

Acute Conjunctivitis

Conjunctivitis is defined as inflammation of the conjunctiva; it is usually caused by infection or allergy. Conjunctivitis is the most common acute eye disease seen by pediatricians. It is often referred to as "pink eye."

I. Etiology

- A. Neonatal conjunctivitis occurs in 1.6-12% of newborns. The most common cause is chemical irritation from antimicrobial prophylaxis against bacterial infection, followed by Chlamydia trachomatis infection. Haemophilus influenzae and Streptococcus pneumoniae may also cause infection in newborns.
- B. Rarely, gram-negative organisms such as Escherichia coli, Klebsiella, or Pseudomonas sp can cause neonatal conjunctivitis, especially in infants in intensive care units.
- C. Neisseria gonorrhoeae is an unusual cause of neonatal conjunctivitis because of the use of ocular prophylaxis.
- D. Herpes simplex can cause neonatal keratoconjunctivitis; however, it is almost always associated with infection of the skin and mucous membranes, or with disseminated disease. The presence of vesicles anywhere on the body in association with neonatal conjunctivitis is indicative of herpes.
- E. In older infants and children, H influenzae is by far the most common identifiable cause of conjunctivitis, causing 40-50% of episodes. S pneumoniae accounts for 10% of cases, and Moraxella catarrhalis is the third most common cause. Chlamydia trachomatis can rarely cause conjunctivitis in sexually active adolescents.
- F. Adenovirus is the most important viral cause of acute conjunctivitis. This organism often causes epidemics of acute conjunctivitis. It causes 20% of childhood conjunctivitis (most occurring in the fall and winter months).

II. Clinical Presentation

- A. **In the first day of life**, conjunctivitis is usually caused by chemical conjunctivitis secondary to ocular prophylaxis.
- B. **Three to 5 days after birth**, gonococcal conjunctivitis is the most common cause of conjunctivitis.
- C. **After the first week of life and throughout the first month**, chlamydia is the most frequent cause of conjunctivitis. Chlamydial conjunctivitis can cause mild to severe hyperemia, and severe cases are associated with a thick mucopurulent discharge and pseudomembrane formation.

- D. Gonococcal conjunctivitis can present as typical bacterial conjunctivitis, or as a hyperacute conjunctivitis with profuse purulent discharge. There often is severe edema of both lids. Untreated, it can result in the loss of the eye. In contrast, bacterial conjunctivitis secondary to H influenzae, S pneumoniae, and M catarrhalis usually is self-limited.
- E. When chlamydial or gonorrheal conjunctivitis is diagnosed in the neonate, the mother and her sexual partner should also be evaluated for genital infection.
- F. In the older infant and child, both viral and bacterial conjunctivitis present with an acutely inflamed eye. Typically, there is conjunctival erythema, with occasional lid edema. Exudate often accumulates during the night. Once this has been cleaned away, there may be little evidence of any exudate when the child is examined later.
- G. The clinician should determine clinically if the conjunctivitis is bacterial or viral in origin. Bacterial conjunctivitis tends to be more common in the preschooler and is more likely to be bilateral and associated with an exudate than is viral conjunctivitis.
- H. Many patients who have both adenoviral conjunctivitis and pharyngitis also are febrile. The triad of pharyngitis, conjunctivitis, and fever has been termed pharyngoconjunctival fever.

III. Diagnosis

A. Neonates

1. In cases of neonatal conjunctivitis, a Gram stain and culture always should be obtained to exclude N gonorrhoeae conjunctivitis.
2. C trachomatis antigen detection assays have a sensitivity and specificity of 90% or better.
3. Culture isolation of C trachomatis requires specialized tissue techniques.

- B. **Infants and Older Children.** Outside the neonatal period, a Gram stain is usually not needed; however, any conjunctivitis that lasts longer than 7 days should be evaluated with culture and Gram stain. The presence of vesicles or superficial corneal ulcerations suggests herpetic keratoconjunctivitis.

IV. Differential Diagnosis

A. Systemic Diseases

1. Most red eyes in children are caused by acute conjunctivitis, allergy, or trauma; however, Kawasaki disease, Lyme disease, leptospirosis, juvenile rheumatoid arthritis, or Stevens-Johnson syndrome may cause conjunctivitis.
2. Glaucoma is a significant cause of a red eye in adults; however, it is rare in children.

B. Allergic Conjunctivitis

1. Allergic eye disease is characterized by pronounced ocular itching, redness, tearing, and photophobia. This recurrent disease has seasonal exacerbations in the spring, summer, and fall. Children who have allergic conjunctivitis often have other atopic

diseases (rhinitis, eczema, asthma) and a positive family history.

2. Allergic conjunctivitis is characterized by relatively mild swelling and injection of the conjunctiva. The major finding is bilateral papillary hypertrophy of the upper lid conjunctiva.

3. Treatment

- a. **Topical Decongestants:** Naphazoline 0.1% (Naphcon), phenylephrine (Neo-Synephrine), and oxymetazoline (OcuClear, Visine LR) may be used qid, alone or in combination with ophthalmic antihistamines such as antazoline (Vasocon-A) or pheniramine maleate (Naph-Con-A).
- b. Topical lodoxamide (Alomide) 0.1% ophthalmic solution, 1-2 drops qid, is helpful in more severe cases.
- c. Topical corticosteroids are helpful, but their long-term use is not recommended; dexamethasone (Decadron) 1-2 drops tid-qid; TobraDex (tobramycin + dexamethasone 1-2 drops tid-qid).

4. Contact Lens Conjunctivitis

- a. Contact lens wearers frequently complain of chronically red eyes, commonly caused by allergic reactions to the preservative thimerosal in cleaning and wetting solutions.
- b. Conjunctival injection, a mucoid discharge, and giant papillae on the upper lid conjunctiva are characteristic.
- c. Patients should be advised to clean their lenses thoroughly and to use preservative-free solutions. Treatment may include prescribing new lenses, and applying topical lodoxamide with the lens in place.
- d. The lenses may need to be removed until healing occurs.

V. Treatment of Acute Infectious Conjunctivitis

- A. Gonococcal ophthalmia neonatorum is treated best with ceftriaxone (50 mg/kg/day IV/IM q24h) or cefotaxime (100 mg/kg/day IV/IM q12h), for 7 days.
- B. Neonatal conjunctivitis caused by *C trachomatis* is treated with erythromycin, 50 mg/kg/day PO divided in 4 doses for 14 days.
- C. Among older infants and children, antibiotic treatment for acute conjunctivitis hastens healing considerably. Topical preparations are recommended.
 1. Polymyxin-bacitracin (Polysporin) ointment, applied to affected eye 3 times daily.
 2. Sulfacetamide 10% (Bleph-10, Sulamyd), apply ointment or 2 drops to affected eye tid.