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Original Research Article

An analysis of surgically treated cutaneous malignancies in central India

Amar Jain, Sanjay Desai*, Zeeshanuddin Ahmad, Deepak Agrawal, Nikhil Mehta

Department of Surgical Oncology, Sri Aurobindo Medical College and Post Graduate Institute, Indore, Madhya Pradesh, India

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***Correspondence:**
Dr. Sanjay Desai,
E-mail: amar_doc6@yahoo.com

ABSTRACT

Background: Cutaneous malignancies constitute one of the most common human malignancies. Annually, more than 400,000 people are diagnosed to have skin cancer. The skin cancers are classified into melanomas and non-melanoma skin cancers (NMSC). In India, skin cancers constitute about 1-2% of all the diagnosed cancers. The present study was undertaken on 41 patients presented to tertiary health centre to measure the frequency of cutaneous malignancies in our set up, analyse the demographic profile of the patients, assess the associated morbidity and mortality, formulate the treatment protocols and collect actionable evidence base for evolving useful strategies to address this emerging public health issue.
Methods: Present study was carried out in the Department of surgical oncology, Sri Aurobindo Institute of Medical Sciences (SAIMS), Central India during the period from Jan 2015 to Dec 2017. The patients included in this study fulfilled the inclusion criteria which was first who presented with cutaneous malignancy confirmed by histopathology and surgical intervention.
Results: Out of a total of 41 patients with various cutaneous malignancies, 53.7% (n=22) were males while 46.3 % (n=19) were females. The mean age was 53.92 years. There were 24 cases of SCC, 4 cases of BCC, 5 cases of malignant melanoma, two cases of malignant fibrous histiocytoma, two cases of sebaceous and one case each of dermatofibrosarcoma protuberans, epithelioma, capillary haemangioma and poorly differentiated carcinoma respectively. Face was the most frequent site of involvement (n=17), followed by trunk (n=6), scalp (n=5), lower limb (n=5), genital (n=4), upper limb (n=3) and neck (n=1).
Conclusions: Cutaneous malignancies are not uncommon in our set up. In our set up, SCC constitutes the leading type. Painless skin lesion of a relatively long duration is the usual presenting feature. There is intense need of mass awareness and to impart knowledge about the medical and socioeconomic implications of this emerging health issue. This will not only help to prevent the avoidable causes but also prompt early medical consultation in case an individual develops such skin lesions.

Keywords: Cutaneous malignancy, Skin cancer

INTRODUCTION

Cutaneous malignancies constitute one of the most common human malignancies. Annually, more than 400,000 people are diagnosed to have skin cancer. Etiology is related to various factors such as race, age, sun exposure and many other factors. Predisposing factors include individuals with a fair complexion, a

history of severe sunburns, minimal tanning capability, inherited disorders (e.g. xeroderma pigmentosa, albinism etc.), and immunocompromise etc.[1,2] 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 thoughtful lesions greatly improves outcomes.[3,4] 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 cancers.[1]

In India, skin cancers constitute about 1-2% of all the diagnosed cancers. NMSCs though common, are rarely associated with metastasis. Due to low mortality rate of NMSCs, these are often under-reported in cancer registries in many countries worldwide, including India. Although having greater incidence, the mortality of BCC and SCC is still low as compared to the alarmingly high mortality of malignant melanoma.[5] Malignant melanoma poses an emerging challenge as increasingly number of individuals is affected by it.

Its incidence is estimated to be rising by almost 6% per year.[6,7] Cutaneous malignancies are not uncommon in our population. 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 useful strategies to address this emerging public health issue.

Our main objective was to establish the demographics of primary cutaneous malignancies in central India.

METHODS

Present study was carried out in the Department of surgical oncology, Sri Aurobindo Institute of Medical Sciences (SAIMS), Central India during the period from Jan 2015 to Dec 2017.

Patients

The patients included in this study fulfilled the inclusion criteria which was first who presented with cutaneous malignancy confirmed by histopathology and surgical intervention.

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 tumor was assessed with CT scan in selected patients.

Additionally, the basic essential work up was done in patients undergoing surgical excision of the tumor and reconstruction of the defects. All the patients were managed according to the standard oncologic principles for cutaneous malignancies. Any reconstructive surgical procedure required was instituted according to the condition of the individual patients and their defects.

Data collection

Data were collected from patient records, pathologic reports and surgical notes. Afterwards, demographic data and skin cancer characteristics were extracted.

Data analysis

The following data were analyzed for each skin cancer: patent's age, sex, type and location of skin cancer, the surgical treatment used, its clinical efficacy according to status of surgical margins in the pathology report and surgical closure methods.

Statistical analysis

The IBM SPSS statistics software was used for analysis. The chi square test was used for qualitative variables. In all statistical tests $P<0.05$ was defined as significant.

RESULTS

Out of a total of 41 patients with various cutaneous malignancies, 53.7% (n=22) were males while 46.3 % (n=19) were females. The mean age was 53.92 years. There were 24 cases of SCC, 4 cases of BCC, 5 cases of malignant melanoma, two cases of malignant fibrous histiocytoma, two cases of sebaceous and one case each of dermatofibrosarcoma protuberans, epithelioma, capillary haemangioma and poorly differentiated carcinoma respectively. Face was the most frequent site of involvement (n=17), followed by trunk (n=6), scalp (n=5), lower limb(n=5), genital(n=4), upper limb(n=3) and neck (n=1). Figures 1-9 showing various pictorial presentation of cutaneous malignancies.

Figure 1: BCC face.

Figure 2: SCC abdomen.

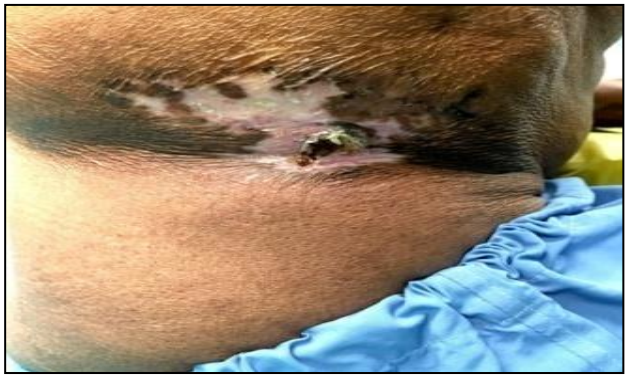

Figure 3: Dhoti ulcer.

Figure 4: SCC lip.

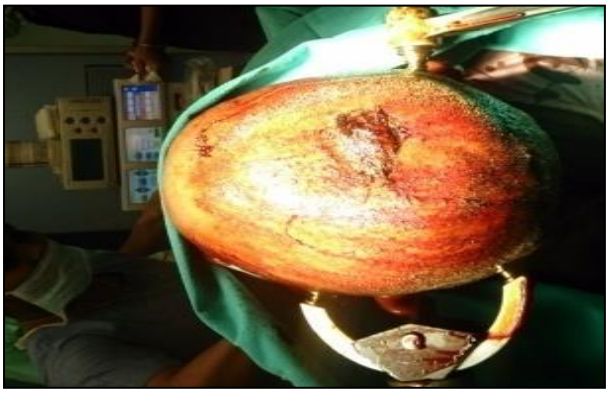

Figure 5: BCC scalp.

Figure 6: SCC foot.

Figure 7: Sebaceous carcinoma.

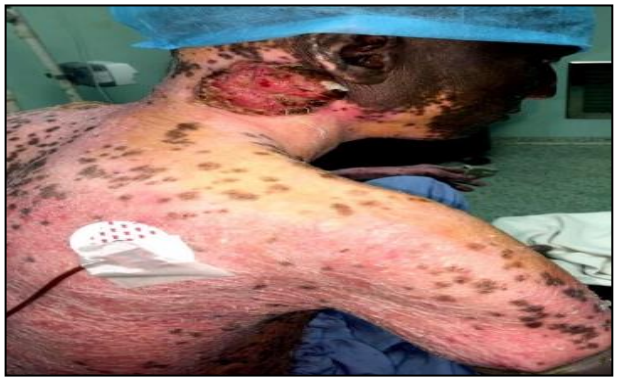

Figure 8: SCC neck.

Figure 9: Sebaceous ca.

Painless skin lesion was the most common presenting feature, followed by non-healing ulcer in a previous scar and changes in a preexisting mole. Gender-wise distribution of the various malignancies is shown in Table 1. The various surgical procedures performed during this study are depicted in Table 2. The various sites of involvement in relation to histopathology is depicted the form of Figure 10. The various clinical pictures of presented with variety of skin lesions shown in Figure 1-9. The average hospital stay was 5 days (range 3-9days). There was no in-hospital mortality.

Table 1: Gender wise distribution of various malignancies.

		Histopathology									
		Basal cell carcinoma	Squamous cell carcinoma	Malignant firous histocytoma	Mela-noma	Seba-ceous carcinoma	Dermatofibroma protuberans	Poorly differ-entiated carcinoma	Epithe-loma	Capillary haemangioma	Total
Sex	M	1	14	2	1	1	1	0	1	1	20
	F	3	10	0	4	1	0	1	0	0	19
Total		4	23	2	5	1	1	1	1	1	39

Table 2: Different types of surgeries performed during this study.

Type of surgery	No. of cases (n)
Wide local excision	10
Grafting	12
Rotation flap	7
Free flap	1
Forehead flap	3
Submental flap	1
Limb salvage	1
Abbes flap	1
PMMC flap	2
APR	4
Amputation	2
Nodal dissection	13

DISCUSSION

Skin cancers have rising incidence worldwide since the last few decades. Overall incidence of cutaneous malignancies is lower in Indian population due to increased melanin content of Indian skin and latter provides protection against ultraviolet radiation, which is the single most important risk factor for melanoma as well as NMSCs. Though exact incidence of skin cancers in India is not known, their overall incidence has increased and NMSCs are encountered more frequently as compared to melanoma.

SCCs usually arise from the basal cell layer of epidermis, generally from an area of pre-existing skin damage. In dark skin, SCC has been reported to be most common skin cancer and various studies from India have reported SCC to be most prevalent skin cancer.[8-11] This was in concordance with our study, which reported SCC to be most common having incidence of 59%. The risk of both SCC and BCC increases with increase in age and with cumulative sun exposure, being more so in former.[12] 71.2% cases of SCC in our study developed in more than 50 years old age group. Head and neck was the most affected site accounting for 69% cases of SCC. Direct sun exposure is a major risk factor for SCC.[13] In contrast to White population, non-exposed sites are more frequently affected by SCC in dark skinned population.[14] Other risk factors for development of SCC are chronic scarring, pre-existing dermatological conditions like hypertrophic lichen planus, lichen sclerosus atrophicus, disseminated porokeratosis.[15,16] M:F ratio for incidence of SCC in our study is 1.3:1. Surgical excision of resectable SCC lesions is the mainstay of treatment, with incomplete resection reported between 5.8% to 15.9%, rates of metastases range between 5% and 47%.[17] Electrodessication and cryotherapy are destructive methods used for small lesions, but these leave no tissue for examination, and have high rates of recurrence.[18] Photodynamic therapy and radiation therapy have also been used as a primary treatment of SCC lesions; radiotherapy has cure rates of up to 90%. Its use is generally limited to patients who either refuse surgery, have advanced unresectable lesions, or whose comorbid medical conditions preclude surgical intervention.[19] Topical Imiquimod, considered an immune response modifier, may be effective therapy for both SCC and BCC. Topical fluorouracil has also been successfully used.[20]

BCC is a nonmelanocytic skin cancer that arises from basal cells of the epidermis. Although BCC may invade tissue locally, it seldom metastasizes. BCC is the most common cutaneous malignancy among Whites but remains relatively rare among Blacks.[21] Up to 80% of all lesions of BCC are found on the head and neck, whereas approximately 15% develop on the shoulders, back or chest.[22] This is in concordance with our study in which about 100% lesions of BCC occurred over head and neck region.

Our study showed higher incidence of BCC in females than males, male to female ratio being 1:3. However, BCC is reported to have male preponderance due to greater cumulative exposure to UV light. Another case series reported from India showed unusual female preponderance.[23] Hematogenous and lymphatic metastases of BCCs is rare, reported at less than 0.1%.45 Although destructive methods (electrosurgery, cryosurgery, radiotherapy etc) are used, wide surgical excision (with margins of 4mm for lesions less than 2cm diameter, and a 12mm margins for lesions greater than 2cm or Moh's excision with histologic control) is the preferred mode of treatment. Radiotherapy and chemotherapy may be used for the treatment of metastatic or recurrent BCC.[24]

MM is the third most common cutaneous malignancy after NMSC worldwide. MM is thought to arise from epidermal melanocytes; most (70%-80%) melanomas arise de novo without a precursor lesion. Exposure to sunlight, fair skin, and nevi are the main known risk factors. About 5% to 10% of patients present with metastatic disease, without an obvious primary. 35 MM is the most lethal form of skin cancer accounting approximately to 75% of all skin cancer deaths in the United States. 3 females were more commonly involved in our study with M:F ratio being 1:4.

The study by Wanebo et al, showed female preponderance while another study by Sharma et al, reported a higher male preponderance in India.[25] Treatment of MM consists of surgical excision with the appropriate margins, and an assessment of nodal status. Elective nodal dissection though advocated by some, is controversial. Sentinel node mapping in clinically impalpable nodes, especially in the limbs, is preferred. Adjuvant interferon (IFN) alfa-2b is used in high-risk melanoma.[26,27] Chemotherapy and radiation therapy (for the nodal basin) have also been used, especially in high-risk MM.

Other cases observed were malignant fibrous histiocytoma, sebaceous carcinoma, dermatofibrosarcoma protuberans, poorly differentiated carcinoma and epithelioma. DFSP is a rare low grade mesenchymal tumor of the dermis, comprising less than 0.1% of all tumors; it occurs most commonly in the trunk.[28] In the current study there was one reported case on scalp. The treatment of choice is wide excision with a 3cm margin, including underlying fascia; however, even then a recurrence rate of up to 25% may occur; Mohs micrographic surgery may have a lower recurrence rate than wide resection.[29] MFH is a heterogeneous group of aggressive soft-tissue sarcomas, mainly composed of fibroblastic and histiocytic cells; the tumors most commonly occur in skeletal muscles of extremities and retroperitoneum of adults (ages, 50-70 years) two cases in lower limb were reported in this study. Prognosis of MFH is influenced by tumor location, size and histologic grade.[30] Sebaceous carcinoma is a rare malignancy displays an aggressive behavior. Most commonly found in the elderly, these lesions have a predilection for the periocular region; it may affect more females than males. Other common sites include the face, scalp, and neck. It is also called Meibomian gland carcinoma because of its predilection for the periocular region.[31] One case each of scalp and upper limb sebaceous carcinoma is reported in this study.

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, SCC constitutes the leading type. 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. Most 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 impart knowledge about the medical and socioeconomic implications of this emerging health issue. This will not only help to prevent the avoidable causes but also prompt early medical consultation in case an individual develops such skin lesions.

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