Keratoconus

القرنية المخروطية

Moorfields
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King's

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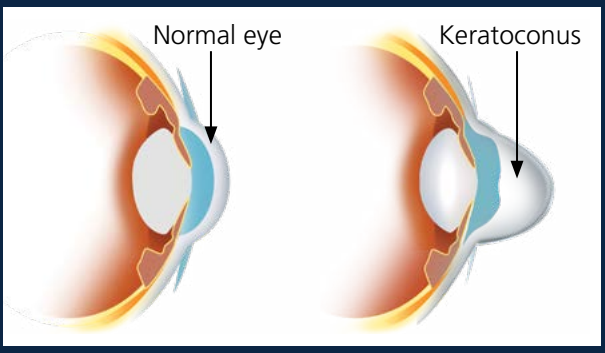
Facts

Keratoconus is a progressive thinning of the cornea. The cornea is the clear front window of the eye, which, along with the intra-ocular lens, focuses light onto the retina. The cornea normally is a smooth, round dome-shaped structure; however in keratoconus, it becomes very thin and irregular and it starts to protrude from the centre or below the centre like a cone. This causes blurry vision that is often not completely correctable with glasses. Keratoconus usually involves both eyes; however one eye may be more advanced than the other.



What Causes **Keratoconus**

The disease is multifactorial in origin, but there is a strong genetic component which makes it more frequent in certain parts of the world or within certain families.

How can it be **treated?**

Treatment depends on the severity of the condition. In the early stages your vision may be corrected with eyeglasses. However, as the corneal thinning and the bulging progresses, we may have to rely on specially fitted rigid contact lenses to reduce the distortion and correct the vision.

For more advanced cases the **treatment** options include:

Corneal Collagen Cross Linking

This treatment is minimally invasive and local anaesthetic drops are instilled so that the procedure is not painful. Riboflavin drops are instilled frequently while ultraviolet light is applied directly onto the cornea for 30 minutes. This treatment strengthens the cornea and slow down or prevents progression of the disease. The treatment however does not improve the vision and glasses or contact lenses will still be required. For 1-2 months after the procedure it is possible that the vision may actually be worse than before due to the formation of a haze that then regresses spontaneously. A bandage contact lens is placed on the eye for the first few days to make it more comfortable and you will be given eye drops to prevent infection and promote the healing.

Intracorneal rings (Intacs, Kerarings, Ferrara)

The rings are rigid plastic segments which are inserted deeply in the periphery of the cornea after creating small channels with the femtosecond laser. The rings reshape the curvature of the cornea from within, reducing the severity of the bulging. They typically reduce the amount of the astigmatism but glasses or contact lenses will still be needed, although the power will be reduced. This procedure may allow patients to switch from rigid to soft contact lenses. Post operatively you will have drops to instill to prevent infection and promote healing. Visual improvement takes longer and new glasses are prescribed after 1 month. Some patients may complain of glare at night and the rings can be removed if needed.

Corneal Transplant

In the advanced stages of keratoconus, either a partial thickness (Deep Anterior Lamellar, DALK) or a full thickness (Penetrating, PK) corneal transplant may be needed.

Penetrating Corneal Transplant (PK)

This is the traditional "full thickness" corneal graft where the entire diseased cornea is replaced with a healthy one from a donor. This procedure allows excellent vision but it is slightly more invasive and carries a slightly higher risk of rejection compared to the partial thickness techniques described below.

Deep Anterior Lamellar Corneal Transplant (DALK)

When the disease is limited to the front part of the cornea, it is sufficient replacing only the anterior layers. This procedure is ideal in keratoconus where the Descemet membrane and the endothelium (which are the back layers) are not affected. There are different ways of creating this dissection. Our preferred one is by using an air bubble (Big Bubble Technique), which enables us to obtain a very smooth dissection plane allowing optimal vision. When the dissection is smooth, the vision achieved is similar to the one obtained with a Penetrating graft, but with slightly less risk of rejection. This dissection cannot be achieved all the times as the Descemet membrane is extremely fragile and can break easily. If needed, a conversion to PK is always possible during the operation.

Your corneal specialist will advise you whether you qualify for DALK or PK. Either corneal graft can now be performed either manually or with the femtosecond laser, possibly allowing extra accuracy.

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Opening hours:
Saturday to Thursday, 8.30am to 5.30pm,
for information and advice on eye conditions and
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