

In keratoconus
the cornea is thin and
irregular.



The central epithelium and
stroma are removed.



The graft is sutured in
place.

Cornea

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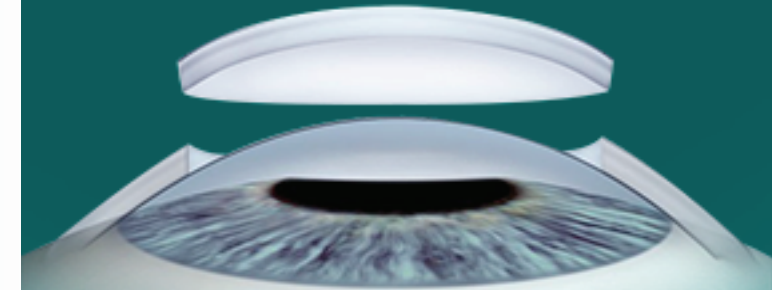
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Deep Anterior Lamellar
Keratoplasty
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DEEP ANTERIOR LAMELLAR KERATOPLASTY (DALK)



What is Deep Anterior Lamellar Keratoplasty?

Deep anterior lamellar keratoplasty (DALK) is a partial thickness corneal graft in which the outer part of the cornea is replaced. This leaves the patient's inner endothelial cell layer and Descemet's membrane in place.

Some corneal conditions such as keratoconus, and corneal scarring following corneal ulceration, primarily affect the corneal stroma. These conditions benefit the most with DALK procedure.

How is DALK performed?

The procedure is technically skilled and involves cutting the cornea to almost 95% thickness, and removing the top layer. After removing the unhealthy part of the cornea, a donated cornea from which the innermost layers (Descemet's membrane and endothelium) have been removed is stitched into place and the sutures remain for around 12 to 18 months.

What is Femtosecond assisted Anterior Lamellar Keratoplasty (FALK)?

In this procedure femtosecond laser is used to cut the superficial layers of donor and recipient cornea. It is a sutureless procedure which reduces the post operative astigmatism. Donated cornea is sutured into place and the sutures remain for around 12 to 18 months.

What are the benefits?

DALK removes and replaces the pathological corneal stroma while preserving the healthy host endothelium. This eliminates the risk of endothelial graft rejection and has less effect on endothelial cell count. In comparison, DALK avoids most complications associated with penetrating keratoplasty like peripheral anterior synechiae, expulsive choroidal hemorrhage and endophthalmitis. Criteria for donor tissue selection in DALK is less stringent.

What are the risks?

The risks of the surgery include, but are not limited to:

- Infection
- Bleeding
- Non-adherence of graft
- Loss of vision
- Graft rejection
- Increased pressure inside the eye
- Conversion to full thickness graft (penetrating keratoplasty)
- Cataract formation and
- Recurrence of the original problem.

What complications can arise at the time of surgery?

One of the most common complications to occur during the operation is tearing or perforation of the delicate Descemet's membrane and endothelial layer and having to convert to a full thickness corneal transplant. Other post operative complications include Urrets Zavalía Syndrome (fixed dilated pupil), interface wrinkling or graft rejection.

What is the post-operative course?

After the surgery, the eye will have a little pain, redness, watering and sensitivity to light. Steroid and antibiotic drops are used and will continue as required. After a week or so, the eye will be feeling more comfortable, and normal activities and non-strenuous work can be resumed.

What is the long-term outcome?

It takes 6 to 9 months for the cornea to heal completely. A spectacle or contact lens will be necessary to obtain the best vision. Alternatively it may be possible to improve the vision by further treatment of the cornea with laser surgery.