

Lid, Ocular and Orbital Lesions, Their Patterns of Presentation, Diagnosis and Therapeutic Outcome in Adults at a Tertiary Care Hospital of Karachi

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ABSTRACT

Purpose: To determine patterns of presentation, diagnosis and therapeutic outcome of lid, ocular surface, orbital and adnexal lesions in adults at a tertiary care hospital of Karachi.

Study Design: Retrospective observational study.

Place and Duration of Study: Isra Postgraduate Institute of Ophthalmology from January 2025 to December 2025.

Methods: Medical records of patients with eyelid, ocular surface, orbital and adnexal lesions were retrieved. Lesions that did not require biopsy were excluded. Detailed history including age, gender, presenting complaints, duration and site of lesion, and provisional diagnosis, were noted for each lesion. Follow-up and biopsy reports were also included in the analysis.

Results: Out of 54 records, 18 (33.3%) involved orbital masses, 25 (46.3%) involved eyelid lesions, and 11 (20.3%) had conjunctival lesions. The mean age of patients with eyelid lesions was greater (42.24 ± 13.12 years) than those with conjunctival lesions (40.27 ± 16.33 years). Recurrence was observed in 2 (11.1%) cases of orbital lesions and in 1 (4%) case of eyelid lesions. The most common orbital lesions were dermoid cysts and epidermoid cysts. Papilloma and squamous cell carcinoma (SCC) were each diagnosed in 4 (16%) cases. In conjunctival lesions, conjunctival intraepithelial neoplasia (CIN) was the most frequent diagnosis, seen in 5 (45.5%) cases, followed by dysplasia in 4 (36.4%) cases.

Conclusion: Eyelid lesions were the most common lesions. Benign cystic lesions predominated in the orbit, while both benign and malignant pathologies were observed in the eyelid.

Keywords: Cyst, Eyelid, Ocular Surface, Orbit, Adnexa, Tumor, Biopsy, Histopathology.

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INTRODUCTION

Lesions of the eyelids, ocular adnexa, and orbit encompass a broad spectrum of benign, premalignant, and malignant entities.¹ Each category has distinct clinical features and must be carefully differentiated to establish an accurate diagnosis and guide appropriate management.² Following initial clinical assessment, radiological evaluation aids in formulating a differential diagnosis, with MRI playing a particularly important role in the assessment of soft tissue lesions.³

Subsequently, timely and adequate biopsy, followed by histopathological examination, is essential for definitive diagnosis and optimal clinical outcomes.⁴

Incidence of the various lesions have been found to vary according to geographic location, gender and race.⁵ Understanding this spectrum helps make accurate clinical diagnosis and subsequently evaluate the causes for these diseases.

Multiple studies have given various patterns of lid and orbital lesions.⁶⁻¹⁰ In this study we have ascertained the frequency of lids, ocular surface, adnexal and orbital lesions to identify the commoner ones presenting to our center and their geographic, gender and racial relationship. We also observed for the recurrence of disease and its pattern.

METHODS

After getting ethical committee approval (REC/IPIO/2026/104) and patient consent, data was collected retrospectively from records of patients of any age and gender presenting with lid, ocular surface, orbital and adnexal lesions from January 2025 to December 2025. Any lid, ocular surface, orbital or adnexal lesion that did not require biopsy evaluation and was medically treatable, were excluded. Detailed history regarding presenting complaints, duration and site of lesion, and provisional diagnosis, were noted for each lesion from records. Suspicious areas of tissue were taken for biopsy including normal tissue. Specimen was fixed in 10% neutral buffered formalin and if suspected for infection, also sent in Normal saline. Patients were assessed on follow-up with biopsy report for complete excision of lesion and presence of any residual tissue or recurrence.

RESULTS

A total of 54 patients were included in the study which comprised of 18 (33.3%) cases of orbital mass, 25 (46.3%) and 11 (20.3%) cases of Lid and conjunctival masses, respectively. Mean age in lid cases was slightly higher, 42.24±13.12 year as compared to conjunctival cases, 40.27±16.33 years. Females were more prone to develop Lid (n=18, 72%) and conjunctival (7 (63.6%) lesions as compared to males. Recurrence was reported in 2 (11.1%) of the orbital lesions and one (4%) eyelid case. Complete baseline characteristics of study patients is depicted in Table 1. Most frequent diagnosis in orbital cases was Dermoid

cyst (n=3, 16.7%) and epidermoid cyst (n=2, 11.1%). Table 2, 3 and 4 present frequencies of orbital, eyelids and conjunctival lesions.

Table 1: Pattern of presentation of study patients with oculoplastic lesions.

Descriptives	Orbital (n=18)	Lid (n=25)	Conjunctival (n=11)
Age (Mean±SD)	28.83±19.15	42.24±13.12	40.27±16.33
Gender, n(%)			
Male	10 (55.6)	7 (28)	4 (36.4)
Female	8 (44.4)	18 (72)	7 (63.6)
Recurrence, n(%)			
Yes	2 (11.1)	1 (4)	0 (0)
No	16 (88.9)	24 (96)	11 (100)
Benign, n(%)			
Yes	13 (72.2)	19 (76)	2 (18.2)
No	5 (27.8)	6 (24)	9 (81.8)
Premalignant Lesion, n(%)			
Yes	0 (0)	0 (0)	3 (27.3)
No	18 (100)	25 (100)	8 (72.7)
Malignant lesion, n(%)			
Yes	4 (22.2)	6 (24)	5 (45.5)
No	14 (77.8)	19 (76)	6 (54.5)

Table 2: Frequency of Orbital Lesions.

Diagnosis	Frequency	Percent
Chocolate cyst	1	5.6
Dermoid cyst	3	16.7
Epidermoid cyst	2	11.1
Epithelial cell	1	5.6
Fibrofatty mass	1	5.6
Fibrosis	1	5.6
Granulomatous inflammation	1	5.6
Hemangioma	1	5.6
Lacrimal gland Ca	1	5.6
Lymphangioma	1	5.6
Mucor	1	5.6
Osteoma	1	5.6
Osteomyelitis	1	5.6
Retrobulbar abscess	1	5.6
Squamous cell Ca	1	5.6
Total	18	100

Table 3: Frequency of Lid Lesions.

Diagnosis	Frequency	Percent
Basal cell Ca	1	4.0
Conjunctival nevus	3	12.0
cyst of moll	2	8.0
Cyst of Zeis	2	8.0
Deep dermal nevus	1	4.0
Hemangioma	3	12.0
Intradermal nevus	3	12.0
Papilloma	4	16.0
Spindle cell Ca	1	4.0
Squamous cell Ca	4	16.0
Xanthelasma	1	4.0
Total	25	100

Table 4: *Frequency of Conjunctival Lesions.*

Diagnosis	Frequency	Percent
CIN	5	45.5
Conjunctival cyst	1	9.1
Dysplasia	4	36.4
Pinguecula	1	9.1
Total	11	100

DISCUSSION

Increasing frequency of a vast variety of eyelid, adnexal and orbital lesions are being observed day by day in Oculoplastic and Orbit clinics globally.¹¹ This diversity has been found to be associated with certain predisposing conditions and demographics like location, gender and age.⁴

Study by Prasad et al, showed the most common benign lesion to be epidermal cyst, while the most common malignant lesion was sebaceous gland carcinoma.⁴ A study from Karachi, Pakistan showed that the most common benign lesions of eyelids were epidermal inclusion cysts (33.3%) and neurofibroma (12%).⁷ According to another study, the commonest benign lesion was epidermoid cyst.¹² Whereas, SCC and Meibomian gland carcinoma were the commonest malignant lesion.¹²

Various other studies however showed that basal cell carcinoma (BCC) was the most common type of malignant eyelid tumor.^{13,14}

In our study, the commonest benign lesion in the eyelid was papilloma and the commonest malignant lesion was SCC. The occurrence of papilloma as the commonest benign lesion, however, contrasts with the other international studies which showed epidermoid cyst to be the commonest occurrence.^{4,12} Study by Priya MT showed dermoid to be the commonest benign lesion whereas, secondaries were found to be the commonest malignant lesions in orbit.⁹

Age was observed as an important risk factor for malignant lesions. Similar observation was reported by Bas Z et al.¹⁵ On the other hand, benign lesions were associated with younger age. In Study by Cheema AM, age of the patients ranged between 3 to 85 years and 60% of the patients with malignant eyelid tumors were of more than 50 years of age.⁷

In our study, benign lesions were more frequently observed in females compared to malignant lesions. The frequency of malignant lesions was comparable between males and females. Recurrence was rare and

was primarily associated with SCC and lacrimal gland carcinoma.

Tahir F et al, highlighted the clinical importance of orbital metastatic lesions, noting that although uncommon, they can occur across all age groups and typically present at a later stage of systemic disease. No significant sex predilection was observed for orbital metastasis. However, the distribution of primary tumor sites varied. In adults, the most common primary sites were the breast, lung, and thyroid. In children, Neuroblastoma was identified in seven cases under 10 years of age. Other primary sources included bone, liver, kidney, brain, gastrointestinal tract, middle ear, and plasma cell neoplasms of the bone marrow. In three cases, the primary site remained unidentified and were classified as carcinoma of unknown primary.¹⁶

Study by Reyes-Soto, et al, showed Choroidal melanoma to be the commonest primary orbital lesion followed by epidermoid carcinoma, basal cell carcinoma and SCC.¹⁷

Orbital lesions were found to be more benign than malignant in our study. Commonest Benign Orbital lesion was dermoid cyst whereas SCC, lacrimal gland carcinoma and epithelial cell melanoma were the malignant lesions presenting in the orbit.

The significance of continuous monitoring is highlighted by the recurrence rates of tumors. Malignant melanoma and sebaceous gland carcinoma had the highest recurrence rates (20% each) in the study of Cheema AM et al.⁷ Other studies showed sebaceous gland carcinoma to carry worse prognosis and increased recurrence.^{18,19} In our study recurrence was reported in 2 cases of orbital lesions and only one case of eyelid lesion.

Regarding conjunctiva, benign lesions were more common than the malignant ones. Al-Katan et al, showed that the most common lesions were fibro-degenerative followed by the melanocytic lesions.²⁰

Study by Vasovic showed that the commonest benign lesion was compound conjunctival nevus (16.7%), whereas SCC (11.4%) and melanoma (11.3%) were the commonest malignant tumors.²¹ Tumor were more frequently seen patients with 61–70 years and 51–60 years of age, with malignant tumors such as SCC being more frequent in males.²¹

In our study, a female predominance was observed among patients presenting with conjunctival lesions.

Premalignant lesions, such as dysplasia, and malignant lesions, particularly conjunctival intraepithelial neoplasia (CIN), were the most encountered. This pattern may be attributed to the hot climate of Sindh, where ultraviolet (UV) exposure is a significant risk factor for the development of such lesions.

Individuals engaged in outdoor occupations, particularly farmers and laborers with prolonged sun exposure, more frequently presented with conjunctival nevus, intradermal nevus, dysplasia, CIN, and eyelid squamous cell carcinoma (SCC) compared to those in other professions. Similar observations have been reported by Cheema et al.⁷

Limitations of the study are single center study with small sample size and retrospective design. Further prospective studies focused on the treatment options and complications are warranted for more impact.

CONCLUSION

A wide spectrum of lesions involving the eyelid, orbit, adnexa, and ocular surface present to oculoplastic and orbital clinics. Eyelid lesions were the most common lesions. Benign cystic lesions predominated in the orbit, while both benign and malignant pathologies were observed in the eyelid. Each case warrants thorough evaluation, as lesions that appear clinically benign may prove to be malignant, and vice versa. Careful assessment facilitates timely diagnosis and appropriate management, thereby preventing disease progression.

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Patient's Consent: Researchers followed the guidelines set forth in the Declaration of Helsinki.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval: The study was approved by the Institutional review board/Ethical review board (REC/IPIO/2026/104)

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