancies at our department were included in the study by convenience sampling technique. Those patients who did not consent to participate in the study were excluded. Initial assessment and diagnosis was made by history, physical examination and fine needle aspiration cytology (FNAC). Wedge / excision biopsies were performed in all patients. Local extent of tumour was assessed with CT scan in selected patients. The sociodemographic profile of the patients, type of malignancy, type of surgical procedure undertaken, complications encountered, morbidity and mortality were all recorded on a proforma. The data were subjected to statistical analysis.

Results: Out of a total of 103 patients, 56.31% (n=58) were males while 43.68 % (n=45) were females. The mean age was 53 ± 17 years. There were 55 cases of BCC, 40 cases of SCC, 6 cases of malignant melanoma, and one case each of trichilemmal carcinoma and dermatofibro-sarcoma protuberance (DFSP). Face was the most frequent site of involvement (n=72), followed by leg (n=9), neck (n=6), arm (n=5), scalp (n=4), hand (n=3), chest (n=2), and back (n=2).

The rate of hospitalisation was 12.62%(n=13). The average hospital stay was 5 days (range 3-9days). There was no in-hospital mortality.

Conclusion: Cutaneous malignancies constitute a significant source of morbidity and hospitalization especially in the elderly population. In our set up, BCC constitutes the leading type followed by SCC. Painless skin lesion of a relatively longer duration is the usual presenting feature. Surgical excision and reconstruction of the defect with skin graft or flap is the most frequently instituted definitive treatment. A good percentage of our patients present late with locally advanced cancer and are not amenable to surgical excision, necessitating radiotherapy or chemotherapy.

Key words: Cutaneous malignancies. Non-melanoma skin cancers. Basal cell carcinoma. Squamous cell carcinoma. Malignant melanoma.

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Introduction

Cutaneous malignancies constitute one of the most common human malignancies. Annually, more than 400,000 people find out they have skin cancer. Etiology is related to various factors such as skin type, age, sun exposure and many other factors. Predisposing factors include individuals with a fair or light complexion, a history of severe sunburns, poor tanning capability, inherited disorders (e.g. xeroderma pigmentosa, albinism etc.), and immunocompromise etc.¹⁻³ A linear correlation exists between the frequency

of skin cancer and the amount of ultraviolet (UV) light exposure. The exaggerated and repeated exposure to UV light emanating from the sun is regarded as the most important risk factor for skin cancer. This exposure is increased owing to depletion of ozone layer which normally restricts the transmission of type B and C UV light. Early recognition and biopsy of suspected lesions greatly improves outcomes.^{4,5}

The skin cancers are classified into melanomas and non-melanoma skin cancers (NMSC). Basal cell carcinoma (BCC) and Squamous cell carcinoma (SCC) are the commonest types of non melanoma skin

cancers². Although having greater incidence, the mortality of BCC and SCC is still low as compared to the alarmingly high mortality of malignant melanoma.⁶ Malignant melanoma poses an emerging challenge as increasingly number of individuals are affected by it. Its incidence is estimated to be rising by almost 6% per year.^{7,8}

Cutaneous malignancies are not uncommon in our population. Most of our patients present with fairly advanced stage. The present study was undertaken to measure the frequency of cutaneous malignancies in our set up, analyse the sociodemographic profile of the patients, assess the associated morbidity and mortality and collect actionable evidence base for evolving meaningful strategies to address this emerging public health issue.

Materials and Methods

This study was carried out in the Department of Plastic and Reconstructive Surgery, Pakistan Institute of Medical Sciences (PIMS), Islamabad during the period from July 01, 2006 to June 30, 2008.

All patients who presented with various cutaneous malignancies at our department were prospectively included in the study. Convenience sampling technique was employed. Those patients who did not consent to participate in the study were excluded. Initial assessment and diagnosis was made by history, physical examination and fine needle aspiration cytology (FNAC). Wedge / excision biopsies were performed in all patients. Local extent of tumour was assessed with CT scan in selected patients. Additionally the basic essential work up was done in patients undergoing surgical excision of the tumour and reconstruction of the defects. All the patients were managed according to the standard oncologic principles of cutaneous malignancies^{1,3,7}. Any reconstructive surgical procedure required was instituted according to the condition of the individual patients and their defects.

The sociodemographic profile of the patients, type of malignancy, type of surgical procedure undertaken, complications encountered, morbidity and mortality were all recorded on a proforma. Figures I through VI show some representative pictures of the included patients.

Statistical Analysis

The data were analysed through SPSS version 10 and various descriptive statistics were used to calculate frequencies, percentages, means and standard deviation. The numerical data such as age and duration of hospitalization was expressed as Mean $\pm$ Standard deviation while the categorical data such as

the types of malignancies, body area distribution of the tumours, interventional procedures employed and complications observed were expressed as frequency and percentages.

Results

Out of a total of 103 patients with various cutaneous malignancies, 56.31% (n=58) were males while 43.68 % (n=45) were females. The mean age was 53 ± 17 years. There were 55 cases of BCC, 40 cases of SCC, 6 cases of malignant melanoma, and one case each of trichilemmal carcinoma and dermatofibrosarcoma protuberance (DFSP). Face was the most frequent site of involvement (n=72), followed by leg (n=9), neck (n=6), arm (n=5), scalp (n=4), hand (n=3), chest (n=2), and back (n=2).

Table I: Gender-Wise distribution of the patients (n=103)

MALIGNANCY	No. OF MALE PATIENTS (%)	No. OF FEMALE PATIENTS (%)	p- Value
BCC	29(52.72%)	26 (47.27 %)	>0.005
SCC	21 (52.50%)	19 (47.50%)	>0.005
MELANOMA	6 (100%)	-	<0.005
DFSP	1 (100%)	-	<0.005
TRICHILEMM	1 (100%)	-	<0.005
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Table II: Various interventional procedures undertaken in the patients (n=103).

INTERVENTIONAL PROCEDURES	No. OF PATIENTS (%)
Wedge biopsy /	103(100%)
Excision biopsy	
Wide local Excision of	92(89.32%)
the tumour	
Re-resection of	14(15.21%)
positive Margins	
Skin grafts	77 (83.69%)
Flap Coverage	15(16.30)
Groin Lymph Node	3(3.2%)
clearance	

Table III: Various complications encountered among the patients (n=103)

COMPLICATONS	No. OF PATIENTS (%)
Wound infection	2 (2.17%)
Partial graft rejection	3(3.26%)
Full graft rejection	1 (1.08%)
Flap tip necrosis	1 (1.08%)



Figure I: Recurrent BCC of 13 Years Duration.



Figure IV: SCC of Hand



Figure II: Multiple SCCs in a patient with Albinism.



Figure V: Marjolin Ulcer (SCC) developing in a 17 Years old Postburn Scar.



Figure III: Multiple SCCs in a patient with Xeroderma Pigmentosa.



Figure VI: Malignant melanoma developing on Heel.

Residence-wise, 45.63% (n=47) patients were from the twin cities of Islamabad and Rawalpindi, 32.03% (n=33) from Azad Jammu Kashmir, 18.44% (n=19) from Upper Punjab, 2.91% (n=3) from NWFP, and one patient (0.97%) was Afghan refugee.

Painless skin lesion was the most common presenting feature (n=103), followed by non-healing ulcer in a previous scar (n=13) and changes in a pre-existing mole (n=6).

Gender-wise distribution of the various malignancies is shown in Table I. The various surgical procedures undertaken are depicted in Table II. Table III shows our share of complications. The rate of hospitalisation was 12.62 % (n=13). The average hospital stay was 5 days (range 3-9days). There was no in-hospital mortality.

Discussion

103 patients of skin malignancies over two years period indicates a high frequency of cases in our set up. Skin cancer is found to be more common among Caucasians as compared to Africans, Asians, Latin-Americans, and American-Indians. However in these later groups greater morbidity and mortality has been observed owing to atypical presentations in these groups.⁹ Internationally a rising trend has been shown in the incidence of cutaneous malignancies. For instance non-melanoma skin cancers, which constitute the most common cancer in Australia have shown an alarmingly rise in its incidence over the last two decades. BCC's incidence has increased by 19 % between 1985 and 1995 while the incidence of SCC has increased by 93 % over the same period¹⁰. The incidence of malignant melanoma has risen by an average 3%–7% over the last several decades^{11, 12}. Increased exposure to UV light emanating from the sun secondary to depletion of the ozone layer is considered to be the most important aetiological factor responsible for the increased incidence of cutaneous malignancies.⁵ This has been compounded by changes in clothing habits and life styles over the past half century.¹³

In our study an overall slight male preponderance was seen among the patients. i.e. males were 58 while females were 45. In patients with BCC and SCC the incidence was slightly higher among males than females but the difference was statistically insignificant, however all six cases of malignant melanoma and each of the trichilemmal carcinoma and DFSP were found exclusively in males. Higher incidence of these malignancies has also been reported by other local studies^{14,15}. In the US, the rate of NMSC among men has been reported to be twice that among women.⁶

The higher incidence of malignant melanoma among men is reported by other published studies as well¹¹.

In our study the patients' mean age was 53

years. Our youngest patient was of 9 years. He had SCC and was a case of xeroderma pigmentosa. Our eldest patient was 82 and had BCC. A Karachi base study reported patients with age ranging from 8 - 92 years in a study of 75 cutaneous cancers patients. 16 Another local study reported patients ranging in age from 15 to 103 years¹⁵.

In our study 93.20 % of the cutaneous malignancies were NMSC. Out of these BCC and SCC did not differ widely with respect to their frequency. These findings are in conformity with those of another local study¹⁶, but in sharp contrast to the Western data that show the incidence of BCC to be 3-4 times greater than that of SCC¹⁻³. A local study has reported SCC as the most frequent skin cancer¹⁵. In dark skinned ethnic groups, SCC has been shown to be the most commonly encountered cutaneous malignancy and exposure to ultraviolet light has been found to be un-important etiologic factor in this regard¹⁷.

In the majority of our patients with BCC and SCC, we employed surgical excision as the mainstay of management. Subsequent reconstructions of the defects were done with skin grafts and different flaps. Cure rates depend on the size, histotype, and anatomic location of the lesion. In BCC, margins of 5 mm are recommended to achieve cure. In SCC, 4 mm margins for lesions less than 2 cm and 1cm for larger lesions are recommended. "The larger the lesion, the wider the margin" is a good general rule. Recurrence rates are higher in tumors wider than 3 cm or in areas where maximum tissue preservation is required. Positive margins after primary resection must be re-excised for cure. Recurrent tumors require larger surgical margins than those used in primary resections¹⁻³.

For primary lesions (of BCC and SCC) of non-critical areas, smaller than 2 cm, certain alternative management modalities exist and are often used by dermatologists. e.g. electrodesiccation and curettage, cryotherapy etc. The cure rates for these treatment modalities reportedly are 90%-98%. There are certain disadvantages associated with these techniques. For instance, these do not provide any resection specimen for histological confirmation of oncologic clearance. The recurrence rates are around 50% for tumors wider than 3 cm¹⁻³. Cryosurgery also causes significant scarring, hypopigmentation, and potential injury to adjacent nerves. Scar contracture may cause problems especially in the periorbital or perioral lesions^{2, 18}.

Though not yet available in Pakistan, Mohs micrographic surgery (MMS) is in vogue in the developed countries. It is a tissue sparing technique employed for managing primary and recurrent BCC and SCC of critical areas. It entails horizontal frozen sections of the entire undersurface of the excised tissue, microscopic examinations of the sections and then plan the extent of the resection accordingly. It has

advantageous in critical areas, such as the medial and lateral canthi, perioral area, and nasal ala etc. Cure rates for this technique are higher than surgical excision, for instance for BCC the cure rate is 99% for primary lesions and 96% for recurrent lesions^{2, 3, 19, 20}. Most of the authorities do not consider MMS a prudent management option for malignant melanoma^{7, 19, 21}.

Eleven of our patients had locally advanced irresectable malignancies. Lack of awareness, public apathy regarding health issues, poverty etc are few of the reasons for delayed presentation. Such patients with late presentation often have locally advanced cancer, not amenable to surgical excision, necessitating radiotherapy or chemotherapy. There is need of mass awareness to prompt early medical consultation in such neglected cases. The patients with locally advanced cancers were referred to NORI for radio-chemotherapy. Radiotherapy has been shown to be effective in old patients who are poor surgical candidates³.

There was no in-hospital mortality; however the patients with malignant melanoma were potential non-survivors.

Conclusion

Cutaneous malignancies are not uncommon in our set up. These constitute a significant source of morbidity and hospitalization especially in elderly population. In our set up, BCC constitutes the leading type followed by SCC. Painless skin lesion of a relatively long duration is the usual presenting feature. Surgical excision and reconstruction of the defect with skin graft or flap is the most frequently instituted definitive treatment. A good percentage of our patients present late with locally advanced cancer and are not amenable to surgical excision, necessitating radiotherapy or chemotherapy. There is intense need of mass awareness and to foster knowledge about the medical and socioeconomic implications of this emerging health issue. This will help not only help to prevent the avoidable causes but also prompt early medical consult in case an individual develops such skin lesions.

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