

Preliminary description of LIKE procedure as performed by Prof. Dr. Theo Seiler (Zürich, Switzerland)

Medical procedure

LIKE™ = Lenticular Intrastromal Keratoplasty a.k.a. Tissue-Additive Hyperopia Treatment

Intended goal

The intention is to provide a hyperopic correction to patients with a high degree of hyperopia (see below: inclusion criteria) that currently have no other surgical alternative. At a later stage, if the results indicate that the procedure is safe and effective, the range of correction can be extended to lower degrees of hyperopia.

Procedure

A pre-cut donor lenticule with a dioptric power of 3 to 10 Diopters and a diameter of 7 to 8 mm is positioned under a femtosecond LASIK flap with a thickness of approx. 110µm. The diameter of the flap has to be at least 10.0 mm. Oblique side cuts with 45° are preferred instead of a vertical (90°) side cut. Please rinse the lenticule with BSS before implantation. The surgery may include a re-lift of the flap latest at one month after the initial surgery combined with a topography guided photo-ablation on the implanted lenticule with an excimer laser for refractive fine-tuning and regularization of the optical condition.

Postop medication

First night: bandage contact lens loaded with dexamethasone and ofloxacin (no preservatives!)

First week: Predforte 3x/d

First month: FML 3x

Follow-ups

Preoperatively, a thorough examination of anterior and posterior segments is needed, including glare visual acuity, as well as BSCVA and UVA. The refraction has to be obtained in cycloplegia. Please have in mind that cycloplegic cannot break an accommodation forms and we might still underestimate refraction. As a consequence, please take a lenticule with a refractive change of at least 1 D stronger than refraction. Aberrometry as well as tomography including an anterior segment OCT is mandatory.

After early post-op follow-up (1-3 days post-op) the one month follow-up is critical in order to establish the indication of a re-lift/fine-tuning. After the last re-lift, follow-ups shall be conducted at one month, three months, and six months.

Example

Male, 28 years old

Maximal K-reading +4.2 D

Manifest refraction +4.25 D

Cycloplegic refraction +5.5 D

Please use a 7 D-lenticule, because myopia correction on the lenticule is easier than hyperopic.

Anticipated K-readings a_{pm}ax. 48.5 D

Patient inclusion criteria

For the first patients (patients for whom hyperopic LASIK or ICL-implantation is not an option): Cycloplegic hyperopia of +3 to +10 D, astigmatism \leq 3 D, age 20 – 65, normal corneal thickness, BCVA better than 20/50, anterior chamber depth less than 3mm, contact lens intolerance.

Patient exclusion criteria

History of autoimmune diseases, neovascularization, infectious diseases, previous PRK, previous LASEK, previous RK, significant dry eye syndrome, glaucoma, macular degeneration.

Attempted K-readings of more than 50 D.

Important considerations:

- Use of a lenticule with min. +1 diopter more than cycloplegic refraction (accommodation tonus)
- Observe steroid regimen
- Make sure to rinse the lenticule before implantation (wash off Optisol)
- Observe bandage contact lens recommendations

Centration:

- Observe centration procedure (separate document and instructional video)