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Review



A review of a comparative study on bacterial conjunctivitis and viral conjunctivitis

SK. Reshma, K. Sumanth Kumar, Y. Prapurna Chandra

Ratnam institute of pharmacy, Ratnam institute of pharmacy,

*Author for Correspondence: SK. Reshma

Email: gerapatikiran@gmail.com

	Abstract
Published on: 16 Nov 2023	<p>Regarding ophthalmology clinics, conjunctivitis is one of the most commonly encountered conditions worldwide. However, to manage suspected cases of conjunctivitis, it's important to look out for alarming signs that may indicate more serious intraocular conditions. These signs include severe pain, decreased vision, and painful pupillary reaction.</p>
Published by: DrSriram Publications	<p>Regarding conjunctivitis, being vigilant for any alarming signs indicating more serious intraocular conditions is crucial. These signs include severe pain, decreased vision, and painful pupillary reaction. In patients with atypical findings and chronic course, obtaining a thorough medical and ophthalmic history and performing a careful physical examination is important. Concurrent physical exam findings with relevant history may reveal the presence of a systemic condition with involvement of the conjunctiva.</p>
2023 All rights reserved.  Creative Commons Attribution 4.0 International License.	<p>As per a comparative study on bacterial conjunctivitis and viral conjunctivitis, viral conjunctivitis is the most commonly encountered overall cause of conjunctivitis. On the other hand, bacterial conjunctivitis is less frequently encountered and is the second most common cause of infectious conjunctivitis. It is important to be vigilant for any alarming signs indicating more serious intraocular conditions while managing suspected cases of conjunctivitis. These signs include severe pain, decreased vision, and painful pupillary reaction. In cases with atypical findings and chronic course, obtaining a thorough medical and ophthalmic history and performing a careful physical examination is crucial. A concurrent physical exam with relevant history may reveal the presence of a systemic condition with involvement of the conjunctiva. conjunctivitis is a common condition that affects nearly half of the population. Some of the common findings include itching, mucoid discharge, chemosis, and eyelid edema. It is important to note that while these symptoms may indicate conjunctivitis, it is crucial to be vigilant for any alarming signs that may indicate more serious intraocular conditions. These signs include severe pain, decreased vision, and painful pupillary reaction.</p>
	Keywords: Bacterial, Conjunctivitis, Viral

INTRODUCTION

Conjunctivitis, commonly referred to as pink eye, is a condition characterized by inflammation of the outermost layer of the white part of the eye and the inner surface of the eyelid. It can be caused by bacterial or viral infections, allergies, or irritants like smoke or dust.

It looks like Conjunctivitis is the culprit behind the pink or reddish appearance of the eye. The condition can cause pain, burning, scratchiness, or itchiness in the affected eye. Additionally, the eye may have increased tears or feel "stuck shut" in the morning, and the white part of the eye may swell. It's worth noting that itching is more common in cases due to allergies. Conjunctivitis has the potential to affect one or both eyes.

Conjunctivitis is a very common eye infection that can be caused by viruses or bacteria. It's interesting to note that it has been around for a very long time and was first described by S.T. Quellmaz. Both viral and bacterial cases are highly contagious and can easily spread from one person to another. It's important to take necessary precautions to prevent its spread.

Conjunctivitis is a condition that has both infectious and noninfectious causes. The most common infectious causes are viruses and bacteria. On the other hand, noninfectious conjunctivitis includes several types such as allergic, toxic, and cicatricial conjunctivitis. Inflammation caused by immune-mediated diseases and neoplastic processes can also lead to noninfectious conjunctivitis. It is possible to classify the disease into different types based on the mode of onset and the severity of the clinical response. The disease can be acute, hyperacute, or chronic. Additionally, it can be either primary or secondary to systemic diseases, such as gonorrhea, chlamydia, graft-vs-host, and Reiter syndrome. In such disease cases, systemic treatment is necessary.

Pinkeye is a common condition among children. It's highly contagious and can spread rapidly in schools and day-care centers. However, it's usually not serious and unlikely to cause any damage to your vision if you detect and treat it quickly. By taking preventive measures and following your doctor's recommendations, you can easily get rid of it with no long-term problems.

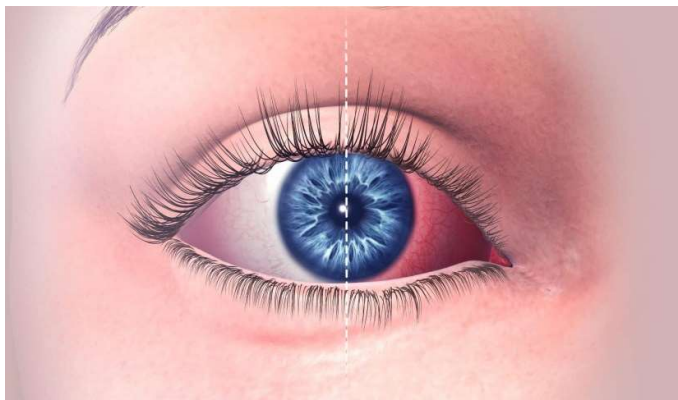


Fig 1: Conjunctivitis

TYPES OF CONJUNCTIVITIS

- ❖ Bacterial conjunctivitis
- ❖ Viral conjunctivitis

BACTERIAL CONJUNCTIVITIS

Bacterial conjunctivitis causes a rapid onset of conjunctival redness, swelling of the eyelid, and a sticky discharge. It is worth noting that symptoms usually develop in one eye first, but may spread to the other eye within 2-5 days. Additionally, common pus-producing bacteria can cause marked grittiness or irritation and a stringy, opaque, greyish, or yellowish discharge that may cause the lids to stick together, especially after sleep. Severe crusting of the infected eye and the surrounding skin may also occur. The gritty or scratchy feeling is sometimes localized enough that patients may insist that they have a foreign body in the eye.

Bacterial conjunctivitis is a common cause of conjunctivitis, especially in children. More than 50% of conjunctivitis cases are caused by bacterial infections. Antibiotic drops can help treat bacterial conjunctivitis, which can affect one or both eyes. The infection causes redness and swelling of the conjunctiva. Bacterial conjunctivitis, like viral conjunctivitis, is highly contagious and can spread through direct contact with an

infected person or sharing items such as towels, pillows, and makeup. However, unlike viral conjunctivitis, bacterial conjunctivitis causes a very thick mucus discharge rather than a thin, watery one.



Fig 2: Bacterial conjunctivitis

VIRAL CONJUNCTIVITIS

viral conjunctivitis is the most common form of pink eye, accounting for around 80% of cases. It's caused by a virus, such as the common cold, and may affect both eyes. It can be spread through contact with an infected person's discharge, coughing, or sneezing according to research, adenoviruses are responsible for 65% to 90% of cases of viral conjunctivitis. Viral conjunctivitis is often accompanied by upper respiratory tract infections, common colds, or sore throats. The symptoms include excessive watering and itching. The infection usually starts in one eye but can quickly spread to the other eye

Dr. Lavin notes that children are more susceptible to viral conjunctivitis, which is highly contagious and can easily spread in schools and daycare centers. Due to their increased exposure to colds, children are also more likely to develop pink eye.

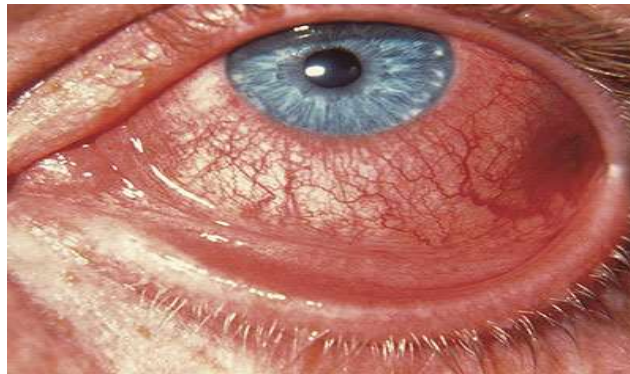


Fig 3: Viral conjunctivitis

CAUSATIVE ORGANISM FOR BACTERIAL CONJUNCTIVITIS

These are some of the common bacteria that can cause bacterial conjunctivitis

- ❖ Staphylococcus aureus
- ❖ Staphylococcus epidermidis
- ❖ Streptococcus pneumonia (pneumococcus)
- ❖ Haemophilus influenza (koch-week bacillus)
- ❖ Moraxella lacuna
- ❖ Chlamydia trachomatis

It's worth noting that the most common bacteria causing bacterial conjunctivitis in children are Haemophilus influenza, Streptococcus pneumonia, and Moraxella catarrhalis. These bacteria cause a rapid onset

of conjunctival redness, swelling of the eyelid, and a sticky discharge. It's important to be aware that symptoms usually develop in one eye first, but may spread to the other eye within 2-5 days.

It's important to note that the most common bacteria causing bacterial conjunctivitis in adults are *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Haemophilus influenzae*. However, in infants, *N. gonorrhoeae* is the most common bacteria causing bacterial conjunctivitis. It's worth noting that this bacteria usually progresses quickly and can lead to more serious eye conditions if left untreated. Therefore, it's crucial to seek medical attention promptly if you suspect bacterial conjunctivitis, especially in infants.

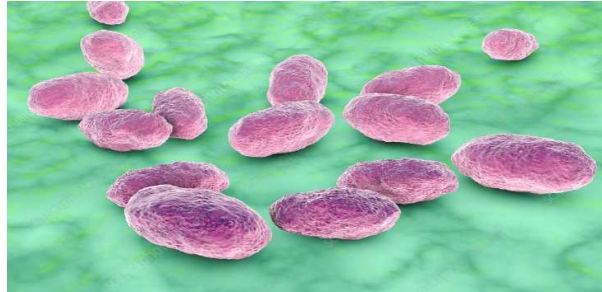


Fig 4: Haemophilus influenza

CAUSATIVE ORGANISM FOR VIRAL CONJUNCTIVITIS

- ❖ Adenovirus
- ❖ Hsv (herpes simplex virus)
- ❖ Picorna viruses
- ❖ Poxvirus conjunctivitis
- ❖ Myxovirus conjunctivitis

It is interesting to note that adenoviruses are the most common cause of viral conjunctivitis, also known as adenoviral keratoconjunctivitis. On the other hand, herpetic keratoconjunctivitis, caused by herpes simplex viruses, can be a serious condition that requires treatment with aciclovir. Another highly contagious disease is acute hemorrhagic conjunctivitis, caused by either enterovirus 70 or coxsackievirus A24. This disease was first identified during an outbreak in Ghana in 1969 and has since spread worldwide, causing several epidemics.

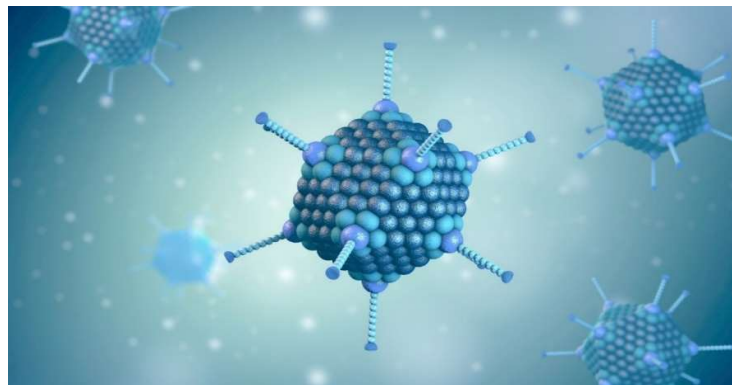


Fig 5: Adenovirus

SYMPTOMS IN BACTERIAL CONJUNCTIVITIS

- Itching of one or both eyes
- Redness in one or both eyes
- Eye tearing
- A gritty feeling in one or both eyes
- Thick, yellow-green discharge
- Eye pain
- Eye vision

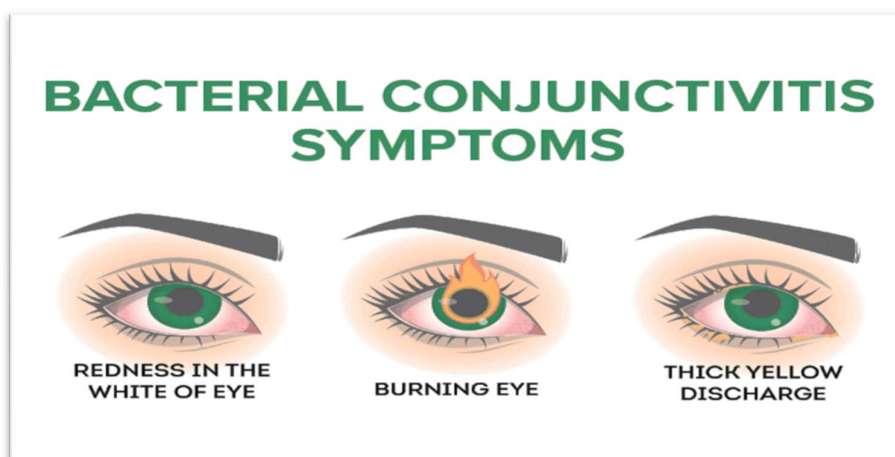


Fig 6: Symptoms of bacterial conjunctivitis

SYMPTOMS IN VIRAL CONJUNCTIVITIS

- Pinkness or typically, intense redness of the eye.
- Burning a sensation of grittiness or mild pain or discomfort in the eye
- Watery discharge from the eye, sometimes with a small amount of mucous.
- Crustiness around the eyelids upon waking in the morning
- Swollen, red eyelids
- Slight sensitivity to bright light
- Swelling of the lymph nodes in front of the ears.



Fig 7: Symptoms of viral conjunctivitis

DIAGNOSIS OF BACTERIAL CONJUNCTIVITIS

When you suspect that you have conjunctivitis, it is important to seek medical attention. Your healthcare provider will usually take the following steps to diagnose the condition:

Medical History

The healthcare provider will ask about your symptoms when they started, and any recent exposure to potential sources of infection.

Physical Examination

The healthcare provider will examine your eyes, looking for signs of conjunctivitis, such as redness, discharge, and swelling.

Swab Test

In some cases, a swab of the eye discharge may be taken and sent to a laboratory to identify the specific bacteria causing the infection. This helps determine the appropriate antibiotic treatment. It is important to note

that self-diagnosis and self-treatment of conjunctivitis can be dangerous and should be avoided. Seeking proper medical attention is crucial for effective treatment and to prevent the spread of the infection.

It is important to note that in cases of bacterial conjunctivitis, allergy testing may be considered to rule out allergies as the cause, as it can sometimes be mistaken for allergic conjunctivitis. Additionally, healthcare providers may evaluate risk factors such as recent contact with someone who has conjunctivitis or underlying health conditions. This evaluation helps in determining the appropriate course of treatment and preventing the spread of the infection.

DIAGNOSIS OF VIRAL CONJUNCTIVITIS

When diagnosing conjunctivitis, there are several key factors that healthcare providers take into consideration. They will typically start by taking a detailed medical history, including symptoms, duration, and any recent exposure to individuals with viral infections or other relevant factors. A physical examination of the eyes will also be conducted to assess signs of conjunctivitis, such as redness, discharge, and swelling. In addition, the clinical presentation of conjunctivitis can help distinguish between viral and bacterial causes. Viral conjunctivitis often presents with a watery discharge, while bacterial conjunctivitis typically produces a thicker, pus-like discharge. In some cases, a healthcare provider may use fluorescein staining to check for damage to the surface of the eye, which can help differentiate viral conjunctivitis from other eye conditions. Finally, the healthcare provider may also evaluate risk factors, such as recent exposure to someone with a viral infection, to help make a diagnosis. By considering these factors in combination, healthcare providers can make an accurate diagnosis and provide appropriate treatment for conjunctivitis.

TREATMENT FOR BACTERIAL CONJUNCTIVITIS

The first-line treatments recommended by the National Institute of Clinical Excellence (NICE) for bacterial conjunctivitis include antibiotic eye drops or ointment. These treatments are usually effective in eliminating the infection and alleviating the symptoms. Some common antibiotic drops that are recommended include polymyxin b/trimethoprim, ciprofloxacin, ofloxacin, and levofloxacin. It is important to follow the instructions provided by your healthcare provider and complete the full course of treatment, even if the symptoms improve before the medication is finished. Additionally, it is important to practice good hygiene, such as washing your hands frequently and avoiding touching your eyes, to prevent the spread of the infection to others.

The treatment options for bacterial conjunctivitis. Chloramphenicol 0.5% drops can be applied every 2 hours for 2 days, and then the frequency can be reduced depending on the severity of the infection. For less severe infections, 3-4 times daily is usually sufficient. It is important to continue using it until 48 hours after the infection has cleared. Chloramphenicol 1% ointment can also be applied 3-4 times daily for 2 days and then continued until 48 hours after the infection has cleared. Fusidic acid 1% eye drops can be applied twice daily and continued until 48 hours after the infection has cleared. It is recommended to follow the instructions of the doctor or pharmacist while using these medications.



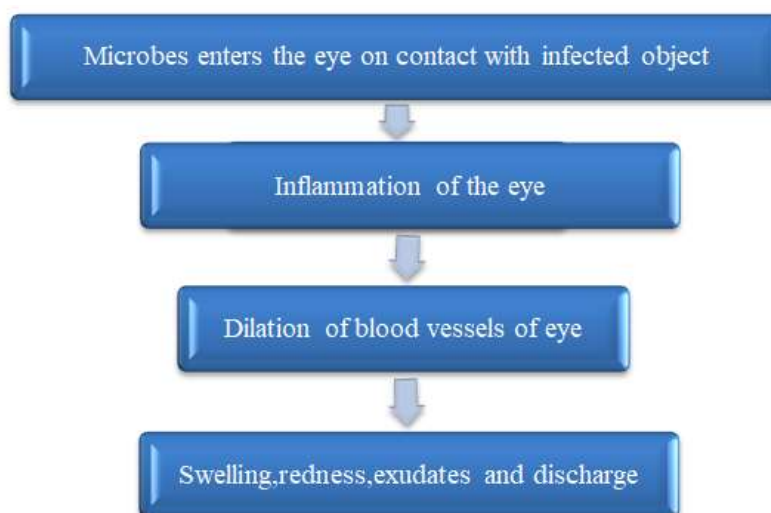
Fig 8: Eye drop

TREATMENT FOR VIRAL CONJUNCTIVITIS

It's worth noting that there is no specific medication available to treat viral conjunctivitis. However, to help soothe the eyes, your doctor may recommend a cool compress or artificial tears. In most cases, the infection will clear up on its own.

It is important to note that pink eye caused by a virus usually doesn't require any treatment unless it's caused by herpes simplex virus, varicella-zoster virus (chickenpox/shingles), or a sexually transmitted infection. These are serious infections that require antiviral medications. If left untreated, they can lead to scarring of the eye or vision loss. It's worth noting that antibiotics cannot treat pink eye caused by a virus.

MECHANISM OF ACTION FOR CONJUNCTIVITIS



CONCLUSION

It is important to understand the differences between bacterial and viral conjunctivitis to make an accurate diagnosis and ensure appropriate management. Prompt recognition and treatment, along with proper hygiene practices, are crucial in preventing the spread and minimizing the impact of these ocular infections on individuals and communities.

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