

# Clinical Profile of Conjunctival Lesions: A Prospective Study

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## Abstract

**Introduction:** Conjunctiva unlike the other mucous membranes in the body is partially exposed to sunlight, which may be a factor in the development of some tumors.

**Aim:** To study the histopathological spectrum of conjunctival lesions.

**Materials and Methods:** This is a prospective study of 1 year conducted from January 2014 to January 2015. Patients attending the ophthalmology department with conjunctival growth were examined. Conjunctival growth was excised and subjected to histopathological examination.

**Results:** Present study comprised 144 patients aged between 3 and 88 years. A maximum number of cases were between the age of 51 and 60 years (24%) with least number of cases (0.5%) present between 81 and 90 years. Males (58%) were more commonly affected than females (42%). Bulbar conjunctiva (86%) was more commonly affected. Out of the 144 conjunctival biopsies, 104 (72.2%) cases were purely degenerative lesions, 14 (9.7%) cases were purely epithelial lesions, and 7 (4.9%) cases were purely melanocytic lesions. Degenerative lesions were the most common conjunctival lesions.

**Conclusion:** Lesions of conjunctiva comprise a large and varied spectrum of conditions. These lesions are to be recognized and treated appropriately to prevent complications.

**Key words:** Conjunctiva, Inclusion cyst, Ocular surface squamous neoplasia, Pterygium, Pyogenic granuloma, Tumors

## INTRODUCTION

The conjunctiva, a mucous membrane composed of epithelium and substantia propria covers the anterior surface of the eye and inner surface of eyelids. It is divided into palpebral portion lining the undersurface of the eyelid, a forniceal portion forming a conjunctival cul-de-sac where it reflects onto the surface of the globe. Bulbar portion covers the exposed part of the eyeball to the cornea, plica semilunaris, and caruncle.<sup>1</sup>

The conjunctiva is readily visible, so related lesions that occur in the conjunctiva are generally recognized at a relatively early stage.<sup>2</sup> Tumors can arise in the conjunctiva from both its epithelial and stromal structures. These are similar clinically and histopathologically to tumors that arise from other mucous membranes in the body.<sup>3</sup> The caruncle which has unique composition of both mucous membrane and cutaneous structure can have tumors of both mucous and skin origin.<sup>4</sup>

Lesions of the conjunctiva comprise a large and varied spectrum of conditions.<sup>5</sup> These tumors are grouped into two major categories of congenital and acquired lesions. The acquired lesions are further subdivided based on the origin of the mass into surface epithelial, melanocytic, vascular, fibrous, neural, histiocytic, myxoid, myogenic, lipomatous, lymphoid, degenerative, leukemic, metastatic,

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and secondary tumors. Melanocytic lesions include nevus, racial melanosis, primary acquired melanosis (PAM), melanoma, and other ocular surface conditions such as ocular melanocytosis and secondary deposition.<sup>6</sup> In the majority of conjunctival lesions, diagnosis is not difficult due to their clinical features. Sometime difficulty may arise in differentiating granuloma from neoplasms especially when tumor size is small.<sup>7</sup>

## MATERIALS AND METHODS

This is a prospective study of 1 year conducted from January 2014 to January 2015. Patients attending the ophthalmology department with conjunctival growth were examined. Conjunctival growth was excised and subjected to histopathological examination. The excised conjunctival specimen was received in 10% formalin. These were grossed, and macroscopic features were noted. After those tissues were processed routinely, paraffin sections cut at 4-5 µm thickness stained with hematoxylin and eosin and were examined microscopically. Special stains and immunohistochemistry were done whenever required.

Exclusion criteria were inadequate biopsies, specimens not sent in formalin, and autolyzed samples.

## RESULTS

This study conducted during the period from January 2014 to January 2015 comprised 144 patients. Age of presentation ranged between 3 and 88 years. A maximum number of cases were present between the age of 51 and 60 years (24%) followed by 31-40 years group (22%). Least number of cases was present between 81 and 90 years (0.5%).

Males (58%) were more commonly affected than females (42%). Right eye (54%) was more commonly affected than left eye (46%).

Bulbar conjunctiva (86%) was more commonly affected followed by limbus (9%), caruncle (3%), palpebral (1.8%), and fornices (0.2%), respectively.

Out of the 144 conjunctival biopsies, 104 (72.2%) cases were purely degenerative lesions, 14 (9.7%) cases were purely epithelial lesions, and 7 (4.9%) cases were purely melanocytic lesions. One (0.7%) case of lymphoma, 6 (4.1%) cases were tumor-like congenital lesions, vascular 10 (6.9%), and 2 (1.4%) cases were miscellaneous lesions (Table 1).

Degenerative lesions were the most common conjunctival lesions. Maximum numbers of degenerative lesions were

**Table 1: Distribution of conjunctival lesions**

Lesions	Number of cases (%)
Degenerative	104 (72.2)
Epithelial	14 (9.2)
Melanocytic	7 (4.9)
Vascular	10 (6.9)
Congenital	6 (4.1)
Lymphoma	1 (0.7)
Miscellaneous	2 (1.2)

seen in age groups ranging from 31 to 60 years. 53% were males, and 47% were females. 99 cases (95%) were seen in the bulbar conjunctiva on the nasal side, and 5 cases were on the temporal side.

Pure pterygium comprised 84 cases (80.7%). Combined pterygium with epithelial lesions comprised 43 cases (8.17%), out of which pterygium with ocular surface squamous neoplasia (OSSN) comprised 28 cases and pterygium with inclusion cyst comprised 11 cases, pterygium with lymphoid hyperplasia 4 cases.

Maximum numbers of epithelial lesions were seen in bulbar conjunctiva with 8 cases (57.1%), followed by limbus 4 cases (28.5%) and palpebral conjunctiva 2 cases (14.2%). Most cases occurred between 35 and 50 years.

Out of 14 epithelial lesions, squamous papillomas accounted for 5 cases, inclusion cysts 6 cases, OSSN 2 cases, and 1 squamous cell carcinoma.

Out of 7 cases of melanocytic lesions, most common lesions were nevus with 5 cases (71.4%), followed by PAM without atypia 1 case (14.2%). PAM with atypia 1 case (14.2%)

Melanocytic lesions were most commonly seen in the bulbar conjunctiva (5 cases) followed by limbus (1 case) and caruncle (1 case).

In the present study, 10 pyogenic granulomas were seen with a maximum incidence between 11 and 20 years. All the cases were seen in bulbar conjunctiva.

Lymphoma was seen in 1 case. Dermoids were seen in 4 cases and Dermolipoma in 2 cases. 2 patients had ophthalmia nodosa.

## DISCUSSION

Conjunctiva unlike the other mucous membranes in the body is partially exposed to sunlight, which may be a factor in the development of some tumors.<sup>8,9</sup> The caruncle,

with its unique composition of both mucous membrane and cutaneous structures, can have tumors found in both mucosa and skin.

In the present study, age distribution of the cases was in the range of 3-88 years which correlated with the studies done by Shields and Shields<sup>6</sup> (1 month-88 years) and Elshazly<sup>5</sup> (1.5-77 years).

In the present study, males were more commonly affected than females which correlated with the studies done by Shields and Shields,<sup>6</sup> Mondal *et al.*,<sup>2</sup> and Elshazly.<sup>5</sup>

In the present study, bulbar conjunctiva was the most common site which correlated with studies done by Shields and Shields,<sup>6</sup> Mondal *et al.*,<sup>2</sup> and Elshazly.<sup>5</sup>

The distribution pattern of conjunctival lesions in the present study was slightly different from other studies. In the present study, degenerative lesions were most common followed by epithelial lesions, vascular lesions, and melanocytic lesions. A study done by Shields and Shields<sup>6</sup> showed melanocytic lesions were the most common lesions and the least common being tumors such as congenital lesions. A study done by Mondal *et al.*<sup>2</sup> showed that epithelial lesions were most common, and tumor-like congenital lesions were the least common lesion. In a study by Hans *et al.*,<sup>3</sup> pterygium was the most common lesion followed by non-specific inflammation and pyogenic granuloma.

The age distribution with maximum cases of degenerative cases was seen in 41-60 years in the present study, which correlated with the study done by Sanskar *et al.*<sup>10</sup> (31-60 years), but a study done by Chui *et al.*<sup>11</sup> showed a wider range of age distribution (21-83 years).

The present study showed a higher incidence in males which correlated with a study done by Chui *et al.* Study done by Shields and Shields showed equal incidence in males and females. In the present study, there was no incidence of pterygium with nevi and pterygium with PAM without atypia.

In the present study, the most common epithelial lesion was inclusion cyst followed by squamous papilloma, OSSN, and squamous cell carcinoma. Most common epithelial lesion in the study done by Mondal *et al.*<sup>2</sup> was OSSN. Most common epithelial lesion was squamous cell carcinoma in the studies done by Shields and Shields<sup>6</sup> and Amoli and Heidari<sup>12</sup> Age distribution in present study ranged from 20 to 80 years which correlated with other studies by Elshazly<sup>5</sup> and Waddell *et al.*<sup>13</sup>

In the present study, conjunctival nevus was the most common melanocytic lesion which was similar to the studies done by Shields and Shields,<sup>6</sup> Mondal *et al.*,<sup>2</sup> Amoli *et al.*,<sup>11</sup> and Elshazly.<sup>5</sup> Malignant melanoma was not found in our series.

In the present study, all the 10 vascular lesions were pyogenic granuloma with no cases of hemangioma and lymphangioma. In the study done by Mondal *et al.*<sup>2</sup> and Elshazly,<sup>5</sup> pyogenic granuloma was the most common lesion, whereas in Shields and Shields<sup>6</sup> study, hemangiomas were more common.

In the present study, dermoid was more common than dermolipoma which contradicted with the studies done by Shields and Shields<sup>14</sup> and Elshazly,<sup>5</sup> where dermolipoma was the most common lesion.

## CONCLUSION

A large spectrum of lesions can occur in the conjunctiva. Lesions are recognized by the patient in an early stage. Excised lesions of conjunctiva include a wide spectrum of condition ranging from benign lesions such as pterygium, pyogenic granuloma, dermoid nevus, papilloma, hemangioma to precancerous lesions such as OSSN and infiltrating malignancies such as malignant melanoma, squamous cell carcinoma, and lymphoma. It is important to diagnose correctly so that the treatment can be initiated early.

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