Research Article

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STUDY OF DEMOGRAPHIC PROFILE OF SKIN TUMORS IN A TERTIARY CARE HOSPITAL

Sonam S Nandyal[1], Rekha B. Puranik[2]

[1]Assistant professor, Department of Pathology, S. S. Institute of Medical Sciences & Research Centre, Davangere; [2]Professor, Department of Pathology, Karnataka Institute of Medical Sciences, Hubli, Karnataka, India

ABSTRACT

Introduction: Skin tumors encompass a wide spectrum and belong to a diverse group of neoplasms arising from epidermis, adnexal structures and dermis rendering the classification difficult. Worldwide these tumors show a striking variation in demographic profile.

Aim: The aim of our study was to analyse the distribution of skin tumors with reference to age and sex.

Materials and methods: This is a descriptive study conducted for a period of five years at Department of Pathology in a tertiary hospital. The study included all histopathologically confirmed cases of skin tumors.

Results: Out of 135 skin tumors, 46 were benign and 89 were malignant. Malignant epidermal tumors formed the majority (57%). The benign tumors had a peak incidence between 3rd and 5th decade (52%) with female predominance (60.87%). The malignant tumors showed a peak incidence between 5th and 7th decade (68.5%) with male preponderance (71.91%).

Conclusion: Benign tumors were common in younger age group and more common in females where as malignant tumors were commonly seen in males and displayed an ascending trend in age. Patients with basal cell carcinoma(BCC) and melanoma were on an average a decade older at the time of diagnosis when compared to squamous cell carcinoma(SCC). The present statistics show that skin cancer incidence in men is higher than women which attributes to the cumulative effect of sun exposure in males. Most of our findings correlate with Indian published literature.

Key Words: Skin tumors, demographic profile, age distribution, sex distribution.

INTRODUCTION

The skin is a complex organ and because of its complexity anextensive range of diseases can develop from the skin including tumors. Skin tumors are so ubiquitous that they can affect people of all ages and they are an ideal subject for study from demographic point of view. We have divided the skin tumors into benign and malignant epidermal, adnexal and melanocytic categories. The frequency of skin cancer increases with age.[1]Melanomas are rare before puberty.[2]Cumulative sun exposure which differs between males and females is believed to be the principalcause of non melanoma skin cancer (NMSC) and melanomas.[2,3]The specific aim of our study was to estimate the age and sex distribution of skin tumors encountered in our department.

MATERIALS AND METHODS

This is a 5 year retrospective and prospective study conducted at Department of Pathology in a tertiary care hospital, Hubli which mainly caters to the large area in Northern Karnataka. All the biopsies and specimens submitted for histopathological study during the period from July 2005 to June 2010 were included in the study. The paraffin embedded, H and E stained histopathology slides were reviewed. The relevant clinical details available from the histopathology request forms were also noted.The cases were categorized according to WHO classification. The study included tumors of epidermis along with melanocytic tumors and appendageal tumors. Mesenchymal tumours, hematological tumors and skin secondaries were excluded.

Corresponding Author:
Sonam S. Nandyal, Assistant Professor, Department of Pathology S. S. Institute of Medical Sciences & Research Centre, NH4 Bypass, Davangere- 577005, Karnataka, India; Ph: 9742912027; Email: sonamsnandyal@gmail.com

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RESULTS

We received a total of 25,658 specimens for histopathology during the study period. 229 cases presented as skin tumors and out of these, 94 were non neoplastic lesions which were excluded from the study and the remaining 135 were histopathologically confirmed cases of tumors of skin. Out of 135 cases, 46 were benign and 89 were malignant tumors among which malignant epidermal tumors formed the majority (57%).The ratio of benign to malignant tumors was 1:1.93. The ratio of benign epidermal (11) to malignant counterpart (77) was 1:7, benign adnexal (25) to malignant adnexal (6) was 4.2:1 and benign melanocytic (10) to malignant(6) counterpart was 1.6:1.

Among the benign tumors, adnexal tumors (54%) formed the majority. Among the malignant tumors, squamous cell carcinoma (SCC) was commonest (55%), followed by basal cell carcinoma(BCC), verrucous carcinoma and malignant melanoma and adnexal carcinomas.

Benign Tumors

Among the 11 benign epidermal tumors, 6 were verruca vulgaris and 5 were seborrheic keratosis. Patients with verruca vulgaris showed age range of 10-65years with amale to female ratio of 2:1. Five cases of seborrheic keratosis were seen in 3 male and 2 female subjects, with male to female ratio of 1.5:1. Age range was 38-72 years.

Among the 25 cases of benign adnexal tumors, 8 were males and 17 were females. The male to female ratio of 1:3.3 and 1:1.2 was observed in hair follicle tumors and sweat gland tumors respectively. There were 9 cases of intradermal nevus and one case of compound nevus.Peak incidence was seen between 20-40 years (60%). There was female predominance with male to female ratio of 1:2.3.

Malignant tumors

Current study had 49 histologically confirmed cases of SCC with peak incidence in 7th decade in males and 6th decade in females with male preponderance (80%).The youngest age was 24 years and oldest age was 78 years. Majority of cases were between 6th and 7th decade(59%). Eight cases of verrucous carcinoma were encountered. Patients' age ranged from 25 to 75years with a peak incidence in 5th to 6th decade (50%). Majority of cases occurred in males (75%). BCC showed a Peak incidence in 8th decade. The male to female ratio was 1.2: 1. Mean age at diagnosis was 60.6 years. There were 6 cases of malignant melanoma. The youngest age was 28 years and oldest age was 70 years. Majority of cases were seen between 60-79 years (66.66%). Sex distribution showed a significant male predominance (83%). Six cases of adnexal carcinomas showed an equal sex ratio with mean age of 47 years. The youngest age was 11 years and oldest was 78 years.

Discussion

Only 135 cases in a 5 year period indicate that skin tumors are relatively uncommon. To our knowledge, no significant data on the study of age and sex distribution of overall skin tumors is available.

Benign tumors

Among the benign tumors, epidermal tumors showed a male predominance where as adnexal and melanocytic tumors showed a significant female predominance. Seborrheic keratosis is a common benign epidermal skin growth after middle age.[5]The larger studies are done by Maize JC et al[6] and Rajesh G et al[7] who observed 108 and 250 cases of seborrheic keratosis respectively. Rajesh G et al[7] observed a male-to-female ratio of 1:1.04 and the most common age group affected was 60 years and above (40%). In our study the most common age group affected was > 40 years (80%) with male predominance. Viral warts are common in the younger age groups. Sudhakar Rao KM et al studied 90 cases of verruca vulgaris and majority of the patients were students and belonged to the age group of 11-20 yrs and males outnumbered females(74.44%).[8] In our study majority of cases were seen <50 years of age (66.6%)

Saimila MOA et al[9] and Solanki RL et al[10,11] observed a wide age range and equal sex distribution in benign adnexal tumors. In our study benign adnexal tumors had a wide age range from 11 to 80 years with female predominance (68%) as the hair follicle tumors were more common in females.

Nevi were common than melanomas. Majority of nevus in our study occurred in second and third decade(60%) with female preponderance and face being the most common site which were similar to the findings of Azam S et al[12] and Gayathri S et al.[13] This could be due the fact that women and younger patients get the pigmented lesions excised because of cosmetic reasons.

Malignant tumors

The current data showed an overall significant male predominance (71.91%) which are consistent with the findings of Deo SV et al[14], Katalinic A et al[15], Kulkarni PV et al[16], Kapoor et al[17] and Mohammad T et al[1] and Al-Hilli F.[18] Skin cancers occur mainly in the sixth, seventh, and later decades of life.[1] In the present study, nearly 66% percent of reported cases of cancer relate to the sixth and later decades. SCC was the most common cancer followed by BCC.Patients with SCC and BCC differed with respect to age and sex distribution. Patients with BCC and melanoma were on an average a decade older at the time of diagnosis when compared to SCC.

With respect to SCC, males outnumbered (80%) female patients. This observation is similar to the studies done by Budharaja SN et al[19] and Chuang TYet al.[20] Few cases of SCC were observed in <40 years age group. The M:F ratio among patients with SCC in the current study is nearly 3.9 times. This difference can be attributed to the cumulative effect of solar energy on the male population.

The findings of verrucous carcinoma were similar to the observations made by Kotwal M et al.[21] In the study done by Schwartz RA[22] et al the patients' age ranged from 23-84 years with a male predominance.

BCC is relatively uncommon under the age of 40 years and is quite rare in children and adolescents.[23] The average age was 60.6 years and peak incidence was in 8th decade in the present study. In the study by Solanki RL et al[24] the average age was 54 years and peak incidence was in 5th decade.The varying sex distribution of BCC noted in different geographical areas depends on skin color, life style variations, climate, sun exposure and habits.[25] In most of the Indian literature BCC show a male predominance where as in western literature there is female predominance.[19,24,26,25,27,23] In our study male to female ratio was 1.2:1. Solanki RL et al[24], Budharaja SN et al[19], Scrivener Y et al[26] and Kikuchi et al[25] found a male to female ratio of 1.26:1, 2.6:1, 0.92:1 and 0.97:1 respectively. The largest series of BCC in the literature is the study done by Scrivener Y et al[26] who recorded 13,457 BCCs with male to female ratio of 0.92 and mean age of 65 years.

In our study there were 16 melanocytic tumors among which melanoma comprised of 37.5% of cases. Melanomas showed a peak incidence in seventh decade with male preponderance. This finding is also reported by other studies done by Sampat and Sirsat[3], Mukhopadhyay S et al[28] and Budharaja SN et al.[19]In relation to sex distribution benign melanocytic tumors were more frequent in females and melanomas in males.

There was no clear pattern with respect to sex distribution in adnexal carcinomas as there were very few cases. Adnexal carcinomas are very rare and literature shows more about case reports rather than a study. Reddy et al[29] observed a female predominance in sweat gland carcinomas and male predominance in sebaceous carcinomas.

CONCLUSION

Skin tumors are relatively uncommon and comprise a wide spectrum of benign and malignant tumors that exhibit epidermal, adnexal and melanocytic differentiation. Benign tumors are common in younger age group and more common in females. Skin cancers exhibit an ascending trend in age. The frequency of skin cancers in men and women is different in different parts of the world. The present statistics show that skin cancer incidence in men is higher than women. In our study SCC was 3.9 times more common in males and this can be attributed to the increased effect of sun exposure in males. Though age and sex are not determinants of prognosis, it is interesting to compare these factors in Indian and western literature. Such comparisons may help us to identify crucial issues related to the etiology of skin tumors.Most of our findings roughly correlate with the Indian published literature. This study provides a data base of age and sex distribution of skin tumors which will be useful for the surveillance.

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Table 1: Distribution of benign and malignant tumors of skin

	No. of epidermal tumors	No. of adnexal tumors	No. of melanocytic tumors
Benign	11 (8%)	25 (19%)	10 (7%)
Malignant	77 (57%)	6 (4.5%)	6 (4.5%)
Total No of cases	88	31	16

Malignant epidermal tumors formed the majority (57%) followed by benign adnexal tumors (19%)

Table 2: Age distribution of benign tumors of skin

Age in years	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total
Verruca Vulgaris	2	-	1	1	-	2	-	-	6
Seborrheic keratosis	-	-	1	1	-	2	1	-	5
Hair follicle tumors	2	2	3	2	1	2	-	1	13
Sweat gland tumors	1	1	2	2	2	2	1	-	11
Sebaceous gland tumors	-	-	-	-	1	-	-	-	1
Nevocellular nevus	1	3	3	2	1	-	-	-	10
Total No of cases	6	6	10	8	5	8	2	1	46

The benign tumors had a peak incidence between 3rd and 5th decade (52%)

Table 3: Age distribution of malignant tumors of skin

Age in years	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total
SCC	-	2	7	8	13	16	3	-	49
Verrucous carcinoma	-	2	-	2	2	1	1	-	8
BCC	-	-	1	3	5	4	6	1	20
Malignant melanoma	-	1	-	-	1	3	1	-	6
Adnexal carcinoma	1	1	-	1	-	2	1	-	6
Total No of cases	1	6	8	14	21	26	12	1	89

The malignant tumors showed a peak incidence between 5th and 7th decade (68.5%).

Table 4: Sex distribution of benign skin tumors

	No of cases in males	No of cases in females	Total No of cases
Verruca vulgaris	4	2	6
Seborrheic keratosis	3	2	5
Hair follicle tumors	3	10	13
Sweat gland tumors	5	6	11
Sebaceous gland tumors	0	1	1
Nevocellular nevus	3	7	10
Total No. of cases	18 (39.13%)	28 (60.87%)	46

The benign tumors showed female predominance (60.87%) with male to female ratio of 0.64:1.

Table 5: Sex distribution of malignant skin tumors

	No of cases in males	No of cases in females	Total No of cases
SCC	39	10	49
Verrucous carcinoma	6	2	8
BCC	11	9	20
Melanoma	5	1	6
Adnexal carcinoma	3	3	6
Total No of cases	64 (71.91%)	25 (28.09%)	89

The malignant tumors showed male predominance (71.91%) with male to female ratio of 1.57: 1.