

A Case of Unexplained Opacity of an Intraocular Lens

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Abstract: The patient is an elderly female, 81 years old. On September 24, 2022, he was admitted to the hospital for “blurred vision in his right eye, photophobia and tears for more than 1 year”. The patient complained that he had undergone phacoemulsification resection + intraocular lens implantation of cataract in the right eye in a hospital in Liling City in 2020 due to “blurred vision in both eyes for more than 3 years”, and the blurred vision was reduced after surgery. Now due to the blurred vision of the right eye, which is progressively worsening and the vision is decreasing, he came to our hospital for treatment.

Keywords: Older Women; Vision; Intraocular Lens

1. Introduction

Sequelae of cerebral infarction; hypertension grade 3 (very high risk); type 2 diabetes; chronic gastritis; pulmonary nodules; thyroid nodules; fatty liver; kidney stone; carotid arteriosclerosis with plaque formation, arteriosclerosis of the lower extremities with plaque formation, denial of infectious disease and history of exposure to parasites, denial of trauma.

2. Specialist examination

Vod index/35cm, Vos 0. 4, no swelling of the right eye and face, no conjunctival hyperemia, no xanthochromia of the sclera, corneal clarity, no KP, anterior chamber depth, Tyndall, sign: (-), posterior adhesions of the upper iris, pupil underround, diameter 3mm, sensitive to light, intraocular lens fold in the ciliary sulcus, optical part of the intraocular lens visible in front of the pupil margin of the upper iris, opacity of the intraocular lens, vitreous opacity is faintly visible, and it is difficult to see the right fundus. There is no swelling of the left eye and face, no conjunctival hyperemia, no xanthochromia of the sclera. Cornea is transparent, no neofoul blood vessels, no KP, deep anterior chamber, Tyndall, sign: (-). The iris texture is clear, and the pupil is round. The diameter is 3mm, the intraocular lens is in place, the vitreous is opaque, the papilla is clear, the color is light red, C/D=0. 3, the retina is flat, and the macular fovea is not clear in reflection.

3. Ocular ultrasound

vitreous opacity. After being admitted to the hospital, the relevant examinations were improved, and on September 26, 2022, the "intraocular lens replacement of the right eye" was performed under local anesthesia, and local anesthesia was given during the operation, and 3. 0mm transparent corneal incision, after injecting viscoelastic agent into the anterior chamber, and then 0. 5mm inside the limbus at 2 and 9 o'clock, the transparent cornea is assisted by incision. The transparent corneal incision was enlarged to 5mm, and the intraocular lens was removed with an anterior hook (intraocular lens clamping was seen during the operation, and the upper iris was adhesioned). The upper adhesion iris was separated, the intraocular lens implanted, and after the viscoelastic agent of the anterior chamber was removed, the transparent corneal incision was intermittently sutured for a total of 2 stitches to form the anterior chamber. and the conjunctival sac was coated with tobramycin dexamethasone ophthalmic ointment, and the surgical eye was covered.

4. Physical examination at discharge

Vod 0. 1, Vos 0. 4, NCTod12. 2mmHg, NCTos14. 1mmHg, no swelling of the right eyelid, no obvious hyperemia of the conjunctiva, no xanthochromia of the sclera, subsidence of corneal edema, sutures in place, no KP, deep anterior chamber, a small amount of iris pigment particles floating in the aqueous humor, slight posterior adhesion of the upper iris, pupil underround, diameter 3mm, sensitive to light, positive position of intraocular lens, opacity of the posterior lens capsule, obvious temporal capsule, vaguely visible vitreous opacity, clear visual papillae, pale red color, C/D=0. 3, retinal flat, macular foveal reflection is under-reflective: There is no swelling of the left eye and face, no con-

conjunctival hyperemia, no xanthochromia of the sclera, corneal clarity, no KP, deep anterior chamber, Tyndall sign (-), clear iris texture, round pupil, diameter 3mm, positive intraocular lens, vitreous opacity, clear papillae, pale red, C/D = 0.3, flat retina, and poor reflection in the fovea of the macula. One month later, the patient's visual acuity did not deteriorate, Vod 0.1, Vos 0.4, NCTod 13.5mmHg, NCTos 16.4mmHg, the intraocular lens was positive, and the optical part was transparent.

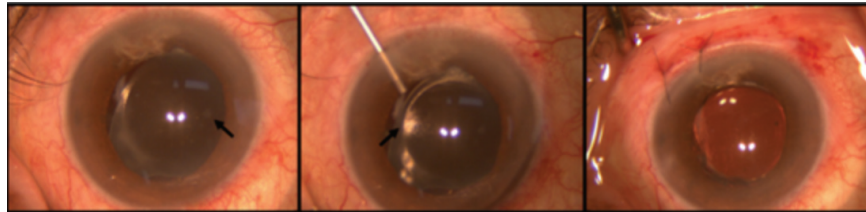


Figure 1

Figure 2

Figure 3

Figure 1. Before surgery, the lens of the right eye is cloudy (visible in the optical part)

Figure 2. Intraoperative deposits may be seen in the lens

Figure 3. After intraocular lens replacement

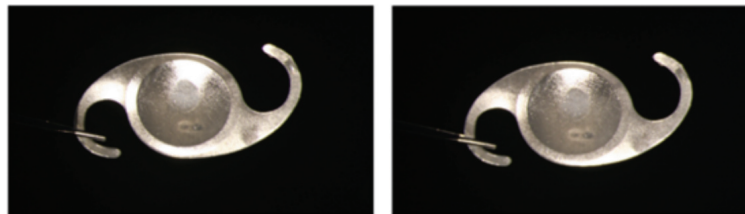


Figure 4

Figure 5

Figure 4 and Figure 5: Photograph of the intraocular lens taken after surgery and lens is cloudy (visible in the optical part)

5. Discussion

With the wide application of various folded intraocular lenses in phacoemulsification of small incision cataracts, their biocompatibility and stability in the eye have become a growing concern in clinical practice. At present, the cases of intraocular lens opacity reported in the literature at home and abroad can be divided into turbidity that occurs during surgery and turbidity formed by long-term accumulation. Tao Zhang^[1] and Kemal Ozulken^[2] both reported the occurrence of crystal cloudiness (clouding phenomenon) during surgery, and it was eventually determined that the effect of temperature on the intraocular lens was determined. The opacity of intraocular lenses formed by long-term accumulation was first reported by Jensen et al^[3] in 1994, in which 11 patients with cataract had precipitates on the surface of intraocular lenses, including silicone gel and acrylates, and spectroscopic analysis showed that the precipitates contained a large amount of phosphorus and calcium.

In May 2000, Werner et al^[4] reported five cases of hydrogel intraocular lens opacity after cataract surgery, and the intraocular lens surface precipitate was positive for calcium-specific staining such as akane red and von Kossa silverophile. In February 2004, Zhu Yudong et al. reported a rare case of opacity of binocular intraocular lenses, all of which were H60M intraocular lenses produced by storz in the United States, with hydrophilic acrylates on the optical surface and blue PMMA on the folds.

6. Conclusion

The probability of turbidity of intraocular lens is very small, and the mechanism of occurrence is not yet definitive. It is mostly seen in hydrogels and other materials, and the turbidity of hydrophilic and hydrophobic acrylate intraocular lenses has also been reported. The turbidity is essentially calcium salts, phosphate salts, calcium and phosphorus mixtures, or proteins deposited on the surface of IOLs^{[4][8]}. The cases of Werner et al. are very similar to this case, both suffering from underlying diseases such as hypertension, diabetes, and coronary heart disease^[7]. From this, we can speculate that it may be related to the patient's own health condition as well as these underlying diseases. It has also been pointed out in the literature that it may be related to inflammation and silicone eye after glass resection. In 2022, Yanfeng, Zeng et al. reported three cases of intraocular lens opacity, which are also related to the material of the intraocular lens injector, due to the difference between the ocular microenvironment and the human internal environment, resulting in some substances that cannot be decomposed and attach to the intraocular lens resulting in opacity^[9].

In conclusion, the incidence of intraocular lens turbidity is extremely low, and the causes and mechanisms of its occurrence are complex and inconclusive. Intraocular lens replacement is currently the most effective treatment for intraocular lens opacity. In the future clinical

work, we ophthalmologists need to pay more attention to the patient's general condition, consider the impact of systemic diseases on the eye, carefully select the type of intraocular lens, pay attention to the influence of environmental temperature on the lens, and instruct patients to actively review and do a good job of follow-up.

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