



Joseph Colin

Intacs safe and viable long-term treatment for keratoconus

Dermot McGrath
in Berlin

INTACS corneal inserts (Addition Technology) offer a safe, effective and minimally invasive option for the treatment of keratoconus over the long term, according to Joseph Colin MD. "I have been implanting Intacs now for over 10 years. My own clinical experience

and other studies over that time show that corneal inserts are a safe and reversible treatment modality in patients with moderate to severe keratoconus who are contact lens intolerant. About 70 per cent of eyes show an improvement in their visual outcomes after implantation and the progression of the disease is usually stabilised, meaning that many patients can defer or potentially eliminate the need for corneal transplantation," he said.

Speaking at the XXVI Congress of the ESCRS, Dr Colin noted that more than 50,000 patients worldwide have now received Intacs for the treatment of keratoconus.

"Based on what we know that the implants can achieve in flattening the cone and stabilising the progression of the disease, that means that about 37,000 corneal grafts have been avoided thanks to this procedure," he said.

Dr Colin, Hôpital Pellegrin, Bordeaux, France, said that the broad objectives of intracorneal rings in keratoconus are to stabilise the corneal topography, improve uncorrected- and best-corrected visual acuity, improve contact lens tolerance and spectacle use and delay the need for penetrating or deep lamellar keratoplasty.

While Intacs inserts are

generally quite effective at achieving these goals in a majority of patients, Dr Colin said that surgeons should also be aware of the limitations of such technology.

"The patient and the doctor should have realistic expectations about what Intacs can actually achieve. The patient may still be dependent on visual aids and there is no evidence that the implants will actually halt progression of the disease," he said.

Dr Colin noted that the clear micro-thin PMMA inserts are hexagonal in cross-section, with an arc length of 150°. The new SK Intacs model, which were developed for severe keratoconus cases where the K-readings are equal to or exceed 55 D, allows for an optical zone of 6.0mm compared to 7.0mm previously.

"It is important to remember that the smaller the optical zone the better the final effect, but the smaller the optical zone the less quality of vision you will ultimately obtain. Many of these implants are being placed in young patients, so if the optical zone is too small they tend to be unhappy with glare and haloes caused by the segments."

Dr Colin said that the best candidates for Intacs implantation are patients who are contact lens intolerant and who have good central corneal transparency. Contraindications include central corneal opacities and inadequate pachymetry.

A review of peer-reviewed papers published in recent years showed that about 70 per cent to 80 per cent of patients experienced a gain of two lines or more of visual acuity after Intacs implantation, said Dr Colin.

"In about 20 per cent of cases we see no change and in some cases there may even be some decrease in the vision, so we need to inform patients of this possibility before the surgery," he said.

Analysing the data of those patients who either showed no gain or lost vision, Dr Colin cited preoperative keratometry of greater than 55 D and preoperative pachymetry of less than 350 microns as strong markers for a poor visual outcome.

"Even if you reshape the cornea in these patients with poor pachymetry, the quality of vision will still not be very good. We also need to be careful in patients with paracentral opacities, as in some instances the placement of the rings can move the opacities towards the corneal centre," he said.

Discussing the long-term results with Intacs, Dr Colin said that he recently had the opportunity to re-examine the first patient he had implanted with intracorneal rings for keratoconus in June 1997.

"Over a 10-year period, the cornea remained perfectly stable and the patient has now become contact lens tolerant.

The evolution of the K readings also indicates that the results are stable over time," he said.

In terms of the overall results for patients treated at CHU Bordeaux, Dr Colin said that the outcomes have been positive in 60 out of 65 eyes and have remained stable up to eight years after implantation. He also noted that penetrating keratoplasty can be carried out if necessary, as was the case for five patients in this study.

Looking at some recent innovations, Dr Colin said that the use of the femtosecond laser to perform the channel dissection prior to Intacs implantation has made life much easier for the surgeon.

"There are two steps in the procedure. First, we dissect the channels at the required depth, which takes about 20 to 25 seconds with the laser. We then move to another microscope for the actual implantation of the rings. In most cases they are easy to implant, but sometimes we encounter collagen bridges which requires a bit more pressure to push the segments into their final position," he said.

Dr Colin added that one of the clear advantages of Intacs implantation is that it is a fully reversible procedure.

"Removing Intacs is relatively straightforward once you follow the same steps as for the initial procedure. Using a diamond knife, you cut to two-thirds depth, reopen the incision and use Sinsky hooks to pull out the segments. You can then proceed with penetrating or lamellar keratoplasty in the same procedure," he said.

When to use collagen cross linking?

With positive results emerging from initial studies of corneal collagen cross-linking in the treatment of keratoconus and other ectatic corneal diseases, Dr Colin said that many questions are being raised about the best sequence or combination of treatment to use.

In his clinic in Bordeaux, he said that the treatment regimen varies according to the severity of the disease.

"For cases of progressive keratoconus that are contact lens tolerant we perform cross-linking. In cases of contact lens intolerance, we first perform Intacs implantation and then cross-linking, usually six months later. In cases of non-progressive keratoconus and contact lens intolerance, we perform Intacs first and then if some progression of the disease is seen, cross-linking is performed six months later and then perhaps surface ablation to correct the residual refractive error," he concluded.

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