Surgical Pearls for Implanting the Artisan/Artiflex

Good results depend on proper patient evaluation and a good surgical technique.

BY TOVA LIFSHITZ, MD; AND JAIME LEVY, MD

Several clinical reports confirm the excellent levels of efficacy, predictability, and safety of the Artisan/Artiflex phakic IOLs (Ophtec BV, Groningen, Netherlands; Figure 1) for the correction of moderate to high myopia.[1-5] Moreover, it is considered a satisfactory and safe procedure to correct high myopia in phakic eyes with predictable, accurate, and stable refractive results. However, such positive results require an adequate surgical technique and pre- and postoperative evaluation.

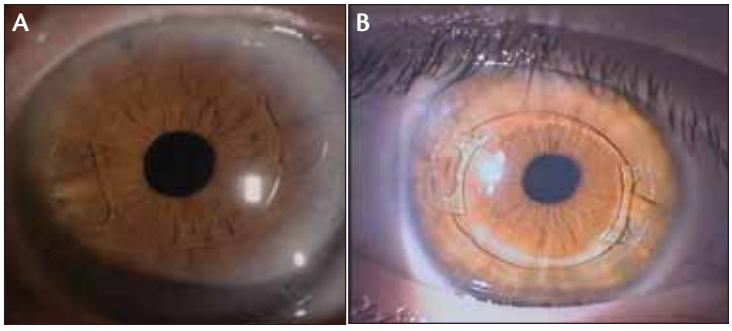

Figure 1. (A) Artisan and (B) Artiflex phakic IOLs implanted safely.

We advise Artisan/Artiflex phakic IOL implantation in cases of high myopia or hyperopia and/or astigmatism in which laser refractive surgery is not recommended. Indications for use of the phakic IOL also depend on corneal topography and central corneal thickness measurements.

A complete preoperative ophthalmic examination is essential, including objective and subjective refraction and special attention to the examination of the peripheral retina.

We perform specular microscopy, EyeSys (Interactive Data Visualization, Inc., Lexington, South Carolina), Placido-disc, Orbscan (Bausch + Lomb, Rochester, New York), and Pentacam (Oculus Optikgeräte GmbH, Wetzlar, Germany) examinations. We exclude patients with an anterior chamber depth (measured from the epithelium) less than 3.5 mm in myopic cases and 2.8 mm in hyperopic cases. We also exclude candidates older than 40 years; those with endothelial cell count less than 2,500 cells/mm^2; and those with glaucoma, diabetes, or previous ocular surgery.

For patients with myopia, we prefer to use the foldable Artiflex (model 401), although rigid Artisan models can also be used depending on the range of correction. For hyperopic cases, model 203 provides correction from 1.00 to 12.00 D; the toric foldable Artiflex or toric Artisan are also available options for 2.00 to 7.50 D of astigmatism. We always choose a lens power close to the power needed for emmetropia.

BILATERAL CASES

In bilateral cases, we operate first on the eye that the patient prefers and then wait 3 weeks before operating on the second eye. We do not perform Nd:YAG laser peripheral iridotomy preoperatively but only slit iridotomy intraoperatively. Regarding anesthesia, we implant the Artiflex phakic IOL after subconjunctival bupivacaine HCl and light intravenous sedation. For Artisan cases, we also add sub-Tenon's anesthesia.

Our surgical technique consists of a standard 5.5- to 6-mm corneoscleral tunnel incision at the 12-o'clock position after conjunctival peritomy for Artisan cases

TAKE-HOME MESSAGE

- Artisan and Artiflex IOLs may be used for the correction of moderate to high myopia, hyperopia, and/or astigmatism.
- Indications for use also depend on the patient's corneal topography and central corneal thickness.

(5.5 mm for the 206 Artisan model and 6 mm for the 204 Artisan model), or a smaller, self-sealing, 3.2-mm clear corneal incision at the 12-o'clock position for Artiflex cases. The anterior chamber is then filled with an ophthalmic viscosurgical device (OVD). We prefer Healon GV (Abbott Medical Optics, Inc., Santa Ana, California) because of its high viscosity, which enables anterior chamber expansion and maintenance and easy removal at the end of the case.

Two vertical paracenteses are placed at the 10- and 2-o'clock positions, located 8.5 to 9 mm apart, for enclavation needle access, in the direction of the enclavation sites. Acetylcholine 1.0% is injected intracamerally to prepare the iris for IOL fixation, reduce the risk of lens touch during implantation, and facilitate IOL centration. The anterior chamber is then filled with Healon GV, and the phakic IOL is inserted vertically with implantation forceps. For the Artiflex lens, we use a specially designed spatula that allows the surgeon to fold and insert the lens through a 3.2-mm incision. The insertion spatula is then retracted (aided by forceps to exert counterpressure), and the lens is rotated 90° with hooks so that the axis of the lens lies perpendicular to the direction of insertion.

IOL CENTRATION

Centration of the phakic IOL over the pupil is checked, taking into account the nasal shift of the constricted pupil during surgery. We inject the OVD on the top of the optic and confirm that there is space between the iris and the implant. Then, in Artisan cases, the optic of the lens is grasped. A small knuckle of iris is drawn through the pincer of each haptic with a disposable enclavation needle. For the enclavation of Artiflex lenses, special right- and left-curved forceps are used to hold the base of the PMMA body. Before enclavation, we routinely ask the anesthesiologist to give more sedation because some patients claim to feel pain during this step. Enclavation on the left side is done first.

Subsequently, a peripheral slit iridotomy is performed. The peripheral iris is grasped gently with Utrata forceps, and a slit incision is performed; Healon GV is injected to enlarge the iridotomy incision and reposition the iris in the anterior chamber. The incision is closed with nylon 10-0 interrupted sutures (one suture in Artiflex cases and three to four in Artisan). All of the OVD is then removed carefully with balanced salt solution; an anterior chamber maintainer is inserted through one paracentesis site, and an anterior chamber cannula is inserted into the other. We may again ask the anesthesiologist to give more sedation as some patients feel pain due to high intraocular pressure. In Artisan cases, the conjunctiva is sutured with two nylon 10-0 interrupted sutures, Finally, the surgical incision is carefully checked for leakage.

POSTOPERATIVE COURSE

Postoperatively, prednisolone acetate and moxifloxacin drops four times daily are administered during the first 3 weeks, and the prednisolone acetate is tapered for 1 more week. Patients are evaluated 1 day, 1 week, and 1, 3, 6, and 12 months after surgery. Sutures can be removed as soon as 1 week after surgery (after povidone-iodine 5% instillation) in Artiflex cases. In Artisan cases, the conjunctival sutures are removed 1 week after surgery. The scleral tunnel sutures are usually left in; however, if there is significant postoperative with-the-rule astigmatism, we perform laser suturelysis. Endothelial cell count is performed 3 months postoperatively and then yearly. ■

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