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Review Article

A Review Article On: Conjunctivitis

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ABSTRACT

Pediatric conjunctivitis is a frequent condition with two main categories of etiologies infectious and non-infectious. The majority of pediatric instances of conjunctivitis are caused by bacteria, and symptoms include matting of the eyelids and purulent discharge are common. Supportive care is provided using an individualized treatment strategy for antibiotic use in simple cases as it may reduce the length of symptoms, but carries some hazards. The other infectious cause, viral conjunctivitis, is primarily brought on by watery discharge and a scorching, grit-filled sensation, caused by an adenovirus. Supportive care is provided. Intolerance The main symptoms of conjunctivitis are bilateral irritation and watery discharge, which are mostly seasonal. supportive care is provided. The symptoms of allergic conjunctivitis include mostly watery discharge and bilateral irritation. It is a seasonal condition. Topical lubricants, topical antihistamine medications, or systemic antihistamines can all be used as treatments. Other. Non-allergic environmental factors and foreign objects are two common causes of conjunctivitis. Lens contact Always treat wearers for bacterial conjunctivitis and send them for a corneal examination. ulcers. Special attention is needed for neonatal conjunctivitis, with particular precautions and infections. This It includes relevant data that primary care pediatric providers need to know in order to evaluate cases of conjunctivitis.

INTRODUCTION

Conjunctivitis, often referred to as “pink eye,” denotes the inflammation or infection of the conjunctiva. The conjunctiva is the delicate mucous membrane that coats the inner surfaces of the eyelids and the front of the eye up to the limbus, where the sclera and cornea intersect. It can be divided into two parts: the bulbar portion,

which covers the eyeball, and the tarsal portion, which covers the eyelids. Normally transparent, it may become injected and appear pink or red during inflammation, giving rise to the term “pink eye.” Conjunctivitis can vary in intensity, from mild redness with tearing to subconjunctival hemorrhage accompanied by discharge and swelling of the conjunctiva or eyelid. Pediatric

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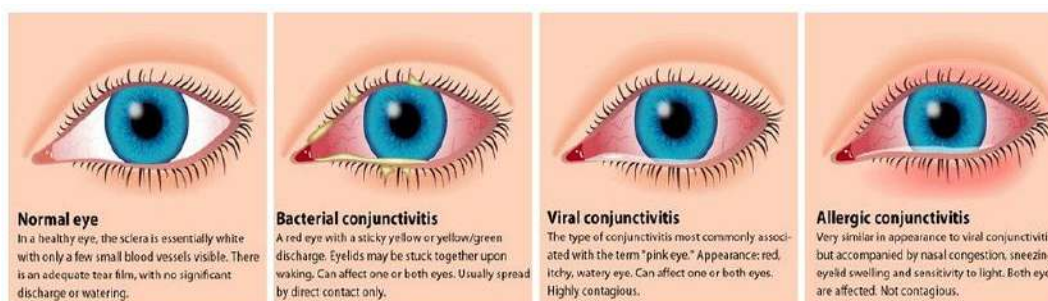


conjunctivitis is generally classified by its cause, which falls into two broad categories: infectious and non-infectious. The majority of pediatric conjunctivitis cases are due to infections, either bacterial or viral. Non-infectious types include allergic conjunctivitis and cases resulting from foreign bodies, environmental factors, or excessive contact lens use. There are indeed other more serious phenomena leading to pink eye, like cellulitis, uveitis, endophthalmitis, and acute glaucoma, which can exhibit similar symptoms; however, these conditions are not covered in this overview. Most instances of pediatric conjunctivitis are treated by primary care providers rather than specialists in eye care. [1].

Conjunctivitis is defined by inflammation and swelling of the conjunctival tissue, along with engorgement of the blood vessels, eye discharge, and discomfort. A important number of individuals around the globe are affected by conjunctivitis, making it one of the leading causes for visits to general medical and ophthalmology clinics. It is estimated that over 80% of acute conjunctivitis cases are diagnosed by non-ophthalmologists, including internists, family medicine doctors, pediatricians, and nurse practitioners. Reports suggest that close to 60% of all patients with acute conjunctivitis are prescribed

antibiotic eye drops, with the vast majority receiving their prescriptions from non-ophthalmologist physicians. For instance, 68% of patients who attended an emergency room were given antibiotic eye drops, in contrast to only 36% of those who consulted an ophthalmologist. [2].

The conjunctiva is the outermost layer of the eye, covering both the sclera and the inner surfaces of the eyelids. Conjunctivitis, often referred to as "pink eye," can arise from various sources including viral, bacterial, and fungal infections, and other factors like allergies and chemical irritation (Al-Ghamdi et al., 2020; Mohamed et al., 2018; Embaby et al., 2018; Narayana et al., 2020). A study conducted in Saudi Arabia indicated that viral infections are the most prevalent among the causes, with Adenoviruses responsible for the majority at 67.1% (Tabbara et al., 2010). Similarly, another study reported that 62% of cases in Pennsylvania, USA, were due to adenoviruses (Sambursky et al., 2007). Conjunctivitis is recognized as a common condition, accounting for 1% of all primary care visits in the United States (Shields and Sloane, 1991). This Review aims to compile information regarding conjunctivitis, focusing specifically on its causes, diagnosis, and treatment.[3].



Etiology

Particularly the epidemic types, are flies, unsanitary conditions, hot dry climates, inadequate sanitation, and unclean habits. These elements aid in the establishment of the infection, as acute conjunctivitis is nearly always triggered by bacteria or viruses. A particular study indicated

that bacteria were responsible for acute conjunctivitis in 80% of the instances, viruses in 13% of the instances, and allergies in 2% of the cases; no cause was determined in 5% of the situations [4]. Various bacterial pathogens can lead to conjunctivitis. In cases of acute, uncomplicated purulent conjunctivitis, around

50% are due to nontypable *Haemophilus influenzae*, roughly 25% are linked to *Streptococcus pneumoniae*, and under 5% are attributed to *Moraxella catarrhalis*. Other rarer organisms include *Staphylococcus* species, Gram-negative bacilli, various Gram-positive bacteria, and *Chlamydia* species. All of these microorganisms have been detected in conjunctival and eyelid cultures from children suffering from conjunctivitis but not in comparable controls without the condition [4,5]. Factors that contribute to bacterial conjunctivitis; the disease is extremely contagious. Method of infection: The conjunctiva can become infected from three sources, namely exogenous, local surrol [6]. While gonococcus is the second most frequent organism linked to ophthalmia neonatorum, it is the most harmful infectious agent for neonatal conjunctivitis. It was once the leading cause of blindness in infants during their first year, prior to the implementation of prophylactic measures at birth. Gonococcal ophthalmia neonatorum was eliminated in the United States during the 1950s. However, it has recently reemerged due to the rising rates of adult gonococcal infections and the emergence of antimicrobial resistance [9].

Epidemiology

Conjunctivitis, whether caused by bacteria or viruses, is a common problem that affects millions of Americans each year. Estimates suggest that conjunctivitis represents 1% of visits to primary care physicians in the United States. In India, millions of individuals were diagnosed with pink eye or viral conjunctivitis from June to August 2023. Viral conjunctivitis is the most common type, while bacterial conjunctivitis is the second most frequent cause. It can often be challenging for primary care doctors to differentiate between the two. Medicines are often prescribed without a clear justification, which can impose additional financial strain on patients and potentially lead to

an increase in antibiotic-resistant bacteria. Employers and educational institutions frequently require that individuals with conjunctivitis refrain from attending until the infection has resolved, further contributing to the financial challenges faced by those affected [7].

Pathophysiology

Infective Conjunctivitis –

Infectious conjunctivitis is an inflammation of the conjunctiva triggered by viruses or bacteria, including adenovirus, *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Haemophilus influenzae*. Any disruption in host defenses or the typical ocular flora can result in clinical infections and conjunctivitis.

A shift in normal flora can happen due to:

- Environmental contamination
 - Using contact lenses
 - Engaging in swimming
- Infectious conjunctivitis is typically spread through:

- Direct exposure to the ocular discharge of an infected individual through coughing, sneezing, or a runny nose

- Touching fingers, hands, or items used by an infected person (eye makeup applicators, towels, common eye treatments)

- Adjacent sites of infection (eye rubbing)

[8]. Inflammation triggered by pathogens such as viruses, bacteria, chemicals, and topical medications can lead to follicular conjunctivitis.

Follicles are small, dome-shaped nodules that lack a visible central vessel, unlike papillae. Histologically, a lymphoid follicle features a germinal center filled with immature, dividing lymphocytes, encircled by a ring of mature lymphocytes and plasma cells. This structure is located in the subepithelial area. Typically, the follicles in follicular conjunctivitis are most apparent in the inferior palpebral and forniceal conjunctiva. [11].

Causes of conjunctivitis [10].





Symptoms

1. Redness and Irritation:

Redness and irritation are the main symptoms of eye flu. This condition results from the inflammation of the conjunctiva in the eyes. The blood vessels in the eyes become enlarged, giving them a pink appearance. Individuals may feel itchiness, scratchiness, or a sensation as if something is in their eyes. These symptoms are usually more prominent in the morning or after times of rest.

2. Watery Eyes:

Overproduction of tears, resulting in watery or teary eyes, is a frequent symptom of eye flu. The primary cause of watery eyes is the inflammation of the conjunctiva, which may activate the tear glands, resulting in excessive tears. Watery eyes can cause discomfort and blurred vision, making it difficult to carry out everyday tasks. Sensitiveness to Light:

People with the eye flu may feel photophobia, a condition where the eyes get sensitive to light. Exposure to bright lights or sun can cause discomfort and pain in the eyes, leading persons to squint or shield their eyes from light sources.

3. Discharge from The Eyes:

A thick, sticky discharge from the eyes observed during waking up is a characteristic symptom of bacterial conjunctivitis. This discharge is often yellow or greenish and can make the eyelids stick together. Viral conjunctivitis may also produce a watery or clear discharge from the eyes.

4. Gritty Sensation:

Some persons with eye flu may have a gritty or sandy sensation as if debris is present. This feeling

of grit is often associated with the inflammation of the conjunctiva [12].

Type of conjunctivitis

1. Allergic conjunctivitis

Allergic conjunctivitis is the inflammation of the conjunctiva (the membrane that covers the white part of the eye) caused by an allergy. While the specific allergens can vary among individuals, the most frequent trigger is hay fever. Symptoms include redness (primarily caused by the expansion of the small blood vessels in the periphery), swelling of the conjunctiva, itching, and increased tear production. When this condition occurs alongside rhinitis, it is referred to as allergic rhinoconjunctivitis. [13]

ALLERGIC CONJUNCTIVITIS



2. Bacterial Conjunctivitis

Patients suffering from bacterial conjunctivitis frequently report symptoms such as redness, tearing, and discharge from one or both eyes. Healthcare providers should inquire about the duration of these symptoms, as the progression of the disease can be categorized into hyperacute, acute (lasting less than 3–4 weeks), and chronic (lasting more than four weeks).

Associated symptoms like pain, itching, vision impairment, and sensitivity to light also play a role in clinical decision making. A thorough medical history should encompass details about any trauma, past occurrences of similar issues, prior treatments, contact lens usage, immune system status, and sexual history. Also, any issues related to the middle ear should be assessed, as children

with bacterial conjunctivitis may also experience an accompanying middle ear infection [14].



3. Viral conjunctivitis:

Viral conjunctivitis accounts for a large number of acute conjunctivitis cases, with the majority resulting from adenoviruses. Symptoms usually include a burning or gritty sensation accompanied by watery discharge. This condition generally has a sudden onset, starting in one eye and affecting the other within 24 to 48 hours. It may also present with a viral prodrome, which can include fever, lymphadenopathy (especially preauricular), pharyngitis, and/or upper respiratory tract infections. A clinical examination typically reveals marked conjunctival injection along with watery discharge and a follicular appearance of the tarsal conjunctiva. Although adenoviruses are responsible for most instances, other viral infections should also be taken into account. Herpes simplex virus (HSV) may exhibit symptoms similar to adenoviral conjunctivitis, including watery eye discharge, and often appears alongside typical HSV vesicular lesions on the face.[15].



4. Toxic conjunctivitis

Toxic conjunctivitis generally arises from prolonged use of topical eye medications. This reaction can take anywhere from days to years to manifest. There seems to be a dose-response relationship concerning the concentration of preservatives and the overall quantity of preservative-laden medications used. This suggests direct harm to eye tissues caused by an irritant, typically a preservative or medication. [16].



Diagnosis of conjunctivitis:

Unless the infection lasts more than 4 weeks and there is no improvement in symptoms, lab testing is generally not required. Situations such as a newborn likely having a chlamydial infection, an immunocompromised individual, important discharge, or a suspected gonorrhea co-infection may necessitate laboratory testing. Adenovirus can be accurately detected in the office with tests exhibiting a specificity of 89% and sensitivity of 94%. Typically, ophthalmologists can make the diagnosis during a clinical examination and may use additional confirmatory tests if needed, though [17]. In the Ayurvedic system of medicine, there are many plants in ancient Indian books such as Charak Samhita, Sushrut Samhita, Ras Tarang, Nayan Drastam and Astanhriday, Of which are used for both simple and complex eye diseases. In Ayurveda (Indian System of medicine), various eye disorders and diseases like Abhishyand (conjunctivitis), Adhimanth (glaucoma), Timir (cataract), etc. are treated. Are described in detail.

Their etiology and treatment methods are also described. There are about Reports about which medicinal plants are used to treat eye diseases. About Information such as common name, scientific name, Family, part used and references to plants used to treat eye diseases are recorded [18].

Treatment of conjunctivitis:

Our physician might recommend an antibiotic, typically administered topically as eye drops or ointment, for bacterial conjunctivitis. Antibiotics can assist in decreasing the duration of the infection, minimizing complications, and stopping the transmission to others. They may be needed in these situations: when there is discharge [19].

Bacterial Conjunctivitis

Most instances of bacterial conjunctivitis resolve on their own, typically within 7 to 10 days without any treatment. Although antibiotics can shorten the length of symptoms, no important differences in vision-threatening results have been found between those who received treatment and those who did not. A meta-analysis that included 11 randomized clinical trials with 3,673 participants showed a 10% improvement in the rate of clinical recovery for patients who got early antibiotic treatment compared to the placebo group [20].

Preventive of conjunctivitis:

Refrain from touching your eyes unless absolutely necessary. Throughout the day, exercise caution to

avoid making contact with your face without justification.

- Employ artificial tears: The use of artificial tears can assist in preventing dry eyes and various ocular issues. –

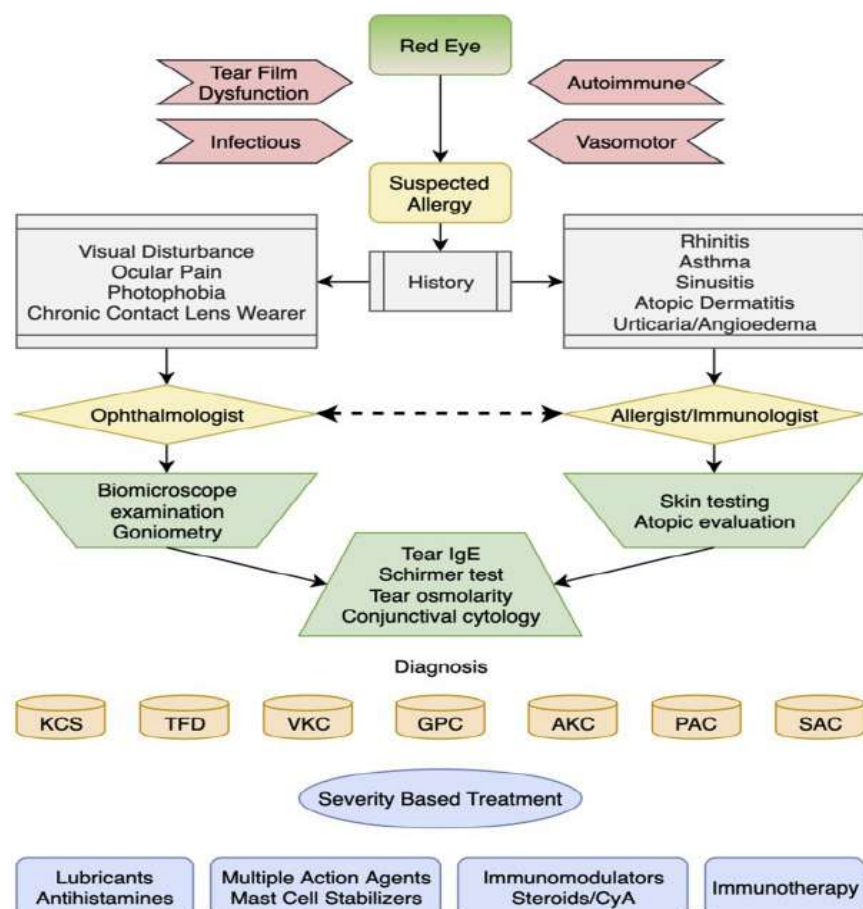
It is recommended to adhere to general hygiene practices. Upon returning home, ensure that you wash your hands thoroughly. Maintain a safe distance from family members who are experiencing symptoms of eye flu, as advised.

- Utilize dark sunglasses, avoid swimming, limit close interactions with others, and refrain from touching your eyes, as recommended. It is also advisable for children to take a few days off from school to prevent the spread of conjunctivitis to their peers.

- Steer clear of crowded places and avoid touching frequently handled items such as railings or door handles. - Maintaining high standards of cleanliness is essential to reduce the risk of conjunctivitis transmission.[22]

Management of conjunctivitis:

If your eye redness is due to a minor issue like allergies, conjunctivitis, or blepharitis, you might be able to manage your symptoms at home. Some actions you can take include: Using a cool compress. Placing a cool compress over your closed eyes several times a day can assist in alleviating symptoms such as redness and swelling.[21]



CONCLUSION

Safer healthcare for the mother and her unborn child will result from routine screening for chlamydia in pregnant women and awareness of its perinatal effects. handling of any mother infection before delivery can lessen the severity of this illness, as well as aid in lowering the prevalence of childhood blindness in both developed and underdeveloped countries nations.

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