

CORNEAL TRANSPLANT (Penetrating Keratoplasty)

New windows for sight

Ophthalmologists perform more than 40,000 corneal transplants each year in the United States. Of all transplant surgery done today—including heart, lung, and kidney— corneal transplants are the most common and successful.

What is the cornea?

The cornea is the clear front window of the eye that covers the colored iris and the round pupil. Light is focused while passing through the cornea so we can see.

How can an unhealthy cornea affect vision?

If the cornea is injured, it may become swollen or scarred, and its smoothness and clarity may be lost. Scars, swelling, or an irregular shape can cause the cornea to scatter or distort light, resulting in glare or blurred vision. A corneal transplant is needed if:

- vision cannot be corrected satisfactorily with eyeglasses or contact lenses;
- painful swelling cannot be relieved by medications or special contact lenses.

What conditions may cause the need for a corneal transplant?

- corneal failure after other eye surgery, such as cataract surgery;
- **keratoconus**, a steep curving of the cornea;
- hereditary corneal failure, such as **Fuchs' dystrophy**;
- scarring after infections, especially after herpes;
- rejection after a first corneal transplant;
- scarring after injury.

What happens if you decide to have a corneal transplant?

Before surgery

Once you and your ophthalmologist decide you need a corneal transplant, your name is put on the list at the local eye bank. Usually the wait for a donor cornea is not very long. Before a cornea is released for transplant, the eye bank tests the human donor for the viruses that cause hepatitis and AIDS. The cornea is carefully checked for clarity.

The day of surgery

Surgery is often done on an outpatient basis. Once you arrive for surgery, you will be given eyedrops and perhaps a sedative to help you relax. Either local or general anesthesia is used, depending on your age, medical condition, and eye disease. You will not see the surgery while it is happening.

The operation

The eyelids are gently opened. Your ophthalmologist will view your eye through a microscope and measure your eye for the corneal transplant. The diseased or injured cornea is carefully removed from the eye. Any necessary additional work within the eye, such as removal of a cataract, is completed. Then the clear donor cornea is sewn into place. When the operation is over, your doctor will usually place a shield over your eye.

After surgery

If you are an outpatient, you may go home after a short stay in the recovery area. An examination at the doctor's office will be scheduled for the following day. You will need to:

- use the eyedrops as prescribed;
- be careful not to rub or press on your eye;
- use over-the-counter pain medicine, if necessary;
- continue normal daily activities but avoid strenuous exercise or activities until cleared by your doctor;
- wear eyeglasses or an eye shield for protection, as advised by your doctor;

Your ophthalmologist will decide when to remove the stitches, depending upon the health of your eye and rate of healing. Usually, it will be one year before stitches are removed, but this varies depending on the specific technique used. Often, stitches are left in place permanently.

What complications can occur?

Corneal transplants are rejected five percent to 30 percent of the time. The rejected cornea clouds and vision deteriorates. Most rejections, if treated promptly, can be stopped with minimal injury. Warning signs of rejection are:

- persistent discomfort;
- light sensitivity;
- redness;
- change in vision.

Any of these symptoms should be reported to your ophthalmologist immediately.

Other possible complications include:

- infection;
- bleeding;
- swelling or detachment of the retina;
- glaucoma.

All of these complications can be treated. A corneal transplant can be repeated, usually with good results, but the overall rejection rates for repeated transplants are higher than for the first transplant. Irregular curvature of the transplanted cornea (astigmatism) may slow the return of vision but can also be treated. Vision may continue to improve up to a year after surgery.

If the surgery is successful, other existing eye conditions, such as macular degeneration, glaucoma, or diabetic retinopathy, may limit vision after surgery. Even with such problems, a corneal transplant may still be worthwhile. A successful corneal transplant requires care and attention on the part of both patient and physician. However, no other surgery has so much to offer when the unhealthy cornea is deeply scarred or swollen.