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CLINICAL STUDY OF LID TUMORS IN ADULT PATIENTS OF WESTERN REGION OF INDIA

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ABSTRACT: **AIM:** To study distribution of eyelid tumors and confirmation of same with histopathological examination at Western Regional Institute of Ophthalmology of India. **SETTING:** M & J Western Regional Institute of Ophthalmology, Civil Hospital, Ahmedabad, India. **DESIGN:** Case Series of Eyelid Tumors. **MATERIALS AND METHODS:** 120 patients of eyelid tumors were studied between June 2007 to July 2009, after initial clinical examination in relevant cases Ultrasonography, Ultrasound Biomicroscopy, Computed Tomography Scan, Magnetic Resonance Imaging done accordingly, Excision biopsy attempted in possible cases otherwise incisional biopsy done, all tumors were subjected to histopathological examination. **RESULT:** Male preponderance with male: female ratio (1.4: 1) was found in benign tumors, whereas amongst the malignant cases females outnumbered males (1.16: 1). Predilection for Right eye (R: L 1.4: 1) and Upper lid (U: L-1.14: 1) as an overall incidence was observed amongst the tumors. Amongst the malignant tumors, Meibomian Gland Carcinoma (46.34%) and amongst benign tumors Sebaceous Cyst (25.97%) was found to be maximum. **CONCLUSION:** All lid tumors should be subjected to histopathological examination to discern not only the diagnosis but also the management, as malignant tumors can often present as benign tumors.

KEYWORDS: Histopathological evaluation, Meibomian gland carcinoma, Sebaceous Cyst.

INTRODUCTION: The eyelids are a highly specialized region of the ocular adnexa consisting of multiple tissue types, all having the potential to give rise to a spectrum of benign and malignant tumors. Eyelid tumors thus form an important part of ophthalmology practice. Eye lid tumors are by far the most common neoplasm encountered in clinical ophthalmic practice. They are estimated to represent more than 90% of all ophthalmic tumors. Approximately 5% to 10% of all skin cancers occur in the eyelid. The presentation of the tumors is myriad and often poses a diagnostic dilemma to the attending ophthalmologist. Fortunately vast majority of these are inflammatory or non-malignant neoplasm. But it becomes imperative to bear in mind that malignancies can mimic a host of benign tumors. Hence many a times the conclusion of diagnosis becomes based on the expertise of a histopathological examination of the excised specimen of the tumor mass or the whole tumor itself.

Tumors of the eyelids can be classified based on origin such as tumors of the epidermis/dermis, tumors of melanocytic origin, and those of glandular, neural, vascular, metastatic, xanthomatous, histocytic, and inflammatory origin.

Worldwide the incidence of lid malignancies is increasing and a varied distribution has been observed much of which is under characterized. Worldwide studies performed so far viz Iowa study spanning a 38 years period,^[1] a study in southern Taiwan^[2] over a period of 5 years and many more, and other studies done individually for different types of lid tumors have characterized; amongst benign tumors seborrheic keratosis, epithelial cysts as commoner entities and amongst the malignant

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tumors basal cell carcinoma as the most prevalent followed by sebaceous gland and then squamous cell carcinoma. These studies also describe the sex distribution of the individual tumors and the predilection of eyelids and site for the tumors also described. Almost equal involvement was found in both lids and amongst the malignant tumors significant observation of sebaceous gland tumors being common amongst women was put forth. Basal cell carcinoma usually presents in the lower lid on the medial aspect as a nodule or as an ulcer. Most of these cancers are slow growing and occurs in the middle aged or elderly. A high index of suspicion is required when there is a slowly enlarging lump, loss of eye lashes, prominent blood vessels, pigmentation or recurrent blepharitis.

Studies conducted in India, including study by Abdi et al.^[3] Department of Pathology, Jawaharlal Nehru Medical College, Aligarh Muslim University of 207 cases over a period of 34 years and another by Dr. Mukesh Sharma⁴ covering 135 cases of eyelid tumors treated at department of ophthalmology S.M.S. hospital, Jaipur between 1999 and 2006 revealed that amongst the malignant tumors, Indian population shows a predilection for sebaceous gland tumors.

Each of the nationwide or international studies duly emphasizes the role of concurrent histopathological confirmation as most of the malignant tumors tend to masquerade the benign lesions. The eyelid tumors are fairly common in Indian subcontinent, but there is paucity of reports in Indian literature. This study hence was designed to characterize the distribution of various eyelid tumors, benign and malignant in terms of their clinical presentation and distribution in western part of the country.

MATERIALS AND METHODS: This study has been conducted in the M & J Western Regional Institute of Ophthalmology, Civil Hospital between the periods of June 2007 to July 2009.

In this study 120 cases were included as per the inclusion and exclusion criteria mentioned ahead. A detailed study of the clinical history and examination was performed with a histopathological confirmation.

INCLUSION CRITERIA:

1. All benign tumors cystic, vasculogenic, non-cystic like epidermal inclusion cyst, pyogenic granuloma, epidermal nevus, keratocanthoma, and neurofibroma were included in the study.
2. All malignant tumors like squamous cell carcinoma, basal cell carcinoma, meibomian gland carcinoma, and lymphoma.
3. Age 18 years and above.

EXCLUSION CRITERIA:

1. Age below 18 years
2. Active acute infections of ocular structures
3. Clinically apparent chronic inflammatory lesions like chalazion
4. Clinically apparent tumors with orbit origin like dermoid cyst
5. Immunocompromised, pregnant, known HIV & HbsAg positive cases
6. Patients unwilling for biopsy and surgical intervention

In all cases biopsies for histopathological confirmation were performed and supplemented by lid reconstructive surgery and / or radiotherapy or chemotherapy.

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INITIAL CLINICAL EXAMINATION: A detailed history was taken as per the Performa attached ahead with special attention to the structural, motor or sensory complaints of the patients. Previous records of treatments, histopathological studies performed elsewhere were also reviewed. Relevant medical and surgical history was obtained.

Under the ocular examination following parameters were recorded:

1. Visual acuity on snellen's chart / E-chart for illiterates.
2. Anterior segment examination for anterior chamber depth, iris details, pupil and lens.
3. Detail examination of the lid mass with reference to its position on the lid, size, shape, mass, consistency, translucency and adherence to neighboring structures and inflammatory features were noted. Surrounding lymph nodes evaluation and an active search for signs of metastasis was done.
4. Posterior segment examination with ophthalmoscopy.

With this an initial clinical impression was drawn; following which other investigational modalities in form of Ultrasonography Scanning, Ultrasonic Bio microscopy, CT scan and MRI were done especially in the cases where an intraocular / intra orbital extension was suspected.

With the clinical inference in mind, all lid masses were subjected to biopsy with the biopsied material sent for further histopathological evaluation. Where ever possible an excisional biopsy of the tumor mass was performed thereby avoiding the chances of dissemination of tumor by an incisional biopsy alone. In situation where incisional biopsy was performed, adequate sample having a representative portion of the lesion with a margin of normal surrounding tissue was obtained. Small lesions were excised using the anatomic knowledge of the anterior and posterior lamella thereby allowing for ease of surgical repair. In large lesions involving both anterior and posterior lamella full thickness resection with pentagonal wedge resection was performed.

In few cases frozen section was used to confirm the tumor free margins. These cases underwent a primary lid reconstruction in the same sitting. In other cases histopathology report was awaited and secondary lid reconstructions were performed. Methods thus employed in cases of large defects also included tenzel advancement flaps, cutler beard flap reconstruction with autogenous cartilage, composite grafting viz pedicle flap from lower to upper lid.

In relevant cases, radiotherapy and chemotherapy was also employed. Cases were followed up on day one, one week, fifteen days, one month and there after six monthly and observation for any regrowth or recurrence of symptoms or signs was noticed on each follow up.

RESULTS: We studied 120 patients of age 18 years and above presenting at tertiary care center during a span of two years from June 2007 and July 2009. The presenting lid lesion were studied for their clinical features and subjected to thorough histopathological evaluation, a final diagnosis of the tumor was made thereafter.

Study of 120 patients included 66 males and 54 females (M: F -1.22: 1). There were 41 (34%) malignant cases and 79 (66%) benign cases.

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Male preponderance with a male: female (1.4: 1) ratio of was found in benign tumors, whereas amongst the malignant cases females outnumbered males (22 vs. 19) 1.16: 1.

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We found that the mean age at presentation for benign tumors were 38.86 years and for malignant cases was 59.53 years. In males benign tumors were maximally presenting in age 20-30 whereas in females age group 30-40 was commoner. For malignant cases 60-70 age group for females and 50-60 age groups for males were found.

A predilection for right eye (R: L 1.4: 1) and upper lid (U: L-1.14: 1) as an overall incidence was observed amongst the tumors. We found a higher incidence of lower lid involvement in the malignant cases.

	Left Eye	Right Eye	Total
Upper Eyelid	24	38	62
Lower Eyelid	25	29	54
Both Eyelid	1	3	4
Total	50	70	120

DISTRIBUTION OF TUMOR

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MALIGNANT TUMOR DISTRIBUTION ACCORDING EYE & LID:

	RE	LE	UL	LL	RE	LE	UL	LL
Meibomian Gland CA	5	4	2	5	6	4	4	5
Squamous Gland CA	1	3	2	2	4	1	2	2
Basal Cell CA	2	4	1	5	4	2	-	6
Lymphoma	-	-	-	-	-	1	1	-
TOTAL	8	11	5	12	14	8	7	13
	MALE				FEMALE			

RE- Right Eye, LE-Left Eye, UL- Upper Lid, LL-Lower Lid

BENIGN TUMOR DISTRIBUTION ACCORDING EYE & LID:

	RE	LE	UL	LL
Male	31	16	26	21
Female	17	15	24	8

Amongst the malignant tumors, meibomian gland carcinoma was found to be maximum in 19 cases (46.34%), followed by basal carcinoma 12 cases (29.26%) and then squamous cell carcinoma (21.93%) there was one case of lymphoma.

In benign tumors male: female ratio of 1.46: 1 was found. Most common tumor was sebaceous cyst (25.97%) followed by pyogenic granuloma (18.18%) and then nevus. One unusual case of pseudo carcinomatous hyperplasia was also reported. Right eye was again common among benign tumors and upper lid predilection was also observed.

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TUMOR	NO.OF PATIENTS	PERCENTAGE
Sebaceous Cyst	20	25.97%
Pyogenic Granuloma	14	18.18%
Nevus	11	14.28%
Epidermoid Cyst	8	10.38%
Haemangioma	8	10.38%
Papilloma	8	10.38%
Neurofibroma	5	6.49%
Molluscum Contagiosum	3	3.89%
Pleomorphic Adenoma	1	1.29%
Pseudocarcinomatous Hyperplasia	1	1.29%
DISTRIBUTION OF BENIGN TUMOR

DISCUSSION: Our study of 120 patients included 66 males and 54 females (M: F -1.22: 1). There were 41 (34%) malignant cases and 79 (66%) benign cases. In a similar study a retrospective analysis of 135 eyelid tumors treated at department of ophthalmology S.M.S. Hospital, Jaipur from 1999-2006⁴, Malignant eyelid tumors were 54 (40%) in number. Tragi et al^[3] conducted a retrospective study of 207 cases in which malignancy was noticed in 85 cases (41.1%). In Iowa,^[1] in a study spanning a 38-year period between 1932 and 1969, 892 lid lesions were studied histopathologically. Of these lesions, 76% were benign and 24% were malignant.

In both the Indian studies, there is similar incidence of malignant lesions of about 40% with female preponderance in the former which is similar to our study. In another study conducted in San Francisco^[5] there was lesser percentage of malignant lesions of about 27%. This is probably due to the fact that ours is a tertiary care center in western region of India which usually receives many referrals from other centers and hence more references for malignant tumors.

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Male preponderance with a male: female (1.4:1) ratio of was found in benign tumors, whereas amongst the malignant cases females outnumbered males (22 vs. 19) 1.16:1. In study in Jaipur,⁴ female: male ratio was 1.3: 1 in malignant cases and thus showed similar preponderance of female patients in malignant tumors while in Tragi et al,^[3] overall slight preponderance of males as the male: female ratio was 1.3: 1. Thus an overall clear cut predilection to either sex is missing. Sebaceous carcinoma occurs more commonly in women than men. In our study, the meibomian gland carcinoma female: male ratio of 1.1: 1 was found.

In our study predilection for right eye (R: L 1.4: 1) and upper lid (U: L-1.14: 1) as an overall incidence was observed amongst the tumors. We found a higher incidence of lower lid involvement in the malignant cases. In study of Eyelid tumors in southern Taiwan^[2] a 5 years study, conducted between January 1994 and December 1998 including 144 cases, about half of the tumors were located in the upper eyelids and the other half in the lower eyelids. In a study in western population in San Francisco^[5] a predilection to left side was noted and attributed to increased exposure during driving. But again the study had a higher incidence of basal cell carcinoma for which sun exposure is a known risk factor in contrast to our study in which there were more patients of sebaceous gland carcinoma for which sun exposure is not such an important risk factor. Shields et al recently reported their experience in 60 cases; the upper eyelid was involved in 75% of cases, lower eyelid in 22%, caruncle 2%, and bulbar conjunctive in 2%. Of all cases 28 (51.9%) were seen on upper eyelid and 24 (44.4%) occurred on the lower eyelid, both lids were involved in 3 (5.5%) cases. Sebaceous gland carcinoma occurred predominantly on upper eyelid and 24 (44.4%) occurred on the lower eyelid, both lids were involved in 3(5.5%) cases.

In our study amongst the malignant tumors, meibomian gland carcinoma was found to be maximum in 19 cases (46.34%), followed by basal carcinoma 12 cases (29.26%) and then squamous cell carcinoma (21.93%) there was one case of lymphoma. In a study in central India by Jahagirdar et al^[6] where a series of 27 cases of eyelid malignancies were analyzed, sebaceous cell carcinoma (~37%) was almost as prevalent as basal cell carcinoma (~44%). In another study by Sharma et al^[4] sebaceous gland carcinoma (SGC) constituted 44.4% of all malignancies similar to our findings. These support the findings that sebaceous gland carcinoma are more common in people of Asian origin while worldwide, the incidence of basal cell carcinoma has been found to be the highest. But these studies are in contrast to a study of eyelid tumors in southern Taiwan^[2] which revealed that out of 144 cases, 18 cases (12.5%) were of malignant tumors out of which nearly three- quarters were basal cell carcinoma and the second most common was sebaceous carcinoma followed by squamous cell carcinoma. Though Taiwan population has Asian origin, the findings do not match the data from other studies. This might be because of the fact that the numbers of subjects in this study were relatively less and a more detailed study with more subjects can further confirm the findings.

In our study most common benign tumor was sebaceous cyst (25.97%) followed by pyogenic granuloma (18.18%) and then nevus. One unusual case of pseudo carcinomatous hyperplasia was also reported. Right eye was again common among benign tumors and upper lid predilection was also observed. In Iowa [1], lid lesions were processed through the pathology laboratory. Of these lesions, 76 percent were benign, the most common tumors were seborrheic keratosis (23.8 percent), benign epithelial cyst (21.9 percent), chalazion (16 percent), inflammatory dermatosis and nevus (each about 12 percent), and xanthelasma (4.4 percent). In a study in Taiwan [2] benign tumors included 38 nevi, 15 squamous papillomas, 13 cysts, 11 verrucae, 10 seborrheic keratosis, four hemangiomas,

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and others. Dr. Mukesh et al^[4] study found that benign lesions were more common till third decade out of the 81 benign tumors the commonest was papilloma (20 cases; 24.6%), followed by dermoid cyst (19 cases; 23.4%), granuloma (14 cases, 17.2%), hemangioma (11 cases; 13.6%), nevus (7 cases, 8.6%), neural tumors (5 cases, , 6.1%), Keratoacanthoma (2 cases, 2.4%), lymphangioma (2 cases, 2.4%) and one case was of implantation cyst. Abdi U; Tyagi N et al^[3] study found that benign lesions common ones were vascular tumors (21.3%), neural tumors (18.0%), dermoid cysts (16.4%), squamous cell papilloma (13.1 %) and naevi (12.3%). Unlike in our study where sebaceous cyst was found to be the commonest benign lesion.

CONCLUSION: Lid tumors have myriad presentations. Many benign lesions have a tendency to masquerade malignant lesions. These tumors thus are a clinic-pathologic challenge to the ophthalmologist. The tumor distribution stays largely under characterized and under described especially in western part of the country.

Our study thus came up with the following conclusions:

1. All lid lesions should be subjected to histopathological examination to discern not only the diagnosis but also the management. As already mentioned malignant tumors can often present as benign tumors.
2. Ours being a tertiary care institute malignant and late presenting tumors are observed more often than others.
3. Benign tumors presented at a younger age (mean age 38.86 years) and were more common amongst males (male: female ratio 1.46: 1).
4. For Malignant tumors mean age of presentation was 59.53 years and were more common amongst females (female: male ratio 1.16: 1).
5. An overall predilection for right eye and upper lid in both eyes was found.
6. Amongst benign tumors cystic lesion like sebaceous cyst was most common (25.97%).
7. Meibomian gland carcinoma was commonest amongst malignant lesions (46.34%).

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