

Intacs or Ferrara Rings for the Treatment of Keratoconus

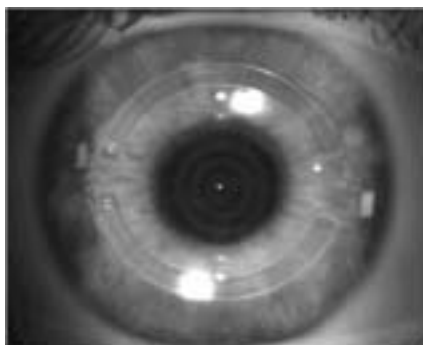
Intacs are a new surgical treatment for mild to moderate keratoconus. When inserted into the cornea, the Intacs segments make the central corneal profile flatter and more regular, and this reduces the optical defect.

Intacs are 'C' shaped segments of perspex (polymethyl-methacrylate or PMMA), that are inserted deep into the corneal stroma. They were originally designed for treatment of low myopia, and typically correct two or three dioptres of myopia or myopic astigmatism. Patients with keratoconus often have moderate or high degrees of myopia and astigmatism due to irregular steepening of the cornea. For these patients, Intacs will give a reduction of their optical defect, and the remaining myopia and astigmatism can then be corrected either with glasses, or by insertion of an Implantable Contact Lens (ICL), or by Artisan lens surgery.

Surgical procedure

Insertion of Intacs can be carried out with topical, local, or general anaesthesia according to the patient's preference.

A two millimetre incision is made into the cornea to a depth of about two thirds of its thickness, and a special instrument used to prepare the bed into which the Intacs are inserted. Once they have been put in position, a single stitch is used to close the small corneal wound. Eye drops are used for a few weeks to settle the eye down, but the patient can resume normal activities more or less straight away. The corneal suture is removed after a couple of weeks with application of anaesthetic eye drops.



Intacs implants inserted into the cornea.

Advantages of Intacs

Insertion of Intacs is a relatively quick and simple surgical procedure compared to the other operations for keratoconus such as epikeratoplasty, or deep anterior lamellar keratoplasty (DALK). For those who do not wish to have a corneal transplant, it offers an alternative approach for correction of their optical defect.

By making the shape of the cornea more regular, Intacs can potentially improve the quality of vision that can be obtained when wearing a spectacle correction.

Disadvantages of Intacs

Intacs typically only partially correct the optical defect present in keratoconus, so additional optical aids or surgical intervention may be required to obtain a full visual correction.

Sometimes the quality of vision obtained after Intacs surgery is not as good as that obtained before the surgery.

In keratoconus the cornea is thin, so there is some risk of corneal perforation at the time of surgery. If this happens, insertion of the Intacs would have to be abandoned on that occasion, although it may be possible to attempt the surgery again at a later date. Rarely, Intacs that have been successfully inserted may migrate through the cornea and extrude through the corneal surface, in which case they would need to be removed.

As with any surgical procedure, there is a potential of complications from infection or inflammation in the cornea, which might necessitate removal of the implants.

Because Intacs insertion is a relatively new procedure, the long term outcomes are not known.