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Case Report

Retinal Detachment After Cataract Surgery and Posterior Laser Capsulotomy in a Young Healthy Male Patient: Case Report

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ABSTRACT

Background: The onset of cataract formation is normally experienced in senile age. The process of lens opacification can also be influenced by other factors, including systemic diseases, infection, trauma, medication, ultraviolet light exposure, genetic predisposition and environmental sources. Gradual vision loss accompanied by a myopic refractive shift can be caused by nuclear cataract formation, even in young patients. Phacoemulsification cataract removal and intraocular lens insertion surgery is indicated when visual acuity loss and/or myopic anisometropia becomes a problem. Surgical and laser treatments are risk factors in developing retinal detachment, especially in myopic patients.

Case Presentation: This is a case of an early onset nuclear cataract in a young male. A 44-year-old man visited the hospital complaining of gradual vision loss in his right eye. History study revealed no systemic or ophthalmic diseases or trauma. The patient underwent phacoemulsification nuclear cataract removal and intraocular lens insertion surgery in his right eye, followed by Nd:YAG laser posterior capsulotomy 3 years later. He underwent phacoemulsification nuclear cataract surgery in his left eye at the age of 48 years, followed by laser capsulotomy treatment 2 years later. At the age 50, a routine eye examination revealed retinal detachment in his right eye. He underwent vitrectomy surgery twice.

Conclusion: Nuclear lens opacification is seldom of clinical importance in young healthy adult patients; however, it can be the cause of progressive visual acuity loss, especially in the presence of a myopic refractive shift. Surgery, laser treatment and myopia are all risk factors in retinal detachment. This case shows that thorough and periodic routine eye examinations are a must when dealing with patients with unexpected and atypical signs and symptoms, especially having underwent surgery and laser treatments.

Background

Cataract is a frequent pathology, consisting of the progressive opacification of the lens, which causes a progressive clouding of vision. It normally affects people in late age, usually over seventy years of age, but there can be types of cataracts that occur at birth (congenital cataracts), in youth and prior to retirement age [1, 2]. Among the most common causes, there is certainly aging. The other causes include eye injuries, trauma, infection, systemic diseases (like diabetes), ophthalmic pathologies, therapy (cortisone) and environmental factors (ultraviolet radiation) [1-4]. A gradual loss of best corrected visual acuity can be caused by an early onset of lens opacification even in young healthy patients. Nuclear cataract should be part of the differential diagnosis, even if signs are subclinical, especially in the presence of a myopic refractive shift. Phacoemulsification cataract removal and intraocular lens insertion tends to resolve the visual acuity loss. Laser capsulotomy can be performed at a later date in the presence of posterior capsule opacity. Surgery and laser treatments are risk factor for retinal detachment, especially in patients with myopia.

Case Presentation

A 44-year-old Caucasian male came into the clinic for a routine eye examination on October 3, 2012 after seeing several ophthalmologists in

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a 12-month period complaining of gradual visual acuity loss in his right eye. He normally used distant spectacles with a correction of about -4.00 diopter (D) spherical equivalent in both eyes for his moderate myopia that had not changed in the past 10 years. His refraction was; RE −12.00 + 1.00 axis 135 with visual acuity 6/10, LE −4.50 +0.50 axis 50 with visual acuity 10/10. Slit lamp examination of the anterior segment showed nuclear lens opacification, which was greater in the right eye (Figure 1). Intraocular pressures were normal in both eyes (18mmHg). Dilated fundus examination showed normal posterior pole, clear vitreous and no signs of peripheral retinal degeneration, holes or lesions. Optical coherence tomography (OCT) and visual fields were normal (Figures 2 & 3). He reported to be in good health and had no factors associated with early cataract formation, like excessive sun exposure, oral steroid use, or history of eye trauma of infection. He was a non-smoker, followed a typical meditation diet, not diabetic and was not premature at birth.

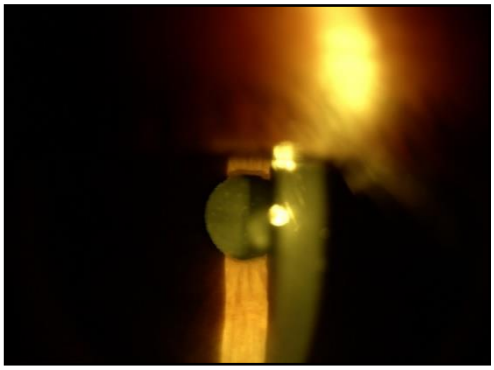

Figure 1: Slit lamp examination of the anterior segment showed nuclear cataract in the right eye, which caused an important refractive myopic shift and gradual loss of best corrected visual acuity.

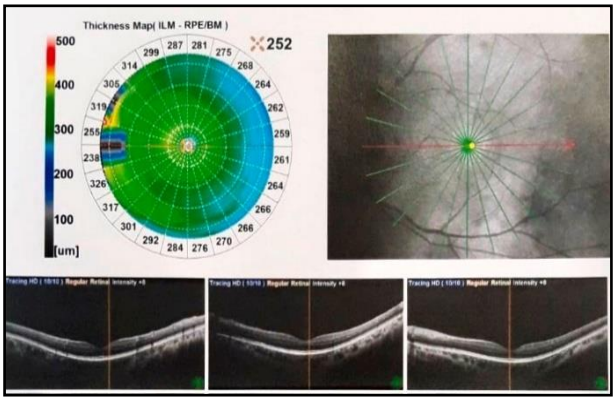

Figure 2: Optical coherence tomography (OCT) was within normal limits.

On December 20, 2012, he underwent phacoemulsification nuclear cataract removal and intraocular lens insertion surgery in his right eye. Visual acuity was 10/10 with -3.25 D after uneventful surgery. He performed periodic eye examinations, which showed a progressive opacification of the posterior capsule in his right eye. On October 21, 2015, his corrected visual acuity dropped to 7/10, and thus was sent to undergo Nd:YAG laser posterior capsulotomy. The same trend occurred in his left eye with gradual visual acuity loss over time. He underwent the same type of cataract surgery in his left eye in 2016, followed by capsulotomy laser treatment 2 years later. On February 25, 2019, a routine eye examination revealed asymptomatic retinal detachment in his right eye. He underwent vitrectomy surgery twice in his right eye.

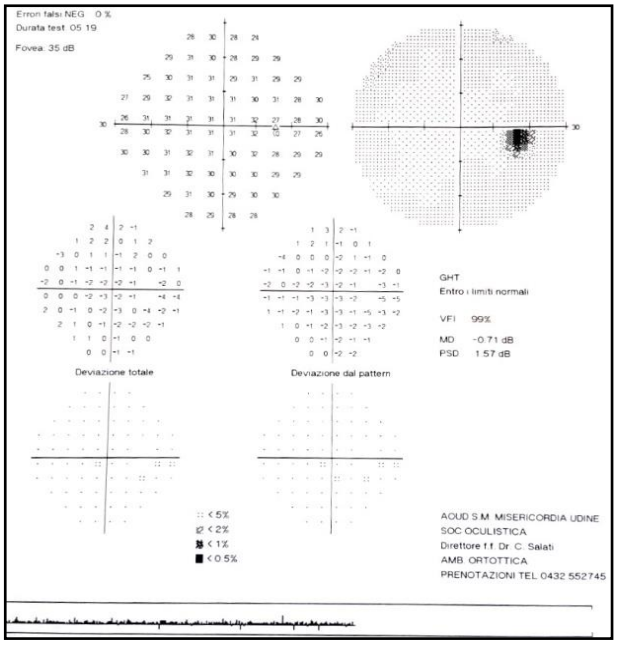

Figure 3: There were no defects in the visual fields.

Discussion

Cataract is an aging disease of the lens that leads to a progressive loss of due to the oxidation of the proteins that make it up. The phenomenon is mainly linked to senile age; over two thirds of patients that undergo phacoemulsification cataract surgery in Europe are over the age of 70 years [1, 2]. There are, however, other risk factors responsible for an early onset of cataracts, which include eye infection and trauma, IOP-lowering medications/surgery, familiarity, ultraviolet radiation, smoking, diabetes, steroid therapy, and excessive alcohol consumption [1-4].

The opacification of the lens usually occurs slowly, causing global visual blurring, fogging, transient or permanent vision loss, the presence of bright halos around the point lights, difficulty in distinguishing colors, slowness in adapting to the dark, and eye fatigue. Visual acuity can sometimes be enhanced with new prescription spectacle. In our clinic, patients are usually sent to undergo cataract surgery when best corrected visual acuity (BCVA) is less than 6-7/10. This indicator is less stringent in young patients that need to work and drive considering that BCVA can be conserved with new glasses, but quality of vision remains limiting.

The lens opacification of this patient was subclinical, which was easily missed by other ophthalmologist considering his young age. Refraction showed a myopic shift in a short time period, which could be due to diabetes, eye infection or trauma, steroid use or nuclear cataract formation. The differential diagnosis of nuclear cataract formation was the most probable cause in light of the normal medical history and fundus examination, especially considering the great myopic shift [5-7]. Personal experience had helped in assessed this case, because I too, as an ophthalmologist and patient, had developed early onset nuclear cataract in both eyes with similar signs and symptoms and underwent cataract surgery at the age of 37 years. Phacoemulsification cataract removal and intraocular lens insertion is the only therapeutic option to

address the visual acuity loss due to cataract. Posterior capsule opacity (PCO) can occur after surgery, which is known as being a multifactorial pathology caused by proliferation of residual lens epithelial cells [8, 9]. Although the mechanism is still unclear, it is estimated that PCO can occur in about 10% of cases at 1 year and up to 25% at 5 years after cataract surgery [9]. Laser capsulotomy is usually preformed in the presence of progressive loss of BCVA.

Surgery and laser treatments are risk factors for retinal detachment, especially in patients with myopia. A recent study based on a review of pertinent literature showed that retinal detachment is a rare but important adverse outcome occurring in 0.36–2.9% of cases within 10 years of phacoemulsification [10]. Several patient, eye and surgical factors are associated with increased risk, which include intraoperative vitreous loss, surgeon experience, myopia, younger age and male gender. Increasing age proved to be a protective factor, with halving of risk for each decade above 50 years [10]. With regards to laser treatment after cataract surgery, current studies have shown that the risk of retinal detachment after Nd:YAG laser posterior capsulotomy tends to be less than surgical risks, and ranged from 0.3 to 2.0 % by 5 years [11, 12]. The risk for retinal detachment was shown to be highest within the first 5 months after Nd:YAG, with a return to a plateau thereafter [12].

Conclusion

Progressive visual acuity loss in healthy young patients is rarely seen. Differential diagnosis should include possible nuclear lens opacification in the presence of a myopic refractive shift, especially if the anamnesis, clinical history and ophthalmologic examination are normal or subclinical. Phacoemulsification cataract removal and intraocular lens insertion surgery and Nd:YAG laser posterior capsulotomy are effective to overcome these ocular media opacities. Although these procedures tend to be safe and uneventful, complications like retinal detachments can occur even months and years after treatment. These procedures, however, are not free of risks. Long-term complications after surgery and laser treatment can easily escape the notice of the specialist. Closer monitoring and frequent follow-ups are imperative in managing these patients. Prophylactic measures (i.e. retinal laser photocoagulation) can be considered in the presence of retinal tears, holes and/or peripheral degeneration even in asymptomatic patients.

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Consent for Publication

Not applicable.

Competing Interest

None.

Financial Disclosure & Proprietary Interest

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