

# Foreign Body in the Eye

Something small stuck on or in the eye, causing pain, tearing, and a scratchy feeling.

## THE STORY IN ONE SENTENCE

Something small stuck on or in the eye, causing pain, tearing, and a scratchy feeling.

“A tiny speck — dirt, metal, or eyelash — lands on or sticks into the clear front window of your eye, making it hurt, water, and feel like sandpaper every time you blink.”

## Normal anatomy — the body's job

The front of your eye is covered by a crystal-clear, curved dome called the cornea, which bends light so you can see sharply. Over the white part of the eye and the inside of your eyelids lies a thin, clear skin called the conjunctiva. Together, the cornea and conjunctiva form a smooth, moist surface that lets your eyelid glide over your eye thousands of times a day without scraping. Tears made by glands above your eye constantly wash across this surface, rinsing away dust and germs and keeping everything slippery and healthy.

## BODY'S JOB

The cornea and conjunctiva protect the delicate parts inside your eye — the lens, the colored iris, and the retina at the back that turns light into signals your brain reads as pictures. The cornea also acts like the first lens in a camera, focusing light precisely onto the retina. Tears carry oxygen and nutrients to the cornea (which has no blood vessels of its own) and wash away debris before it can cause trouble. Your eyelids blink automatically to spread tears and sweep away anything that lands on the eye. When this system works, your eye stays clear, comfortable, and ready to see.

1. A speck of dust floats through the air toward your face.
2. The speck lands on the cornea or gets trapped under your upper eyelid.
3. Nerve endings in the cornea fire instantly, sending a sharp pain signal to your brain.
4. Your tear glands flood the eye with extra tears, trying to wash the speck away.
5. You blink hard and often, and your eyelid rubs over the speck with every blink.

## What breaks

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A tiny piece of something hard or sharp lands on the smooth, clear front of your eye or gets wedged under your eyelid. Instead of washing away, it sticks. Every time you blink, your eyelid drags it across the cornea, scratching the surface like sandpaper on glass. If the speck is moving fast — for example, a chip of metal from grinding or hammering — it can pierce through the cornea and go into the inside of the eye. Either way, the protective barrier is broken, nerves scream pain, and the door is open for germs to get in and cause infection.

### CLINICAL TERM

Corneal or conjunctival foreign body; penetrating ocular foreign body if intraocular.

## How the body compensates

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Your eye tries to protect itself by flooding the surface with tears to wash the speck away, squeezing the eyelids shut to stop more dirt from getting in, and blinking fast to sweep debris toward the corner. You will naturally avoid bright light because inflamed nerves make the pupil muscle hurt when it contracts. If the speck stays put, though, these reflexes cannot fix the problem — in fact, repeated blinking over a stuck foreign body will scratch the cornea worse. The only real fix is to remove the speck, then let the cornea heal with the help of lubrication and sometimes antibiotic ointment.

1. {'step': 'Reflex tearing floods the eye.', 'why': 'Tear glands pump out extra water to dilute irritants and flush them toward the nasal corner, where tears normally drain. This works well for loose dust but fails if the speck is stuck.'}
2. {'step': 'Blepharospasm — the eyelids squeeze shut tight.', 'why': 'Muscle around the eye contracts hard to shield the cornea from more injury and to keep light (which hurts) from getting in. You may not be able to open your eye without effort.'}
3. {'step': 'Blinking rate goes up.', 'why': 'Your brain tells the eyelid to blink more often to spread tears and sweep debris off the surface. But if the foreign body is stuck, every blink rubs it across the cornea and makes the scratch deeper.'}
4. {'step': 'Light sensitivity (Photophobia) — you turn away from bright light.', 'why': 'The inflamed cornea and the muscle that shrinks your pupil both hurt when exposed to light, so you squint, close your eyes, or move to a dark room to ease the pain.'}
5. {'step': 'The corneal epithelium tries to heal any scratch left by the speck.', 'why': 'Cells at the edge of an abrasion slide over the wound within 24 to 48 hours if the foreign body is gone and the surface stays moist. If the speck remains, healing stalls and infection risk climbs.'}

## Domino effect

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1. A tiny speck of metal, dirt, wood, or glass lands on the cornea or gets trapped under the eyelid. — Wind, grinding, hammering, or even a gust outdoors can send particles flying into your open eye, and your eyelashes and blink reflex do not always catch them in time.
2. Nerve endings in the cornea fire instantly, causing sharp pain, and tear glands flood the surface. — The cornea has the highest density of pain nerves in the body, so even a speck smaller than a grain of salt hurts a lot. Tears try to wash it away, but sticky or embedded particles stay put.
3. Each blink drags the speck across the cornea, scraping off the outermost cell layer (epithelium) and creating a corneal abrasion. — The inside of your eyelid acts like sandpaper rubbing over glass when a foreign body is stuck. The abraded area loses its protective barrier, exposing raw nerve endings and making pain worse.
4. The abraded cornea becomes a wet, open wound; bacteria from your eyelid, fingers, or the foreign body itself can invade and multiply. — Normal skin bacteria — especially Staph and Pseudomonas — can turn a simple scratch into a corneal ulcer (infected pit) within 24 to 48 hours if the epithelium does not close.
5. If the foreign body was high-speed or sharp, it may penetrate the cornea and enter the inside of the eye, releasing bacteria, fungi, or toxic material (like copper or iron) into the aqueous or vitreous fluid. — Grinding metal, chopping wood, or hammering can send chips flying at hundreds of feet per second. Once inside, the speck can rust, cause inflammation, seed infection (endophthalmitis), or scar the retina.
6. Endophthalmitis (infection throughout the inside of the eye) or a rust ring and dense scar form, clouding the cornea permanently and threatening vision. — Bacteria or fungi multiply in the nutrient-rich fluid inside the eye much faster than on the surface. Even after the infection is controlled, scar tissue on the cornea or retina can block light and blur or destroy central vision.
7. If untreated, a penetrating foreign body or severe infection can lead to loss of the eye or permanent blindness in that eye. — Once the retina detaches, the optic nerve dies, or the entire inside fills with pus, vision cannot be restored. Removing the eye (enucleation) may be the only way to stop pain and prevent spread of infection to the other eye or brain.

## Symptoms · what the patient feels, and why

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- Sharp pain or a scratchy feeling in the eye: The foreign object (a tiny piece of metal, wood, dirt, or other material) rubs against the cornea (the clear dome covering the front of your eye) or the conjunctiva (the thin skin lining the inside of your eyelid and white of your eye), which have many nerve endings that sense touch and pain, so even a speck can hurt a lot.

- Feeling like something is stuck in the eye even after blinking: The object is still there, sitting on or embedded in the surface of the eye or under the eyelid, so every blink drags it across the cornea like sandpaper, keeping the scratchy sensation going.
- Watery eye or lots of tearing: The eye's reflex is to flood the surface with tears to try to wash the object away and protect the cornea from more damage.
- Redness of the eye or eyelid: Tiny blood vessels in the conjunctiva swell and fill with more blood (like when you get a scrape on your skin) because the eye is irritated and inflamed by the foreign body.
- Sensitivity to light (photophobia): The cornea is scratched or irritated, and bright light makes the muscles inside the eye work harder, which increases pain; also, inflammation makes the nerves extra sensitive.
- Blurry vision: The object or the scratch it made disrupts the smooth, clear surface of the cornea (which has to be perfectly smooth to focus light correctly, like a camera lens), and extra tears and swelling blur the image even more.
- Eyelid twitching or spasm: The eye muscles and eyelid react to the pain and irritation by squeezing involuntarily, trying to protect the eye and keep it closed.
- Sudden severe pain and vision loss: The foreign body has penetrated through the outer layers of the eye into deeper structures (called a ruptured globe or intraocular foreign body), causing serious damage to the lens, retina, or fluid-filled chambers inside the eye.
- Pus or thick yellow-green discharge: Bacteria have infected the scratch or wound left by the foreign body, and white blood cells are rushing in to fight the germs, forming pus; this can lead to a corneal ulcer (an open sore on the cornea) or endophthalmitis (infection inside the eyeball).

## Focused exam

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- Visual acuity test in each eye separately: Tells you if the foreign body has scratched the cornea (the clear front window of the eye) or damaged the deeper parts — if vision is blurry or worse than before the injury, the foreign body may have scratched the surface or gone deeper.
- Eyelid eversion (flipping the upper lid inside-out): A piece of metal, wood, or dirt can hide under the upper eyelid and keep scratching the cornea every time you blink — you will never see it unless you flip the lid up and look at the underside.
- Slit-lamp exam with fluorescein dye: The dye glows bright green under blue light wherever the cornea has been scratched (called a corneal abrasion) — this shows you exactly where the injury is and whether a tiny object is still stuck on the surface.

- Pupil shape and reaction to light: If the pupil looks like a teardrop instead of round, or does not shrink when you shine a light, the foreign body may have punched through the cornea all the way into the inside of the eye (a ruptured globe) — this is an emergency that can cause blindness.
- Check for rust ring on the cornea: When a tiny piece of iron or steel sits on the cornea for more than a few hours, rust starts to form in a circle around it — the rust must be scraped off because it will keep irritating the eye and slow healing even after the metal is removed.
- Measure intraocular pressure (eye pressure): Very low pressure (much lower than the normal 10 to 21 mmHg) means the eyeball may be leaking fluid because the foreign body cut all the way through the wall — this is a ruptured globe and you need an eye surgeon right away.

## Diagnostics · every test answers a question

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- Computed tomography (CT) scan of the orbits without contrast → Is there a foreign body inside the eyeball or behind it in the eye socket, especially metal or glass that went in at high speed (like from hammering, grinding, or an explosion)?
- Portable ultrasound of the eye (B-scan) → If the view inside the eye is blocked by blood or the person cannot open the eye for a CT, is there a foreign body floating inside or a detached retina?
- Plain X-ray of the orbit (two views) → Is there a metal foreign body in or around the eye when CT is not available quickly?
- Seidel test (fluorescein dye under the slit lamp with a concentrated stream) → Is clear fluid leaking out through a hole in the cornea, meaning the eyeball wall has been cut all the way through?

## Treatment logic

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- Remove the foreign body with a moistened cotton swab or irrigation → Takes away the thing that is scratching and irritating the cornea with every blink — once it is gone, the scratch (abrasion) can start healing, pain drops fast, and the risk of infection from the object goes away.
- Topical antibiotic drops or ointment (erythromycin or polymyxin-trimethoprim) → Lowers the chance of bacteria growing in the scratch on the cornea and causing an infection (bacterial keratitis) — especially important if the foreign body was dirty (soil, wood, or anything contaminated) or if the scratch is deep.
- Rust-ring removal with a sterile needle or burr under the slit lamp → Scrapes away the rust deposit that formed around a metal foreign body — if you leave rust in the cornea it keeps inflaming the tissue, slows healing, and can leave a permanent scar that clouds vision.

- Topical nonsteroidal anti-inflammatory drops (ketorolac or diclofenac) → Reduces pain from the corneal scratch by blocking prostaglandins (chemicals that make nerve endings hurt) — works faster and lasts longer than oral pain medicine for eye pain.
- Cycloplegic drops (cyclopentolate or homatropine) → Relaxes the muscle inside the eye that focuses the lens and makes the pupil bigger — this stops painful spasms of that muscle (which happen automatically when the cornea is hurt) and makes the eye much more comfortable.
- Immediate ophthalmology referral and eye shield if globe rupture or intraocular foreign body is suspected → Protects the eye from any pressure that could squeeze more of the inside contents out through the hole, and gets the person to a surgeon who can repair the rupture or remove the deep foreign body before infection or retinal detachment sets in.

## Medications

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### **Tetracaine 0.5% ophthalmic drops · Topical anesthetic (numbing eye drops)**

Blocks the pain nerves on the surface of the eye so the doctor can examine and remove the object without causing you discomfort.

1. The drops land on the outer layer of the cornea and conjunctiva.
2. The medicine stops pain signals from starting in the tiny nerve endings right there.
3. Within 30 to 60 seconds, the surface of your eye feels numb, like when a dentist numbs your mouth.
4. The numbness lasts about 10 to 20 minutes—just long enough for the exam and removal.
5. As the drug wears off, normal feeling comes back.

#### **SAFETY WATCH**

Used ONLY in the clinic or emergency department—never prescribed to take home. · Repeated doses can cause serious corneal damage (the clear front of the eye can break down). · If you have an allergy to numbing medicines (local anesthetics), tell your doctor before any drops are used. · Your eye may feel very dry or gritty once the numbness wears off; this is normal.

### **Erythromycin 0.5% ophthalmic ointment · Topical antibiotic**

Kills or stops bacteria from growing on the surface of the eye to prevent infection after a foreign body has scratched or been removed from the cornea.

1. You squeeze a thin ribbon of ointment inside the lower eyelid.
2. The ointment spreads across the surface as you blink.

3. Erythromycin enters bacteria and stops them from making proteins they need to survive.
4. Without those proteins, the bacteria cannot multiply and eventually die.
5. The ointment also coats and protects the scratched area while it heals.

**SAFETY WATCH**

Blurs your vision for 10 to 20 minutes after you put it in—do not drive or use machines right away. · Wash your hands before and after applying to avoid contaminating the tube tip. · Do not touch the tip of the tube to your eye, eyelid, or any surface. · Stop and call your doctor if you develop new pain, increased redness, pus, or worsening vision. · Rarely, some people are allergic to erythromycin and may get more redness or swelling—tell your doctor if this happens.

**Polymyxin B / Trimethoprim ophthalmic drops (Polytrim) · Topical antibiotic combination**

Uses two different antibiotics that work together to kill a wide range of bacteria on the eye surface, preventing infection after a foreign body scratch or removal.

1. Polymyxin B punches holes in the outer wall (membrane) of certain bacteria, causing them to leak and die.
2. Trimethoprim blocks a chemical step bacteria need to build DNA, so they cannot make copies of themselves.
3. Using both drugs at once attacks bacteria in two different ways, making it harder for them to survive.
4. The drops coat the eye surface and kill bacteria that might invade through the scratch.

**SAFETY WATCH**

Usually dosed one drop every three to four hours while awake for about five to seven days. · Do not touch the dropper tip to your eye or any surface. · Stop and call your doctor if you get worse pain, increasing redness, discharge, or vision loss. · Rarely can cause mild stinging or allergic reaction (itching, swelling)—tell your doctor if this happens. · Do not wear contact lenses until your doctor says the scratch is fully healed and it is safe.

**Cyclopentolate 1% ophthalmic drops · Cycloplegic (muscle-relaxing drops for the eye)**

Temporarily paralyzes the muscle inside the eye that controls focusing, which reduces pain caused by muscle spasms after a corneal scratch or foreign body injury.

1. The drops block signals from nerves that normally tell the ciliary muscle to contract.

2. Without those signals, the muscle relaxes completely and stops squeezing.
3. When the muscle stops moving, it also stops hurting—like how resting a cramped leg muscle feels better.
4. The drug also dilates (widens) your pupil by relaxing the iris muscle.
5. The effect lasts about 6 to 24 hours, during which time you cannot focus up close and light feels very bright.

**SAFETY WATCH**

Your vision will be very blurry, especially for reading or looking at your phone, for up to a day. · Your pupil will be large and your eyes will be very sensitive to light—wear sunglasses. · Do not drive or operate machinery until your vision returns to normal. · Tell your doctor if you have glaucoma (high pressure in the eye) or trouble urinating, because these drops can make both worse. · Children may get flushed skin, fast heart rate, or unusual behavior if the drug is absorbed—watch closely and call your doctor if this happens.

**Artificial tears (preservative-free) · Lubricating eye drops (supportive care)**

Adds moisture and creates a smooth, protective coating over the scratched surface of the eye to reduce pain, wash away debris, and help the cornea heal.

1. You put the drops in, and they spread across the front of your eye as you blink.
2. The liquid fills in the scratch and keeps it moist, like putting a wet bandage on a scrape.
3. Moisture prevents the scratch from drying out, which would hurt more and slow healing.
4. The drops also rinse away tiny leftover particles and old blood cells.
5. Preservative-free versions are safest because preservatives can irritate an already injured eye if used many times a day.

**SAFETY WATCH**

Safe to use as often as needed—many people use them every one to two hours. · Choose preservative-free single-use vials if you will use them more than four times a day. · Do not touch the dropper or vial tip to your eye or eyelid. · If your vision gets worse or you develop new pain or discharge, call your doctor. · These do not expire quickly once opened (single-use vials are used once and thrown away).

## Oral NSAIDs (e.g. ibuprofen 400-600 mg) · Non-steroidal anti-inflammatory drug (pain reliever and inflammation reducer)

Blocks chemicals in your body called prostaglandins that cause pain, swelling, and inflammation, helping reduce the discomfort from the eye injury.

1. You swallow the pill, and it is absorbed through your stomach and intestines into your bloodstream.
2. The drug travels to the injured area and blocks an enzyme called cyclooxygenase (COX).
3. COX normally makes prostaglandins, which signal pain and cause blood vessels to leak fluid (swelling).
4. With less prostaglandin, you feel less pain and have less puffiness around the injury.
5. The effect lasts about four to six hours, then you may need another dose.

### SAFETY WATCH

Take with food or milk to reduce stomach upset. · Do not use if you have a history of stomach ulcers, kidney disease, or allergy to aspirin or NSAIDs. · Do not take more than the dose on the label or prescribed by your doctor. · Stop and call your doctor if you get severe stomach pain, black or bloody stools, or signs of an allergic reaction (rash, swelling, trouble breathing). · NSAIDs can raise blood pressure slightly and may interact with blood thinners—tell your doctor all medications you take.

## Red flags

- Severe pain that does not improve after rinsing or removing a surface object
- Sudden vision loss or large dark spots in vision
- Blood visible inside the colored part of the eye (hyphema) or behind the cornea
- Irregular or teardrop-shaped pupil (suggests rupture of the eyeball)
- History of high-speed impact (grinding metal, hammering, explosion) that could drive a particle deep into the eye
- Pus or thick discharge with fever or worsening redness spreading around the eye

## Nursing priorities

1. Do not let the patient rub the eye; cover it loosely with a rigid shield (like a paper cup taped over the eye) if a puncture is suspected — Rubbing or pressing on the eye can push a foreign body deeper, worsen a scratch, or if the eyeball is punctured, squeeze inner fluid and structures out through the hole. A rigid shield protects without touching the eye itself.

2. Check and record vision in each eye separately using a vision chart (or count fingers if no chart available) — Baseline vision tells us how much function remains and whether injury is mild or serious. Any vision worse than 20/40 or a difference between the two eyes signals possible deep injury. Document exact results so the provider knows if vision gets worse.
3. Irrigate the eye with sterile saline if a chemical exposure occurred, or if a loose surface foreign body is visible — Flushing washes away chemicals before they burn deeper; every second counts with acids or bases. For loose particles like dust or sand, gentle irrigation can float them out toward the inner corner where they are easier to remove. Never irrigate if you suspect a puncture through the eyeball.
4. Prepare for fluorescein staining and slit-lamp or Wood's lamp examination by the provider — Fluorescein is an orange dye that glows bright green under blue or ultraviolet light and highlights scratches (corneal abrasions) or embedded particles we cannot see with the naked eye. This exam shows exactly where damage is and guides safe removal.
5. Keep the patient calm and still, positioned sitting upright or semi-upright with head steady — Panic and rapid head movement can shift a foreign body or worsen a puncture. Upright position is more comfortable and reduces the chance of fluid leaking if the eye is open. Calm reassurance lowers anxiety and keeps the patient cooperative during the exam.
6. Have equipment ready: topical anesthetic drops, sterile cotton swab or eye spud, irrigation supplies, antibiotic ointment, and eye patch or shield — Topical anesthetic (numbing drops) stops pain long enough for a safe exam and removal. The provider may need a moistened swab to lift a particle from the cornea or from under the eyelid. Antibiotic ointment after removal prevents infection in the scratch. Efficiency matters because the patient is in pain and any delay prolongs suffering.

## Sources

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- American Academy of Ophthalmology (AAO) Preferred Practice Pattern
- American College of Emergency Physicians (ACEP) Clinical Policy
- UpToDate Clinical Decision Support
- BMJ Best Practice

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