

## Allergic conjunctivitis

Allergic conjunctivitis usually causes mild to moderate symptoms, including redness, which respond to non medicated treatment. However, sometimes symptoms can be extremely severe and debilitating with swelling of the eyelids and conjunctivae and a sensation of grittiness and burning. Unlike conjunctivitis that is caused by bacterial infection, allergic conjunctivitis is not contagious, so it cannot be transferred from one person to another.

### "Red eye" is a common eye problem

The "red eye" is one of the most common eye problems for which people visit a doctor. A description of symptoms and an eye examination by the doctor will usually suggest the cause:

- Pus containing discharge usually indicates that there is bacterial infection
- Clear discharge suggests a viral or allergic cause
- Itch and clear discharge suggests an allergic cause, possibly allergic conjunctivitis
- Mild discomfort or burning often with excess watering may be due to "dry eye"
- Vision loss, discomfort in bright sunlight (photophobia) and pain suggest more serious conditions, which should be investigated by an eye specialist (ophthalmologist)
- A gritty sensation is common in conjunctivitis, but the presence of a foreign body must be excluded, particularly if only one eye is affected

### What is conjunctivitis?

The conjunctiva is a layer of tissue which lines the front part of the eyeball (the white part of the eye) and the inside of the eyelids, but does not cover the cornea (the coloured looking part of the eye). It helps to protect the eye from insults such as smoke, bacteria and allergens in the air, as well as the damaging effects of sun and wind. The eye is also protected by the eyelids, tears and cornea.

Conjunctivitis is an inflammation of the conjunctiva of the eye, which becomes red, swollen and produces discharge, in response to these insults. It can be caused by infection by bacteria or viruses, allergy and physical or chemical irritation. Treatment depends on identifying the cause and severity of the condition.

### There are several signs of allergic conjunctivitis

Typical signs and symptoms of allergic conjunctivitis include:

- Redness in both eyes
- Itching and burning of both the eye and surrounding tissues
- Watery discharge, often accompanied by acute discomfort in bright sunlight light (photophobia)
- The conjunctiva itself may become very swollen and look light purple, and this may interfere with clarity of vision

Eyelids may also be affected by an allergic reaction, causing the loose tissues of the lid to become swollen with subsequent drooping of the eyelid. In cases of severe swelling, the lids cannot open and the gap between the upper and lower lids becomes slit like.

It is important to note that blurred vision or corneal haze require urgent referral to an eye specialist.

Allergic conjunctivitis symptoms may be:

- Perennial (all year round) - due to exposure to dust mite, animal dander, indoor and outdoor mould spores and occasionally foods or food additives.
- Seasonal - due to airborne allergens such as pollen of grasses, trees and weeds. Pollen allergy symptoms vary from day to day, depending on the weather, improving in wet weather and worsening on hot windy days or after thunderstorms. There are also seasonal variations in some airborne mould spores, which may cause seasonal symptoms.

### **Treatment depends on severity and cause of symptoms**

Identifying and removing the cause of allergic conjunctivitis, where possible, is ideal when an allergic cause has been confirmed from allergy testing. For example:

- House dust mite minimisation measures in the bedroom (removing carpet, using barrier encasing of pillows and mattress, washing bedding in hot water).
- Removing the cat from the house in sensitive individuals.

It is also important to exclude the presence of a foreign body.

Symptoms of allergic conjunctivitis are generally mild to moderate and respond to bathing eyes with cold water, ice packs and cold water compresses. Topical lubricants can also help flush allergens from the tear film. However, symptoms can sometimes be extremely severe and debilitating and require medication. Treatment options include:

- **Topical medications (eye drops)**

- Antihistamine eye drops are effective but should not be used for longer than 6 weeks without medical advice
- Antihistamine eye drops in conjunction with a vasoconstrictor minimise itch and remove redness, but should not be used for longer than 14 days without medical advice
- Topical vasoconstrictor eye medications twice daily have minimal side effects, unlike nasal vasoconstrictor medications, but rebound vasodilation encourages overuse
- Mast cell stabilisers are generally well tolerated, however, as they can take 3-7 days to show an effect, they should be used to prevent symptoms before they occur and can be used as long as necessary
- Mast cell stabilisers/antihistamines are fast acting, effective and generally well tolerated
- Steroid eye drops - are effective quickly in relieving symptoms, but are associated with cataract formation, glaucoma and bacterial and viral infections of the cornea and conjunctiva. They should only be used short term, only under medical supervision and never in the presence of herpes infections

- **Oral antihistamines (tablets)**

These help some people when avoidance measures are difficult. However, they may dry the eyes, nose and mouth, and may cause blurring of the vision. Antihistamines are usually contraindicated in glaucoma and advice should be sought from an eye specialist.

- **Allergen immunotherapy for specific allergens**

This may benefit people with persistent, severe allergic conjunctivitis. However, relief of eye symptoms takes longer than nasal symptoms.

**Inflammation of the cornea can also be associated with allergy**

The cornea has very few blood vessels (that is why it is clear) and is seldom involved in an allergic reaction. However, there are a number of causes of small pinpoint defects in the cornea, a condition called epithelial keratitis, which is usually due to drug and chemical exposure, for example:

- Drug toxicity and drug allergy
- Vernal (allergic) conjunctivitis
- Contact sensitivity to topical eye medications such as neomycin, idoxuridine, atropine and derivatives, thiomersal and some topical anaesthetics

Specific conditions involving the cornea, which are associated with allergy, include:

**Atopic keratoconjunctivitis**

- A combined inflammation of the conjunctiva and cornea, most often associated with atopic dermatitis/eczema.
- Usually results in red, scaly and weeping skin of the eyelids.
- Secondary infection with *Staphylococcus aureus* is common and may cause infection of the eyelash follicles.
- The conjunctiva may be swollen, red and with a tenacious clear or pus containing discharge.
- The condition can persist for many years and causes severe photophobia, weeping and itching.
- If the photophobia is severe, it can be difficult for people to open their eyes in direct sunlight.
- Conjunctival scarring may occur if the persistent condition is not treated properly.

**Keratoconus**

- An inherited cone shaped thinning of the cornea frequently associated with atopic dermatitis
- Vision is distorted due to the varying thickness of the cornea
- Contact lenses may be necessary but they have particular problems in this condition
- Rigid lenses are necessary for good vision but they may irritate the inflamed conjunctiva
- It is important to consult an eye specialist should this condition be suspected

**Atopic cataracts**

- May be associated with the severe form of atopic dermatitis in about 8-10% of sufferers
- Occurs in children and young adults, even in the absence of steroid therapy

**Vernal keratoconjunctivitis**

- Usually affects both eyes and is severe, occurring seasonally and mainly in children
- Results in nipple shaped protrusions on the inner aspect of the upper eyelid, often described as cobblestones and a stringy, tenacious mucus discharge
- Frequently associated with allergic rhinitis, atopic dermatitis or asthma
- It may be associated with a single allergen but more usually with multiple sensitivities
- Usually starts in late childhood and is more common in boys than girls. However the prevalence equals in the 20s and is rarely seen after the age of 30. It usually lasts for between 5-10 years
- Rarely seen in cold climates but more often in tropical and temperate climates
- Treatment consists of intermittent short courses of topical or systemic steroids with ongoing topical cromolyn or antihistamine preparations
- Sleeping in an air-conditioned room, ice packs and cold compresses can help
- Moving to a cool climate is desirable, if possible

**Symptoms may also be due to contact allergy**

- Many cosmetics (especially nail polish) will cause a contact allergy of the eyelids, which may occur in only one eye
- Other causes include antibiotics (particularly neomycin) and the preservative thiomersal (a preservative in eye drops)
- Some plants will also cause contact allergy, including Grevillea 'Robyn Gordon', African violets and a number of bulbs. Since the Rhus tree has been declared a noxious weed the number of cases of this serious contact allergy has declined
- Usually there is an initial improvement of the condition after prescribed eye drops are used and then a continuing deterioration, only improved by ceasing the eye drops
- Bathing the eyes with cooled boiled water will give comfort as the condition improves
- A doctor will usually use patch testing to confirm the diagnosis and inquire about whether any non-prescribed or herbal drops have been used

**Contact lenses may cause symptoms**

- Giant Papillary and Giant Follicular conjunctivitis (GPC or GFC) can occur in contact lens wearers and is similar in appearance to vernal keratoconjunctivitis
- It usually occurs in soft contact lens wearers, but is occasionally seen in hard lens wearers, and may be due to the lens material itself or the lens cleansing material, which contains thiomersal
- Sometimes the condition improves with a decreased wearing time, occasionally changing the lens to another polymer or soaking the lens in sterile water after an antibacterial solution

**Eye symptoms and anaphylaxis**

An allergic reaction (including anaphylaxis, the most severe form of allergic reaction) to a food, insect sting or bite, or medication may cause eye symptoms with swelling, itching and redness of the conjunctiva and soft tissues around the eyes. Individuals who are at risk of anaphylaxis should be referred to a clinical immunology/allergy specialist.

Eating of foods containing monosodium glutamate or the preservative sodium metabisulphite will occasionally cause swelling and redness of the eye. However, this is not a true allergic reaction and therefore symptoms will be less severe.

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