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Incidence of Squamous Cell Carcinoma in Karnataka

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Abstract- The skin is a complex and the largest organ of the body. Because of complexity a wide range of diseases can occur in the skin, like tumors from surface epidermis, which is most exposed part to harsh environment and its pollutants. Diagnosis of any skin tumors can be done by correlating clinical features and histological features. This study "incidence of squamous cell carcinoma in Karnataka" was carried out for 18 months, from November 2005 to April 2007. 54 skin tumors were studied. Out of these 54 cases, 14 were diagnosed as benign tumors and 40 as malignant tumors. The malignant tumors constituted 74.07%.Skin tumors constitute a small but significant proportion of patients with cancer. Unlike in the Western countries, SCC is the commonest histological variety. In this century, the carcinogenic potential of both chemicals and radiation cannot be ignored.

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Incidence of Squamous Cell Carcinoma in Karnataka

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I. Introduction

The skin is a complex and the largest organ in the body. Because of its complexity a wide range of diseases can develop from the skin including tumors from surface epidermis, epidermal appendages and dermal tissue.[1]

Histopathological study is one of the most valuable means of diagnosis in dermatology. But it has its own limitations; sometimes no definitive diagnosis can be made. In case of tumors, difficulties in diagnosis may also arise. For instance, distinction of squamous cell carcinoma from pseudoepitheliomatous hyperplasia or from keratoacanthoma is not always possible.[2]

The distinction between benign and malignant neoplasm are rather more difficult to define when they appear in skin than when found elsewhere[3] and histopathological examination is frequently required to establish a definitive diagnosis.

Diagnosis of any skin tumors can be done by correlating clinical features and histological features, which can be supported by histochemistry, immuno-histochemistry and electron microscopy.

First clear cut study of carcinogenesis was made by Sir Percival Pott in 1775. He discovered that soot is a carcinogen in chimney sweepers.[4]

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Sir Jonathan Hutchinson in 1887 recognized association between arsenic administration and subsequent development of both cutaneous and systemic malignancy. Hyde recognised ultraviolet light as a carcinogen.

Thus by the beginning of this century, the carcinogenic potential of both chemicals and radiation was recognised.

Yamagiwa and Ilchikawa in 1918 described experimental induction of skin cancer by chemical carcinogens. In 1945, Khanolkar described the Dhoti cancer.

II. Methodology

This study of "incidence of squamous cell carcinoma in Karnataka" was carried out for 18 months from November 2005 to April 2007.

a) Inclusion Criteria

Malignant tumors of epidermis (Squamous cell carcinoma) were included.

b) Exclusion Criteria

All non-neoplastic lesions and mesenchymal tumors of epidermis were excluded.

All benign tumors of epidermis were excluded.

Brief clinical history and findings were noted in each case. Nature of biopsy either incisional or excisional biopsy was noted.

Specimens were fixed in 10% formalin for 12-36 hours and the gross features were examined. Extent of sampling depended on the size of tumor as follows.

Further, tissue was processed and embedded in paraffin blocks. Sections of 5 to 6 micron thickness were taken and stained with hematoxylin and eosin and studied. Special stains were used wherever necessary.

According to WHO classification of skin tumors (1974)[5] cases were classified. Infective conditions were omitted.

c) Statistical Methods Applied

1. Cross tabs Procedure
2. Chi-square test
3. Descriptive statistics

III. Results

a) Squamous cell carcinoma

In the present study, twenty-seven cases were encountered, peak incidence was in fifth decade (33%)

with male preponderance (85%) and maximum number of cases occurred in the anogenital region (55%).

Table 1 : Location of squamous cell carcinoma

Site	Number of cases	Percentage
Head and neck	5	18.5
Extremities	7	26.0
External genitalia	15	55.5

$\chi^2 = 7.357; p < 0.25$ *(Significant)*

Table 2 : Age incidence of squamous cell carcinoma

Age in years	Number of cases	Percentage
40-49	9	33.3
50-59	7	26.0
60-69	6	22.2
70-79	5	18.5

$\chi^2 = 1.45; p < 0.767$ *(Not Significant)*

The peak incidence was seen in the 5th decade.

Table 3 : Sex incidence of squamous cell carcinoma

Sex	Number of cases	Percentage
Male	24	86
Female	4	14

Table 4 : Histologic types of squamous cell carcinoma

Type	Number of cases	Percentage
Squamous cell carcinoma	26	96
Verrucous carcinoma	1	4

$\chi^2 = 44.643; p < 0.000$ *(Highly Significant)*

Most of the tumors were between 0.5 to 6 cms. All squamous cell carcinomas were graded according to Broder's grading.

Fifteen cases were of Broder's grade-1, showing atypicality of cells, infiltration of dermis with more number of malignant epithelial pearls with occasional mitotic figures.

Six cases were of Broder's grade-2, showing more than 50% of differentiated squamous cells, with few epithelial pearls and occasional mitotic figures.

Five cases were of Broder's grade-3 showing more than 25% of differentiated squamous cells, with atypicality of cells, individual cell keratinization, an occasional epithelial pearl and a few mitotic figures.

Table 5 : Broder's grading of squamous cell carcinoma

Grade	Number of cases	Percentage
I	15	58
II	6	23
III	5	19
IV	0	0

IV. Discussion

Skin tumors constitute a small but significant proportion of patients with cancer. Skin tumors are an ideal subject for study from clinical, morphological and therapeutic point of view and are so ubiquitous that they can affect people of all ages.

Total of 790 specimens of neoplasms were received, Out of these, tumors of epidermis, epidermal adnexae and melanogenic system were 54, constituting 6.83%.

In the present study it was observed that malignant epidermal tumors were the most common (61%), and others (39%).

In the present study, squamous cell carcinoma accounted for maximum number (67.5%) followed by others (32.5%).. Squamous cell carcinoma accounted for maximum number of cases of skin cancer by Chakravarthy RC et al.[6] Budharaja SN et al.[7] and Deo SV et al.[8] as in the present study.

Table 6 : Comparative incidence of different malignant tumors of skin in India

Type of tumor	Budhraja SN et al.[7]	Chakravarthy RC et al.[6]	Deo SV et al.[8]	Present study
Squamous cell carcinoma	49.02%	64.3%	55.8%	67.5%

Table 7 : Comparison of age distribution in squamous cell carcinoma

Age in years	Reddy DJ et al.[9]		Present study	
	Number of cases	Percentage	Number of cases	Percentage
40-49	24	31.58	9	33
50-59	11	14.47	7	26
60-69	3	3.95	6	22
70-79	-	-	5	19

In the present study, most patients were males – 23 patients (85%) compared to females – 4 patients (15%). Even when penile cancers were excluded, the incidence in males was higher in the present study than those reported by Chakravarthy RC et al.[6] and Reddy DJ and Rao KV.[9]

Table 8 : Comparison of sex distribution in squamous cell carcinoma

	Male		Female	
	Number of cases	Percentage	Number of cases	Percentage
Chakravarthy RC et al[6]	43	71.62	21	28.38
Reddy DJ and Rao KV[9]	47	61.84	29	38.16
Present study	23	85	4	15

In the present study, 57% of squamous cell carcinomas occurred over the genitalia. This figure is high when compared to the series of Chuang CY et al.[10] When anogenital cancers were excluded, squamous cell carcinoma occurred commonly over the extremities, which was consistent with findings of Reddy DJ and Rao KV.[9] Chakravarthy RC et al.[6]

Table 9 : Comparison of site distribution in squamous cell carcinoma

	Head and neck		Extremities		External genitalia	
	Number of cases	%	Number of cases	%	Number of cases	%
Reddy DJ and Rao KV[9]	25	34	34	46	-	-
Chakravarthy RC and Choudhri [6]	16	25	34	53	-	-
Present study	5	18.5	7	25	15	55.5

Most squamous cell carcinomas of the skin are well differentiated.[11] The present study correlate with the above studies having maximum number of squamous cell carcinomas (Grade I and Grade II) accounting for 82% of all cases.

V. Conclusion

Skin tumors constitute a small but significant proportion of patients with cancer. Unlike in the Western countries, SCC is the commonest histologic variety. Histopathological study is one of the most valuable means of diagnosis in dermatology and diagnosis of skin tumors can be done by correlating clinical features gross and histological appearances.

In some cases rare entities and problems of differential diagnosis encountered may solved with histochemical and/or electron microscopy. In this century, the carcinogenic potential of both chemicals and radiation cannot be ignored.

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