Ophthalmology Department
Russells Hall Hospital

The Dudley Group
NHS Foundation Trust

Patient Information
Corneal cross-linking (CXL)

Introduction
This leaflet is about a treatment known as corneal cross-linking (CXL) used to treat eye conditions known as keratoconus and keratectasia.

What is keratoconus?
It is a condition in which there is an increase in the curve and a distortion of the shape of the cornea. The cornea is the window at the front of the eye. The condition may stabilise naturally at around 35 to 40 years of age. Below this age, the cornea is more flexible, so disease progression and worsening vision are more likely to occur, although this does not always happen.

The condition usually comes on in late teens or early 20s. The average age is reported as 25 years, and it occurs in about one out of every 2,000 people. Up to 20 out of every 100 patients with this condition could eventually need a corneal transplant.

What is keratectasia?
It is a rare but serious complication of laser vision correction surgery. If the laser removes too much tissue during the surgery, or the flap is made too deep, the structure of the cornea can be weakened.

What is corneal cross-linking (CXL)?
This treatment uses vitamin B2 (riboflavin) solution and ultraviolet light to cause photochemical corneal cross-linkage. This means that the chemical bonds in the cornea are made stronger in order to stop the changes in the shape of the cornea caused by keratoconus and keratectasia.

What are the benefits of the treatment?

This treatment has been recommended by your doctor to prevent your condition getting worse. It has been successful in stopping further progression in over 90 per cent of people who have keratoconus and who have had this treatment.

For keratoconus, the aim of CXL treatment is to stabilise the condition of the eye and stop further progression. There may be some improvement of the eye shape after treatment, but you will still need to wear glasses or contact lenses after treatment, if you currently wear them.

Which people benefit from treatment?

CXL is usually recommended only for people whose corneal scans show worsening of keratoconus, as long as the cornea is not too thin. It is not normally required for older patients, as keratoconus usually stops getting worse by the time people are in their mid-30s.

How likely is it that this procedure will work and stop my eye condition from progressing?

In most people (more than seven people out of every 10), having this treatment will stop keratoconus from getting worse. We are not certain if this treatment will last permanently, but results from long-term studies suggest that it does.

What are the risks of this treatment?

This treatment is generally safe, but like any surgical procedure, there can be risks and it is important that we make you aware of these:

Serious risks are rare and include:

- Infection of the cornea, which can lead to scarring.
- Melting of the corneal tissue, which may develop into a hole.
- Corneal burn or significant scarring.
- Inflammation within the cornea.
- Swelling of the cornea, which does not get better.

A corneal transplant may sometimes be needed in some cases where severe complications occur.

Less serious or common risks:

- Corneal haze – this usually occurs in most cases after the procedure and gradually disappears. This results in some reduction in vision which gradually clears over the first few weeks.
- Swelling of the cornea, which gets better.
- Initial healing problems with the surface (epithelium) with a small risk of recurrent erosions of the surface layer. This means that the surface does not stay attached correctly to the corneal tissue below and this keeps happening.

What are the alternatives?

There are no known alternative treatments which may stop your condition getting worse.

What does the treatment consist of?

We use anaesthetic drops to numb your eye. The surgeon uses a simple surgical procedure to remove the surface layer of the front window of the eye (the cornea).

The eye is then soaked with repeated eye drops of riboflavin. This prepares the eye and protects it for the treatment using ultraviolet (UV) light. The surgeon shines the UV light on the eye surface for several minutes to complete the treatment.

The procedure is carried out on one eye at a time as a single treatment. It can be repeated if necessary, although this is rare. If your eye doctor thinks that similar treatment is required for the second eye, it can be carried out once the doctor is satisfied that your first eye has settled down completely. This can take one month or longer after the treatment.

How long does it take?

The procedure typically takes about 30 minutes.

What happens after the treatment?

After the treatment, you will need to use eye drops for about four weeks.

How will my eye feel after treatment?

The eye will be painful and sensitive to light after treatment for two to three days. We will prescribe eye drops and painkillers to help the eye settle after surgery and to help you cope with pain. You may find sunglasses or a darkened room helpful after the surgery.

What should I do after treatment?

You can wash and shower normally, but avoid getting water into your eyes. You can exercise, but avoid swimming until the surface of your eye heals completely, which can take one week. You should not drive for at least one week, and then only if your vision is good enough for driving.

You will need to wait at least one month before you can start wearing your contact lenses again, if you wear them. Check with the doctor or healthcare professional in the outpatient clinic when you can start wearing your contact lenses again.

What if I have any problems or questions after reading this leaflet?

Please contact the **Urgent Referral Clinic** team at Russells Hall Hospital Eye Clinic on **01384 456111 ext. 3633 (9am to 4.30pm, Monday to Friday).**

Eye emergency, out of hours

In case of an eye emergency after the closing hours of the Eye Clinic at Russells Hall Hospital (including weekends and bank holidays), please contact: **Birmingham Midland Eye Centre on 0121 507 4440**

The doctor on call is usually based at the Eye Centre, City Hospital, Dudley Road, Birmingham. They may need to call you back, and if necessary, they will arrange for you to visit them.

Note: the information in this booklet is provided for information only. The information found is **not** a substitute for professional medical advice or care by a qualified doctor or other healthcare professional. **Always** check with your doctor if you have any concerns about your condition or treatment. This is only indicative and general information for the procedure. Individual experiences may vary and all the points may not apply to all patients at all times. Please discuss your individual circumstances with your eye doctor.

Can I find out more?

You can find out more on the National Institute for Health and Care Excellence (NICE) website:
https://www.nice.org.uk/guidance/ipg466/ifp/chapter/the-condition

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This leaflet can be downloaded or printed from:
http://dgft.nhs.uk/services-and-wards/ophthalmology/

This leaflet can be made available in large print, audio version and in other languages, please call 0800 073 0510.

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Ulotka dostępna jest również w dużym druku, wersji audio lub w innym języku. W tym celu zadzwoń pod numer 0800 073 0510.

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0800 073 0510 ਤੇ ਫੋਨ ਕਰੋ ਜੀ।

Aceasta brosura poate fi pusa la dispozitie tiparita cu caractere mari, versiune audio sau in alte limbi, pentru acest lucru va rugam sunati la 0800 073 0510.

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