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# Regression of persistent macular oedema after pars plana vitrectomy and epiretinal membrane peeling, in a case of branch retinal vein occlusion with epiretinal membrane.

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**INTRODUCTION:** We follow a case of a patient suffering from branch retinal vein occlusion (BRVO) with epiretinal membrane (ERM) and persistent cystoid macular oedema (CMO). The patient underwent pars plana vitrectomy (PPV) and ERM peeling, resulting in anatomical and functional improvement.

**CASE PRESENTATION:** We present a case of a 74-year-old woman who was referred to our ophthalmology department complaining of gradual vision deterioration, in her left eye. There was no associated past medical history of note and previous ophthalmic history was mild glaucomatous optic neuropathy controlled with topical medication. Best corrected visual acuity was 9/10 in the right eye and 4/10 in the effected left eye. Intraocular pressure was 17mmHg and 19mmHg respectively. Slit lamp examination and fundoscopy revealed inferior BRVO in the left eye with subsequent CMO. During follow-up examination an ERM was observed in OCT imagining, with minor tractional features on the fovea. For the years to come, the patient was under anti-VEGF therapy (30 injections in 5 years), as well as dexamethasone implantation therapy, when no response to anti-VEGF was observed, because of frequent recurrences of macular oedema.

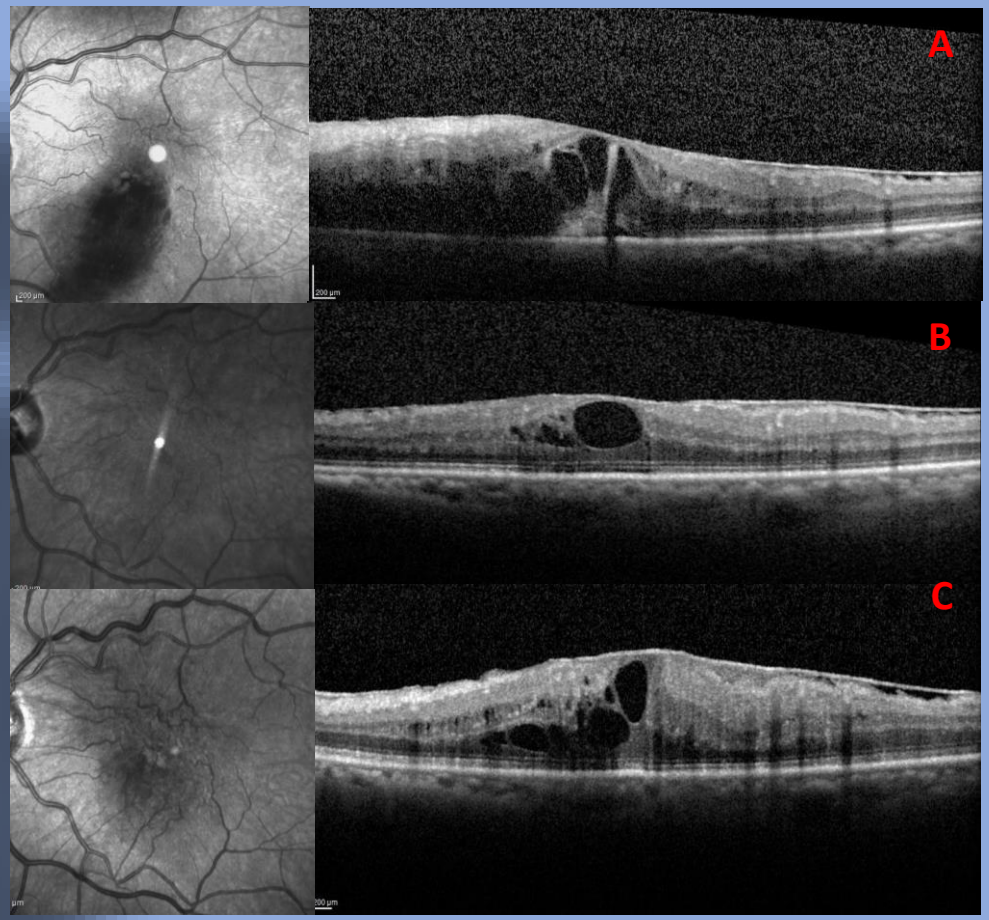


**Figure 1.** Optical coherence tomography (OCT) of the left eye at initial presentation. We observe the cystoid macular edema (CME) with accompanying hyperreflective intraretinal areas in the inferior half of the retina corresponding to intraretinal hemorrhages. It is also demonstrated an epiretinal membrane. (**A**). OCT scan after 1 year of anti-VEFG treatment we observe persistent cystic spaces. BCVA 6/10cc **(B).** OCT after 5 years of close monitoring and treatment we observe a recurrence of CME. BCVA 4/10cc **(C).**

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**CASE PRESENTATION (2):** Clinical biomarkers in OCT (integrity of outer retina) and OCT angiography (absence of foveal ischaemia) were favourable for better visual and anatomical outcome after surgery. Due to suboptimal response to previous treatments and taking into account the aforementioned non negative prognostic criteria, PPV and ERM peeling was decided, as a therapeutic approach. After the surgery, BCVA increased significantly to 9/10, macular oedema disappeared and significant anatomical improvement was observed. Three years later, during follow up examination, the patient was free of symptoms and macular oedema remained inactive.

**CONCLUSIONS:** According to the literature PPV and ERM removal provide beneficial functional and morphological results in RVO eyes, with recession of macular oedema. Outer retina integrity and absence of disorganisation of retinal inner layers were associated with improved visual and anatomical outcomes after ERM peeling. Abolishment of vitreous traction on the fovea, increase of oxygen delivery into the retina and withdrawal of pro-angiogenic mediators from vitreous cavity, are some of the attributed mechanisms of ERM peeling benefits.

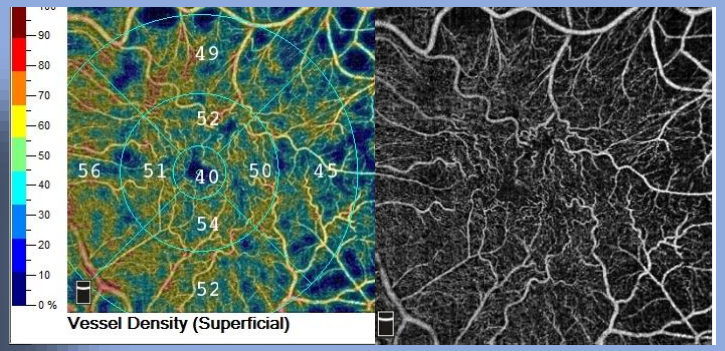


**Figure 2. Angio-OCT** imaging of the left eye 5 years, during follow-up, reveal intact vascular networks around the fovea and no signs of ischemia.

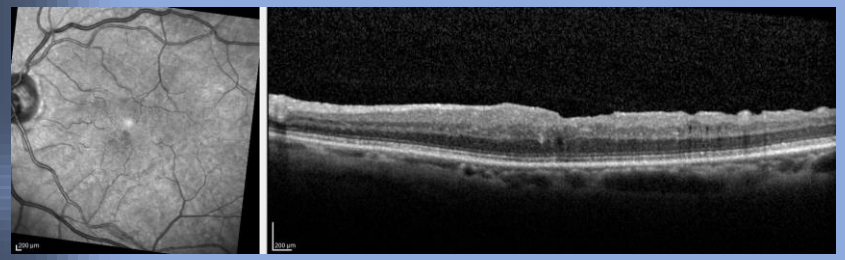

**Figure 3.** OCT imaging 3 years after ERM – peeling with no signs of CME relapse and the patient free of symptoms


*1. Cicinelli MV, Chatziralli I et al. Epiretinal Membrane Peeling in Eyes with Retinal Vein Occlusion: Visual and Morphologic Outcomes. Ophthalmol Ther. 2022 Apr;11(2):661-675. doi: 10.1007/s40123-022-00461-7. Epub 2022 Jan 31..*

*2. Kang HM et al. Visual outcome and prognostic factors after surgery for a secondary epiretinal membrane associated with branch retinal vein occlusion. Graefes Arch Clin Exp Ophthalmol. 2015;253(4):543–50*