

A corneal ulcer forms when the surface of the cornea is damaged or compromised. Ulcers may be sterile (no infecting organism) or infectious. The term infiltrate is also commonly used along with ulcer. Infiltrate refers to an immune response causing an accumulation of cells or fluid in an area of the body where they don't normally belong.

Whether or not an ulcer is infectious is an important distinction for the physician to make and determines the course of treatment. Bacterial ulcers tend to be extremely painful and are typically associated with a break in the epithelium, the superficial layer of the cornea. In some cases, the inflammatory response involves the anterior chamber along with the cornea. Certain types of bacteria, such as *Pseudomonas*, are extremely aggressive and can cause severe damage and even blindness within 24-48 hours if left untreated.

Sterile infiltrates on the other hand cause little if any pain. They are often found near the peripheral edge of the cornea and are not necessarily accompanied by a break in the epithelium.

There are many causes of corneal ulcers. Contact lens wearers (especially soft) have an increased risk of ulcers if they do not adhere to strict regimens for the cleaning, handling, and disinfection of their lenses and cases. Soft contact lenses are designed to have very high water content and can easily absorb bacteria and infecting organisms if not cared for properly. *Pseudomonas* is a common cause of corneal ulcers seen in those who wear contacts.



Bacterial ulcers may be associated with diseases that compromise the corneal surface, creating a window of opportunity for organisms to infect the cornea. Patients with severely dry eyes, difficulty blinking, or are unable to care for themselves, are also at risk. Other causes of ulcers include herpes simplex viral infections; inflammatory diseases; corneal abrasions or injuries; and other systemic diseases.

### Signs and Symptoms

The symptoms associated with corneal ulcers depend on whether they are infectious or sterile, as well as the aggressiveness of the infecting organism:

- Red eye
- Severe pain (not in all cases)
- Tearing
- Discharge
- White spot on the cornea (may or not be visible to the naked eye)
- Light sensitivity

**Detection and Diagnosis**

Corneal ulcers are diagnosed with a careful examination using a slit lamp microscope. Special types of eye drops containing dye such as fluorescein may be instilled to highlight the ulcer, making it easier to detect.

If an infectious organism is suspected, the doctor may order a culture. After numbing the eye with topical eye drops, cells are gently scraped from the corneal surface and tested to determine the infecting organism.

**Treatment**

The course of treatment depends on whether the ulcer is sterile or infectious. Bacterial ulcers require aggressive treatment. In some cases, antibacterial eye drops are used every 15 minutes. Steroid medications are avoided in cases of infectious ulcers. Some patients with severe ulcers may require hospitalization for IV antibiotics and around-the-clock therapy. Sterile ulcers are typically treated by reducing the eye's inflammatory response with steroid drops, anti-inflammatory drops, and antibiotics.