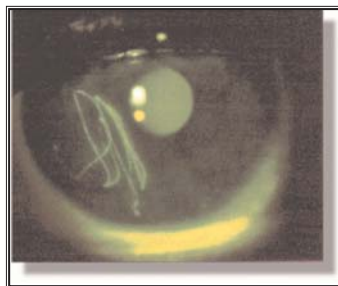
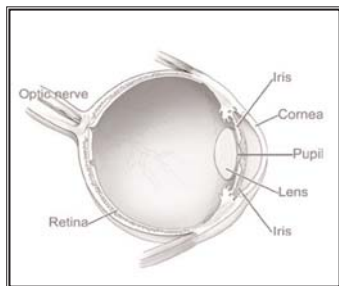


MEDICAL



Dr. Mark D. Fromer is a board-certified ophthalmologist since 1988

What is a corneal abrasion?



A corneal abrasion is a scratch or a cut on the clear outer layer (cornea) of the eye. Cornea is the tough, clear membrane that covers the front of the eye and protects the inner parts of the eye is called the cornea. It serves as the outer lens of the eye and provides approximately 70 to 80 percent of the eye's refractive power. Fine-tuning is provided by the natural crystalline lens that lies behind the pupil. Together these two lenses focus light on the retina at the back of the eye, which sends electrical signals to the brain allowing a person to see. The shape of the cornea and its general condition determine, to a large degree, the visual powers of the eye.

The cornea comprises of five layers;

Epithelium is the outermost layer. It is a covering like the skin, but it is transparent. The majority of nerve endings of the cornea are in this layer, which is why the cornea is sensitive to touch. If damaged, the epithelium grows back in a few days without scarring. Tear film lubricates the epithelium, and insufficient tear film results in dry eyes.

Bowman's membrane is just below the epithelium. It is made of strong collagen fibers; this smooth layer helps the cornea maintain its shape. Scarring will occur if the Bowman's membrane is damaged.

Stroma is the third and thickest layer of the cornea, a layer of neatly compacted fibers that provide the strength for the eye to withstand trauma. Infection, injury, or disease to the stroma will heal. However, scar tissue may cause a disruption in the collagen pattern, resulting in decreased vision.

Decemets' membrane is located directly behind the stroma. It serves as a barrier to infectious organisms while allowing water and nutrients to pass through.

Endothelium is the fifth and innermost layer of the cornea, which is a delicate, one celled thick layer that acts as a fluid regulator for the stroma. It maintains the

cornea in a relative state of dehydration, thereby keeping the collagen fibers neatly compacted and allowing the transmission of light.

Although the cornea contains the highest concentration of nerve fibers of any structure in the human body, it contains no blood vessels.

That is one reason why the cornea remains clear. The cornea receives nutrition from the fluid interior of the eye and from the outer tear film surface.

What causes corneal abrasions?

The most common cause for corneal abrasions is trauma injury.

The most common trauma causes are:

- Scratches from fingernails
- Foreign objects hitting the cornea or getting caught under the eyelid, which then irritates the cornea each time you blink
- Curling irons
- Excessive rubbing of the eye
- Overexposure to ultraviolet light
- Over wearing of contact lenses
- Ill-fitting contact lenses
- Torn contact lenses
- Makeup brushes
- Paper cuts
- Chemical burns

Other causes include underlying eye conditions, such as:

- Irregular eyelashes growing in the eye and rubbing the cornea
- Inability to fully close the eyelids
- Abnormalities of the lid position
- Severe dry eye conditions
- Severe, chronic blepharitis (inflamed eyelids)

What are the characteristics of corneal abrasion?

The most common symptoms of a corneal abrasion are redness, pain, blurred vision, excessive tears, sensitivity to light, or Sensation of foreign body in the eye and at times swollen eyelids.

How long does it take to heal?

Depending on the severity, in many cases the cornea will heal completely in 24 to 48 hours, with out leaving any permanent

damage. However, if the pain is severe or constant, contact an eye doctor to decide if treatment is required. An anesthetic eye drop is used during the examination to ease the pain, and the most common treatment is antibiotic drops or ointment to prevent infection.

The eye is normally covered with a tight patch after treatment to prevent the eyelid from moving.

This patch is usually worn for at least 24 hours to prevent the healing cells from being disturbed and causing continuing problems. New cells require time to reconnect to the undamaged layers of the cornea.

Contact lens wearers should not wear lenses for at least 24 hours following treatment, because the contacts could slow the healing process. Medications may also stain or cloud soft lenses.

Superficial abrasions rarely cause permanent loss of vision. However, it may take several weeks for clear vision to return, and it is very important during the healing process not to rub the eyes.

Sometimes, long after an abrasion has healed, it can recur spontaneously. This recurrence can appear when you wake up in the morning. It happens when an area of the epithelium has not reconnected to the deeper parts of the cornea. Treatment is similar to that for the original abrasion.

The eye care professional can use a special instrument to help form better connections between corneal layers. Ointments and/or lubricants may also help in preventing recurrent erosions.

What measures can prevent corneal abrasions?

Corneal abrasions can often be prevented with a few precautions.

- Exercise extreme care when using any objects near the eyes.
- Wear protective goggles when working around any materials that may fly up near the eyes.
- Trim low-hanging tree branches in the yard.
- Wear goggles or glasses when walking through areas of heavy brush.
- If you wear contact lenses, be careful putting them in and taking them out.
- Keep the fingernails of infants and small children clipped short.

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