

Study of Incidence, Occurrence, Origin, and Histological Types of Eyelid Tumors at Tertiary Care Hospital in Ahmedabad

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Abstract

Background: The aim of the study was to know occurrence, incidence, and various histopathological variants of eyelid tumors. It is incidence with respect to age and to analyse the distribution of tumors in various age group at new civil Hospital, Asarwa, Ahmedabad.

Materials and Methods: A total of 100 cases of eyelid tumors were analyzed retrospectively in a period from May 2008 to November 2010. Cases were studied in detail about general information of the patient including age and sex and gross examination and histological features.

Result: Of 100 tumors, 56 (56%) were benign and 44 (44%) were malignant. Of 56 benign lesions, 41 were in pediatric age group (<18 years) and 15 were in adult patients (>18 years). The common benign lesion seen was nevi (21%) followed by squamous papilloma (12%). The common malignant lesion seen was meibomian gland carcinoma (22%) followed by basal cell carcinoma (12%). Distribution of tumor based on origin on descending order was epithelial origin (33%), adnexal origin (23%), melanocytic origin (22%), and mesenchymal origin (22%).

Conclusion: As eyelid skin is the thinnest and most sensitive skin in our body, it is often the first area in body to show changes occur from sun damage and aging. Skin cancer of the eyelids is relatively common and of several types. Overall, the incidence of benign tumors (56%) was more than malignant tumors (44%) in the present study. Benign tumors were more common in adolescent and young adults. Mean age of benign tumors was 33.83 years. Malignant tumors were more common in elderly. Mean age of malignant tumors was 61.40 years. Overall, sex distribution of benign and malignant tumors is equal in both the sexes.

Key words: Aging, Benign tumors, Malignant tumors, Sun damage

INTRODUCTION

The eyelids are composed of four layers: Skin and subcutaneous tissue, striated muscle (orbicularis oculi), tarsus, and conjunctiva.^[1] The eyelid skin is the thinnest and most sensitive skin of our body. As a result, this is often the first area on our face to show changes results sun damage and aging process. Unfortunately, sun damage

and other environmental toxins not only cause the skin to age but can also cause serious damage. Skin cancer of the eyelids is relatively common and of several types. As tumors in other organs, tumors of the eyelid can be classified according to their tissue or cell of origin and as benign or malignant.^[2,3] Benign epithelial lesions, basal cell carcinoma (BCC), cystic lesions, and melanocytic lesions represent about 85% of all eyelid tumors.^[2,3] The presence of a nodule or lesion on the eyelid that grows, bleeds, or ulcerates should be evaluated. This involves examination and sometimes a biopsy. Eyelid tumors include squamous cell carcinoma, sebaceous gland carcinoma, and malignant melanoma and BCC.^[4] The present study was performed on 100 patients for evaluating the histopathology, overall incidence of benign and malignant eyelid tumors and its relation to different age groups and sex.

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MATERIALS AND METHODS

The present study was performed on 100 patients. Biopsy samples received in histopathology section of our institute from May 2008 to November 2010 were taken into study. General information of the patient including age and sex were taken. Gross examination and histological features were studied in detail. Eyelid biopsies were received in our laboratory in 10% formalin (as fixative). The initial gross examination includes size and color of the tissue, presence or absence of epidermis and hair, and distance to the nearest margin of discrete lesions. After examining the tissue, all surfaces except epidermis were inked before sectioning. If clinician had provided orientation for specific margin, inking with two or more colors was done. Shave biopsy or punch biopsies with greatest epidermal dimension <0.3 cm were submitted for processing without sectioning. Specimens with a greatest epidermal measurement of at least 0.4 cm were sectioned vertically through the epidermis along the long axis. Elliptical biopsies were oriented by sutures. Sections of an ellipse were taken at regular intervals of 2–3 mm. Gross tissues were cut in blocks and placed in 10% formalin. Fixation is usually complete at the end of 24 h and tissues are ready for processing. Total duration of processing is 13 h. Tissue blocks were kept in acetone bath, first two for 90 min, and then successive three for 60 min. Then, tissue blocks were kept in three bath of xylene, each for 1 h. Finally, kept in two bath of wax (temp. 52–62°C), each for 2 h. After paraffin processing, tissue blocks were cut on microtome knife, slide is prepared, and H and E stain was done. After drying, slides were mounted with DPX. Then, slides were examined under the microscope for histological diagnosis.

RESULTS

A total of 100 cases were studied. All histopathological specimens were adequate to make the final diagnosis.

Incidence of benign tumor was 56% while that of malignant tumors was 44%. Among benign tumors, melanocytic nevi and squamous papilloma were common while in malignant tumors, meibomian gland carcinoma was the most common tumor followed by BCC and squamous cell carcinoma [Table 1].

Epithelial tumors of the eyelid were the most common tumors (33%) while adnexal, melanocytic, and mesenchymal tumors were almost equal in the present study [Table 2].

Malignant epithelial tumors were common than benign tumors. Benign nevi were the most common melanocytic tumors. Meibomian gland carcinoma was the most

Table 1: Incidence of benign and malignant tumors

Tumors	Cases (%)
Benign	
Nevus	21
Squamous papilloma	12
Hemangioma	8
Neurofibroma	7
Schwannoma	4
Lipoma	3
Syringoma	1
Total (benign)	56 (56)
Malignant	
Meibomian gland carcinoma	22
Basal cell carcinoma	12
Squamous cell carcinoma	9
Malignant melanoma	1
Total (malignant)	44 (44)
Total number of cases	100 (100)

Table 2: Distribution of tumors according to its origin

Tumors	Number of cases (%)
Epithelial origin	33 (33)
Adnexal origin	23 (23)
Melanocytic origin	22 (22)
Mesenchymal origin	22 (22)
Total	100

common adnexal tumors. In mesenchymal origin, only benign tumors were found in which hemangiomas were the most common [Table 3].

Benign tumors were more common in children, adolescent, and young adults. Malignant tumors were more common in elderly. Most common age group of benign tumors was 21–40 years while in malignant tumors, it was 61–80 years. In the age group of 21–40 years, total number of benign tumors found was 23, of which melanocytic nevi were the most common followed by squamous papilloma. Total numbers of malignant tumors found in the age group of 61–80 years were 22, of which meibomian gland carcinoma was the most common followed by BCC [Table 4].

Overall, the incidence of eyelid tumors in adults was 85%, and in children, it was 15%. In the present study, only benign tumors were found in children. In adults, benign and malignant tumors both were found. Incidence of malignant tumors was slightly higher than benign tumors in adults [Table 5].

Eyelid tumors were slightly more common in males as compared to females. Overall, the incidence of benign tumors was more common than malignant tumors in both sexes [Table 6].

Table 3: Occurrence of tumor according to its origin

Origin of tumor	Benign	Number of cases	Malignant	Number of cases	Total cases
Epithelial tumors	Squamous papilloma	12	Basal cell carcinoma	12	33
			Squamous cell carcinoma	9	
Adnexal tumors	Syringoma	1	Meibomian gland carcinoma	22	23
Melanocytic tumors	Nevi	21	Malignant melanoma	1	22
Mesenchymal tumors	Hemangioma	8	-	0	22
	Neurofibroma	7			
	Schwannoma	4			
	Lipoma	3			
Total cases		56		44	100

Table 4: Incidence of eyelid tumors according to age group

Tumors/age group	1-20	21-40	41-60	61-80	81-100
Papilloma	2	6	4	0	0
Basal cell carcinoma	0	1	5	6	0
Squamous cell carcinoma	0	2	6	1	0
Nevi	3	8	9	1	0
Melanoma	0	0	0	1	0
Syringoma	0	1	0	0	0
Meibomian gland carcinoma	0	0	6	14	2
Hemangioma	3	5	0	0	0
Neurofibroma	4	1	1	0	0
Schwannoma	1	2	1	0	0
lipoma	1	0	1	1	1
Total	14	26	33	24	3

DISCUSSION

The present study was performed on 100 patients. Results of the presents study were compared with the studies performed by other studies. Results of the present study were as follows:

The overall incidence of benign tumors was higher than malignant tumors. Among benign tumors, melanocytic nevi and squamous papilloma were common while in malignant tumors, meibomian gland carcinoma and BCC were the most common tumor. Epithelial tumors were the most common tumors in the present study. Benign tumors were more common in children, adolescent, and young adults. Malignant tumors were more common in elderly. Eyelid tumors were slightly more common in male as compared to females. However, the overall incidence of benign tumors was more common than malignant tumors in both sexes. Comparison with other studies:

A study conducted by the Department of Pathology, Universal College of Medical Science, Nepal^[5] (37 cases), shows frequency of sebaceous gland carcinoma (40.5%), BCC (24.3%), SCC (27%), and melanoma (2.7%) while in the present study, the frequency of these tumors was 22%, 12%, 9%, and 1%,

respectively. In both studies, most common malignant tumor was sebaceous gland carcinoma followed by BCC, SCC, and malignant melanoma. Results of both the studies were comparable.

Comparison of the incidences of malignant eyelid tumors - a study conducted by Ohtsuka *et al.*^[6] (study of 38 cases) shows frequency of sebaceous gland carcinoma (28.9%), BCC (39.5%), and SCC (10.5%) while in the present study, the frequency of these tumors was 22%, 12%, 9%, and 1%, respectively. In comparison study, most common eyelid carcinoma are BCC followed by sebaceous gland carcinoma and SCC, while in the present study, sebaceous gland carcinoma is the most common followed by BCC and SCC.

Age incidence of eyelid cancers in Taiwan^[7] (21 years review, retrospective study of 1166 cases) shows that age distribution of malignant eyelid tumors ranges from 48.5 to 76.7 years, while in the present study, it ranges from 41 to 80 years.

A study was conducted by the Department of Ophthalmology, College of Medicine, Korea University. Ansan Hospital^[8] (a study of 95 cases) shows that the mean age of benign tumor was 30–42 years while in the present study, age distribution of benign papilloma is 21–40 years and benign nevi is 31–50 years.

A study by Lee *et al.* on eyelid cancers in Singapore from 1968 to 1995^[9] on sex distribution of eyelid tumors show that tumor occurrence in males (49.8%) and females (50.2%) while in the present study, it was 52% and 48%, respectively. Sex ratio in the present study and comparison study was almost near to equal.

Results of the comparison studies were as follows:

The most common malignant tumor of the eyelid was sebaceous gland carcinoma and BCC. Malignant tumors were more common in elderly while benign tumors were more common in young adults. Sex distribution of benign

Table 5: Distribution of benign and malignant tumors in children and in adults

Benign tumors	Pediatric age (<18 years)		Adults (>18 years)		Malignant tumors	Pediatric age (<18 years)		Adults (>18 years)	
	Number of cases					Number of cases			
Neurofibroma	5		2		Meibomian gland carcinoma	0		22	
Hemangioma	3		5		BCC	0		12	
Nevi	3		18		Squamous cell carcinoma	0		9	
Papilloma	2		10		Melanoma	0		1	
Schwannoma	1		3						
Lipoma	1		2						
Syringoma	0		1						
Total	15		41			0		44	

BBC: Basal cell carcinoma

Table 6: Incidence of benign versus malignant tumors in both sexes

Benign	Male	Females	Malignant	Male	Female
papilloma	7	5	BCC	7	5
Nevi	8	13	Squamous cell carcinoma	8	1
Syringoma	0	1	Meibomian gland carcinoma	8	14
Hemangioma	4	4	Malignant melanoma	0	1
Neurofibroma	5	2			
Schwannoma	3	1			
lipoma	2	1			
Total	29	27		23	21
Total (overall)	52 (29+23)				

BCC: Basal cell carcinoma

and malignant tumors was almost equal. Results of the present study were comparable with other studies.

CONCLUSION

The present study was concluded with the following results: A total of 56 cases of benign tumors were found. Incidence is 56%, seven types of benign tumors were found: Melanocytic nevi (21%), papilloma (12%), hemangioma (8%), neurofibroma (7%), schwannoma (4%), lipoma (2.70%), and syringoma (1%). A total of 44 cases of malignant tumors were found. Incidence is 44%, four types of malignant tumors were found: Meibomian gland carcinoma (22%), BCC (12%), squamous cell carcinoma (9%), and malignant melanoma (1%). Incidence of meibomian gland carcinoma was highest in the present study. However, overall, the incidence of benign tumors was more than malignant tumors. Benign tumors were more common in adolescent and young adults. Mean age of benign tumors was 33.83 years. Malignant tumors were more common in elderly. Mean age of malignant tumors was 61.40 years. Overall, sex distribution of benign and malignant tumors is equal in both the sexes.

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