

A 10-year retrospective study of histopathological spectrum of conjunctival lesions in a tertiary care centre from south India

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Abstract

Introduction: The spectrum of conjunctival lesions range from degenerative and inflammatory lesions to benign or malignant neoplasms. Hence it is important for these lesions to be recognised and treated appropriately to prevent complications.

Objectives: To assess the histomorphological features of various conjunctival lesions, to classify them, to see the age and sex distribution and the frequency of various conjunctival lesions received in Department of Pathology.

Materials and Methods: The clinicopathologic details of excised conjunctival lesions were reviewed retrospectively in our tertiary care centre over a period of 10 years.

Result: The conjunctival lesions are more common in males and right eye. Pterygium is the commonest benign lesion and Squamous cell carcinoma is the most common malignant conjunctival tumour. Benign conjunctival lesions were more common than the malignant ones in our study.

Conclusion: The most frequent conjunctival lesion was Pterygium in our Tertiary Care Centre. The most common malignant conjunctival tumour was Squamous Cell Carcinoma.

Introduction

The conjunctiva is a specialised thin flexible mucous membrane that lines the sclera and inside of both upper and lower eyelids.¹ The palpebral conjunctiva lines the undersurface of eyelids, the forniceal conjunctiva forms conjunctival cul-de-sac and the bulbar conjunctiva covers the anterior surface of the globe.² Microscopically, conjunctiva is composed of non-keratinizing squamous epithelium along with mucin-secreting goblet cells. The mucous secretion from the goblet cells contribute to the stability of the tear film. The conjunctiva protects the cornea and interior of the eyeball from external environment while facilitating movements of the globe and eyelids.^{1,2}

The conjunctival tumours can be congenital or acquired and show a broad spectrum ranging from non-neoplastic benign tumours to aggressive malignant tumours such as Squamous cell carcinoma, Malignant Melanoma or Kaposi Sarcoma.³ These aggressive lesions often threaten the visual function and life of the patient. In addition to histopathological evaluation of conjunctival tumours, a meticulous slit lamp examination of cornea is often needed to assess the degree of invasion.

Ocular surface tumours include neoplasm originating from squamous epithelium, melanocytes and the resident lymphocytic cells in the conjunctival stroma.⁴ Epithelial dysplasias, carcinoma-in-situ and squamous cell carcinomas involving the conjunctiva and cornea are grouped into Ocular

Surface Squamous Neoplasia (OSSN).⁵ The incidence of OSSN is about 0.2 to 12 cases per 1,000,000 population per year and shows ethnic and geographic variations.⁶ Conjunctival epithelial lesions are known to be associated with exposure to sunlight, old age, male sex, fair skin, Human Papilloma Virus subtypes 6, 1, 16, 18 and Human Immunodeficiency Virus infection.^{2,6,7} As stated by Newton et al,⁸ with every 10⁰ decline in latitude, there is an increase in the incidence of ocular Squamous Cell Carcinoma by 49%.

Most studies done on ocular lesions show that conjunctival lesions contribute to majority proportion, after eyelid lesions. Lesions of conjunctiva are not uncommon in histopathology laboratories. As a group, the conjunctival lesions are commonly seen in the clinical practice of an Ophthalmologist. As conjunctiva is readily visible, the related lesions can be recognised and diagnosed at a relatively early stage to preserve visual function and to prevent local and systemic spread.

There is a paucity of large published series documenting conjunctival lesions.⁹ The literature on epidemiology and histopathology of excised conjunctival lesions is relatively sparse in India. We have conducted the [resent study with an aim to characterize the epidemiologic and histopathologic profile of all benign and malignant conjunctival lesions from a Tertiary Care Centre in Karnataka, South India.

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Materials and Methods

This study was undertaken to determine the spectrum and prevalence of various conjunctival lesions in a tertiary care centre of South India. The data on excised conjunctival lesions received and diagnosed in the Department of Pathology from June 2008 to December 2017 (a decade) were analysed retrospectively. The age, gender and location of lesions were evaluated from clinical request forms and pathological records. In all the cases, Hematoxylin and Eosin stained sections were examined and necessary special stains were performed as and when required. The final histopathologic diagnoses were reviewed and reconfirmed in all cases.

Results

Conjunctival lesions can be neoplastic or non-neoplastic.

A total of 44 conjunctival lesions were studied during the study period of 10 years. Among 288 lesions, 132(45.8%) were females and 156(54.2%) were males. 124 cases (43%) were left sided and 164 cases (57%) were right sided conjunctival lesions. The age of the patients ranged from 5years to 80years. The most common age group involved was 41-50 years followed by 31-40years and 21-30years, the mean patient age at diagnosis was 37 years.

Table 1: Age-wise distribution of conjunctival lesions

Age	No of cases (total=288)	In Percentage %
0-10	14	4.86
11-20	22	7.64
21-30	52	18.05
31-40	56	19.45
41-50	74	25.69
51-60	24	8.33
61-70	38	13.19
71-80	08	2.79

274 benign conjunctival lesions and 14 malignant conjunctival tumours were encountered. Among the benign conjunctival lesions, pterygium was the most common conjunctival lesion accounting for 32.6% (94 cases) of all conjunctival lesions. There were 64 cases (22.2%) of OSSN reported during the study period out of which 38 cases (59.4%) were of low grade dysplasia, 18 cases (28.1%) were of intermediate grade dysplasia and 8 cases (12.5%) showed high grade dysplasia. Two cases clinically diagnosed as OSSN and biopsied, showed no evidence of dysplasia on histology. Conjunctival cyst (38 cases), conjunctival nevus (23 cases), foreign body granuloma (15 cases), dermoid cyst (11 cases), papilloma (7 cases), pyogenic granuloma (5 cases) and follicular conjunctivitis (4 cases) were the other benign conjunctival lesions. Rarely encountered benign conjunctival lesions in our study included capillary hemangioma, dermolipoma, fungal elements, fibroma, inclusion conjunctivitis, conjunctival stromal tumour, trachoma, hypermelanosis without atypia and benign glandular lesions, one case each. One rare case of conjunctival Tuberculosis showed multiple granulomas with caseation and positivity for

Acid Fast Bacilli on Zeil Nielson stain. Among the seven malignant conjunctival tumours, there were 10 cases (3.5%) of Squamous cell carcinoma, 4 cases (1.4%) of Malignant Melanoma and a very rare case of Well differentiated Fibrosarcoma.

Final histopathologic diagnosis of excised conjunctival lesions correlated with the clinical diagnosis in 236(81.9%) cases.

Discussion

Benign and malignant conjunctival lesions comprise a wide variety of conditions which sometimes threatens the vision and life of the patient if left untreated. It is very important to study the frequency and spectrum of conjunctival lesions. The existence of conjunctival lesions must be confirmed by biopsy followed by histologic evaluation.

Table 2: Comparison of sex distribution of conjunctival lesions in various studies

Study	Males (%)	Females (%)
Sundeeep et al ²	58	42
Aliakbar NR et al ⁷	49.3	50.7
Elshazly LHM et al ⁹	55.2	44.8
Glen Mary MD et al ¹⁰	57	43
Silas O et al ¹¹	55	45
Benito AP et al ¹²	56.7	43.3
Hemalatha K et al ¹³	59.70	40.29
Mondal SK et al ¹⁴	65	35
Present study	54.2	45.8

In the present study, conjunctival lesions were more common in males (54.2%) which was comparable with most of the other similar studies. However a study by Aliakbar NR et al³ showed almost equal distribution of conjunctival lesions among both the sexes. Conjunctival lesions were more common on right side (57%) and similar findings were seen in studies by Sundeeep et al (54%)² and Glen Mary MD et al (53.7%)¹⁰.

Conjunctival lesions in our study were more common in the age group of 40-50 years which was comparable with a study by Aliakbar NR et al.⁷ Sundeeep et al² and Glen Mary MD et al¹⁰ showed an increased incidence in a slightly higher age group of 51-60 years and in Silas O et al¹¹ study, incidence was more in 30-39 years age group. The mean age of presentation of patients with excised conjunctival lesions in the present study was 37 years. Studies by Elshazly LHM et al,⁹ Benito AP et al¹² and Hemalatha K et al¹³ showed that the mean age of presentation of these lesions in their studies was 27 years, 35 years and 49years respectively.

Pterygium is the most common conjunctival lesion in the present study and the same result was seen in other studies by Sundeeep et al,² Aliakbar NR et al,⁷ Glen Mary MD et al¹⁰ and Mondal SK et al.¹⁴ Pterygium is described as a proliferative disorder/lesion resembling an aberrant wound healing response.^{7,15,16} Majority of patients with Pterygium in our study are outdoor male workers, especially farmers.

Squamous cell carcinoma is the end stage of OSSN spectrum which can lead to loss of vision and death in severe cases. Squamous cell carcinoma is the commonest malignant conjunctival tumour in our study as comparable with studies by Aliakbar NR et al,⁷ Glen Mary MD et al,¹⁰ Silas O et al,¹¹ Hemalatha K et al¹³ and Amoli FA et al.¹⁷ Metastasis from Squamous cell carcinoma of conjunctiva is documented in extremely rare conditions.

Conclusion

Conjunctival lesions are diverse and vary in clinical presentation and prognosis. Premalignant and overt malignant conjunctival lesions can lead to visual impairment. The correct Histological diagnosis can aid the treating physician or the ophthalmologist to initiate proper treatment which can decrease the mortality and morbidity of the patients.

Conflicts of Interest: None.

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