## EYE-S01 Evidence-based Update on Intracameral Dyes

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Intracameral dyes provide better visualization of the capsule and are helpful in completing capsulorrhexis in mature cataract, traumatic cataract, and pediatric cataract. However, toxic effect of intracameral dyes to corneal endothelial cells or other intraocular tissues remain a concern. Other adverse effects have also been reported. The talk would update the data regarding the efficacy and safety of different intracameral dyes.

#### EYE-S02

## A Novel Minimal Fluid Technique for Effective and Safe Lens Hydrodissection during Cataract Surgery

## Bryan Hung-Yuan Lin Universal Eye Center Zhong-Li, Taiwan

Traditional hydrodissection may cause posterior capsule rupture (PCR) if excessive fluid accumulates. In this speech, we describe the successful application of a novel minimal fluid hydrodissection technique in 100 consecutive cataract surgery cases. This technique separates the nucleus from the capsule utilizing low hydrostatic pressure and precise kinetic movement of a small volume (around 0.2 cc) of balanced salt solution. There were no instances of PCR. This technique is suitable for a range of cases, including femtosecond laser - assisted cataract surgery and posterior subcapsular cataract.

## EYE-S03

# Long-term Results of IOL Tilt and Centering after FLACS

Chiun-Ho Hou Department of Ophthalmology, National Taiwan University Hospital

Tilt and decentration of implanted intraocular lens (IOL) may induce problems of ocular aberrations and deteriorate the visual quality. In an era when cataract is considered as a refractive surgery and premium IOL usage is highly penetrated, the demand for IOL position is restrict. In this talk, we will review the long-term results of IOL tilt and centration in patients underwent FLACS and the impact on their visual quality.

### EYE-S04

# Minimizing the Impact of Dry Eye on IOL Power Calculation

Chih-Chien Hsu

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Dry eye and cataracts are common diseases in Taiwan with an aging population. These two diseases also affect each other. Low-grade or asymptomatic dry eye is common in cataract patients and may be exacerbated after surgery. Dry eye, regardless of its severity, can lead to errors in IOL power calculations and compromise visual outcomes and patient comfort after cataract surgery, leading to dissatisfied patients and physicians. Therefore, a complete preoperative dry eye evaluation of all cataract candidates is of considerable importance to mitigate these risks. This presentation explains how to minimize the impact of dry eye on IOL power calculations

### EYE-S05

## Prevention: Reducing the Odds of Posterior Capsule Rupture (PCR) and Vitreous Loss

Sheng-Min Hsu

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Any breach in the continuity of the posterior capsule is defined as a posterior capsule rupture (PCR). The overall incidence of PCR varies from 0.2% to 14%, and the rate of vitreous loss (VL) is found to be between 1% and 5%. The predisposing factors may be classified as patient-related, surgeon-related, intraoperative factors, and those related to devices/machines. I will present how to reduce the odds of PCR and VL during cataract surgery.

## EYE-S06 Instrumentation & Setting for PCR and Vitreous Loss

Yung Ray Hsu Department of Ophthalmology, Far Eastern Memorial Hospital Department of Ophthalmology, National Taiwan University Hospital

PCR is the most common complication encountered in cataract surgery across all levels of surgical experience, with a rate of 0.6% to 2.8%. Therefore, the management of PCR is important for all cataract surgeons. Proper intraoperative management can avoid further vitreoretinal complications, maintain capsular and zonular integrity for intraocular lens implantation, and protect the corneal endothelium.

At the early stage, close observation, reduction of the infusion pressure, and injection of viscoelastics to protect the capsular rent area is crucial. Phaco-emulsification can be meticulously continued in the absence of vitreous prolapse, or when the tip is not disturbed by the vitreous. Anterior vitrectomy, with a high cutting rate, is often required to clean the prolapsed vitreous along the pupillary axis to the level just posterior to the capsule. On the other hand, retained nucleus and cortical material should be completely removed with a lower cutting rate.

If a large fragment has dislocated posteriorly into the vitreous cavity beyond the PC level, pars plana vitrectomy is needed. Complete vitrectomy, preferably with gentle PVD induction, should always be performed before any sonification maneuvers. Gentle eyeball rotation or use of perfluorocarbon liquid can minimize macular contact. Finally, peripheral retina should be carefully checked for any potential breaks.

Although PCR is an unhappy intraoperative event, with proper management, most patients can have a satisfactory visual outcome. In this talk, detailed surgical tips, instrumentation and setting will be delivered.

## EYE-S07 My Technique in Management of PCR

Cheng-Kuo Cheng, MD Department of Ophthalmology, Shin Kong Wu Ho-Su Memorial Hospital, Taipei.

Posterior Capsular Rent (PCR) with or without vitreous loss are common intraoperative complications during cataract surgery, the latter often necessitating an anterior vitrectomy. Prevention of PCR is perhaps the best strategy in cataract operation. This includes maintaining a clear visual field and stick to the standard and careful processes throughout the procedure. Preventive prolapse measures against vitreous include bottle height maintaining a high during irrigation/aspiration, using dispersive viscoelastic to protect the posterior capsule, and performing a thorough cortical cleanup. It is important for identifying and managing any complications that may arise during surgery. Early recognition of PCR is crucial for preventing further complications. This involves careful monitoring of the posterior capsule during phacoemulsification and being alert for signs of PCR such as sudden deepening of the anterior

chamber or loss of lens material. When PCR happens, early detection before any vitreous loss and meticulous manipulation to prevent vitreous loss is of paramount importance. Minimizing vitreous traction is another key aspect of the technique. This involves copious usage of viscoelastic (better viscodispersive type) and careful manipulation of the residual lens material. When vitreous loss occurs, ensuring complete removal of vitreous from the anterior chamber is vital. Any residual vitreous can lead to postoperative complications such as cystoid macular edema, retinal detachment, or chronic uveitis. The use of high-speed cutters and careful fluidic control are integral to this technique. High-speed cutters allow for efficient vitreous removal, while careful fluidic control helps maintain a stable anterior chamber during surgery. Meticulous attention to detail is required to prevent further complications. Besides, bimanual vitrectomy is advised for performing anterior vitrectomy. In modern cataract machines such as the Centurion of Alcon company, a 4000-rpm vitreous cutter system and a separate infusion line are usually equipped. When doing bimanual vitrectomy, the irrigation should be kept above the cutter and its direction should be towards the angle to cause laminar flow and prevent vitreous hydration. Diluted triamcinolone administration may be use for visualizing vitreous strands better and to ensure complete removal from the wound and AC. Once the vitreous has been cleared, cortical removal and IOL placement can be done. Careful inspection of the surgical field at the end of the procedure is advised to ensure complete removal of vitreous and any lens material. Intracameral acetylcholine can be administered to constrict the pupil to rule out vitreous wicks in the wound. In conclusion, for a safe and efficient management PCR. ophthalmologists are advised to be familiar with the strategies for early recognition of PCR, measures to prevent vitreous prolapse, and tips for efficient and safe vitrectomy.

## EYE-S08 My Top 5 Major Techniques in Managing

#### PCR and Damage Control

Tsui-Kang Hsu Department of Ophthalmology, Cheng-Hsin General Hospital, Taipei, Taiwan

Posterior capsular rupture (PCR) with vitreous loss is a serious complication of cataract operation which timely detection and appropriate management can maintain a good visual prognosis. Here is my top 5 pearls:

Pearls 1: Understand the predisposing factors/ Prevention

Elderly(>80 y/o), anxiety, claustrophobia and uncooperative patients are at a higher risk of encountering PCR. Periocular factors include a deep socket, small palpebral fissures, hazy cornea, and intraocular factors are poor mydriasis (DM, BPH, PXF, glaucoma, etc), shallow or excessively deep anterior chamber, pseudoexfoliation, and type of cataract (like posterior polar, traumatic, rock hard cataract), previous vitrectomized eyes.

Pearls 2: Intraoperative recognition and managements

Early signs of PCR: Sudden deepening of AC/ Abrupt pupil constriction (snap sign) during hydrodissection/ Localized change of red reflex/ Loss of nuclear fragment followability or rotation/ Bizzare behaviour or tilting of the nucleus

Pearls 3: Use OVD to remove residual nucleus

Maintain AC without pressure gradients. Phaco foot pedal recedes to foot position 1(only irrigation), bottle height is lowered, then inject dispersive OVD from side port is in the area of the PCR (viscotamponade) to prevent further vitreous prolpase.

Pearls 4: Anterior vitrectomy

Use kenacort to stain vitreous strand in A/C and release tension ASAP. The cutting rate setting is suggest as follow: 4000 cuts/min, vacuum 150 mmHg, flow rate of 10 mm Hg using a 23gauge cutter. Bimanual ant VT is recommended.

Pearls 5: IOL decisions

If sulcus is the only option, 3-piece IOL is the proper choices. Posterior optic capture could prevent further pigment dispersion or glaucoma complications.

## EYE-S09 Post OP Management after PCR ---- Residual Lens Fragments and IOL Malposition

#### Yun-Hsiang Chang

Department of Ophthalmology, Tri-Service General Hospital, National Defense Medical Center

Posterior dislocation of lens fragments or intraocular lens (IOL) into the vitreous is a fairly uncommon complication of cataract surgery with an incidence of approximately 0.2% to 1.5% depending on surgeon experience, but it can be sight threatening due to severe intraocular inflammation causing secondary glaucoma, corneal edema, cystoid macular edema (CME), and retinal Proper detachment. management both intraoperatively and postoperatively is essential to reducing the risk of these complications. The first important consideration is the amount and type of retained lens material. Lens nucleus is usually less tolerated than lens epinucleus, which in turn is less tolerated than lens cortex. The mainstay for treatment of significant retained lens material is complete vitrectomy using a 3-port pars plana approach to reduce inflammation, to repair possible retinal detachment, and to restore visual acuity.