CME

Conjunctivitis: Diagnosis and Management

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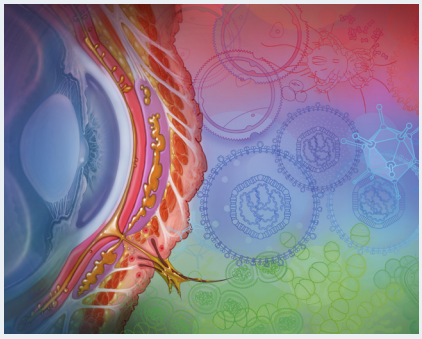

Illustration by Alex Webber

Conjunctivitis caused by viruses, bacteria, or allergies is one of the most common eye conditions in primary care. There is no single sign or symptom that accurately differentiates viral from bacterial conjunctivitis. A comprehensive history and physical examination can guide diagnosis. Viral and allergic conjunctivitis are more common in adults and typically present with watery discharge. Supportive care options for viral conjunctivitis include artificial tears, cold compresses, and antihistamine eye drops. Strict personal hygiene, including frequent handwashing, is essential to decrease the risk of transmission. Topical antihistamines with mast cell–stabilizing activity are the treatment of choice for allergic conjunctivitis. Bacterial conjunctivitis is more common in children and typically presents as mucopurulent discharge with the eyelids matted shut. Delayed antibiotic prescribing has been found to have similar symptom control as immediate prescribing. Ophthalmology referral is indicated for conjunctivitis in a neonate or patients with severe pain, decreased vision, recent ocular surgery, vesicular rash on the eyelids or nose, history of rheumatologic disease, or immunocompromised state.

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Conjunctivitis is inflammation of the conjunctiva, which is a clear, vascularized membrane that covers the outer surface of the eye (except the cornea) and the inner surface of the eyelids[1,2] (Figure 1). Data from nearly 12 million eye- related emergency room visits found that 44% were for nonemergent causes with conjunctivitis being the most common reason.[3] There are significant direct costs (i.e., copays and prescriptions) and indirect costs (i.e., work or school absenteeism) associated with conjunctivitis, accounting for an estimated $1 billion annually in the United States alone.[4-6] The most common etiologies of conjunctivitis are allergic, viral, and bacterial.[2,7] Conjunctivitis is usually self-limited, but complications leading to decreased vision can occur. This article discusses the three most common causes of conjunctivitis, clinical features that can be used to differentiate them, and recommendations for treatment. Table 1 summarizes conjunctivitis treatment options.[2,8-14]

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DIFFERENTIAL DIAGNOSIS

The differential diagnosis of conjunctivitis includes other etiologies of red eye such as uveitis, keratitis, and acute angle-closure glaucoma (Table 2).[1,2,8,9] These have been reviewed in a previous *American Family Physician* article.[15]

HISTORY AND PHYSICAL

Pruritus, bilateral presentation, recurrence or persistence of symptoms, and history of atopy are common features of

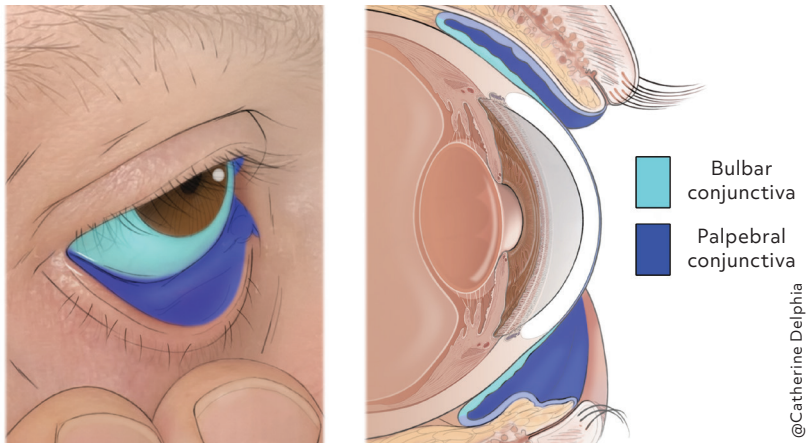
WHAT'S NEW ON THIS TOPIC

Conjunctivitis

A 2023 Cochrane review found that topical antibiotics likely improved the clinical cure rate of bacterial conjunctivitis by 26% compared with placebo. However, the results were limited by heterogeneity among trials, high potential for bias, and conclusion of only culture-proven cases.

In a 2015 systematic review, a serious noninfectious disease was found in an average of 27% of patients presenting with red eye. Two findings that accurately indicated serious disease were pain with pupillary constriction (true photophobia) and anisocoria (unequal pupil sizes of 1 mm or more, with the smaller pupil in the affected eye).

FIGURE 1



Anatomy of the eye and eyelids.

Illustration by Catherine Delphia

allergic conjunctivitis.[1,8,10] Viral and bacterial conjunctivitis often present acutely with unilateral or sequentially bilateral symptoms.[1,7,16] Table 3 summarizes the distinguishing features of viral, bacterial, and allergic conjunctivitis.[1,2,7,8,10,17-21]

History of contact lens use should raise concern for keratitis, with *Pseudomonas aeruginosa* being the most common pathogen.[22] Severe pain, decreased vision, recent ocular surgery, vesicular rash on the eyelids or nose, history of rheumatologic disease, or immunocompromised state may indicate a serious cause of red eye, and the patient should be referred to ophthalmology (Table 4).[1,2,7,10,17,18]

The physical examination should include visual acuity and external inspection of the eye and periorbital

TABLE 1

Conjunctivitis Treatment Options for Adults

Medication	Usual dosage*	Cost of generic (brand)†
Viral conjunctivitis		
Artificial tears (preservative free)		
Blink, Refresh Optive, Soothe, Systane, Thera Tears	Solution: 1 drop 4 to 6 times per day	OTC
Allergic conjunctivitis		
Topical antihistamines with mast cell–stabilizing activity (dual-activity agents)		
Alcaftadine 0.25% (Lastacaft)	Solution: 1 drop once daily	OTC
Azelastine 0.05%	Solution: 1 drop twice daily	$20 (—) for 6 mL
Bepotastine 1.5% (Bepreve)	Solution: 1 drop twice daily	$50 ($300) for 5 mL
Epinastine 0.05%	Solution: 1 drop twice daily	$30 (—) for 5 mL
Ketotifen 0.025% (Zaditor)	Solution: 1 drop twice daily	OTC
Olopatadine 0.1%	Solution: 1 drop twice daily	OTC
Olopatadine 0.2% (Pataday)	Solution: 1 drop once daily	OTC
Olopatadine 0.7%	Solution: 1 drop once daily	OTC

continues ➤

OTC = over the counter (prices vary).

*—Dosing instructions obtained from Lexicomp. Accessed May 27, 2024. Ointment and solution are standardly applied to lower conjunctival sac. Dosing intervals are for when the patient is awake. Dose can be tapered by increasing dosage interval as condition responds and discontinued after sustained symptom improvement.

†—Estimated lowest GoodRx price. Generic price listed first; brand name price in parentheses. Actual cost will vary with insurance and by region. Information obtained at https://www.goodrx.com (accessed May 27, 2024; zip code: 66211).

region. Although the characterization of eye discharge is not diagnostic, it is important because watery discharge suggests a viral or allergic etiology, whereas purulent discharge suggests a bacterial cause[1,7,8,17-19] (Figures 2 through 4). The eyelid should be everted to rule out the presence of a foreign body in the palpebral conjunctiva. In addition, swelling, erythema, or vesicles on the surrounding skin and eyelids may suggest diagnoses such as varicella-zoster virus infection, herpes simplex virus infection, or cellulitis. Fluorescein dye testing can be used to evaluate for corneal abrasion, ulceration, or foreign bodies, especially if the primary symptom is ocular pain. The external examination should also include palpating the preauricular lymph nodes (anterior to the tragus), swelling of which may suggest a viral etiology.[1,2,17]

TABLE 1 (continued)

Conjunctivitis Treatment Options for Adults

Medication	Usual dosage*	Cost of generic (brand)†
Bacterial		
Fluoroquinolone		
Ciprofloxacin 0.3% (Ciloxan)	Ointment: 0.5-inch ribbon every 8 hours for the first 2 days, then every 12 hours for the next 5 days Solution: 1 drop every 2 hours for 2 days, then every 4 hours for 5 days	Ointment: — ($280) for 3.5 g Solution: $10 ($140) for 5 mL
Levofloxacin 0.5% (Quixin)	Solution: 1 drop every 2 hours for 2 days, then every 4 hours for 5 days	$60 (—) for 5 mL
Moxifloxacin 0.5% (Vigamox)	Solution: 1 drop every 8 hours for 7 days	$25 ($210) for 3 mL
Ofloxacin 0.3% (Ocuflox)	Solution: 1 drop every 2 hours for 2 days, then every 6 hours for 5 days	$10 ($140) for 5 mL
Nonfluoroquinolone		
Azithromycin 1% (Azasite)	Solution: 1 drop every 12 hours for 2 days, then 1 drop daily for 5 days	— ($200) for 2.5 mL
Bacitracin/polymyxin B (Polycin)	Ointment: 0.5-inch ribbon every 4 hours for 7 days	$10 ($10) for 3.5 g
Erythromycin 0.5%	Ointment: 0.5-inch ribbon applied every 6 hours for 7 days	$10 (—) for 3.5 g
Gentamicin 0.3% (Gentak)	Ointment: 0.5-inch ribbon applied every 6 hours for 7 days Solution: 1 drop every 4 hours for 7 days	Ointment: $20 ($20) for 3.5 g Solution: $10 ($10) for 5 mL
Sulfacetamide 10%	Ointment: 0.5-inch ribbon every 4 hours for 7 days Solution: 1 drop every 2 hours for 7 days	Ointment: $55 (—) for 3.5 g Solution: $25 (—) for 15 mL
Tobramycin 0.3% (Tobrex)	Ointment: 0.5-inch ribbon every 8 hours for 7 days Solution: 1 drop every 4 hours for 7 days	Ointment: — ($260) for 3.5 g Solution: $10 ($120) for 5 mL
Trimethoprim/polymyxin B	Solution: 1 drop every 6 hours for 7 days	$10 (—) for 10 mL

OTC = over the counter (prices vary).

*—Dosing instructions obtained from Lexicomp. Accessed October 18, 2023. Ointment and solution are standardly applied to lower conjunctival sac. Dosing intervals are for when the patient is awake. Dose can be tapered by increasing dosage interval as condition responds and discontinued after sustained symptom improvement.

†—Estimated lowest GoodRx price. Generic price listed first; brand name price in parentheses. Actual cost will vary with insurance and by region. Information obtained at https://www.goodrx.com (accessed May 27, 2024; zip code: 66211).

Information from references 2, and 8-14.

No single sign or symptom reliably differentiates bacterial from viral conjunctivitis, although a comprehensive eye history and specific physical examination can be helpful.[1,2,7,16,17,23] Age is an important diagnostic clue, given that 71% of conjunctivitis cases in children are bacterial, and 78% of cases in adults are viral.[7,23,24]

According to a 2015 systematic review, a serious noninfectious disease was found in an average of 27% of patients presenting with red eye.[18] Two findings that accurately indicated serious disease were pain with pupillary constriction (true photophobia; likelihood ratio = 8.3 to 28.8) and anisocoria (unequal pupil size of 1 mm or more, with the smaller pupil in the affected eye; likelihood ratio = 6.5).[18] Although helpful in ruling in serious diagnoses, the absence of these findings does not rule them out. Figure 5 presents an algorithm for the evaluation of patients with suspected acute conjunctivitis.[1,2,7,8,10,11,16-19,24]

VIRAL CONJUNCTIVITIS

Viral conjunctivitis is the most common cause of infectious conjunctivitis, comprising 55% to 80% of cases in adults.[2,17,23,25] Adenovirus is the most common virus identified.[25,26] Herpes simplex virus, varicella-zoster virus, and Epstein-Barr virus are less common but potentially serious etiologies. Although viral conjunctivitis is usually benign and self-limiting, it can present systemically as pharyngoconjunctival fever or more widespread as epidemic keratoconjunctivitis. Serotypes of adenovirus vary across regions and change from year to year, with a historically greater incidence in the summer and fall.[26-28] Symptoms of viral conjunctivitis typically have an abrupt onset and sequential bilateral eye involvement.

Adenovirus is resilient and highly contagious.[25] It can survive up to 28 days and has a 30% transmission rate.[29,30] The virus is spread via direct contact with contaminated fingers, personal items (e.g., makeup, contact lens solution), medical instruments, and swimming pools.[1,2,25]

A prospective study of a point-of-care rapid antibody test reported a 50% positive predictive value and 99% negative predictive value for adenovirus.[31] Point-of-care testing can be helpful in ruling out adenovirus infection and tailoring isolation precautions accordingly.[31,32] Polymerase chain reaction

TABLE 2

Differential Diagnosis and Clinical Features of Red Eye

Diagnosis	Typical laterality	Clinical features
Infectious		
Hyperacute		
Gonococcal conjunctivitis	Unilateral or bilateral	Develops rapidly with marked conjunctival injection and severe purulence; often accompanied by eyelid swelling and pain; in neonates, it develops 1 to 7 days after birth (or later if topical antibiotic prophylaxis was used)
Acute		
Adenoviral conjunctivitis	Unilateral or bilateral (often sequential)	Abrupt onset; watery discharge associated with preauricular lymphadenopathy; recent exposure to conjunctivitis or recent upper respiratory tract infection
Bacterial (nongonococcal) conjunctivitis	Unilateral or bilateral	Mucopurulent discharge; may be associated with matting of eyelids; more common in children
Blepharitis	Unilateral or bilateral	Inflammation of eyelid skin and base of eyelashes
Endophthalmitis	Unilateral	Intraocular inflammation due to infection; usually associated with recent ocular surgery or injury; typically accompanied by eye pain and decreased vision
HSV conjunctivitis	Unilateral	Watery discharge associated with history of HSV or recent exposure to active HSV lesion; variable preauricular lymphadenopathy
Herpes zoster ophthalmicus	Unilateral	Characterized by vesicular dermatomal rash involving eyelid and local skin innervated by first branch of trigeminal nerve

continues ➤

HSV = herpes simplex virus.

testing offers the most consistent diagnostic accuracy and can be considered in severe or refractory cases.[32]

The treatment of viral conjunctivitis is supportive care, including artificial tears, topical antihistamines, and cold compresses.[1,2,7] Contact lens use should be discontinued until symptoms have resolved completely. In addition, contact lenses, cases, and solutions should be replaced. Topical antibiotics are not recommended for treatment of viral conjunctivitis

TABLE 2 (continued)

Differential Diagnosis and Clinical Features of Red Eye

Diagnosis	Typical laterality	Clinical features
Noninfectious		
Acute		
Acute angle-closure glaucoma	Unilateral	Severe eye pain and headache associated with nausea, blurred vision, and photophobia; patients classically report seeing halos around lights; eye is firm on palpation, pupils typically unreactive to light
Contact lens overwear	Unilateral or bilateral	Acute to subacute onset and gradual increase in symptoms with persistent contact lens wear; mild to diffuse conjunctival injection
Corneal abrasion	Unilateral	Acute onset of pain, tearing, blurred vision, photophobia, and foreign-body sensation associated with local trauma
Foreign body	Unilateral	Associated with foreign-body sensation or pain, often with history of inciting incident; eversion of eyelids might yield foreign body
Keratitis	Unilateral	Typically, acute or subacute pain, decreased vision; examination shows fluorescein staining and corneal opacity
Mechanical or chemical irritation	Unilateral or bilateral	Acute or subacute onset of local hyperemia associated with specific exposure or event
Scleritis/episcleritis	Unilateral	Mild to severe discomfort; consider in patients with coexistent autoimmune conditions
Subconjunctival hemorrhage	Unilateral	Painless blood under conjunctival membrane; can vary from focal to diffuse involvement; typically asymptomatic, although tearing from foreign-body sensation is possible
Uveitis (including iritis)	Unilateral	Constant pain, blurred vision, and especially photophobia; consider in patients with coexistent autoimmune conditions
Chronic		
Allergic conjunctivitis	Bilateral	Recurrent pattern; conjunctival injection, mild chemosis, watery discharge, eyelid edema, and possible periorbital hyperpigmentation (allergic shiner); might involve coexistent allergic rhinitis and dry eye syndrome
Carotid-cavernous fistula	Unilateral	Corkscrew conjunctival vessels; can be accompanied by headache, pulsatile proptosis or tinnitus, chemosis, diplopia, or ocular bruit
Dry eye (keratoconjunctivitis sicca)	Bilateral	Intermittent burning, tearing, foreign body sensation; symptoms worse with prolonged reading or screen time (due to decreased blinking) and in dry, cold, windy environments
Medication- or preservative-induced	Unilateral or bilateral	Erythema and discomfort can include conjunctiva and eyelids; associated with history of local topical medication use, including eye drops

HSV = herpes simplex virus.

Information from references 1, 2, 8, and 9.

TABLE 3

Distinguishing Features of Most Common Types of Conjunctivitis

Feature	Viral	Allergic	Bacterial
Associated history	Recent contact with another person with red eye	Allergic rhinitis, atopy	Eyelids stuck together on awakening
Discharge	Serous	Serous	Mucopurulent
Laterality	Sequential	Bilateral	Unilateral or bilateral
Predominant age group	Adults	Adults	Children
Predominant symptom	Erythema	Pruritus	Discharge
Specific examination findings	Coexisting pharyngitis; preauricular lymphadenopathy; eye no longer appears red at 20-ft distance	Periorbital hyperpigmentation (allergic shiner)	Coexisting otitis media; complete redness of conjunctival membrane obscuring tarsal vessels
Common time of year for occurrence	Summer, fall	Spring, summer, fall	Winter, spring

Information from references 1, 2, 7, 8, 10, and 17-21.

because they do not protect against secondary infections and can cause further irritation to the conjunctiva, lead to antibiotic resistance, and contaminate the contralateral eye during the application process.[1,2,25,33] Although topical steroid monotherapy may provide short-term relief, it is not recommended because of prolonged viral shedding and other risks associated with topical steroid use, such as increased intraocular pressure.[1,25,34]

TABLE 4

Indications for Referring a Patient With Red Eye to Ophthalmology

Concerning examination findings (e.g., anisocoria, corneal abnormalities)
Conjunctivitis in a neonate
Decreased vision or visual acuity
Diagnostic uncertainty
Failure to respond to therapy
History of rheumatologic disease
Immunocompromised state
Recent ocular surgery
Severe symptoms (e.g., pain, photophobia)
Vesicular rash on the eyelids or nose

Information from references 1, 2, 7, 10, 17, and 18.

Because live adenovirus can continue to shed from its host for up to 14 days, patients should ideally minimize physical contact with others for 10 to 14 days from the onset of symptoms in the last affected eye.[1,35] Another approach is to isolate for up to 1 week, as long as the eye remains red and tearing.[16] Patient education includes avoiding touching the face; practicing strict handwashing; and not sharing personal items, especially towels, pillowcases, and eye makeup.[1,2,7,16]

Return to school or work precautions vary by state and local policies.[36] In general, isolation is recommended if there are coexisting systemic symptoms such as fever or upper respiratory tract infection or if close contact cannot be avoided.[37] Patients should be given clear return precautions, with consideration of follow-up in 2 to 3 weeks to monitor for resolution of symptoms and signs of complications.

Conjunctivitis due to varicella is a manifestation of herpes zoster ophthalmicus and is characterized by a unilateral, vesicular rash with the dermatomal distribution of the first branch of the trigeminal nerve involving the eyelid or conjunctiva.[1,2] Because of the high risk of corneal and uveal involvement, especially if vesicles are present at the tip of the nose (Hutchinson sign), all patients should undergo urgent evaluation by an ophthalmologist. Systemic antiviral treatment should be started immediately.[1]

Herpes simplex virus infection is an uncommon cause of conjunctivitis that is often self-limited but can lead to complications, including blindness. Vesicles on the eyelid may be present with herpes simplex virus infection. Corneal involvement is classically diagnosed by dendritic lesions on fluorescein stain. Topical and systemic antivirals are indicated, and ophthalmology evaluation is recommended.[1]

ALLERGIC CONJUNCTIVITIS

Allergic conjunctivitis is an immunoglobulin E (IgE)–mediated and mast cell–mediated reaction that is associated with ocular itching, tearing, and hyperemia after exposure to allergens.[38] It is estimated that up to 40% of people living in the United States have had allergic conjunctivitis.[20] The most common forms are seasonal (peaking in the spring, summer, and fall and often associated with outdoor allergens such as pollen or grass) and perennial (symptoms lasting year-round and typically associated with indoor allergens such as animal hair or mites), although patients often experience both.[8-10] Allergic conjunctivitis commonly occurs with allergic rhinitis and dry eye syndrome.[1,8,10,38] Rare but more severe variations of allergic conjunctivitis include vernal and atopic keratoconjunctivitis.[8,10,38]

Historical features suggestive of allergic conjunctivitis include bilateral involvement, pruritus, conjunctival hyperemia, watery discharge, blurry vision that improves with blinking, and allergic rhinitis or atopy.[8,10] Asking patients about exposure to allergens, such as pets, smoke, carpet, or pollen, or new exposures correlating with the symptom timeline is helpful. Bilateral conjunctival injection is the most common examination finding of allergic conjunctivitis.[10] Other findings include mild chemosis, watery discharge, eyelid edema, and evidence of venous congestion below the eyes (allergic shiner).[1,10]

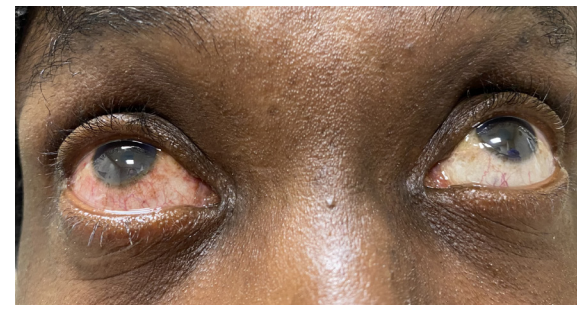
Allergic conjunctivitis is a clinical diagnosis.[1,9,10] Tear IgE rapid testing kits have high sensitivities and specificities for diagnosis and monitoring of treatment response; however, availability varies.[39] Measurement of serum IgE is not recommended because there are conflicting data regarding correlation with tear IgE and a lack of diagnostic clarity.[40]

The first step in the treatment of allergic conjunctivitis is removal of the allergen, although this can be challenging and

FIGURE 2

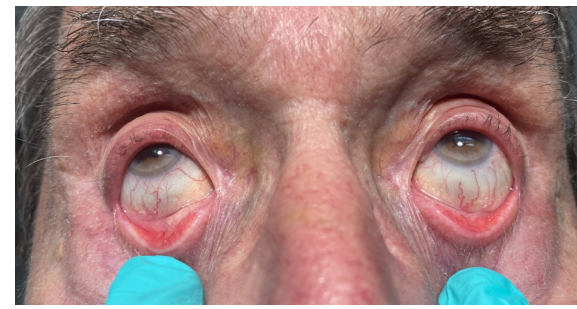
Acute bacterial conjunctivitis with *(A)* early mucopurulent discharge, *(B)* the eye matted shut, and *(C)* mucopurulent discharge (eye open).

FIGURE 3



Viral conjunctivitis.

FIGURE 4



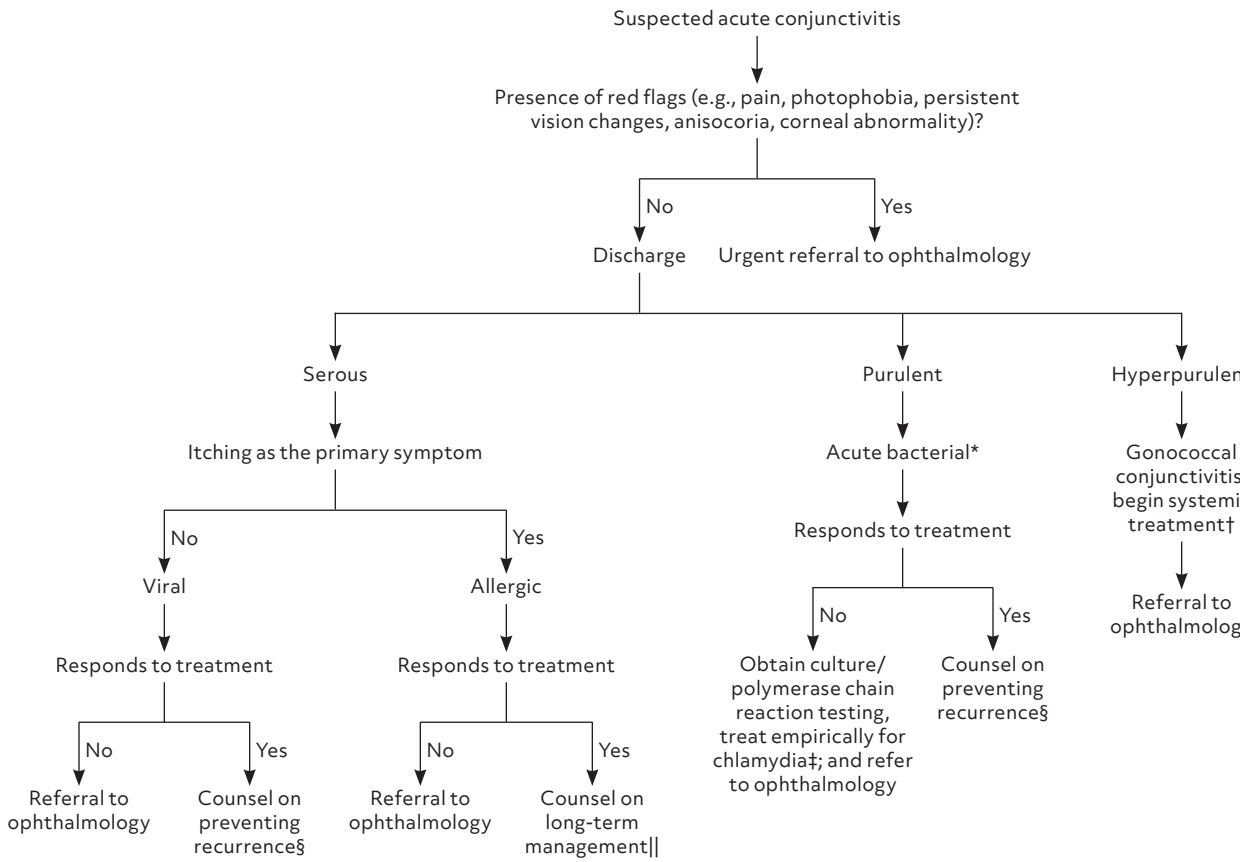
Allergic conjunctivitis.

has limited benefit.[1,10,11] Patients should be counseled to avoid eye rubbing because this can worsen pruritus.[1,8] Contact lenses should be avoided during a flare-up because contact solution could be causing the symptoms.[8]

Over-the-counter interventions for symptom relief include frequent use of artificial tears (to flush allergens from the ocular surface), cold compresses (temperature-induced vasoconstriction limits hyperemia), and topical antihistamines with mast cell–stabilizing activity (also known as dual-activity agents).[1,2,8,10,12] Use of dual-activity agents is the standard of care.[1,2,8,10-12] Because preservatives in artificial tears can cause irritation after prolonged use, preservative-free agents are recommended.[10,13,41] Topical decongestants (i.e., glycerin/naphazoline [Clear Eyes)] and polyethylene glycol/tetrahydrozoline [Visine]) are not recommended because of their association with tachyphylaxis and rebound hyperemia.[1,10,11] Oral antihistamines can be useful, especially in the presence of systemic symptoms, although they may worsen symptoms of dry eye.[1] Table 5 summarizes pharmacotherapy for allergic conjunctivis,[1,8-12,14,42] and Table 6 includes instructions for applying eye drops.[1,8]

If coexisting allergic rhinitis is present, intranasal steroids have been shown to improve ocular symptoms.[8,11] Oral

FIGURE 5



*—Acute bacterial conjunctivitis is also known as nongonococcal conjunctivitis.

†—Ceftriaxone, 25 to 50 mg per kg body weight in a single dose intravenously or intramuscularly.

‡—Doxycycline, 100 mg twice per day for 14 days; single 1-g dose; or erythromycin, 50 mg per kg per day divided into four doses for 14 days.

§—Hand-to-eye contact should always be preceded by handwashing and avoided whenever possible. Replace contact lenses and contact lens solution, take contact lens holidays, wash all linens (especially pillowcases and face towels), and replace facial cosmetics.

||—Allergen trigger awareness and avoidance, avoiding eye rubbing, limiting topical decongestant eye drop use to 3 days, and considering allergen-specific testing with or without immunotherapy if symptoms are persistent. If symptoms or triggers are predictable, treatment should begin two to four weeks before symptom onset to optimize effectiveness. Allergic conjunctivitis and dry eye have overlapping symptoms and often occur together.

Diagnosis of conjunctivitis.

Information from references 1, 2, 7, 8, 10, 11, 16-19, and 24.

antihistamines can be considered, although they should be used with artificial tears to avoid ocular dryness.[1,11,12] If symptoms are severe or persist despite initial therapy, a short-course trial (7 to 10 days) of ester-based topical steroids (i.e., loteprednol etabonate 0.2%) can be considered in addition to ophthalmology referral.[1,8,10-12,43] Other topical modalities, such as non–ester-based steroids, nonsteroidal anti-inflammatory drugs, cyclosporine, or tacrolimus or other systemic treatment such as sublingual immunotherapy, are reserved for refractory cases and should be used under specialist supervision because of the risk of adverse effects.[1,8,10-12,14]

BACTERIAL CONJUNCTIVITIS

Acute bacterial conjunctivitis can be separated into acute (most common), hyperacute, and chronic forms.[1,2] The most common pathogens implicated in acute bacterial conjunctivitis are *Haemophilus influenzae* in children and *Staphylococcus aureus* in adults.[7,24,44] Transmission is assumed to be via contaminated fingers, but bacteria can also reach the skin from the nasopharynx or infected fomites (e.g., contact lenses, makeup).[2]

TABLE 5

Pharmacotherapy for Allergic Conjunctivitis

First line
Preservative-free artificial tears
Topical antihistamines with mast cell–stabilizing activity (Table 1)
Intranasal steroids
Second line (limit to 7 to 10 days, and refer patient to ophthalmology)
Topical ester-based steroid (loteprednol etabonate 0.2%)
Consult ophthalmology
Omalizumab (Xolair)
Subcutaneous or sublingual immunotherapies
Systemic corticosteroids
Topical immunomodulators (cyclosporin A, tacrolimus)
Topical non–ester-based steroid (prednisolone acetate 1.0%, loteprednol etabonate 0.5%)
Topical nonsteroidal anti-inflammatory drug (ketorolac 0.5%, bromfenac 0.07%)
Not recommended
Topical decongestants (glycerin/naphazoline [Clear Eyes], polyethylene glycol/tetrahydrozoline hydrochloride [Visine], brimonidine tartrate [Lumify])

Information from references 1, 8-12, 14, and 42.

Symptoms of bacterial conjunctivitis begin with hyperemia and watery discharge (Figure 2A). Within 1 to 2 days, mucopurulent discharge develops resulting in collection of debris at the base of the lashes that can cause the eyelids to stick shut (Figure 2B).[1,17] Symptoms can spread to the opposite eye.[1,17] Counseling patients to take a photograph of their eye discharge before their visit may assist with diagnosis. Although diagnosis is largely clinical, culture is recommended for severe or refractory cases.[1,2]

Most cases of acute bacterial conjunctivitis have low morbidity, are self-limited, and do not require treatment with antibiotics.[1,2,7,24,45,46] A 2023 Cochrane review investigating topical antibiotics in the treatment of culture-confirmed bacterial conjunctivitis found that antibiotics likely improved the clinical cure rate by 26% (risk ratio [RR] = 1.26; 95% CI, 1.09 to 1.46; 1,474 participants) and likely improved microbiologic cure (RR = 1.53; 95% CI, 1.34 to 1.74; 2,827 participants) compared with placebo.[47] However, the results were limited by heterogeneity among trials, high potential for bias, and inclusion of only culture-proven cases of bacterial conjunctivitis.[48] Given the unclear benefits of treatment, a pragmatic approach of delaying antibiotic prescribing (if symptoms do not improve after 3 days) has similar symptom control as immediate prescribing and decreases antibiotic use by 50%.[46,49]

There is no demonstrated difference in effectiveness among antibiotic classes (fluoroquinolone vs. nonfluoroquinolone) or treatment duration (3 to 5 days vs. more than 5 days).[1,2,9] However, fluoroquinolones should be considered for contact lens wearers, and contact lenses should be discarded and lens use discontinued until symptoms resolve.[1] Patients should be advised to follow up in 7 to 10 days to monitor resolution.

Chlamydial conjunctivitis should be suspected in neonates or sexually active patients who have typical signs and symptoms of acute bacterial conjunctivitis but do not respond to standard antibacterial treatment.[1,2,7] Polymerase chain reaction testing

TABLE 6

Instructions for Applying Eye Drops

Place one drop at a time at the lower conjunctival sac followed by closure of the eyelids for several seconds.
If more than one medication is being applied, wait 3 to 5 minutes between applications.
Excessive blinking and placing more than two drops at a time, regardless of the medication type, can cause spillage and waste.
Contact lenses should be avoided during symptom flare-ups. However, if wear is necessary, drops should be administered 15 minutes before lenses are placed or after lenses are removed.

Information from references 1 and 8.

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	Evidence rating	Comments
A comprehensive eye history and specific physical examination findings are helpful to distinguish bacterial from viral conjunctivitis because no single sign or symptom reliably differentiates them.[1,2,16,17]	C	Consistent evidence from systematic reviews and a cohort study assessing disease-oriented outcomes
Pain with pupillary constriction (true photophobia), vision change, and anisocoria are indicative of serious eye disease and warrant immediate referral.[1,18]	C	Evidence-informed practice guidelines and systematic review of studies assessing disease-oriented outcomes
Patients with viral conjunctivitis should avoid touching the face, practice strict handwashing, and not share personal items, especially towels, pillowcases, and eye makeup.[1,2,7,16]	C	Evidence-informed practice guidelines and expert consensus
Topical antihistamines with mast cell–stabilizing activity are the standard of care for perennial and seasonal allergic conjunctivitis.[1,8,10-12]	B	Consistent evidence from evidence-informed practice guidelines, systematic reviews, and expert consensus
For acute bacterial conjunctivitis, delayed antibiotic prescribing has similar symptom control as immediate prescribing and decreases antibiotic use by 50%.[46,49]	B	Randomized controlled trial and systematic review

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to https://www.aafp.org/afpsort.

of conjunctival discharge is diagnostic.[50] Sexual abuse must be considered in preadolescent children with chlamydial conjunctivitis.[1,50] Systemic treatment is required because of the high likelihood of infection in other sites, such as the nasopharynx, genital tract, or lungs.[1,2,50] Treatment with topical antibiotics is not necessary. Close follow-up with an ophthalmologist is recommended.

Hyperacute bacterial conjunctivitis is associated with *Neisseria gonorrhoeae* in neonates or sexually active patients.[1,2] It has a sudden onset; progresses rapidly; and is characterized by copious purulent discharge, pain, and potential vision loss and therefore warrants emergency systemic antibiotics and referral to an ophthalmologist for serial follow-up.[1,2,7,50] Systemic treatment for presumed chlamydial coinfection is recommended, and sexual abuse should be considered in preadolescent children.[1,50] Chronic bacterial conjunctivitis is defined as symptoms lasting more than 4 weeks despite standard treatment with topical antibiotics and warrants ophthalmology referral.[1,2]

This article updates previous articles on this topic by Morrow and Abbott.[51]

Data Sources: Essential Evidence Plus, Cochrane Library, and PubMed Clinical Queries databases were searched using the terms conjunctivitis, conjunctivitis AND etiology, conjunctivitis AND diagnosis, and conjunctivitis AND therapy. Additional PubMed searches based on references of initial articles were also reviewed. Search date: August 2023 and May 2024.

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