Refractive Nightmares Revisited: Calcification of a Multifocal Intraocular Lens

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Abstract. Background/Aim: Cataract is the leading cause of reversible blindness and visual impairment worldwide. Although cataract surgery using phacoemulsification and intraocular lens (IOL) implantation is one of the commonest surgical procedures, IOL opacification remains a potential complication that can affect the visual outcome of the operation. Case Report: A 50-year-old female patient presented to our clinic complaining of glare and blurry vision in her right eye over the previous 6 weeks. She had undergone bilateral refractive lens exchange elsewhere 9 months earlier. Her unaided distance visual acuity was 8/10 in the right eye and 10/10 in the left. On slit-lamp examination, we observed the presence of in-the-bag, multifocal, hydrophobic acrylic IOLs bilaterally. Specifically, calcified deposits within the substance of the IOL were observed. Conclusion: To our knowledge, this is the first case of spontaneous calcification of a hydrophobic multifocal IOL and all cataract/refractive surgeons should be aware of this rare complication.

Cataract is the leading cause of reversible blindness and visual impairment worldwide and cataract surgery using phacoemulsification and intraocular lens (IOL) implantation is one of the commonest surgical procedures performed (1). Although the materials and manufacturing technique of IOLs are constantly improving, IOL opacification remains a rare potential complication that can affect the visual outcome of the operation. Hydrophobic acrylic IOLs have very low rates of postoperative posterior capsule opacification, lens opacification and calcification compared to hydrophilic lenses (2).

Case Report

A 50-year-old female patient presented to our clinic complaining of glare and blurry vision in her right eye over the previous 6 weeks. She had undergone bilateral refractive lens exchange elsewhere 9 months earlier, with no history of previous ocular surgery. There was no history of systemic disease and she was not prescribed any long-term medication. Her unaided distance visual acuity was 8/10 in the right eye and 10/10 in the left. On slit-lamp examination, we observed the presence of in-the-bag, multifocal, hydrophobic acrylic IOLs bilaterally. However, the striking finding was the marked opacification of the multifocal IOL in the right eye (Figure 1). Specifically, we observed calcified deposits within the substance of the IOL, as well as glistenings. The anterior chamber was of normal depth without cells or flare. No vitreous cells or opacities were found. Fundus examination showed normal findings. Refractive lens exchange had been uneventful. The postoperative period was also uneventful and visual performance had been excellent in both eyes until recently. The patient had not undergone any Nd:YAG laser capsulotomy or other ocular surgical interventions and did not have any intraocular infections. We discussed the option of IOL exchange, but she was not keen on further surgery.

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Discussion

The commonest cause of IOL pit formation is Nd:YAG laser capsulotomy (3), whereas IOL opacification is common after silicon oil tamponade in vitrectomized eyes (4). Asteroid hyalosis has been also reported as a potential cause of IOL calcification, particularly in silicon IOLs (5). Since endothelial keratoplasty became a popular surgical intervention for corneal endothelial decompensation, IOL opacification has been observed as a rare complication. Opacification presents with a specific pattern of several fine granular deposits on the anterior surface of the IOL, mostly present at the pupillary zone. Case series of IOL opacification, especially after Descemet stripping endothelial keratoplasty and Descemet’s stripping automated endothelial keratoplasty have also been reported (6, 7). Moreover, IOL opacification due to calcified deposits has also been described in hydrophilic IOLs, as well as in hydrophilic IOLs with hydrophobic surface, presumably caused by hydration of the IOL or the presence of a manufacturing IOL defect (8-10). However, opacification of a hydrophobic multifocal IOL has never been reported before. To our knowledge, this is the first case of spontaneous calcification of a multifocal hydrophobic IOL and all cataract/refractive surgeons should be aware of this rare complication, which generates patient dissatisfaction and may require further surgical intervention for visual restoration.

Conclusion

IOL calcification is a very rare entity, observed almost always in hydrophilic IOLs. It is often observed in eyes that underwent endothelial keratoplasty or vitrectomy with silicon oil tamponade. This is the first reported case of spontaneous calcification of a multifocal hydrophobic IOL.

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Figure 1. A: Slit-lamp photo showing opacification of multifocal intraocular lens. B: Multiple pits and deposits were seen in the intraocular lens under magnification.
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