

Mr Anthony G Tyers

FRCS FRCSEd FRCOphth

New Hall Hospital Bodenham Salisbury Wiltshire SP5 4EY

Secretary tel: 01722 439680/422333 fax: 01722 410143

CORNEAL GRAFT

Q What is a corneal graft?

A The cornea is the clear part of the front of the eye. If it becomes cloudy the central part can be replaced with clear cornea from a donated eye.

Q When is a corneal graft needed?

A The cornea can become cloudy for a wide variety of reasons. In almost all of the more serious causes a corneal graft can help to improve the vision.

Q How is a corneal graft operation done?

A You would normally be asleep under a general anaesthetic for the operation although it can be done under local anaesthesia with you awake. The operation takes about one hour. The central part of your cloudy cornea is removed and replaced with clear cornea. This is held securely in place with very fine sutures.

Q Are there different types of corneal graft operation?

A Yes.

The most commonly performed operation is replacement of the *whole thickness* of the cloudy cornea. This operation is known as a '*penetrating corneal graft*' or '*penetrating keratoplasty*'.

The most commonly available alternative types of corneal graft are:

(i) '*lamellar keratoplasty*', in which the deeper, back layers of the cornea are left in place and only the more superficial, front layers are replaced. This technique reduces the risk of graft rejection. It is used if the corneal abnormality is restricted to the more superficial, or front, layers of the cornea. The risks are mainly haze forming at the interface between the natural, back part of the cornea and the grafted front part. If this occurs a penetrating corneal graft is usually required. Lamellar keratoplasty may be considered for the condition called 'keratoconus' or for corneal opacities affecting only the more superficial layers of the cornea.

(ii) '*endothelial keratoplasty*'. This new technique is becoming more widely available as the results improve. The most posterior or deepest layer, at the back of the cornea - the 'endothelium' - is replaced while the rest of the cornea is left in place. The operation is demanding and rejection of the grafted endothelium can occur. If this occurs the operation can be repeated or a penetrating graft can be performed instead.

Endothelial keratoplasty is considered if the endothelium, the layer at the back of the cornea, is not functioning. This causes fluid to accumulate within the cornea causing cloudiness and discomfort.

The choice of corneal graft operation will be discussed with you by your surgeon and depends on the type of problem in your cornea. Many ophthalmic surgeons still prefer *penetrating* corneal grafts for most corneal problems that require a graft.

Q *What happens after the operation?*

A You will be asked to use regular eye drops and to avoid rubbing the eye for several weeks. The eye drops will be gradually reduced but you will be asked to continue one or two drops each day for several months.

Q *Will I be able to see clearly straight after the operation?*

A No. The vision is usually blurred for at least several weeks after the operation. Even though the corneal graft may be clear it is often slightly distorted (called 'astigmatism') which alters the focusing of the eye. Once the eye has healed it is usually possible to sharpen the vision with either glasses or a contact lens. Sometimes it is necessary to remove the sutures to reduce the astigmatism. If the astigmatism is marked it is very occasionally necessary to do further surgery to reduce it.

Q *What are the long-term results of penetrating corneal grafts?*

A Most *penetrating*, or full thickness, corneal grafts remain clear indefinitely and present no problem. A small percentage are "rejected" which means the eye becomes inflamed. This requires intensive treatment with eye drops and occasionally injections. The treatment is usually effective and restores the graft to normal. Occasionally the treatment is not effective and the graft becomes cloudy permanently. It may then need to be replaced with another corneal graft. The results of the alternative types of corneal graft - '*lamellar keratoplasty*' and '*endothelial keratoplasty*' - are described above.

Q *Are there any other complications of corneal grafts?*

A Apart from the complications mentioned above – astigmatism and rejection – other complications are infrequent and many are rare. The sutures holding the graft in place can occasionally break or become loose and may need to be removed. If this occurs within a few weeks of the operation it may be necessary to insert new stitches to hold the graft in place.

It is theoretically possible for the corneal graft to transmit viral infections from the donor. Great care is taken to screen all donated eyes for any evidence of disease so that the risk of transmitted disease is extremely small.

Q *Will my eye look different after a corneal graft?*

A No. A corneal graft will look like your own cornea unless your whole cornea was opaque before the operation. In this case the new corneal graft will be clear but the cloudy part of your own cornea which was left in place will still be visible surrounding it. This is almost never a cosmetic problem.

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