

Conjunctivitis

Synonyms: pinkeye, pink eye

What is conjunctivitis?^[1] ^[2]

The term conjunctivitis refers to inflammation of the conjunctiva; associated corneal involvement gives rise to keratoconjunctivitis and eyelid involvement suggests blepharconjunctivitis. This article covers the diagnosis of the differing types of conjunctivitis.

Conjunctivitis can be classified as infectious or non-infectious, and as acute, chronic, or recurrent:

- The causes of infectious conjunctivitis include viruses and bacteria.
- The types of non-infectious conjunctivitis are allergic, mechanical/irritative/toxic, immune-mediated and neoplastic.

The causes of non-infectious conjunctivitis may overlap.

Conjunctivitis is a worldwide condition that can affect any age group. There is no gender, ethnic or social preponderance, but the highest rates of diagnosis are found in children under 7 years of age.^[1] Although usually a relatively minor problem, conjunctivitis can have a considerable impact on lost work time and, very occasionally, can result in permanent or sight-threatening sequelae.

If assessing a conjunctival problem that may not be conjunctivitis, see the separate [Diagnosing Conjunctival Problems](#) article for more about assessing the conjunctiva and for details on:

- Conjunctival trauma.
- Degenerative conditions of the conjunctiva (pinguecula, pterygium, concretions, retention cysts).

- Other inflammatory conditions (mucus fishing syndrome, ligneous conjunctivitis).
- Blistering mucocutaneous diseases ([cicatricial pemphigoid](#), [Stevens-Johnson syndrome](#)).
- Conjunctival lesions (pigmented, squamous tumours and other tumours).

Conjunctivitis presentation^[1] ^[3] ^[4]

Symptoms

- [Red eye](#), which is usually generalised, often bilateral.
- Irritation, grittiness and discomfort are typical; significant pain suggests alternative diagnoses.
- Discharge, which may be watery, mucoid, sticky or purulent depending on the cause.
- Photophobia is not typical: it suggests corneal involvement.
- **Visual acuity should be unaltered.** Any alteration in vision relates to tearing and discharge blurring the visual field; consider differential diagnosis if there is true reduction in acuity.

Signs

- Conjunctival injection with dilated conjunctival vessels.
- Conjunctival chemosis (conjunctival oedema).

- Follicles or papillae:
 - Conjunctival follicles are round collections of lymphocytes, most prominent in the inferior fornix, which appear as small, dome-shaped nodules, pale at the top and without prominent central vessels, although blood vessels may overlie them. They are typically seen in conjunctivitis caused by viruses, atypical bacteria and toxins, including some topical medications (especially brimonidine).
 - Papillae have a cobblestone appearance of flattened nodules with central vascular cores, appearing red on the surface and pale at the base. They are most commonly associated with an allergic immune response, as in vernal and atopic keratoconjunctivitis, or as a response to a foreign body such as a contact lens. Papillae coat the tarsal surface of the upper eyelid and may reach large size (giant papillary conjunctivitis).
- Corneal involvement (this occurs rarely): oedema, neovascularisation and punctate epithelial erosions.

Assessment^[3] ^[4]

History

Take a full history of the condition, including onset, nature of symptoms and exacerbating or alleviating factors.

Ask specifically about:

- Recent upper respiratory tract illness.
- Recent infectious contacts, particularly to other cases of conjunctivitis.
- Morning discharge and stickiness, as the patient is likely to have cleaned this away.
- Spectacle or contact lens wear (and lens hygiene).
- Chemical exposure (including occupational exposure).
- Medication.
- Ultraviolet light exposure (including sunlamps and welding lamps).

- Any history of foreign body or eye trauma.

The general history should include:^[2]

- Known systemic illness (particularly diabetes, autoimmune and inflammatory conditions, HIV).
- Symptoms and signs potentially related to systemic disease, allergy, inflammation, herpes zoster activation and autoimmune conditions.

Examination

- Wear gloves if suspecting adenoviral infection - this is extremely contagious (clean all equipment after use).
- Look for evidence of generalised malaise and preauricular lymph nodes.
- Check visual acuity.
- External eye: assess for evidence of [orbital cellulitis](#), blepharitis, herpetic rash or nasolacrimal blockage.
- Conjunctiva: look at the pattern of congestion, discharge and for the presence of follicles or papillae.
- Papillae - these are formed when the conjunctival inflammation is effectively limited by fibrous septa, so giving rise to the appearance of vascular bulges, generally found on the upper tarsal conjunctiva. They can coalesce to form giant (cobblestone) papillae.
- Follicles - these are lymphoid collections and look like raised gelatinous pale bumps (like small grains of rice). They tend to be found on the lower tarsal conjunctiva and along the upper tarsal border.
- Cornea: note whether there is evidence of corneal involvement. Staining is an essential part of the examination.
- Fundoscopy: this is necessary if you are unsure about the diagnosis. Look for clouding of the anterior chamber.

Investigations^[1]

Generally, the diagnosis is rapidly made following history and examination but further investigations are warranted (referral to a specialist) in the following circumstances:

- Severe purulent discharge.
- Follicular conjunctivitis.
- Neonatal conjunctivitis.
- Unclear aetiology.
- Non-response to conventional treatment.

Differential diagnosis: conditions to rule out before diagnosing conjunctivitis

- **Uveitis**: marked pain, photophobia and possibly decreased visual acuity should ring alarm bells in a 'conjunctivitis' not responding to conventional treatment, particularly in patients with previous episodes. These symptoms suggest deeper inflammatory conditions of the eye.
- **Glaucoma**: check for reduced visual acuity, hazy cornea, fixed pupil and acute systemic malaise. Acute glaucoma is extremely painful and usually causes nausea and vomiting – it is unlikely to be confused with conjunctivitis.
- **Herpes zoster ophthalmicus**: signs include severe herpetic pain, which can occur before the rash, and the classical vesicular rash affecting the tip of the nose. There is commonly an associated conjunctivitis.
- **Keratitis**: this may be associated with conjunctivitis but can occur alone, often secondary to infection (be suspicious of this in contact lens wearers) – look for unilaterality, severe pain and photophobia. Keratitis may also occur over a raised pterygium, which can become dry, inflamed and sore.
- **Scleritis and episcleritis**: these are unilateral, with localised injection and aching (episcleritis) or an intense, boring pain (scleritis).

- **Foreign body:** this may not be remembered by the patient. If you can't find a foreign body but still strongly suspect this, double evert the lids after instilling topical anaesthetic or refer to the ophthalmology team.
- **Trauma:** may not always be remembered by the patient and can be mechanical or chemical. Remember, where there is trauma to the globe, and if there is a history of welding, grinding or drilling when particulate matter could have flown into the eye, consider the possibility of penetration of the globe and stain the eye to look for fluid leakage. Penetration of the globe which does not involve the corneal areas can be relatively asymptomatic.

Identifying different types of conjunctivitis^[3] ^[4]

Conjunctivitis of different aetiologies can appear to present in a similar fashion. There are a few helpful distinguishing features:

Acute symptoms

Acute symptoms are characteristic of infective and allergic forms of conjunctivitis and are also less commonly seen in infestation.

Characteristic features of **infective conjunctivitis** include history of close contact with another affected person, symptoms of upper respiratory tract infection, and conjunctivitis starting in one eye and spreading to the other. Eyes are often glued together after sleep, mucopurulent discharge may be present on examination and there may be an enlarged lymph node in front of the ear.

Causes of viral conjunctivitis

These include:

- Adenovirus (the most common viral conjunctivitis, which may be isolated or part of an epidemic).
- Herpes simplex virus (HSV).
- Herpes zoster ophthalmicus (HZV).
- Molluscum contagiosum.

- Several systemic viral conditions have conjunctivitis as a feature, including measles, rubella, mumps, infectious mononucleosis, varicella and HIV.

Causes of bacterial conjunctivitis

These include:

- Bacterial conjunctivitis – most commonly caused by *Staphylococcus* spp., *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Moraxella catarrhalis*.
- Hyperacute conjunctivitis is rare but severe conjunctivitis that develops very rapidly due to infection with gonorrhoea.
- Chlamydial conjunctivitis more often presents with a chronic conjunctivitis in newborns ([ophthalmia neonatorum](#)) and people who are sexually active.
- Conjunctivitis is sometimes seen in Lyme disease, although it more often leads to additional, deeper eye inflammation.

Allergic/vernal atopic conjunctivitis ^[5]

These include:

- Seasonal allergic conjunctivitis : recurrent conjunctivitis at the same time each year.
- Perennial allergic conjunctivitis: daily symptoms throughout the year, often on waking.
- Giant papillary conjunctivitis: large papillae are present on the inside of the upper lid. It occurs predominantly in people using contact lenses, or following eye surgery. Symptoms generally progress slowly.
- Contact dermatitis conjunctivitis: associated with use of eye drops.

Infestation

[Pediculosis](#) (head lice, pubic lice).

Chronic symptoms (>4 weeks) ^[3]

Most bacterial and viral infections resolve spontaneously within two weeks. Chlamydial infections and some bacterial infections can cause chronic conjunctivitis lasting for weeks or months if untreated.

Microbiological investigations are not considered necessary where there is a short history of infective conjunctivitis because most cases will settle spontaneously. However, management of chronic infections requires microbiological identification of the causative organism. Causes of chronic conjunctivitis include:

- Persistent/recurrent [infective conjunctivitis](#).
- Chlamydia/trachoma.
- [Molluscum contagiosum](#).
- Toxic reaction.
- Superior limbic keratoconjunctivitis.
- [Blepharitis](#).

If follicles are present

With preauricular lymph nodes

Suggests toxic conjunctivitis, molluscum, pediculosis.

Without preauricular lymph nodes

- With herpetic signs: suggests HSV conjunctivitis.
- Without herpetic signs: suggests adenoviral conjunctivitis or chlamydia.

If papillae are present

Establish type of discharge

- Severe purulent discharge, eyelid swelling: gonococcal infection.
- Scant purulent discharge: bacterial other than gonococcus.
- Watery discharge: allergic, atopic.
- Mucoid discharge: consider vernal conjunctivitis.

See also the separate [Red Eye](#) article which covers the general assessment and diagnosis of the red eye in primary care.

Conjunctivitis treatment and management

See the separate [Infective Conjunctivitis](#), [Allergic Conjunctivitis](#) and [Ophthalmia Neonatorum](#) articles for further detail on management of these conditions.

Other types of conjunctivitis

Cicatricial conjunctivitis^[6]

This refers to a group of inflammatory conditions affecting the conjunctiva. They lead to scarring (the term cicatricial means scarring), loss of function and, potentially, loss of sight. All should be referred urgently for ophthalmological review.

Causes of primary cicatricial conjunctivitis

These include:

- **Ocular mucous membrane pemphigoid:** this is thought to be a type II hypersensitivity reaction affecting the basement membrane of mucosal surfaces. Oral mucosa and conjunctiva are most commonly affected. Treatment is with topical steroids and antibiotics but the acute phase of the disease may warrant systemic immunosuppression.
- [Erythema multiforme](#), [Stevens-Johnson syndrome](#), [toxic epidermal necrolysis](#): these conditions are acute vasculitides that may be different forms of the same disease. They are thought to result from a type III hypersensitivity response. Management depends on the underlying condition; however, the eye inflammation can be severe and is likely to require both topical and systemic treatment.

Causes of secondary cicatricial conjunctivitis

These include:

- **Trauma:** any form of trauma including surgery and thermal, chemical and radiation injury may cause cicatrization.
- **Chronic and severe anterior blepharitis:** the reduction in the tear film associated with blepharitis can cause chronic irritation and scarring.

- **Drugs:** may cause mild-to-severe irritation. Systemic drugs such as penicillamine and topical drugs (many, including timolol and pilocarpine) can have this effect.
- **Inherited conditions:** ectodermal dysplasia leads to abnormalities of hair or teeth which may be associated with conjunctival scarring.
- **Systemic problems:** many inflammatory and autoimmune conditions can cause cicatricial conjunctivitis, including [rosacea](#), [Sjögren's syndrome](#) and [graft-versus-host disease](#).
- **Neoplasia:** unilateral conjunctival disease can, rarely, represent sebaceous cell carcinoma, conjunctival intraepithelial neoplasia or squamous cell carcinoma. This is very rare but if concerned, refer for urgent ophthalmological opinion.

Management of these conditions will vary with the underlying cause.

Floppy eyelid syndrome^[7]

This occurs most often in obese patients with [sleep apnoea](#). Nocturnal eyelid ectropion results in conjunctival contact with bedding. It can occasionally lead to corneal scarring. There will be upper eyelid swelling and diffuse papillary reaction, and there may be a pannus. Temporary relief can be achieved with lubricants and taping of the lid. Definitive treatment is surgical.

Giant papillary conjunctivitis

This is an irritant conjunctivitis which comes about gradually in response to prolonged contact lens wear, to exposed corneal sutures or to the presence of an ocular prosthesis. It is characterised by papillary hypertrophy, a mucoid discharge and, in severe cases, ptosis. Treatment involves removal of the irritant, together with use of cool compresses, lubricants and topical mast cell stabilisers.

Parinaud's oculoglandular syndrome^[8]

This rare condition can arise as a result of [cat scratch disease](#), [tularaemia](#), sporotrichosis, [tuberculosis](#), [syphilis](#) and [infectious mononucleosis](#). It presents with generalised malaise and a unilateral conjunctivitis. It responds to treatment of the underlying cause.

Pediculosis (head lice, pubic lice)

A unilateral/bilateral condition arising from eyelash colonisation by [head lice](#) or [pubic lice](#). [Pediculosis](#) gives rise to itching, and adult lice will be seen on the lids. Mechanical removal of the lice and their eggs needs to be carried out; an ophthalmic antimicrobial ointment is used for the lashes. In the case of head lice, the scalp must also be treated, whilst in the case of pubic lice, anti-lice treatment is needed for the rest of the body (treatment should be extended to sexual partners).

Superior limbic keratoconjunctivitis ^[9]

This is an uncommon, chronic condition which mainly affects women in their 50s with thyroid dysfunction. Patients complain of nonspecific conjunctivitis-type symptoms (foreign body sensation, burning, mucoid discharge) which wax and wane over many years before eventually resolving. There is thickening of the conjunctiva around the superior corneal limbus, and a corneal pannus. Punctate epithelial erosions may be present. Cool compresses, regular lubrication and, occasionally, anti-inflammatories are used to manage the condition.

Toxic conjunctivitis ^[2]

Prolonged (>1 month) use of aminoglycoside drops, antivirals, or drops with preservatives, and inappropriate use of over-the-counter preparations containing vasoconstrictors, may give rise to an irritant conjunctivitis. Diagnosis is made by exclusion. There will be conjunctival hyperaemia and follicles. Treatment is to discontinue the offending agent and use supportive measures (cool compresses, preservative-free lubricants) until symptoms settle.

Dr Mary Lowth is an author or the original author of this leaflet.

Further reading

- [Care of the contact lens patient](#); American Optometric Association, 2006
- [Agnihotri G, Shi K, Lio PA](#); A Clinician's Guide to the Recognition and Management of Dupilumab-Associated Conjunctivitis. *Drugs R D*. 2019 Dec;19(4):311-318. doi: 10.1007/s40268-019-00288-x.
- [Layikh HA, Hashim ZA, Kadum AA](#); Conjunctivitis and other ocular findings in patients with COVID-19 infection. *Ann Saudi Med*. 2021 Sep-Oct;41(5):280-284. doi: 10.5144/0256-4947.2021.280. Epub 2021 Oct 7.

- [Moorfields Eye Hospital Patient Information on Conjunctivitis](#); Moorfields Eye Hospital NHS Foundation Trust, Nov 2021

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