

Cystoid macular edema secondary to intraocular lens sub-luxation and iris perforation by iol haptic

Edema macular cistoide secundário a subluxação de lente intraocular e perfuração da íris por haptico da lente

Karolyna Andrade de Carvalho¹ <https://orcid.org/0000-0001-5915-1055>

Nabila Terra Demachki¹ <https://orcid.org/0000-0001-5886-3552>

Giovanna Provenzano¹ <https://orcid.org/0000-0001-7626-844X>

Marcio Morterá¹ <https://orcid.org/0000-0003-2771-1542>

Vinícius Vanzan^{1,2} <https://orcid.org/0000-0001-6687-4294>

ABSTRACT

We present a case of 50-years-old, man with vision loss, dysmorphism and micropsy in the right eye with for 6 months. Ocular history included uncomplicated cataract surgery 10 years before. Best corrected visual acuity was 20/100 in the right eye and 20/20 in the left eye. Anterior segment OD demonstrated intra-ocular lens (IOL) haptic in the anterior chamber with iris perforation. Fundus examination revealed cystoid macular edema in right eye. Surgical approach with reposition of the IOL and triamcinolone acetate intravitreal injection were performed with visual and tomographical improvement.

Keywords: Macular edema; Irvine-Gass; Intraocular lens

RESUMO

Apresentamos o caso de um homem de 50 anos, com queixa de perda de visão, dismorfopsia e micropsia em olho direito (OD) há 6 meses. A história ocular incluiu cirurgia de catarata sem complicações 10 anos antes. A melhor acuidade visual corrigida foi 20/100 em OD e 20/20 em olho esquerdo. O segmento anterior do OD demonstrou háptica da lente intraocular (LIO) na câmara anterior com perfuração da íris. A fundoscopia revelou edema macular cistoide em OD. A abordagem cirúrgica com reposição da LIO e injeção intravítrea de triancinolona acetona foi realizada com melhora visual e tomográfica.

Descritores: Edema macular; Irvine-Gass; Lentes intraoculares

¹Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ – Brazil.

²University of British Columbia, Vancouver, BC, Canada

The authors declare no conflict of interest

Received for publication 13/7/2019 - Accepted for publication 18/2/2020.

INTRODUCTION

Cystoid Macular Edema (CME) after phacoemulsification was first described in 1953 by Irvine⁽¹⁾ and was angiographically characterized in 1966 by Gass and Norton⁽²⁾ being referred to as Irvine-Gass syndrome (IGS) since then. The IGS is considered the most important cause of permanent low visual acuity visual after phacoemulsification being the most common cause of unexpected visual loss after cataract extraction.⁽³⁻⁵⁾

The occurrence is more common after complicated phacoemulsification but is also reported after surgeries without intraoperative complications.⁽⁶⁾ The incidence of this illness is variable, being clinically significant (visual acuity <20/40) in 1-2% of the patients and visually non-significant in 30% diagnosed by angiography and 11-41% by OCT.⁶ It is important to highlight that CME after cataract extraction is notably a self-limiting condition with resolution rates as high as 75% in 6 months.^(7,8)

In this paper we present a rare case cystoid macular edema secondary to iris perforation by an IOL haptic implanted 10 years before.

Case report

Fifty years old male presented for medical care in the ophthalmology sector with progressive visual loss, dysmorphopsia e micropsy in OD for 6 months. History records showed unremarkable exam 1 year before with cataract surgery OD 10 years before with an Alcon MA60AC implantation.

Best corrected visual acuity (BCVA) was 20/100 in the OD, anterior chamber revealed IOL haptic perforating the iris in the upper nasal region with 1+ cells and cells in anterior vitreous. Intraocular pressure (IOP) was 14 mmHg OU. Fundoscopy revealed macular edema in OD. Fluorescein angiogram (FA) showed extravasation of dye in the macular region in petaloid pattern. The anterior segment OCT demonstrated iris perforation from IOL haptic touching corneal endothelium (Figure 1) and posterior segment OCT showed increased thickness (313 micra) and hyporeflexive cysts in the neurosensory retina of OD (Figure 2). Examination of left eye (OS) proved to be fully normal.

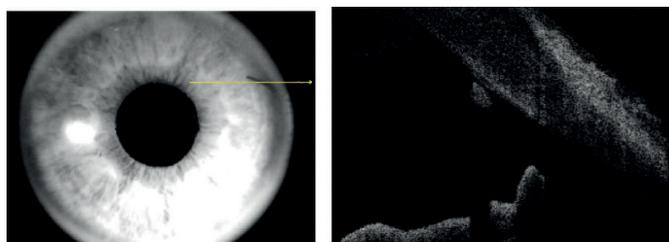


Figure 1: Anterior segment Optical Coherence Tomography demonstrating iris perforated by intraocular lens haptic

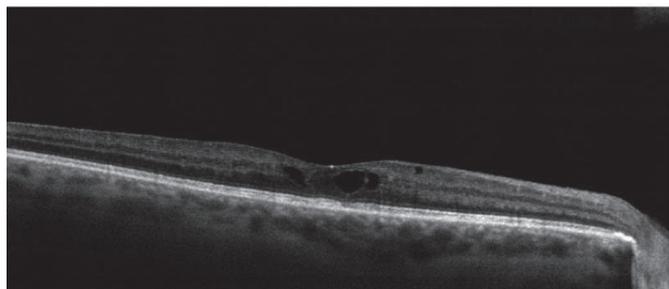


Figure 2: Posterior segment Optical Coherence Tomography evidencing cystoid macular edema

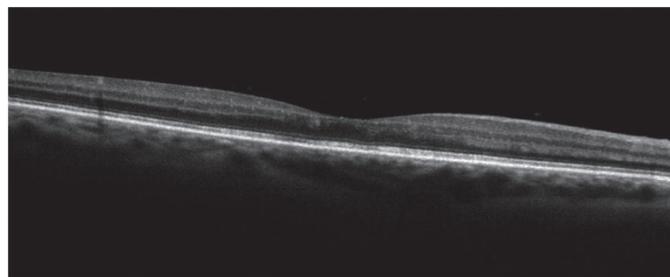


Figure 3: Posterior segment Optical Coherence Tomography demonstrating normal thickness, with foveal depression, 7 months after surgery

CME diagnosis was obvious, and the patient was thoroughly asked about major or minor traumas, denying any of them. After discussing the possible treatment options with the patient, he consented with surgery for IOL repositioning + triamcinolone 40 mg/mL intravitreal injection.

Surgical Technique: Entrance in the anterior chamber (AC) was similar to routine cataract extraction, cohesive viscoelastic was used to fill AC and carefully dissect IOL. Using a Sinsky hook, the IOL was slowly clockwise spun freeing it from the capsular bag and from the iris. No capsular tears or disinsertion were seen and the IOL did not appear to have any defects therefore the same IOL was repositioned in the bag 90 degrees clockwise rotated from the original site. Viscoelastic was removed and 0.1ml of triamcinolone 40 mg/mL was injected via pars plana.

One month later, the BCVA was 20/25, and normal tomographic aspects. After 20 months, the BCVA keep 20/25, biomicroscopy without significant changes, IOP was 14 mmHg, with normal FA and OCT (Figure 3).

DISCUSSION

This case report approaches a late postoperative CME of an uncomplicated cataract extraction with IOL implanted in capsular bag. At presentation, the patient showed iris perforation by IOL haptic. A similar case was described by Ornek which there was iris perforation by haptic of IOL implanted in the sulcus with 2 months of postoperative, evolving with Irvine-Gass.⁽⁸⁾

In the case described, the perforation caused mild anterior segment alteration, worsening of visual acuity and normal IOP, similar to the case described by Ornek.⁽⁸⁾ However, symptoms of dysmorphopsia and micropsy were only complaints of this present case.

The OCT after non-complicated phacoemulsification may detect an increase in macular volume and thickness in relation to the preoperative values, although these changes are not always large enough to reduce visual acuity. This phenomenon happens mainly after 1, 3 and 6 months after surgery.⁽³⁾ Other authors report that peak CME occurs 12 weeks after phacoemulsification surgery.⁽⁸⁾ In this report, the CME was measured 10 years after phacoemulsification with OCT.

The macular edema occurs because the breakdown of the inner blood-retinal barrier secondary to inflammatory factors as lysozyme, VEGF, prostaglandins. The leakage leads to accumulation of fluid in the retinal extracellular space, and cysts formation through internal and external plexiform layers.^(3, 6, 8) Another important factor in the pathophysiology of edema is the vitreous traction on the macula during surgery.⁽⁶⁾

Irvine-Gass syndrome can cause low visual acuity, meta-

morphopsia, cells in the anterior chamber and CME alone, in the absence of other changes in funduscopy. Prophylaxis is recommended for patients who are prone to develop cystoid macular edema following cataract surgery, such as patients with uveitic cataract^(8,9) and those with diabetes.⁽⁹⁻¹¹⁾

The therapeutic approach consisted of the use of topical corticosteroids (without improvement), intravitreal (with improvement) and surgical repositioning of IOL. This case illustrates how intricate is the relation between the anterior and posterior segments of the eye. Even a minor displacement of a bio-inert material can induce severe consequences posteriorly and pose as a medical challenge.^(6,12)

REFERENCES

- Irvine SR. A newly defined vitreous syndrome following cataract surgery. *Am J Ophthalmol.* 1953;36(5):599–619.
- Gass JD, Norton EW. Cystoid macular edema and papilledema following cataract extraction. A fluorescein fundoscopic and angiographic study. *Arch Ophthalmol.* 1966;76(5):646–61.
- Cagini C, Fiore T, Iaccheri B, Piccinelli F, Ricci MA, Fruttini D. Macular thickness measured by optical coherence tomography in a healthy population before and after uncomplicated cataract phacoemulsification surgery. *Curr Eye Res.* 2009;34(12):1036–41.
- Meyer LM, Philipp S, Fischer MT, et al. Incidence of cystoid macular edema following secondary posterior chamber intraocular lens implantation. *J Cataract Refract Surg.* 2015 Sep;41(9):1860-6.
- Egger EG. The Irvine-Gass syndrome. *Ophthalmologica.* 1973;167:443–5.
- Kodjikian L, Bellocq D, Bodaghi B. Management of Irvine-Gass syndrome. *J Fr Ophthalmol.* 2017;40(9):788–92.
- Arevalo JF, Garcia-Amaris RA, Roca JA, Sanchez JG, Wu L, Berrocal MH, et al.; Pan-American Collaborative Retina Study Group. Primary intravitreal bevacizumab for the management of pseudophakic cystoid macular edema: pilot study of the Pan-American Collaborative Retina Study Group. *J Cataract Refract Surg.* 2007;33(12):2098–105.
- Kusbeci T, Eryigit L, Yavas G, Inan UU. Evaluation of cystoid macular edema using optical coherence tomography and fundus fluorescein angiography after uncomplicated phacoemulsification surgery. *Curr Eye Res.* 2012;37(4):327–33.
- Örnek K, Onaran Z. Refractory cystoid macular oedema due to intraocular lens haptic perforating the iris. *Clin Exp Optom.* 2012;95(5):553–4.
- Yilmaz T, Cordero-Coma M, Gallagher MJ. Ketorolac therapy for the prevention of acute pseudophakic cystoid macular edema: a systematic review. *Eye (Lond).* 2012;26(2):252–8.
- Kosker M, Sungur G, Celik T, Unlu N, Simsek S. Phacoemulsification with intraocular lens implantation in patients with anterior uveitis. *J Cataract Refract Surg.* 2013;39(7):1002–7.
- Elsawy MF, Badawi N, Khairy HA. Prophylactic postoperative ketorolac improves outcomes in diabetic patients assigned for cataract surgery. *Clin Ophthalmol.* 2013;7:1245–9.

Corresponding author

Karolyna Andrade de Carvalho
 Universidade Federal do Rio de Janeiro
 Rua Rodolpho Paulo Rocco, 255 – Ilha do Fundão, RJ, Brazil.
 Phone: +55 21 981811167
 E-mail: drakarolynacarvalho@gmail.com