



## Histopathological Spectrum Of Eyelid Lesions In A Tertiary Care Hospital

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### Abstract

Eyelid lesions are commonly encountered in histopathology practice. They comprise wide variety of lesions because of unique histology of eyelid. Eye is a vital visual organ. Eyelids cover and protect the human eye and are an essential part of the human face. The eyelids are formed by the reduplication of the surface ectoderm above and below the cornea. Eyelids being specialised regions of the eye and ocular adnexa, consist of multiple tissue types including epithelial, vascular, adnexal, histiocytic, neural and melanocytic origin. Lesions of eyelid are common concerns amongst patients and are affected by wide range of benign and malignant lesions which could be aesthetically disturbing to the patient as well as diagnostically challenging to the attending Ophthalmologist. Eyelid tumors represent 15% of face tumors and about 5-10% of skin tumors. Most eyelid tumors are of cutaneous origin, mostly epidermal, which can be divided into epithelial and melanocytic tumors. Benign epithelial lesions, cystic lesions, and benign melanocytic lesions are very common. The most common malignant eyelid tumors are basal cell carcinoma in Caucasians and sebaceous gland carcinoma in Asians. Adnexal and stromal tumors are less frequent, and inflammatory and infections lesions that simulate neoplasms. Retrospective study conducted at Department of Pathology for a period of 5 years, in Sarojini devi eye Hospital, Hyderabad, Telangana, India. The data collected were entered to Microsoft excel worksheet and then subjected to descriptive statistical tabulation.

Eyelid lesions are common in females than males. Right upper lid lesions were more common. In non-neoplastic lesions, Intradermally nevus were more in number followed by pyogenic granuloma and epidermoid cyst. Sebaceous gland carcinomas were the most prevalent malignant carcinomas followed by Basal Cell Carcinomas.

**Keywords:** Eyelid, histopathology, Intradermal nevus, Sebaceous gland carcinoma

### Introduction

Eye is a vital visual organ. Eyelids cover and protect the human eye and are an essential part of the human face. The eyelids are formed by the reduplication of the surface ectoderm above and below the cornea. Eyelids being specialised regions of the eye and ocular adnexa, consist of multiple tissue types including epithelial, vascular, adnexal, histiocytic, neural and melanocytic origin [1,2,3].

Lesions of eyelid are common concerns amongst patients and are affected by wide range of benign and malignant lesions which could be aesthetically disturbing to the patient as well as diagnostically challenging to the attending Ophthalmologist. Eyelid tumours represent 15% of face tumours and about 5-10% of skin tumours [1,2,4,5]. A part from Pathologists, many Internists, family physicians and skin specialists are often requested to determine if a

lesion is benign or malignant. Eyelid tumours are by far the most commonly encountered neoplasm in Ophthalmology clinics.

Unawareness or ignorance of these lesions can result in debility, visual compromise, facial disfigurement and its attendant psychosocial impact. The diagnosis of diseased eyelid lesions plays a very important role in patient care [6]. We have undertaken this study to determine the histopathological spectrum of eyelid lesions to contribute to the literature information regarding different eyelid lesions and tumours received in our tertiary care setup.

**Methods**

Type of study and Place of Study: Retrospective eyelid pathology data reviewed over the past 5-years. All the eyelid biopsies received in the Department of Pathology, Sarojini Devi Eye Hospital, Hyderabad, India. . A search was conducted in our medical records and ophthalmic pathology data base for the diagnosis of eyelid malignancies. All cases with histopathology – proven eyelid malignancy during the period of 2017 to 2022 were included in this analysis.

Sample collection and sampling methods: A total of 339 eyelid biopsies were obtained from patients attending the Department of Ophthalmology of our Institute.

Inclusion criteria: All the eyelid biopsies were studied as per epidemiological and histomorphological data.

The demographics (age, sex), clinical features (laterality, tumour topography), indications for biopsies, clinical diagnosis and the histopathological diagnosis were noted. The original slides were retrieved and reviewed; fresh sections were cut from tissue paraffin blocks wherever necessary and stained by routine hematoxylin and eosin stains.

**Exclusion Criteria: None**

Statistical methods: The data collected were entered to Microsoft excel worksheet and then subjected to descriptive statistical tabulation.

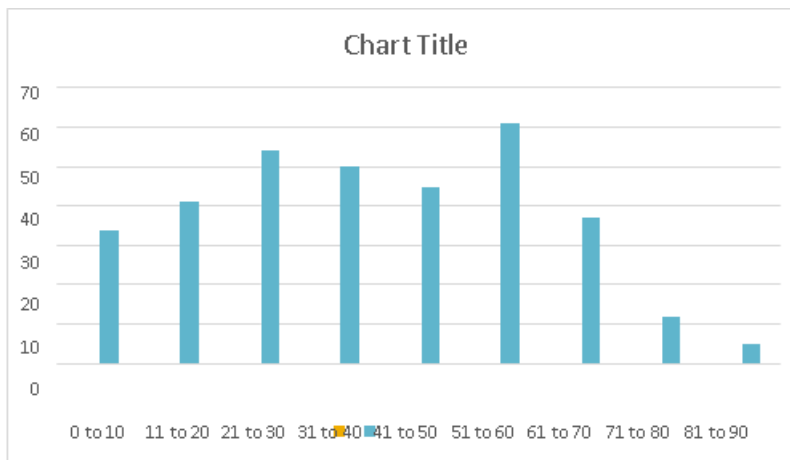
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**Results**

A total of 339 eyelid biopsies were reviewed during the 5 year retrospective study period. Eyelid lesions constituted 34.43% of total ophthalmic biopsies (636 cases) during this interval. The patients presenting with eyelid lesions ranged in age from 16 months to 86 years, the most common age group was 51-60 years followed by 21-30 years and 31 - 40 years. Eyelid lesions were significantly rare after 80years of age [Table1].

**Table-1: Age wise distribution of eyelid lesions**

Age ( in years )	No of cases (total=339)	In Percentage %
0-10	34	10.02
11-20	41	12.09
21-30	54	15.92
31-40	50	14.74
41-50	45	13.27
51-60	61	17.99
61-70	37	10.91
71-80	12	3.53
81-90	05	1.47



The distribution of eyelid lesions (males=124; females=215) with a ratio of 1.73:1 with female sex preponderance. Eyelid lesions were more common on the right eye (175, 51.62%). However there was no evident left-sided or right-sided preference seen among the most individual tumours. Upper eyelid was involved in 184 cases (54.27%) which was significantly more common than lower eyelid involved in 148 cases (43.65%) Both eyelids involved are 7 cases (2.06 %). Ethnicity of the patients was not specifically identified.

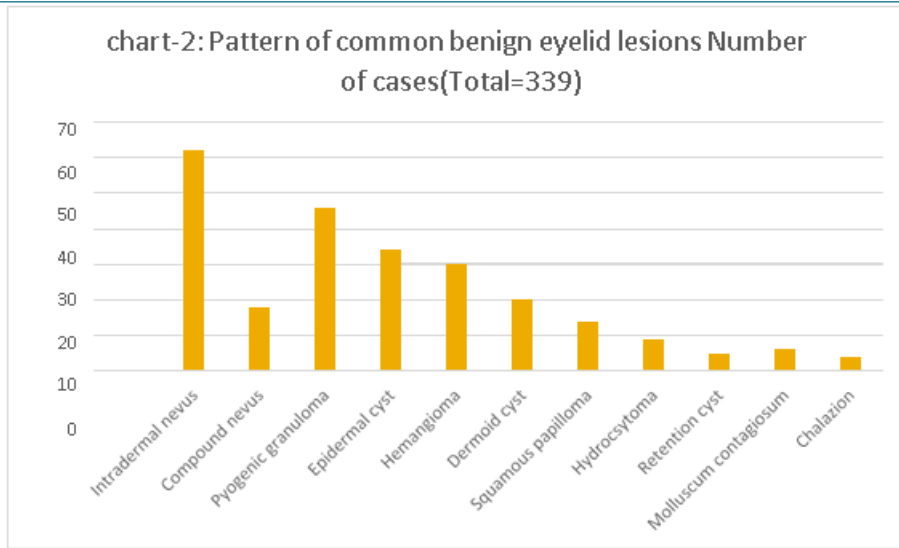
Pediatric cases of age less than 10 years constituted 10.02% (34) cases, most of which were benign cystic lesions which included Dermoid cyst and Retention cyst and hemangiomas. Among a total of 339 lesions, 256 cases (75.51%) were benign lesions and 83(24.48%) were malignant lesions.

The most common benign eyelid lesion nevus (intradermal nevus=62 and compound nevus=18), followed by pyogenic granuloma (46), epidermal cyst hemangioma, dermoid cyst, squamous papilloma, hydrocystoma, retention cyst and chalazion. We encountered 6 cases of Molluscum contagiosum which involved mostly in the lower eyelid. [Table 2].

**Table-2: Pattern of common benign eyelid lesions**

Benign eyelid lesions	Number of cases (Total=339)
Intradermal nevus	62
Compound nevus	18
Pyogenic granuloma	46
Epidermal cyst	34
Hemangioma	30
Dermoid cyst	20
Squamous papilloma	14
Hydrocystoma	9
Retention cyst	5
Molluscum contagiosum	6

Chalazion	4
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Among 83 malignant eyelid tumors, Sebaceous cell carcinoma (56 cases) was the commonest tumor followed by basal cell carcinoma (n=13), followed by squamous cell carcinoma (n= 6 ) Rare malignant eyelid lesions were Malignant melanoma( n =2) and Hydradenocarcinoma (n=1)[Table 3]. Malignant eyelid tumors showed a female sex preponderance (females= 31; males= 25) and were more common in upper eyelids (50 cases). However all 6 cases of Basal cell carcinoma in this study involved lower eyelids.

**Table-3: Pattern of Malignant eyelid tumours**

Malignant eyelid lesions	Number of cases(Total = 83)
Sebaceous cell carcinoma	56
Basal cell carcinoma	13
Squamous cell carcinoma	6
Malignant melanoma	2
Malignant small round cell tumour	3
Lymphoproliferative neoplasms	2
Hemato lymphoid neoplasm	1
Hidradenocarcinoma	1

Among all the eyelid lesions, the clinical diagnosis correlated with final histopathological diagnosis in 230 cases (67.84%).

Table-3: Pattern of Malignant eyelid tumours  
Number of cases(Total = 83)

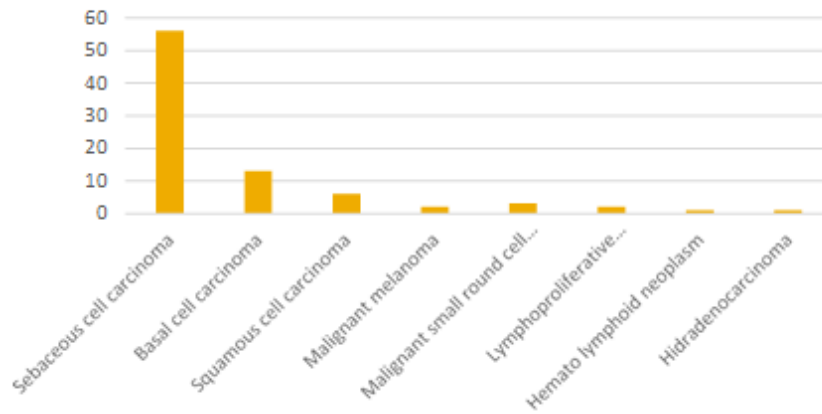
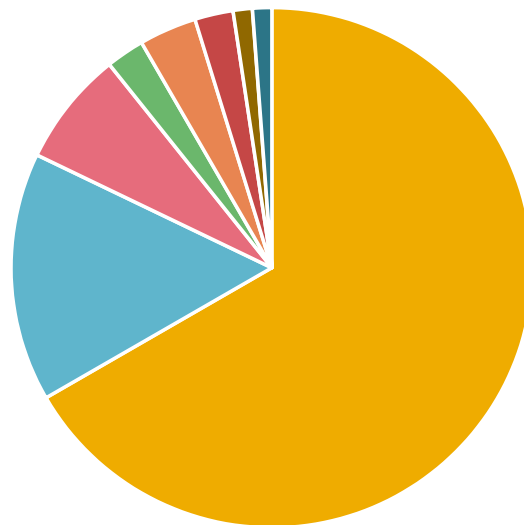


Table-3: Pattern of Malignant eyelid tumours Number of cases(Total = 83)



- Sebaseous cell carcinoma
- Basal cell carcinoma
- Squamous cell carcinoma
- Malignant melanoma
- Malignant small round cell tumour
- Lymphoproliferative neoplasms
- Hemato lymphoid neoplasm
- Hidradenocarcinoma

**Table-4: Comparison of incidence of Benign and Malignant eyelid lesions in various studies.**

Studies	Benign	Malignant
Tesluk GC et al [9] (1985)	79%	21%
Abdi U et al [10] (1996)	58.90%	41.41%
Obata H et al [11] (2005)	73%	27%
Mondal SK et al [2] (2008)	60%	40%
Sanjay CC et al [5] (2009)	79%	12%
Coroi MC et al [12] (2010)	44%	56%
Paul S et al [13] (2011)	75.9%	24.1%
Shaikh IY et al [3] (2012)	78.1%	21.9%
Mary Ho et al [14] (2013)	86%	14%
Ramya et al [15] (2014)	52.3%	47.7%
Huang YY et al [16] (2015)	95%	5%
Garima MA et al [17] (2018)	69.56%	30.44%
Sushma TA et al[1] (2018)	92.67%	7.24%
Giri Punja M. et al 2018	87.67%	12.33%
Present study 2022	75.51%	24.48%

**Table-5: Comparison of incidence of common malignant eyelid tumors in various studies**

Eyelid tumours	Sebaceous cell carcinoma	Basal cell carcinoma	Squamous cell carcinoma
Jahagirdhar et al [18](2007)	37	44.5	14
Kumar R et al [4](2008)	28.6	28.6	38.1
Coroi MC et al [12](2010)	19.6	72.55	1.96
Farhat F et al [19](2010)	14.94	56.32	20.69
Kale SM et al [20](2012)	31.2	48.2	13.7
Gupta P et al [7](2012)	44.4	11.1	22.2
Mary Ho et al [14](2013)	7.1	42.9	17.9
Ramya et al [15](2014)	41.4	26.8	21.9
Huang YY et al [16](2015)	21.1	57.8	10.1
Kafle SU et al 2016 [21](2016)	6.26%	25%	15.62%
Gupta Y et al [22](2017)	52.1	10.41	12.5

Giri Punja M. et al 2018	48.14	18.5	14.81
Present study 2022	67.46%	15.66%	7.22%

## Discussion

Our study is one of the largest local case series describing the histopathological spectrum, epidemiology and frequency of eyelid tumors in referred patients.

Prevalence rate of neoplastic eyelid lesions vary according to the geographic location due to the differences in skin types, sunlight exposure, disease awareness and surveillance practices. Majority of the studies have shown that prevalence rate of benign tumors outnumbered malignant tumors. Benign tumors (256 cases) accounted for a much larger percentage 75.51% than the malignant tumors (24.48%; 83 cases) which was comparable to the study by Huang YY et al study from Taipei.(8)

The overall sex distribution of benign eyelid tumours showed female gender preponderance in the present study which was comparable with studies by Gupta P et al [7] (2012)

As evident from the above table, benign eyelid lesions are by far more common than the malignant ones. In this study, wide spectrum of benign eyelid tumors was identified. Melanocytic lesions accounted for highest no of cases in our study which was comparable with the study of Obata H et al (9), The most common benign eyelid lesion was variably reported in previous literatures from different countries; Deprez and Uffer (Switzerland)(10), Kersten (United States) and Ni (China) reported papilloma (26%, 43.9% and 27.9%, respectively), Chi and Beak (South Korea) found nevus (57.1%), Hsu and Lin (Taiwan)(11) documented epidermal cyst (23.1%), Sean Paul et al. (San Francisco) showed seborrheic keratosis (19.7%) and Yasser

H. Al-Faky (Saudi)(12) found sweat gland hidrocystoma (29.3%) as the most common benign eye lid lesion. 11,12 In India, Rathod A et al, (Hyderabad) found nevus (17%), Karan S et al, (Hyderabad) reported dermoid cyst (37.5%), Krishnamurthy H et al, (Karnataka) found epidermal

cyst (30.5%) followed by nevus (17.5%), Remya et al, (Telangana) showed capillary hemangioma (31.1%) followed by nevus (20%) as the most common benign eye lid lesions. 13,14,15,16. In our study, non-neoplastic lesions were more common than neoplastic lesions. Among neoplastic lesions, benign tumors were much common than malignant ones. We found epidermal cyst as the most common non-neoplastic lesion (13.28%) and nevus as the most common benign tumor (31.25%).

SGC of the eyelid is relatively common in Asians. Our study revealed SGC as the most common malignancy accounting for 67.46 % cases compared with Gupta Y et al Sebaceous gland carcinoma arises from gland of Zies, Meibomian glands and sebaceous glands of caruncle and eyebrow. Incidence of Sebaceous gland carcinoma in eyelid shows geographical variation. However, recent studies have shown that Sebaceous gland carcinoma is the most common malignant eyelid tumour in Indian population and other Asian countries, which is supported by our present study. In Western countries, Basal cell carcinoma is the commonest malignant eyelid tumour accounting for 80- 90 % of eyelid cancers followed by Squamous cell carcinoma and Sebaceous gland carcinoma [1,2,7].Increased incidence of Sebaceous gland carcinoma and reduced Basal cell carcinoma might be attributed to oily skin and more melanin pigment in Indian population. At the same time, a decline in basal cell carcinoma and squamous cell carcinoma can be due to increased melanin which provides protection from damaging sunrays. Sebaceous gland carcinoma are aggressive lethal tumours and can recur in 6-29% cases [1,2]. Henceforth high degree of suspicion and accurate clinicopathologic diagnosis is of utmost importance in our Asian population.

## Conclusion:

This 6-year retrospective histopathological study of eyelid lesions has shown Nevus (Intradermal and Compound Nevus) most common benign eyelid

lesion followed by pyogenic granuloma, epidermal cyst, dermoid cyst. Rare lesions include squamous papilloma, hydrocystoma, eccrine spiradenoma, lymphangioma simplex to name a few. Sebaceous cell carcinoma was the commonest eyelid malignancy. Recurrent lesions and even innocent looking lesions could be aggressive malignancies or their precursors.

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