

Dear Doctor,

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

This issue contains

- Air Bubble Tamponade Alone versus Air Bubble Tamponade with Internal Fluid Aspiration for Nonplanar Descemet's Membrane Detachment after Phacoemulsification's.
- Corneal Biochemical Changes after Accelerated Transepithelial Corneal Cross-Linking in Paediatric Patients with Progressive Keratoconus.
- Intra-Arterial Chemotherapy: Adult Retinoblastoma Treatment

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

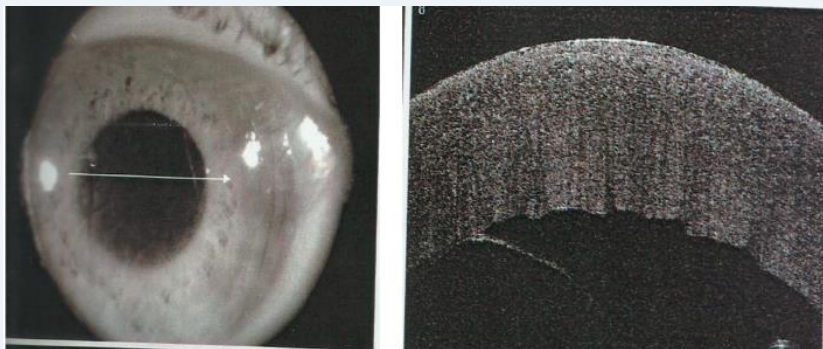
Best Regards,
Medical Team,
Micro Labs Limited

Air Bubble Tamponade Alone versus Air Bubble Tamponade with Internal Fluid Aspiration for Nonplanar Descemet's Membrane Detachment after Phacoemulsification

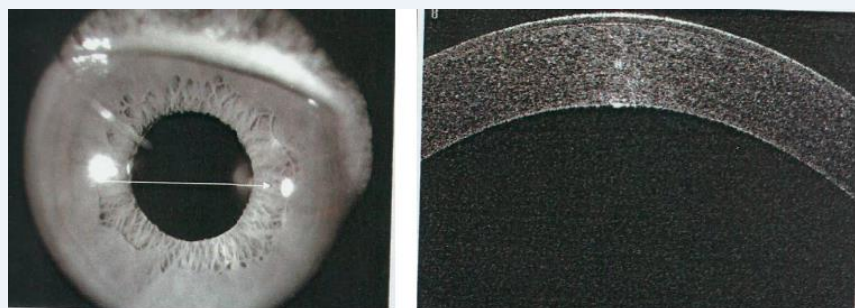
Background: Descemet's membrane detachment is a complication that causes permanent corneal damage and decompensation. The potential factors include corneal dystrophy, shallow anterior chambers, complicated surgeries, dense nuclear cataracts, and accidental injection of viscoelastic substance or saline between Descemet's membrane and stroma.

Objective: The objective of this study was to compare the efficacy of air bubble tamponade alone versus air bubble tamponade with internal fluid aspiration for nonplanar Descemet's membrane detachment (DMD) after clear corneal incision phacoemulsification.

Methods: In this prospective, intervention, comparative randomized clinical trial, 30 eyes of 24 subjects who had post phacoemulsification nonplanar Descemet's membrane detachment involving the periphery and the central area of the cornea



Preintervention nonplanar Descemet's membrane detachment affecting the central cornea with severe corneal oedema



Postintervention with complete Descemet's membrane reattachment and resolution of corneal oedema

bubble tamponade augmented by internal fluid aspiration. Under topical anaesthesia

interferences were completed in the operation room to drain the predescemetetic fluid joined with intracameral air bubble tamponade.

Results: Six subjects had Descemet's membrane detachment in both eyes, eight subjects had DMD in the right eye, and 10 subjects had DMD in the left eye. Without any complications with a minimum of 1-month follow-up all the subjects had successful surgeries. Out of the 13 Subjects with attached DM in group A, 10 subjects showed improvements in best-corrected visual acuity (BCVA) 3 Snellen lines, and out of 11 subjects in group B, 10 subjects showed improvement in BCVA 4 Snellen lines. In 56.25% of patients in group A Descemet's membrane was attached and 92.6% of patients in group B. In groups A and B, the corneal thickness was $766 \pm 18 \mu\text{m}$ and $771 \pm 20 \mu\text{m}$ improved to $554 \pm 22 \mu\text{m}$ and $527 \pm 15 \mu\text{m}$.

Conclusion: To treat Descemet's membrane detachment following phacoemulsification, air descemetopexy combined with the internal fluid aspiration was more efficient than air descemetopexy. In subjects with severe Descemet's membrane detachment it should be tried before planning other major surgeries.

Reference: Gab-Alla AA. A Comparative Study between Air Bubble Tamponade Alone versus Air Bubble Tamponade with Internal Fluid Aspiration for Nonplanar Descemet's Membrane Detachment after Phacoemulsification. Journal of Ophthalmology. 2021 Jul 6;2021.

Corneal Biochemical Changes After Accelerated Transepithelial Corneal Cross- Linking in Paediatric Patients with Progressive Keratoconus

Background: Keratoconus is a bilateral progressive non-inflammatory ectatic corneal dystrophy which is characterized by thinning and steepening of the paracentral cornea. This usually occurs during puberty and early adulthood.

Objective: This study aimed at investigating the corneal biomechanical changes and topographic outcomes of Accelerated transepithelial corneal cross-linking (ATE-CXL) in paediatric subjects with progressive keratoconus.

Methods: In this prospective study, paediatric subjects who are aged 8–17 years who were diagnosed with progressive keratoconus were included. 31 eyes (24 boys and 7 girls, 14 right eyes and 17 left eyes) of 28 subjects were included. Dynamic corneal response parameters were measured using Corvis ST. Pentacam was used to measure Corneal keratometry and corneal thickness

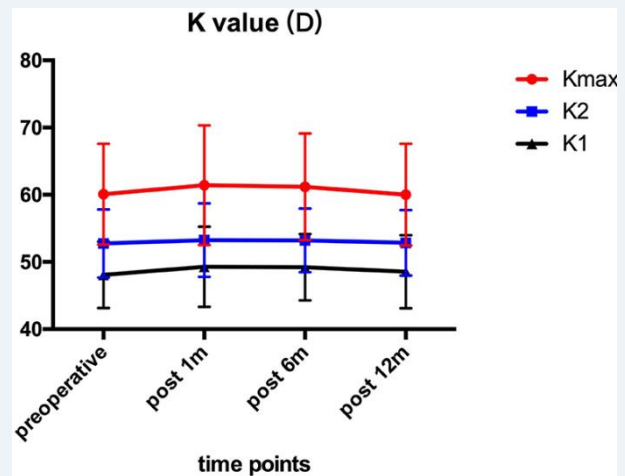
Results: Without any intraoperative or post-operative complications all the procedures were completed successfully.

Corneal Keratometry: The Kmax values were 60.10 ± 7.51 D preoperatively, and 61.42 ± 8.92 , 61.17 ± 7.96 , 60.02 ± 7.58 D at 1, 6, and 12 months after the operation. No significant changes in K1, K2, and Kmax values.

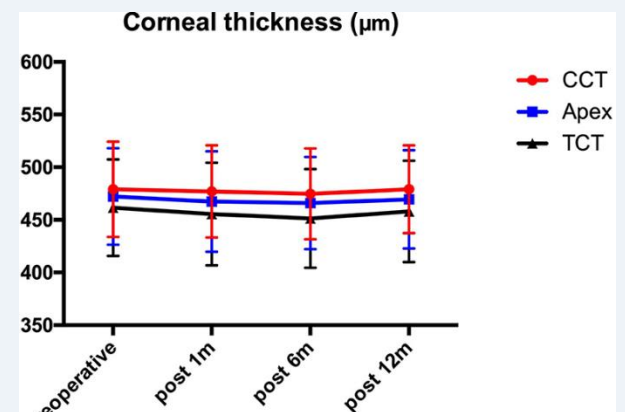
Corneal Thickness: No statistically significant changes were found for central corneal thickness, thinnest corneal thickness, and apex thickness values during the 1-year follow-up.

DCR Parameters: In this corneal biomechanical properties assessment using the Corvis ST the first applanation time (AT1), first applanation length (AL1), second applanation velocity (AV2), highest concavity time (HCT), and radius of curvature (Rad) increased significantly. SP-A1 value increased from 57.70 ± 27.57 preoperatively to 63.36 ± 27.09 at 1 year post-operatively.

Conclusion: This study showed that Accelerated transepithelial corneal cross-linking (ATE-CXL) is a safe and effective treatment for paediatric subjects with progressive keratoconus. The DCR parameters provided by Corvis ST can be used to evaluate changes of corneal



K1, K2, and Kmax before and after ATE-CXL during 1-year follow-up.



CCT, TCT, and AT before and after ATE-CXL during 1-year follow-up

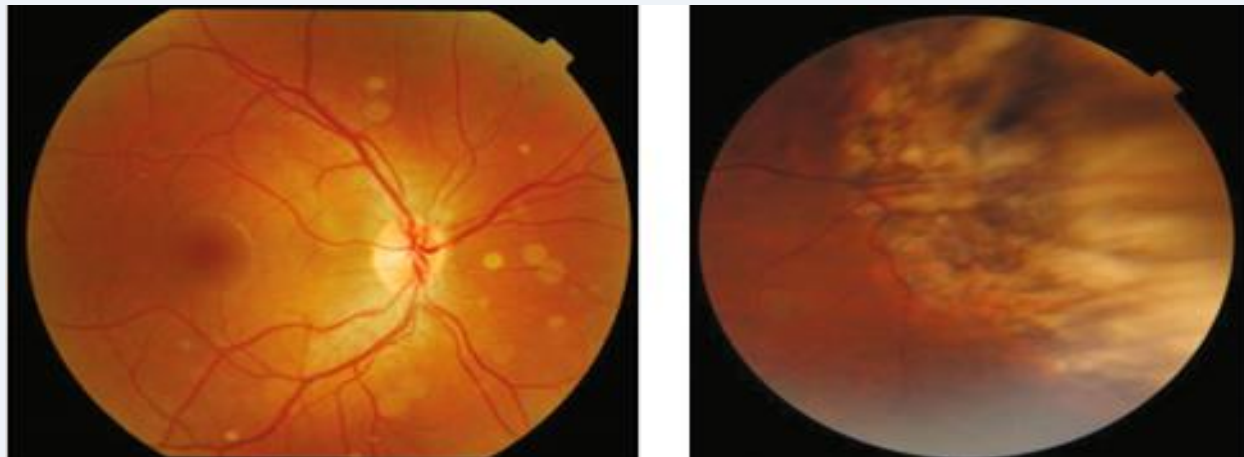
biomechanics after cross-linking, which indicated that the corneal stiffness of paediatric keratoconus.

References: Jian W et al. One-Year Follow-Up of Corneal Biomechanical Changes After Accelerated Transepithelial Corneal Cross- Linking in Paediatric Patients with Progressive Keratoconus. 2021; July 7.

Intra-Arterial Chemotherapy: Adult Retinoblastoma Treatment

Patient description: A 22-year-old man presented with floaters in his right eye since 2 months. He had no past medical history and no family history of retinoblastoma. Best-corrected visual acuity was 20/25 and 20/20 in the right and left eyes.

In both eyes, intraocular pressure was 16 mmHg. Ophthalmic examination revealed that left eye was normal and right eye showed diffuse white spherical calcified vitreous seeds in all quadrants. Large white endophytic mass in the superonasal quadrant with engorged feeding vessels was observed.



Right eye funduscopy showed a white mass in the superonasal quadrant with engorged feeding vessels as well as diffuse white calcified vitreous seeds in all quadrants: posterior pole and the lesion site

Peripheral feeding vessels as well as intrinsic tiny vessels of the tumour which had a slight leakage was revealed in Fluorescein angiography (FA). Adult Retinoblastoma (RB) tumour was classified as International RB Classification (ICRB) and the intra-arterial chemotherapy (IAC) was recommended.

The subject underwent 3 IAC cycles with 2 medications, 5 mg of melphalan and 1 mg of topotecan with an interval of 5 weeks between procedures.

Intravenous heparin 50 IU/kg body weight was instilled under general anaesthesia. To minimize chemotherapy flow onto the forehead topical phenylephrine was applied locally along the distribution of the supratrochlear artery. Ipsilateral side was accessed under aseptic precaution with an arterial sheath. To ensure catheter placement at the ophthalmic artery ostium chemotherapeutic agent was diluted with saline in a 10 ml solution and injected in a pulsatile fashion throughout 10 minutes for a total infusion time of 20 minutes.

The lesion showed an appropriate response with type 3 regression one month after the last IAC and 30% calcification, total calcified vitreous seeds, and 20/25 visual acuity in the treated eye. As an adjunctive treatment to the tumour, trans-scleral triple freeze-thaw cryotherapy was used. RB tumour showed type 4 regression, 13 months after the last treatment. No evidence of recurrence was identified. In the right eye Visual acuity was still 20/25. No sign of complications to the surrounding normal retina as well as the optic nerve and the retina vessels.

Conclusion: Retinoblastoma may rarely occur in the adult population and appears to be advanced in diagnosis. In most of the cases, enucleation has been required. IAC seems as the first line of treatment alone or in conjunction with adjuvant therapies, will be an effective treatment for adults with RB.

Reference: Riazi-Esfahani H, Masoomian B, Ghassemi F. Intra-Arterial Chemotherapy: New Hope for Adult Retinoblastoma Treatment—A Case Report and Brief Review. Case Reports in Ophthalmological Medicine. 2021 Jul 12;2021.



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