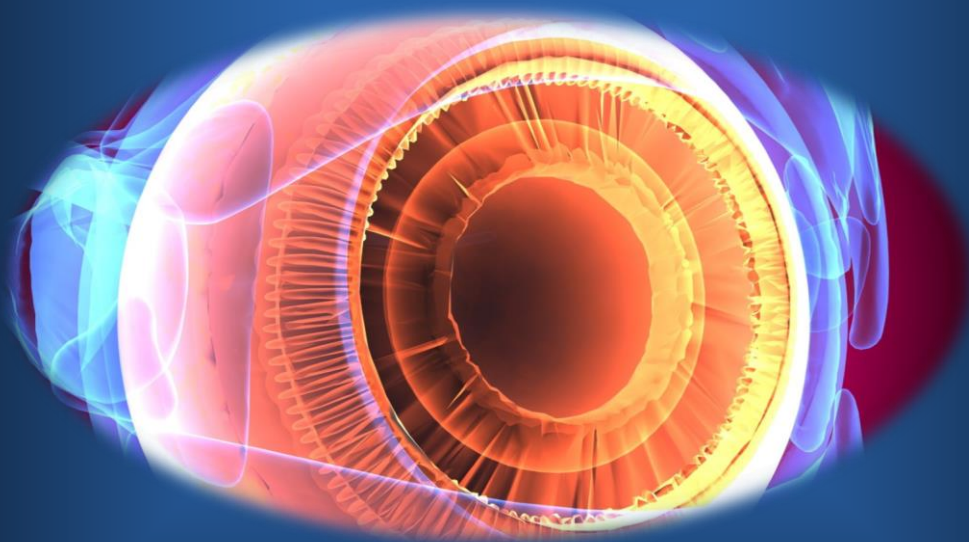




Dear Doctor,

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

- Role of Neuroimaging in cases of primary and secondary hemifacial spasm.
- Toric Intraocular lens Implantation in the Correction of Moderate-To-High Corneal Astigmatism in Cataract Patients: Clinical Efficacy and Safety.
- Case Report on Branch Artery Occlusion Secondary to Infective Endocarditis.

Should you require any specific article or medical information, please feel free to contact us at [medicalservices@microlabs.in](mailto:medicalservices@microlabs.in)

Looking forward to your valuable feedback

## Role of neuroimaging in cases of primary and secondary hemifacial spasm

Hemifacial spasm (HFS) is a movement disorder characterized by unilateral, involuntary, and arrhythmic movements of the facial muscles of expression. This study aims to describe the role of neuroimaging and intracranial pathologies in cases of Hemifacial spasm (HFS) and also to create awareness on the importance of neuroimaging in Hemifacial spasm.

This retrospective study included the patients with Hemifacial spasm . In this study all the subjects who had undergone Magnetic Resonance Imaging (MRI)/Magnetic Resonance Angiography (MRA) with 3D FIESTA (Fast Imaging Employing Steady State Acquisition) or Constructive Interference in Steady State (CISS) and time of flight angiogram (TOF) were included. Data pertaining to the study was collected and medical records of these subjects were reviewed. The demographic profile, onset, progression, neuroimaging findings, and types of HFS were documented and analyzed. Based on the clinical evaluation and neuroimaging, the subjects were divided into primary or secondary Hemifacial spasm and the differences between the two groups were computed by t-test or Chi-square test.

Total of 202 subjects were included in this study of which 110 males (54.46%) and 92 females (45.54%). Mean age of the study population was  $51.81 \pm 11.76$  years and mean age of onset of the spasms was 48.68 years. In 104 subjects (51.48%), the right side was involved and in 97 subjects (48.02%) the left side was found to be involved.

Out of 202 patients, 183 subjects had primary HFS and 19 subjects had secondary HFS. The mean age of the primary HFS group was  $52.29 \pm 1.41$  years



**External coloured photograph of a patient showing left primary hemifacial spasm**

and mean age of onset of the spasms was  $49.26 \pm 8.35$  years.

Neuroimaging revealed the anterior inferior cerebellar artery was the major vessel causing neurovascular conflict in primary HFS (n = 55). Facial nerve palsy was observed in 13 subjects (68.42%). Out of 13 facial nerve palsy cases, 4 were due to trauma. In the secondary HFS group, Cerebellopontine angle (CPA) tumors comprising meningioma (n = 2) and schwannoma (n = 1) were found to be important etiological factors. CPA cyst was noted in 2 cases (10.52%). One case had an aneurysm of the posterior inferior cerebellar artery.

| Comparison of Primary and Secondary Hemifacial spasm |                                          |                        |
|------------------------------------------------------|------------------------------------------|------------------------|
| Parameters                                           | Primary HFS                              | Secondary HFS          |
| Mean age (years)                                     | $52.29 \pm 1.41$                         | $48.63 \pm 14.48$      |
| M:F                                                  | 1.23:1                                   | 0.9:1                  |
| Mean age of onset (years)                            | $49.26 \pm 8.35$                         | $43.13 \pm 12.12$      |
| Laterality                                           | Right = 95<br>Left = 87<br>Bilateral = 1 | Right = 9<br>Left = 10 |

This study concluded that hemifacial spasm occurs mostly in individuals in their fifties or late forties and primary HFS is more prevalent than secondary HFS. Apart from facial nerve palsy, the clinical diagnosis of the entities is not possible. Microvascular decompression is curative therapy and neuroimaging is necessary to detect the conflicting vasculature for primary Hemifacial spasm. Secondary HFS, can lead to permanent neurological deficit if left unattended. Hence neuroimaging, in the form of MRI brain and MRA, is mandatory in all subjects presenting with HFS to clinch the diagnosis and plan further management.

**Reference:** Banerjee P et al. Role of neuroimaging in cases of primary and secondary hemifacial spasm. Indian Journal of Ophthalmology 2021 Jan 18;69(2): 253.

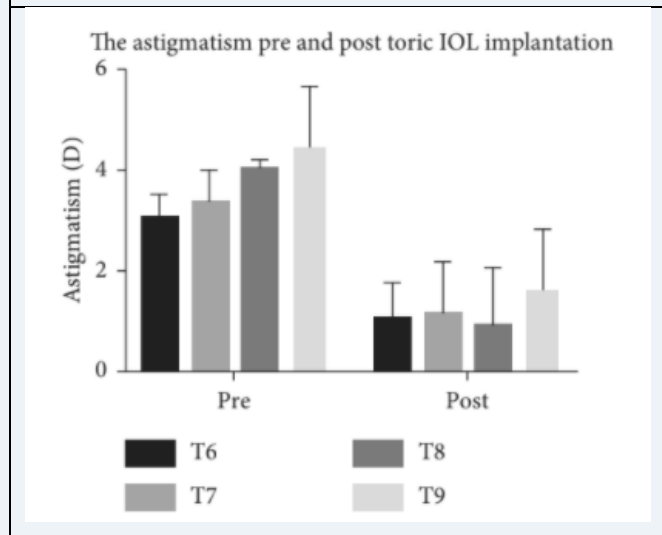
## **Toric Intraocular lens Implantation in the Correction of Moderate-To-High Corneal Astigmatism in Cataract Patients: Clinical Efficacy and Safety**

The objective of this study was to investigate the long-term efficacy and rotational stability of toric intraocular lenses (IOLs) implanted for the correction of moderate-to-high corneal astigmatism.

In this retrospective cohort study total of 57 cataract subjects (57 eyes) with regular corneal astigmatism ( $\geq 2.57$  D) were enrolled in this study. All the subjects were performed with Phacoemulsification with toric IOL implantation. Before and one year after surgery, the uncorrected visual acuity (UCVA) and best corrected visual acuity (BCVA) were recorded. To evaluate the efficacy, safety, and stability of toric IOLs in correcting moderate-to-high corneal astigmatism, statistical analysis of preoperative corneal astigmatism, postoperative residual astigmatism, aberrations, IOL rotation, and related factors was performed.

Phacoemulsification on both eyes was undergone by the all patients. Only the right eye of each patient was included in our analyses. 57 eyes of 57 patients underwent scheduled examinations. T6 group comprised 29 eyes (50.8%), the T7 group comprised 14 eyes (24.6%), the T8 group comprised 3 eyes (5.3%), and the T9 group comprised 11 eyes (19.3%). All the subjects visual acuity was significantly improved after the implantation of toric IOLs compared with that before surgery. Statistically significant reduction in astigmatism after toric IOL implantation was observed. The postoperative astigmatism decreased by 65.86% in the T6 group, 66.07% in the T7 group, 77.34% in the T8 group, and 63.57% in the T9 group. Postoperatively, the patients had better visual quality after the implantation of the toric IOLs. 7 eyes had posterior capsule opacification that required neodymium at the end of the study. In 18 eyes, the postoperative UCVA was worse than 20/40 due to amblyopia (7 eyes), and IOL misalignment (6 eyes) and unexpected residual astigmatism were present (5 eyes). The degree of toric IOL rotation was  $4.93 \pm 3.02^\circ$ , and 54.39% of subjects had a lens rotation of less than  $5^\circ$ . The IOLs of 5.26% (3 eyes) of subjects rotated more than  $10^\circ$ , and these subjects received glasses instead of undergoing IOL repositioning.

**The astigmatism of patients with moderate-to-high corneal astigmatism pre-and posttoric IOL implantation.**



**Rotation after cataract surgery with a high-power toric intraocular lens.**

| Rotation (degree) | Subjects | Percentage |
|-------------------|----------|------------|
| 0                 | 1        | 1.8        |
| 1                 | 2        | 3.5        |
| 2                 | 7        | 12.3       |
| 3                 | 10       | 17.5       |
| 4                 | 11       | 19.3       |
| 5                 | 7        | 12.3       |
| 6                 | 6        | 10.5       |
| 7                 | 4        | 7.0        |
| 8                 | 5        | 8.8        |
| 10                | 1        | 1.8        |
| 12                | 1        | 1.8        |
| 15                | 2        | 3.5        |

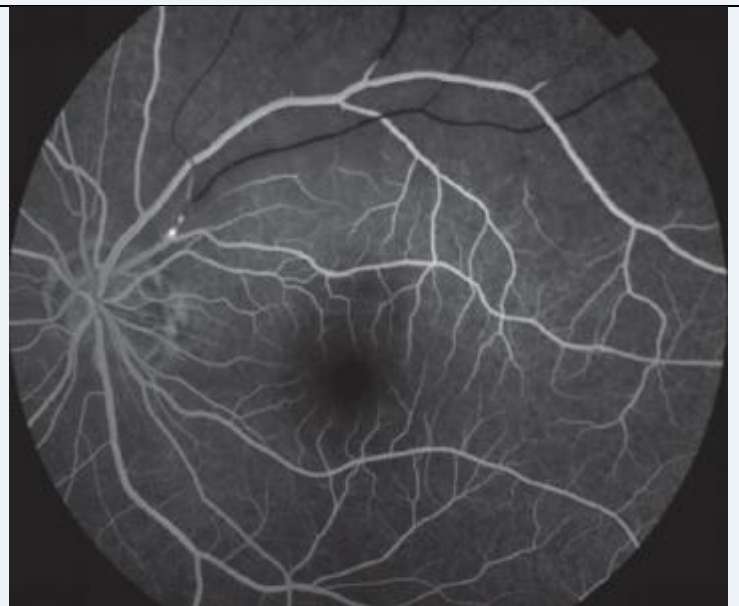
In Conclusion, Toric intraocular lenses (IOLs) performed well, as they improved the uncorrected distance visual acuity, reduced corneal astigmatism, and yielded spectacle independence in cataract patients with moderate-to-high astigmatism while presenting potentially good rotational stability and predictability. These lenses are safe and effective for the long-term correction of preoperative moderate-to-high corneal astigmatism. Studies with larger sample sizes and longer follow-up periods should be conducted.

**Reference:** Qiu X et al. Toric Intraocular Lens Implantation in the Correction of Moderate-To-High Corneal Astigmatism in Cataract Patients: Clinical Efficacy and Safety. Journal of Ophthalmology. 2021 Jan 20:2021.

## Case Report on Branch Retinal Artery Occlusion Secondary to Infective Endocarditis.

A 24-year-old female presented with sudden painless decrease in vision in the lower right quadrant of her left eye after awakening from her nap.

Dizziness after bathing during the previous 2 weeks, episode had started 1 week after the subject had got acute tonsillitis. She denied symptoms of headache, fever, recreational drug abuse, and any other medical history. Examination of the affected eye revealed a vision of 20/20. Anterior segment examination was unremarkable in both eyes. Dilated fundus exam of the left eye showed a region of retinal edema along the supertemporal arcade extending just above the macula. Loss of inferior visual field in the left eye was observed. An optical coherence tomography revealed supertemporal inner retinal edema and visualized the intra-arterial embolus.



**Fundus photograph of the left eye demonstrated plaque and mild edema of the supertemporal retina. Corresponding fluorescein angiogram highlighted hyperfluorescence and nonfilling of the supertemporal artery.**

Retinal appearance and symptoms prompted referral to the cardiology team. Erythrocyte sedimentation rate, C-reactive protein, and complete blood count were all normal. Transthoracic echocardiography showed moderate-to-severe aortic valve regurgitation, with thickening and sign of Vegetation. Blood cultures yielded *Streptococcus viridans*.

The subject was diagnosed with infective endocarditis, and intravenous antibiotics were started. Visual symptoms diminished after medical treatment. Supertemporal retinal edema was resolved. Improvement in the prime inferior visual field defect of the left eye was showed by Confrontation fields. No hyper-reflectivity revealed by Optical coherence tomography line scan.

In conclusion, Branch retinal artery occlusion (BRAO) is a rare diagnosis in the population under the age of 30 years. . BRAO due to infective endocarditis is rare. The presence of BRAO in the young adult population should prompt the consideration of possible infective endocarditis. In spite of infective endocarditis having many different forms of presentation, a high clinical suspicion is often required to reach the diagnosis. The ophthalmological pathology can help to uncover serious underlying medical conditions, which may reduce mortality and morbidity in these patients.

**Reference:** Zheng Y, Xiong K. Branch Retinal Occlusion Secondary to Infective Endocarditis. Journal Of Ophthalmology; 15 Jan 2021.



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