

■ Case Report

A rare complication of Nd-YAG capsulotomy: *Propionibacterium acnes* endophthalmitis

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Abstract

Posterior capsular opacification, also known as after cataract develops in 33 % of patients after uneventful cataract surgery. Nd-YAG Laser capsulotomy is the treatment of choice for PCO and is routinely performed by the general ophthalmologist on an OPD basis. Endophthalmitis, although a rare complication after Nd-YAG Laser capsulotomy, has been reported in the literature. We report a case of *Propionibacterium acnes* endophthalmitis following laser capsulotomy and the possible mechanism of its occurrence.

Key words: PCO, Nd-YAG laser capsulotomy, *propionibacterium acnes* endophthalmitis

Introduction

Posterior capsular opacification (PCO) is the most common late complication of cataract extraction. Up to one-third of such patients develop PCO after 5 years of uneventful cataract surgery (Schaumberg et al 1998). Posterior capsular opacification can be of two types: Elschnings pearl and membranous type. PCO causes visual impairment as well as obscure fundus view of patients with posterior segment pathology such as diabetic retinopathy and macular edema. PCO is readily treated by the use of the neodymium yttrium aluminium garnet (Nd-YAG) laser to cause photodisruption of the thickened posterior capsule, and thereby clear the visual axis. The commonly encountered complications after YAG capsulotomy are raised IOP, IOL pitting, damage to corneal endothelium and mild anterior uveitis. The unusual complications documented are chronic endophthalmitis, macular edema, retinal detachment and macular hemorrhage. We report a patient with an uncommon complication following uneventful Nd-YAG capsulotomy.

Case report

A 70-year-old patient presented to the eye OPD with complaints of diminution of vision in the right eye since three months. The patient gave a history of undergoing cataract surgery nine months back, elsewhere. There was history of slow recovery of vision during the post-operative period. On examination, the visual acuity was finger counting at one foot. The anterior segment examination with a slit-lamp revealed posterior chamber IOL with a PCO. The pupil was not reacting to light due to the presence of total posterior synechiae. Additionally, deposits were present on the anterior lens surface. The IOP was 12 mmHg. A faint red glow was present on fundus examination although the details were not clear due to the hazy media. The patient was advised Nd-YAG capsulotomy and the same was performed. Post-YAG capsulotomy, the IOP was 16 mm Hg and visual acuity improved to 6/36. The patient was prescribed topical steroids and timolol and was asked to come for follow-up after one week. On follow-up examination, the patient complained of diminution of vision since one day, associated with slight pain. Slit-lamp examination revealed conjunctival and circumciliary congestion, hazy cornea, anterior chamber reaction with 4 + cells and a flare with 2 mm of hypopyon. A retrolental membrane was also present. The B scan was suggestive of vitreous exudates. The patient was suspected of having

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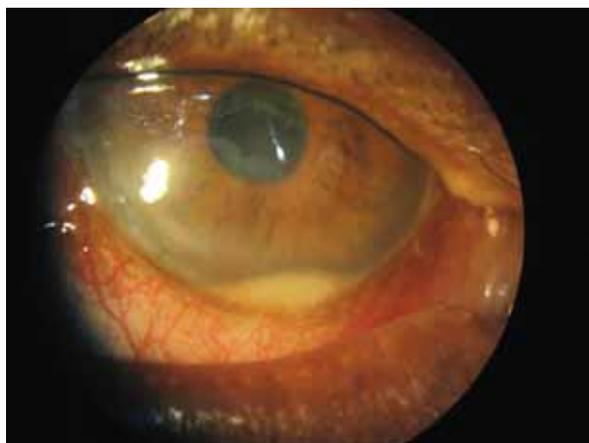
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chronic endophthalmitis and was given intra-vitreous injection of vancomycin 1mg/0.1ml and amikacin 0.4mg /0.1ml. The vitreous tap was sent for microbiological examination and was found positive for *Propionibacterium acnes*. The patient showed a positive response and the hypopyon disappeared. A repeat intra-vitreous injection was given after 48 hours and the patient was referred to the posterior segment surgeon.



Legend : Clinical picture on presentation showing hypopyon

Discussion

The common complications after Nd-YAG capsulotomy is raised IOP, IOL pitting, damage to corneal endothelium and mild anterior uveitis. The unusual complications reported are chronic endophthalmitis, macular edema, retinal detachment and macular hemorrhage. Chronic endophthalmitis occurs when organisms of low virulence get trapped in the capsular bag. The two most common causative organisms are *Propionibacterium acnes* and *Staphylococcus epidermidis*. Presentation of chronic endophthalmitis is with a late onset and a persistent low grade granulomatous uveitis. An enlarging white plaque behind the lens is diagnostic for *Propionibacterium acnes* infection. Meisler et al were the first to recognize the importance of *Propionibacterium acnes* as a cause of delayed-onset endophthalmitis after cataract extraction (Meisler et al 1986). Organisms of low virulence may be the cause of delayed-onset infectious endophthalmitis. Indolent microbial organisms get sequestered in the capsular bag creating a localized, smoldering infection

(Meisler et al 1986; Carlson & Koch, 1988; Driebe et al 1986; Meisler et al 1987)

Apple et al coined the term localized endophthalmitis to describe this condition. This should be kept as a differential diagnosis of otherwise unexplainable inflammation after cataract surgery and, as in our case, after YAG laser (Apple et al 1989). Patients with localized endophthalmitis tend to develop inflammation that is characteristically delayed in onset, chronic, and often low grade; however, severity may be variable. Inflammation typically improves with corticosteroids, further delaying the diagnosis. The patient's symptoms of pain, diminished vision, redness, watering and photophobia are less intense than in patients with acute generalized endophthalmitis. Signs of inflammation are also less severe than those of acute generalized endophthalmitis. An endocapsular plaque may be present, representing sequestered organisms. Stefansson et al reported an endocapsular hypopyon as a clinical sign of localized bacterial endophthalmitis (Stefansson et al 1990). Localized endophthalmitis may create the clinical appearance of posterior capsular opacification (PCO) (Apple et al 1992). There are four reported cases of endophthalmitis precipitated in otherwise quiet eyes by Nd-YAG laser capsulotomy (Meisler et al 1987; Carlson & Koch, 1988; Carlson et al 1993; Tetz et al 1987). Tetz et al (1987) reported a case of *Propionibacterium acnes* endophthalmitis precipitated by Nd-YAG laser posterior capsulotomy performed 10 months after the primary surgery.

Nd-YAG capsulotomy is a routinely performed procedure on an OPD basis by the general ophthalmologist. The surgeon is aware of the post-operative course of the patient operated on. The post-operative course of patients operated elsewhere is not clear, and, due to illiteracy amongst such patients a reliable history is not procured. In our case, the patient might have developed localized endophthalmitis following cataract surgery. The organism got sequestered in the capsular bag. The patient presented to us with signs of healed uveitis. After capsulotomy, the organisms were released in the vitreous cavity and this led to a full blown recurrent attack of endophthalmitis. The purpose of this case report was to make the general ophthalmologist aware of this serious complication of a seemingly-benign procedure.

References

- Apple DJ, Mamalis N, Olson RJ, Kincaid MC (1989). Evolution and classification of intraocular lenses. In: Apple DJ, Mamalis N, Olson RJ, Kincaid MC, eds. *Intraocular lenses: evolution, designs, complications, and pathology*. Baltimore: Williams & Wilkins:11–41.
- Apple DJ, Solomon KD, Tetz MR, Assia EI, Holland EY, Legler UF et al (1992). Posterior capsular opacification. *Surv Ophthalmol*; 37:73–116.
- Carlson AN, Koch DD (1988). Endophthalmitis following Nd:YAG laser posterior capsulotomy. *Ophthalmic Surg*; 19:168–70.
- Carlson AN, Stewart WC, King LP, Apple DJ (1993). Staphylococcus aureus endophthalmitis following Nd:YAG laser capsulotomy. *OMIG Publication of Abstracts*.
- Driebe WT, Mandelbaum S, Forster RK, Schwartz LK, Culbertson WW (1986). Pseudophakic endophthalmitis (diagnosis and management). *Ophthalmology*; 93:442–8.
- Meisler DM, Palestine AG, Vastine DW, Demartini DR, Murphy BF, Reinhart WJ et al (1986). Chronic propionibacterium endophthalmitis after extracapsular cataract extraction and IOL implantation. *Am J Ophthalmol*; 102:733–9.
- Meisler DM, Zakov ZN, Bruner WE, Hall GS, McMohan JT, Zachary AA et al (1987). Endophthalmitis associated with sequestered intraocular *Propionibacterium acnes*. *Am J Ophthalmol*;104:428–9.
- Schaumberg DA, Dana MR, Christen WG, Glynn RJ (1998). A systematic overview of the incidence of posterior capsule opacification. *Ophthalmology*; 105:1213–21.
- Stefansson E, Cobo LM, Carlson AN, Kesler JL (1990). Endocapsular hypopyon: A clinical sign of localized endophthalmitis. *Ophthalmic Surg*; 21:221–2.
- Tetz MR, Apple DJ, Price FW Jr, Piest KL, Kincaid MC, Bath PE (1987). A newly described complication of neodymium-YAG laser capsulotomy (Exacerbation of an intraocular infection). *Arch Ophthalmol*;105:1324–5.

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