ophthal Focus
Vol 2| Issue 23|2021

Dear Doctor,
Greetings from Micro Labs Limited. We are happy to bring you 'Ophthal Focus' which contains latest and interesting news in the field of Ophthalmology.

This issue contains

- **Strabismus Surgery in Children: Effect of Topical Brimonidine 0.15% on Conjunctival Injection**
- **Optical coherence tomography angiography in patients with diabetes without clinically detectable retinopathy**
- **Diagnosis of cytomegalovirus corneal endotheliitis using surgically removed Descemet's membrane**

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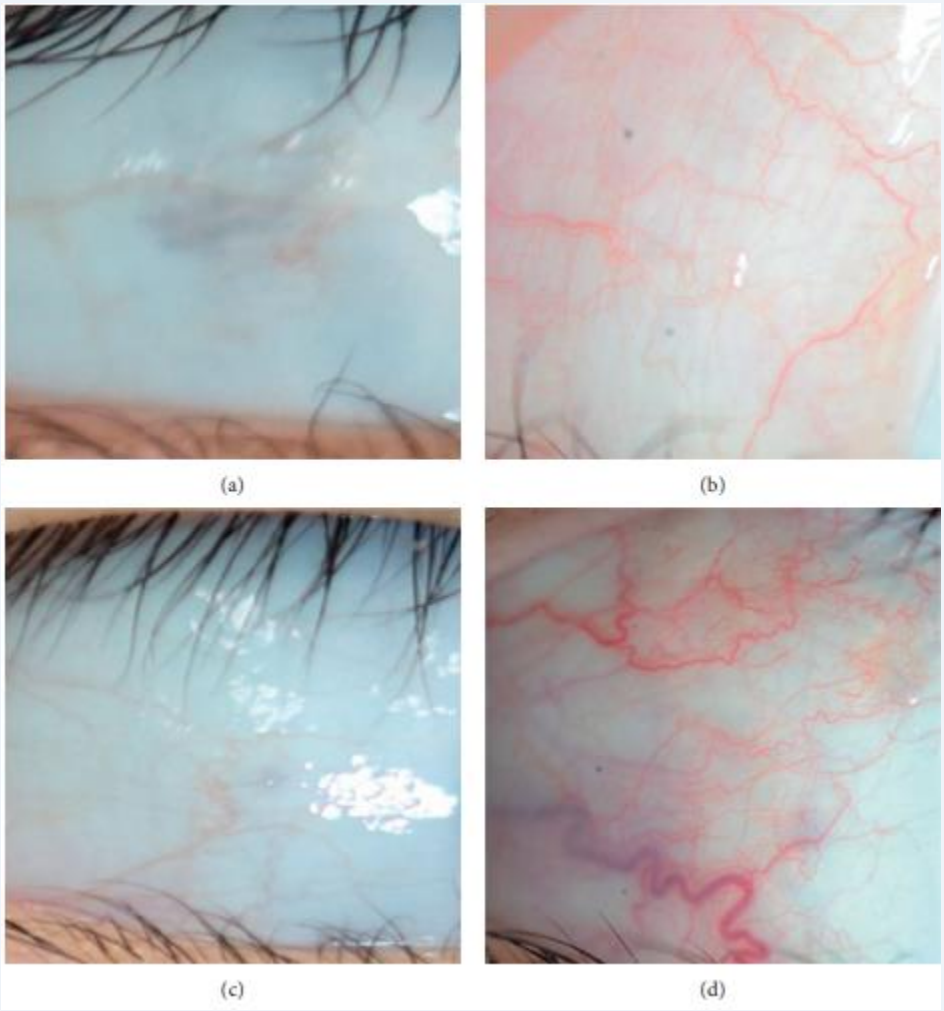
Best Regards,
Medical Team,
Micro Labs Limited.

Strabismus Surgery in Children: Effect of Topical Brimonidine 0.15% on Conjunctival Injection

Objective: To evaluate the effect of brimonidine on conjunctival injection after strabismus surgery in children.

Methods: Children between 7 and 12 years of age with exotropia who underwent unilateral lateral rectus recession were included. Subjects received gatifloxacin 0.3%, topical fluorometholone0.1% and topical bromfenac 0.1% for about 4 weeks. Brimonidine group was defined as the patients who were taking topical brimonidine tartrate 0.15% twice a day for 4 weeks and those who did not receive topical brimonidine were defined as control group. Noncontact tonometry was used to measure Intraocular pressure 4 weeks after surgery. Conjunctival injection was measured using software that automatically scores the region of interest from the image of the bulbar conjunctiva.

Results: Total of 63 subjects who underwent rectus resection were included in this study. Postoperative infection or abnormal bleeding was not observed. No known adverse effects of brimonidine were reported, including dry mouth, fatigue/drowsiness, headache, sedation, hypotension, or bradycardia. In the brimonidine group mean scores of postoperative conjunctival injection after rectus muscle recession and resection were significantly lower when compared with control group at 4 weeks after surgery. In the brimonidine group, mean intraocular pressure at 4 weeks after surgery was 11.7 ± 3.3mmHg and 12.4 ± 3.0 mmHg in the control group.



Anterior segment photographs of conjunctival injection before and after strabismus surgery in the brimonidine group ((a), (b)) and control group ((c), (d)). Conjunctival injection increased after strabismus surgery in both groups, while the amount of increase was less in the brimonidine group. Based on the preoperative conjunctival injection score, (b) scored 6.4 and (d) scored 33.3.

Conclusion: topical brimonidine 0.15% administration after strabismus surgery is efficacious and safe in reducing postoperative conjunctival injection.

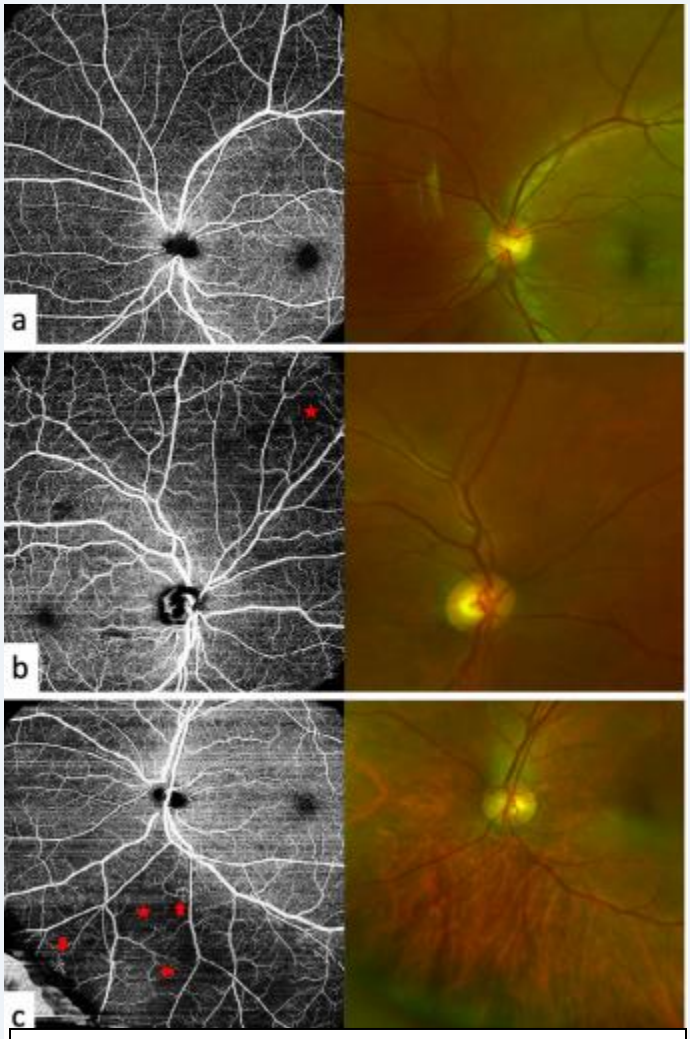
Reference: Kim DH, Yang HK, Han SB, Hwang JM. Effect of Topical Brimonidine 0.15% on Conjunctival Injection after Strabismus Surgery in Children. Journal of Ophthalmology. 2021 May 4;2021.

Optical coherence tomography angiography in patients with diabetes without clinically detectable retinopathy

Objective: To investigate changes in retinal microvasculature in eyes with preclinical diabetic retinopathy using ultra-wide field swept-source optical coherence tomography angiography.

Methods: In this prospective cross-sectional study patients with type 2 diabetes mellitus were included. All the subjects underwent ocular examination. All subjects underwent optical coherence tomography angiography(OCTA) examination with a 12 × 12 mm^2 field of view of 5 visual fixations to compose an ultra-wide field swept-source optical coherence tomography angiography (UWF OCTA) image. Nonperfusion areas (NPAs), microvascular dilation and tortuosity, and neovascularization (NV), were recorded in different areas and diabetes history was recorded.

Results: Fifty-five eyes of 30 diabetic subjects without clinical retinal signs were imaged for the study. UWF OCTA revealed retinal microvascular lesions in 32 eyes (58.2%). In the peripheral areas, retinal nonperfusion areas (NPAs), Capillary dilation and tortuosity were more frequently detected than in the central areas.



A. OCTA of a normal fundus of a diabetic eye without clinical signs. B. A nonperfusion area (NPA) (asterisk) is shown in the superior nasal quadrant. C. Both a NPA (asterisk) and capillary tortuosity (arrows) could be detected in the inferior nasal quadrant

Three types of microvascular lesions were identified and the number of lesions was between 0 and 3. HbA1c level showed a significant association with the number of lesion types in peripheral areas.

Locations of lesions detected in various retinal areas by ultra-wide field optical coherence tomography angiography			
Lesions	**Lesions in central areas**	**Lesions in peripheral areas**	**P value**
Nonperfusion area, eyes (%)	21 (38.2%)	30 (54.5%)	0.085
Capillary dilation and tortuosity, eyes (%)	3 (5.5%)	12 (21.8%)	0.024
Neovascularization, eyes (%)	0 (0)	0 (0)	-

Conclusion: Optical coherence tomography angiography (OCTA) high resolution imaging method has the potential to reveal retinal microvascular alterations in diabetic eyes without clinical signs. In the region of the peripheral retina, retinal microvascular lesions were present. This region should be assessed carefully in diabetic subjects with high HbA1c levels.

Reference: Yang J Et al. Ultra-wide field swept-source optical coherence tomography angiography in patients with diabetes without clinically detectable retinopathy. BMC ophthalmology. 2021 May ;21(1):1-8.

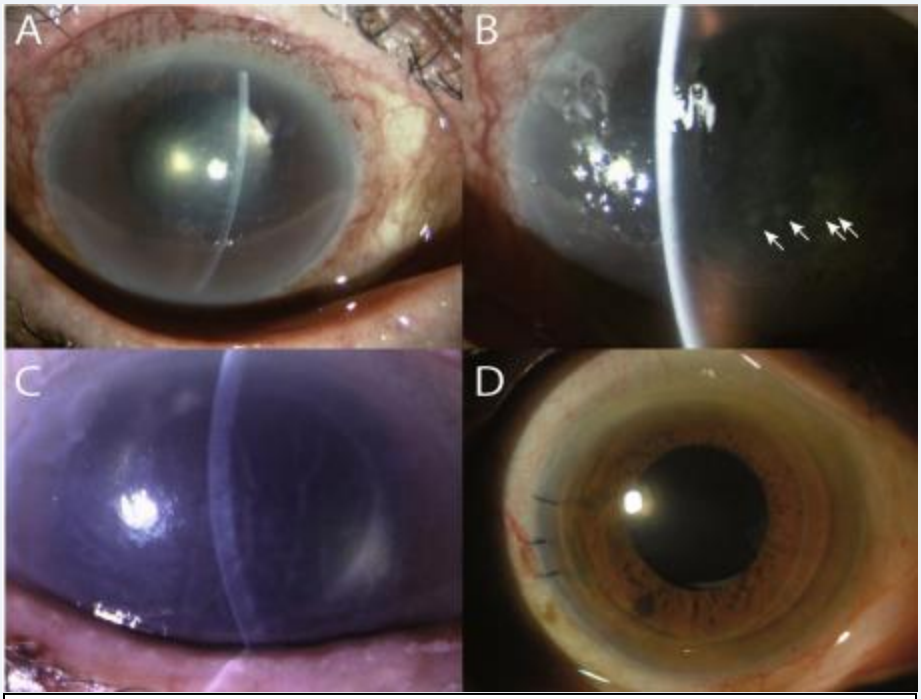
Diagnosis of cytomegalovirus corneal endotheliitis using surgically removed Descemet's membrane

Case Scenario: A 80-year-old female underwent bilateral cataract surgery at the age of 72 at a local clinic. In the right eye of the patient, iridocyclitis developed four months after the operation. Corneal endothelial cells were decreased. She had significant corneal edema and inferior-localized pigmented keratic precipitates (KPs). IOP was 11 mmHg on betamethasone,

bimatoprost 0.03% once per day, brimonidine 0.1% BID, and ripasudil 0.4% BID. Central corneal thickness (CCT) of the subject was 745 µm.

8 months after the initial visit it relapsed again. Intraocular pressure was elevated to 19.9 mmHg and mutton fat KPs were observed. Inflammation was reduced after 2 weeks after resuming betamethasone and anti-glaucoma eye drops and IOP was lowered to 12.9 mmHg. Cytomegalovirus (CMV) was suspected. In order to measure CMV DNA by real-time PCR of the aqueous humor with active inflammation betamethasone was discontinued.

IOP was elevated to 25mmHg and a quantitative real time PCR using the aqueous humor was performed. IOP was lowered to 14mmHg a month after resuming betamethasone and anti-glaucoma eye drops. No inflammation was observed with steroid instillation.



A. At the time of the firstvisit, bullous keratopathy was observed, but inflammation was not observed. B. At the time of relapse of inflammation, mutton fat keratic precipitates (KPs) were observed (arrows). C. At the time just before Descemet-stripping automated endothelial keratoplasty (DSAEK), no inflammation was observed in the anterior chamber, and mutton fat KPs were not observed. D. 6 months after DSAEK, corneal transparency was improved, and inflammation was not observed.

Descemet-stripping automated endothelial keratoplasty (DSAEK) was performed in the right eye. DSAEK was isolated and washed with intraocular infusion solution. The results were positive for CMV-DNA at 6.0 × 102 copies/ GAPDH 105 copies. CMV corneal endothelitis was diagnosed based on the PCR results. Liver and kidney function showed AST 24mg/dl, ALT 21 mg/dl, creatinine 0.72 mg/dl blood and urea nitrogen 14.9 mg/dl.

Oral valganciclovir was administered at 900mg BID for 2 weeks and then 450 mg BID for 6 weeks, she was also prescribed Ganciclovir 1% six times a day for 2 months slowly tapered to four times a day. 6 months after DSAEK surgery no recurrence of iridocyclitis or corneal endotheliitis has been observed, best corrected visual acuity increased to 20/20 and corneal edema resolved.

Conclusion: This case suggests that testing the endothelial tissue during DSAEK surgery using PCR to diagnose CMV endotheliitis for suspected but undiagnosed cases even with the negative results of aqueous humor PCR.

Reference: Nakagawa S, Ishii H, Takamoto M, Kaburaki T, Ishii K, Miyai T. Diagnosis of cytomegalovirus corneal endotheliitis using surgically removed Descemet's membrane and endothelium despite negative results with aqueous humor PCR: a case report. BMC ophthalmology. 2021 Dec;21(1):1-4.