



Intrastromal Corneal Segments (ICRS)

Intrastromal corneal segments (ICRS) are an ophthalmic medical device designed for the reduction or elimination of myopia and astigmatism in patients with keratoconus so that their functional vision may be restored and the need for a corneal transplant procedure can potentially be deferred.

Before The Procedure

Prior to any surgical procedure it is common to experience a degree of anticipation and anxiety. It may be comforting to know that the intra corneal segments procedure is far less invasive than a corneal transplant or many other surgical procedures of the eye and the success rate is high. The surgeons performing the procedure are typically corneal surgeons, that have expertise with keratoconus.

Typically, your ophthalmologist will have you undergo a thorough eye examination.

Your examination will include a variety of standard ophthalmic tests for this type of procedure, as well as general medical tests and a review of your specific medical history.

The Procedure

Anesthetic drops are used to numb the eye, which is held open throughout the procedure to prevent blinking.

Channels to receive the ICRS are done by means of a high precise femtosecond laser.

The implants are gently placed.

The placement of the ICRS reshape and reinforce your cornea, eliminating some or all of the irregularities caused by keratoconus in order to provide you with improved vision.

After the Procedure

Follow-up visits will be required to monitor the healing process and evaluate the visual benefits of the procedure. Even after a successful procedure, glasses or contacts still may be required to provide you with good vision.

As with any surgical procedure, some risks are involved, including infection. Some patients experience visual symptoms which include difficulty with night vision, glare, halos, blurry and fluctuating vision.

ICRS are specially designed implants, made of medical plastic, which are surgically placed under the surface of the cornea. Due to their unique patented design, they are able to remodel the architecture of the cornea re-establishing a more natural dome-like shape and improving one's vision.

Advantages

- It causes no histological changes in the central cornea and maintain the natural state of cornea
- The potential reversibility to the situation before the surgery –they can be removed if needed.
- ICRS implantation, on average, improves two- line visual acuity in 50% of patients with Keratoconus, although some patients may have a more pronounced improvement. In fact, in patients with Keratoconus, this action causes the patient who before surgery did not have a good vision with glasses, after ring implantation and due to the loss of corneal irregularity, has a better vision with new glasses compared to before.

Risks and side effects

Although the practice of Intra Corneal ring segments has been approved by the FDA, but it should be known that similar to other refractive correction procedures, it can have some side effects. The most important ones are:

- Postoperative infections
- Hypo-correction
- Hyper-correction
- Halos, glare, and fluctuating distance vision., especially at night
- Light Sensitivity
- Night vision difficulty
- Corneal oedema.

But in general, no vision-threatening complications have been observed.

Frequently asked questions

What are the indications for ICRS

The correct indication for the implantation of the ICRS requires detailed evaluation of the topographic and pachymetric (thickness) conditions of the cornea, besides a complete visual examination. In general implantation of this device is indicated for the following cases:

- Keratoconus in patients with contact lens intolerance
- Progressive keratoconus
- Corneal deformation induced by contact lens use
- Post-penetrating keratoplasty astigmatism
- Post – Lasik corneal ectasia
- Post-radial keratotomy astigmatism
- Pellucid marginal corneal degeneration

When are ICRS NOT good for you?

ICRS are contraindicated in patients with:

- Advanced keratoconus
- Hydropsia (oedema within the cornea)
- Severe atopic disease such as dermatitis and severe skin allergies
- Presence of active local or systemic infection
- Autoimmune disease or immunodeficiency
- Recurring corneal erosion syndrome
- Extensive corneal scarring
- Corneal dystrophy

How long does the procedure take?

The actual procedure usually takes around 15 minutes per eye.

Does it hurt?

No. Anaesthetic drops allow the operation to be performed without pain. But during the first hours and days after surgery, the eye is a bit watery, scratchy or gritty, like there is something in the eye, but it can be controlled with prescribed medications.

Is it possible to operate both eyes at the same time?

Yes. Studies have shown that the risk of complications during surgery does not increase with operating both eyes.

What are the restrictions following surgery?

Avoid rubbing your eyes the first 6 months after surgery. Protect your eyes against infections and traumas. Avoid eye makeup at least during the first postoperative week. Don't wear contact lenses during the first weeks.

Do ICRS create an obstacle for other surgical procedures that may be necessary for the eye?

No. All kinds of eye surgery can normally be done in future. Exclusions include: pterygium of cornea and corneal transplant about which your physician should be consulted.

Is physical activity or exercise permitted after the use of ICRS?

Do not have a fear of doing normal activities like reading, watching TV, working on the computer or moderate exercises such as jogging, walking or routine exercises. But avoid heavy lifting for the first few weeks.