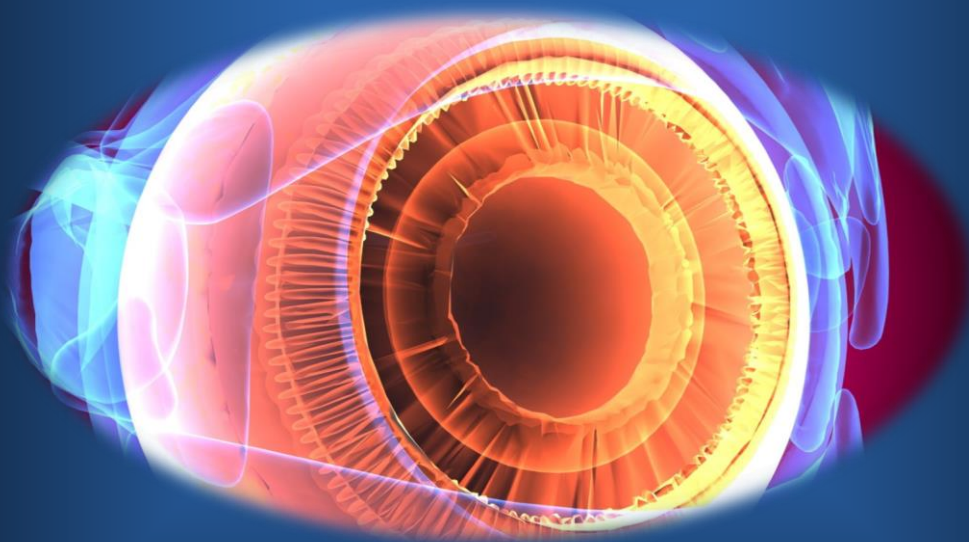




Dear Doctor,

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

- Microvascular comparison in younger and older subjects with retinal vein occlusion analyzed by OCT angiography
- Three- Random-Point Marking Method for Toric Intraocular Lens Alignment Using the iTrace Aberrometer.
- Choroidal Vascular changes in Acute Idiopathic Maculopathy as Demonstrated by Multimodal Imaging including Optical Coherence Tomography Angiography.

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Microvascular comparison in younger and older subjects with retinal vein occlusion analyzed by OCT angiography

The objective of this study was to evaluate the impact of aging on the retinal capillaries reconstruction using Optical coherence tomography angiography and the correlation of these changes with visual outcomes in subjects with Retinal Vein Occlusion (RVO).

In this retrospective study, 66 retinal vein occlusion subjects with 66 eyes were enrolled in this study for a period of 12 months. With atleast 12 months followup subjects selected at each visit were divided into either central RVO (CRVO), or branch RVO (BRVO). Subjects were divided into younger group (50 years or younger at RVO onset) and older group (More than 50 years at RVO onset).

All subjects underwent ophthalmic examination such as best-corrected visual acuity (BCVA) intraocular pressure (IOP), fundus photography, spectral domain OCT and fundus fluorescein angiography. Younger subjects underwent coagulation function, protein C and protein S, rheumatoid factor, anticardiolipin antibody, lupus anticoagulant, factor V Leiden, lupus anticoagulant, homocysteine, and cryoglobulins. To treat macular edema for RVO Intravitreal injections of the anti-VEGF agents were used. If the recurrence of macular edema was detected retreatment with anti-VEGF injection was considered. For retinal neovascularization, Scatter laser photocoagulation was applied.



Retinal Vein Occlusion

In this study, subjects were followed for a period of 12 months. Of these twenty subjects with 20 eyes in the younger group and 46 subjects with 46 eyes were enrolled in the older group. Better best corrected visual acuity, higher Vessel Density and smaller foveal avascular zone was observed in younger subjects at 12 months after anti-VEGF treatment. Significant positive correlation was observed between Vessel density increase and vision improvement rate after anti-VEGF treatment was found only in DCO.

In both younger and older group a significant improvement of BCVA after treatment was noted. The younger group showed more increase of BCVA and significantly better vision compared with the older group.

Comparison of the change of microvascular parameters measurements in younger and older groups			
Delta-VD of SCP			
Whole Image	1.9 (-1.5, 3.3)	-0.6 (-2.2, 2.3)	0.189
ParaFovea	0.2 (-1.5, 3.3)	0.2 (-2.4, 1.6)	0.261
Delta-VD of DCP			
Whole Image	2.4 (0.1, 6.3)	-0.7 (-3.6, 3.6)	0.037*
ParaFovea	2.3 (-2.0, 5.9)	-0.9 (-3.0, 2.9)	0.056
Delta-FAZ size	0.00 (-0.05, 0.07)	0.04 (0.00, 0.13)	0.061
Delta-FAZ perimeter	0.02 (-0.12, 0.27)	0.16 (-0.01, 0.35)	0.135

Limitations of this study are small number of young subjects, and the limited Optical coherence tomography angiograph (OCTA) field of view for analyzing. Due to fast vision recovery of some young subjects there was a loss of follow-up for several months after the first anti-VEGF injection. Due to the lack of macular involvement branch retinal vein occlusion (BRVO) subjects were not enrolled in the study. In Conclusion, the prognosis of subjects with retinal vein occlusion age can be an important factor. Rapid and better reconstruction of retinal perfusion was observed in younger subjects when compared to older patient which can contribute to better final vision.

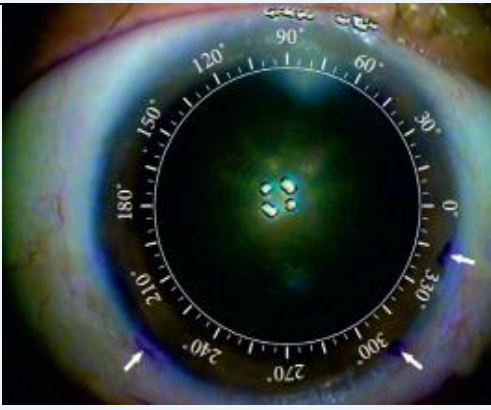
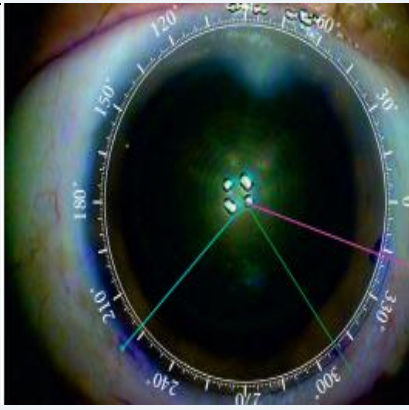
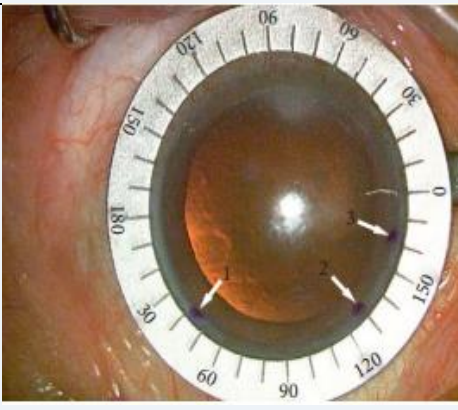
Reference: Ye P, Zhu T, Zheng F, Zhou M, Fang X, Yao K. Microvascular comparison in younger and older patients with retinal vein occlusion analyzed by OCT angiography. BMC ophthalmology. 2021 April ;21(1):1-8.

Three-Random-Point Marking Method for Toric Intraocular Lens Alignment Using the iTrace Aberrometer

The objective of this study was to introduce the three random-point (TRP) marking method performed using the iTrace aberrometer.

All the subjects were prospectively divided into TRP marking groups (15 eyes) and slit lamp slit-lamp horizontal meridian (SHM) marking group (15 eyes). Before and after surgery, uncorrected distance visual acuity and best-corrected visual acuity (BCVA) were recorded. Using the iTrace aberrometer Keratometry was performed during corneal limbal marking.

In the three random-point (TRP) Marking technique, 3 points were marked randomly after applying the topical anaesthesia in the corneal limbus using a blunt staining needle. Using the iTrace system Corneal topography and anterior segment images were captured. The Zaldivar Toric Caliper was used. The center of the cornea was connected with marked points in the limbus. The Wallace Mendez Degree Gauge was placed at the 3 marked points during the cataract surgery.

		
<i>Corneal topography and anterior segment images</i>	<i>The Zaldivar Toric Caliper to measure the axis at which the marked points are located.</i>	<i>During cataract surgery, the Wallace Mendez Degree Gauge is placed aiming at the three marked points.</i>

In the slit-lamp horizontal meridian (SHM) marking technique subjects were made to sit in front of the slit lamp with the chin and the forehead fixed. Slit was focused on the center of the corneal apex. By scratching the cornea with a blunt staining needle

horizontal meridian was marked in the limbus. Images of anterior segment were captured after full mydriasis to examine the accuracy of the alignment of Intraocular lens and was analysed using the iTrace aberrometer system after 3 postoperative months.

Out of the 30 eyes of the 30 subjects undergoing cataract surgery , TRP marking group included nine women and six men with a mean age of 70.07 ± 7.38 years and the SHM marking groups included 7 women and 8 men with a mean age of 72.8 ± 6.64 years. Toric Intraocular Lens misalignment was lesser but without significance in the TRP marking group than in the SHM marking group after 3 postoperative months.

Comparison of pre- and postoperative outcomes between the three-random-point marking group and the slit-lamp horizontal meridian marking group.			
<i>Parameter</i>	<i>TRP marking group</i>	<i>SHM marking group</i>	<i>P value</i>
Preexisting corneal astigmatism cyl (D)	2.31 ± 0.61	2.24 ± 0.42	0.727
Postop cyl (D)	0.41 ± 0.17	0.47 ± 0.13	0.240
Preop UDVA	0.52 ± 0.17	0.62 ± 0.22	0.169
Preop CDVA	0.35 ± 0.10	0.41 ± 0.12	0.172
Postop UDVA	0.13 ± 0.07	0.10 ± 0.05	0.125
Postop CDVA	0.11 ± 0.07	0.07 ± 0.05	0.06
Toric IOL misalignment	2.66 ± 1.42	3.29 ± 1.67	0.295

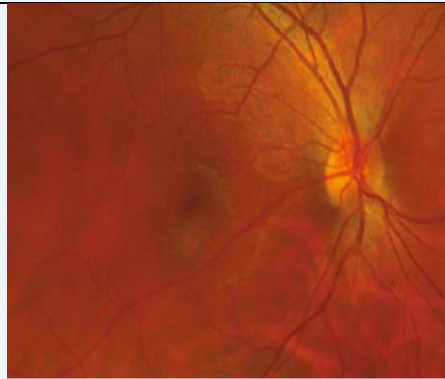
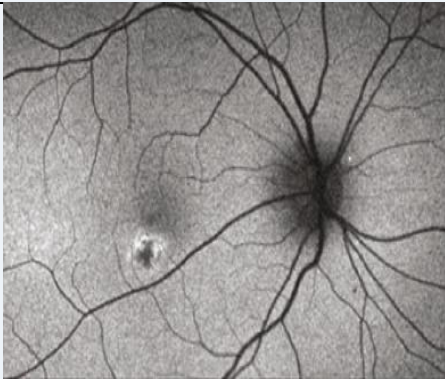
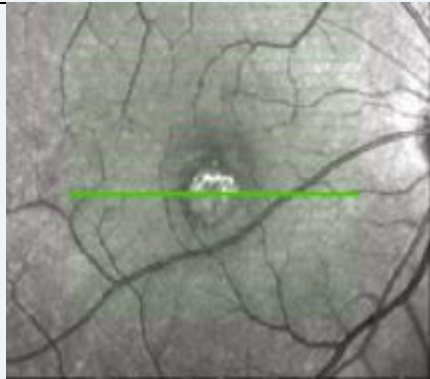
In conclusion, Three- Random-Point Marking Method using the iTrace aberrometer is simple and accurate for pre- operative marking of toric intraocular lens. Potential systematic errors resulting from varying head positions during the pre-operative keratometry measurement and from manual marking can be eliminated by this method

Reference: Niu Y, Lin H, Qin Y, Yang C, Chen Y, Zeng J, Zhang H. Three-Random-Point Marking Method for Toric Intraocular Lens Alignment Using the iTrace Aberrometer. Journal of Ophthalmology. 2021 Apr 8;2021.

Choroidal Vascular Changes in Acute Idiopathic Maculopathy as demonstrated by Multimodal Imaging including Optical Coherence Tomography Angiography

Patient description: A 24-year-old man presented with a “blurred spot” in the vision of his right eye for 2 days. No other Ocular complaints were reported by the subject. A recent flu-like episode 12 weeks prior to presentation was reported.

Best-corrected visual acuity was 20/20 on examination in each eye. No pupillary defect was observed. Amsler grid testing showed a superior wedge shaped paracentral scotoma in the right eye. Anterior segment examination and intraocular pressure were normal in both eyes. Fundus Examination showed ovoid-shaped, tan, hypopigmented lesion just inferior to the fovea in the right eye. Fundus autofluorescence revealed wedge-shaped area of hypoautofluorescence surrounded by a margin of hyperautofluorescence.

		
Ovoid, hypopigmented placoid lesion adjacent to the fovea	Hypoautofluorescence	Spectral-domain optical coherence tomography

Near-infrared reflectance (NIR) showed stippled hyperreflective lesion with a hyporeflective border. Optical coherence tomography (SD-OCT) revealed choroidal hypertransmission and outer retinal attenuation from the outer plexiform layer to the retinal pigment epithelium.

Hyperfluorescent macular lesion was revealed by Fluorescein angiography. Multiple areas of hypofluorescence corresponding to choroidal nonperfusion was observed which was worse on the right, but present in both eyes.

After 1 month spectral-domain optical coherence tomography (SD-OCTA) of the right eye was done which revealed normal-appearing retinal circulation, including deep capillary plexus (DCP). vascular perfusion defect at the level of the choriocapillaris and choroid in the area corresponding to the lesion was noted .



Subject was found to have strong positive IgG titers for coxsackievirus A7 , A9 , A64 and A24 . oral prednisone (1 mg/kg) was initiated and the subject was monitored closely. Six months later , the patients complaints of scotoma had resolved and SD-OCTA revealed improved perfusion of the choriocapillaris and choroid and OCT showed improvement in the attenuation of the ellipsoid zone. Limitation of the study was interval from viral illness and onset of eye symptoms was 12 weeks—a longer lag time was observed. Optical coherence tomography angiography(OCTA) images were obtained one month after the onset of symptoms, allowing time for vascular reorganization. In conclusion, findings suggest that the pathogenesis of Acute idiopathic maculopathy (AIM) involves a primary insult to the inner choroid with secondary retinal pigment epithelium (RPE) and outer retinal damage.

Reference: Khundkar T, Hasan SR, Breazzano MP, Mei C, Johnson BB. Choroidal Vascular Changes in Acute Idiopathic Maculopathy as Demonstrated by Multimodal Imaging including Optical Coherence Tomography Angiography. Case Reports in Ophthalmological Medicine. 2021 Apr 7;2021.



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