

Corneal Transplant Surgery

A Guide for Patients



TABLE OF CONTENTS

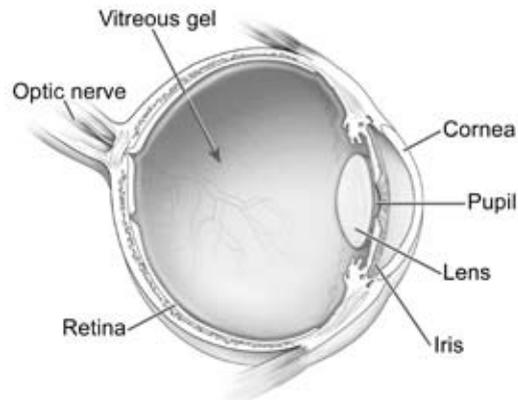
Introduction.....	1
What Is Corneal Transplant Surgery?.....	2
The Donor Cornea	3
The Surgery	4
After Surgery	5
Graft Rejection	6
Signs of Graft Rejection.....	7
Other Problems that May Occur.....	8
FAQs about Corneal Transplant Surgery	9
Using Eye Drops.....	11
Contacts.....	12

INTRODUCTION

Some 46,000 people have cornea transplants each year. This is a sight-saving surgery, but it also requires patients and ophthalmologists to work closely together to insure the success of the surgery.

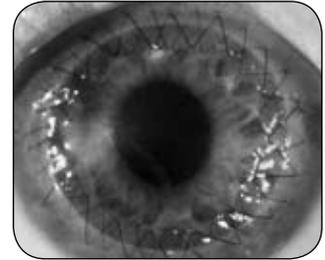
This booklet will help you and your family understand corneal transplant surgery and explain what you need to know during the recovery period. Please take time to read this information before surgery and save it for future reference.

What is the cornea? – The cornea is the clear, dome-shaped tissue covering the front of the eye. It is about the size of a dime and the thickness of a credit card. The cornea is kept moist and nourished by a thin layer of tears. It is kept smooth by the blinking of the eyelids. If the cornea becomes distorted in shape, scarred, or hazy (opaque) from disease or injury, the light rays passing through it are distorted and the vision is reduced. In some cases, a corneal transplant may be necessary to replace the diseased or injured cornea with a healthy, clear cornea to restore good vision.



**WHAT IS
CORNEAL
TRANSPLANT
SURGERY?**

In corneal transplant surgery the scarred or damaged cornea is removed and replaced by a human donor cornea called a graft. Corneal transplant surgery also is called *penetrating keratoplasty* or *corneal grafting*. Your eye is the recipient eye because it receives the graft. The other person's cornea is the donor cornea or donor tissue because the cornea is being donated or given to you.



THE DONOR CORNEA

An eye bank provides the donor tissue for corneal transplant surgery. The corneas are obtained from deceased individuals who arranged for donation prior to their death or whose families gave permission. Many eye banks are supported by Eye-Bank Ambassadors, volunteer groups composed of corneal transplant recipients and family members of eye tissue donors. These Ambassadors help increase awareness about eye tissue donation and corneal transplantation by sharing their personal experiences as well as describing the difference the procedure has made in their lives.

The normal cornea does not have any blood vessels. It is thought that this lack of blood vessels may prevent the body from recognizing the “foreign” donor cornea. Ongoing research studies in compatibility testing between donor and recipient may lead to ways of increasing the chance of a successful outcome in high-risk patients.

Race, sex, blood type, eye color, and near- and farsightedness are not considered in selecting the donor because they do not affect the outcome of the corneal transplant surgery.

Recent advances in techniques for storing donor corneas in fluid for several days have improved the chances of successful surgery. This also allows for better planning and timing of surgery.

THE SURGERY

Corneal transplants are performed on an outpatient basis under local anesthesia. The surgeon performs the surgery while looking at the eye through a microscope. A cookie cutter-like knife called a *trephine* is used to cut and remove a circular piece from the recipient's scarred cornea. A similar knife is used to cut and remove a piece from the donor cornea. The donor cornea then is placed where the recipient's cornea was removed. It is sewn into place with very fine sutures which are smaller in diameter than a human hair.

In some situations, your surgeon may be transplanting only part of the corneal thickness. When only the front part is transplanted, it is called *anterior lamellar keratoplasty*. When only the back part is transplanted, it is called *endothelial keratoplasty*. Some variations of endothelial keratoplasty include DLEK (*deep lamellar endothelial keratoplasty*) and DSEK (*Descemet's stripping endothelial keratoplasty*). These procedures may not require sutures.



Once the donor cornea is on the recipient's eye, it is sutured into place.

Eventually, most of the donor tissue is replaced by your own cells. Because of the cornea's lack of blood supply, healing takes place very slowly. You will be asked to wear your eye shield for a few weeks. Sutures may not be removed for months. They are removed easily in the office.

Restoration of vision after corneal transplant surgery is gradual. The vision in the operated eye will be somewhat blurred and distorted until final glasses or contact lenses are prescribed.

There are things you can do to help insure the success of the surgery. It is especially important to avoid situations in which you might sustain a blow to the operated eye. This could damage or loosen the new cornea. In addition, you will need to use eye medications for many months and have regular check-ups with your ophthalmologist. Failure to follow the schedules for medications and examinations could greatly decrease the chance of a successful surgery.

The next few pages will describe some problems that could delay or prevent the return of useful sight in your operated eye. There is a good chance for successful treatment of these problems if they are treated early.

AFTER SURGERY

GRAFT REJECTION

There always is a possibility that the body will reject the graft. This is like an “allergic” reaction of the body against the donor cornea. It can occur any time after the surgery. There is a good chance this can be treated successfully if you act immediately. There are four danger signs you must know. If any of these occur and last for more than 12 hours, you should call your ophthalmologist – even if it is a weekend or a holiday.

To remember the signs of graft rejection, remember the letters:

R S V P

- Redness
- Sensitivity to light
- Vision changes
- Pain

Make a habit of checking your eye every day. Check your vision at about the same time and in the same lighting each day, perhaps at the same time you do another routine activity, such as brushing your teeth.

SIGNS OF GRAFT REJECTION

Redness – For a few weeks after surgery, your eye may be red. If at any time your eye begins to get redder, you should call your ophthalmologist. You easily can check the redness of your eye by looking into a mirror and pulling down the lower lid. Look carefully at the white part of the eye, especially in the area next to the cornea.

Sensitivity to light – Bright lights may seem irritating to your eye after surgery. This, too, slowly should get better. If you notice your eye becoming so sensitive to light that you feel like covering it, you should call your ophthalmologist.

Vision changes – Your vision most likely will improve gradually after your surgery. Make a habit of checking your vision every day. Check it at about the same time and in the same light. Pick an object in your house that has some pattern or detail to it. Look at the object with your operated eye while covering the other eye with your hand. If your vision seems to be getting worse, you should call your ophthalmologist.

Pain – It is normal to have occasional small twinges of pain in your eye. If your eye develops constant pain or dull aching that lasts several hours, call your ophthalmologist.

**OTHER
PROBLEMS
THAT MAY
OCCUR**

Wound separation – A small gap may occur in the area where the edge of the graft is sewn into the eye. You may have no symptoms at all or you may feel a dull ache. The wound separation might be treated with a light patch or a soft contact lens. It is possible the graft may require additional suturing in the operating room.

Loose or broken suture – Occasionally, a suture can loosen or break during the healing process. This may cause a “gritty” foreign body sensation, especially when you blink. The loose suture can be removed easily in the office.

Astigmatism – This occurs when the grafted cornea has the oblong shape of a football rather than the round shape of a basketball. All grafts have some astigmatism and this usually can be corrected with glasses or contact lenses. If the astigmatism is severe, a special kind of surgery often can correct it.

How long will the surgery take? – You will be in the operating room for 1-2 hours, but the actual surgery will take less time.

Will I have discomfort? – Following surgery, your eye most likely will be red, irritated, and sensitive to light. You may experience increased tearing and a slight discharge. Discomfort usually is controlled with Tylenol or another brand of acetaminophen during the first few days after surgery.

Will my eye be covered? – Your eye will be covered with a patch and a metal shield the day of surgery. Your glasses may not fit over the patch and shield. Your surgeon most likely will remove the patch and shield at your follow-up appointment the next day. You must wear the patch and shield over your eye while sleeping or showering.

Will I have sutures (stitches)? – Most people will have sutures, although you probably will not be aware of them. Some sutures may be removed as early as three months after surgery. Others may remain as long as four years or more.

Will I need eye drops? – You will need to use eye drops and ointment to quiet inflammation and prevent graft rejection.

Do I need to restrict my activities? – Your nurse and surgeon will talk to you about activity restrictions. You should avoid any activities that could involve a direct blow to the eye, such as contact sports.

FAQS
ABOUT
CORNEAL
TRANSPLANT
SURGERY

Will my vision change? – Vision usually is blurred after surgery. It gradually improves as healing takes place. As the eye heals and the sutures are removed, the shape of the cornea changes. Therefore, your surgeon usually will wait between 3 and 12 months before prescribing a new lens for your glasses. If needed, a contact lens may be prescribed.

When can I drive? – If the vision in your other eye is adequate for driving, you may drive after the anesthetic has completely worn off. This may take up to 12 hours. Your surgeon may recommend you wait several days before driving. Remember, you must have someone to drive you home from the hospital as well as someone to bring you back the next day for your follow-up visit.

When can I return to work? – This depends on your work activities, your comfort, and your vision. Some patients with desk jobs can return to work within a few days. Other people can be off work for a few weeks.

When can I stop worrying about the chance of graft rejection? – The risk of corneal transplant rejection is low. However, it is possible to have a rejection at any time – even many years after your transplant surgery – and it is important to know the signs of rejection (see page 7). A corneal transplant can be repeated, usually with good results. However, the overall rejection rates for repeated transplants are slightly higher than for the first transplant.



1 Wash hands with soap and water before putting in the drops.



2 Pull down the lower lid with one finger, forming a "pouch" as shown.



3 Look up.



4 Put one drop in the "pouch" of the lid. Do not touch the top of the bottle to the lid. If the drop does not go into the eye, try again.



5 Close eye for one full minute after each drop.

USING EYE DROPS

Wait five minutes between drops to the same eye. Avoid pressure on the eye.

CONTACTS

How do I reach my ophthalmologist if I have any questions?

Kellogg ophthalmologists can be reached at 734.763.5904 between 8 a.m. and 5 p.m. weekdays. During evenings, weekends, and holidays, you can call the paging operator at 734.936.6267 and ask for the ophthalmologist on call.

How can I thank the donor's family?

Information about the donor is confidential, but you may write the family and send the letter to the Michigan Eye-Bank. They will forward it to the family.

Michigan Eye-Bank

4889 Venture Drive
Ann Arbor, MI 48108
734.780.2100
www.michiganeyebank.org

University of Michigan

Kellogg Eye Center

Cornea Clinic
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Ann Arbor, MI 48105
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www.kellogg.umich.edu/patientcare/cornea.service.html

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