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CASE REPORT

An atypical case of post surgery macular edema -Case report-

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Abstract

The article presents an atypical case of bilateral postoperative macular edema, with an unfavorable outcome, however considering the treatment options and ways to prevent this complication.

Keywords: postoperatory macular edema, monitoring and treatment, surgical approach

A 78-year-old patient attended the eye checkup with a gradual decrease of visual acuity (VA). After the eye examination, the patient was diagnosed with:

- Cataract in evolution – both eyes (BE)
- High myopia - right eye (RE), Moderate myopia - left eye (LE)
- Compound myopic astigmatism - BE

The eye measurements carried out have proved the following values: VA-RE: 0,2 with own correction; VA-LE: 0,5 with own correction; Amsler test at BE was negative; BA-IOP (intraocular pressure) =14 mmHg; Refraction: RE-5,75/-1,75/30, LE-3,75/-0,75/168. The patient was using progressive glasses: RE-5,50/-1,75/30, LE -3,75/-0,50/170.

Additional specific preoperative investigations were performed: optical coherence tomography (OCT)-RE (**Fig. 1**), OCT-LE (**Fig. 2**) with the parameters in the normal range.

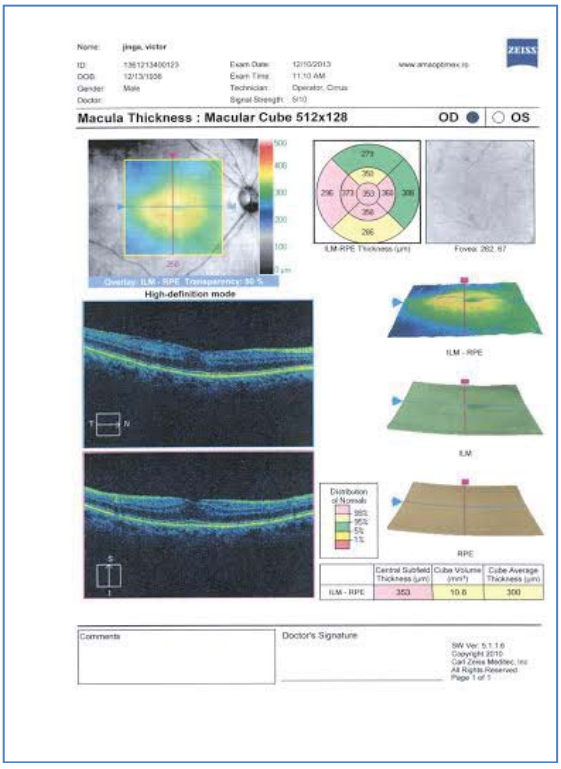

Fig. 1 Optical coherence tomography RE

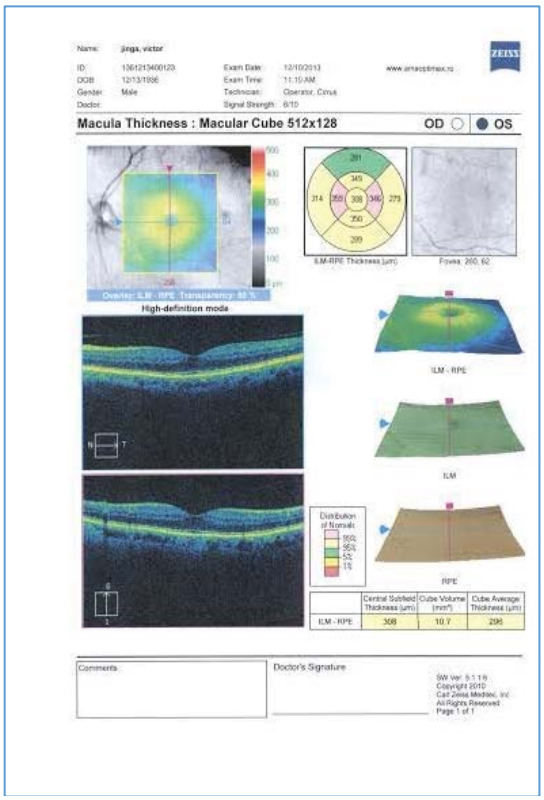

Fig. 2 Optical coherence tomography LE

The phacoemulsification procedure with the implantation of a posterior chamber (PC) intraocular lens was performed without intraoperative complications and with a favorable immediate postoperative evolution.

- RE – multifocal toric ZEISS ACRY LISA +12,5/+1,5/ax 99 /117,9;
- LE - multifocal ZEISS AT LISA TRI 16 D/ 118,6.

According to the protocol after surgery, the patient has undergone a treatment with cortisone (3 days per os-systemic use and 3 weeks topic), mydriatic, and antibiotic.

At 6 weeks postoperatively the following values were registered: RE - macular edema (455 µ); VA-RE: 0,4 without correction, Amsler test was positive; VA-LE: 0,9 without correction, Amsler test negative; Refraction: RE +0,50/-1/ax 15; LE +0,25/-1/ax 180 OCT: RE = 455µ (**Fig. 3**).

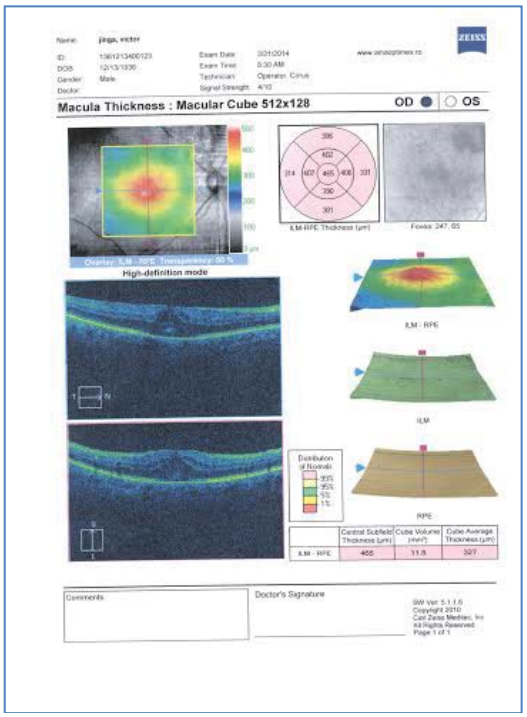

Fig. 3 Refraction: RE +0,50/-1/ax 15; LE +0,25/-1/ax 180 OCT: RE = 455µ

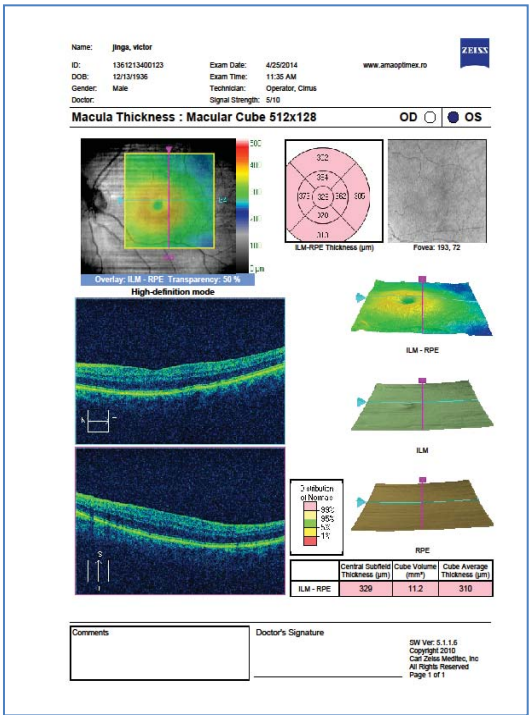

Fig. 4 Subsequent measurements (OCT: RE = 474 µ, LE = 329 µ)

Since macular edema was found in the RE, intravitreal injection with bevacizumab (Avastin) was recommended and performed. Subsequent measurements (OCT: RE = 474 μ, LE = 329 μ (**Fig. 4**)) outlining stationary macular edema were realized, and an injection with Avastin was performed to the RE.

Post injection monitoring showed persistent edema in the RE and the appearance of the same changes in the LE, confirmed by imagistic OCT: RE = 529 μ (**Fig. 5**); LE = 363 μ (**Fig. 6**).

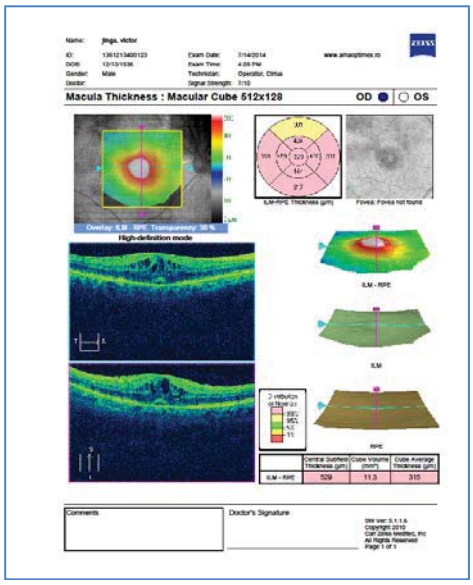

Fig. 5 Imagistic OCT: RE = 529 μ

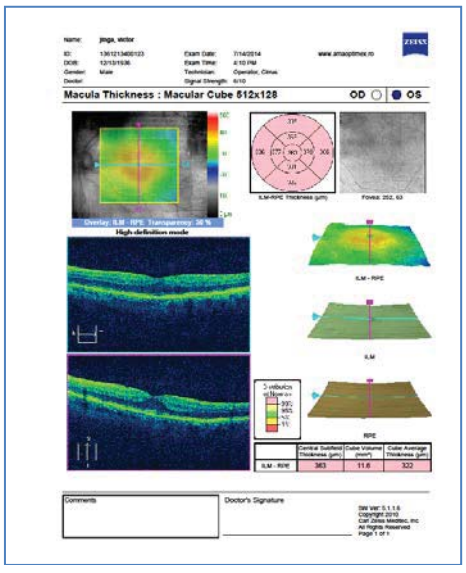

Fig. 6 Imagistic OCT: LE = 363 μ

At 11 months post-surgery the following values were determined: RE-PFK-PC, Amsler test: negative, OCT: RE = 420 μ (**Fig. 7**) LE: PFK-PC, Amsler test: negative, OCT: LE = 384 μ (**Fig. 8**) IOP: aplanotonometry: BA = 12 mmHg. At the level of the posterior chamber BA, the macular reflex area was deleted. The treatment to continue was the one involving topical NSAID and systemic neurotrophic, diuretic and electrolyte balance drugs.

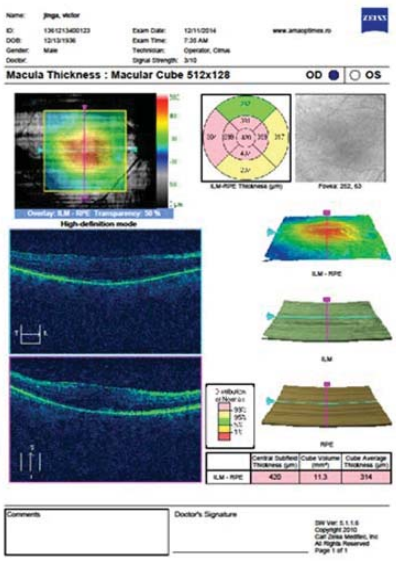

Fig. 7 11 months post-surgery - OCT: RE = 420 μ

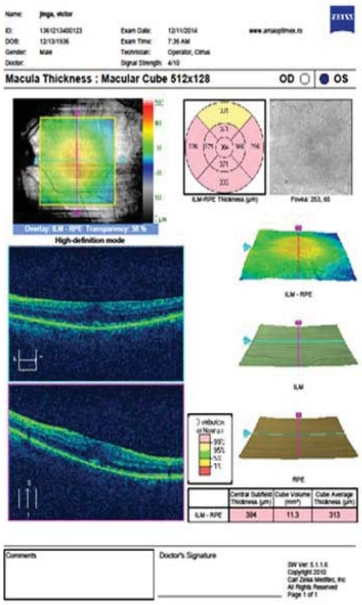

Fig. 8 11 months post-surgery - OCT: LE = 384 μ

1 year postoperatively measurements carried out highlighted the following values: RE: PFK-PC, Status post intravitreal injection with Avastin, cystoid macular edema (CME), VA-RE: 0.4 wc, LE: PFK-PC trifocal, VA-LE: 0.4 wc, BA: Amsler: negative, IOP: BA: 11 mmHg OCT: RE = 277 μ (**Fig. 9**), LE = 396 μ (**Fig. 10**).

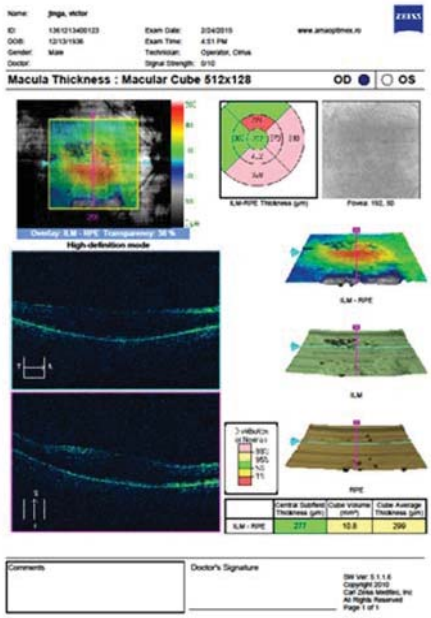

Fig. 9 1 year postoperatively - OCT: RE = 277 μ

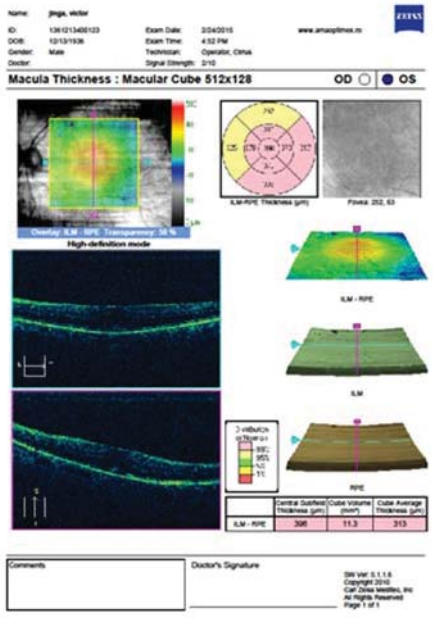

Fig. 10 1 year postoperatively - LE = 396 μ

2 years after the intervention, a secondary cataract to BA was found and YAG laser capsulotomy was performed. This time, the tomography of the macula could not be performed.

The last ophthalmologic examination (from 3 years postoperatively and to 1 year after the intervention on the secondary cataract) was diagnosed with the following values: BA: PFK-PC, macular edema, status post-YAG LASER capsulotomy. The following changes were observed: VA-BA: 0.4 wc, Amsler BA: slight positive; OCT: RE = 417 μ (**Fig. 11**), LE = 433 μ (**Fig. 12**).

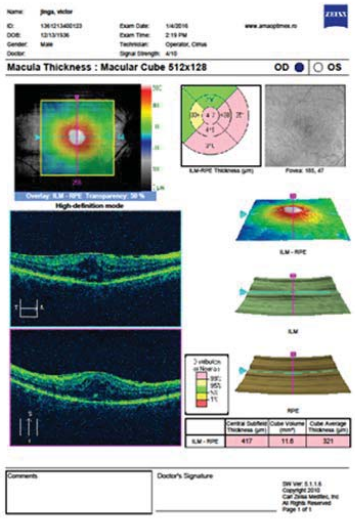

Fig. 11 Last ophthalmologic examination - OCT: RE = 417 μ

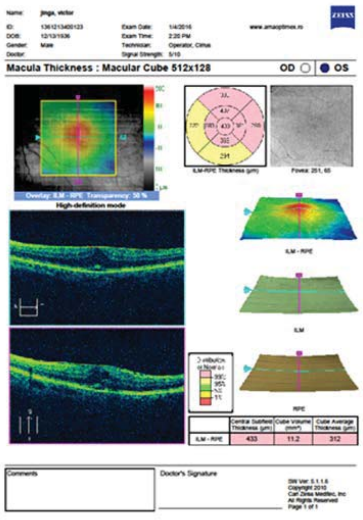

Fig. 12 Last ophthalmologic examination - LE = 433 μ

The patient was treated with anti-inflammatory NSAID (topical) drops, diuretic, Aspacardin. Monitoring was recommended and, depending on the evolution, injections with Avastin (noting that any of the treatments were not specific, so the results were uncertain) were continued.

Discussion

In cataract surgery, prostaglandin release is produced because of the intraoperative injury of iris or the rupture of the posterior capsule with vitreous loss. At the level of the macula, in clearly delimitated microcystic areas with glial cells, liquid accumulation can be found with the appearance of cystoid macular edema (CME) [**1**]. The OCT for macula and angiofluorography (AFG) is important for the diagnosis and monitoring of CME [**2**].

CME, which appeared after cataract surgery is also known as Irvine-Gass syndrome (reported by Irvine in 1953). About 20% of the patients may develop macular edema but only 1% of them can see a significant decrease in their VA. 95% of the cases of postoperative CME remitted spontaneously in about 6 months (self-limiting). It is painless and can be associated with metamorphopsia and scotoma. Moreover, it may evolve with chronicity or multiple recurrences leading to permanent alteration of photoreceptors and VA [**3**].

Usually, it occurs in 3-12 weeks after phacoemulsification but sometimes the onset can be after months or even several years after surgery [**4**].

Other causes of CME involve the following: intraocular inflammation (uveitis), retinal vein occlusion, diabetic retinopathy, AMD, epiretinal membrane. YAG laser capsulotomy is among the risk factors listed here but rarely associated with CME [**3**].

Applied topical NSAIDs help in the treatment and prevention of CME. They can be used for 3-4 months. In cases associated with the growth of IOP, a diuretic should be added. Glucocorticoids (topical/ per os) are used in the case of CME secondary uveitis.

The surgical treatment consists of an intravitreal injection with Avastin (bevacizumab anti-VEGF) or Triamcinolone, and, in some cases, the PPV procedure (Pars plana vitrectomy) [**5**].

The particularities of the case

This case report presented an unfavorable post-operative evolution with a bi-lateralization of the disease (in 1% of the patients who postoperatively, had CME, a decrease of VA, of approximately 50% was observed together with the development of the same changes in the other eye). The presence of myopia (shortsightedness) can be a big contributory factor of CME because of the fragile structure of the eye.

The evolution presupposed the chronicity of the edema, despite the early discovery and timely application of the treatment. Thus, the hypothesis that NSAIDS administrated preoperatively-with prophylactic aim could reduce the incidence of CME is valid.

The prognosis was unfavorable in this case, both through the lack of response to drug and surgical therapy and through the chronicity of the disease. In this case, the future therapeutic attitude could be the intra-vitreal injections associated with topic treatment.

References

1. Dumitrache M. Treaty of Ophthalmology. Vol. II, 552-553.
2. Hunter A, Chin EK, Telander DG. Macular edema in the era of spectral-domain optical coherence tomography. Clin Ophthalmol. 2013; 7:2085-2089.
3. Carricondo PC, Abalem MF, Guimarães Machado C, Newton K Jr. Prophylaxis and treatment of cystoid macular edema after cataract surgery. Review article· Rev. Bras.Oftalmol. Mar./Apr. 2015; 74(2).
4. Chu CJ, Johnston RL, Buscombe C, Sallam AB, Mohamed Q, Yang YC. United Kingdom Pseudophakic Macular Edema Study Group-Risk Factors and Incidence of Macular Edema after Cataract Surgery: A Database Study of 81984 Eyes. Ophthalmology. 2016 Feb; 123(2):316-23. doi: 10.1016/j.ophtha.2015.10.001.
5. Shelsta HN, Jampol LM. Pharmacologic therapy of pseudophakic cystoid macular edema: 2010 update. Retina. 2011 Jan; 31(1):4-12.