Journal of Clinical and Medical Images

Clinical Image

ISSN: 2640-9615 | Volume 6

Intraocular Lens Opacification and Dislocation

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Received: 21 Sep 2022
Accepted: 01 Oct 2022
Published: 07 Oct 2022
J Short Name: JCMI

Citation:

Yue Li, Intraocular Lens Opacification and Dislocation. J Clin Med Img. 2022; V6(17): 1-1

1. Clinical Image

Ever since the first intraocular lens (IOL) implantation in the 1940s, the ophthalmic community has seen tremendous technical advances in this area. Today, there are numerous commercially available IOLs composed of materials such as acrylic, silicone or hydrogel. Despite continuous manufacturing improvements and rigorous biocompatibility tests, late structural deterioration of these lenses' materials is still a dreadful and unpredictable occurrence. One such example is IOL opacification, a rare phenomenon first described in the early 90s, consisting of loss of optical clarity of the IOL's biomaterials and, consequently, marked decline of the visual functions. Several cases of IOL opacification of various materials have been published, but it appears to affect predominantly hydrophilic acrylic lenses. Variables such as manufacturing and storage methods, intraocular solutions, use of surgical adjuvants and patient comorbidities have been tentatively linked to this occurrence. A 70-year-old woman presented to the ophthalmology clinic with blurred vision in her left eye for five months. She had undergone phacoemulsification and intraocular lens (IOL) implantation surgery (A1-UV, China, Eyebright) in the left eye four years ago. Upon examination, the best-corrected visual acuity was 20/200 in the left eye. Dilated examination revealed wide ground glass opacity of the IOL and upward displacement of the IOL (Panels A and B). We explanted the IOL from the left eye and replaced it with a AQ IOL (AQBH, China, Eyebright). The explanted IOL was examined under light microscopy and scanning electron microscopy. Calcium aggregate deposits were found on the surface of the IOL (Panel C and D). Her visual acuity was 20/32 postoperatively, and was discharged on hospital day 3.

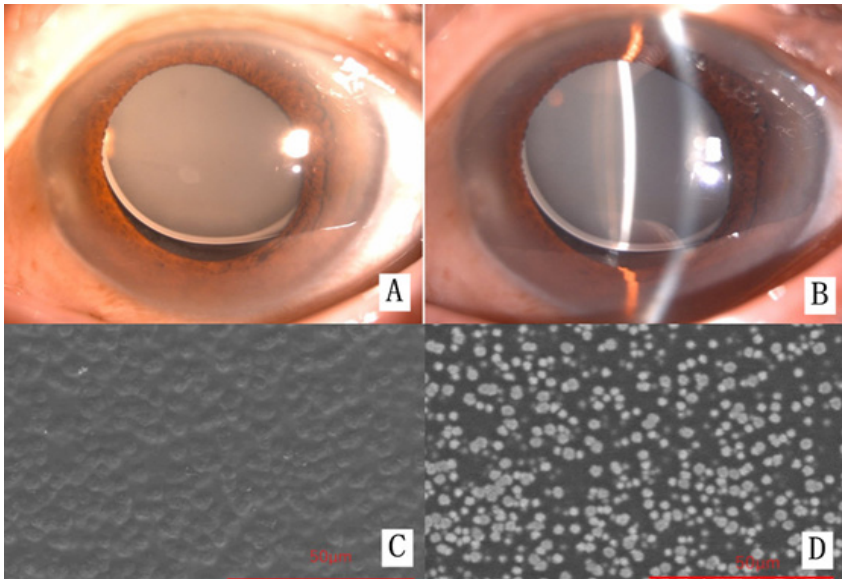

Figure: Dilated examination revealed wide ground glass opacity of the IOL and upward displacement of the IOL (Panels A and B). Light microscopy and scanning electron microscopy revealed calcium aggregate deposits on the surface of the IOL. (Panel C and D).