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Unilateral Spontaneous Absorption Of Lens: Case Report

Dr. Revati Jolhe

Designation – Resident

Name of Department – Ophthalmology

Name of Organization – Bhopal Memorial Hospital And Research Center, Bhopal, India

Abstract

Absorption of natural crystalline lens is an unusual in occurrence. It can happen spontaneously or as a consequence of eye injury, and it might also be linked to different eye and systemic diseases. We reported an unusual instance of unilateral spontaneous lens absorption in a 62 year woman who had bilateral vision loss during previous eight years that was painless and gradually progressed. The slit-lamp assessment of the anterior segment in both eyes (without dilation) showed the presence of mature cataracts. During the dilated examination of the left eye, the central posterior capsule was observed, while the peripheral capsule seemed translucent with areas exhibiting calcified white plaques. The patient had cataract surgery, and afterward, the best-corrected visual acuity had improved to 6/18.

Key Words – Mature cataract, lens, spontaneous absorption,

INTRODUCTION

The natural crystalline lens is a vital part of the eye that plays important role for directing incoming light rays onto the retina, ensuring clear and sharp vision. The absorption of a cataract or the natural crystalline lens is an uncommon event. It can occur spontaneously or may be linked to conditions such as Maternal Rubella, Persistent Hyperplastic Primary Vitreous (PHPV), uveitis, or Morgagnian cataract [1] and some syndromes like Hallermann-Streiff-Francois syndrome and Down syndrome [2]. Also there have been a limited number of reported cases, which were associated with an ocular trauma[3].Cataract surgery has become now more common, which has decreased the prevalence of spontaneous lens absorption due to hypermature cataracts[4].

The presence of partially absorbed lens material combined with an opaque anterior lens capsule and intact capsular support renders this case especially distinctive [5].

CASE REPORT

Female patient of 62 years old, presented to the Department of Ophthalmology of Bhopal Memorial Hospital and Research Center, Bhopal, with chief complaints of gradual, painless and progressive decreased vision in both the eyes since 6 yrs. She was a known diabetes mellitus patient and had been on medication since 10 years. There was no history of redness or discharge, pain, ocular trauma or ocular surgery nor had she taken any long term steroid. General and systemic examination were normal. Birth history and obstetric history were uneventful. On visual acuity testing, vision of both the eyes were projection of rays accurate in all four quadrants and counting finger close to face. No improvement in vision noted with the pinhole test. The eyes were orthophoric, with extraocular movements are full in all directions. Intraocular pressures measured 14 mm Hg in the right eye and 12 mm Hg in the left eye by applanation tonometry.

During the examination of either eye by slit lamp, the eyelids and adnexa appeared normal, and both the conjunctiva and cornea were clear. The anterior chamber was of normal depth. The pupils of both eyes were round, centrally positioned, measuring 2-3 mm in diameter, and responded well to direct and consensual light. The lens in both eyes appeared milky white, indicating a mature cataract.

Tropicamide 0.5% and Phenylephrine 5% eye drops were used to dilate the patient's pupils in order to measure the degree of dilation and to make the posterior section easier to examine. Mature cataract was present in right eye and red reflex in the posterior segment, the rest of the fundus were not visible due to the presence of the mature cataract. Of the left eye, pupil dilatation was 7–8 mm, with posterior synechiae noted from the 7 to 8 o'clock position. Interestingly, instead of a mature cataract, there was a centrally opaque, calcified anterior capsule, while the peripheral capsule appeared translucent with scattered calcified white spots. This suggest may be there was a previous attack of uveitis or inflammation. The posterior segment details could not be visualized. The lens nucleus was completely absent, with only minimal residual cortical matter seen. The majority of the nuclear lens material was missing. B-scan ultrasonography of both eyes shows clear vitreous cavity without internal echoes. Posterior wall appears as a single bright line with a smooth scleral outline. The optic nerve and extraocular muscles show typical echogenic patterns without signs of abnormality. Complete blood count, blood sugar levels, ESR, C-reactive protein serum electrolytes, and creatinine were within normal limits. TORCH titer was negative.

We performed cataract surgery on the right eye first, under grave visual prognosis. At postoperative follow-ups, the patient’s vision had improved to 6/9.

The IOL power calculation for the left eye was performed using the aphakic mode. The procedure involved posterior chamber IOL implantation under peribulbar anesthesia as posterior capsular support is intact with adequate zonular support. The initial steps of the surgery were consistent with standard practices. A rhexis was created, and there was no requirement for hydrodissection. A small opening was made in the posterior capsule, followed by irrigation and aspiration. The foldable PCIOL was successfully implanted, achieving a well-centered position at the conclusion of the surgery. Follow-up appointments were scheduled for day 1, 7^{th}, 15^{th} , and 30^{th} day.

At the first postoperative day, vision was 6/60, the cornea appeared cloudy, and there was an increase in intraocular pressure accompanied by an anterior segment reaction of grade three. The patient was treated with tablets of Diamox, a syrup of Potchor, eye drops of prednisolone every half hourly, antibiotic eye drops and artificial tears. At the one-month follow-up, ND:YAG capsulotomy was performed to remove residual cortical tissue from the posterior capsule and improve visual acuity. Upon subsequent follow-ups, vision improved to 6/18, and the intraocular pressure returned to normal.

Figure 1- Undilated left eye

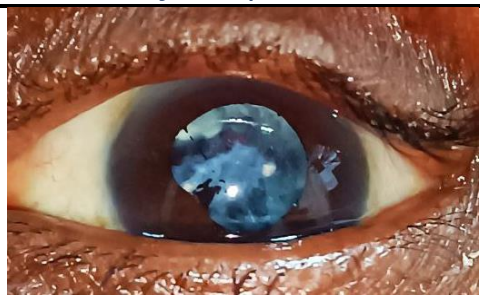

Figure 2-Dilated left eye

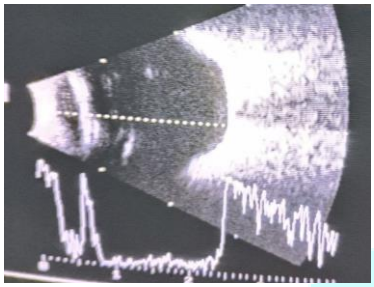

Figure 3- B scan of left eye

DISCUSSION

A lens may be partially absorbed with opacified lens material between the anterior and posterior capsules or can be completely absorbed[5]. The exact mechanism of lens absorption is not clear although many Conditions like congenital rubella [6, 7] and trisomy 13 [8] have been associated with spontaneous lens absorption. There have been a limited number of cases that have been associated with an ocular trauma [4]. In ocular trauma cases, damage happened to the lens's epithelium can cause traumatic cataracts, or fiber cells in the context of an intact capsule and impermeability are compromised by capsule disruption[9].

Spontaneous absorption is also well-documented in Morgagnian cataracts, where it is often associated with lens-induced glaucoma and uveitis. In some cases, intracapsular resorption of the opaque cortex occurs, followed by sinking of the nucleus below the visual axis, without rupture of the capsule or lens dislocation, as a result of degenerative changes within the Morgagnian cataract [10]. Also osmotic changes resulting from chemical imbalances across the lens capsule can lead to cortical emulsification, followed by spontaneous absorption of the lens material [11]. Rathinam et al [12] found that in cases of rubella, histopathological showed extensive necrosis, vacuolation, and spontaneous cataractous lens absorption. A similar mechanism has been suggested in leptospiral uveitis, where cross-reactivity between anti-leptospira antibodies and lens proteins may contribute to lens absorption.

Dwivedi and Agasti [13] reported full spontaneous lens absorption that was followed by foldable IOL implantation, irrigation, and aspiration of any remaining cortical material. In a similar way, the study conducted by Dandekar et al [14], a case of spontaneous lens absorption was managed by performing an anterior vitrectomy and a rigid intraocular lens (IOL) implanted in sulcus by a 6-mm scleral tunnel. The majority of these patients seeing excellent visual recovery.

The unique morphology and anatomical disarray of the cataract make surgical treatment in such cases particularly challenging. A thorough preoperative evaluation is essential. This includes assessment of the anterior capsule to plan the capsulorhexis, as well as evaluation of zonular integrity to determine the appropriate type and placement of the intraocular lens (IOL). It is also important to estimate the degree of lens absorption and to identify any signs of trauma or inflammation. These factors collectively guide the choice of surgical approach and improve the likelihood of a successful outcome.

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