

Corneal Transplants

Why would I need a transplant?

The cornea is the clear window at the front of the eye in front of your iris (the coloured part of the eye). In order for you to see clearly, the cornea needs to fulfil its main two roles:

- To be transparent
- To have a regular shape to focus the light onto the retina (the photographic film at the back of the eye).

If, for a variety of reasons, your cornea is failing at either or both of those duties then corneal transplant may be an option for you.

Common causes for needing a corneal transplant include:

- Keratoconus
- Scarring from previous infection or injury
- Repeating an old/failed transplant

Historically, corneal transplants have involved replacing the full thickness of the cornea and replacing with a full thickness transplant from a deceased donor. This procedure is still occasionally required, but has largely been replaced by more recent developments where only a partial thickness transplant is used.

The Operation

The operation is usually performed under either local or general anaesthetic, and takes between 1-2 hours.

The transplant is prepared by the surgeon before you are brought into the operating theatre. The central part of your cornea is removed leaving a rim around the edge. A similar procedure is done to the donor and the new cornea is sutured into your cornea with microscopic sutures (stitches).

Recovery timescale after corneal transplant

Usually the vision will be misty in the first few days and should clear by the end of the 6th week. At this point the vision usually stabilises but it is not the final result.

You only achieve the final result once the sutures are removed. As the cornea does not have a blood supply it heals very slowly and the sutures are usually kept in for 12 months or more. A second visit to the operating theatre is required to remove the sutures, but this only takes about 15 minutes. Once the sutures are all out, the transplant can achieve its final shape.

After this point the shape of the cornea and the degree of glasses prescription needs to be assessed. There is some degree of luck as to how regular the shape of the transplant is and the magnitude of glasses prescription. At this point it is sometimes necessary to improve the vision with glasses, contact lenses or further surgery.

What are the risks of corneal transplant:

Primary failure: A small number of transplants will never clear the cornea. This may occur in less than 1 in 20 operations. If this occurs the transplant may need to be repeated.

Delayed healing: – rarely the surface of the cornea struggles to heal within the first few weeks which leads to an ulcer on the surface of the eye which may require further treatments or surgery. Without treatment this can risk infection or scarring in the transplant.

Suture related problems: The microscopic sutures are required to last more than 12 months until they are removed. Sometimes one or more can break before they are removed, which can lead to a gritty feeling in the eye and increases the risk of infection in the transplant or rejection.

Once the transplant has cleared and the vision improved there are a few main ways in which the transplant may fail later on:

Rejection – your body's immune system detects the transplant as foreign and attacks it. Caught early this process can be reversed and the transplant saved.

If too much damage has occurred to the transplant then it may need to be repeated.

Secondary failure – even without rejection, the transplant may come to the end of its natural life. (Remember the transplant has already been part of someone else's cornea for possibly up to 60-80 years before it was inserted into your eye) If this occurs you would notice very slow clouding of the vision over several months. If a transplant begins to naturally fail there is not anything that can be done to prevent this, however the transplant can usually be repeated. In a healthy eye (without significant other disease) we would expect approximately a 50% chance your transplant should last at least 20 years.

Irregular shape – on occasion, even with a healthy and transparent transplant, the shape/curvature is irregular, resulting in low vision. This is sometimes an indication to repeat the transplant.

Vascularisation / scarring – the transplant can sometimes develop new blood vessels and/or scarring which limits the vision.

Side effects from steroid eye drops – the steroid eye drops you have to take after the transplantation reduce the risk of rejection but carry their own side effects, such as:

1. Cataract – if you have not already had cataract surgery, then the combination of eye surgery and long term steroids may accelerate the rate at which you will develop a cataract (cloudy lens inside the eye) so that you may require cataract surgery at a younger age than the national average of approximately 75.

2. Raised eye pressure – high eye pressure left untreated can lead to glaucoma, which damages the optic nerve slowly over years leading to reduced visual fields. Detected early, this can usually be managed very successfully, often with drops or further surgery.
3. There are other less common side effects from long term steroid use such as increased predisposition to corneal infections.

In addition to the risks of transplant as above there are also risks common to every intraocular procedure, such as:

1. Retinal swelling (macular oedema). This may occur in less than 20% of endothelial transplants. It can lead to reduced vision but usually resolves successfully on its own or with eye drops. Occasionally steroid injections are needed in or around the eye.
2. Any intraocular procedure has a risk of approximately 1:1000 of an intraocular infection or haemorrhage that can leave you significantly worse off, blind, or requiring removal of the eye. This is extremely uncommon.

If there are any other significant risks that are relative to you individually, this will be discussed with you by your surgeon.

What happens after the operation?

You will return home later the same day after surgery. You may need to wait for a while on the ward before going home. In a minority of cases you may be asked to posture on your back for a certain amount of time on the ward before you leave.

You will need to use steroid eye drops usually lifelong after a corneal transplant to minimise the risk of rejection but you do not usually require drugs which suppress your whole immune system as with other types of organ transplant. The frequency of instillation of steroid eye drops is usually 4-6 times a day to begin with and is tapered over a few months to once a day which usually continues indefinitely unless there are problems with steroids.

Once the donor-host corneal complex heals (can take up to 24 months) majority of patients would need either glasses or contact lenses to improve visual acuity. Although optical rehabilitation with contact lenses can start as early as three months after the transplant, the clinical status of the graft and individualized postoperative protocols can also impact timing for contact lens rehabilitation.

Follow up

Typical follow up after transplantation is usually:

1 weeks, 2 weeks, 6 weeks, 3, 6, 12 months and then annually thereafter.

If you have been referred to Exeter from another hospital then often you may be able to return to your original hospital for long term follow up if the journey is difficult for you – please remember to speak to your surgeon about this if this is the case.

It is of vital importance that you do not stop your steroid eye drops without informing the eye department. The eye department will provide you with the initial

prescriptions but subsequent repeat prescriptions should come from your GP.

SOS

If you develop the following symptoms:

- Redness
- Light sensitivity
- Vision Loss/Cloudiness
- Pain

You need to contact the eye department to organise an urgent review.

The Trust cannot accept any responsibility for the accuracy of the information given if the leaflet is not used by Royal Devon staff undertaking procedures at the Royal Devon hospitals.

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