ORIGINAL ARTICLE
Year: 2018 I Volume: 1 I Issue: 2 I Page: 47-52

A CLINICO-PATHOLOGICAL STUDY OF CUTANEOUS TUMORS

[1]Manish Khandare, [2]Rahul Ray, [3]J Sridhar, [4]Manjusha Ray
[1] Assistant Professor, [2,3] Associate Professor
[1,2,3] Department of Dermatology, Venereology and Leprosy, Institute of Naval Medicine, INHS Asvini, Mumbai.
[4]Department of Pathology, Sir H.N. Reliance Foundation Hospital and Research Centre, Mumbai
Corresponding Author:
Dr. Rahul Ray
Associate Professor
Department of Dermatology, Venereology and Leprosy, Institute of Naval Medicine, INHS Asvini, Mumbai
Email: rahul_ray21@yahoo.co.in

Abstract

Introduction: In India, malignant skin tumours constitute about 1-2% of all cancers. Cutaneous tumours range from small papules to large fungating masses. Due to diversity of these tumours, there can be confusion regarding nomenclature of these tumours. As a result, the study of skin tumour is perhaps more interesting and challenging than any other tumours. The present study aimed at studying the clinical profile of various benign and malignant cutaneous tumours and establishing their clinico-pathological correlation. **Materials & Methods:** A total of 71 consecutive patients of cutaneous tumors fulfilling the eligibility criteria were included in the study. After taking informed consent, detail history, clinical examination and routine laboratory investigations were carried out on requirement basis. Skin biopsy was taken from representative areas and submitted for routine processing. Correlation of clinical findings with histopathological results was done to establish a final diagnosis. **Results:** Out of total 71 patients, 86% were presented with benign conditions while 14% were presented with malignant conditions. Most common type of tumor observed in present study was Keratinocytic (64.8%) followed by Melanocytic (12.7%). Most common individual tumor observed was verruca (39.4%) followed by Seborrheic Keratosis (15.5%), Melanocytic Nevus (12.7%) and pyogenic granuloma (8.5%) while 4 (5.6%) and 3 (4.2%) cases of BCC and SCC were observed. Most of the pathologies were presented as either papule (49.3%) or plaque (28.2%). Growth on oral mucosa was observed in all 3 cases of SCC while BCC was presented as nodule. **Conclusion:** Verruca is the most common benign tumor while BCC and SCC were the most common malignant skin tumours in India. Histopathological study is a very important step in the diagnosis of skin tumours.

Key words: Cutaneous tumors, Histopathology, Squamous cell carcinoma, Basal cell carcinoma, Verruca

Introduction

A tumour is an abnormal mass of tissue, the growth of which exceeds and is uncoordinated with that of normal tissues. Although most tumours retain a resemblance to the normal tissue from which they arise, they can show an extraordinary variation in their structure and it is this variation that causes difficulties in some cases in establishing a definitive pathological diagnosis. [1]

Benign tumour is the term used to describe tumours where the cells remain at their site of origin, forming a single mass of tumour cells. Malignant tumours are composed of cells that have acquired the ability to invade through a basement membrane and this is associated with the capacity to metastasize to other organs via the lymphatics and blood vessels. In addition, malignant tumours frequently show more rapid growth and less differentiation than benign tumours, which is reflected histologically by higher mitotic rates, cellular and nuclear pleomorphism and abnormal mitoses. [1]

The skin is the largest organ in the body. It has complicated structure and serves many functions [2]. Cutaneous tumours range from small papules to large fungating masses. Certain tumours are easily recognized clinically based on the characteristic site of presentation, size, colour, distribution and symptoms but still to confirm the diagnosis, histopathology correlation is important. [1]

The ability to properly diagnose and treat the tumours is a vital skill for all clinicians. Any lesion, for which the diagnosis is uncertain, based on the history and clinical examination, should be biopsied for histo-pathological examination to rule out malignancy[3].

In India, malignant skin tumours (cancers) constitute about 1-2% of all cancers. Various cancer registries in India reported cumulative incidence of skin cancer varying from 0.5 to 2 per 100000 population [4].

Non-melanoma Skin Cancers (NMSC) are associated with substantial morbidity, including loss of function and disfigurement, and their treatment is costly. Early diagnosis can reduce morbidity and cost. There is definite role of pathologist in the management of tumours. But due to diversity of these tumours, there can be confusion regarding nomenclature of these tumours [5]. As a result, the study of skin tumour is perhaps more interesting and challenging than any other tumours.

Materials and Methods

A hospital based observational study was conducted at Department of Dermatology of a tertiary care hospital for a period of 2 years. A total of 71 consecutive patients of cutaneous neoplasm attending Dermatology OPD of our hospital were included in the study.

Inclusion criteria:

- All cases of cutaneous tumours attending Dermatology OPD of tertiary care hospital (as confirmed by histopathology examination).
- Patients willing to participate in the study

Exclusion criteria:

- Neoplasms arising from muscle, cartilage and bone

After taking informed consent, detail history, clinical examination and routine laboratory investigations including complete blood count, platelets, Erythrocyte sedimentation rate, blood sugar estimation, liver function test, renal function test, chest x-ray, USG, FNAC and any other test were carried out on requirement basis. Clinical photograph of selected patients were taken. Skin biopsy was taken from representative areas and submitted for routine processing. They were studied by light microscopy after H & E staining, where necessary relevant sections were stained with special stains for final confirmation of the diagnosis. Immunohistochemistry was done in selected cases. Correlation of clinical findings with histopathological results was done to establish a final diagnosis.

All the data was entered in Microsoft Excel sheet and then transferred to SPSS software ver. 21 for statistical analysis.

Results

Mean age of study subjects was 42.45 years with slight male predominance (males – 52.1% to females – 47.9%). Out of total 71 patients, 61 (86%) were presented with benign conditions while 10 (14%) were presented with malignant conditions. Most common type of tumor observed in present study was Keratinocytic (64.8%) followed by Melanocytic (12.7%), vascular (8.5%), Adnexal (7%) and lymphocytic (4.2%). One case each of neural and smooth muscle tumor was observed (1.4%) (Table 1).

Table 1: Distribution of study subjects based on Classification of tumor

Classification	N	%
Adnexal	5	7.0%
Keratinocytic	46	64.8%
Lymphocytic	3	4.2%
Melanocytic	9	12.7%
Neural tumor	1	1.4%
Smooth muscle tumor	1	1.4%
Vascular	6	8.5%
Total	71	100.0%

Most common individual tumor observed was verruca (39.4%)[Figure-1] followed by Seborrheic Keratosis (15.5%) [Figure-2,3], Melanocytic Nevus (12.7%) and pyogenic granuloma (8.5%) [Figure-4] while 4 (5.6%) and 3 (4.2%) cases of BCC [Figure-5, 6] and SCC [Figure-7] were observed (Table 2).

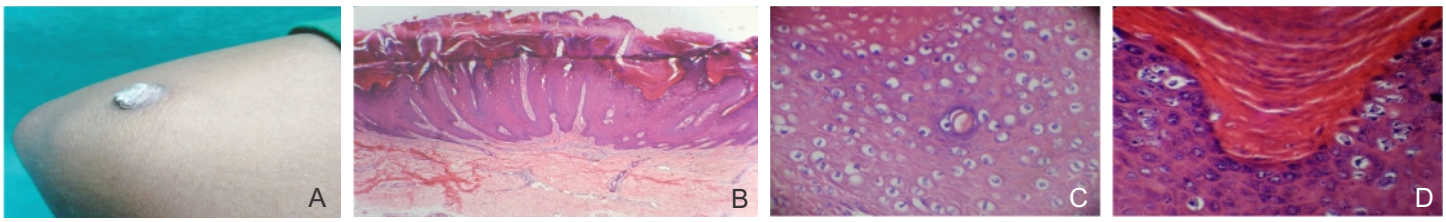

Figure 1: a) Verruca Vulgaris-solitary, well circumscribed, hyperkeratotic verrucous plaque over extensor surface of arm; b) Epidermis shows hyperkeratosis, parakeratosis, papillomatosis and acanthosis with arborization of elongated rete rete ridges(H&E, 10X); c) Koilocytes showing pyknotic, raisonoid nuclei and perinuclear halo (H&E, 40X) ; d) Hypergranulosis with coarse keratinohyaline granules (arrows). Corneal layer shows large, round vertical tiers of parakeratosis (H&E, 40X)

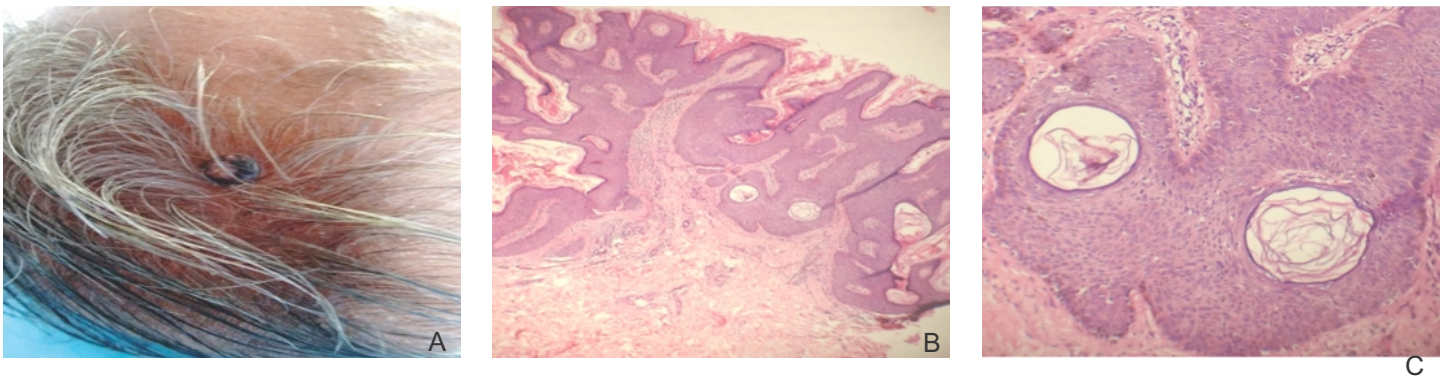

Figure 2: a)Seborrhoeic Keratosis –solitary, dome shaped, nodule with verrucus surface central over scalp;b)Epidermis showing hyperkeratosis, acanthosis, papillomatosis, interlocking of retes with formation of horn cysts (H&E, 10X); c)Horn cysts surrounded by proliferation of predominantly bland basaloid cells along with squamous cells (H&E, 40X)

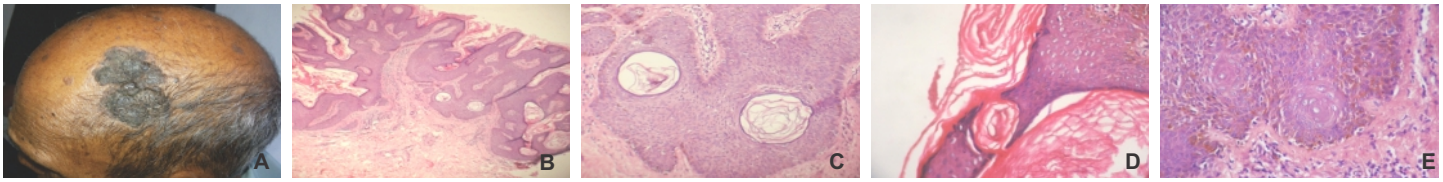

Figure 3: a) Seborrhoeic Keratosis-well defined hyperpigmented verrucus plaque over scalp; b) Epidermis showing hyperkeratosis, acanthosis, papillomatosis, interlocking of retes with formation of horn cysts (H&E,10X); c) Horn cysts surrounded by proliferation of predominantly bland basaloid cells along with squamous cells (H&E,10X); d) Pseudo horn cysts opening onto surface of epidermis (H&E,10X); e)Squamous eddies in the epidermis (arrow) (H&E,40X)

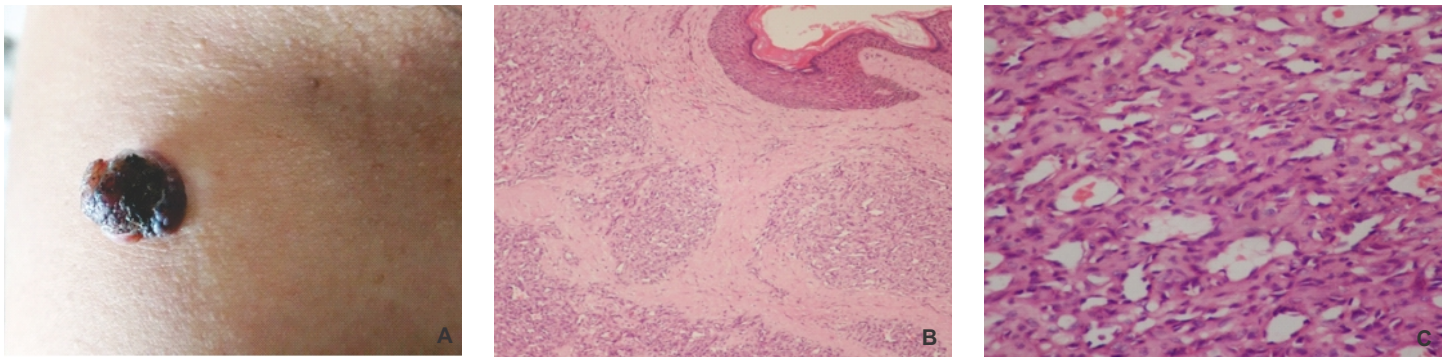

Figure 4: a)Pyogenic Granuloma–solitary hyperpigmented nodular lesion, bleeds spontaneously;b) Lobular collections of small blood vessels seen in the dermis with intervening stroma showing minimal mixed inflammation (H&E,10X); c) Capillaries and venules lined by plump, bland endothelial cell containing RBCs in their lumina (H&E,40X)

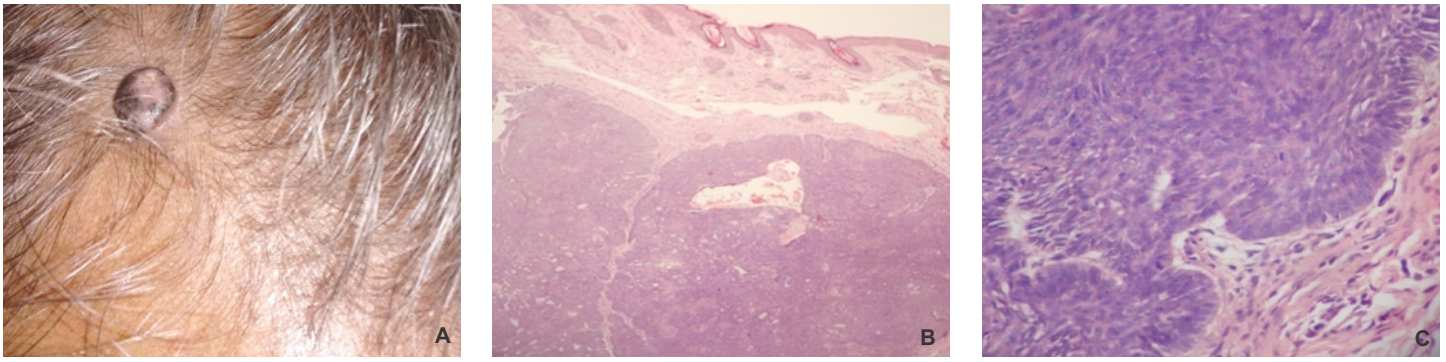

Figure 5: a) Basal Cell Carcinoma–Solitary, circumscribed, hyperpigmented, hard nodule over scalp; b)Nodular variant showing lobules of basaloid cells in deep dermis (H&E,10X); c) Classical peripheral pallisading of basal cell carcinoma (H&E,40X)

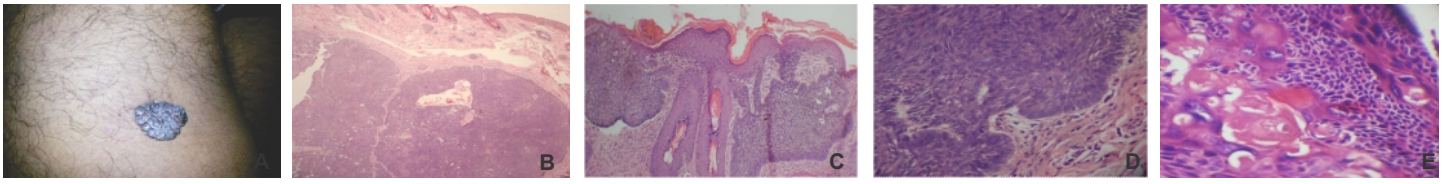

Figure 6: a) Basal Cell Carcinoma–Solitary well defined hyperpigmented waxy papules coalesce to form plaque with central depression. b) Nodular variant showing lobules of basaloid cells in deep dermis (H&E,10X); c) Superficial variant showing lobules of basaloid cells projecting from epidermis. Retraction artefact seen (arrow) (H&E,10X); d) Classical peripheral pallisading of basal cell carcinoma (H&E,40X); e) Basal cells showing nuclear pleomorphism and keratinizing (H&E,40X)

Most common histological diagnosis reported was of verruca vulgaris (20/28) and verruca plana (8/28). Out of 9 cases of Melanocytic Nevus, 7 were intra dermal and 2 were compound nevus [Figure-8]. Out of 4 cases of BCC, 3 were nodular and 1 case was of superficial BCC (Table 3). Face and head was the most common site involved in most of the pathologies followed by extremities. Oral mucosa was involved in SCC while trunk was involved in MF (Table 4). Most of the pathologies were presented as either papule (49.3%) or plaque (28.2%). Growth on oral mucosa was observed in all 3 cases of SCC while BCC was presented as nodule (Table 5). Majority of the pathologies were clinically asymptomatic (58%). Pain and bleeding was associated with pyogenic granuloma while itching was associated with MF [Figure-9] and Verruca. Bleeding on examination was noticed in all cases of SCC (Table 6).

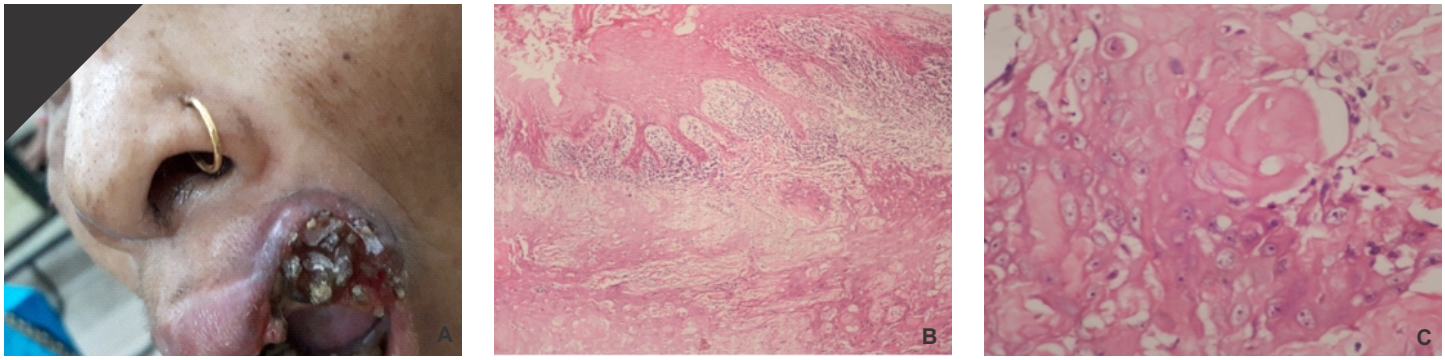

Figure 7: a)Squamous Cell Carcinoma– Large ulcerative lesion over oral mucosa; b) Hyperplastic and ulcerated epidermis with invasion of dermis by malignant squamous cells (H&E,10X); c) Cells show pleomorphism, increased nuclear to cytoplasmic ratio, prominent nucleoli. Horn pearls seen (arrow) (H&E,40X)

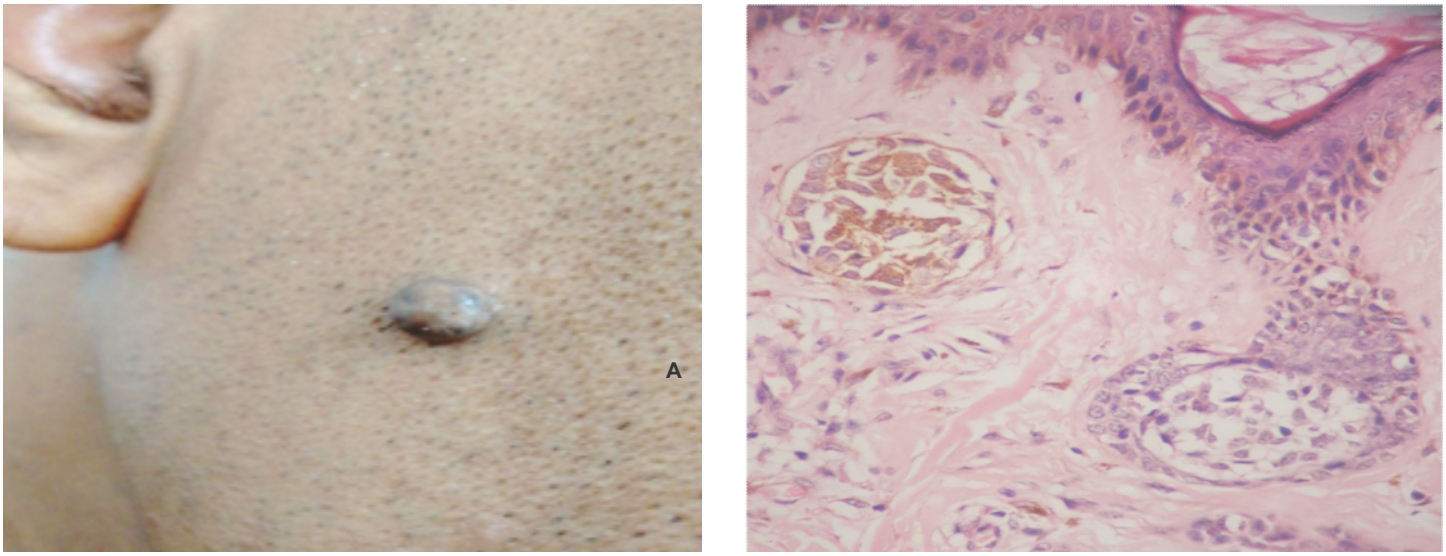

Figure 8: a) Compound Naevus–Circumscribed, pigmented dome shaped papule on right cheek; b) Both junctional activity and intradermal nest of naevus cells seen (H&E,10X)

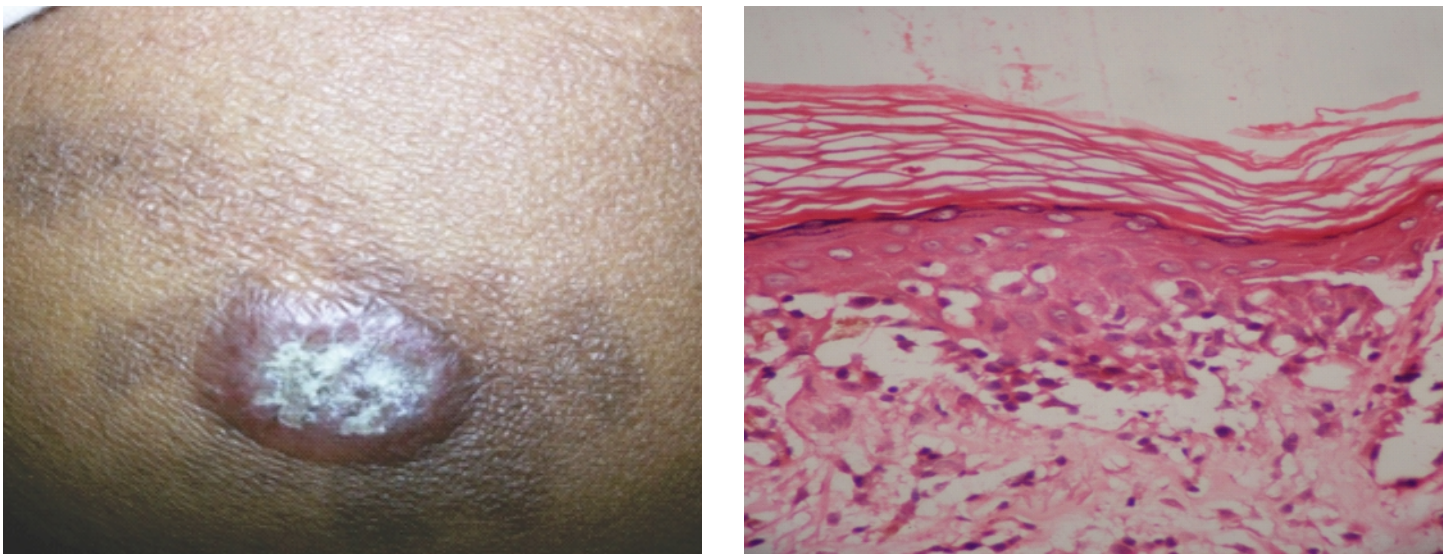

Figure 9: a) Mycosis Fungoides– Well defined erythematous indurated plaque with evidence of crust; b) Linear aggregates of neoplastic lymphocytes along the dermo-epidermal junction (H&E,10X)

Histo-pathology Diagnosis	N	%
Compound Melanocytic Nevus	2	2.8%
Intradermal Nevus	7	9.9%
Nodular BCC	3	4.2%
Superficial BCC	1	1.4%
Eccrine poroma	1	1.4%
Epithelioma cuniculatum	3	4.2%
Hidraadenoma	1	1.4%
Hypopigmented MF	3	4.2%
Neurofibroma	1	1.4%
Pilar Leiomyoma	1	1.4%
Pyogenic granuloma	6	8.5%
Seborrheic Keratosis	11	15.5%
Syringoma	3	4.2%
Verrucal plana	8	11.3%
Verrucal Vulgaris	20	28.2%
Total	71	100.0%

Table 3: Distribution of study subjects based on Histopathology diagnosis

Diagnosis	Site				Total
	Extremity	Face/ Head	Oral	Trunk	
Hidraadenoma	0	1	0	0	1
BCC	0	4	0	0	4
Eccrine poroma	1	0	0	0	1
Leiomyoma	1	0	0	0	1
Melanocytic Nevus	0	9	0	0	9
Mycosis fungoides (MF)	0	0	0	3	3
Neurofibroma	1	0	0	0	1
Pyogenic granuloma	6	0	0	0	6
SCC	0	0	3	0	3
Seborrheic Keratosis	3	8	0	0	11
Syringoma	0	3	0	0	3
Verruca	19	9	0	0	28
Total	31	34	3	3	71

Table 4: Association of Diagnosis with site of lesions

Discussion

The present study aimed at study the clinico-pathological features of cutaneous tumors. Mean age of study subjects in present study was 42.45 years 52.1% males to 47.9% females. In a study "Skin Tumours – Histopathological Review of 125 Cases" by Bari V et al. tumours of skin were present in all the age groups (mean 46.1 years). Maximum number of tumours was found in third decade in case of benign tumours (20.3%) and seventhdecade in case of malignant tumours (37.7%). They found that both benign and malignant tumours of skin were common in males than in females[6]. The incidences in the male and female in the present study are comparable with those reported by, Reddy DJ and Rao KV [7], Khalid M et al [8], Ochicha O et al [9] reported 54% and 46% cases in male and female respectively. Chakravarthy RC et al [10] reported 71.62% and 28.38% cases in male and female respectively

Diagnosis	Clinical Features					Total
	Growth	Nodule	Papule	Plaque	Tumor	
Hidraadenoma	0	1	0	0	0	1
BCC	0	4	0	0	0	4
Eccrine poroma	0	1	0	0	0	1
Leiomyoma	0	1	0	0	0	1
Melanocytic Nevus	0	0	9	0	0	9
Mycosis fungoides (MF)	0	0	0	3	0	3
Neurofibroma	0	0	1	0	0	1
Pyogenic granuloma	0	0	0	0	6	6
SCC	3	0	0	0	0	3
Seborrheic Keratosis	0	0	8	3	0	11
Syringoma	0	0	3	0	0	3
Verruca	0	0	14	14	0	28
Total	3	7	35	20	6	71

Table 5: Association of Diagnosis with clinical features

Diagnosis	Symptoms					Total
	Asymptomatic	Bleeding	Itching	Pain	Pain + Bleeding	
Hidraadenoma	1	0	0	0	0	1
BCC	4	0	0	0	0	4
Eccrine poroma	0	0	0	1	0	1
Leiomyoma	0	0	0	1	0	1
Melanocytic Nevus	9	0	0	0	0	9
Mycosis fungoides (MF)	0	0	3	0	0	3
Neurofibroma	1	0	0	0	0	1
Pyogenic granuloma	0	0	0	0	6	6
SCC	0	3	0	0	0	3
Seborrheic Keratosis	11	0	0	0	0	11
Syringoma	3	0	0	0	0	3
Verruca	12	0	16	0	0	28
Total	41	3	19	2	6	71

Table 6: Association of Diagnosis with Symptoms

In a study by Bari et al. the incidences of benign and malignant tumours were 51.2% and 48.8% respectively [6] while the incidences of benign and malignant tumours in the study done by Har-Shai et al. [11] was 68.4% and 31.6%. The malignant neoplasm of skin in different hospital based studies in India ranged from 1.87% to 8.84% [10,12-15]. In our study, 86% cases were presented with benign conditions while 14% were presented with malignant conditions.

In present study verruca was the most common individual tumor observed, present in 28 patients (39.4%). Common histological diagnosis reported was of verruca vulgaris (20/28) and verruca plana (8/28). Most cases were observed between were observed between age of 31-50 years of age with etremeties being the most common site involved. On Gross examination, eleven lesions showed typical warty appearance. Most of the patients (16/28) observed slight itching while rest were asymptomatic. Young R et al[16] observed extremity as the commonest site. In present study, 67.8% (19/28) verrucas occurred over extremities. The squamous papilloma was included in the class of verruca as it is associated with HPV infection [17] and shows similar histology like

verruca except for koilocytic cells in the epidermis.

Out of 11 cases (15.5%) of Seborrheic Keratosis, 9 were in females and 2 were in males with age range from 31-50 years. On gross examination, 8 were papillomatous and three were nodular plaques. All showed typical "stuck on appearance". Histologically, 8 were of acanthotic type, two were of irritated type and one was keratotic type. Two of them showed melanin pigment. Histologically acanthotic type is the most commonly observed type [18].

In the present study, three cases of squamous cell carcinoma were encountered and all of them were above 50 years of age. The squamous cell carcinoma showed female preponderance (3/3) with commonest site being oral mucosa and presented as ulcerative growth. On histopathological examination, 2 lesions were diagnosed as well differentiated squamous cell carcinoma while 1 lesion was moderately differentiated. Squamous cell carcinoma is the most common malignant skin tumour in India as its incidence ranges from 49.02% to 64.3% as study done by Budhraja SN et al [12], Chakravarthy R C et al [10] & Deo SV et al [13]. But in our study, SCC was the second most common malignant skin tumour (30%) after BCC (40%). On comparison with studies of other countries [8,9,19,20], BCC was the most common malignant tumour in all other studies (Khalid et al [8], Soomero et al [19] and Zohreh et al [20]) except for Ochicha et al [9], where SCC was more common.

The present study observed four cases of basal cell carcinoma out of total 10 malignant skin tumors. The peak incidence was in seventh decade of life with head and neck region being the commonest site. The nodular growth was the commonest in the gross findings and out of 4 cases of BCC, 3 showed peripheral palisading of the nuclei and clefting artifact. The incidence of basal cell carcinoma in Indian literature ranges from 16-28% [12,13,21]. In the present study, incidence of basal cell carcinoma was 40% of all malignant tumours of the skin which is higher in comparison to the study done by Solanki RL et al [21] Budhraja SN et al [12] and Deo SV et al [13]. In comparison to western literature like Casson P et al [22], our incidence is relatively less. The reasons for higher incidence of BCC in the western countries may be prolonged exposure to strong sunlight and white coloured skin. Solanki et al [21], Soomero FR et al [19] and Raasch et al [23] reported maximum number of BCC over the face., which is consistent with our findings. Nodular BCC was the commonest histological type observed in our study which is comparable to above studies [19,22,23].

Conclusion

Verruca is the most common benign tumor while BCC and SCC were the most common malignant skin tumours in India. Histopathological study is a very important step in the diagnosis of skin tumours. Diagnosis of skin tumours requires thorough clinicopathological correlation. The demographic profile of patients, associated risk factors, and histopathological confirmation of tumours can guide towards timely diagnosis, definite and adequate management, and aid in meticulous follow-up, thereby improving the overall prognosis for cutaneous neoplasms, particularly malignant ones.

How to cite this article:
Khandare M, Ray R, Sridhar J, Ray M. A Clinico-Pathological Study Of Cutaneous Tumors. JDA Indian Journal of Clinical Dermatology 2018;2:47-52.

References

1. Fletcher, Christopher DM, K. Krishnan Unni, and Fredrik Mertens, eds.Pathology and genetics of tumours of soft tissue and bone. Vol. 4. Iarc, 2002.
2. Pinkus Hermann, Mehregan A.H. — Normal structure of skin. In: Pinkus Hermann. A Guide to dermatohistopathology. 3rd ed. Appleton- Century – Crofts/ NewYork, 1981; 5-38.
3. Luba M., Bangs S., Mohler A., Stulberg D.L. — Common benign skin tumours. Am Fam Physician. 67(4):729-738, 2003.
4. Deo S.V., Hazarika S., Shukla N., Kumar S., Kar M., Somaiya A. — Surgical management of skin cancers: Experience from a regional cancer centre in North India. Ind J Cancer. 42:145-150, 2005.
5. Rosai J. — Tumors and tumorlike conditions of skin. In: Rosai J. eds, Rosai and Ackerman's Surgical Pathology, 9th ed. Mosby, An Imprint of Elsevier. 130-245, 2004.
6. Bari, Vaibhav, et al. "Skin Tumours–Histopathological Review of 125 Cases."Indian Medical Gazette (2014): 419.
7. Reddy D.J., Rao K.V. — Malignant neoplasms of the skin. Ind J Dermatol Venerol. 30:43-54, 1964.
8. Khalid M., Khalid A., Bhat M., Ramesh V., Syed M. — Skin tumours in western Saudi Arabia. Saudi Med J. 24(12):1381-1387, 2003.
9. Ochicha O., Edino S.T., Mohammed A.Z., Umar A.B. — Dermatological malignancies in Kano, Northern Nigeria: a histopathological review. Ann Afrc Med. 3(4):188-191, 2004.
10. Chakravarthy R.C., Choudhari. Malignant neoplasms of skin in Eastern India. Ind J Cancer. 5(1):133-144, 1968.
11. Har-Shai Y., Hai N., Taran A., Mayblum S., Barak A., Tzur E. et al. — Sensitivity and positive predictive values of presurgical clinical diagnosis of excised benign and malignant skin tumours: a prospective study of 835 lesions in 778 patients. Plast Reconstr Surg. 108(7):1982- 1989, 2001
12. Budhraja S.N., Pillai V.C.V., Perianayagam W., Kaushik S., Bedi B. — Malignant neoplasms of the skin in Pondicherry (a study of 102 cases). Ind J Cancer. 284- 295, 1972.
13. Deo S.V., Hazarika S., Shukla N., Kumar S., Kar M., Somaiya A. — Surgical management of skin cancers: Experience from a regional cancer centre in North India. Ind J Cancer. 42:145-150, 2005.
14. Kapoor R., Goswami K.C. — Pattern of cancer in Jammu region (Hospital based study 1978-89). Ind J Cancer. 30:67-71, 1993.
15. Kulkarni P.V., Jaiswal S.S. — Profile of malignancies at medical college. Ambajogai (15 years retrospective study). Ind J Cancer. 33:31-36, 1996.
16. Young R., Jolley D., Marks R. — Comparison of the use of standardized diagnostic criteria and intuitive clinical diagnosis in the diagnosis of common viral warts (verruca vulgaris). Arch Dermatol. 134:1586-1589, 1998.
17. Are All Squamous Papillomas Caused by HPV? [homepage on the Internet]. [cited 2010 Oct 15]; Available from http://www.ehow.com/how-does_5815607_ squamous-papillomas-caused-hpv_.html
18. Kirkham N. — Tumours and cysts of the epidermis. In: Elder DE, eds. Lever s Histopathology of skin, 9th ed.Lippincott Williams & Wilkins, 2005; 805-866.
19. Soomero F.R., Bajaj D.R., Pathan G.M., Abbasi P., Hussain J., Abbasi S.A. — Cutanous malignant tumours: a profile of ten years in LINAR, Larkana-Pakistan. J Pak Asso Dermatologists. 20:133-136, 2010.
20. Zohreh H., Golpour M., Ghasemi M. — A clinicopathologic review of skin cancers in Sari in north-east of Iran (1996- 2006). The Internet Journal of Epidemiology. 5(1), 2007
21. Solanki R.L., Arora H.L., Anand V.K., Gaur S.K., Gupta R. — Basal cell epithelioma. Indian J Dermatol Venerol Leprol. 55: 33-37, 1989.
22. David W. — Tumors of the epidermis. In: Weedon D. Skin Pathology. 2 nd ed. Churchill Livingstone, 754-782, 2002.
23. Raasch B.A., Bueltner P.G., Garbe C. — Basal cell carcinoma: Histological classification and body-site distribution. Br J Dermatol. 155: 401-407, 2006.