Original Research Article

Histomorphological spectrum of eyelid lesions–A 6 year retrospective study

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Abstract

Background: Eyelid lesions are encountered by all primary care physicians and Ophthalmologists. Histology of eyelid comprises various components and structures that give rise to a wide spectrum of pathologies. The clinical presentation of eyelid lesions is myriad with benign lesions masquerading malignant tumours. Though eyelid lesions are fairly common in Indian subcontinent, there is paucity of reports in Indian literature. This study was undertaken to characterize the distribution of various eyelid lesions and clinicopathological correlation in a tertiary care centre of South India. **Objectives:** To retrospectively carry out a clinicopathological analysis of eyelid lesions requiring surgical excision in the Department of Pathology of a tertiary care centre in South India. **Methods:** A retrospective review of clinicopathological profile of excised eyelid lesions diagnosed in our tertiary care centre was done. Clinicopathological data were retrieved from patient's clinical records and biopsy reports. **Result:** Among 219 eyelid lesions, 192 were benign lesions and 27 were malignant tumours. The most common eyelid lesion was dermoid cyst (69 cases) followed by Nevus (32 cases) and Pyogenic Granuloma (12 cases). The most common malignant eyelid lesion was Sebaceous Cell Carcinoma (13 cases). **Conclusion:** Dermoid cyst and Nevus are the most common eyelid lesions requiring biopsy and sebaceous cell carcinoma is the most common malignant eyelid tumour. All surgically excised eyelid lesions must be subjected to histopathological examination without fail to provide a definitive diagnosis, continued patient care and management.

Keywords: Eyelid, Dermoid cyst, Histopathology, Sebaceous Cell 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 melano-cyticorigin [1,2].

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 [1,3,4]. Apart 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 [5].

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.

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Methods

Type of study and Place of Study: Retrospective eyelid pathology data reviewed over the past 6-years. Allthe eyelid biopsies received in the Department of Pathology, Mysore Medical College and Research Institute, Mysore from June 2012 to June 2018 were retrospectively reviewed.

Sample collection and sampling methods: A total of 219 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 tissueparaffin blocks wherever necessary and stained by routine hematoxylin and eosin stains. Special stains such as PAS, ZN stain etc. were done as and when required.

Exclusion criteria: None
Statistical methods: The statistical analysis was done using SSPS version 16.0. This study received the approval of Institutional Ethical Committee.

Results

A total of 219 eyelid biopsies were reviewed during the 6 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 1 year to 86 years, the most common age group was 31-40 years followed by 21-30 years and 41-50 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=219)	In Percentage %
0-10	19	8.67
11-20	22	10.04
21-30	34	15.52
31-40	41	18.72
41-50	33	15.06
51-60	28	12.78
61-70	32	14.62
71-80	7	3.19
81-90	3	1.36

There was no sex preponderance in the distribution of eyelid lesions (males=109; females=110) with a ratio of 1:1. Eyelid lesions were more common on the left eye (117, 53.42%). However there was no evident left– sided or right-sided preference seen among the most individual tumours. Upper eyelid was involved in 146 cases (66.66%) which was significantly more common than lower eyelid involved in 73 cases (33.34%). Ethnicity of the patients was not specifically identified.

Pediatric cases of age less than 12 years constituted 9.58% (21) cases, most of which were benign cystic lesions which included Dermoid cyst and Retention cyst. Among a total of 219 lesions, 192cases (87.67%) were benign tumors and 27(12.33%) were malignant tumors.

The most common benign eyelid lesion was dermoid cyst (69) followed by nevus (intradermal nevus=26 and compound nevus=6), pyogenic granuloma, dermolipoma, retenrtion cyst, hemangioma, squamous papilloma and chalazion.

We encountered 5 cases of granulomatous lesions among which 1 case showed positivity for acid fast bacilli on Zeil Neilson special stain, a diagnosed case of Tuberculosis. There were 4 cases of Molluscum contagiosum, 3 of which involved both the upper and lower eyelids.

There were 2 cases each of foreign body giant cell reaction, hamartoma, angiofibroma, pilamatricoma, fibromatosis, syringocystadenoma papilleferum, sebaceous adenoma, trichoepithelioama and apocrine hydrocystoma.

Rare cases included eccrine spiradenoma, neurofibroma, tubular apocrine adenoma, steatocystoma simplex, sebaceous epithelioma, benign fibrous histiocytoma, apocrine adenoma and lymphangioma simplex (one case each) [Table 2].

Table-2: Pattern of common benign eyelid lesions.

Benign eyelid lesions	Number of cases(Total=192)
Dermoid cyst	69
Intradermal nevus	26
Compound nevus	6
Pyogenic granuloma	12
Dermoliopma	11
Retention cyst	10
Hemangioma	9
Squamous papilloma	7
Chalazion	7
Granulomatous lesion	5
Molluscum contagiosum	4

Among 27 malignant eyelid tumors, Sebaceous cell carcinoma (13 cases) was the commonest tumor followed by basal cell carcinoma (n=5). Rare malignant eyelid lesions were Malignant chondroid syringoma and Spindle cell sarcoma, one case each [Table 3]. Malignant eyelid tumors showed a female sex preponderance (females= 17; males= 10) and were more common in upper eyelids (16 cases). However all 3 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 = 27)
Sebaceous cell carcinoma	13
Basal cell carcinoma	5
Squamous cell carcinoma	4
Malignant melanoma	2
Non-Hodgkin lymphoma	1
Malignant chondroid syringoma	1
Spindle cell sarcoma	1

Among all the eyelid lesions, the clinical diagnosis correlated with final histopathological diagnosis in 149 cases (68%).

Discussion

Eyelid histology comprises of various structures that gives rise to wide spectrum of pathologies the diagnosis of the disease plays an important role in patient care. However there exists a variation in the pattern and frequency on the basis of geographical locations many benign tumours have a tendency to masquerade malignant lesions. Although the incidence of eyelid malignancies is increasing, their global distribution is varied and remains largely under characterised and under described.

Literature search has revealed variable prevalence of benign and malignant eyelid tumours in different geographical locations. The observation and results of the present study were compared with observations of various other similar studies and the findings are as follows:

The overall sex distribution of benign eyelid tumours showed no significant gender preponderance in the present study which was comparable with studies by Sushma TA et al and Al-Faky YH et al [1,6]. Dermoid cyst was the most common eyelid lesion comparable with Gupta P et al, Sushma TA et al, Sanjay CC et al and Mohan BP et al[7, 1,5,8]. Benign lesions constitute the majority of eyelid lesions [Table 4], [Table 5].

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%
Present study 2018	87.67%	12.33%

As evident from the above table, benign eyelid lesions are by far more common than the malignant ones.

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
Present study 2018	48.14	18.5	14.81

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 [1,7].

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 was more common in females and upper eyelid in the present study and same results were shown in studies by Sushma TA et al, Mary HO et al, Kale SM et al, Kaliki S et al and Wang JC et al, justifying the fact that Sebaceous glands are more in upper eyelids than lower eyelids[1,14,20,24,23]. Lin et al described a significantly higher incidence of Sebaceous gland carcinoma in Taiwan [25].

Sebaceous gland carcinoma are aggressive lethal tumours and can recur in 6-29% cases [1]. Henceforth high degree of suspicion and accurate clinicopathologic diagnosis is of atmost importance in our Asian population.

Limitation: Those cases where the reviewed slide diagnosis were different from the earlier diagnosis have not been included in this study.

Conclusion

This 6-year retrospective histopathological study of eyelid lesions has shown Dermoid cyst as the most common eyelid lesion followed by Nevus (Intradermal and Compound Nevus). Rare lesions include neurofibroma, 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.

Eyelid lesions being largely under-characterised and under-distributed in our Indian population, early diagnosis and proper management helps in reducing the debility and loss of vision of patients and also help the attending ophthalmologists in shaping apt strategy for the diagnosis and management of eyelid neoplasm.

What this study adds to existing knowledge: Dermoid cyst followed by Nevus is the commonest eyelid lesions. Though benign lesions are common among the eyelid lesions, all eyelid lesions must be sent for histopathological examination to rule out the more dangerous malignant tumours.

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