CONDITION

Corneal injury

A corneal injury is damage to the clear protective surface at the front of the eye.

WHAT IT IS
Damage to the clear front surface of the eye

BODY SYSTEM
Eyes and vision

MAIN SYMPTOMS
Eye pain, tearing, redness, light sensitivity

WHAT CAUSES IT
Scratches, foreign objects, chemicals, heat, or trauma

HOW IT IS DIAGNOSED
Eye examination, fluorescein dye, and slit-lamp inspection

MAIN TREATMENT
Irrigation, foreign-body removal, protection, and medicines

CAN IT BE CURED?
Sometimes - superficial injuries usually heal fully

IS IT AN EMERGENCY?
Sometimes - chemical exposure or possible penetrating injury

LONG-TERM OUTLOOK
Most superficial injuries heal; deep damage may impair vision

Overview

The cornea is the clear, curved surface covering the coloured part of your eye. It helps focus light and protects the inside of the eye. A corneal injury means this surface has been scratched, cut, burned, or otherwise damaged.

A shallow scratch is called a corneal abrasion . Other injuries include a foreign object becoming stuck in the cornea, a chemical or ultraviolet burn, or a wound that passes through the cornea.

Because the cornea contains many nerves, even a small injury can cause intense pain, watering, and light sensitivity. Most minor abrasions heal without lasting damage because the surface layer replaces itself quickly.

Deeper injuries can cause infection or scarring that affects vision. Chemical burns and penetrating injuries need immediate care. A painful red eye in someone who wears contact

lenses also needs prompt assessment because infection can progress quickly.

Symptoms

Symptoms usually begin soon after injury. After ultraviolet exposure, such as welding without proper protection, symptoms in both eyes may be delayed for several hours.

Common symptoms include:

The foreign-body sensation can continue after a particle has washed out because the remaining scratch irritates the nerves.

Chemical exposure may cause burning, redness, watering, and reduced vision. Warning signs of a penetrating injury include an embedded object, an unusual pupil shape, blood inside the eye, or sudden major vision loss. Pain may be severe or, unexpectedly, limited.

- Sharp pain, burning, or a gritty feeling
- Watering and redness
- Sensitivity to light
- Blurred or reduced vision
- Difficulty keeping the eye open
- A feeling that something remains in the eye

Causes and risk factors

A fingernail, tree branch, paper edge, makeup brush, or similar object can scrape the cornea. Dust, sand, or metal fragments may scratch the surface or remain embedded.

Other causes include:

High-speed particles from grinding, drilling, hammering metal, or using power tools are especially concerning because a fragment can enter through a wound that is difficult to see.

Some people have repeated breakdown of the corneal surface after an earlier abrasion. This is called recurrent corneal erosion . It may also be linked to changes in how the surface layer attaches to the cornea.

- Chemicals splashing into the eye
- Hot liquids or direct heat

- Ultraviolet light from welding, tanning equipment, or intense reflected sunlight
- A forceful blow or sharp object entering the eye
- Contact lenses that are dirty, damaged, poorly fitted, or worn too long
- Rubbing the eye while a particle is trapped beneath the eyelid

Diagnosis

A healthcare professional will ask what happened, when symptoms began, whether you wear contact lenses, and whether chemicals or high-speed particles were involved.

Vision is usually checked in each eye. The eye, eyelids, pupils, and surrounding tissues are examined, and the upper eyelid may be turned over to look for a trapped particle.

Fluorescein dye makes damaged areas easier to see under blue light. A slit lamp, which is a microscope with a focused light, provides a detailed view of the cornea.

The examination also checks for infection and signs that the cornea has been cut through. If a penetrating injury is possible, a CT scan may be needed. MRI is generally avoided when a metallic object could be present. A corneal sample may be taken if infection or an ulcer is suspected.

Treatment and management

Treatment aims to remove harmful material, support healing, control pain, and prevent or treat infection.

If a chemical enters your eye, rinse it immediately with plenty of clean, lukewarm water for at least 20 minutes. Remove contact lenses if they come out easily. Do not delay rinsing while looking for a particular solution. Seek urgent medical assessment after rinsing.

Loose dust or grit may wash away with clean water or sterile saline. Do not rub the eye or try to remove an embedded object with tweezers, cotton buds, or another tool.

A healthcare professional may remove a surface particle after numbing the eye. Deeper material requires specialist care, and rust left by some metal fragments may also need removal.

Antibiotic drops or ointment may be prescribed when there is a risk of infection. Contact lens wearers may need different antibiotic like amoxicillin or doxycycline coverage because of their higher risk from certain bacteria. Chemical burns and corneal infections may require several

medicines and close specialist follow-up.

Pain may be treated with oral pain relief and, in selected cases, prescription eye medicines. Do not borrow or repeatedly use numbing drops without specific medical direction. Misuse can delay healing and damage the cornea.

Routine patching does not usually improve a simple abrasion. An eye specialist may use a bandage contact lens under supervision, but contact lenses can increase infection risk.

Deep cuts may require surgery. A suspected penetrating injury should be protected with a rigid eye shield while urgent specialist care is arranged. Do not press on the eye.

Small, uncomplicated abrasions may need limited follow-up if they improve as expected. Larger or contact-lens-related injuries, reduced vision, chemical burns, and possible infections need closer review.

Complications

Most shallow abrasions heal without complications. Problems are more likely after deep wounds, chemical burns, delayed treatment, or contact-lens-related infection.

Possible complications include:

Serious chemical injuries can also affect eye pressure, the lens, and nearby tissues. Some complications appear later, so continued specialist follow-up may be important even after pain settles.

- Keratitis: inflammation or infection of the cornea
- Corneal ulcer: an open infected area that can damage tissue
- Corneal scarring: cloudy tissue that may blur vision
- Recurrent corneal erosion: repeated surface breakdown and pain
- Traumatic inflammation: inflammation inside the eye
- Permanent vision loss: possible after severe infection, scarring, or penetration

Prevention

Not every corneal injury can be prevented, but you can reduce avoidable risk by:

Ultraviolet-blocking sunglasses help protect against intense sunlight and reflected light, but do not provide enough protection for welding.

- Wearing suitable safety glasses for grinding, drilling, yard work, chemicals, and high-speed tools
- Using a welding helmet or ultraviolet-protective eyewear
- Following contact lens cleaning, replacement, and wear instructions
- Removing contact lenses before swimming or showering
- Replacing damaged lenses and lens cases
- Keeping chemicals in their original containers and away from children
- Avoiding rubbing your eye when dust or grit may be present

Living with it and what to expect

A minor abrasion often heals within one to three days, although larger injuries take longer. Pain and watering may improve before vision feels completely normal.

Avoid rubbing the eye. Do not wear contact lenses until the injury has healed and an eye professional says it is safe. Lenses, opened solution, or a case used around the time of an infection may need replacing.

Sunglasses may ease light sensitivity. Do not drive while vision is blurred or if you cannot keep the affected eye open normally.

Deeper injuries may take weeks or months to settle. Scarring may remain, with central scars more likely to disturb vision than those near the edge. Some people need further treatment, specialist contact lenses, or surgery.

Recurrent corneal erosion can cause sudden pain, often when opening the eye after sleep, months or years after the original injury. Lubricating treatment or specialist procedures may reduce episodes.

Attend planned follow-up after a serious injury even if the eye feels better. Changes in healing, pressure, or vision may not be obvious without examination.

When to get medical help

Get emergency help immediately if:

Do not remove an embedded object, press on the eye, or apply a tight dressing. If possible, protect the eye with a rigid shield that does not touch it.

Seek urgent same-day assessment for pain, light sensitivity, or blurred vision after an injury.

This is especially important if you wear contact lenses, cannot open the eye, cannot rinse out a particle, or develop increasing redness, discharge, or worsening pain.

For a diagnosed uncomplicated abrasion, follow your review plan. Arrange prompt reassessment if symptoms are not clearly improving within 24 to 48 hours, return after healing, or vision remains blurred.

- A chemical has entered the eye; begin continuous rinsing first
- An object is embedded in the eye or appears to have entered it
- The injury involved high-speed metal, glass, or machinery
- The eye looks misshapen, the pupil is irregular, or fluid is leaking
- There is blood inside the eye or sudden major vision loss
- A severe blow or sharp object caused the injury

Common questions

How long does a scratched cornea take to heal?

A small abrasion often heals within one to three days. Larger or deeper injuries take longer. Persistent pain, redness, or blurred vision needs reassessment.

Can I sleep with a scratched cornea?

You can usually sleep normally, although pain may make this difficult. Do not sleep in contact lenses or place pressure on the eye. Follow instructions about ointment, shields, and follow-up.

Why does it still feel like something is in my eye?

A scratch can cause a strong foreign-body sensation after the particle is gone. A hidden particle under the eyelid can cause similar symptoms, so continued discomfort should be examined.

Can I wear contact lenses after a corneal injury?

Not while the eye is painful, red, or healing. Restart only after the cornea has healed and an eye professional says it is safe. Wearing lenses too early can delay recovery or increase infection risk.

Will a corneal injury permanently affect my vision?

Most shallow abrasions heal without permanent changes. Deep wounds, central scars, chemical burns, and infections are more likely to affect sight.

Should I cover a scratched eye with a patch?

Routine patching is not usually helpful for a simple abrasion. Never apply a tight patch to a possible penetrating injury. Use only the protection recommended after examination.

Sources

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