Acute intraoperative rock-hard eye syndrome and its management
Oliver C F Lau, Jessica M Montfort, Benjamin W C Sim, Chris H L Lim, Tony S C Chen, Claire W Ruan, Ashish Agar, Ian C Francis


This study evaluated the use of parsplana needle aspiration of retrolenticular fluid in immediate management of acute intraoperative rock-hard eye syndrome (AIRES). It was a retrospective case series study over 18 months during which 6 cases (1.45%) of AIRES occurred in 413 phacoemulsification surgeries. All patients with AIRES had acute intraoperative shallowing of anterior chamber with marked rise in intraocular pressure (IOP) during phacoemulsification as evidenced by rock-hard consistency of eye on corneal and scleral instrumental palpation in the absence of signs of suprachoroidal hemorrhage or effusion. Preoperative and postoperative (day 1, 1 week, 1 month) data of posterior segment status, IOP and corrected visual acuity were evaluated.

Each case of AIRES was managed intraoperatively with emergent parsplana needle aspiration of retrolenticular fluid with 23 G needle and 3 ml syringe which was introduced 3 mm from surgical limbus transconjunctivally, transsclerally using direct visualisation of needle position in vitreous. Retrolenticular fluid between posterior capsule and anterior hyaloid membrane was aspirated until reduction in tense convexity of cornea and normalization of anterior chamber depth were achieved after which needle was rapidly withdrawn.

In all six cases of AIRES, parsplana needle aspiration of 0.1-0.3 ml of retrolenticular fluid was successful in achieving immediate palpable softening of globe and deepening of anterior chamber. All 6 cases were females with mean age of 81±6 years. On Locs II grading, 2 eyes had grade 2, 3 eyes had grade 3 and one eye had grade 4 nuclear cataract. At one month, IOP was normal in 5 out of 6 cases and the remaining case developed steroid induced glaucoma after treatment for temporal arteritis. Best corrected visual acuity was 20/12 in 5 out of 6 cases and the remaining case had low vision due to pre-existing central retinal vein occlusion. Mild vitreous hemorrhage was observed in one patient postoperatively.

The study concluded that parsplana needle aspiration is a safe, rapid, efficient, inexpensive and relatively non-invasive method of restoring surgical environment in AIRES.

Role of Corneal Collagen Cross-Linking in Pseudophakic Bullous Keratopathy
Ritu Arora, Aditi Manudhane, Ravindra Kumar Saran, Jawaharlal Goyal, Gaurav Goyal, Deepa Gupta

Ophthalmology. 2013; 120(12): 2413-8

This study aimed at evaluating the clinical and histopathological changes induced by Corneal Collagen Cross-Linking (CXL) in Pseudophakic Bullous Keratopathy (PBK). It was a randomized, prospective study. 24 patients with corneal edema, resulting from PBK of more than 4 months duration, and awaiting keratoplasty, were enrolled to undergo CXL followed by penetrating keratoplasty (PKP). They were allocated randomly into two groups of 12 patients each, of which group A underwent PKP at one month after CXL, and group B underwent PKP at 3 months after CXL, and corneal buttons were subjected to histopathological and immunofluorescence evaluation. The primary outcome of the study were based on visual acuity, ocular discomfort (tearing, redness, pain), corneal haze, central corneal thickness and histopathological and immunofluorescence evaluation.

Mean visual acuity showed a significant improvement after CXL, from 1.925±0.173 before surgery to 1.75±0.296 at 1 month after surgery (P = 0.010), but deteriorated to 1.81±0.23 at 3 months. Symptomatic relief after CXL was at a maximum at 1 month, with a worsening trend at 3 months. Eighteen patients showed a reduction in corneal haze 1 month after CXL. The effect was maintained in 9 of 12 patients at 3 months. The mean central corneal thickness decreased significantly from 846.46±88.741 to 781.0±98.788 μm at 1 month (P<0.01) after CXL, but increased to 805.08±136.06 μm at 3 months. Immunofluorescence microscopy revealed anterior stromal compaction in 7 of 12 patients (58.3%) in group A and in 5 of 12 patients (41.6%) in group B. Staining of keratocyte nuclei with 4',6-diaminido-2-phenylindole dihydrochloride revealed a relative uniform distribution throughout the stroma suggesting that epithelium has regrown in all cases after CXL.
CXL is a new treatment used to increase the biomechanical strength of corneal tissue by increasing the diameter of collagen fibres and linking them in close association with each other. CXL aims to create chemical bonds inside the corneal stroma by means of a highly localized photopolymerisation while minimizing exposure to surrounding structures of the eye.

Collagen cross-linking causes symptomatic relief and a decrease in central corneal thickness and anterior stromal compaction in PBK. However, the effect decreases with time and depends on disease severity. The authors concluded that corneal CXL may be advocated as a new tool for temporary reduction in corneal edema in patients with bullous keratopathy awaiting keratoplasty, as it was found to improve corneal transparency, corneal thickness and ocular pain after surgery.

**Topical Rebapamide Treatment for Superior Limbic Keratoconjunctivitis In Patients With Thyroid eye Disease**

Yasuhiro Takahashi, Akihiro Ichinose, Hirohiko Kakizaki


Aim of the study is to evaluate efficacy of topical Rebapamide for Superior Limbic Keratoconjunctivitis (SLK) in patients with thyroid eye disease. This was a retrospective observation study that included 33 eyes from 20 thyroid eye disease patients with SLK who received topical 2% Rebapamide 4 times per day.

Patients were evaluated before and 4 weeks after the treatment by Rose Bengal staining, fluorescent staining, Schirmer test, Tear Film Break up time, Hertels ophthalmometry and Margin reflex.

At 4 weeks, 28 eyes out of 33 patients showed complete disappearance of SLK (84.8%). The remaining 5 eyes (15.2%) had significant improvement but residual punctate staining. These 5 eyes had proptosis of more than 17.7 mm with upper or lower lid retraction. Severity of Rose Bengal staining and fluorescent staining improved significantly after treatment (p value < 0.001) and Tear Film Break up time also increased post therapeutically (p value = 0.009).

Rebapamide is a Quinolone derivative that increases production of mucin like substances in cornea and conjunctiva, suppresses expression of cytokines, attenuates TNFα, promotes wound healing, increases tear film stability and ameliorates corneal and conjunctival epithelial damage. This study concluded that Rebapamide may be considered as a safe first line drug for SLK in thyroid eye disease which is caused by local mucin deficiency and inflammation between upper lid and superior corneal limbus.