

# 79th AIOC 2021: All India Ophthalmological Society

## APPLANATION TONOMETRY – TIPS & PEARLS

Dr Manav Deep Singh, New Delhi

- Be aware of sources of error and limitations of each device.
- Goldmann applanation tonometry (GAT) is the gold standard for intraocular pressure (IOP) measurement; however, central corneal thickness (CCT) measurement with necessary estimation of corrected IOP forms the standard care.
- Even this gold standard equipment has sources of error which needs to be addressed in individual cases and so is the case with other tonometers.
- Tonopen gives higher than GAT readings at <10 mmHg and lower readings at IOP >21. It is useful for screening and is not recommended for glaucoma evaluation.
- Noncontact tonometer readings correspond to GAT measurements only in normal range of CCT – reads lower in low IOP and higher in high IOP. Pachymetry is must for accurate assessment.
- Dynamic contour tonometer is useful after keratorefractive surgery and is more accurate than GAT in thin corneas.
- Factors affecting IOP measurement: Inter-/intraobserver factors, adequacy of tear film fluorescence, width of mires, CCT, corneal curvature and effect of biomechanical properties.

## RCOPHTH EXAMINATIONS

Fiona Spencer, Chair of Training RCOphth

- During COVID, examination venues were closed or restricted with lockdowns affecting both examiners and candidates. Use of masks may possibly lead to communication issues; F2F was considered as potentially unsafe exposure; social distancing was enforced; and real patients were not able to be used.
- RCOphth redeveloped exams to run during COVID-19.
- The Part 1 and 2 FRCOphth written exams (MCQs) were moved to online proctored delivery in October 2020 with one proctor to 6 candidates. Candidates take exams at home and are watched live by a proctor through a webcam. Part 1 exam has been

conducted thrice with very successful online delivery. There has been an exponential increase in the number of global candidates since the move to online exams.

- For the refraction certificate, retinoscopy Objective Structured Clinical Examination (OSCE) simulators are used, no real patients used; the exam is heavily retinoscopy based. Changes are approved by the General Medical Council (GMC). More candidates can be examined at each exam. This new format has run successfully in December 2020 and May 2021.
- For Part 2 Oral, clinical OSCEs are replaced by clinical videos prepared, filmed and edited from host center patients; the structured viva and communications OSCE components remain unchanged. Temporary GMC approved.
- Strict COVID-19 protocols in place (distancing, sanitization, temperature checks, etc.).
- The benefits of simulation are significant but not total.
- Take the best of both worlds to create a hybrid combination.

## REMOTE ASSESSMENTS AND EXAMINATIONS

Fiona Spencer, Chair of Training RCOphth

- For training with COVID, think about how we supervise, make the most of opportunities, develop new ways of trainees to learn and consider making remote assessments meaningful.
- The objectives of good supervision are normative (provides high quality care), formative (good supervision, excellent timely feedback) and restorative (enhances well-being of the supervisee).
- Consultations during COVID-19 are different: Remote consultations, video (attend anywhere), telephone, remote review of tests.
- Virtual assessments to review understanding and interpretation of results, decision-making, follow-up and future planning and communication to the patient.
- Educational supervisors must adapt to remote appraisal on Zoom/Teams, undertake regular contact and updates on mutually agreed times,

be supportive, discuss well-being, review generic professional capabilities, encourage training to plan how to take advantage of opportunities.

### **DISC EVALUATION – THE KEY SIGNS TO LOOK FOR**

**Dr Chandrima Paul, West Bengal**

- Glaucoma is largely undiagnosed (90%).
- Missed diagnosis is common (50%).
- Pay attention to individuals at high-risk.
- The five R's for assessment of the optic disc in glaucoma: Observe the sclera **R**ing to identify the limits of the optic disc and its size, identify the size of the **R**im, examine the **R**etinal nerve fiber layers, examine the **R**egion of parapapillary atrophy, look for **R**etinal and optic disc hemorrhages.
- Errors that underestimate glaucoma: Not delineating the sclera ring correctly, ignoring the small size of the disc, missing a rim notch, missing a hemorrhage and missing retinal nerve fiber layer (RNFL) defect.
- Adopt good clinical practices. Optic nerve head (ONH) examination is the key skill, which one must learn.
- Be aware of the pitfalls in diagnosis.

### **THERAPEUTIC VITRECTOMY IN UVEITIS**

**Dr Simar Rajan Singh, Chandigarh**

- Vitrectomy has come up as an effective therapeutic option for both active uveitis as well as sequelae of uveitis.
- Unlike other surgeries in uveitis eyes, a period of quiescence may not be required for vitrectomy.
- Control of inflammation and reducing requirement of immunosuppressive therapy is one of the major roles of therapeutic vitrectomy.
- The added diagnostic value of the sample obtained from the source is a boon.
- Advent of micro-incision vitrectomy surgery (MIVS) has made it safer and reduced the chances of postoperative complications.

### **GLAUCOMA PROCEDURES IN UVEITIS GLAUCOMA**

**Dr SS Pandav, Chandigarh**

- Glaucoma in eyes with uveitis is challenging.
- The incidence of glaucoma in uveitis is 9.6-18.3%. The goal of therapy is to control inflammation and reduce IOP to protect optic nerve.

- Medical therapy is the first-line of treatment; avoid prostaglandins, pilocarpine. About 25% of intractable cases may need surgery.
- Surgery in uveitic eyes is challenging due to inflammation-induced fibrosis scarring.
- Trabeculectomy or glaucoma-drainage-device (GDD) are viable options. Careful selection of the procedure is important.
- Trabeculectomy had an overall higher cumulative failure rate, higher rate of complications and postoperative surgical interventions.

### **PEARLS OF PERIMETRY: ANALYZING THE FIELD**

**Dr Pranav Ranjan, Patna**

- Checklist: Refraction with near vision correction; pupil size 3.5 mm; astigmatism >3D cause temporal artifacts; CL for high refractive errors (over 6D); full aperture lens in all cases; cataracts cause generalized loss of sensitivity; consider neurological, vascular and degenerative conditions; repeat fields (2-3 times) to establish baseline; reset baseline after surgical procedures.
- There are two components in field testing: Point pattern and strategy (central 30-2 full threshold means point pattern of 30-2 and strategy of full threshold).
- In perimetry, threshold is particular intensity of light seen in 50% times, suprathreshold seen 90% and infrathreshold seen 15%.
- Light intensity is expressed as decibel (dB) or apostilbs (asb); dB (retinal sensitivity) is inversely proportional to asb (light intensity).
- Statpac analysis simplifies visual field interpretation; it differentiates between normal and abnormal and identifies changes in a series of visual fields.

### **PCR AND ANTERIOR VITRECTOMY**

**Dr Nikunj Tank, Indore**

- Don't panic. Assess the situation and call for help, if needed.
- Understand the basics of anterior vitrectomy.
- Always look for capsular support before sulcus intraocular lens (IOL) implantation.
- Steps at which posterior capsule rupture (PCR) can happen: Hydrodissection (blowout pupillary snap), during lens manipulation (particularly hard cataracts), during phaco (trenching, phaco/last piece

phaco/surge), during I/A, during IOL implantation or pre-existing (true posterior polar cataracts).

- Automated anterior vitrectomy tips and tricks: Suture/have tight incisions, AFR 10, vacuum 200, cut rate max, split infusion and aspiration, cut I/A mode and I/A mode.

### NON-HIV CMV RETINITIS

**Dr Mousumi Banerjee, New Delhi**

- These cases should be identified early.
- Widespread involvement, vitritis, occlusive vasculopathy are features seen in non-HIV cases. It is important to differentiate cytomegalovirus (CMV) retinitis and leukemic retinopathy, especially in the early stages.
- Regular ophthalmological screening is important during the maintenance phase of chemotherapy.

### SUTURED SCLERAL FIXATION OF IOLs

**Dr Diva Kant Misra, Lucknow**

The first published description of sutured scleral-fixed intraocular lenses (SFIOLs) was in the 1980s.

In 1991, Lewis popularized the concept of ab externo suture passes and made use of scleral flaps to cover the suture knots. Complications include suture breakage, lens dislocation/tilt, knot erosion, suprachoroidal or vitreous hemorrhage, retinal detachment, endophthalmitis, hypotony, ocular hypertension and cystoid macular edema.

### THERAPEUTIC KERATOPLASTY

**Dr Namrata Sharma, New Delhi**

Therapeutic keratoplasty is a high-risk procedure demanding high surgical and medical skills. It has a definite role in the management of microbial keratitis refractory to medical therapy. Intraoperative difficulties are encountered such as spontaneous lens extrusion, expulsive suprachoroidal bleed, graft host junction time over-riding, loose sutures. Advances in microsurgical technique, newer generation antibiotics and control of inflammation improve prognosis. There have been recent advances in therapeutic keratoplasty such as femtosecond laser-assisted penetrating keratoplasty (PKP) for treating infective keratitis and collagen cross-linked therapeutic grafts in fungal keratitis.

Some of the early onset complications of the procedure include glaucoma, suture-related complications, hemorrhage/hyphema, persistent epithelial defect,

recurrence of infection (fungal keratitis, bacterial keratitis, acanthamoeba keratitis, herpetic keratitis); the late onset complications are glaucoma, cataract, graft failure, phthisis bulbi. The Rule of Half in repeat full thickness grafts mentions that Half of the patients after therapeutic PKP require visual rehabilitation, Half (50-60%) of the graft survives at the end of 1 year and Half (40-50%) of the patients after the repeat graft get corrected distance visual acuity (CDVA) >6/60.

Regular follow-up is essential to know the course of disease; but, the COVID-19 pandemic and the nation-wide lockdown hampered regular follow-up of patients – use of U tool might help to monitor disease progression and avoid delayed presentation.

The principles of postoperative management are to prevent recurrence of infection, control of IOP, control of inflammation and epithelial healing. Corticosteroids are a double-edged sword in postoperative management. They are safe in keratoplasty for noninfective indications, viral and proven bacterial keratitis. However, extreme caution must be exercised for fungal and acanthamoeba keratitis; use only after being sure of eradication of infection and histopathology report of no rim involvement.

### INTRAOPERATIVE OCT AND THREE-DIMENSIONAL VIEWING SYSTEMS

**Dr Katherine E Talcott, USA**

Intraoperative optical coherence tomography (iOCT) is a valuable surgical adjunct to ophthalmic surgery. It can provide surgeons with additional information about the subtle changes in the retina in response to surgical maneuvers. It provides real time feedback to the surgeon leading to safer and more efficient surgery with improved outcomes. The 3-year results of the DISCOVER study showed a strong surgeon preference for visualizing the OCT data on a 2D screen that required looking away from the surgical field compared to using the OCT data injected into microscope oculars.

The 3D Heads-up display provides a digital stereoscopic view of the surgical field on a high definition monitor freeing the surgeon from the confines of the microscope. Integration of iOCT with 3D digital surgical visualization is feasible. The large screen based visualization of the OCT DataStream minimized the need for accessory screen utilization. Digitally-enabled iOCT may provide superior ergonomics and increased attention on the surgical field during OCT review. There is a need for additional studies to better assess patient outcomes, surgeon experience, and overall value of integrative technologies to enhance the surgical theater experience.