

Conjunctivitis An Overview Of Phathophysiology, Complications And Treatment Strategies

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Abstract

Conjunctivitis is the most common cause of red eye in primary care. The 3 most common type Of conjunctivitis are viral, allergic, and bacterial, and they can present in either acute or chronic Conjunctivitis is the most common cause of red eye in primary care. The 3 most common type Of conjunctivitis are viral, allergic, and bacterial, and they can present in either acute or chronic Forms; the age of the patient, time of year and physical examination findings are paramount to Distinguish the different types of conjunctivitis. Distinguishing between acute viral and bacterial Conjunctivitis remains difficult. Patients with prolonged symptoms, poor response to initial Management, or evidence of severe disease should referred to ophthalmology for Consultation. (1) Conjunctivitis—commonly referred to as“pink eye”—is an inflammation of the conjunctiva Resulting from infectious or non-infectious etiologies. It is one of the most common Ophthalmologic complaints in primary and emergency care. Although most cases are self-limited, Accurate differentiation of cause is crucial to prevent unnecessary antibiotic use, reduce Transmission, and promptly identify sight-threatening condi0tions. This review summarizes Epidemiology, clinical features, diagnostic considerations, management strategies, and emerging Issues in conjunctivitis (2)...

Keywords: Allergic, Bacterial, Conjunctivitis, COVID-19, Coronavirus, Viral, Toxic

INTRODUCTION

Conjunctivitis is characterized by inflammation and swelling of the conjunctival tissue, Accompanied by engorgement of the blood vessels, ocular discharge, and pain. Many subjects are Affected with conjunctivitis worldwide, and it is one of the most frequent reasons for office visits To general medical and ophthalmology clinics. More than 80% of all acute cases of conjunctivitis Are reported to be diagnosed by non-ophthalmologists including internists, family medicine Physicians, pediatricians, and nurse practitioners.(4)This imposes a great economic burden to the Healthcare system and occupies a great proportion of the office visits in many medical Specialties. It is estimated that the cost of treating bacterial conjunctivitis is 857 million annually In the United States alone. (5)

- It has been reported that nearly 60% of all patients with acute conjunctivitis receive Antibiotic eye drops; and the vast majority receive their prescription from a non- Ophthalmologist physician. For example, 68% of patients who visited a physician at an Emergency room received antibiotic eye drops while this figure

dropped to 36% for Those who saw an ophthalmologist.(4)Interestingly, patients from a higher Socioeconomic status were more likely to receive and fill a prescription for their Conjunctivitis.(4)

Types of conjunctivitis

1. Viral conjunctivitis

Viral conjunctivitis is the most common infectious, and most contagious, conjunctivitis. It can have a prolonged course, with incubation and communicability ongoing for five to 14 days. (10) Viral conjunctivitis is often caused by adenovirus (65–90% of cases), although it can be caused by other viruses. (11) Viral conjunctivitis is highly transmissible, commonly through contaminated swimming pools and contact with contaminated objects. Transmission occurs in 10–50% of cases. (12)

2. Bacterial conjunctivitis

Bacterial conjunctivitis can be caused by a range of bacteria, most commonly pathogens from staphylococcal species, followed by *S. pneumoniae* and *Haemophilus influenzae*. It is seen more commonly in children, although the type and origin can vary depending on the child’s age. (13) The disease might be bilateral or unilateral and typically lasts seven to 10 days. Bacterial conjunctivitis can be contracted directly from infected individuals, through abnormal proliferation of native conjunctival flora or from the spread of infection from the organisms colonising the patient’s nasal and sinus mucosa.

3 .Allergic Conjunctivitis

Allergic conjunctivitis occurs in response to a transient (eg pollen) or persistent (eg house dust mite) allergen. (14)

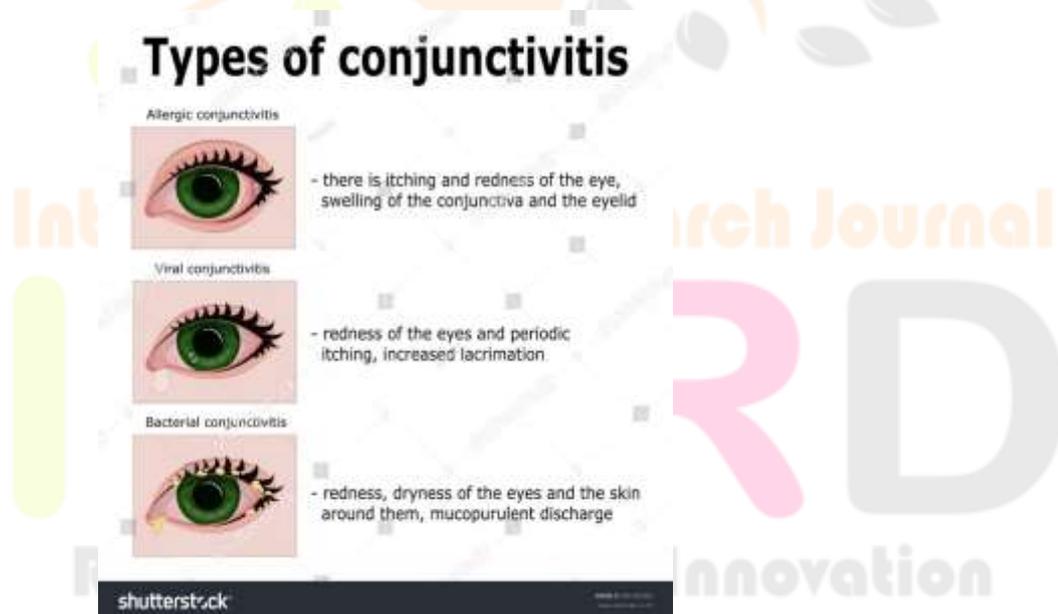


Fig.no.1)Type of Conjunctivitis

History

A good-quality history can indicate the cause of conjunctivitis in many cases and should include duration of symptoms, nature of symptoms, contact lens wear and any other associated features. (14)

Viral conjunctivitis

Patients typically present with symptoms including red eye, tearing, burning and sticky

discharge. The discharge is typically most notable on waking. The condition might transmit from one eye to the other. This typically occurs two to three days after the first eye is involved. Patients will often report recent contact of someone with red eyes (incubation three to five days prior) or have symptoms of a recent upper respiratory tract infection. (14)

Bacterial conjunctivitis There are two broad varieties of bacterial conjunctivitis: conjunctivitis with hyperacute (<24 hours) onset of severity associated with rapid progression; and conjunctivitis with acute or subacute onset (moderate to severe severity). Sticky eyelids might be present in approximately 90% of affected individuals (15) The combination of three signs, namely bilateral matting of the eyelids, lack of itching and no

previous history of conjunctivitis, are strong predictors of bacterial conjunctivitis (16)

Allergic conjunctivitis

Patients with allergic conjunctivitis will usually describe symptoms such as erythema, watering, discharge, discomfort or eye pain. Itching is the most pathognomonic symptom because it is rare in other ocular conditions. (17)

How to diagnose conjunctivitis:

Conjunctival injection or “red eye” is a shared presentation for many ophthalmic diseases,

and it accounts for up to 1% of all primary care office visits (18) The clinicians, whether ophthalmologist or not, must be aware that “red eye” may be the presenting sign for serious eye conditions such as uveitis, keratitis, or scleritis, or it may be secondary to more benign conditions that are limited just to the conjunctival tissue (e.g., conjunctivitis or subconjunctival hemorrhage). Traditionally, it was believed that more harmful ophthalmic disorders are associated with disturbances in vision, disabling pain, and photophobia. (18) However, in a recent large meta-analysis, anisocoria and mild photophobia were significantly associated with “serious eye conditions”; the presence of these two signs could discover 59% of cases of “serious eye conditions”, including anterior uveitis and keratitis.

❖ **Diagnosis**

- Conjunctivitis is often diagnosed clinically based on history and examination.
- Further testing (e.g., swabs, cultures) is reserved for:
 - Severe or chronic cases
 - Suspected sexually transmitted infections (e.g., chlamydial conjunctivitis)
 - Neonatal conjunctivitis
 - Lack of improvement with standard treatment

❖ **Prevention**

- Frequent hand-washing
- Avoid rubbing eyes
- Do not share cosmetics, towels, or eye drops
- Clean contact lenses properly
- Reduce exposure to allergens and irritants

❖ Treatment

○ Viral Conjunctivitis

- Supportive care: artificial tears, cold compresses
- Strict hygiene to prevent spread
- Antivirals for herpes simplex infections

○ Bacterial Conjunctivitis

- Topical antibiotics (erythromycin, chloramphenicol, fluoroquinolones)
- Systemic antibiotics for severe infections (gonococcal or chlamydial)
- Warm compresses to remove crustin

○ Allergic Conjunctivitis

- Allergen avoidance
- Antihistamine or mast-cell stabilizer drops
- Lubricating drops to flush allergens

❖ Complications:

- Though rare, untreated conjunctivitis can lead to:
 - Keratitis (corneal inflammation)
 - Vision disturbances
 - Secondary infections
 - Chronic conjunctivitis in recurrent allergic case

Conclusion

In summary, conjunctivitis remains a significant cause of red eye in both community and clinical Settings. The literature shows clear differences in presentation and management among viral, Bacterial, allergic, and irritant forms, emphasizing the importance of accurate diagnosis. While

Most cases resolve with supportive or targeted therapy, severe infections or those affecting Contact-lens wearers require prompt attention to avoid sight-threatening complications. Public Health measures, patient education, and antimicrobial stewardship continue to play critical roles In improving outcomes and reducing unnecessary treatment.

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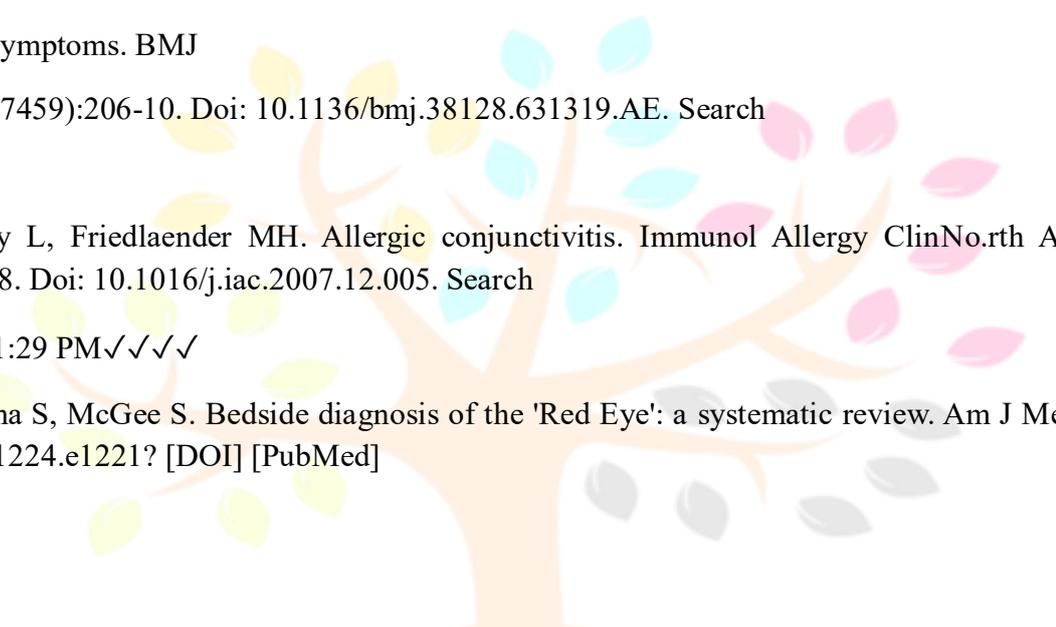
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