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INTRAOPERATIVE IMAGING TECHNOLOGY IN CORNEAL SURGERY: AN UPDATE

Dr Jeewan S Titiyal, New Delhi

"I realized unless we have a quality robust Eye Bank, we cannot deliver good endothelial keratoplasty (EK) services."

- Cataract surgical rate in India is now seeing a new high; approximately 5,000/million/year. 6.5 million cataract surgeries were done in 2019-20.
- Every year therefore we are adding pseudophakic bullous keratopathy (PBK)/edema @ 0.2% which is equal to 13,000 new EK-patients in India.
- The number of patients with Fuchs' endothelial dystrophy is also significant.
- Manual DSEK (Descemet's stripping endothelial keratoplasty) is a good, reproducible, least costly and affordable procedure for the common people in India.
- Typical indications for DSEK include aphakia with large pupil, aniridia with glaucoma drainage device, post-VR Sx with bad pupil, congenital hereditary endothelial dystrophy (CHED)/buphthalmos, one-eyed poor A/C anatomy and extremely poor visibility.
- For India and any developing country, the choice of EK will be either manual DSEK or DMEK (Descemet membrane endothelial keratoplasty).
- We need more trained corneal surgeons with good incentives for them. At the same time, we need more good corneas. This is possible if we develop eye bank within our own community.
- There are needy patients; it is a matter of practice and attitude!

THICK CHOROID IN CSC: A GAME CHANGER

Dr Aniruddha Agarwal, Abu Dhabi

Situations, Management and Outcome

- Although choroidal thickening is a component of pachychoroid, within central serous chorio-retinopathy (CSC) this is a grey area as some patients do not have clearly thickened choroid.
- Patients with thick choroid are likely to respond better to eplerenone. The response is suboptimal in thin choroid and sick retinal pigment epithelium (RPE) syndrome.
- Very thick choroid could predispose to fibrinous CSC, which can take a long time to resolve; high chances of atrophy.

RD IN EYES WITH CHOROIDAL COLOBOMA

Dr Pramod S Bhende, Chennai

- Retinal breaks may occur within the intercalary membrane (ICM), at the locus minoris resistantiae or peripheral breaks outside the coloboma. Retinal detachment (RD) configuration changes with location of the break/s.
- RD may occur in 40% of these eyes. The occurrence of RD and location of the break/s do not follow classic rules. The classic principles of RD management cannot be applied.

DISORGANIZATION OF RETINAL INNER LAYERS IN DIABETIC MACULAR EDEMA: DOES IT CHANGE MY APPROACH?

Prof (Dr) Atul Kumar, New Delhi

- Disorganization of retinal inner layers (DRIL) is a novel optical coherence tomography (OCT) biomarker, which was first described by Sun et al due inability to distinguish inner retinal layers (ganglion cells layer – inner plexiform layer, complex, inner nuclear layer and outer plexiform layer).
- It is a marker of diabetic neuroretinal impairment. It is not specific to diabetic retinopathy (DR) but is a common response to retinal stress. Common in eyes with refractory diabetic macular edema (DME).
- Other OCT biomarkers in DME are integrity of external limiting membrane (ELM) and ellipsoid zone (EZ), hyperreflective foci, central foveal thickness, choroidal thickness/vascularity, ORTs.
- DRIL may predict visual acuity outcomes in patients with anti-VEGF (vascular endothelial growth factor) therapy.

- DRIL extent >500 um in a 1000 um foveal scan has visual acuity loss despite edema resolution.
- DRIL is looked for within the central 1-mm foveal zone. In eyes with no DRIL, one is able to segment the inner retinal layer boundaries, but in eyes with DRIL, one is unable to segment these layers. It is clearly visible on SS-OCT device.
- Even when adjusting for central retinal thickness and outer layer characteristics, DRIL is the most robust SD-ICT parameter associated with visual acuity change over time.
- Though DRIL can worsen and persist, it can also resolve and reverse.
- DRIL is a predictive tool for capillary nonperfusion. It correlates with macular capillary nonperfusion. The extent of DRIL correlates with size of foveal avascular zone in all grades of DR. Presence of DRIL correlates with severe DR. It is often associated with outer retinal alterations (EZ, ELM disruptions).
- The inner retinal layers consisting of axons, bipolar cells and nuclei of amacrine cells are disrupted in DRIL. The perfusion in the superficial, middle and deep capillary plexus is reduced.
- Eyes with persistent DRIL often do not do well. If central refractory DME persists, continue injecting anti-VEGF/steroids and then observe visual acuity, morphology and central subfield thickness. Check systemic parameters. If no response and macular atrophy sets in, then discontinue therapy.
- DRIL is a robust biomarker, although the correlation is not perfect. Some patients with DRIL do well visually, while others don't.

Take Home Message

"Don't just look at thickness", "also look at morphology". We still don't fully understand what the threshold is for the disorganization to correlate with prognosis.

CASES RELATED TO POLYPS

Dr Simar Rajan Singh, Chandigarh

- Documentation of polyps helps in confirming the diagnosis of polypoidal choroidal vasculopathy (PCV). Polyps can be documented in cases with peripheral exudative hemorrhagic chorioretinopathy (PEHCR) with wide field indocyanine green angiography (ICGA).
- Recurrent and massive bleeds are known presentations of PEHCR. Such cases are known to progress from the periphery to the center.
- This is important because PCV patients tend to have more asymmetry than age-related macular degeneration (AMD).
- PCV patients tend to present more often with precipitous visual loss with subretinal bleed and they also tend to have sudden and worse recurrences.
- It may be advisable to keep these patients on a treat and extend regimen with anti-VEGF to prevent recurrences and preserve vision.
- Plan for ultra-wide field fundus autofluorescence, fundus fluorescein angiography + indocyanine green to confirm the diagnosis of PEHCR.

ACUTE RETINAL NECROSIS

Dr Andrew W Eller, USA

- Panuveitis and retinal vasculitis lead to rapidly progressive necrotizing retinitis or acute retinal necrosis.
- Visual outcomes are often poor with 25% to 75% of eyes worse than 20/200. RD rates average around 51%. Most commonly caused by varicella-zoster virus followed by herpes simplex virus (HSV)-1 and HSV-2. Epstein-Barr virus (EBV) is rare.
- Patients are usually immunocompetent. The older age group may be immunocompromised and may have a history of shingles.
- HSV-1 and HSV-2 are common in younger age group; may have a history of neonatal herpes.
- Anterior chamber paracentesis for polymerase chain reaction. Repeat if negative with high suspicion.
- Initiate treatment immediately, if high suspicion with intravitreal foscarnet/ganciclovir/acyclovir and IV acyclovir, ganciclovir, foscarnet, cidofovir or oral valacyclovir 1000 mg twice daily.

Clinical Pearl

Must perform fundus exam in all patients with uveitis.

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