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SECTION II

ADESIONE/TRAZIONE VITREO MACULARE
VITREOMACULAR ADHESION/TRACTION

Rate and timing of spontaneous resolution in a vitreomacular traction group: Should the role of watchful waiting be re-evaluated as an alternative to Ocriplasmin therapy?

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ABSTRACT

Introduction The incidence of spontaneous resolution of vitreomacular traction (VMT) is low in studies of Ocriplasmin that have had a limited follow-up. Previous studies did not look for morphological parameters in the natural history using spectral-domain ocular coherence tomography (SD-OCT) imaging. The purpose of this study was to investigate how often and when spontaneous VMT resolution occurs in candidates for Ocriplasmin therapy.

Methods The study is a retrospective chart review of patients who would have high chances of a benefit by an Ocriplasmin injection, without epiretinal membrane or vitreomacular adhesion of 1500 µm or more on SD-OCT. Main outcome measures were the frequency of complete VMT resolution and the best corrected visual acuity seen in the natural history.

Results Out of the 46 patients that were included after screening 889 SD-OCT images, 20 were found to exhibit spontaneous resolution during the follow-up period (median: 594 days, 95% CI 567 to 719 days), the majority after 6–12 months of observation (95% CI 266 to 617 days). The group with spontaneous VMT resolution and a mean improvement of one line in best corrected visual acuity included a few patients losing vision by macular hole formation. In the absence of resolution, patients lost on average one early treatment diabetic retinopathy study letter per year. Younger age was found to increase the chance of spontaneous resolution.

Conclusions A shorter follow-up might underestimate the incidence of spontaneous VMT resolution as the functional outcome of watchful waiting. The likelihood of resolution does not seem to decrease after 12 months.

Vitreomacular traction (VMT) syndrome is characterised by anomalous posterior vitreous detachment accompanied by anatomical distortion of the fovea.^{1,2} Pharmacological vitreolysis by Ocriplasmin (Jemea, ThromboGenics NV, Leuven, Belgium), a recombinant protein comprising the catalytic domain of human plasmin, has been shown to significantly promote posterior vitreous detachment.^{3,4} After reducing the need for vitrectomy in VMT and small macular holes <400 µm during follow-up of only 180 days, Ocriplasmin was approved by the Food and Drug Administration (FDA) and European Medicines Agency.⁵ However, the anatomical as well as functional

success rates of enzymatic vitreolysis were found to be much lower, if an epiretinal membrane or a vitreomacular adhesion of greater than 1500 µm was present. Thus, the German scientific societies and health authorities stated on the basis of evidence-based cost-benefit analyses of subgroups that vitrectomy—which could be performed at any time at the physician's discretion according to the study protocol, in particular if the underlying condition deteriorated, the best corrected visual acuity (BCVA) worsened by more than two lines or if the condition had not resolved within 4 weeks after injection—is more efficient in such cases.^{2, 3} Therefore, the Ocriplasmin has ocular coherence tomography (OCT) imaging.^{2, 3, 6} SD-OCT extensively dis before admin intravitreally.

In recent years, there has been a shift to an increase in watchful waiting as a resolution strategy if unnecessary. However, a wide range of resolution rates (0–53%) has been reported. For example, one long duration 119%.¹⁰ On the one hand, this is much lower than seen in the control groups of the macroplastrin intravitreal injection trials; on the other hand, SD-OCT was not available at this time. In addition, it should be noted that no real 'placebo' sham injection was performed in the pilot trials (TG-MV-006 and TG-MV-007).⁴ An invasive injection of balanced salt solution was administered in the control group, because any intravitreal injection increases the chances of posterior hyaloid separation—which is why this was the mandated sham by the FDA. Therefore, the prospective randomised studies have provided only limited estimate of the natural course of the disease (increased risk of

In recent years, the use of OCT imaging has led to an increase in anecdotal cases of spontaneous resolution that has made the planned surgery unnecessary. However, observational studies report a wide range of resolution rates (0–53%).^{9, 10} For

In this single-centre case series, half of the patients developed VMT resolution during the mean follow-up of 21 months (range: 467–1177 days).

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CLINICAL COURSE OF VITREOMACULAR ADHESION MANAGED BY INITIAL OBSERVATION

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Purpose: The purpose of the study was to investigate the clinical course of patients with idiopathic vitreomacular adhesion (VMA).

Methods: A noncomparative case series of patients who had clinical symptoms and spectral-domain optical coherence tomography findings consistent with VMA. The VMA was graded based on the optical coherence tomography findings at initial and follow-up examinations. Grade 1 was incomplete cortical vitreous separation with attachment at the fovea, Grade 2 was the Grade 1 findings and any intraretinal cysts or clefts, and Grade 3 was the Grade 2 findings and the presence of subretinal fluid.

Results: One hundred and six eyes of 81 patients underwent spectral-domain optical coherence tomography at 3 retina and the mean time of follow-up was 23 months. Forty-three eyes (52%) had Grade 2 VMA, and 7 eyes (7%) had Grade 3 VMA. Spontaneous release of VMA occurred in 34 eyes (32%) performed in 5 eyes (4.7%). Mean best-corrected visual acuity at the minimum angle of resolution or 20/37 at baseline (range 20/20 to 20/40) and the minimum angle of resolution 0.251 or 20/35 at the last examination.

Conclusion: In this selected patient cohort with mild to moderate VMA managed by initial observation was stable over time.

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The main finding of this study is that the observational management of at least milder grades of VMA is a favorable initial option. The current study demonstrated stability of BCVA between the initial and last examinations, a high rate of spontaneous VMA release (32%), and a low rate of progression to a more severe anatomical configuration (16%).

The clinical and spectral-domain optical coherence tomography (SD-OCT) features of vitreomacular traction (VMT) syndrome have been described previously.^{1,2} Typical symptoms include decreased vision, central metamorphopsia, photopsia, and micropsia. The emergence of SD-OCT has demonstrated that

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incomplete VMA is more common than is clinically symptomatic. The subset of eyes with adhesion limited to the fovea may be clinically distinct from eyes with broader zones of vitreomacular adhesion (VMA) and has been termed vitreofoveal adhesion or focal VMA.³⁻⁷ The SD-OCT allows documentation of the baseline and ongoing effects and extent of VMA, specifically those with central visual symptoms associated with VMA.^{3,4,8,9} Vitreous adhesion and presumed traction have additionally been hypothesized to have a role in the pathogenesis of many macular conditions, including neovascular age-related macular degeneration, macular hole, and diabetic macular edema.¹⁰⁻¹²

The purpose of this study was to investigate the clinical course of patients with VMA defined by SD-OCT imaging, and followed with noninterventional management. A classification of VMA based on the SD-OCT findings is proposed as part of this study.

Early and late inner retinal changes after inner limiting membrane peeling

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Abstract Pars plana vitrectomy and internal limiting membrane (ILM) peeling are standard treatments for idiopathic macular hole and epiretinal membranes. However, ILM peeling is known to cause traumatic changes to the retina. Recently there have been numerous reports of anatomical changes in the macula after ILM peeling. A comprehensive review of the literature and a change in the macula after ILM peeling. Postoperative swelling of the arcuate retinal nerve fiber layer (SANFL), which disappears with time. The swelling is not detected on biomicroscopic examination but appears as hypofluorescent arcuate striae in the macular region on fundus autofluorescence imaging, with corresponding swelling demonstrated on optical coherence tomography (OCT) images. This swelling followed by dissociated optic nerve fibers, which are faintly visible on fundus examination. On OCT, the swelling appears as "dimples" in the inner plexiform layer. The *en face* tomographic aspect of the swelling appears as concentric macular dark spots.

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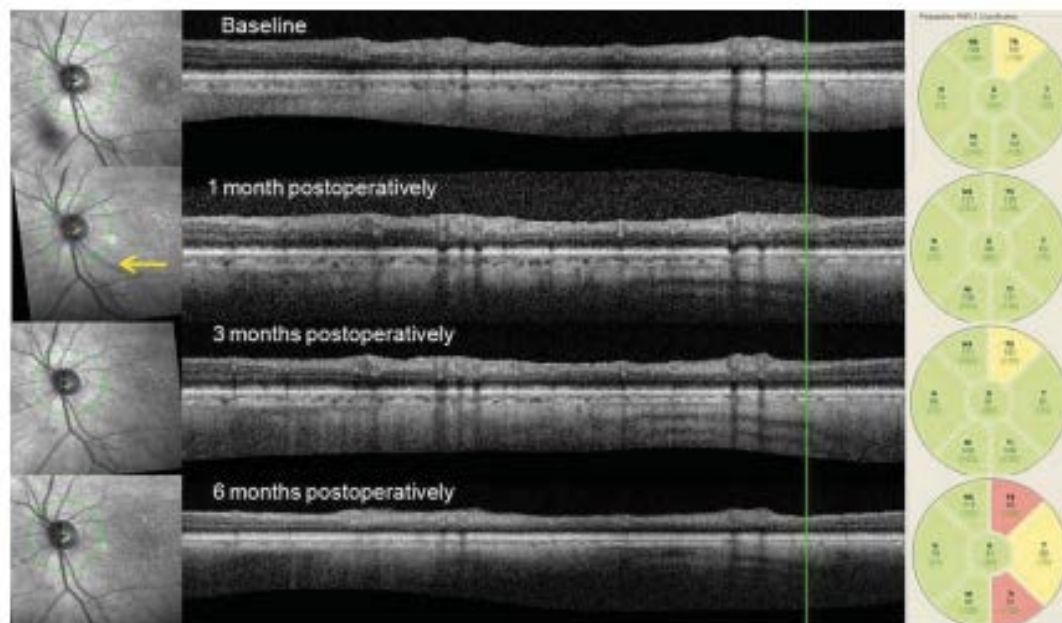


Fig. 3 Spectral domain optical coherence tomography RNFL thickness before and 1, 3, and 6 months after ILM peeling for a patient with MH. Note that 1 month after surgery, swelling of the arcuate RNFL appearance (yellow arrow) was detectable on infrared image and that it corresponded to an increase of RNFL thickness (green line) on OCT image. Swelling of the arcuate RNFL disappeared 3 months postoperatively. A progressive RNFL decrease was seen 6 months after surgery and the software-based internal control classified the superotemporal and inferotemporal scans as pathologic (red areas on the bottom right figure). Instead, the yellow areas in the right figures were classified as borderline.

RETINAL NERVE FIBER LAYER THICKNESS MODIFICATION AFTER INTERNAL LIMITING MEMBRANE PEELING

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Purpose: To identify early and late retinal nerve fiber layer thickness (RNFLT) modification after internal limiting membrane peeling for idiopathic macular hole or epiretinal membrane and to correlate RNFLT to visual field indices.

Methods: Single-center, prospective, interventional consecutive case series. Complete ophthalmic examination, fundus images, and spectral domain optical coherence tomography and 6 months after surgery. Temporal, inferonasal, nasal, and superonasal visual fields were performed preoperatively

and 6 months after surgery. At 1 month and 6 months after surgery, RNFLT temporal, inferonasal, nasal, and superonasal average reduction of 18.2% was observed. Visual field indices. Visual field indices were significantly affected because of temporal sectors 6 months after surgery. Retinal nerve fiber layer caused by

of ERM,¹ it is still debated if ILM peeling is completely harmless to the retina.

Postoperative anatomical changes have been reported in association with PPV and ILM peeling. Transient swelling of the arcuate retinal nerve fiber layer (RNFL)² and later dissociated optic nerve fibers³⁻⁵ seem 1 week to 1 month and 1 month after ILM peeling, respectively. Neither arcuate RNFL nor dissociated optic nerve fibers appearance influenced visual recovery⁷⁻⁵ or visual sensitivity.⁶

Several and conflicting studies have investigated dye-assisted peeling of ILM can cause epipapillary RNFL⁷⁻⁹ and associated visual field defects.¹⁰⁻¹⁴

The aim of this study is to analyze early and late changes of the peripapillary RNFL thickness after Brilliant Blue G (BBG)-assisted ILM peeling