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Original Research Article

Histopathological Spectrum of Eyelid and Conjunctival Lesions: A Retrospective Study from a Tertiary Care Center

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Abstract

Introduction: Eyelid and conjunctival lesions encompass a wide spectrum of benign and malignant conditions. Histopathological examination remains the gold standard for definitive diagnosis and guides appropriate management.

Methods: A retrospective study was conducted in the Department of Ophthalmology at a tertiary care hospital over a period of two years. Histopathological reports of 70 patients with eyelid and conjunctival lesions were analyzed. Data regarding age, gender, lesion site, and histopathological diagnosis were collected. Tissue samples were processed using standard protocols. Diagnoses were established through clinicopathological correlation and microscopic examination.

Results: Out of 70 cases, 46 (65.71%) were males and 24 (34.29%) were females. The majority of patients (35.72%) were in the 21–40 years age group. Most lesions were benign (64 cases, 91.42%), while 6 cases (8.58%) were malignant. Among benign lesions, chalazion was the most common (24.28%), followed by chronic inflammatory lesions (14.28%) and cystic lesions (14.28%). Other benign conditions included squamous papilloma, vascular lesions, dermoid cyst, nevus, and granuloma. Malignant lesions included basal cell carcinoma (2.85%), squamous cell carcinoma, poorly differentiated carcinoma, ocular surface squamous neoplasia, and primary cutaneous mucinous carcinoma (each 1.42%). The majority of malignant cases (5 out of 6) occurred in patients aged 60 years and above.

Keywords: Benign Lesion, Malignant Lesion, Ocular Histopathology.

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Introduction

Eyelid and conjunctival lesions encompass a wide spectrum of benign and malignant conditions with varying clinical presentations and prognostic implications. Accurate diagnosis is essential, as clinical differentiation can be challenging in early stages. Histopathological examination remains the gold standard for definitive diagnosis and guides appropriate management strategies [1].

Globally, benign lesions such as chalazion, cysts, and nevi constitute the majority of periocular lesions, whereas malignancies like basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) account for a smaller but clinically significant proportion [2].

In India, increasing awareness, improved healthcare access, and rising life expectancy have contributed to higher detection rates of ocular surface and adnexal lesions [3].

Previous studies have shown that BCC is the most common malignant eyelid tumor, especially in elderly populations, while benign lesions predominate in younger age groups[4]. Regional variations in incidence patterns exist due to environmental, genetic, and socioeconomic factors [5]. Therefore, local epidemiological data are essential for understanding disease patterns and improving diagnostic accuracy.

The present study aims to analyze the histopathological spectrum of eyelid and conjunctival lesions and relative frequencies in a tertiary care centre.

Materials and Methods

This retrospective observational study was conducted in the Department of Ophthalmology at a tertiary care hospital over a period of three years (January 2023 to December 2025). A total of 70 histopathologically confirmed cases of eyelid and conjunctival lesions were included. Data was retrieved from pathology records and included age, gender, site of lesion and histopathological diagnosis. All biopsy specimens were processed using standard histopathological techniques. Tissue samples were fixed in formalin, embedded in paraffin, sectioned, and stained with Hematoxylin and Eosin (H&E). Histopathological interpretation was performed by correlating clinical findings with gross morphology and microscopic examination. Lesions were categorized into benign and malignant groups based on histopathological diagnosis. Descriptive statistical analysis was used to determine frequencies and percentages.

Results

A total of 70 cases were analyzed:

- Males: 46 (65.71%)
- Females: 24 (34.29%)

The majority of patients belonged to the 21–40 years age group (35.72%).

Table 1: Age wise distribution of patients in the study

Age Group (Years)	Number of Cases	Percentage
0–20	20	28.57%
21–40	25	35.72%
41–60	14	20%
61–80	10	14.29%
>80	1	1.42%

Nature of Lesions

- Benign lesions: 64 cases (91.42%)
- Malignant lesions: 6 cases (8.58%)

Histopathological Spectrum

Table 2: Spectrum of histopathological diagnosis of cases included in the study

Diagnosis	Number of Cases	Percentage
Benign lesions		
Chalazion	17	24.28%
Cystic lesions	10	14.28%
Chronic inflammatory lesion	10	14.28%
Squamous papilloma	5	7.14%
Vascular lesions	5	7.14%
Dermoid cyst	5	7.14%
Nevus	5	7.14%
Granuloma	3	4.28%
Polypoidal lesion	1	1.42%
Pilomatricoma	1	1.42%
Molluscum	1	1.42%
Malignant lesions		
Basal cell carcinoma	2	2.85%
Squamous cell carcinoma	1	1.42%
OSSN	1	1.42%
Poorly differentiated carcinoma	1	1.42%
Primary cutaneous mucinous carcinoma	1	1.42%

Discussion

This study demonstrates that benign lesions constitute the majority (91.42%) of eyelid and conjunctival lesions, which is consistent with previous literature reporting benign lesions ranging from 85–95% [6]. The predominance of benign lesions highlights the importance of histopathological confirmation to avoid overtreatment. A male preponderance (65.71%) was observed, similar to findings reported in other Indian studies, possibly due to increased outdoor exposure and healthcare-seeking behavior [7].

The most affected age group was 21–40 years, aligning with studies that show higher incidence of benign inflammatory and cystic lesions in younger individuals [8]. Chalazion emerged as the most common lesion (24.28%), which correlates with its

known high prevalence due to meibomian gland dysfunction [9].

This was followed by 14.28% frequency seen in chronic inflammatory lesions and cystic lesions. Less frequent lesions included granuloma, polypoidal lesions, pilomatricoma, molluscum contagiosum, and keratinous/mucinous cysts.

Among malignant lesions, basal cell carcinoma was the most frequent, consistent with global data identifying BCC as the most common eyelid malignancy [10]. The higher incidence of malignancy in elderly patients observed in this study is also well-documented and attributed to cumulative ultraviolet exposure and aging-related cellular changes [11]. Most malignant cases (5 out of 6) were observed in patients aged 60–85 years, while one case occurred in a 23-year-old patient.

Overall, the findings show the predominance of benign lesions and age-related variation in lesion type.

Conclusion

Eyelid and conjunctival lesions are predominantly benign, with chalazion being the most common diagnosis. Malignant lesions, although less frequent, are more prevalent in the elderly population and require prompt diagnosis and management.

Histopathological examination remains indispensable for accurate diagnosis and appropriate treatment planning. Early detection of malignant lesions can significantly improve outcomes and reduce morbidity.

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