



# Unraveling the conjunctivitis crisis: understanding the spiking incidence in Karachi and Lahore-Pakistan

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## Abstract

Conjunctivitis is a contagious viral ocular disease that has increased highly in the different areas of Pakistan. Public health data confirmed 86 133 cases in September 2023, which crossed previous any other records. It is confirmed that this infection affects people of all ages, including adults and children frequently. Different clinical symptoms such as painful eyes, redness, inflammation, and augmenting tearing are observed. This infection is responsible for blindness. The transmission of ocular secretion spreads this infectious disease from an infected person to others by contact. In addition current year, less precipitation in Pakistan has impaired the air quality. Temperature, humidity, poor sanitation, polluted air, and other environmental factors are also related to the increase of the disease. This short article aims to present an overview of the rising incidence of conjunctivitis, its probable causes, signs, and symptoms, as well as potential treatments. Using saline for flushing eyes or eye drops is recommended by the Ophthalmologist. A few suggestions such as staying at home, avoiding allergens and contact lenses, washing eyes carefully, and using clean clothes need to be followed for this infection. Multiple immediate action steps are required to prevent and control including heightened public awareness.

**Keywords:** conjunctivitis, Pakistan, transmission, viral eye infections

## Introduction

Conjunctivitis also referred to as ‘pink eye’, was reported in several Pakistani cities in September 2023<sup>[1]</sup>. It is an inflammation or infection of the conjunctiva, a thin layer of mucus that covers the inside of the eyelids and the front of the eye up to the limbus—the point where the sclera (the white part of the eye) and cornea converge<sup>[2]</sup>. The conjunctiva may appear pink or red as a result of this inflammation; therefore, the name ‘pink eye’. Conjunctivitis symptoms can range in intensity, from moderate cases of redness and weeping to more serious cases with signs including subconjunctival hemorrhage, purulent discharge, and swelling of the conjunctiva or eyelids<sup>[3]</sup>.

Conjunctivitis can be categorized into different types, each with its own causes and treatment approaches. Chronic

## HIGHLIGHTS

- A total of 86 133 conjunctivitis cases were confirmed in September 2023 in the different areas of Pakistan.
- Environmental and other etiological factors are interlinked with the sudden increase in disease.
- Multiple steps should be followed urgently to control conjunctivitis contagious disease.
- More research-based studies need to be conducted based on the conjunctivitis outbreak in Pakistan.

conjunctivitis lasts more than 4 weeks and acute conjunctivitis often clears up within 3–4 weeks<sup>[4]</sup>. Acute conjunctivitis is a more common ocular symptom than others, which is commonly caused by bacterial, allergic, viral, or parasitic conditions. It is crucial to differentiate between these categories for a precise diagnosis and efficient treatment. It can be caused by bacteria, allergies, or viral infections<sup>[5]</sup>. One of the severe forms of conjunctivitis known as acute hemorrhagic conjunctivitis, which caused by Enterovirus, Coxsackievirus, and Adenovirus. The common clinical features of this type of infection are swelling of the eyelid, eye discharge, and sometimes bleeding<sup>[7,8]</sup>. Although no cure is found for this infection; however, treatments can alleviate symptoms. This editorial aims to represent an overview of conjunctivitis including its clinical morphology, causes, diagnosis, treatment, and prevention strategies.

## Epidemiology

A large number of cases are being recorded every day in Karachi, where the prevalence of viral eye infections has significantly increased. As they work to manage the growing backlog of

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conjunctivitis cases, both public and private hospitals in the city are facing a sizable amount of difficulty as a result of this spike<sup>[9]</sup>. An ophthalmologist at Karachi’s largest public-sector tertiary hospital claims that the city’s deteriorating air quality—which now has an AQI score of greater than 100 due to limited rainfall—has also contributed to the spread of diseases in addition to pollutants. Karachi is the ideal location for an outbreak due to these environmental variables, inadequate hand hygiene, and highly populated neighborhoods. Punjab recorded a total of 86 133 cases of pink eye as of September 2023. Lahore recorded an additional 85 new cases in a matter of 24 h. Interestingly, since August of last year, the total number of cases has risen, which requires urgent action regarding the management of conjunctivitis<sup>[9,10]</sup>.

**Causes of conjunctivitis**

Bacteria like *Staphylococcus aureus* or *S. pneumoniae* are responsible for bacterial conjunctivitis. Direct contact with contaminated hands or things causes this disease. Bacterial conjunctivitis frequently causes a thick discharge from the eye, which may cause the eyelids to stick together when you wake up<sup>[6]</sup>. Viral conjunctivitis, on the other hand, is extremely contagious and is primarily caused by viruses, most frequently adenoviruses. Adenoviruses cause around 80% of instances of viral conjunctivitis; they frequently begin with a fast onset, gritty sensation, and watery discharge in one eye, then spread to the other within 24–48 h. The transmission mode involves contact with ocular secretions, and individuals may be contagious before the onset of symptoms. It can spread by coming into close contact with an infected person or by touching materials that have been exposed to the virus. Watery discharge from the eyes is a common symptom of viral conjunctivitis, which may also include additional symptoms including a sore throat or runny nose. An allergic reaction to certain things, such as pollen, dust mites, pet dander, or particular chemicals, can result in allergic conjunctivitis. Itchy eyes, redness, and watery eye discharge are typical signs of this type of conjunctivitis, which is not contagious. It is a special type of conjunctivitis that affects newborn infants<sup>[7]</sup>. While the primary cause of the outbreak has been identified as a new strain of Adenovirus, other pathogens like HSV and VZV may also be responsible in some cases<sup>[6]</sup>.

The following table offers a succinct summary of the distinctive features of several conjunctivitis types, including viral, bacterial, and allergic conjunctivitis, to aid understanding<sup>[4,5]</sup> (Table 1).

**Diagnosis**

Multiplex PCR represents a breakthrough by enabling the simultaneous identification and discrimination of many viral and bacterial agents in a single test. Traditional diagnostic approaches for conjunctivitis have difficulties in detecting multiple pathogens concurrently. This molecular method amplifies particular DNA segments that are exclusive to each disease, enabling quick and precise identification. Adenovirus, HSV, VZV, and bacterial agents like *Serratia marcescens* can all be distinguished using multiplex PCR, which simplifies diagnosis and speeds up targeted treatments<sup>[8]</sup>.

**Treatment**

Infection control breaches can result in outbreaks, especially since the virus remains resilient against common disinfectants, such as 70% isopropyl alcohol and 3% hydrogen peroxide. Viable viruses persist on surfaces for 5–7 weeks, rendering instruments such as tonometers, lid speculae, dropper bottles, and slit-lamps potential vectors. Even nondisposable equipment, some not directly used on patients, can spread infection; cases of respiratory and ocular outbreaks have been documented in a neonatal intensive care unit due to contaminated equipment used for retinopathy of prematurity screenings<sup>[8]</sup>. A single drop of 5% povidone-iodine has the ability to reduce viral load and hasten the symptomatic relief process, according to an experimental investigation involving 56 individuals. Although it is not yet common practice, additional study may justify its application. Patient education on preventing viral conjunctivitis transmission, such as avoiding shared towels and frequent handwashing, is crucial. Research indicates that hand swabs from 46% of adults with conjunctivitis test positive for adenovirus, highlighting the importance of hand hygiene. It is advisable to minimize contact with others 10–14 days after symptom onset<sup>[10]</sup>.

**Prevention and control**

Experts advise taking precautions to prevent the virus from spreading further. These involve regularly washing your hands, avoiding touching your eyes, and keeping infected people separated for 5–6 days. It is important to keep in mind that after a week, conjunctivitis usually gets better on its own. However, if the cornea is affected, more serious symptoms can show up, thus seeking medical help is advised. Public health and hygiene initiatives must also be prioritized in schools, community centers,

**Table 1**  
**Summary of several conjunctivitis types, including viral, bacterial, and allergic conjunctivitis**

Conjunctivitis type	Characteristics
Viral conjunctivitis	Often unilateral at onset, second eye involvement within 1–2 days Mild to no pain, itching, watery discharge, or photophobia (uncommon) Associated with adenovirus, enterovirus, coxsackievirus, and others
Bacterial conjunctivitis	Eyelid edema preserved visual acuity Mild to moderate pain with a stinging sensation, purulent discharge Can be caused by <i>Streptococcus pneumoniae</i> , <i>Haemophilus influenzae</i> , and more
Allergic conjunctivitis	Visual acuity preserved; pupils reactive to light Intense itching, diffuse redness, stringy or watery discharge Triggered by allergens like pollen, dust mites, and animal dander

and outdoor spaces. People can better protect themselves and their loved ones by spreading awareness of the conjunctivitis symptoms, risk factors, and available treatments. By encouraging fundamental hygiene practices like handwashing and avoiding crowded places, infections can be significantly decreased<sup>[8]</sup>.

Emphasizing the significance of hand hygiene and other preventive practices remains critical even after the pandemic's conclusion to prevent outbreaks. The situation calls for swift resource mobilization, strengthening of healthcare infrastructure, and the dissemination of accurate information by the authorities. Collaboration between health agencies, community leaders, and the public is essential to ensure the safety and well-being of our citizens. Therefore, a concerted effort involving the government, healthcare professionals, and the media is necessary to raise awareness, provide guidance, and promote essential preventive measures for the protection of our communities. Timely action and comprehensive measures will be instrumental in curbing the spread of conjunctivitis and safeguarding the vulnerable sections of society.

## Conclusion

In conclusion, the surge of conjunctivitis cases in Karachi and Lahore, attributed to a novel Adenovirus strain, demands comprehensive and data-driven responses. While insights from leading ophthalmologists have informed our understanding of the outbreak, it is crucial to gather empirical data to determine the true prevalence of this condition. Such research will not only inform healthcare policies but also serve as a foundation for public awareness campaigns to address this issue effectively.

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## Author contribution

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