



**SESSION: Updates on Uveal Diseases & Endophthalmitis**

**DATE: September 3, 2023**

**HALL: HALL 1**

**TIME: 12:25 – 14:00**

**Moderators: Ahmed Sallam, Süleyman Kaynak**

### **Adjunctive intravitreal anti-VEGF and moxifloxacin therapy in the management of intraocular tubercular granulomas**

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**Purpose:** To report pre and post treatment levels of anti-VEGF in the aqueous humour of patients with intraocular tubercular granulomas and study the effect of a combined intravitreal anti-VEGF bevacizumab and moxifloxacin therapy on their regression

**Methods:** Aqueous humour samples of 10 consecutive patients with intraocular tubercular granulomas obtained before and after initiating treatment were subjected to ELISA for analysing intraocular VEGF-A levels. Intravitreal injections of bevacizumab (off label use) and moxifloxacin were given weekly till complete regression of these granulomas. All patients received the usual four drug ATT and oral corticosteroids.

**Results:** mean baseline VEGF-A levels was 1004.27+/-411.40pg/ml which reduced significantly to 27.62+/-46.86pg/ml. Mean number of injections required were 3.1(2-4). There was a significant correlation between the clinical regression of the granulomas and VEGF-A levels in the aqueous humour.

**Conclusion:** Intraocular TB granulomas have high levels of VEGF-A. Weekly intravitreal injections of anti-VEGF bevacizumab with moxifloxacin as an adjunct to the standard care may cause prompt regression of tubercular granulomas

**Keywords:** Tubercular granulomas, VEGF

## Clinical Presentation and Outcome of Patients with Endogenous Endophthalmitis: A Case Series

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Endogenous endophthalmitis (EE) is a rare but severe ocular infection that can lead to permanent vision loss. The aim of this study was to evaluate the clinical characteristics, risk factors, microbiological findings, and visual outcomes of patients diagnosed with EE. This retrospective study of 15 eyes from 10 patients diagnosed with EE was conducted. The mean age of presentation was 56.5 years, with a male predominance. The most common predisposing factors were diabetes mellitus and recurrent urinary tract infections.

The initial vision of the thirteen eyes was 0.1 or less. Five eyes (33.3%) had hypopyon at the initial examination. Positive blood cultures were found in 40% of patients, while positive vitreous cultures were found in 20% of patients. The majority of cases were caused by bacterial infections.

All patients received systemic antibiotics as well as appropriate intravitreal antibiotics. Initial treatment, which included obtaining a vitreous sample via a vitrectomy probe and administering intravitreal antibiotics, was performed in all eyes (100%) upon clinical diagnosis. Pars plana vitrectomy was performed in nine out of the 15 eyes (60%). It was observed that pars plana vitrectomy was performed in both eyes of two patients in the same session. The mean final visual acuity was  $1.57 \pm 1.02$  logMar, with no significant difference between the bacterial and fungal groups.

These findings provide insight into the clinical characteristics and outcomes of EE, which can aid in the diagnosis and management of this rare but potentially severe condition.

**Keywords:** Endogenous endophthalmitis, vitreous cultures, pars plana vitrectomy

## Retrospective Analysis of Characteristics and Visual Outcomes of Patients with Endogenous Endophthalmitis

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**Purpose:** To investigate the patient characteristics and visual outcomes of patients with endogenous endophthalmitis (EE).

**Methods:** The medical records of 24 eyes of 16 patients with EE between 2016 and 2022 were reviewed. Collected data included demographic features, systemic conditions, causative organisms, treatment modalities, and initial and final visual acuities (VA). The effects of evaluated parameters on final VA were analyzed.

**Results:** The mean age of patients was 63.81±16.24 years (29–84), and 62.5% of patients were female. The most common systemic co-morbidity was diabetes mellitus (31.4%). All eyes underwent empirical intravitreal antimicrobial injections and vitreous tap, the majority of eyes (79.2%) received intravitreal amphotericin B injections. PPV was also performed in 15 eyes (62.5%). Two eyes needed a repeat vitrectomy for proliferative vitreoretinopathy and recurrent intraocular infection. Culture-positive organism was obtained from vitreous sampling in 12 eyes (50.0%) and the majority of these organism were fungi (66.7%). Among fungal isolates, 5 eyes were *Candida* species and 3 were *Aspergillus*. VA could be evaluated in 20 eyes. Fifteen eyes (75.0%) had poor VA (worse than hand motion) at presentation. Improvement in the final VA was observed in 60.0% of these eyes. Eyes with poor initial VA had worse visual outcomes ( $p=0.007$ ).

**Conclusions:** In this study, 50% of cases were ocular culture-proven, and fungal organisms were the most common causative pathogens of EE. Although EE is a serious sight-threatening condition, appropriate medical and surgical treatment may result in visual improvement. Initial VA was the significant factor related to visual outcomes.

**Keywords:** Endogenous endophthalmitis, Visual acuity, Fungal endophthalmitis

## Posterior segment ocular findings in critically ill patients with COVID-19

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**Purpose:** To describe ophthalmological fundoscopic findings in patients with COVID-19 admitted to the intensive care unit of the largest third-level referral center for COVID-19 in Mexico City.

**Methods:** In this cross-sectional single-center study, consecutive patients admitted to the intensive care unit with a diagnosis of COVID-19 underwent fundus examination with an indirect ophthalmoscope. Clinical photographs were taken using a posterior-pole camera. We explored the association between ocular manifestations and demographic characteristics, inflammatory markers, hemodynamic factors, and comorbidities.

**Results:** Of 117 patients examined, 74 were men; the median age was 54 years (range: 45–63 years). Forty-two patients had ophthalmological manifestations (unilateral in 23 and bilateral in 19), and 10 of these patients had more than one ophthalmological manifestation. Ocular findings were papillitis (n = 13), cotton wool spots (n = 12), retinal hemorrhages (n = 5), retinal nerve fiber layer edema (n = 8), macular whitening (n = 5), retinal vascular tortuosity (n = 4), papillophlebitis (n = 3), central retinal vein occlusion (n = 1), and branch retinal vein occlusion (n = 1). Ocular fundus manifestations were not associated with demographic characteristics, inflammatory markers, hemodynamic factors, or comorbidities.

**Conclusion:** More than one-third of patients with severe COVID-19 had ophthalmological manifestations. The most frequent fundoscopic findings were optic nerve inflammation, microvasculature occlusion, and major vascular occlusions. We recommend long-term follow-up to prevent permanent ocular sequelae.

**Keywords:** Covid-19, papillitis, retina vein occlusion

## OCT/OCTA biomarkers in uveitis

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Uveitis can cause transient or permanent physiological and anatomical changes. For this purpose, OCT and OCTA, as non-invasive investigations, often have specific findings. The disease progression, resolution, and complications can be revealed to aid in shortening the list of differential diagnoses. Some entities have specific patterns that allow for immediate diagnosis. Also, these modalities can predict the risk factors for complications in some types of uveitis.

**Keywords:** Uveitis, Biomarker, non-invasive investigation

## Choroidal vascularity index and iris thickness in bilateral acute iris transillumination

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**Purpose:** To investigate the subfoveal choroidal thickness (CT), choroidal vascularity index (CVI), and iris thickness (IT) in bilateral acute iris transillumination (BAIT) and compare with healthy individuals.

**Methods:** This study included 28 eyes of 14 patients (Group 1) and 30 eyes of 15 healthy individuals (Group 2). Enhanced depth imaging-optical coherence tomography (EDI-OCT) was performed for subfoveal CT. CVI was defined as the proportion of luminal area to the total circumscribed choroidal area and calculated using ImageJ software. Spectral-domain OCT (SD-OCT) in "angle scan" mode was used to evaluate IT. The ciliary zone and pupillary zone were determined using callipers in 750  $\mu$  and 2000  $\mu$  from the anterior chamber angle, respectively. The parameters of iris measurement, total, maximum, stromal IT, anterior border layer (ABL), and posterior pigment epithelial layer (PEL) thicknesses were measured after at least 3 months of inactive uveitis period.

**Results:** There was no significant difference between the groups regarding age and gender ( $p=0.086$ ,  $p=0.19$ ). The best corrected visual acuity was  $0.81\pm 0.17$  in group 1,  $0.99\pm 0.02$  in group 2 ( $p<0.01$ ). Posterior synechia was detected in 14 eyes (50%), cataract was detected in 10 eyes (35.7%), and persistent glaucoma in 6 eyes of 3 patients. CT was  $225.3\pm 109.6$   $\mu$  in group 1,  $339.1\pm 86.8$   $\mu$  in group 2 ( $p<0.01$ ). The luminal area and total choroidal area were significantly lower in group 1 ( $p<0.01$  for both). CVI were  $67.9\pm 4.6$  for group 1,  $67.0\pm 3.9$  for group 2 ( $p=0.23$ ). Maximum IT, ABL, and PEL values of the pupillary and ciliary region in the temporal and nasal quadrants were significantly lower in group 1 ( $p<0.01$  for all). There was no statistical difference in the total and stromal IT for both temporal and nasal quadrants.

**Conclusion:** The effects on melanin-containing tissues may occur not only in the iris but also in the choroid of BAIT patients.

**Keywords:** Bilateral acute iris transillumination, iris thickness, choroidal vascularity index

## Posterior vitreous attachment as a risk factor for endophthalmitis following intravitreal anti-vascular endothelial growth factor injection

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**Purpose:** To evaluate the importance of incompletely detached posterior vitreous detachment (PVD) in terms of the risk of endophthalmitis following intravitreal anti-vascular endothelial growth factor (anti-VEGF) injection.

**Methods:** In this retrospective interventional study, 23 eyes (study group) of 23 patients who developed endophthalmitis following intravitreal anti-VEGF administration were evaluated during pars plana vitrectomy after urgent vitreous tap and intravitreal antibiotics. The incidence of PVD in these patients was compared with 24 eyes (control group) of 24 patients who received intravitreal anti-VEGF without any complication. Study patients underwent a complete vitrectomy with PVD intraoperatively. Intraoperative and postoperative complications were evaluated.

**Results:** There was no difference between the control and study group in terms of age, gender and indication for intravitreal injection. PVD was completely detached in 13 (54.1%) eyes of 24 patients in the control group, whereas only 2 (8.7%) eyes of 23 patients in the endophthalmitis group ( $p < 0.001$ ). At the time of surgery, posterior vitreous was detached carefully without complications in 21 eyes of 21 patients without PVD. No iatrogenic tear occurred in any eye during surgery. Silicone oil tamponade was not used in any of the patients. Visual acuity before intravitreal injection was achieved in 22 (95.6%) out of 23 patients. Retinal detachment developed in 3 (13.0%) eyes of 23 patients in the postoperative follow-up. In multiple regression analysis, absence of PVD was found to be an independent risk factor for endophthalmitis following intravitreal anti-VEGF injection.

**Conclusion:** The absence of PVD is an important risk factor for the development of endophthalmitis. Creating an uncomplicated PVD is of great importance for the success of vitrectomy for endophthalmitis.

**Keywords:** Endophthalmitis, pars plana vitrectomy, posterior vitreous detachment

## Visual and Clinical Outcomes of Pars Plana Vitrectomy in Patients with Uveitis

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**Purpose:** To investigate the visual and clinical outcomes of pars plana vitrectomy (PPV) in the management of patients with uveitis.

**Methods:** This retrospective study included 36 eyes (33 patients) who underwent 23-gauge PPV. All eyes had a minimum of 6 months follow-up. Baseline demographic and clinical features were recorded. Outcome measures were visual improvement ( $\leq -0.3$  logMAR), change in cystoid macular edema (CME), adjunctive systemic medical therapy, early and late postoperative complications, and repeat vitrectomies.

**Results:** The mean age of patients was  $48.52 \pm 17.26$  years and the mean follow-up duration was  $30.94 \pm 24.27$  months after surgery. The mean logMAR best corrected visual acuity (BCVA) improved from preoperatively  $1.36 \pm 0.75$  to postoperatively  $1.08 \pm 0.97$  ( $p=0.06$ ). Visual improvement was observed in 61.1% of the eyes. CME was detected in 12 eyes (33.3%) preoperatively and in 6 eyes (16.7%) postoperatively. After surgery, 44.1% of patients needed fewer immunosuppressive drugs to control inflammation. The most common early complications were ocular hypertension ( $n=7$ , 19.4%) and transient hypotonia ( $n=4$ , 11.1%). Cataract developed in 2 of 6 phakic eyes (33.3%) and retinal detachment with proliferative vitreoretinopathy in 5 eyes (13.9%) following PPV. Seven eyes (19.4%) underwent repeat PPV.

**Conclusion:** PPV seems to be an effective and safe method for improvement in visual acuity, decrease in presence of CME, and reduction in the need for systemic immunosuppressive drugs. PVR is the most serious complication with poor prognosis that requires repeat surgery in cases of uveitis.

**Keywords:** Pars plana vitrectomy, uveitis



## Silicone Oil in the Surgical Management of Endophthalmitis

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**Purpose:** A randomized prospective study was designed to determine the role of silicone oil in the surgical management of endophthalmitis.

**Methods:** The study subjects were 76 patients in whom clinical signs of endophthalmitis developed within 6 weeks of cataract surgery (phacoemulsification) or secondary lens implantation. All patients had advanced, severe endophthalmitis. They were randomly assigned to treatment with pars plana vitrectomy with or without silicone oil. Preoperative visual acuity in all patients was light perception. The mean follow-up time was 1 year. Forty-two patients received silicone oil (1000cSt) and 34 had only balanced salt solution (BSS). Both groups received infusion fluid containing antibiotics and corticosteroids during the vitrectomy; postoperatively, topical antibiotics, cycloplegics, corticosteroids and systemic antibiotics and corticosteroids were administered.

**Results:** Data from the trial show that the media cleared much more quickly in the silicone oil group; all eyes in the silicone oil group had clear media, while only 70% in the BSS group had completely clear media. During the follow-up period, there was no retinal detachment in the silicone oil group, but the incidence in the BSS group was 20%. During the entire course of the study, none of the silicone oil group required additional surgery; 40% of the BSS group had additional surgery. The visual acuity was better in the silicone group than the BSS group ( $p < 0.01$ )

**Conclusion:** The results of this study indicate that silicone oil can be considered in the surgical management of advanced and severe cases of endophthalmitis. The more rapid clearing of the media with silicone oil could be of clinical importance for certain patients.

**Keywords:** endophthalmitis vitrectomy silicone oil

## Decoding the enigma of Serpiginous Choroiditis

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Serpiginous Choroiditis is a disease characterised by inflammation of the choroid, which is often bilateral and asymmetric in presentation. The disease leads to loss of choriocapillaries and atrophy of the overlying Retinal Pigment Epithelium.

There has been a significant evolution in the understanding of Serpiginous Choroiditis over the past few decades. The disease was initially considered to be largely Autoimmune in nature. But, with time, Serpiginous Choroiditis was found to be associated with infectious etiologies like Tuberculosis and Syphilis. Such variants of Serpiginous Choroiditis which are associated with infectious etiologies are addressed as Serpiginous like Choroiditis.

It is of utmost importance to differentiate between autoimmune Serpiginous Choroiditis from the infectious Serpiginous like Choroiditis before aggressive immunosuppression can be initiated.

Although patients having Serpiginous like Choroiditis due to tuberculosis are usually younger, with unilateral affliction and significant vitritis and multifocal lesions, there is a considerable overlap with the autoimmune Serpiginous Choroiditis and its quite difficult to make the correct diagnosis based on morphological features alone.

Therefore ancillary investigations like Mantoux, QuantiFERON gold become relevant especially in tuberculosis endemic regions like India.

The role of routine ocular investigations like OCT, FFA, ICG and FAF can't be emphasised more to arrive at the correct diagnosis and to differentiate between Active and Healed variants of Serpiginous Choroiditis.

With this presentation, through discussion of a number of cases, we aim to demystify all the conundrums pertaining to Serpiginous Choroiditis and elucidate its pathogenesis, clinical features, diagnosis and treatment

**Keywords:** Serpiginous Choroiditis, Serpiginous like Choroiditis, Tuberculosis

## Retrospective evaluation of neuroretinitis cases in a tertiary care clinic

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**Aim:** Neuroretinitis is a particular form of optic neuropathy typically characterised by acute unilateral visual loss with optic disc edema and macular exudates. It is unclear whether clinical features vary among forms of neuroretinitis of different etiology. In this study, it was aimed to retrospectively evaluate the demographic, clinical characteristics and treatment results of patients with neuroretinitis.

**Methods:** the demographic, clinical features, treatment modalities and follow-up features of the neuroretinitis cases that diagnosed in our clinic were evaluated retrospectively.

**Results:** 58 attacks of 34 patients were evaluated. The mean age was  $38.3 \pm 12.3$  (17–69) years, the F/M ratio was 1,25/1. Twenty five patients had unilateral, 9 had bilateral attacks. 8 patients had recurrent attacks. Initial visual acuity ranged from 0.001(hand motion) to 1.0 (Mean $\pm$ SD  $0.30 \pm 0.27$ ), and final visual acuity ranged from 0.01 to 1.0 (Mean $\pm$ SD  $0.74 \pm 0.35$ ). 10 patients were evaluated as idiopathic wheares bartonella, toxo, borrelia and brucella serologies were positive in 9,9,3 and 2 patients respectively. One patient was diagnosed with Behçet disease. Initial visual acuities at the time of attack were  $0.43 \pm 0.30$ ,  $0.33 \pm 0.25$ ,  $0.33 \pm 0.28$ ,  $0.28 \pm 0.28$  in the groups received only antibiotic treatment, antibiotic and oral steroid treatment, pulse steroid and antibiotic treatment, only steroid treatment, respectively. And the final visual acuity after the attack were  $0.95 \pm 0.09$ ,  $0.89 \pm 0.23$ ,  $0.83 \pm 0.24$ ,  $0.61 \pm 0.49$  in this groups respectively.

**Conclusion:** In cases with optic disc edema and vision loss, careful examination of the macula and papillomacular region, macular optical coherence tomography(OCT), follow-up of fluid or star formation with short-term control examinations in the first 2 weeks are important for the diagnosis of neuroretinitis. We found high rate of infectious etiology in our neuroretinitis cases which underlines the importance of comprehensive research for etiology. Steroid treatment, which is not accompanied by antibiotic therapy, may adversely affect the patient's visual prognosis.

**Keywords:** Macular Star, Neuroretinitis, Optic Disc Edema