

Corneal transplant

In a corneal transplant, or keratoplasty, healthy corneal tissue from a human donor replaces a damaged part of the cornea. Corneal transplants help restore corneal clarity lost through injury, inflammation, ulceration, or chemical burns. They may also correct corneal dystrophies such as keratoconus, the abnormal thinning and bulging of the central portion of the cornea.

A corneal transplant can take one of two forms: a full-thickness penetrating keratoplasty, involving excision and replacement of the entire cornea, or a lamellar keratoplasty, which removes and replaces a superficial layer of corneal tissue. The full-thickness procedure, the more common of the two, produces a high degree of clarity and restores vision in 95% of patients.

A lamellar transplant is used if damage is limited to the anterior stroma or if the patient is uncooperative and may be expected to exert pressure on the eye after surgery. The degree of clarity produced by a lamellar transplant rarely matches that of a full-thickness graft. As a treatment for dystrophies, its success depends on the type and extent of the abnormality.

Because the cornea is avascular and doesn't recover as rapidly as other parts of the body, healing may take up to a year. Usually, sutures remain in place and vision isn't completely functional until healing is complete.

Procedure

In a full-thickness keratoplasty, the surgeon cuts a "button" from the donor cornea and a button from the host cornea, sized to remove the abnormality. Next, he anchors the donor button in place with extremely fine sutures. To end the procedure, he patches the eye and tapes a shield in place over it.

In a lamellar, or partial-thickness, keratoplasty, the surgeon excises a shallower layer of corneal tissue in both the donor and the host corneas. He then peels away the excised layers of tissue and sutures the donor graft in place. As in the full-thickness procedure, he patches the eye and applies a rigid shield.

Complications

Graft rejection occurs in about 15% of patients; it may happen at any time during the patient's life. Uncommon complications include wound leakage, loosening of the sutures, dehiscence, and infection.

Key nursing diagnoses and patient outcomes

Anxiety related to potential for graft rejection following a corneal transplant. Based on this nursing diagnosis, you'll establish these patient outcomes. The patient will:

- verbalize his feelings of anxiety

- develop effective coping behaviors
- maintain autonomy and independence, without being handicapped by fears or phobic behavior.

Risk for infection related to surgical procedure and use of ophthalmic corticosteroid medication that may mask infection. Based on this nursing diagnosis, you'll establish these patient outcomes. The patient will:

- not exhibit inflammation or drainage in his operative eye
- not develop an infection in his operative eye.

Disturbed sensory perception (visual) related to photophobia in the operative eye caused by corneal transplant. Based on this nursing diagnosis, you'll establish these patient outcomes. The patient will:

- express an understanding of the need to wear dark glasses whenever he's exposed to bright light
- report a gradual reduction in photophobia
- report a cessation of photophobia after healing is complete.

Nursing interventions

With a corneal transplant patient, your major roles include watching for complications and instructing the patient how to care for his eye.

Before surgery

- Explain the transplant procedure to the patient and answer any questions he may have. Advise him that healing will be slow and that his vision may not be completely restored until the sutures are removed, which may be in about a year.
- Tell the patient that most corneal transplants are performed under local anesthesia and that he can expect momentary burning during injection of the anesthetic. Explain to him that the procedure will last for about an hour and that he must remain still until it has been completed.
- Tell the patient that analgesics will be available after surgery because he may experience a dull aching. Inform him that a bandage and protective shield will be placed over the eye.
- As ordered, administer a sedative or an osmotic agent to reduce intraocular

pressure. Ensure that the patient has signed a consent form.

After surgery

- After the patient recovers from the anesthetic, assess for and immediately report sudden, sharp, or excessive pain; bloody, purulent, or clear viscous drainage; or fever. As ordered, instill corticosteroid eyedrops or topical antibiotics to prevent inflammation and graft rejection.
- Instruct the patient to lie on his back or on his unaffected side, with the bed flat or slightly elevated as ordered. Also, have him avoid rapid head movements, hard coughing or sneezing, bending over, and other activities that could increase intraocular pressure; likewise, he shouldn't squint or rub his eyes.
- Remind the patient to ask for help in standing or walking until he adjusts to changes in his vision. Make sure that all his personal items are within his field of vision.

Home care instructions

- Teach the patient and his family to recognize the signs of graft rejection (inflammation, cloudiness, drainage, and pain at the graft site.) Instruct them to immediately notify the doctor if any of these signs occur. Emphasize that rejection can occur many years after surgery; stress the need for assessing the graft *daily* for the rest of the patient's life. Also, remind the patient to keep regular appointments with his doctor.
- Tell the patient to avoid activities that increase intraocular pressure, including extreme exertion; sudden, jerky movements; lifting or pushing heavy objects; and straining during defecation.
- Explain that photophobia, a common adverse reaction, gradually decreases as healing progresses. Suggest wearing dark glasses in bright light.
- Teach the patient how to correctly instill prescribed eyedrops.
- Remind the patient to wear an eye shield when sleeping.

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- Tell the patient to consult with the surgeon before driving or participating in sports or other recreational activities.

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Version: rel9.2.0, SourceID 1.9998.1.313