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A RETROSPECTIVE STUDY ON CLINICAL AND HISTOPATHOLOGICAL PROFILE OF EYE LID LESIONS IN A TERTIARY CARE CENTRE

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Abstract

Background: Eyelid tumours are cosmetically disturbing to patientsalso can affect the normal visual acuity. Diagnosis of these lesions requires an understanding of the anatomy of the lids along with history, clinical examination and appropriate investigation such as Histopathological examination in cases of suspected malignancy where a diagnosis cannot be made with accuracy on clinical backgrounds.

Objective: Therefore, we aimed to explore and analyze on the relative frequency and clinical features of eyelid tumours from our institute based on the histological classification system.

Methodology: A retrospective study was done in a tertiary care hospital, where data on 200 eyelid lesions were obtained from medical records in the past 4 years.The classification of the lesions was done according to the Histopathological classification of eyelid tumours by Biswas A. Data analysed using SPSS version 23. Statistical analysis was done using independent student T test and chi-square test with $P<0.05$ considered as statistically significant.

Results: Benign and miscellaneous lesions were 86% and Premalignant and malignant were 14%.Amongst the malignant eyelid lesions, prevalence of Adeno Carcinoma (3.5 %) was most common followed by Squamous Cell Carcinoma (2%) and Sebaceous gland carcinoma (1.5%). From benign tumour, Nevus (8.5%) was most common followed by papilloma (7.5%) and epidermoid cyst (5.5%).

Conclusion: Benign lesion though are the most common eyelid lesions cause disfigurement of eye and impair the vision, hence early diagnosis is required to save the vision and for cosmetic purpose. Timely management of malignant lesions will improve the patient outcome.

Keywords: Eyelid lesions, histopathological profile, benign, malignant. Tertiary care hospital

INTRODUCTION

Eye lid tumours are the major condition in patients attending ophthalmology department. Eyelids play an important role in protecting the ocular surface as well as in facial aesthetics.[1] The eyelids are composed of four layers: Skin and subcutaneous tissue, striated muscle (orbicularis oculi), tarsus, and conjunctiva.[2]

Eyelid tumours are cosmetically disturbing to patients and challenge to diagnose for ophthalmologists, pathologists who diagnose eyelid tumours based on biopsy. In addition to aesthetic issues, the tumours can affect the normal visual acuity and can change the shape of the eyelids[3].As tumours in other organs, tumours of the eyelid can be classified according to their tissue or cell of origin and as benign or malignant.[4,5]Because the eyelids contain numerous histological elements, a variety of benign and malignant tumours can originate in this location. [6]

Approximately 5%-10% of all skin cancers and 15% of all face tumours occur on the eyelid.[7]. In addition, other studies have revealed the rapidly increasing incidences of skin cancer and even malignant eyelid tumours.[3,8]The clinical features, prevalence and outcome of various eyelid tumor subtypes vary significantly. Understanding the clinical and histopathologic characteristics of eyelid tumours will benefit early diagnosis of eyelid tumours and protect patients from suffering.

Diagnosis of these lesions requires an understanding of the anatomy of the lids along with history, clinical examination and appropriate investigation such as Histopathological examination in cases of suspected malignancy where a diagnosis cannot be made with accuracy on clinical backgrounds.Therefore, we aimed to explore and analyze on the relative

frequency and clinical features of eyelid tumours from our institute based on the histological classification system.

MATERIALS AND METHODS

A retrospective study was done in ophthalmology department of a tertiary care hospital, where data on 200 eyelid lesions were obtained from medical records in the past 4 years. After obtaining institutional ethical committee clearance data on demography (includes age, gender) clinical (symptoms, laterality of eye, site of lesion) and histopathological details concerned with the eyelid lesions were collected. The specimens were fixed in 10% buffered formalin, then processed by paraffin embedding technique and hematoxylin-eosin stained by pathological laboratory of the same hospital and reported. The classification of the lesions was done according to the Histopathological classification of eyelid tumours by Biswas A. [9]

According to this classification, eyelid tumours were classified as

Histopathological Classification of Eyelid Tumours

A. Benign tumours of the epidermis of the eyelids - 1. Papilloma 2. Keratoacanthoma 3. Seborrheic keratosis

B. Premalignant and malignant tumours of the surface epithelium of the eyelids 1. Actinic keratosis 2. Basal cell carcinoma 3. Squamous cell carcinoma

C. Glandular and adnexal tumours of the eyelids 1. Sebaceous/meibomian gland carcinoma 2. Sweat gland tumours (a) Syringoma (b) Eccrine acrospiroma (c) Carcinoma (meibomian gland cancer) 3. Hair follicle tumours (a) Trichoepithelioma (b) Trichofolliculoma (c) Trichilemmoma (d) Pilomatrixoma (calcifying epithelioma of Malherbe)

D. Melanocytic tumours of the eyelids 1. Nevus 2. Oculodermalmelanocytosis (nevus of Ota) 3. Lentigo maligna (melanotic freckle of Hutchinson) 4. Primary malignant melanoma lid

E. Neurogenic tumours of the eyelids 1. Neurofibroma 2. Neurilemmoma (schwannoma) 3. Merkel cell tumor (neuroendocrine carcinoma of skin)

F. Vascular tumours of the eyelids 1. Congenital Capillary Hemangioma 2. Acquired Capillary Hemangioma 3. Nevus flammeus 4. Varix 5. Lymphangioma 6. Kaposi’s sarcoma 7. Angiosarcoma

G. Lymphoid tumours of the eyelids 1. Lymphoma 2. Plasmacytoma

H. Xanthomatoustumours of the eyelids 1. Xanthelasma 2. Xanthogranuloma

I. Tumours metastatic to the eyelids

J. Miscellaneous lesions mimicking malignancy

1. Cyst (a) Sebaceous cysts (b) Sudoriferous cysts (c) Traumatic cysts (d) Dermoid cysts (e) Cysts of Moll (f) Eccrine cysts

2. Lipoid proteinosis: wax-like, pearly nodules

3. Pseudotumor of lid

4. Amyloidosis (Lubarsch-Pick syndrome)

Medical records with incomplete data like no diagnosis, no further follow up and referred were excluded. The acquisition of images was done using the Panthera L research binocular microscope, with a built-in 5 Mpixel digital camera (MoticEurope SLU, Barcelona, Spain) and integrated software, which allowed the appreciation of the two parameters, BS and pT respectively.Data was represented in frequencies, proportion, mean and standard deviation. Data analysed using SPSS version 23. Statistical analysis was done using independent student T test and chi-square test with $P<0.05$ considered as statistically significant.

RESULTS

Out of 200 cases of eyelid lesions 67 (33.5%) were from males and 133 (66.5%) were from females. Age of patients ranged from 2 years to 84 years with mean age 49 years. Maximum patients were in the age group of 41-60 years. Upper eyelid (43.5 %) was most commonly involved. Left eye was commonly involved (50%).Among lesions, Benign and miscellaneous lesions were 86% and Premalignant and malignant were 14%. (Table 1)

Table 1: Demographic details of the study population

Variable	Subtypes	Category Subtypes
Gender	Male	67 (33.5%)
	Female	133 (66.5%)
Age	Mean ± SD	49 ± 12 years

	Range	2 -84 years
	< 20 years	27 (13.5%)
	20-40 years	63 (32.5%)
	41- 60 years	81 (40.5%)
	>60 years	29 (14.5%)
Habitat	Rural	123 (61.5%)
	Urban	77 (38.5%)
Laterality of eye	Right eye	87 (43.5%)
	Left eye	100 (50%)
	Both eyes	13 (6.5%)
Site of lesion	Upper lid	87(43.5%)
	Lower lid	71 (35.5%)
	Medial canthus	29 (14.5%)
	Lateral canthus	9 (4.5%)
	Multiple sites	4 (2%)
Type of lesion	Benign and miscellaneous lesions	172 (86%)
	Premalignant and malignant lesions	28 (14%)

Amongst the malignant eyelid lesions, prevalence of Adeno Carcinoma (3.5 %) was most common followed by Squamous Cell Carcinoma (2%) and Sebaceous gland carcinoma (1.5%). From benign tumour, Nevus (8.5%) was most common followed by papilloma (7.5%) and epidermoid cyst (5.5%). (Table 2)

Table 2: Eyelid lesions in the current study

Category	Benign and miscellaneous lesions (172/ 86%)	Premalignant and malignant (28/14%)

Tumours of the epidermis of the eyelids	Papilloma (15, 7.5%)	Basal cell caecinoma (1, 0.5%), Squamous cell carcinoma (4, 2%)
Glandular and adnexal tumours of the eyelids	Sebaceous cyst/Epidermoid cyst (11, 5.5%) Benign adnexal tumor (1, 0.5%) Pilomatrixoma (1, 0.5%) Inclusion cyst (2, 0.5%)	Sebaceous gland carcinoma (3, 1.5%) Malignant adnexal tumor (1, 0.5%) Adenocarcinoma (7, 3.5%)
Melanocytic tumours of the eyelids	Nevus (17 , 8.5%)	Primary malignant melanoma lid (2, 1%)
Neurogenic tumours of the eyelids	Neurofibroma (6, 3%) Neurilemmoma (schwannoma) (4,2%)	Merkel cell tumor (neuroendocrine carcinoma of skin) (3-1.5%)
Vascular tumours of the eyelids 3. Nevus flammeus 4. Varix 5. 6. Kaposi's sarcoma 7. Angiosarcoma	Congenital Capillary Hemangioma (2-1%) Acquired Capillary Hemangioma (1-0.5%)	Kaposi's sarcoma (3,1.5%) Angiosarcoma (1, 0.5%)
Lymphoid tumours of the eyelids	Lymphangioma (2-1%)	Lymphoma (2,1%) Plasmacytoma (1-0.5%)
Xanthomatoustumours of the eyelids	1. Xanthelasma (2,1%) 2. Xanthogranuloma (5,2.5%)	None (0,0%)
Miscellaneous lesions mimicking malignancy	Chalazion (51, 25.5%) Molluscum contagiosum (5, 2.5%) Wart (4, 2%) Rhinosporidiosis (1, 0.5%) Tuberculosis (1, 0.5%) Pyogenic granuloma (4, 2%)	

	Others Amyloidosis (2, 1%)	

Mean age of patients with Premalignant and malignant lesions(61 years) was significantly more compared with patients with benign lesions and miscellaneous lesions (48 years). More proportion of females have Benign and miscellaneous lesions (90.2%) and More proportion of males have Premalignant and malignant lesions (22.4%) which was significant statistically. Benign and miscellaneous lesions were present more commonly in right eye where as Premalignant and malignant lesions were present in both the eyes which was significant statistically. Medial canthus followed by lower lid was the most common site of lesion in Benign and miscellaneous lesions where as lateral canthus followed by upper lid was the most common site of lesion in Premalignant and malignant lesions which was not significant statistically.

Table 3: Distribution of eyelid lesions by age, gender, laterality of eye and site of lesion

Category	Sub category	Benign and miscellaneous lesions(172/ 86%)	Premalignant and malignant lesions(28/14%)	Chi-square/ t test- P value
Age in years (Mean ± SD)		48 ± 26 years	61± 12 years	T= 2.59/ P value 0.01
gender	Male (67, 33.5%)	52 (77.6%)	15 (22.4%)	Chi-square – 5.9/ p value- 0.015
	Female (133, 66.5%)	120 (90.2%)	13 (9.8%)	
Laterality of eye	Right eye	82 (94.2%)	5 (5.8%)	Chi-square – 16.8/ p value- 0.0002
	Left eye	83 (83%)	17 (17%)	
	Both eyes	7 (53.8%)	6 (46.2%)	
Site of lesion	Upper lid	73 (83.9%)	14 (16.1%)	Chi-square – 2.542/ p-value is 0.637076
	Lower lid	62 (87.3%)	9 (12.7%)	
	Medial	27 (93.1%)	2 (6.9%)	

	canthus			
	Lateral canthus	7 (77.8%)	2 (22.2%)	
	Multiple site	3 (75%)	1 (1%)	

Figure 1: Adenocarcinoma of eyelid

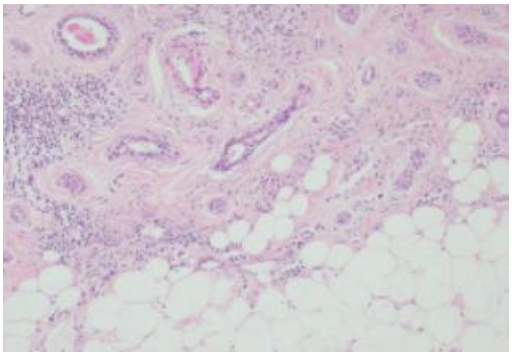

Figure 2: Sebaceous glad carcinoma

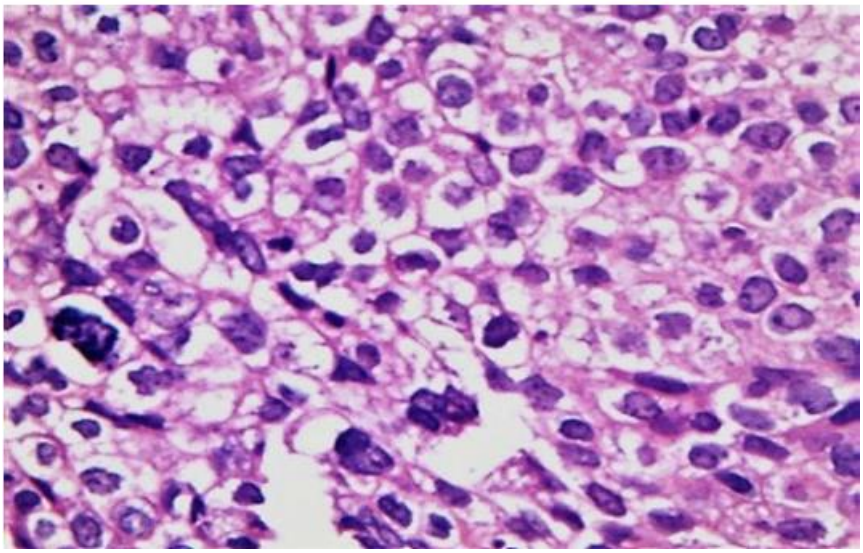

Figure 3: Benign nevus at eyelid margin

DISCUSSION

The mean age of patient in present study was 49 ± 12 years with range 2-84 years. Mean age in the current study was more than study by Hetvi Mistry et al (42 years),[10] Bhavya P et al (43.4)[11] and Rathod A et al (37 years)[12].

Out of total 200 cases, 67 (33.5%) were male and 133 (66.5%) were female with M:F (male: female) ratio being1:2, where as in study by Hetvi Mistry et al (1:1),[10] Bhavya P et al (1:1.3),[11] Krishna Murthy H et al (1:1.5),[13] Mary Ho et al (1:1.6)[14] and Rathod A et al (1:1.1)[12] it is not similar. Current study showed slightly more female preponderance.

In the present study Benign tumours were more common (86% including miscellaneous lesions) than malignant tumours (14%). Similar results were found in the studies conducted by Giri Punja et al,[15] Rathod et al,[12] Mary Ho et al,[14] and Krishnamurthy H et al,[13] which were 87.67%, 61%, 85.5%, and 91.9% respectively.

The most common benign tumour was Nevus (8.5%) in present study. Nevus was also found to be the commonest benign tumour in studies conducted by Hetvi Mistry et al (8%)[10] Giri Punja et al (11.8%), [15] Bhavya Mohan et al (13.7%),[11] Mary Ho et al (26.5%)[14], Rathod A et al (17%),[12] Krishnamurthy Hetal (17.5%),[13]and Garimaet al (12.17%).[16]

Amongst the malignant eyelid lesions, prevalence of Adeno Carcinoma (3.5 %) was most common followed by Squamous Cell Carcinoma (2%) and Sebaceous gland carcinoma (1.5%)where as squamous cell carcinoma was the most common in study by by Garima et al.[16] Basal cell carcinoma was most common in study by Hetvi Mistry et al [10] and Mary Ho et al. [14] Sebaceous cell carcinoma was found to be most common malignant tumor in the study conducted by Bhavya Mohan et al (2.4%),[11] Giri Punja et al (5.9%),[15] and Krishnamurthy H et al (31.6%).[13]In study by Sushma T et al the most common eyelid malignancy was

Sebaceous gland carcinoma 24(42.85%), followed by 18(32.14%) Basal cell carcinoma, 5(8.92%) Squamous cell carcinomas and 4(7.14%) Melanoma cases.

Miscellaneous lesions in the present study includes Chalazion (51, 25.5%) Molluscum contagiosum (5, 2.5%) Wart (4, 2%) Rhinosporidiosis (1, 0.5%) Tuberculosis (1, 0. 5%) Pyogenic granuloma (4, 2%) Others Amyloidosis (2, 1%) where as in study by Hetvi Mistry et al the most common non- neoplastic lesion was found to be Epidermal cyst which were 22%[10]. Other studies conducted by Bhavya Mohan et al,[11] Mary Ho et al,[14] Rathod A et al,[12] Yasser h. Al-Faky et al,[18] Krishnamurthy H et al,[13] and Garima et al,[16] also showed epidermal cyst which were 14.3%, 8.2%, 07%, 10.3%, 30.5% and 11.30% respectively. The study conducted by Giri Punjashowed Dermoid cyst which was 31.5% as most common non-neoplastic lesion.[15]

In this study mean age of patients with Premalignant and malignant lesions (61 years) was significantly more compared with patients with benign lesions and miscellaneous lesions (48 years). In study by Benerjee P et al maximum number of patients were in the age group of 41–60 years (*n* = 89, 48.1%), closely followed by the age group of 60 years and above (*n* = 83, 44.9%).[19] The increase in the frequency of the lesions after 40 years of age was found to be statistically significant ($P < 0.05$) when compared with the benign group.

In this studymore proportion of females have Benign and miscellaneous lesions (90.2%) and more proportion of males have Premalignant and malignant lesions (22.4%) which was significant statistically. In contrast in study by Sushma T et al showed 53.57% of females with malignant tumours.[17] Similar Indian study by Sathish MK et al showed a female preponderance of 56.28% in a study of 85 malignant eyelid tumours.[20]In study by Banerjee P et al Males and females were equally affected (50%) with malignant lesions.[19]

CONCLUSION

The spectrum of eyelid lesions which present as swelling clinically and have variable prognosis is huge. Benign lesion though are the most common eyelid lesions cause disfigurement of eye and impair the vision, hence early diagnosis is required to save the vision and for cosmetic purpose. Timely management of malignant lesions will improve the patient outcome. Early and confirmatory Histopathological diagnosis of eyelid lesions helps in proper management of patient.

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