# Demography, clinical profile and surgical outcomes of paediatric giant retinal tear related retinal detachments

Hasan N, Azad SV, Kaginalkar A, Chawla R, Kumar V, Chandra P, Verma S, Sundar M D, Venkatesh P, Kumar A, Vohra R. Demography, clinical profile and surgical outcomes of paediatric giant retinal tear related retinal detachments. Eye (Lond). 2021 Jun 11. doi: 10.1038/s41433-021-01621-y. Epub ahead of print. PMID: 34117398. Soares RR,

## Abstract

**Purpose:** To determine the demographic profile, clinical features and surgical outcomes of giant retinal tear (GRT) related retinal detachments (RD) in children

**Design:** In this retrospective study, medical records of children aged 14 years and below, who underwent surgery for RD at our centre in the last 5 years were reviewed. Among these, we selected medical records of children with RDs with GRT, and examined the coloured retinal drawings, ultrawidefield photographs and/or surgical videos..

**Results:** Out of 1536 medical records, 91 eyes of 87 children (5.6% of all RDs) were included. Mean age was 10.21 ± 3.08 years with male:female ratio of 8.6:1. The most common aetiologies for GRTs were high myopia (28 cases-32.18%) and trauma (25 cases-28.73%). Bilateral RD were possibly present in 29/87 (33.3%) cases. Six months follow up data was available for 82/91 eyes. Overall retinal re-attachment was achieved in 52/82 (63.41%) eyes; in 33/82 (40.24%) eyes retinal attachment could be achieved by a single surgery. Absence of proliferative vitreoretinopathy (PVR) (OR: 2.44, p-value:0.03, 95%CI: 1.21-5.08) or PVR-A (OR: 3.62, p-value: 0.03, 95%CI: 1.52-12.26) and presence of preexisting posterior vitreous detachment (OR: 7.14, p-value: 0.02, 95%CI: 1.31-38.73) were associated with successful retinal re-attachment after single surgery. Median time to presentation of cases succeeding after 1 surgery was 10 days. Ambulatory vision (1/60 and better) at final followup could be achieved in 45/82 (54.88%) eyes.

**Conclusions:** GRT related RDs constitute a significant proportion of paediatric RDs. Anatomical success can currently be achieved in a large number of cases. Early surgery, absence of PVR and presence of PVD are associated with higher surgical success

# Fovea-sparing versus complete internal limiting membrane peeling in vitrectomy for vitreomacular interface diseases

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## Abstract

**Purpose:** To evaluate fovea-sparing internal limiting membrane (ILM) peeling in vitrectomy compared with traditional complete ILM peeling in vitreomacular interface diseases, including macular hole (MH), epiretinal membrane, macular foveoschisis, myopic traction maculopathy, and the like.

**Methods**:

PubMed, EMBASE, Cochrane, CNKI Databases, and the ClinicalTrials.gov website (PROSPERO number CRD42020187401) were searched. Controlled trials comparing fovea-sparing with complete ILM peeling were included. Postoperative changes in best-corrected visual acuity, central retinal thickness in vitreomacular interface diseases, the incidence of MH closure in MH cases, full-thickness macular hole development in non-MH cases, and retinal reattachment in retinoschisis cases were extracted.

**Results:** Fourteen studies (487 eyes) were eligible. Compared with complete ILM peeling, the fovea-sparing technique revealed significant improvement in best-corrected visual acuity ( logarithm of the minimum angle of resolution; weighted mean difference = −0.70; 95% confidence interval, −1.11 to −0.30), and a reduced incidence of full-thickness macular hole was noted in non-MH cases (risk ratios = 0.25; 95% confidence interval, 0.08–0.76). However, no significant differences in mean change in central retinal thickness, incidence of MH closure in MH cases, and retinal reattachment in retinoschisis cases were noted.

**Conclusion:** Based on current evidence, fovea-sparing ILM peeling significantly improve visual outcomes and decrease complications of full-thickness macular hole development in vitreomacular interface diseases.

# Six months primary success rate for retinal detachment between vitrectomy and scleral buckling

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## Abstract

**Purpose**: To define the swept-source optical coherence tomography (SS-OCT) features which distinguish ocular toxoplasmosis (OT) from other forms of retinochoroiditis

**Methods:** This is a prospective diagnostic study enrolling 43 eyes of 43 patients with active toxoplasmic (TOXO) retinochoroiditis matched to 54 eyes (54 lesions) with non-TOXO retinochoroiditis evaluated by structural SS-OCT**.**

**Results**: The finding of retinal hyper-reflective round deposits, sub-lesional choroidal thickening, and sub-lesional retinal pigment epithelium elevation were more likely to be found in TOXO lesions with a positive likelihood ratio of 45.2 (95% CI: 6.45-316.56), 23.86 (95% CI: 6.09-93.36), and 9.79 (95% CI: 4.22-22.7), respectively. The presence of each of these findings was associated with a high level for positive predictive value (PPV) (88.63-97.29), negative predictive value (NPV) (88.3-92.45), sensitivity (83.72-90.69), and specificity (90.74-98.14). Two-parameter model binary logistic regression suggested that sub-lesional retinal pigment epithelium elevation and sub-lesional choroidal thickening were significant predictors of the diagnosis of OT (Wald = 11.905, $p < 0.001$; Wald = 14.881, $p < 0.001$; respectively). By adding hyper-reflective round deposits along the posterior hyaloid or the retinal surface the model improved its performance with very good diagnostic accuracy with area under the curve (AUC) values of 0.96 (95% CI: 0.9-0.99) for two parameters model and 0.98 (95% CI: 0.93-0.99) for the three parameters model.

**Conclusions:** Our results show that three OCT findings including retinal hyper-reflective round deposits, sub-lesional choroidal thickening, and sub-lesional retinal pigment epithelium elevation are more likely to occur in OT patients as compared with non-OT patients.

# Distinguishing swept-source optical coherence tomography findings in active toxoplasmic retinochoroiditis

Iovino C, Peiretti E, Tatti F, Querques G, Borrelli E, Sacconi R, Chhablani J, Agrawal H, Boon CJF, van Dijk EHC, Cennamo G, Lupidi M, Muzi A, Di Iorio V, Iglicki M, Smadar L, Loewenstein A, Zur D.

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## Abstract

**Background:** To investigate the anatomical and functional results in eyes with peripapillary pachychoroid syndrome (PPS) undergoing photodynamic therapy (PDT).

**Methods:** A total of 25 eyes from 23 patients with PPS treated with PDT were retrospectively evaluated in this multicentric study. Main outcome measure was the proportion of eyes that achieved treatment success, defined as a decrease in both subretinal fluid (SRF) height and central subfield thickness (CST), at 3 months after PDT compared to baseline. Secondary outcomes were the change in CST, SRF, and best-corrected visual acuity (BCVA) 3 months after treatment and predictive factors for treatment success. When available, data between 3 and 12 months were also reviewed.

**Results:** Treatment success was achieved in 16 eyes (64%). In the total cohort, CST decreased significantly from 356 ± 118 µm at baseline to 282 ± 90 µm and 270 ± 91 µm at 1 and 3 months, respectively ($p < 0.001$). Maximal SRF height decreased significantly from 102 ± 83 µm at baseline to 38 ± 46 µm and 32 ± 42 µm at 1 and 3 months, respectively ($p < 0.001$), and remained stable at month 6 (29 ± 44 µm) and month 12 (23 ± 35 µm). BCVA improved significantly from baseline to month 3 ($p = 0.021$).

**Conclusions:** PDT can be considered an efficacious treatment option in patients with PPS. Prospective data with longer follow-up in a bigger cohort are needed in order to determine the optimal treatment algorithm in this relatively novel disease.

# Optical Coherence Tomography Angiography Compared with Multimodal Imaging for Diagnosing Neovascular Central Serous Chorioretinopathy

Ng DS, Ho M, Chen LJ, Yip FL, Teh WM, Zhou L, Mohamed S, Tsang CW, Brelén ME, Chen H, Pang CP, Lai TYY.

Am J Ophthalmol. 2021 Jun 8:S0002-9394(21)00324-X. doi: 10.1016/j.ajo.2021.05.029. Epub ahead of print. PMID: 34116008.

## Abstract

**Purpose:** To assess the diagnostic accuracy of optical coherence tomography angiography (OCTA) compared with multimodal imaging for CNV in CSC eyes and to determine the features that predicted CNV**.**

**Methods:** Consecutive CSC patients were recruited from retina clinic. The reference standard for CNV was determined by interpretation of multimodal imaging with OCTA, structural OCT line scan, fluorescein angiography (FA), indocyanine green angiography (ICGA), ultra-widefield fundus photography and fundus autofluorescence (FAF). Two independent masked graders examined OCTA without FA and ICGA to diagnose CNV. Univariate and multivariate analyses were performed to evaluate factors associated with CNV.

**Results:** CNV was detected in 69 eyes in 64 out of 277 CSC patients according to reference standard. The two masked graders who examined OCTA had sensitivity of 81.2% (95% Confidence Interval [CI], 71.9%-90.4%) and 78.3% (95% CI, 68.5%-88.0%), specificity of 97.3% (95% CI, 95.9%-98.8%) and 96.2% (95% CI, 94.5%-98.0%), positive predictive values of 82.4% (95% CI, 73.3%-91.4%) and 76.1% (95% CI, 66.1%-86.0%), and negative predictive values of 97.1% (95% CI, 95.6%-98.7%) and 96.7% (95% CI, 95.0%-98.3%). Their mean AUC was 0.88 with good agreement (Kappa coefficient 0.80 [95% CI, 0.72-0.89]). Flat irregular pigment epithelial detachment on structural OCT, neovascular network on OCTA and ill-defined late leakage on FA significantly correlated with CNV in CSC from multiple regression ($P < 0.001$, $P < 0.001$ and $P = 0.005$, respectively).

**Conclusions:** There is discordance between OCTA and multimodal imaging in diagnosing CNV in CSC. This study demonstrated the caveats in OCTA interpretation, such as small extrafoveal lesions and retinal pigment epithelial alterations. Comprehensive interpretation of OCTA with dye angiography and structural OCT is recommended.

# Clinical and Morphologic Characteristics of ERK Inhibitor-Associated Retinopathy

CFrancis JH, Canestraro J, Haggag-Lindgren D, Harding JJ, Diamond EL, Drilon A, Li BT, Gopakumar I, Schram AM, Abramson DH.

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## Abstract

**Purpose:** Investigate clinical and morphologic characteristics of serous retinal disturbances in patients taking extracellular signal-regulated kinase (ERK) inhibitors.

**Design:** Single center, retrospective study of prospectively collected data METHODS: Clinical exam, fundus photography and OCT were used to evaluate ERK inhibitor retinopathy. The morphology, distribution and location of fluid foci were serially evaluated for each eye. Visual acuity and choroidal thickness measurements were compared at baseline, fluid accumulation and resolution**.**

**Participants:** Of 61 patients receiving ERK inhibitors for treatment of metastatic cancer, this study included 40 eyes of 20 patients with evidence of retinopathy confirmed by optical coherence tomography (OCT)

**Main outcome measures:** Characteristcs of treatment-emergent choroid and retinal OCT abnormalities as compared to baseline OCT, and the impact of toxicity on visual acuity and final visual acuity.

**Results:** Of 20 patients with retinopathy the majority of patients had fluid foci that were bilateral (100%), multifocal in each eye (75%) and at least one focus involving the fovea (95%). All subretinal fluid foci occurred between the interdigitation zone and an intact retinal pigment epithelium. There was no statistical difference in choroidal thickness at fluid accumulation and resolution compared to baseline. 45% eyes had evidence of concomitant intraretinal edema localized to the outer nuclear layer. At the time of fluid accumulation, 57.5% eyes had a decline in visual acuity (mainly by 1-2 lines from baseline). For all eyes with follow-up, the subretinal fluid and intraretinal edema was reversible and resolved without medical intervention; and best-corrected visual

acuity at fluid resolution was not statistically different from baseline. Concomitant intraretinal fluid was not associated with worsening of visual acuity. No patient discontinued or decreased drug dose on account of their retinopathy.

# Etiology, Treatment Patterns, and Outcomes for Choroidal Neovascularization in the Pediatric Population: an IRIS Registry Study

Finn AP, Fujino D, Lum F, Rao P. Etiology,
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10.1016/j.oret.2021.05.015. Epub ahead of print. PMID: 34091079.

## Abstract

**Purpose:** Choroidal neovascularization (CNV) is a rare, but devastating cause of vision loss in children with the majority of current publications limited to small case series. Utilizing a large clinical registry allows us to understand the most common etiologies of this disease and visual outcomes.

**Design:** Retrospective analysis.

**Participants:** Patients < 18 years in the IRIS® Registry diagnosed with pediatric CNV between 2013-2019.

**Methods:** Cases were identified based on ICD-9/10 diagnosis codes for CNV or CNV-related etiology, and current procedural terminology (CPT) treatment codes. We assessed the etiology of CNV, treatment patterns, and visual outcomes.

**Results:** 2,353 eyes with pediatric CNV were identified. The most common identifiable etiologies of pediatric CNV were posterior uveitis/inflammatory chorioretinal disease (19.4%), myopia (18.4%), hereditary dystrophy (5.4%), chorioretinal scar (4.2%), choroidal rupture (3.5%), optic nerve drusen (3.2%), osteoma (1.9%), and solar retinopathy (0.2%). In 38.2% of eyes, CNV was "idiopathic", and in 5.7% multiple etiologies were coded. 1,041 eyes (44.4%) underwent treatment. The mean age of treatment eyes was 13.6+3.5 years compared to 12.4+4.1 years for the untreated group (p <0.001). 88.9% had anti-vascular endothelial growth factor (anti-VEGF) injections, 7.9% laser, 0.3% PDT, and 2.9% combination therapy. In the anti-VEGF treated eyes, 68.4% required <3 injections (p<0.0001). Eyes undergoing treatment exhibited worse baseline visual acuity (VA) than eyes that did not have treatment (logMAR 0.62+0.50 vs. 0.44+0.50, p<0.0001). VA in the treatment group improved significantly from

logMAR 0.62+0.50 at baseline to 0.39+0.43 at year 1 (p<0.0001). VA in the untreated group improved significantly from logMAR 0.44+0.50 at baseline to 0.34+0.44 at year 1 (p<0.001). Treated eyes had a statistically significant higher odds of exhibiting a 2-line vision improvement or better compared to the untreated group at 12 months regardless of treatment type and after controlling for baseline VA (OR 2.4, p <0.0001).

**Conclusion:** CNV is a rare, sight-threatening condition in children with the most common etiologies being "idiopathic", inflammatory chorioretinal disease, and myopia. Eyes undergoing treatment tended to be in older patients and had worse baseline VA compared to eyes that did not undergo treatment. Those that were treated experienced significant improvement in vision that was maintained long-term**.**

***June 2021 segment compiled by: Dr. Indu Govindaraj, Aravind Eye Hospital Chennai***