

Jakarta Eye Center laser vision correction procedures

Source: Johan Hutauruk, MD



The left eye is taped shut during the laser cut in the right eye.

Source: Ekket Chansue, MD

A symposium at the 2018 APACRS Annual Meeting, sponsored by Carl Zeiss Meditec (Jena, Germany), covered the “Full Spectrum of Laser Vision Correction.” The session was moderated by **Khairidzan Mohd Kamal, MD**, Selangor, Malaysia.

Johan Hutauruk, MD, Jakarta, Indonesia, presented “SMILE Learning Curve.” He shared the theory that explains why, how, and at what rate an idea of technology spreads, and he stressed that it’s important to position yourself as an early adopter of new technology. Dr. Hutauruk discussed his experience adopting SMILE at his practice in Jakarta. In 2016, his practice did 286 SMILE procedures. In 2017, that number jumped to 1,352, and from the beginning of the year until June 2018, they did 909 SMILE procedures. Dr. Hutauruk also discussed his experience using PRK, LASIK, LASEK, crosslinking, SMILE, and other procedures, noting that his hospital is often an early adopter of new procedures. Between 2013 and 2018, thousands of laser vision correction procedures were performed, however, he noted a flattening of the number of LASIK procedures between 2015 and 2016. Originally, there was some concern in introducing SMILE at the practice because of the increased price, but overall, the number of laser vision correction procedures has increased with the introduction of SMILE.

Dr. Hutauruk spoke about some of the differences between SMILE

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and LASIK, notably pain after the procedures and SMILE’s small incision, which does make it more difficult. He did a small study of 30 patients to determine pain the day after surgery and found there was satisfaction with the amount of pain associated with SMILE.

The SMILE learning curve starts at docking. Dr. Hutauruk said it’s important to maximize patient comfort and minimize additional steps. His technique is to insert the speculum when the patient’s eye has approached the VisuMax patient interface by approximately 3 cm during docking.

Dr. Hutauruk suggested washing the interface because it may help to reduce the risk of epithelial ingrowth. Dr. Hutauruk conducted

a small study of 30 patients and compared the right and left eyes, with the right eye washed and the left not. There was no difference in visual acuity.

Dr. Hutauruk also spoke about gradually decreasing the incision size. Start with a 4-mm incision, and for every 100 eyes, reduce by 0.5 mm. The smallest incision size Dr. Hutauruk advocated for is 2 mm.

Ekket Chansue, MD, Bangkok, Thailand, discussed how to optimize SMILE for fast visual recovery. He was one of the first adopters, and there were only a few places around the world doing the procedure at the time. At first, there was a risk of losing best corrected vision on the first day or week after

surgery, which he thinks may have hampered widespread use of the procedure. But improvements in the procedure and instrumentation have helped to address this. Dr. Chansue added the importance of word of mouth after laser vision correction procedures, and that most referrals occur in the first few days after the procedure. In his practice, about 93% of patients with SMILE see 20/20 or better on the first day after surgery, and there are many steps physicians can take to help ensure a faster recovery.

Dr. Chansue described his routine with SMILE, starting with laser settings. The refractive treatment setting is not the same in each laser due to nomogram effects. Even within the same laser, different surgeons use different nomograms. Know your nomograms, he said, because different refraction techniques might cause necessary adjustment for laser parameter input. When first adopting SMILE, Dr. Chansue learned that his machine tended to undercorrect, and the higher he went, the more undercorrection there was.

The energy setting is also important, he said, suggesting using the lowest energy level you can without getting too many black spots/patches. Thinner caps do give faster visual recovery, Dr. Chansue said, adding that short-term vision is better with thinner caps.

“I try to keep the eye moist until we’re ready to dock,” Dr. Chansue said. He discussed his preoperative routine with femto

cuts. He does the laser in the right eye, laser in the left eye, then extracts the lenticules in the right and left eye.

He doesn't use draping for laser cuts and places his hands on the patient's forehead, which helps him to tell if the patient is tensing up; identifying when the patient is tensing up can help drive the suction loss rate down to less than 1%. He also said to keep the eyes closed until the very last second.

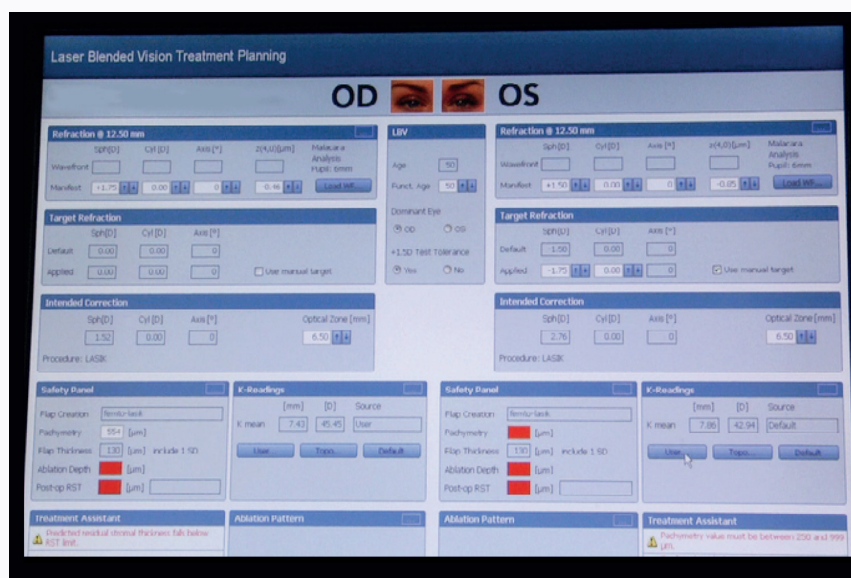
Dr. Chansue shared his routine for lenticule dissection and extraction. He said to minimize time spent dissecting, minimize distortion of the cap, and smooth the cap surface.

Mahipal Sachdev, MD, New Delhi, India, presented "Challenges and Management of SMILE in Daily Practice." There is a learning curve with SMILE, he said, adding that complications will be rare, manageable, and usually there is no loss of best corrected visual acuity. Appropriate knowledge of management is key.

SMILE challenges may occur intraoperatively or postoperatively. Intraoperatively, these could include suction loss, incorrect dissection, minor epithelial abrasions, side cut extension, and lenticule fragmentation. Postop complications might include dry eye, epithelial ingrowth, unintended abandonment of the lenticule fragment, diffuse lamellar keratitis, ectasia, and regression.

If you have something in the interface when docking, Dr. Sachdev warned against continuing with the procedure. He showed a case where a lash caused a problem. This could interfere with laser penetration and could leave an uncut area. If you have a large interface debris, don't dock, he said. First, clean it.

One complication that Dr. Sachdev went into detail on was suction loss. There are a number of predisposing factors: longer duration of suction required in SMILE compared to femtosecond LASIK; a loss of contact between the glass interface and cornea due to sudden eye or head movement; ocular factors including a small palpebral aperture, loose



Dr. Ganesh recommends treatment planning with the CRS-Master.

Source: Sri Ganesh, MD

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corneal epithelium, excessive reflex tearing, and poor fixation; or fluid entry through suction ports or compressive forces against the contact glass resulting from intraocular gas/bubble transposition.

Physicians have to look at if the suction loss is during the lenticule cut. Sometimes, they may be able to restart. But if you have cut the lenticule past a certain point, you might have to abort the procedure or convert it into a femto flap, Dr. Sachdev said. The VisuMax software provides supporting information and guidance for the surgeon in case of a suction loss. For Dr. Sachdev, suction loss is a rare occurrence, around 1%.

Sri Ganesh, MD, Bangalore, India, presented "Principle and Treatment – Laser Blended Vision." He shared some of the principles of PRESBYOND laser blended vision, noting that it's based on increased depth of focus and micro-monovision (the dominant eye is targeted for emmetropia and non-dominant eye for myopia). Non-linear aspheric ablation profiles are used, incorporating a pre-compensation factor. Postoperative spherical aberration falls within a range that provides an increased depth of field, without compromising contrast sensitivity and quality of vision.

Dr. Ganesh shared information on patient selection: those suitable

for LASIK, CDVA no worse than 20/25 in either eye, age 44 and above with presbyopia and dependence on reading glasses, a motivated patient, +1.5 D tolerance test pass, quick suppression and fusion, and tolerance of at least -0.75 D anisometropia.

He recommends avoiding patients with very high expectations and possibly those with low myopia (less than -2 D SE). During preoperative counseling, Dr. Ganesh said to make sure patients know not to compare both eyes after surgery. It's important to explain about adaptation with time, the chances of enhancement in the future, early cortical cataract, and the need for cataract surgery in the future.

To evaluate if a patient is suitable for PRESBYOND, Dr. Ganesh gave five suggestions: verification of refraction and accommodation amplitude to verify the functional age, eye dominance, +1.5 D tolerance test, check suppression and fusion, and planning with the intended refraction in place, and the amount of cross-blurring reported by the patient during the simulation is evaluated.

He also discussed a micro-monovision assessment. The standard micro-monovision protocol corrects the dominant eye to plano and non-dominant eye to -1.50 D, irrespective of age. Patients are tested for tolerance with the intended refraction in place, and the amount of cross-blurring reported by the patient during the simulation is evaluated.

In conclusion, Dr. Ganesh said laser blended vision has high patient satisfaction with good functional vision, it is easily adjustable, and the result of the procedure can be optimized by a new one. There are no permanent visual effects, any side effects are correctable by glasses, it closely simulates the natural condition existing in patients, and there is good contrast sensitivity and stereopsis. Dr. Ganesh added that patients can maintain blended vision even after cataract surgery later on in life, and it will not interfere with the surgery itself.