Iris varix as a cause of late-onset inflammation after implantation of a phakic iris claw lens

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Iris Varix as a Cause of Late-Onset Inflammation after Implantation of a Phakic Iris Claw Lens

Introduction

Implantation of a phakic iris claw intraocular lens is a common, effective and safe procedure to correct high myopia, hyperopia and astigmatism [2]. Due to the nature of its fixation on the iris using claws, chronic irritation and inflammation have remained a major concern with the Artisan® lens since its market introduction in 1998. Following iris claw implantation, monitoring of postoperative inflammation is mandatory [4, 7]. Usually, signs of inflammation can be detected in the anterior chamber during the early postoperative period. We present here the first case of late-onset inflammation after implantation of an iris claw lens triggered by an iris varix. The iris varix is a rare benign iris vascular abnormality, with a low prevalence as a solitary primary lesion in the general population and little is known about its clinical characteristics [1, 5, 6]. This report shows that an iris varix could be a cause of a late onset and chronic inflammation after phakic Artisan® lens implantation.

Medical history and signs

We report a case of a 52 year old female patient with a high myopia who underwent in both eyes an Artisan® phakic iris claw implantation. She had no history of ophthalmic disease. Preoperative manifest refraction in the right eye was -11.5 - 0.5 × 180° and -10.75 - 0.75 × 20° in the left eye and best spectacle-corrected visual acuity (BSCVA) was 20/20 in both eyes. Anterior chamber depth was 3.64 mm for the right eye and 3.51 mm for the left eye. Gonioscopic examination showed a regular chamber angle on both sides. Bilateral slitlamp evaluation showed no signs of lens opacities and no signs of inflammation in the anterior chamber. The surgeon (FM) decided to implant a phakic iris claw lens (Artisan®, Ophtec BV, Groningen, Netherlands) in both eyes. Surgery of the right eye was uneventful and a -10.5 D lens was implanted with good centration. Postoperatively, the anterior chamber showed only minimal signs of inflammation and intraocular pressure was 10 mmHg. Uncorrected visual acuity (UCVA) was 20/25 and BCVA was 20/20 with -0.5 × 60°. A -12 D Artisan® lens was implanted in the left eye with an uneventful surgery and an UCVA at 20/20 two weeks after surgery. Two and a half months after surgery the patient reported episodes of acute redness, photophobia, pain and reduced visual acuity of her right eye after sun exposure. Slitlamp examination revealed pigmented cells on the Artisan® lens and a circumscribed, tortuous blood-filled lesion in the superotemporal part of the iris (Fig. 1a). The lesion was in close proximity of the temporal claw of the Artisan® lens. The diagnosis of an iris varix was confirmed with fluorescein iris angiography (Fig. 2a, b).

Therapy and outcome

Treatment included dexamethasone drops 5 times daily tapered over a period of four weeks for each episode. To improve the follow-up, we instructed the patient to consult us in emergency during acute redness of her right eye. At each episode, we observed a masquerade syndrome mimicking an anterior uveitis with an inflammation of 3+ cells and 2+ flare in the anterior chamber. With time, the frequency of episodes decreased and finally ceased completely 10 months after surgery. At that time, we observed atrophy of the iris in the area of the varix (Fig. 1b).

Fig. 1 Slitlamp examination of the right eye shows a superotemporal iris varix after Artisan® phakic iris claw implantation a. Panel b demonstrates an atrophy of the iris, 10 months after implantation, where the Artisan® lens is rubbing against the iris varix.

Fig. 2 Fluorescein angiography a and Indocyanine green b of the anterior segment confirms the iris varix. The Artisan® lens is visible with the blue light but not with infrared light.
Discussion

Implantation of Artisan\(^\text{®}\) phakic iris claw intraocular lens is a valuable alternative for the correction of high refractive errors with excellent refractive results \[4\]. Potential complications include endothelial cell loss, pigment dispersion and lens deposits, chronic inflammation and uveitis, pupil ovalization and decentration, intraocular lens rotation, induced astigmatism, glare and halos, and induction of glaucoma and cataract \[4\]. Due to the nature of its fixation on the iris using claws, chronic irritation and inflammation have remained a major concern with the Artisan\(^\text{®}\) lens. Iris-claw fixation may lead to increased permeability of iris vessels with subsequent breakdown of the blood-aqueous barrier and release of inflammatory mediators \[3\]. Inflammation after implantation of an Artisan\(^\text{®}\) lens is usually observed in the early postoperative period related to regular anterior segment surgery.

Delay and recurrences of inflammation could have been considered in this case as a primary anterior uveitis after Artisan\(^\text{®}\) lens implantation. However the presence of abnormal iris vessels focused our investigations on a possible iris varix, which was confirmed with an iris angiography.

To explain the presence of late onset inflammation regarding the association of an iris varix and a phakic lens, we hypothesized that Artisan\(^\text{®}\) lens may mechanically irritate the iris varix through modifications in pupillary size caused by changes in ambient light levels. The continuous rubbing of the iris varix against the Artisan\(^\text{®}\) lens may explain the release of iris pigment and leakage of iris vessels, resulting in a sustained anterior chamber inflammation through liberation of pro-inflammatory prostaglandins. At 10 months after surgery, iris atrophy in the superotemporal quadrant confirmed our hypothesis. Interestingly, the increase in the atrophy area was concomitant with the decrease in inflammatory signs.

The prevalence of an iris varix as a solitary primary lesion is rare in the general population, it exists 9 reports in the literature. The presence of an undiagnosed iris varix might seriously compromise the implantation of an iris claw phakic intraocular lens and lead to serious intra- and/or postoperative complications i.e. intraoperative hemorrhage, unstable fixation of the lens. In this case, we were lucky not to perforate the varix intraoperatively during the fixation of the temporal claw. To prevent this risk, we recommend a precise preoperative evaluation of the iris before dilatation. Furthermore, the diagnosis of iris varix has to be considered if a late onset chronic inflammation is observed after phakic Artisan lens implantation. An iris angiography will confirm the diagnosis.

Conflict of Interest: None

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