



Case Report

Journal of MAR Ophthalmology (Volume 4 Issue 2)

## **Bilateral Intra Ocular Lens Opacification After Uneventful Phacoemulsification Cataract Surgery: Case Report**

Dr. Amira Al Hattali<sup>1</sup>, Dr. Asma Al Faliti<sup>2</sup>, Dr. Neha Bhatia<sup>3</sup>, Dr. Bindu Narayanadas<sup>\*4</sup>,

1. Medical officer, Department of Ophthalmology, Rustaq Hospital, Oman
2. Medical officer, Department of Ophthalmology, Rustaq Hospital, Oman
3. Kasturba Medical College, Manipal, District: Udupi (Karnataka), India
4. Sr. Specialist and HOD, Department of Ophthalmology, Rustaq Hospital, Oman

**Corresponding Author: Dr. Bindu Narayanadas**, Sr. Specialist and HOD, Department of Ophthalmology

Rustaq Hospital, Oman

**Copy Right:** © 2022 Dr Bindu Narayanadas, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Received Date: April 04, 2022**

**Published Date: May 01, 2022**

### **Abstract**

*Opacification of foldable intraocular lens implants after uneventful cataract surgery is rare but recognized phenomenon and have multifactorial etiology. Severe visual loss could be a result of Intraocular lens (IOL) opacification. However, the pathogenesis is still indistinct and controversial. The main aim of this study is to report bilateral intra ocular opacification resulting in sever vision drop in both eyes.*

*A 67 years old male with no significant past medical history who had both eyes phacoemulsification cataract surgery with posterior chamber IOL insertion. 2 months following the surgery, opacification of the IOL was seen, later on the patient was recommended for IOL replacement due to marked drop of vision.*

*In order to recover the vision, implant exchange is essential in some patients. The incidence of such unusual occurrences has to be highlighted due to the presence of new materials that are increasingly used nowadays. Additional studies are needed to define the primary causes and mechanisms of the calcification of biomaterials including IOLs.*

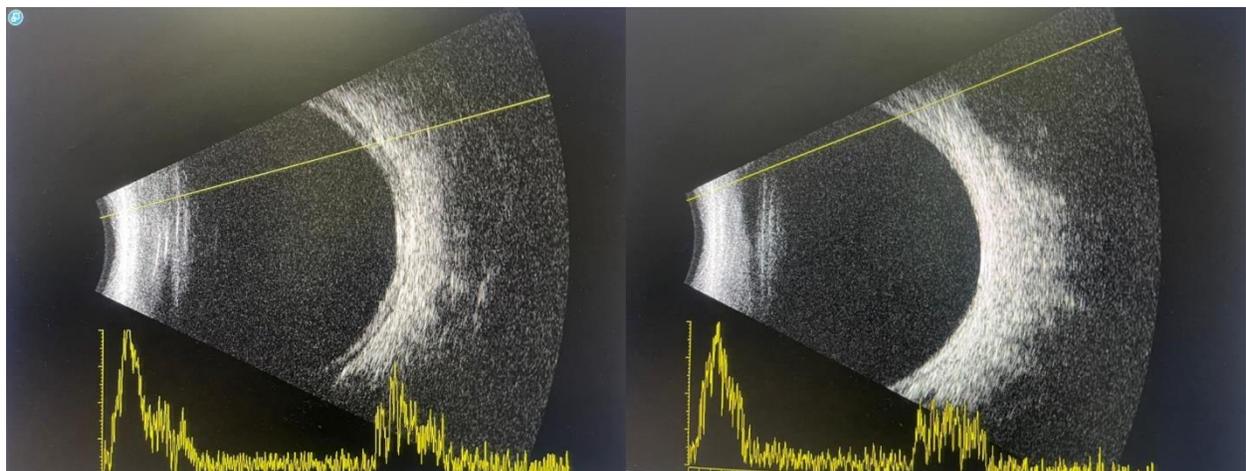
**Keywords:** *Calcification, Explantation, Intraocular Lens, Opacification, Phacoemulsification.*

### **Case Report**

A 67-year-old man, no systemic comorbidities, came to our ophthalmology department on 20<sup>th</sup> August 2019 after having an uneventful both eyes phacoemulsification cataract surgery with a posterior chamber foldable IOL implantation done in Iran 2 months back. Best-corrected visual acuity (BCVA) was 6/24 in right eye and 6/18 in left eye. On slit lamp examination, the intraocular lens was seen uniformly hazy in both eyes [Figure-1] He was treated conservatively, but during a follow up examination later in August 2021, his visual acuity worsened to hand movement in right eye and 6/36 in left eye. Examination showed Pseudophakia with total IOL opacification bilaterally [right eye more than left eye]. Right eye fundus was not visible due to hazy media, but left eye fundus was normal, although media was hazy. Routine investigations including USG B Scan was unremarkable [Figure-2]. The patient was offered a lens exchange procedure at a tertiary care hospital.



**[Figure-1: Bilateral IOL Opacification] - original**



**[Figur-2: Bilateral Normal B-Scan] - original**

## Discussion

IOL opacification has been noticed by ophthalmologists for decades. In 2002, N.E. Habib et al was first to report the occurrence of opacity in Hydroview IOLs after surgery. Latest productions of foldable IOLs are existed in different designs that has different materials, such as silicon, hydrophobic acrylic, and hydrophilic acrylic. although developing opacity and deposits in these lenses is relatively rare, it's a recognized problem that should be taking into consideration. The main reason that caused IOL opacification is found to be calcification; the development of residues containing calcium phosphate due to high amount of the aqueous humor with calcium crystals is one possible mechanism, this has been proven by many studies <sup>1,2,3</sup>. calcification can appear on both internal as well as external surface of the IOL. Izak et al <sup>4</sup> detected two types of deposits using optical and electron microscopy which are: fine seed-like and granular deposits inside lens optics and on external and optical surface respectively detected with the help of electron and optical microscopy.

Following the initial report of IOL calcification, many cases of unsystematic calcification of various IOL surfaces and materials have been reported. Many factors are responsible for the opacification, IOL material is one of them. Hydrophobic acrylic IOLs, compared to hydrophilic IOLs, were found to have a smoother surface outline. Hydrophobic IOLs are known for diffuse opacification pattern, however hydrophilic IOLs are known for superficial opacification due to calcium deposits <sup>5</sup>. Many factors such as IOL material composition, packaging, manufacturing technique, related conditions such as simultaneous use of ocular medications, glaucoma or those leading to breakdown of the blood-aqueous barrier, can effect opacification<sup>6</sup>.

However, whether IOL opacification occurs more often in hydrophilic IOLs remains controversial. Moreover, there is no clear-cut data available to strongly support this outcome.

Ever been made to decide if one specific material or design of IOL is superior to the other. Since the mechanism of some IOL opacifications is not clear, it should not be generalized to all IOLs used in the cataract surgeries. Moreover, IOL removal remains the solitary action option for patients presenting with very severe decreased visual acuity caused by IOL calcification <sup>7</sup>. The procedure is usually challenging and dangerous because of the close fitting of the IOL to the capsular bag.

## Conclusion

Causes of foldable intraocular lens opacification are multifactorial, and the underlying pathology is still unclear. However, it is uncommon. It is important to proceed for IOL exchange in patients with decreased visual acuity in order to restore their vision. Day by day, new and various IOL materials are being used,

therapy, it is of great importance to highlight such unusual occurrences. Additional studies are needed to find out the main causes and mechanisms of the calcification of biomaterials including IOLs.

### **References**

1. Habib NE, Freegard TJ, Gock G, Newman PL, Moate RM. Late surface opacification of Hydroview intraocular lenses. *Eye*. 2002; 16:69–74.
2. Altaie R, Loane E, O'Sullivan K, Beatty S. Surgical and visual outcomes following exchange of opacified Hydroview intraocular lenses. *Br J Ophthalmol*. 2007; 91:299–302.
3. Neuhann IM, Neuhann TF, Szurman P, Koerner S, Rohrbach JM, Bartz-Schmidt KU. Clinicopathological correlation of 3 patterns of calcification in a hydrophilic acrylic intraocular lens. *J Cataract Refract Surg*. 2009; 35:593–597
4. Izak AM, Werner L, Pandey SK, Apple DJ. Calcification of modern foldable hydrogel intraocular lens designs. *Eye*. 2003; 17:393–406.
5. Werner L. Glistenings and surface light scattering in intraocular lenses. *J Cataract Refract Surg* 2010; 36:1398-420.
6. Mackert M, Muth DR, Vounotrypidis E, et al. Analysis of opacification patterns in intraocular lenses (IOL). *BMJ Open Ophthalmology* 2021;6
7. Giers, B.C., Tandogan, T., Auffarth, G.U. et al. Hydrophilic intraocular lens opacification after posterior lamellar keratoplasty - a material analysis with special reference to optical quality assessment. *BMC Ophthalmol* 17, 150 (2017).