



**SESSION: Young EVRS Session**

**DATE: September 2, 2023**

**HALL: HALL 2**

**TIME: 16:45 – 17:45**

**Moderators: Matteo Forlini, Emanuele Crincoli**

### **Myopic Macular Hole–Related Retinal Detachment in Children**

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**Objective:** To investigate the anatomical–functional results and the factors affecting these results in pediatric patients who underwent surgery for retinal detachment (RD) caused by myopic macular hole (MMH).

**Methods:** The records of patients with pediatric myopic macular hole secondary RD between 2019 and 2022 were reviewed retrospectively.

**Results:** Nine eyes of seven patients were included in the study. Five cases were male, and the median age was one year (1–10). The mean refraction (SE) was  $-9.2 \pm 4D$ . Preoperative mean VA was  $1.84 \pm 0.39$  logMAR. Total RD was observed in six eyes. Circumferential scleral buckle with vitrectomy was performed in 7 eyes and vitrectomy alone in 2 eyes. The internal limiting membrane (ILM) was peeled off after vitrectomy in 8 eyes. The macular hole was closed with the amniotic membrane in 3 patients. Except for one eye with C3F8, silicone oil was used as tamponade. The total number of surgeries was  $2.7 \pm 1.3$ . The anatomical success rate after primary surgery was 44%, in which the retina was attached, and the macular hole was closed. Repeat surgeries were required in 5 eyes. At the end of a mean follow-up period of  $24 \pm 9$  months, anatomical success was achieved in 5 eyes (56%). At the last follow-up, three eyes were aphakic, one was pseudophakic, and the other five were phakic. Postoperative VA was  $1.3 \pm 0.9$  logMAR compared to preoperatively. Although there was an increase, it was not statistically significant ( $p=0.09$ ).

**Conclusion:** In treating RD secondary to pediatric MMD, a lower anatomical and functional success can be achieved with surgery than in adults; more than one surgery and silicone tamponade are often required.

**Keywords:** myopic macular hole, retinal detachment, pediatric

## Unexpected Complication After Macular Hole Surgery with Temporal Inverted ILM Flap Technique

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A 55 year-old male presented with blurry vision and metamorphopsia in the left eye for 4 weeks. Biomicroscopic anterior segment examination was bilateral unremarkable. Best corrected visual acuity (BCVA) was 20/20 in the right eye and 20/100 in the left eye, intraocular pressure was 14 mmHg bilaterally. Dilated fundus examination revealed a full thickness macular hole in the left eye, which was confirmed with optical coherence tomography (OCT). The minimum hole diameter was 262  $\mu\text{m}$ . The patient underwent 27 gauge pars plana vitrectomy (PPV), temporal inverted internal limiting membrane (ILM) technique and air tamponade. Face down head position was recommended for 24 hours. Five days after the surgery the BCVA was 20/30 in the left eye and the patient complained of distorted vision. The OCT scan revealed the presence of a sub-ILM flap perfluorocarbon liquid (PFCL) bubble. We performed a repeat PPV including removal of the PFCL bubble using a 41-gauge extendible subretinal injection cannula and re-inversion of the ILM flap. Three weeks after the second surgery, the BCVA raised to 20/25 and closure of the hole. The recovery of the ellipsoid zone and outer retinal layers were confirmed with OCT.

**Keywords:** Macular hole, Perfluorocarbon liquid, Temporal Inverted ILM Flap

The importance of structural OCT in the assessment of patients with central serous chorioretinopathy - **Enrico Borrelli**

## Lens sparing surgery for retrolental stalk in persistent fetal vasculature

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**Purpose:** To describe a new surgical technique and outcomes of lens-sparing vitrectomy and retrolental stalk dissection in posterior Persistent Fetal Vasculature (PFV).

**Design:** Retrospective interventional case-series

**Setting:** Tertiary referral center

**Study Population:** All children presenting posterior PFV with retrolental stalk and clear lens operated between June-2011 and September-2021.

**Interventional procedure:** 25-G lens-sparing vitrectomy with retrolental stalk dissection.

**Main outcomes measures:** (1) surgical success: surgery completed without lens aspiration; (2) safety: secondary retinal detachment, glaucoma, or secondary lens opacification.

**Results:** Among the 21 included eyes, 8 (38%) had no macular involvement and 4 (19%) presented with microphthalmia. Median age at the first surgery was 8 months (range: 1-113 months). Surgical success was obtained in 71.4% of cases (15/21). In the remaining cases, the lens was removed because of capsular rupture in 2 cases (9.5%) and a large capsular opacity after stalk removal or an adherent stalk impossible to dissect in 4 cases (19.1%). In the bag IOL implantation was accomplished for all but one eye. None of the eyes developed retinal detachment or required glaucoma surgery. Endophthalmitis occurred in one eye. Secondary lens aspiration was needed in three eyes after a mean interval of 10.7 months following initial surgery. At last follow-up, half of the eyes remained phakic.

**Conclusion:** Lens-sparing vitrectomy is a useful approach to addressing the retrolental stalk in selected cases of Persistent Fetal Vasculature Syndrome. By delaying or avoiding lens extraction, this approach allows preserving of accommodation, reduction of the risk of aphakia, glaucoma, and development of secondary lens repopulation.

**Keywords:** PFV, retina, lens-sparing surgery

## Is it true that macular buckle induces atrophy? a long-term review and comparison with natural history

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Myopic traction maculopathy (MTM) accounts for one third of the patients with pathologic myopia (PM), a tailored treatment is mandatory to release the tractional forces involved in this progressive disease. Macular Buckle (MB) should be used as a first line treatment, alone or combined with vitrectomy, depending on the stage of MTM. Despite the excellent outcomes, a few cases of atrophy and pigmentary changes related to the buckle have been reported.

To find out any possible MB-related atrophy, we evaluated the progression of PM in patients with MB and compared it with a non-surgery control group with PM, by fundus imaging analysis, with mid-term (1-5y) and long-term (>5y) follow-up.

116 eyes of 66 patients operated by a single surgeon in Eyecare Clinic, Brescia, IT. were included, 70 eyes in the MB-surgery group and 46 eyes in the control group. Baseline characteristics were similar in both groups, 91% and 97% had any stage of PM at baseline, the most common was diffuse atrophy. In the MB group, we found progression in 41.4% of eyes (n=29) with a follow-up of 58.17 +/- 35 months, of which 27.6% progressed to a more advanced stage and 72.4% remained on the same stage, 2 eyes developed a CNV (2.8%). 39.5% and 43.8% progressed in the mid and long-term follow-up, respectively. No MB-related atrophy was found. Progression in the control group was found in 50% of eyes (n=23) with 53.6 +/- 30 months follow-up, 8.7% developed a new CNV. 46.4% and 55.5% showed progression in mid and long-term subgroups, respectively.

Based on META-PM Group classification, the progression of PM was similar in both groups, even mildly greater in the control group. We did not find any MB-related pigmentary changes or atrophy. The findings in pattern, incidence, and rate of progression were comparable to previous long-term studies.

**Keywords:** Macular Buckle, MTM, atrophy

Phenomenology of spontaneous closure in degenerative and mixed type lamellar macular hole - **Fiammetta Catania**

## N-glycosylation patterns across the age-related macular degeneration spectrum

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The pathogenesis of age-related macular degeneration (AMD) remains elusive, despite numerous research studies. Therefore, we aimed to investigate the changes of plasma and IgG-specific N-glycosylation across the disease severity spectrum. We examined 2835 subjects from the 10.001 Dalmatians project, originating from the isolated Croatian islands of Vis and Korcula. All subjects were classified into four groups, namely (i) bilateral AMD, (ii) unilateral AMD, (iii) early-onset drusen, and (iv) controls. We analysed plasma and IgG N-glycans measured by HPLC and their association with retinal fundus photographs. There were 106 (3.7%) detected cases of AMD; 66 of them were bilateral. In addition, 45 (0.9%) subjects were recorded as having early-onset retinal drusen. We detected several interesting differences across the analysed groups, suggesting that N-glycans can be used as a biomarker for AMD. Multivariate analysis suggested a significant decrease in the immunomodulatory bi-antennary glycan structures in unilateral AMD (adjusted odds ratio 0.43 (95% confidence interval 0.22–0.79)). We also detected a substantial increase in the pro-inflammatory tetra-antennary plasma glycans in bilateral AMD (7.90 (2.94–20.95)). Notably, some of these associations were not identified in the aggregated analysis, where all three disease groups were collapsed into a single category, suggesting the need for better-refined phenotypes and the use of disease severity stages in the analysis of more complex diseases. Age-related macular degeneration progression is characterised by the complex interplay of various mechanisms, some of which can be detected by measuring plasma and IgG N-glycans. As opposed to a simple case-control study, more advanced and refined study designs are needed to understand the pathogenesis of complex diseases.

**Keywords:** age-related macular degeneration, N-glycans, biomarker