Viral Conjunctivitis — Symptoms and Treatment

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Viral conjunctivitis is a common cause of a painful, watery, pink eye. This self-limiting condition is usually caused by adenovirus. Herpes simplex virus, varicella-zoster virus, picornavirus, poxviruses, and the human immunodeficiency virus can also cause viral conjunctivitis. In this article, you will gain a great overview of the symptoms and treatment of viral conjunctivitis for the best medical exam preparation.

Definition of Viral Conjunctivitis

Viral conjunctivitis is a benign and self-limiting inflammation of the conjunctiva caused by viruses such as adenovirus. It usually lasts longer than bacterial conjunctivitis.

Overview of Viral Conjunctivitis

Viral conjunctivitis is highly contagious. Patients can transmit the disease up to 2 weeks after the onset of the symptoms. Therefore, patients with viral conjunctivitis should be instructed to avoid:

- Touching their eye
- Shaking hands
- Sharing utensils with others
The condition usually resolves within 2-4 weeks.

Epidemiology of Viral Conjunctivitis

Accurate statistics about the incidence and prevalence of viral conjunctivitis are not available in the United States. This is because the condition is so common and because most people do not seek medical attention. Epidemics of viral conjunctivitis have been reported before where an outbreak seemed to occur in a school, shipyard, or athletic team.

Viral conjunctivitis occurs equally in both sexes and can be seen in all age groups.

The viral etiology, however, differs depending on the patient’s age. For instance:

- Adenoviruses are the most common cause of viral conjunctivitis in patients aged 20-40 years.
- *Herpes simplex virus (HSV)* is a common cause of viral conjunctivitis in children and infants.
- *Herpes zoster ophthalmicus* may present in any age group, however, it is more common in the elderly.
- Picornaviruses tend to affect children and adults who come from a lower socioeconomic status.
- Most cases of viral conjunctivitis resolve spontaneously and are benign. Long-term ocular complications are rarely seen in patients with viral conjunctivitis.

Etiology of Viral Conjunctivitis

The most common cause of viral conjunctivitis is an adenovirus. Epidemic keratoconjunctivitis and pharyngoconjunctival fever are 2 common examples of adenoviral conjunctivitis.

Patients with viral conjunctivitis typically have a prodromal period of 3-7 days. The condition is highly contagious during the prodromal and active disease periods. The main mode of transmission is through accidental inoculation of viral particles from the patient’s hands, fomites, or contaminated swimming pools.

HSV type I, and less frequently type II, are implicated in viral conjunctivitis in young children and infants. Recurrent HSV conjunctivitis might be seen in adults. Picornaviruses cause acute hemorrhagic conjunctivitis. The condition is similar to adenoviral conjunctivitis except its being more severe and hemorrhagic. Picornavirus conjunctivitis typically occurs in epidemics. Chronic follicular conjunctivitis has been reported to occur in patients infected with molluscum contagiosum.

HIV usually affects the posterior segment of the eye, however, anterior segment involvement has been reported. Patients with conjunctivitis due to HIV typically have a more severe and prolonged disease if they have also developed AIDS.

Other causes of viral conjunctivitis include:

- Varicella-zoster virus
- Poxvirus
Clinical Presentation of Viral Conjunctivitis

Patients usually complain of:

- Red painful
- Watery eye of sudden onset
- Runny nose
- Pharyngitis is a possibility

History of exposure to an individual with red-eye at home is usually present. The eye infection can be unilateral or bilateral. Patients also complain of ocular itching, foreign body sensation, tearing, redness, discharge, and photophobia. If photophobia is present, the likelihood of corneal involvement increases. In that case, the diagnosis of keratoconjunctivitis is suspected.

<table>
<thead>
<tr>
<th>Illness</th>
<th>Symptoms</th>
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<tbody>
<tr>
<td>Adenoviral pharyngoconjunctival fever</td>
<td>• Conjunctivitis, pharyngitis, and fever</td>
</tr>
<tr>
<td></td>
<td>• Other causes and types of conjunctivitis typically do not present with systemic manifestations</td>
</tr>
<tr>
<td>Ocular HSV infection</td>
<td>• Occurs in young children and infants</td>
</tr>
<tr>
<td></td>
<td>• Similar to adenoviral conjunctivitis with 1 more feature: multiple vesicular lesions on the eyelid skin</td>
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<tr>
<td>Varicella-zoster virus conjunctivitis</td>
<td>• Generalized vesicular eruption</td>
</tr>
<tr>
<td></td>
<td>• Fever</td>
</tr>
<tr>
<td></td>
<td>• Fatigue in addition to conjunctivitis</td>
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<tr>
<td>Acute hemorrhagic conjunctivitis</td>
<td>• Rapid onset of watery discharge</td>
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<tr>
<td></td>
<td>• Photophobia</td>
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<td></td>
<td>• Severe redness of the involved eye and burning sensation</td>
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<tr>
<td></td>
<td>• Patients usually come from a lower socioeconomic status</td>
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</tbody>
</table>

The physical examination might reveal preauricular adenopathy, epiphora, hyperemia, chemosis, and subconjunctival hemorrhage. The cornea might demonstrate punctate epitheliopathy. Subepithelial corneal infiltrates are seen 1–2 weeks after the onset of symptoms.

If complications occur, they might include:

- Punctate keratitis
- Bacterial superinfection
- Conjunctival scarring
- Symblepharon
- Dry eye
- Corneal scars
- Corneal ulcers
- Chronic infection

These complications are more commonly seen in patients with HSV conjunctivitis. Severe eye dryness, corneal ulceration, persistent keratoconjunctivitis, and chronic infection have been also reported in a few cases of HSV conjunctivitis.

Diagnostic Workup for Viral Conjunctivitis

The diagnosis of viral conjunctivitis is usually clinical. Patients with viral conjunctivitis have:

- Inferior palpebral conjunctival follicles
- Tender palpable preauricular lymph node
- Watery eye discharge
- Red and edematous eyelids
- Subconjunctival hemorrhages
- Punctate keratopathy
Patients with HSV conjunctivitis might develop corneal dendrites. If the patient develops extensive multiple dendrites, immunocompromise should be suspected. The most common causes of immunocompromise include exposure to long-term topical steroid therapy, systemic immunosuppressive medications, or HIV infection.

**Culture, smear, and stain might be useful in select cases.** If the inflammation is severe, chronic, or recurrent, the treating physician should consider ordering a smear and culture test. This is especially true if the patient fails to respond to classical treatments.

Giemsa staining of conjunctival scrapings is helpful in differentiating viral from bacterial conjunctivitis. In bacterial conjunctivitis, a predominance of polymorphonuclear cells is seen on a Giemsa stain test. However, viral conjunctivitis is associated with mononuclear cells and lymphocyte-mediated inflammatory response.

The following are used for the detection of viral antigens and isolation of the etiological virus in conjunctivitis:

- Direct immunofluorescence monoclonal antibody staining
- Enzyme-linked immunosorbent assay
- Electron microscopy
- Polymerase chain reaction assay
- Immunoperoxidase

Viral isolation is rarely indicated in a clinical scenario and is usually performed in the context of a research project.

**Treatment of Viral Conjunctivitis**

Treatment for adenoviral conjunctivitis is supportive. Antiviral agents are usually not indicated in the case of viral conjunctivitis except in the case of HSV conjunctivitis. Topical ganciclovir is the only antiviral known to be effective in HSV conjunctivitis and keratitis.

**Betadine combined with low-dose dexamethasone** might be a promising option for viral conjunctivitis treatment. A phase III clinical trial is currently testing this combination for conjunctivitis due to adenovirus, HSV, varicella-zoster virus, and picornavirus.

Patients with severe itching might benefit from a **topical antihistamine**. However, the efficacy of topical antihistamines is limited.

The following are used for prophylaxis against superimposed bacterial conjunctivitis in patients with severe viral conjunctivitis:

- Ofloxacin (ophthalmic)
- Trimethoprim-polymyxin B (ophthalmic)
- Ciprofloxacin (ophthalmic)
- Sulfacetamide (ophthalmic)

**References**


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