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RESEARCH ARTICLE

CUTANEOUS MALIGNANCY: OUR OBSERVATIONS AND REVIEW OF LITERATURE

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ABSTRACT

Background: Cutaneous malignancies are relatively rare in Indian subcontinent compared to western part of the world. Rarity of its incidence could be due to protective effects of melanin.Though it is the largest organ by surface area, occurrence of cutaneous malignancy is quite less compared to other organs. Presentation is usually earlier due to the fact that it is easily noticeable. **Objective:**To determine the age and sex incidence, common site of presentation, type of histology,optimal management and its outcome, also avoidable risk factors. **Methods:** It is retrospective analysis of all the cutaneous malignancies diagnosed and managed in the department of surgical oncology at tertiary care hospital from January 2016 to December 2018. **Results:** With this background, we present 15 cases of cutaneous malignancies which were managed over period of 3 years.3 cases were melanoma and 9 cases were squamous cell carcinoma and basal cell carcinoma was the final diagnosis in another 3cases. Surgical excision with adequate margins were done in 13 cases and palliative chemotherapy was given in one case and no cancer directed treatment was given in a case which had extensive skin lesion on scalp with poor general condition of the patient. **Conclusion:** Increasing incidence of cutaneous malignancy should alert the clinicians to create awareness regarding warning signs of skin cancer. Nonsurgical options needs to be considered especially in syndromic conditions and inoperable situations. Surgery with adequate margins offers the best option of cure.

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INTRODUCTION

The Reported incidence of cutaneous malignancy is as follows. Basal cell carcinomacontributes to about 65%-75% of skin cancers in whites and 20%-30% in Asian Indians and Squamous cell carcinomarepresents 30%-65% of skin cancers in blacks and Indians and 15%-25% in whites (Gloster, 2006).Non melanoma skin cancerare relatively more common in India compared to melanoma.Approximately 87,110 individuals are predicted to be diagnosed with melanoma in the United States alone (Surveillance, 2015). Markovic *et al.* have observed that males are approximately 1.5-times more likely to develop melanoma than females.Other studies have shown that the incidence rate of melanoma is grater in women than men until they reach the age of 40 years, however, by 75 years of age, the incidence is almost 3-times as high in men *versus* women (145.6 ***vs.*** 47.3 per 100,000) (Rigel, 2010; 4).

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The most common areas for melanoma are the back for men and the arms and legs for women (Markovic, 2007). Although having greater incidence, the mortality of BCC and SCC is still low as compared to the alarmingly high mortality of malignant melanoma (Lewis *et al*., 2007).

Risk factors

Squamous cell carcinoma: Commonly proposed risk factors are UVB (Ultraviolet B) radiation (Armstrong, 2001), Fitzpatrick skin types I and II, outdoor occupation, human papillomavirus (HPV) types 16, 18 and 31, and cutaneous genetically inherited skin diseases, like albinism, xerodermapigmentosum and epidermodysplasia verruciformis (Surveillance, 2015). However, the most important risk factor is represented by UV radiation and sunlight (Calzavara-Pinton, 2015). Other risk factors porposed are ARSENIC (Hunt *et al*., 2014), chronic leg ulcer (Patricia senet, 2014), transplant recipients have a 30-80-fold higher risk of developing NMSC (Moloney *et al*., 2006).

AK is the most common precursor of cutaneous SCC, and it represents a disease continuum (Apalla *et al*., 2017) Between 0.025% and 16% of AKs evolve to SCC every year (Chen *et al*., 2013; Glogau, 2000). Cytological atypia at the basal layer of the AK can determine progression to SCC (Ratushny *et al*., 2012). Chronic discoid lupus erythematosus is also known risk factor for squamous cell carcinoma (Dawn *et al*., 1994).

Basal cell carcinoma: Individual risk factors for BCC include gender, age, immunosuppression, genetic diseases (e.g., Gorlin–Goltz syndrome), and Fitzpatrick skin types I and II (Apalla *et al*., 2017). However, ultraviolet (UV) radiation plays the most important (Apalla *et al*., 2017), Lichter *et al*. reported that therapeutic ionizing radiations such as X-rays, lead to an increased risk of both BCC and SCC (Lichter *et al*., 2000). In particular, radiation therapy for acne has been reported to be associated with about a threefold risk of a new BCC (Karagas *et al*., 1996). HIV (Human immunodeficiency virus) infection has been proposed to be one of the risk factor (Crum-Cianflone, 2009).

Melanoma: It is more common in fair skinned people compared to dark. Exposure to Ultraviolet radiations is one of the common proposed etiological factor. A direct relationship between UVB and melanoma has been demonstrated, with a 10% increase in average annual UVB irradiation correlating with a 19% increased risk of melanoma (Fears *et al*., 2002), encouraging the use of sunscreen during outdoor activities, utilization of protective clothing, wide-brimmed hats, use of shaded areas, and being mindful of the daily UV index (American Academy of Pediatrics, 1999). Other risk factors proposed are Voriconazole (Lawrence *et al*., 2017) specially for squamous cell carcinoma.Some of the common premalignant skin lesions areActinic keratoses, Bowen's disease, Bowenoid papulosis, and parapsoriasis (Berna Aksoy *et al*., 2017). Mast cells have been proposed to be the contributing factor for tumorigenesis of cutaneous malignancies (SydneyCh'ng, 2006).

MATERIALS AND METHODS

It is a retrospective analysis of cases admitted and treated under Department of surgical oncology at tertiary care hospital from January 2016 to December 2018.Literature review was conducted using database pubmed, google scholar with key words cutaneous malignancy, skin cancer .Patients survival data is till the latest follow up.Patients treated by both surgical and nonsurgical methods were included.Staging was done according 8th edition AJCC staging system. Penile cancer was staged according to staging system used for Carcinoma penis.

RESULTS

Cases in our series ranged from 24 years to 82 years, with 11 males and 4 females.9 cases were squamous cell carcinoma, 3 cases were basal cell carcinoma and 3 cases melanoma. Lesions were found in scalp in 4 cases,face in 5cases,leg in 3 cases,thumb was involved in 1 cases, penile skin was involved in 1 case, back was involved in 1 case.Size ranged from 1.2 cm to 15 cm.14 cases are under follow up till date,with evidence of recurrence in 1 case. Reconstruction was done using split skin graft in 3 cases,rotation flap in 2 cases,supratrochlear flap in 2 cases, advancement flap in 1 case, free flap in 2 cases, and cross finger flap in 1 case.No major flap related complications found.In one of the case, excision was done at other hospital, for which details of size was not available.

Above knee amputation was done in one case, and total penectomy was done in case of carcinoma penile skin destroying whole of the shaft with bilateral ilioinguinal lymph node dissection.

Clinical and histological images of representative cases:

Figure legend:

- Subungual melanoma insitu of right thumb
- Cross finger flap to cover the defect
- Malignant melanoma of foot
- Free anterolateral thigh flap covering the defect
- Supratrochlear flap covering the defect over nose after excision of basal cell carcinoma
- Multiple squamous cell carcinoma over scalp in a known case of epidermolysis verruciformis
- Split skin graft to cover the large defect over scalp
- Excised specimen of squamous cell carcinoma over scalp
- Squamous cell carcinoma destroying whole of penis
- Basal cell carcinoma over infraorbital region over face.

DISCUSSION

Protective effect of eumelanin against Ultraviolet rays induced skin damage has been proposed as possible explaination for relatively lesser incidence of cutaneous malignancy among indian population (Yamaguchi, 2008). Prognostically, Non melanoma skin cancer has better overall survival compared to melanoma. TNM (tumor, node, metastasis) Staging used are different for melanoma and non-melanoma (AJCC, 8th edition). Simple edge biopsy from skin lesion establishes the diagnosis in almost all cases. High risk lesions of cutaneous SCC are location (ear, lip, anogenital and scars),diameter more than 2 cm /depth more than 4 mm or beyond subcutaneous fat, perineural invasion, poor differentiation, infiltrative or desmoplastic typr of growth pattern (Jennings *et al*., 2010). Role of Sentinel lymph node biopsy is still a matter of debate for non melanoma skin cancer (Matthey-Giè *et al*., 2013). In case of cutaneous melanoma, sentinel lymph node biopsy is indicated for tumor thickness (Breslow depth) greater than equal to 0.76mm (Phan *et al*., 2009).

There was no significant difference in survival between patients who had immediate lymph-node dissection and those who were observed and followed with ultrasonography in the study done by Faries MB *et al*. (2017). Various treatment modalities described are surgery, radiotherapy, chemotherapy, photodynamic therapy (Szpringer *et al*., 2004) targeted therapy. Different surgical modalities proposed are mohs micrographic surgery, wide local excision, electrodessication and curettage (Chren *et al*., 2011; Samarasinghe, 2012). Breslow thickness and clark's level of invasion, ulceration, lymphovascular invasion, lymph node status, mitoses are proposed to be important prognostic factors in melanoma (Doina Ivan, 2011). Split skin graft, full thickness skin graft, local flaps, free flaps are some of the commonly described reconstruction options.Nail apparatus melanoma (NAM) is known to be associated with a poor prognosis, mainly because of a late diagnosis, and a median Breslow thickness of approximately 3 mm compared with only 1 mm for cutaneous melanoma (Thai, 2011).

Table 1. Demographic, histomorphological data, treatment and its outcome

SL.NO.	AGE	SEX	HISTOLOGY	Size(cm)	SITE	Treatment	outcome
1	60	M	SCC	4x4	BACK	A+SSG	C
2	48	F	SCC	1.5x1.5	FACE	A+Rotation flap	C
3	26	M	SCC	4.5x4	SCALP	A+SSG	C
4	30	M	SCC	3x3.5	SCALP	A+SSG	Recurred
5	26	M	SCC	5x5	SCALP	A+Rotation flap	C
6	80	F	BCC	1.2x1.4	FACE	A+Advancement flap	C
7	46	M	BCC	1.5x1.5	FACE	A+suprarochlear flap	C
8	82	M	BCC	1.2x1.3	NOSE	A+supratrochlear flap	C
9	75	M	SCC	4x4	FACE	A+MRND+RFFF	C
10	50	M	SCC	12x15	SCALP	B	
11	24	F	Melanoma in Situ	**	SUBUNGUAL (Right thumb)	A+CROSS FINGER FLAP	C
12	56	M	Melanoma	3.5x3.5	FOOT	A+ALT flap	C
13	58	M	Melanoma	Tx	FOOT*	Popliteal fossa LND	C
14	60	F	SCC	6x6	LEG	AKA+IILND	C
15	56	M	SCC	7x4	PENILE SKIN	TP+BilateralIILND+Adjuvant RT+CT	C

SCC: Squamous cell carcinomaA- Wide excision
BCC: Basal cell carcinoma
SSG- Split skin grating
M –Male
MRND- Modified radical lymph node dissection
F – Female
RFFF- Radial free forearm flap
C- On follow up with no evidence of recurrence
ALT – Anterolateral thigh flap
IILND- Ilioinguinal lymph node dissection
AKA – Above knee amputation
CT- chemotherapy
RT- Radiotherapy
TP- Total penectomy
B- Extensive disease with poor general condition of patient
** - Due to previous biopsy, exact size could not be measured.
*- Excision was done in other hospital, and no details were available regarding the size of the lesion.

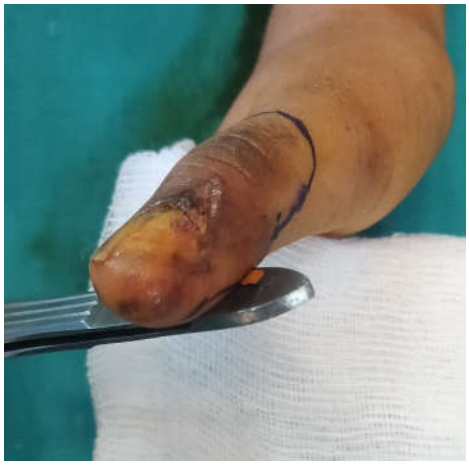
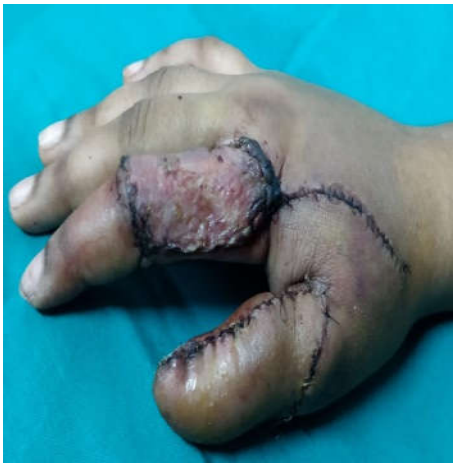


Figure 1.



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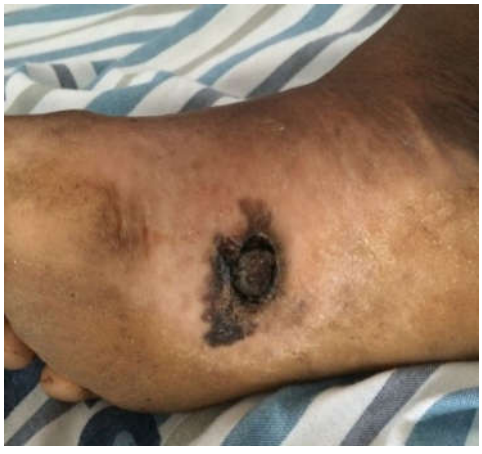

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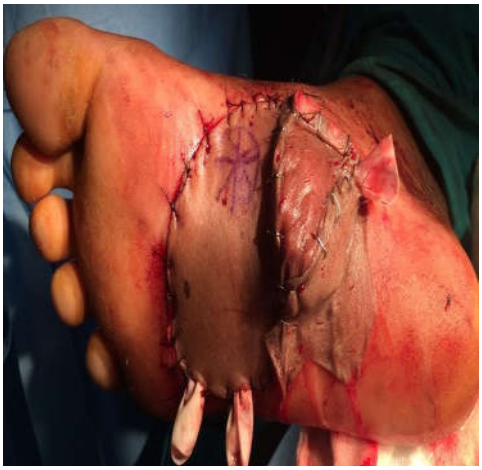

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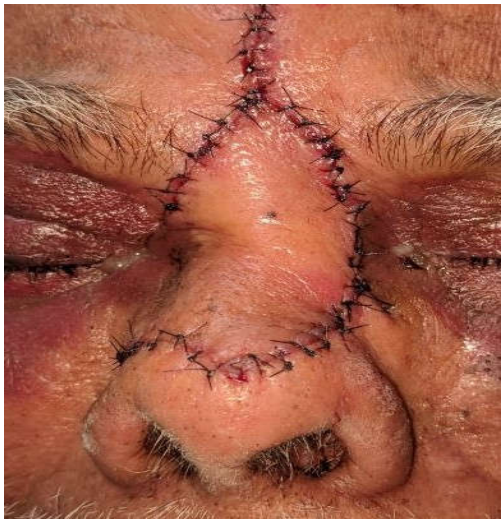

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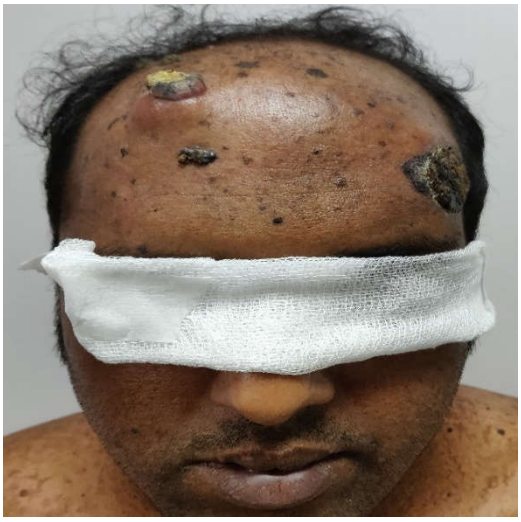

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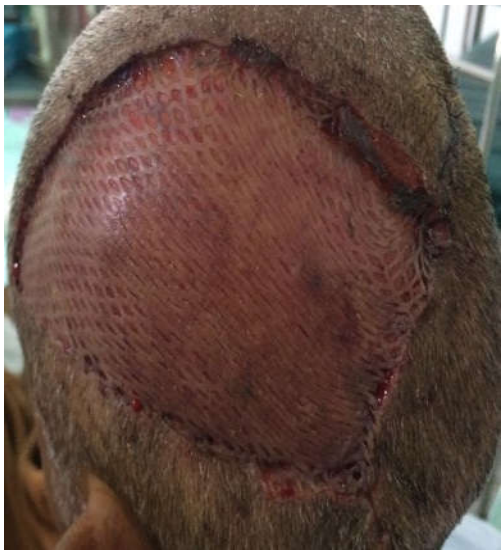

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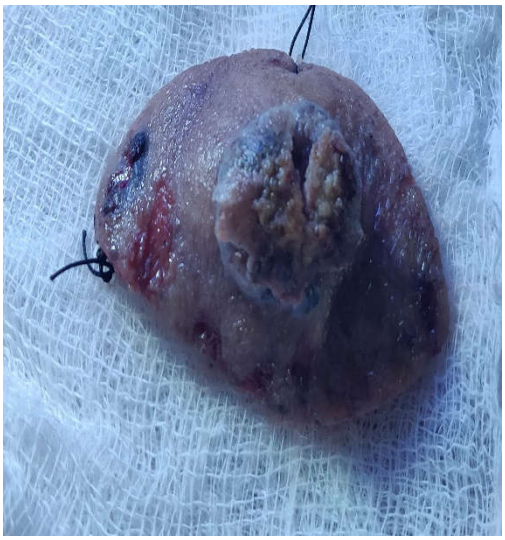

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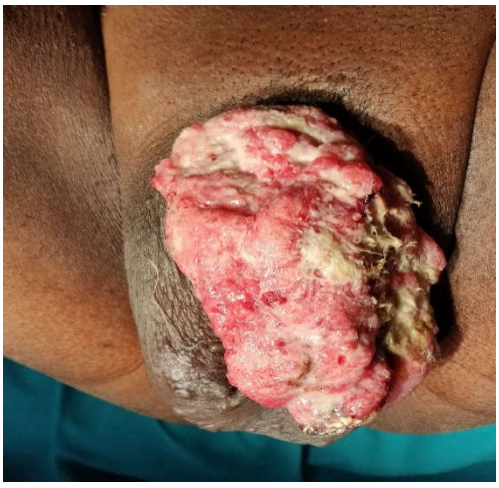

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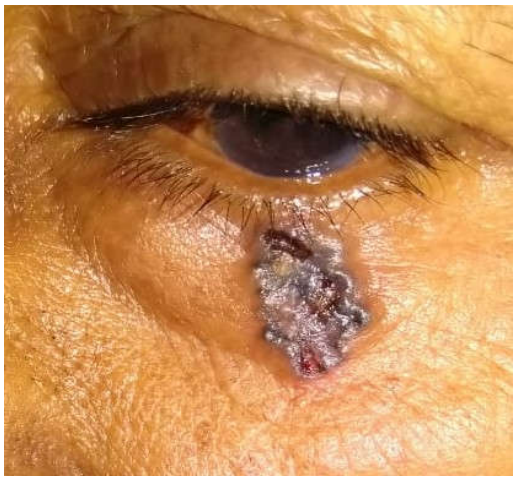

Figure 10.

One study found that 52% of NAM cases had been misdiagnosed by the first clinician who saw the patient, and this misdiagnosis was responsible for an 18-month median delay in diagnosis (Metzger, 1998). In our series, we had one case of subungual melanoma in situ, who underwent wide excision rather than disarticulation and is on follow up till date without any evidence of recureence.

Cases described in our series were of age group which ranged from 24 to as 82years,with mean age of 51.8 years , with majority being males (73%), which matches with the studies proposed by Samaila and Jain *et al*. (2005; Jain, 2008). Squamous cell carcinoma was the most common histology in our series(60%),which is also supported by the study done by Samaila and Jain *et al*, but basal cell carcinoma was the most

Table 2. Staging of Non melanoma skin cancr

Stage	(n)
1	4
2	1
3	6
4	0

Table 3. Staging of melanoma

Stage	(n)
1	1
2b	1
3c	1
4	0

common subtype seen in the study done by Faridehjowkar (Farideh Jowkar, 2015). Face and scalp was the most common subsite seen in our series, which is in agreement with the studies mentioned above (Samaila, 2005; Jain, 2018; Farideh Jowkar, 2015). Mean size of the lesion for squamous cell carcinoma, basal cell carcinoma were 5.2 cm and 1.3 cm respectively. Chronic sun exposure and bare foot walker with chronic skin irritation were some of the few possible risk factors that could be observed. In two of the cases, who were siblings, had epidermolysis verruciformis with transformation to invasive squamous cell carcinomas. In case of subungual melanoma in situ (case no.5), full thickness excision rather than disarticulation was done in view of very early stage of disease (melanoma in situ). Lymph node dissection was done when indicated. Adjuvant radiation and chemotherapy was given in case of carcinoma penis with multiple positive lymph nodes. Cases were observed till last follow up.one case of squamous cell carcinoma recurred, who is being treated with 5-fluorouracil cream in view syndromic nature of the disease.

Limitations of our study: Small sample size, short duration of follow up, no data on HPV (Human papilloma virus) status were some of the limiting factors. Sentinel node biopsy was not done due to logistic issues.

Conclusion

Increasing incidence of cutaneous malignancy should alert the clinicians to create awareness regarding warning signs of skin cancer. Nonsurgical options needs to be considered specially in syndromic conditions and inoperable situations. Surgery with adequate margins offers the best option of cure.

Keypoints

- Avoidance of too much of exposure to sun, use of sunscreens might have protective effect
- In situ lesions involving nail apparatus needs to be excised without disarticulation
- Sentinel node biopsy needs to be considered when appropriate
- Regional nodal clearance with appropriate adjuvant treatment needs to be given when indicated
- Appropriate reconstruction options needs to be considered based on size and depth of the defect.
- Non surgical options needs to be given priority in syndromic situations.

Conflict of Interest: Nil

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