



Conjunctivitis - A Systemic Review

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Abstract

Conjunctivitis is a generally encountered condition in ophthalmology conventions throughout the world. In the operation of suspected cases of conjunctivitis, intimidating signs for more serious intraocular conditions, similar as severe pain, dropped vision, and painful pupillary response, must be considered. also, a thorough medical and ophthalmic history should be attained and a thorough physical examination should be done in cases with atypical findings and habitual course. Concurrent physical test findings with applicable history may reveal the presence of a systemic condition with involvement of the conjunctiva. Viral conjunctivitis remains to be the most common overall cause of conjunctivitis. Bacterial conjunctivitis is encountered less constantly and it's the alternate most common cause of contagious conjunctivitis. Antipathetic conjunctivitis is encountered in nearly half of the population and the findings include itching, mucoid discharge, chemosis, and eyelid edema. Long-term operation of eye drops with preservatives in a case with conjunctival vexation and discharge points to the poisonous conjunctivitis as the underpinning etiology. Effective operation of conjunctivitis includes timely opinion, applicable isolation of the. Conjunctivitis is the most common cause of red eye in primary care. The 3 most common types 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 be referred to ophthalmology for consultation.

Keywords-

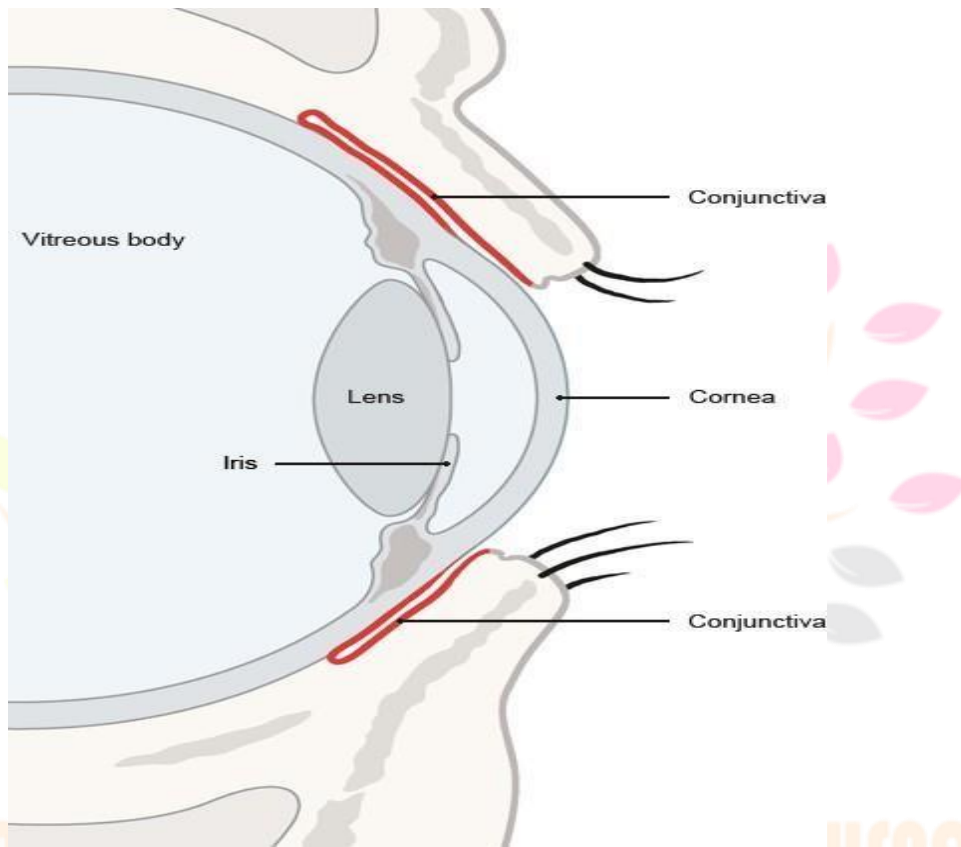
Eye Flu, Conjunctivitis, viral conjunctivitis, bacterial conjunctivitis, Allergic Conjunctivitis.

Introduction-

Conjunctiva is a thin, translucent membrane lining the anterior part of the sclera and inside of the eyelids. It has 2 corridors, bulbar and palpebral. The bulbar portion begins at the edge of the cornea and covers the visible part of the sclera; the palpebral part lines the inside of the eyelids. Inflammation or infection of the conjunctiva is known as conjunctivitis and is characterized by dilatation of the conjunctival vessels, performing in hyperemia and edema of the conjunctiva, generally with associated discharge. Conjunctivitis affects numerous people and imposes profitable and social burdens. It's estimated that acute conjunctivitis affects 6 million people annually in the United States. The cost of treating bacterial conjunctivitis alone was estimated to be \$377 million to \$857 million per time. numerous US state health departments, irrespective of the underpinning cause of conjunctivitis, bear scholars to be treated with topical antibiotic eyedrops before returning to academy. A maturity of conjunctivitis cases are originally treated by primary care croakers rather than eye care professionals. roughly 1 of all primary care office visits in the United States are related to conjunctivitis. Approximately 70% of all patients with a acute conjunctivitis present to primary care and critical care. The frequency of conjunctivitis varies according to the underpinning cause, which may be told by the case's age, as well as the season of the time. Viral conjunctivitis is the most common cause of contagious conjunctivitis both overall and in the adult population and is more current in summer. Bacterial conjunctivitis is the alternate most common cause and is responsible for the maturity of cases in children; it is observed more constantly from December through April. Antipathetic conjunctivitis is the most frequent cause, affecting 15 to 40% of the population, and is observed more constantly in spring and summer.

Conjunctivitis can be divided into infectious and noninfectious causes. Viruses and bacteria are the most common infectious causes. Noninfectious conjunctivitis includes allergic, toxic, and cicatricial conjunctivitis, as well as inflammation secondary to immunemediated diseases and neoplastic processes. The disease can also be classified into acute, hyperacute, and chronic according to the mode of onset and the severity of the clinical response. Furthermore, it can

be either primary or secondary to systemic diseases such as gonorrhea, chlamydia, graft-vs-host disease, and Reiter's syndrome, in which case systemic treatment is warranted. It is important to differentiate conjunctivitis from other sight-threatening eye diseases that have similar clinical presentation and to make appropriate decisions about further testing, treatment, or referral. An algorithmic approach using a focused ocular history along with a penlight eye examination may be helpful in diagnosis and treatment. Because conjunctivitis and many other ocular diseases can present as "red eye," the differential diagnosis of red eye and knowledge about the typical features of each disease in this category are



reimportant.

Types of conjunctivitis-

Infectious conjunctivitis	Non-Infectious conjunctivitis
1. Viral conjunctivitis	1. Allergic conjunctivitis
2. Bacterial conjunctivitis	2. Nonallergic conjunctivitis <ul style="list-style-type: none"> • Toxic conjunctivitis
3. Herpes conjunctivitis	

A. Infectious Conjunctivitis-1.viral conjunctivitis-

Viral conjunctivitis is responsible for the majority of infectious conjunctivitis, accounting for up to 75% of cases. Characteristics of viral conjunctivitis include redness, blood vessel engorgement, ocular discharge, pain, photophobia, and pseudomembranes. There is a considerable economic and societal impact due to the costs of visits to the emergency department or general practitioner, diagnostic tests, prescription treatment, and time lost from work or school. Prescribing antibiotics in cases of viral conjunctivitis is one of the major costs of any health care system.

Viral conjunctivitis is highly contagious, usually for 10-12 days from onset as long as the eyes are red. Patients should avoid touching their eyes, shaking hands, and sharing towels, napkins, pillowcases, and other fomites, among other activities. Transmission may occur through accidental inoculation of viral particles from the patient's hands or by direct eye contact with infected upper respiratory droplets, fomites, or contaminated swimming pools. The infection usually resolves spontaneously within 2-4 weeks.



Epidemiology, Causes and Presentation-

The most common cause of viral conjunctivitis is adenoviruses. The adenovirus is part of the *Adenoviridae* family that consists of a non-enveloped, double-stranded DNA virus. Frequently associated infections caused by the adenovirus include upper respiratory tract infections, eye infections, and diarrhea in children. Children are most susceptible to viral infections, and adults tend to get more bacterial infections. Viral conjunctivitis can be obtained by direct contact with the virus, airborne transmission, and reservoir such as swimming pools. Most cases of viral conjunctivitis are highly contagious for 10-14 days. Washing hands and avoidance of eye contact are key to preventing transmission to others.

Treatment-

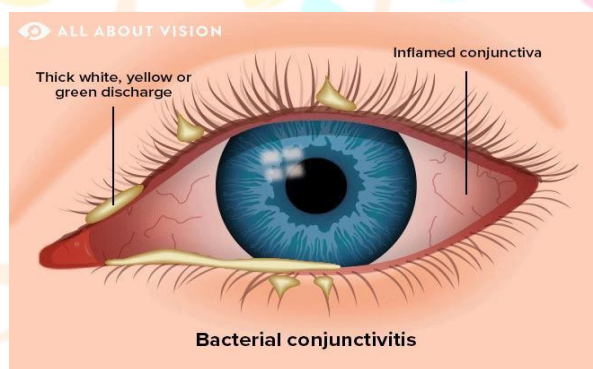
Treatment for viral conjunctivitis is aimed at symptomatic relief and not to eradicate the self-limiting viral infection. The resolution of conjunctivitis can take up to 3 weeks. Treatment includes using artificial tears for lubrication four times a day or up to ten times a day with preservative-free tears. Cool compresses with a wet washcloth to the periorbital area may provide symptomatic relief. Preventing the spread of infection to the other eye or other people requires the patient to practice good hand hygiene with frequent washing, avoidance of sharing towels or linens, and avoiding touching their eyes. A person is thought to shed the virus while their eyes are red and tearing.

2. Bacterialconjunctivitis-

The main bacterial pathogens are Haemophilus influenzae and Streptococcus pneumoniae in adults and children, and Moraxellacatarrhalisinchildren.Contactlenswearersmaybemorelikelytodevelopgram-negativeinfections.Bacterialkeratitisoccursupto 30per100,000contact lenswearers.

Epidemiology,Causes-

Patternsofspreadforbacterialconjunctivitisincludehandtoeye,eyecontactwithfomite,andpersontopersonthroughrespiratorydroplets. Themostcommoncausativeorganismofbacterialconjunctivitisinchildrenis Haemophilusinfluenzae,followedby Streptococcus pneumoniae and Moraxella catarrhalis. Bacterial pathogens in adults are more pneumoniae responsible for a smallerpercentageofcases.Staphylococcusaureus ismorecommonlyfoundinadultsandtheelderlybutisalsopresentinpediatriccasesofbacterialconjunctivitis. Therehasalsobeenanincreaseinthefrequencyofconjunctivitissecondarytomethicillin-resistant Staphylococcusaureus (MRSA).Contactlenswearersare more susceptible to gram-negativeinfections. Pseudomonas aeruginosa is more likely to be the isolate from critically ill, hospitalized patients. Neonates can beaffectedbythevertical,oculogenitaltransmissionof Neisseriagonorrhoeae andChlamydia trachomatisresultinginacutebacterialconjunctivitis.Theseorganismscanalso causeahyperacute infectioninsexuallyactiveadolescentsandadults.



Treatment-

Patternsofspreadforbacterialconjunctivitisincludehandtoeye,eyecontactwithfomite,andpersontopersonthroughrespiratorydroplets. Themostcommoncausativeorganismofbacterialconjunctivitisinchildrenis Haemophilusinfluenzae,followedby Streptococcus pneumoniae and Moraxellacatarrhalis.Bacterialpathogensin adultsaremoreoftenstaphylococcalspecieswith Haemophilusinfluenzae and Streptococcus pneumoniae responsibleforasmallerpercentageofcases.Staphylococcusaureusismorecommonlyfoundinadultsand theelderlybutisalsopresentinpediatriccasesofbacterialconjunctivitis.Therehasalsobeenanincreaseinthefrequencyofconjunctivitissecond arytomethicillin-resistantStaphylococcusaureus(MRSA). Contactlens wearers are more susceptible to gram-negative infections. Pseudomonas aeruginosa is more likely to be the isolate fromcriticallyill,hospitalizedpatients. Neonatescanbeaffectedbythevertical,oculogenitaltransmissionof Neisseriagonorrhoeae and Chlamydia trachomatis resulting in acute bacterial conjunctivitis.These organisms can also cause a hyperacuteinfectioninsexuallyactive adolescentsandadults

3. Herpesconjunctivitis-

Herpes simplex ophthalmic is an eye infection by the herpes simplex type 1 and type 2 viruses. It is ubiquitous and affects all the ages of the population. Primary infection is self-limiting, while recurrent infections can lead to blinding complications. Early diagnosis and treatment are key to preventing complications. This activity reviews the evaluation and treatment of herpes simplex ophthalmic and highlights the role of the interprofessional team in evaluating and treating patients with this condition.

Epidemiology,causesandsymptoms-

Herpes simplex ophthalmic is a ubiquitous infection and is universal by late adulthood. HSV keratitis is the most common corneal blindness in developing nations. Worldwide, HSV affects between 60-95% of adults. HSV-1 is more commonly affects 70-80% of low socioeconomic groups and 40-60% of improved socioeconomic status. In the United States of America (USA), neonatal HSV

infection occurs at a rate of 1 in 3200 deliveries, and 1500 cases are seen every year. The USA has a total prevalence of 400,000 cases of HSV keratitis and a total number of episodes at 58,000/year with an incidence of new cases of about 24,000/year. Recurrent disease, estimated to occur in 27% of patients at one year and over 60% at 20 years, commonly causes keratitis, though it can affect all parts of the eye.

Treatment-

Medicines are often used to treat first or recurrent episodes of herpes. They can decrease how long symptoms last and how severe they are, but they can't cure the infection. Treatment for recurrent episodes is most effective when started within 48 hours of when symptoms begin. Antiviral medicines commonly given include acyclovir, famciclovir and valacyclovir. Taking a lower daily dose of one of these medicines can also decrease how often symptoms occur („outbreaks“). Treatment is often recommended for people who get very painful frequent recurrent episodes or who want to lower their risk of giving herpes to someone else.

Medicines to help with pain related to sores include paracetamol (acetaminophen), naproxen or ibuprofen. Medicines that can be applied to numb the affected area include benzocaine and lidocaine.

B. Non-Infectious Conjunctivitis-

1. Allergic conjunctivitis-

Allergic conjunctivitis is inflammation of the lining of the eye (conjunctiva) due to allergy. Although allergens differ, pollen is a common seasonal cause.

Symptoms- consist of eye redness, itching and increased tears.



Types- A. Acute allergic conjunctivitis- This is a short-term condition that is more common during allergy season. Your eyelids suddenly swell, itch, and burn. You may also have a watery nose.

Chronic allergic conjunctivitis-

Chronic or persistent allergic conjunctivitis can occur year-round. It is a response to allergens like dust and animal dander. Common symptoms come and go but include burning and itching of the eyes and light sensitivity.

Treatment-

Avoiding the allergen: Keeping the house clean, minimizing soft furnishings, and staying indoors when the pollen count is high can help.

Artificial tears: These eye drops [dilute the allergen](#) [Trusted Source](#) and help remove it.

Avoiding contact lenses: These should not be used until symptoms have completely disappeared. After using any medication on the eye, wait 24 hours after treatment has ended before wearing contact lenses.

Refraining from rubbing the eyes: Rubbing can make the [inflammation](#) worse. This can be difficult, as it is tempting to rub itchy eyes.

Cold compresses: Holding a wad of cotton wool soaked in cold water on the eyelid can soothe the eyes.

2. Toxic Conjunctivitis-

Toxic conjunctivitis (also called toxic keratoconjunctivitis) implies direct damage to ocular tissues from an offending agent, usually a preservative or medication. The toxic agent can cause a papillary or follicular response in the conjunctiva with chronic use, and the conjunctiva can become chemotic, edematous, and hyperemic. These features also occur in allergic conjunctivitis, with which toxic conjunctivitis is often confused.

Etiology-

Certain topical medications and the preservatives in those medications, contact lens solutions, and artificial tears are the most common causes of toxic ocular reactions. Cosmetics used on the eyelids are also implicated.

Topical eye medications are commercially available in two forms: single and multidose bottles or vials. Multidose bottles are convenient, cheap, and easy to use for patients, but they contain antimicrobial preservatives in order to prevent microorganism contamination and to ensure long-

term stability as mandated by the US Food and Drug Administration (FDA). These preservatives can induce toxicity and hypersensitivity, resulting in ocular surface medicamentosa (OSM), particularly in patients who have chronic ocular disease, such as dry eye disease (DED) and glaucoma, in which multiple drops are used for long periods.

The most common commercially available preservatives used for topical eye drops are benzalkonium chloride (BAK or BAC), thimerosal, chlorobutanol, sodium perborate, stabilized oxochloro complex (SOC), polyquaternium-1, and anionic buffer containing borate, sorbitol, propylene glycol, and zinc. They can cause toxic, irritant, or hypersensitivity reactions, although data from rabbit models suggest that the newer-generation SOC is less cytotoxic than the other preservatives. In a randomized trial, patients who received newer-generation ionic buffer-preserved topical eye drops showed higher tear breakup time and lower superficial punctate keratopathy scores compared with those who received BAK-preserved drops].

Treatment-

Recognition of the diagnosis of toxic conjunctivitis and removal of the offending agent(s) are imperative to the success of treating this condition. Stopping as many topical medications as

feasible is a good first step. The patients should be monitored closely by an ophthalmologist after the suspected agent is discontinued in case the actual cause was infectious.

A preservative-free preparation should be used if a specific medication is required and preservative toxicity is suspected. An oral medication may be offered in situations in which topical medication is causing toxicity, if that option is available.

Conclusion-

Approximately 1% of all patient visits to a primary care clinician are conjunctivitis related, and the estimated cost of the bacterial conjunctivitis alone is \$377 million to \$857 million annually. Relying on the signs and symptoms often leads to an inaccurate diagnosis. Nonherpetic viral conjunctivitis is followed by bacterial conjunctivitis as the most common cause for infectious conjunctivitis. Allergic conjunctivitis affects nearly 40% of the population, but only a small proportion seeks medical care. The majority of viral conjunctivitis cases are due to adenovirus. There is no role for the use of topical antibiotics in viral conjunctivitis, and they should be avoided because of adverse treatment effects. Using a rapid antigen test to diagnose viral conjunctivitis and avoid inappropriate use of antibiotics is an appropriate strategy. Bacterial pathogens are isolated in only 50% of cases of suspected conjunctivitis, and at least 60% of bacterial conjunctivitis (clinically suspected or culture proven) is self-limited without treatment. Cultures are useful in cases that do not respond to therapy, cases of hyperacute conjunctivitis, and suspected chlamydial conjunctivitis. Treatment with topical antibiotics is usually recommended for contact lens wearers, those with mucopurulent discharge and eye pain, suspected cases of chlamydial and gonococcal conjunctivitis, and patients with preexisting ocular surface disease. The advantages of antibiotic use include early resolution of the disease, early return to work or school, and the possibility of decreased complications from conjunctivitis. The majority of cases of allergic conjunctivitis are due to seasonal allergies. Antihistamines, mast cell inhibitors, and topical steroids (in selected cases) are indicated for treating allergic conjunctivitis.

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