A promising new lens for patients with aniridia

By Nadja Geipert
in San Francisco

THE Model 311 iris reconstruction lens (O phtec) decreases glare and photophobia while providing good cosmetic results in patients with aniridia. The results of the largest US clinical trial on this type of lens were presented at the annual ASCRS meeting.

Robert Osher, MD, professor of ophthalmology at the University of Cincinnati, and medical director emeritus at the Cincinnati Eye Institute, Ohio, has used the Morcher prosthetic iris devices extensively since 1996. He has also implanted several O phtec irides.

"Glare is actually a very incapacitating symptom. We weren't trained to tend to it because we had no options," he said.

In the study, 15 investigators at 11 sites implanted the 311 IOL in 100 eyes which were either partially or completely missing irides. Some 62% of the cases were due to trauma, 28% were due to congenital aniridia, and 10% were due to surgical trauma.

Before the surgery, 45% of the patients were aphakic, 17% were pseudophakic. The surgeons implanted the 311 lens in the ciliary sulcus in 87% of the patients and in the capsular bag in 13% of the cases.

After the procedure, the number of patients who complained about moderate to severe glare decreased from 80% before surgery to 13%. Only 16% of the patients suffered from photophobia after receiving the implant compared to 93% before the surgery.

The Model 311 iris reconstruction lens is a single piece PMMA device that is 13.75mm in diameter with a 4.0mm central clear optic encircled by a blue, green or brown area of 9.0mm. It is the only iris prosthetic device that is available in multiple colours to match patients' natural irides.

In addition, the lens has central optical powers that are plano or can range from +10.00 to +30.00 dioptres with 1/2 dioptre increments. The lens has two C-loop haptics with eyelets that can be placed in the capsular bag, sulcus or sutured to the sclera.

"This intraocular lens should be considered in all patients with aniridia," said Gerald Zaidman, MD.

After surgery, all three patients experienced a significant decrease in glare and photophobia, improved vision and good cosmetic results.

Aniridia presents a challenge for ophthalmologists and before the invention of the first artificial irides in the mid-1990s, cosmetic contact lenses or corneal tattoos were the only treatment options, according to Dr Zaidman.

Many new options available

Now there are several options for iris reconstruction devices available depending on the severity of the individual case, according to Dr Osher.

"We've had so many opportunities to help so many different types of patients with prosthetic iris devices, it's just been wonderful," he told EuroTimes.

First of all, there are segmental irides placed on capsular tension rings for patients who still have sector iris defects. To achieve the best cosmetic results, the surgeon can place the device into the capsular bag and sew pieces of the patient's natural iris over the device.

Secondly, there are full iris prosthetic devices without any optic for patients who are going to have cataract surgery. These are multi-finned and usually two devices are implanted through small incisions after cataract removal. After implantation, the surgeon rotates the devices so that their fins can interdigitate into a confluent iris diaphragm. Afterwards, the surgeon can put an implant behind the device in the capsular bag.

These artificial irides are very safe because they require only small incisions and they are inserted into the capsular bag, said Dr Osher.

The third option is a lens like the above-described 311 by O phtec, which requires a large incision and corrects the patient's vision when the cataract is removed. This lens is a good option for patients who need a lens that corrects visual problems and provides an artificial iris at the same time.

While this type of lens solves two problems with one procedure, it requires a larger incision and thus a more invasive procedure. In addition, the surgeon may have to suture the device through the ciliary sulcus. Both larger incisions and sutures invite more potential complications.

"I try to steer away from larger incisions but every so often we have patients who need this approach because there is no other choice. For example, the patient who has lost the iris and lens in an accident has no support for a prosthetic iris device. This patient would benefit by a full-size device which is sutured to the sclera," said Dr Osher.

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Dr Osher commented that because there are so many variables, the field of prosthetic iris devices is still in its infancy. But progress seems to be rather rapid. Researchers in Russia are working on developing foldable full-size optics with artificial irides that require only small incisions, according to Dr Osher, who found out about this new development on a recent trip to Russia.

"I like the idea of having foldable lenses that can be injected through small incisions. I also like the idea of different materials that will allow the lens to be put in the ciliary sulcus, which it cannot be now, unless it is sutured. I like the device to be colour matched for the individual patient in order to achieve an ideal cosmetic result while eliminating unacceptable glare," said Dr Osher.

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