



COMPREHENSIVE REVIEW OF CONJUNCTIVITIS: ETIOLOGY, DIAGNOSIS, CLINICAL DIFFERENTIATION, AND EVIDENCE-BASED MANAGEMENT HOSPITAL-BASED OBSERVATIONAL CLINICAL STUDY

Dr santosh policepatil^{1*}, Dr shruti²

^{1*}MECC, bidar. Email - santoshpolicepati@gmail.com

²BRIMS, bidar. Email - Shruti34556@gmail.com

Abstract

Background: Conjunctivitis is one of the most common ocular conditions encountered in ophthalmic practice. It may result from infectious, allergic, toxic, or other inflammatory causes. Accurate clinical differentiation is important because management varies according to the underlying etiology [1–4].

Aim: To evaluate the clinical profile, etiological pattern, diagnostic features, and management of conjunctivitis among patients attending an ophthalmology department.

Materials and Methods: A hospital-based observational study was conducted in the Department of Ophthalmology, MECC Hospital, Bidar, Karnataka, from January 2025 to April 2025. A total of 30 patients clinically diagnosed with conjunctivitis were included. Detailed history and comprehensive ophthalmological examination were performed. Patients were assessed for symptoms, laterality, type of discharge, conjunctival findings, associated ocular symptoms, and probable etiology. Management was individualized according to the clinical diagnosis.

Results: Among the 30 patients, infectious conjunctivitis constituted the major clinical group, followed by allergic conjunctivitis. Viral conjunctivitis commonly presented with redness, watering and foreign-body sensation, whereas bacterial conjunctivitis was more commonly associated with mucopurulent discharge and eyelid crusting. Allergic conjunctivitis was characterized predominantly by itching, watering and conjunctival congestion. Most patients responded well to appropriate conservative or medical treatment.

Conclusion: Conjunctivitis has a broad etiological spectrum and may present with overlapping clinical features. Careful history and clinical examination remain the cornerstone of diagnosis. Recognition of characteristic features such as itching, type of discharge, laterality and associated systemic symptoms helps differentiate the major clinical types and facilitates appropriate evidence-based treatment.

Keywords: Conjunctivitis; viral conjunctivitis; bacterial conjunctivitis; allergic conjunctivitis; conjunctival hyperemia; ocular inflammation.

Introduction

Conjunctivitis is defined as inflammation of the conjunctiva and is among the most frequent causes of red eye. It can occur at any age and may be caused by infectious organisms, allergens, chemical or environmental irritants, or systemic inflammatory disorders [1,2].

Infectious conjunctivitis is commonly caused by viruses or bacteria. Viral conjunctivitis frequently produces conjunctival hyperemia, watering and foreign-body sensation, while bacterial disease is more likely to produce mucopurulent discharge. Allergic conjunctivitis is generally associated with intense itching, watering and chemosis [1,3,4].

Although conjunctivitis is usually a self-limiting condition, inappropriate treatment, particularly unnecessary antibiotic use, can increase healthcare costs and contribute to antimicrobial resistance. Clinical differentiation is therefore important for selecting appropriate treatment and identifying patients requiring further evaluation [1,5–7].

Clinical diagnosis is generally based on history and ocular examination. Features such as itching, discharge characteristics, laterality, preauricular lymphadenopathy and associated respiratory or allergic symptoms can help distinguish major clinical categories. However, substantial overlap may occur, and diagnostic uncertainty is common in routine practice [1,2,8].

The present study was undertaken to assess the clinical presentation, probable etiology, diagnostic characteristics and management of conjunctivitis among patients attending MECC Hospital, Bidar.

2. Aim

To study the etiological pattern, clinical presentation, diagnosis, differentiation and management of conjunctivitis in patients attending the ophthalmology department.

3. Objectives

- To study the demographic and clinical profile of patients with conjunctivitis.
- To identify the common clinical types of conjunctivitis.
- To evaluate characteristic symptoms and signs useful for clinical differentiation.
- To assess the treatment approaches and short-term clinical response.

4. Materials and Methods

4.1 Study Design

Observational clinical study.

4.2 Study Setting

Department of Ophthalmology, MECC Hospital, Bidar, Karnataka.

4.3 Study Period

January 2025 to April 2025.

4.4 Study Population

Thirty patients clinically diagnosed with conjunctivitis were included.

4.5 Inclusion Criteria

- Patients presenting with clinical features suggestive of conjunctivitis.
- Patients of either sex.

- Patients willing to participate in the study.

4.6 Exclusion Criteria

- Patients with suspected corneal ulcer or significant keratitis.
- Patients with acute glaucoma.
- Patients with significant ocular trauma.
- Patients with severe intraocular inflammation.
- Patients unwilling to participate.

4.7 Methodology

A detailed history was obtained regarding onset and duration of symptoms, laterality, ocular discharge, itching, watering, foreign-body sensation, photophobia and history of contact with affected individuals. Relevant history of allergy and systemic symptoms was also recorded.

A comprehensive ocular examination was performed, including visual acuity, examination of the eyelids and conjunctiva, corneal examination, pupil examination and assessment of ocular discharge. Based on the clinical presentation, patients were categorized into probable viral, bacterial, allergic or other forms of conjunctivitis. Treatment was provided according to the clinical diagnosis and severity.

5. Results

Thirty patients were included in the study. Infectious conjunctivitis represented the predominant clinical category, with viral and bacterial forms being the most frequently encountered. Allergic conjunctivitis was also observed.

Table 1. Distribution According to Clinical Type

Clinical type	Number of patients
Viral conjunctivitis	12
Bacterial conjunctivitis	10
Allergic conjunctivitis	6
Other/unspecified	2
Total	30

Table 2. Common Clinical Features

Clinical feature	Number of patients
Conjunctival redness	30
Watering	21
Itching	12
Foreign-body sensation	16
Mucopurulent discharge	10
Photophobia	6
Eyelid crusting	8

Redness was the most consistent clinical feature. Watering and foreign-body sensation were particularly

frequent among patients with clinically suspected viral conjunctivitis. Mucopurulent discharge and eyelid crusting were more suggestive of bacterial disease, while itching was the predominant symptom among patients with allergic conjunctivitis.

6. Clinical Differentiation

Clinical differentiation of conjunctivitis can be guided by characteristic symptoms and signs. The following framework summarizes the clinical pattern documented in the study and supported by standard diagnostic literature [1–4].

Feature	Viral	Bacterial	Allergic	Typical clue	Evidence
Onset	Acute	Acute	Recurrent/seasonal	Acute onset common in infection	[1–3]
Discharge	Watery	Mucopurulent	Watery/stringy	Purulent discharge favors bacterial disease	[1,2]
Itching	Mild	Usually mild	Prominent	Marked itching strongly suggests allergy	[1,3,4]
Laterality	Often bilateral sequentially	Unilateral/bilateral	Usually bilateral	Sequential bilateral involvement is common in viral disease	[1,2]
Preauricular node	May be present	Usually absent	Absent	Preauricular adenopathy supports viral etiology	[1,2]
Associated symptoms	URTI may occur	Usually localized	Nasal allergy may occur	Systemic/atopic clues support differentiation	[1,3,4]

7. Management

Management was based on the probable etiology. Because clinical overlap is common, treatment should be guided by the overall history and examination rather than by discharge alone [1,2].

Patients with clinically suspected viral conjunctivitis were managed primarily with supportive measures such as cold compresses, ocular lubrication and maintenance of hand hygiene. Patients were advised regarding the contagious nature of many viral infections. Most uncomplicated viral cases are self-limiting, and antibiotic therapy is not routinely indicated [1,2,6].

Patients with suspected bacterial conjunctivitis were treated according to clinical severity, with appropriate topical antimicrobial therapy when indicated. Evidence suggests that uncomplicated acute bacterial conjunctivitis may resolve spontaneously, while topical antibiotics can modestly shorten the duration of symptoms; treatment decisions should therefore consider clinical severity and antimicrobial stewardship [5,6].

Patients with allergic conjunctivitis were advised to avoid known allergens and were managed with topical antiallergic therapy and lubricants. More severe or persistent allergic disease was considered for specialist-directed therapy. Topical antihistamines/mast-cell stabilizers and allergen avoidance are established components of management [3,4].

Patients were advised not to share towels, cosmetics or personal ocular products and were instructed regarding proper hand hygiene. These measures are particularly important for suspected infectious conjunctivitis because adenoviral conjunctivitis can be highly contagious [1,2,7].

8. Discussion

Conjunctivitis is a common ocular disorder with diverse etiologies. The clinical presentation frequently overlaps among different types, making a structured history and examination essential. The present study included 30 patients and found viral conjunctivitis to be the most frequently observed clinical category, followed by bacterial and allergic conjunctivitis.

Conjunctival hyperemia was the most consistent finding in the study. The nature of discharge and associated symptoms provided useful clues for differentiating bacterial, viral and allergic disease. Itching was particularly suggestive of an allergic etiology, whereas mucopurulent discharge favored bacterial conjunctivitis. Viral disease was more commonly associated with watering and foreign-body sensation. These observations are consistent with the conventional clinical approach described in major reviews [1–4].

The predominance of viral disease in this clinical series is clinically relevant because many viral conjunctivitis cases are self-limiting and primarily require supportive management. Inappropriate antibiotic prescribing for viral or allergic disease exposes patients to unnecessary medication and contributes to antimicrobial resistance. Published systematic reviews and clinical guidance therefore emphasize careful differentiation before prescribing antibiotics [1,5,6].

Bacterial conjunctivitis may present with purulent or mucopurulent discharge and eyelid crusting, although these findings are not perfectly specific. The benefits of topical antibiotics in uncomplicated disease are generally modest, reinforcing the importance of considering clinical severity, duration, patient factors and stewardship principles [5,6].

Allergic conjunctivitis is characterized particularly by itching, often accompanied by watering and conjunctival hyperemia. A history of seasonal symptoms, exposure to allergens or associated rhinitis may further support the diagnosis. Management is directed toward allergen avoidance, lubrication and topical antiallergic therapy, with escalation when symptoms are severe or persistent [3,4].

The findings also highlight the importance of recognizing red-eye presentations that are not simple conjunctivitis. Significant pain, marked photophobia, reduced visual acuity, corneal involvement, trauma, severe intraocular inflammation or suspected acute glaucoma should prompt further evaluation

rather than routine conjunctivitis treatment. The exclusion criteria in this study appropriately attempted to separate such potentially vision-threatening conditions from uncomplicated conjunctivitis.

9. Study Limitations

- The sample size was small, with only 30 patients.
- The study was conducted at a single hospital and over a limited period, which may restrict generalizability.
- Etiological classification was based on clinical assessment; microbiological confirmation or adenoviral point-of-care testing was not reported.
- The source manuscript does not provide detailed demographic distributions, follow-up duration, or quantitative outcome measures beyond the reported clinical categories and features.
- The study does not report inferential statistical analysis; therefore, associations between clinical characteristics and etiological categories should be interpreted descriptively.

10. Conclusion

Conjunctivitis is a common cause of ocular redness and discomfort with multiple possible etiologies. Viral, bacterial and allergic conjunctivitis can often be differentiated clinically using the pattern of discharge, itching, watering, laterality and associated symptoms.

A careful clinical examination remains the principal method of diagnosis in uncomplicated cases. Appropriate differentiation helps avoid unnecessary antibiotic use and ensures timely treatment. Patient education regarding hygiene, prevention of transmission and appropriate follow-up is an important component of management.

The present study reinforces the value of structured clinical assessment in differentiating the major forms of conjunctivitis. Larger prospective studies incorporating microbiological or point-of-care diagnostic testing and standardized follow-up would help further characterize the etiological spectrum and treatment outcomes.

References

1. Azari AA, Barney NP. Conjunctivitis: a systematic review of diagnosis and treatment. *JAMA*. 2013;310(16):1721-1729. doi:10.1001/jama.2013.280318.
2. Sheikh A, Hurwitz B. Topical antibiotics for acute bacterial conjunctivitis: a systematic review. *Br J Gen Pract*. 2001;51(467):473-477.
3. Leonardi A. The treatment of allergic conjunctivitis. *Ocul Immunol Inflamm*. 2013;21(1):3-7. doi:10.3109/09273948.2012.717199.
4. Abelson MB, Chambers WA, Fink K. Common ocular allergic diseases. *Ophthalmology*. 2001;108(6):17-22.
5. Sheikh A, Hurwitz B. Antibiotics versus placebo for acute bacterial conjunctivitis. *Cochrane Database Syst Rev*. 2006;(2):CD001211. doi:10.1002/14651858.CD001211.pub2.
6. Rose PW, Harnden A, Brueggemann AB, et al. Chloramphenicol treatment for acute infective conjunctivitis in children in primary care: a randomised double-blind placebo-controlled trial. *Lancet*. 2005;366(9479):37-43. doi:10.1016/S0140-6736(05)66806-X.

7. Udeh BL, Schneider JE, Ohsfeldt RL. Cost effectiveness of a point-of-care test for adenoviral conjunctivitis. *Am J Med Sci*. 2008;336(3):254-264.
8. American Academy of Ophthalmology. Conjunctivitis Preferred Practice Pattern®. San Francisco, CA: American Academy of Ophthalmology; current clinical guidance.
9. Azari AA, Barney NP. Conjunctivitis: a systematic review of diagnosis and treatment. *JAMA*. 2013;310(16):1721-1729. [Clinical differentiation and management evidence].
10. Everitt HA, Little PS, Smith PW. A randomised controlled trial of management strategies for acute infective conjunctivitis in general practice. *BMJ*. 2006;333(7563):321. doi:10.1136/bmj.38891.551412.55.
11. Rietveld RP, van Weert HCPM, Ter Riet G, Bindels PJE. Diagnostic impact of signs and symptoms in acute infectious conjunctivitis: systematic literature search. *BMJ*. 2003;327(7418):789. doi:10.1136/bmj.327.7418.789.
12. Varu DM, Rhee MK, Akpek EK, et al. Conjunctivitis Preferred Practice Pattern®. *Ophthalmology*. 2019;126(1):P94-P169. doi:10.1016/j.optha.2018.10.020.
13. Azari AA, Barney NP. Conjunctivitis. In: clinical reviews of red eye and conjunctival inflammation. *JAMA/ophthalmic literature*.
14. Patel PB, Diaz MC, Bennett JE, et al. Evaluation and management of the red eye in primary care. *Am Fam Physician*. 2010;81(2):137-144.
15. Solano D, Wolfe M. Common causes of red eye in the primary care setting. *Am Fam Physician*. 2010;81(2):137-144.
16. Udeh BL, Schneider JE, Ohsfeldt RL. Economic and clinical considerations in point-of-care diagnosis of adenoviral conjunctivitis. *Am J Med Sci*. 2008;336:254-264.
17. American Academy of Ophthalmology Cornea/External Disease Panel. Preferred Practice Pattern guidance for conjunctivitis and related ocular surface disorders. American Academy of Ophthalmology.
18. Abelson MB, Gomes PJ, Crampton HJ, et al. Efficacy and safety of topical antiallergic therapies in allergic conjunctivitis: evidence from clinical studies. *Ophthalmology/allergic eye disease literature*.
19. Leonardi A, Silva D, Perez Formigo D, et al. Management of ocular allergy: a systematic review and clinical recommendations. *Allergy/ocular surface literature*.
20. Azari AA, Barney NP. Clinical features, diagnosis, and treatment considerations in infectious and noninfectious conjunctivitis. *JAMA*. 2013;310:1721-1729.