

A Histomorphological Study of Malignant Skin Tumors

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ABSTRACT- Background: Malignant skin tumors are an important public health problem. Exposure to UV radiation is a significant risk factor in the development of these tumors. The most common skin malignancies are basal cell and squamous cell carcinomas, which have an excellent prognosis and a relatively low mortality rate.

Methods: A retrospective study was done on 46 cases with histopathological diagnoses of malignant skin tumors, over a period of two years, in a tertiary care centre in Bagalkot, with the primary objective to demonstrate the distribution of cases according to age, sex and site of these tumors.

Results: Malignant skin tumors were most commonly seen in the age group of 51 to 60 years (30.5%). Male to female ratio was 2.2:1. Squamous cell carcinoma (56.5%) was the most common tumor followed by basal cell carcinoma (21.7%), verrucous carcinoma (10.9%) and malignant melanoma (4.3%). Rare tumors such as sebaceous carcinoma and trichilemmal tumor were also noted in this study.

Conclusion: Histopathology remains the gold standard for the diagnosis, management and follow-up of patients with malignant skin tumors.

Key-words- Malignant tumors, Skin tumors, Carcinomas, Histomorphology

INTRODUCTION

The skin is the largest organ of the body. More than hundred different types of tumors are known to be clinically apparent on the skin due to the complexity of its structure with multiple cell types. These cell types may undergo malignant transformation at various stages of their differentiation, leading to tumors with distinct histology and varied clinical behaviour.^[1] The incidence of skin tumors has increased dramatically over the last few decades, at least in part, as a result of increasing sun exposure, necessitating vigorous surveillance^[2] though, genetic and environmental factors may play a role.^[3]

Skin tumors are so ubiquitous that they can affect people of all ages, however, the frequency of skin cancer increases with age.^[4]

Although the non-melanoma and melanoma skin cancers encompass the vast majority of skin cancers, there are a large number of other malignancies of the skin that are less commonly confronted by the clinicians. Neoplasms of the skin classically have been divided into those that differentiate from the epidermis, dermis, adnexal structures of the skin, and those derived systemically.^[5] Difficulties arise because of the variety and complexity of histologic, ultra-structural and histochemical study, complex nomenclature, multiple classifications and conflict in opinion regarding histogenesis of some of the entities and relative rarity of these tumors.^[6,7] Skin tumors, at times pose a great challenge to surgeons as some of benign tumors can be confused with malignant tumors. Hence, it is vitally important to intervene, as some can become metastatic resulting in morbidity and mortality. Most of the time clinical diagnosis may not be accurate because of similarity in gross appearance. Even sophisticated investigations such as computerized tomography and tumor markers may not be useful in skin tumors. In such cases, histopathology alone remains a diagnostic tool,^[8] and so the histopathological investigation of excised skin lesions yields a high percentage of pre-malignancies and malignancies. This indicates that all excised skin lesions must

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undergo a histopathological investigation to ensure that malignancies are not missed. Thus, early recognition, diagnosis and treatment offer the best chance for cure.^[9] The knowledge of histopathological patterns can help in the prognosis and planning an effective management.^[10] This study was conducted to study and characterize the malignant skin tumors based on histopathological features. Comparison of the site distribution and age pattern of different types of skin cancers can be an important source of etiological clues, and thus was included in our study.^[7]

MATERIALS AND METHODS

The present study was a retrospective study of malignant skin tumors was carried out in during the period of two years from January 2014 to December 2016 in the department of pathology in a tertiary care centre, Karnataka, India.

This study included tumors of the epidermis along with melanocytic tumors and adnexal tumors of skin without restricting the study to any particular age limit. Mesenchymal tumors of skin, hematological tumors of skin, neural tumors of skin, non-neoplastic lesions of skin and all tumors arising from the mucosal area of muco-cutaneous junction such as glans penis and eyelid margin were excluded. The study was retrospective and was done during the period of January 2014 to December 2016 (2 years). Data for the study was obtained from departmental records, tissue blocks and slides. Clinical details were obtained and maintained according to the proforma.

All the biopsies and resected specimens received in the histopathology section were immediately fixed in 10% formalin for 24 hours. Gross features of the specimen were noted. Multiple sections of the specimen were taken. Then they were processed and embedded in paraffin wax. Three-five microns thick sections were prepared and then stained with Haematoxylin & Eosin (H&E) and histopathological analysis was made.

Detailed study of the sections was performed under the light microscope and then the final diagnosis was done.

RESULTS

This study included 46 cases out of which 32 (69.5%) were males and 14 (30.5%) were females with male to female ratio of 2.2:1. The age group varied from 10 years to 90 years and the mean age was 52.41 years. The commonest age group in which malignant skin tumors were noted was in the range of 51 to 60 years (30.5%) (Fig. 1), in which 8 (57.1%) had squamous cell carcinoma (SCC), followed by 5 (35.7%) of basal cell carcinoma (BCC).

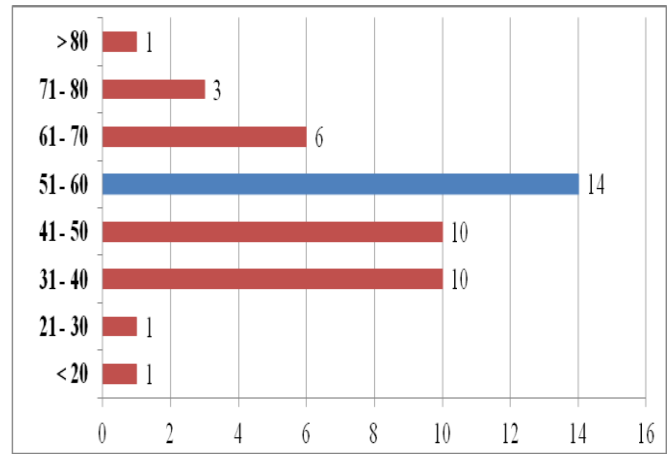


Fig. 1: Distribution of cases, according to Age (Years)

Out of the 46 cases, the most frequently diagnosed malignant skin tumor was SCC with 26 cases (56.5%), followed by 10 cases (21.7%) of BCC (Table 1).

Table 1: Distribution of cases, according to histopathological diagnosis

Diagnosis	Number of Cases (%)
Squamous Cell Carcinoma (Fig. 2a, 2b)	26 (56.5)
Basal Cell Carcinoma (Fig. 3a, 3b)	10 (21.7)
Verrucous Carcinoma	5 (10.9)
Sebaceous Carcinoma (Fig. 4a, 4b)	2 (4.3)
Malignant Melanoma	2 (4.3)
Trichilemmal Carcinoma	1 (2.2)
Total	46 (100)

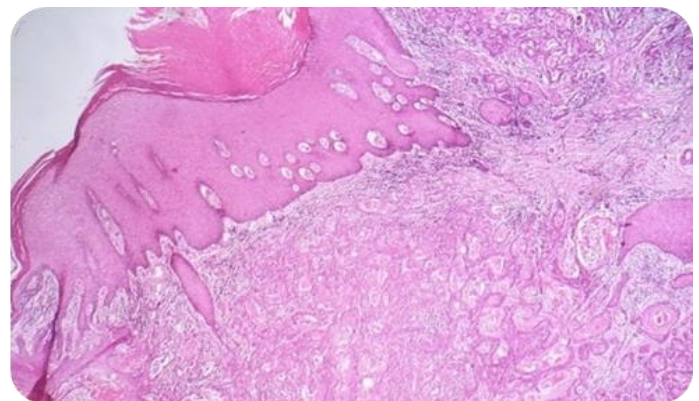


Fig. 2a: Squamous Cell Carcinoma: Tumor infiltrating into dermis. Large round to oval cells with vesicular nuclei and ample amount of cytoplasm
Areas of keratinization seen (10x, H&E, original)

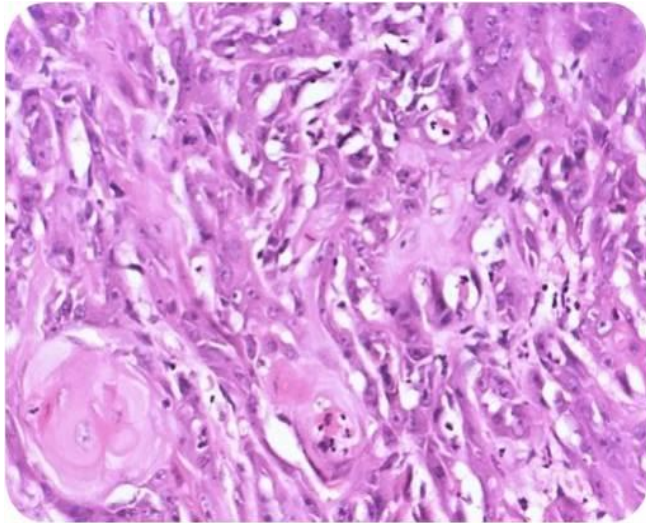


Fig. 2b: Squamous Cell Carcinoma: Large round to oval cells with vesicular nuclei and ample amount of cytoplasm (40x, H&E, original)

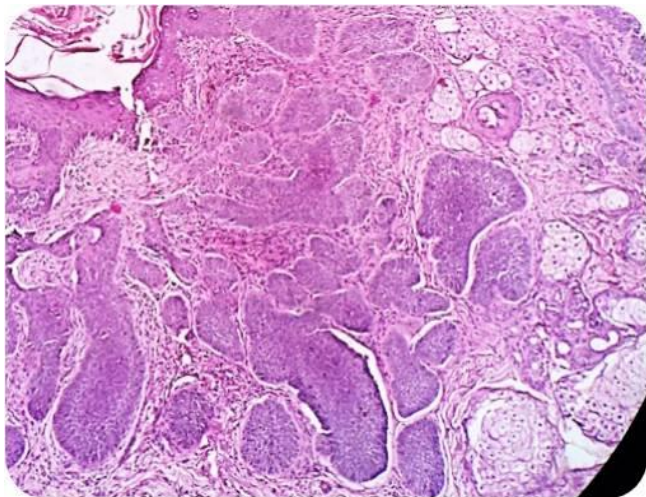


Fig. 3b: Basal Cell Carcinoma: Peripheral palisading of tumor cells (40x, H&E, original)

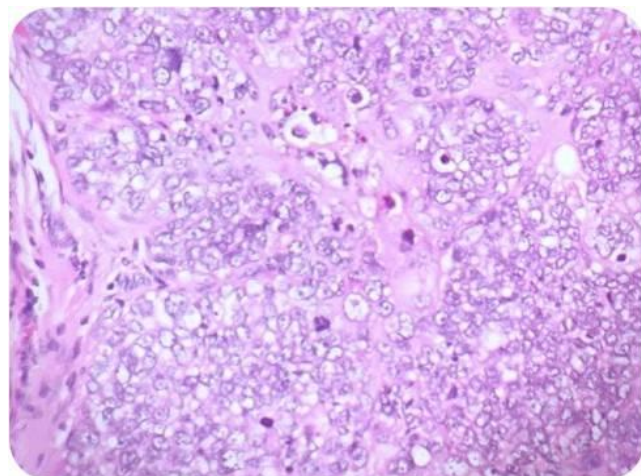


Fig. 4a: Sebaceous Carcinoma: Solid sheets and lobules of atypical epithelial cells having large pale or clear cells with vacuolated cytoplasm (10x, H&E, original)

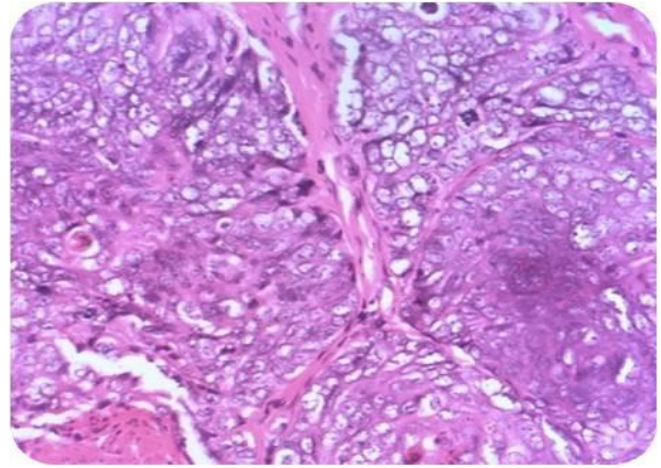


Fig. 4b: Sebaceous Carcinoma: Atypical epithelial cells with large pale or clear cells with vacuolated cytoplasm (40x, H&E, original)

The most commonly affected sites were the head and neck (54.4%) and lower limbs (9%) (Table 2). Basal cell carcinoma was the most common malignancy in head and neck area with 14 patients and SCC was most commonly seen on lower limbs and trunk.

Table 2: Distribution of cases according to site

Site	Number of Cases (%)
Head and Neck	25 (54.4)
Lower limbs	9 (19.6)
Upper limbs	6 (13)
Trunk	6 (13)
Total	46 (100)

DISCUSSION

In India, skin cancers constitute about 1-2% of all diagnosed cancers. Although complete data of incidence is not available, various cancer registries in India reported cumulative incidence of skin cancer varying from 0.5 to 2 per 1,00,000 populations. The incidence of skin cancers in India is lower as compared to the Western world because of a large population and absolute number of cases is estimated to be significant.^[11]

In this study, older males suffered with cutaneous malignancies than females with a ratio of 2.2:1. This finding is consistent with previous studies.^[12-14]

Basal cell carcinoma is the commonest form of skin cancer worldwide, but various studies from India have consistently reported SCC as the most prevalent skin malignancy^[3,12] as we also found in our study. Noorbala et al.^[13] reported BCC to be the most common skin malignancy in their study in 2007 (Table 3).

Table 3: Comparison with various studies

	Shekhani <i>et al.</i> [1]	Samaila <i>et al.</i> [3]	Gundalli <i>et al.</i> [6]	Noorbala <i>et al.</i> [13]	Adinarayan <i>et al.</i> [14]	Present study
Number of cases	16	382	80	1124	60	46
Most common decade	6 th	4 th & 6 th	6 th to 8 th	7 th to 8 th	5 th to 6 th	6 th
Males (%)	58.5	65.4	63.7	61.7	–	69.5
Females (%)	41.2	34.6	36.3	38.3	–	30.5
Most common site involved	Lower limbs	Lower limbs	–	Head & Neck	Head & Neck	Head & Neck

Head and neck [13,14] and lower limbs [3] are the most common sites involved, as reported by other authors (Table 4), which are similar to this study. Head and neck predisposition is attributed to increased solar ultraviolet exposure as many people are working outdoors as farmers in this part of

the country.

The prevalence of malignant melanoma was 4.5% in our study. Its incidence is less than 5% as reported in other studies, similar to ours, as it is mostly seen in white population.^[15]

Table 4: Comparison with various studies

		Adinarayan <i>et al.</i> [14]	Noorbala <i>et al.</i> [13]	Shekhani <i>et al.</i> [1]	Present study	
Non melanoma	SCC (%)	83.9	19.1	73.3	56.5	
	BCC (%)	13.1	80.9	26.7	21.7	
Sex	SCC (%)	Males	76.9	68.7	81.8	69.2
		Females	23.1	32.3	18.2	30.8
Site	BCC (%)	Males	60	60.5	75	60
		Females	40	395	27	40
	Head, neck & face	SCC (%)	50	85.3	18.2	54.4
		BCC (%)	80	96.8	100	80
	Limbs	SCC (%)	46.1	6.3	45	32.6
		BCC (%)	20	1	0	20

CONCLUSIONS

Malignancies of skin can cause difficulties for the patients both physically and mentally. The timely and correct diagnosis, histopathological examination is of prime importance for the appropriate management and prevention of complications. SCC and BCC were the most common tumors seen, with head and neck being the most common site. Maximum numbers of cases were seen in the 6th decade and more common in males. Varied presentations of the skin tumors pose a great challenge for the clinician and so histopathology remains the gold standard for the diagnosis, where immunohistochemistry is not available for confirmation.

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