

# Cellulitis

## **What is cellulitis?**

Cellulitis is an infection or inflammation of the eyelid skin and/or the eye socket (orbit) and surrounding tissue.

## **What is the orbital septum?**

The orbital septum is a fibrous membrane that separates the eyelid skin from the deeper structures of the orbit.

## **What is preseptal cellulitis?**

Preseptal cellulitis is an infection or inflammation of the eyelid skin that does not extend beyond the orbital septum into the orbit.

## **What is orbital cellulitis?**

Orbital cellulitis is an infection or inflammation involving the deeper structures of the orbit. Since the orbit has direct communications with the sinuses, infection can spread into the orbit in a patient with a sinus infection. Orbital cellulitis is usually more serious than preseptal cellulitis.

## **What are the differences in the signs and symptoms of preseptal and orbital cellulitis?**

It can be very difficult to distinguish between preseptal and orbital cellulitis, even for your doctor. In both conditions, the eyelids appear red and swollen [See figure 1]; however, in patients with preseptal cellulitis the eyes move normally and are positioned normally in the eye socket. With orbital cellulitis, there can be restriction of eye movements, and the eye might appear to be protruding more than is normal. With orbital cellulitis there may be a decrease in vision or color vision, and an abnormal pupil reaction, which is not usually seen in preseptal cellulitis.



**Fig. 1:** Preseptal cellulitis due to methicillin-resistant staphylococcus aureus (MRSA)

### **What causes preseptal cellulitis?**

The swelling/redness results from infection or inflammation. Causes include:

- Sinusitis
- Local spread of infection from other nearby sites (such as [chalazion](#) or recent previous surgery)
- Spread of infection from blood
- Insect bite
- Allergic reaction

### **How is preseptal cellulitis evaluated?**

A history and physical examination is performed. Blood may be tested for signs of infection. An imaging study (CT scan or MRI) may be obtained to evaluate for spread beyond the septum into the orbit.

### **How is preseptal cellulitis treated?**

Antibiotics are used if a bacterial infection is suspected. Typically, antibiotics are given by mouth or by an injection, but IV medications are sometimes used. Sometimes a child may need to be admitted to hospital for monitoring. Cool compresses and antihistamines can also be used to treat symptoms related to allergy or an insect bite.

### **What are the complications of preseptal cellulitis?**

Infection can spread posteriorly into the orbit or other structures (see orbital cellulitis). Preseptal cellulitis usually responds to proper treatment and there is generally full recovery.

### **What causes orbital cellulitis?**

Spread of infection is the most common cause of orbital cellulitis. Causes include:

- Sinusitis (the most common cause)
- Trauma or foreign body
- Recent surgery
- Infection from the blood
- Tooth abscess

### **How is orbital cellulitis evaluated?**

A history and physical examination is performed. Blood may be tested for infection. An imaging study (CT scan or MRI) may be obtained to evaluate for spread into and possibly beyond the orbit.

### **How is orbital cellulitis treated?**

Treatment for orbital cellulitis usually involves admission to the hospital for close observation and intravenous antibiotic therapy. Consultation by an Ophthalmologist and possibly an Otolaryngologist are often recommended. Surgery to drain the orbital and sinus infection may be necessary if the condition does not improve or worsens. Patients are monitored carefully for loss of vision or evidence of pressure on the optic nerve.

### **What are the complications of orbital cellulitis?**

Spread to surrounding tissue can cause significant worsening of the illness. Spread to the brain from the sinuses and orbit may cause a brain abscess (walled off infection), meningitis (infection in tissues surrounding the brain) and/or hydrocephalus (increased pressure in the brain). These serious complications often require intensive care and possibly emergency surgery. Rarely, these complications may result in death. However, orbital cellulitis usually responds to proper treatment and there is generally full recovery.