

CASE REPORTS

Recurrent iritis after implantation of an iris-fixated phakic intraocular lens for the correction of myopia

Case report and clinicopathologic correlation

Guy Kleinmann, MD, David J. Apple, MD, Richard J. Mackool, MD

The iris-claw intraocular lens (IOL) was recently approved by the U.S. Food and Drug Administration for the correction of refractive disorders. Previous reports are not uniform regarding its potential to induce inflammatory reaction. We report the case of a young healthy patient who experienced persistent and intolerable iritis after implantation of an iris-claw IOL. The iritis was resolved only after explantation of the IOL.

J Cataract Refract Surg 2006; 32:1385–1387 © 2006 ASCRS and ESCRS

The Artisan iris-claw intraocular lens (IOL) (Ophtec) was recently approved by the U.S. Food and Drug Administration and licensed by Advanced Medical Optic (AMO) as the Verisyse IOL. It is an alternative for the correction of a refractive disorder. Although the Artisan IOL was used to treat myopia as well as hyperopia, the Verisyse phakic IOL is distributed by AMO for the treatment of only moderate to severe myopia (ranging from -5.0 to -20.0 diopters [D]).

The Artisan/Verisyse is a 1-piece poly(methyl methacrylate) (PMMA) IOL that is fixated by enclavation to

the iris during surgery to hold it in place. Short-term clinical results suggest it is accurate, predictable, stable and safe.^{1–7} We report a case of recurrent iritis after implantation of the Artisan IOL and its clinicopathologic correlation.

CASE REPORT

A 46-year-old healthy woman had uneventful implantation of an Artisan IOL in her left eye for the correction of high myopia (-12.0 D) in December 2003. After implantation, she experienced recurrent episodes of iritis (a total of 6 episodes) that did not respond to topical steroid treatment. The patient was referred to one of us (R.J.M.) for evaluation.

Clinical examination revealed that the Artisan IOL was in a stable position with the haptics in the horizontal axis, with deposits present on the IOL surface and posterior synechia of the iris to the crystalline lens (5 o'clock to 7 o'clock). There was no contact between the Artisan IOL and the crystalline lens, nor did the anterior surface of the iris appear to rub against the posterior surface of the IOL optic. Due to persistent and intolerable iritis, the IOL was explanted in May 2004. Postoperative medications were tapered successfully without recurrence of the iritis.

LABORATORY ANALYSIS OF THE EXPLANTED IOL

After it was removed from the eye, the IOL was immediately placed in formalin and sent to the David J. Apple, MD Laboratories

Accepted for publication February 17, 2006.

From the David J. Apple, MD, Laboratories for Ophthalmic Devices Research (Kleinmann, Apple), John A. Moran Eye Center, Department of Ophthalmology and Visual Sciences, University of Utah, Salt Lake City, Utah, and the Mackool Eye Institute, Astoria, New York, USA.

Presented in part at the annual meeting of the American Academy of Ophthalmology, Chicago, Illinois, USA, October 2005.

No author has a financial or proprietary interest in any product mentioned.

Corresponding author: Guy Kleinmann, MD, John A. Moran Eye Center, Department of Ophthalmology and Visual Sciences, University of Utah, 50 North Medical Drive, Salt Lake City, Utah 84132, USA. E-mail: guy.kleinmann@hsc.utah.edu.



Figure 1. Gross photograph of the explanted Artisan IOL showing deposits on the posterior surface of the IOL.

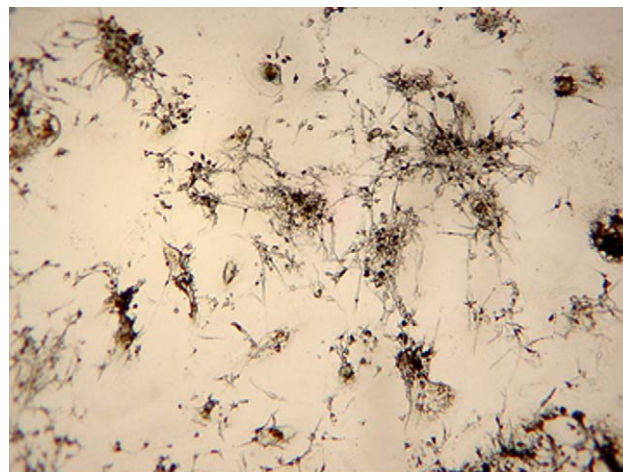
for Ophthalmic Devices Research for analysis. Care was taken to avoid manipulating the IOL optic with a forceps or other grasping instruments.

Gross (macroscopic) analysis of the IOL was performed and revealed the presence of deposits on the posterior surface of the IOL (Figure 1). Microscopic evaluation revealed the deposits were composed of clusters of inflammatory and pigmented cells and debris (Figure 2, A and B).

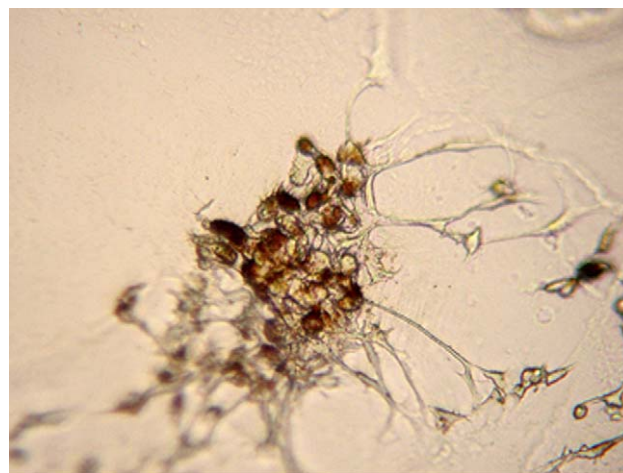
DISCUSSION

Damage to the endothelial cells,¹⁻⁷ pupil ovalization, and the possible induction of chronic subclinical inflammation have been evaluated after implantation of the Artisan IOL, mainly due to the close proximity to the iris. Fechner et al.⁸ found no evidence of chronic subclinical inflammation, but Alió et al.⁹ and Pérez-Santonja et al.¹⁰ found signs of this condition. These studies used a laser flare–cell meter to evaluate the flare values 12 to 24 months after implantation of the IOL. Fechner et al.⁸ also performed iris fluorescein angiography that showed no vascular leakage. Using fluorophotometry, Pérez-Santonja et al.¹¹ found increased blood–aqueous barrier (BAB) permeability after implantation of Worst-Fechner IOLs.

We are unaware of previous reports of an iris-claw IOL being explanted because of persistent inflammatory reaction after implantation in an otherwise healthy young patient and could find no reference to it in a computerized search using Medline. The presence of the inflammatory reaction was clear on clinical and histological examinations and may have resulted from chaffing of the anterior aspect of the iris by the IOL with resultant breakdown of the BAB.



A



B

Figure 2. Photomicrographs of the IOL showing clusters of inflammatory and pigmented cells on the posterior surface of the IOL. A: Original magnification $\times 100$. B: Original magnification $\times 400$.

REFERENCES

1. Alió JL, Mulet ME, Shalaby AM. Artisan phakic iris claw intraocular lens for high primary and secondary hyperopia. *J Refract Surg* 2002; 18:697–707
2. Maloney RK, Nguyen LH, John ME. Artisan phakic intraocular lens for myopia: short-term results of a prospective, multicenter study. *Ophthalmology* 2002; 109:16317–16341
3. Pop M, Payette Y. Initial results of endothelial cell counts after Artisan lens for phakic eyes: an evaluation of the United States Food and Drug Administration Ophtec Study. *Ophthalmology* 2004; 111: 3097–3317
4. Saxena R, Landesz M, Noordzij B, Luyten GP. Three-year follow-up of the Artisan phakic intraocular lens for hypermetropia. *Ophthalmology* 2003; 110:1391–1395
5. Budo C, Hessloehl JC, Izak M, et al. Multicenter study of the Artisan phakic intraocular lens. *J Cataract Refract Surg* 2000; 26: 1163–1171

6. Landesz M, Worst JG, van Rij G. Long-term results of correction of high myopia with an iris claw phakic intraocular lens. *J Refract Surg* 2000; 16:310–316
7. Menezo JL, Cisneros A, Hueso JR, Harto M. Long-term results of surgical treatment of high myopia with Worst-Fechner intraocular lenses. *J Cataract Refract Surg* 1995; 21:93–98
8. Fechner PU, Strobel J, Wichmann W. Correction of myopia by implantation of a concave Worst-iris claw lens into phakic eyes. *Refract Corneal Surg* 1991; 7:286–298
9. Alió JL, de la Hoz F, Ismail MM. Subclinical inflammatory reaction induced by phakic anterior chamber lenses for the correction of high myopia. *Ocular Immunol Inflamm* 1993; 1:219–223
10. Pérez-Santonja JJ, Iradier MT, Benítez del Castillo JM, et al. Chronic subclinical inflammation in phakic eyes with intraocular lenses to correct myopia. *J Cataract Refract Surg* 1996; 22:183–187
11. Pérez-Santonja JJ, Hernandez JL, Benítez del Castillo JM, et al. Fluorophotometry in myopic phakic eyes with anterior chamber intraocular lenses to correct severe myopia. *Am J Ophthalmol* 1994; 118:316–321