

Clinical Evaluation of Femtosecond Laser-Assisted Cataract Surgery With Multifocal IOL

Young Ghee Lee MD, Eun Suk Lee MD, Seung Jeong Lim MD

Seran Eye Center, Seoul, Korea

The authors have no financial interests to disclose.

Advantage of Femtosecond laser assisted cataract surgery

- Capsulotomy -precise, predictable size and shape, proper IOL positioning
- Lens fragmentation – less US energy, less endothelial damage
- Cornea incision – optimized incision, less induced cylinder and chance of infection
- Arcuate incision – consistent depth and length, more accurate astigmatism correction

Purpose

- To report the surgical outcome and safety of femtosecond (FS) laser cataract surgery (LCS) with a multifocal intraocular lens(IOL).
- To find out the incidence of posterior capsular opacification – most important complication and critical obstacles to achieve good near vision especially in multifocal IOL

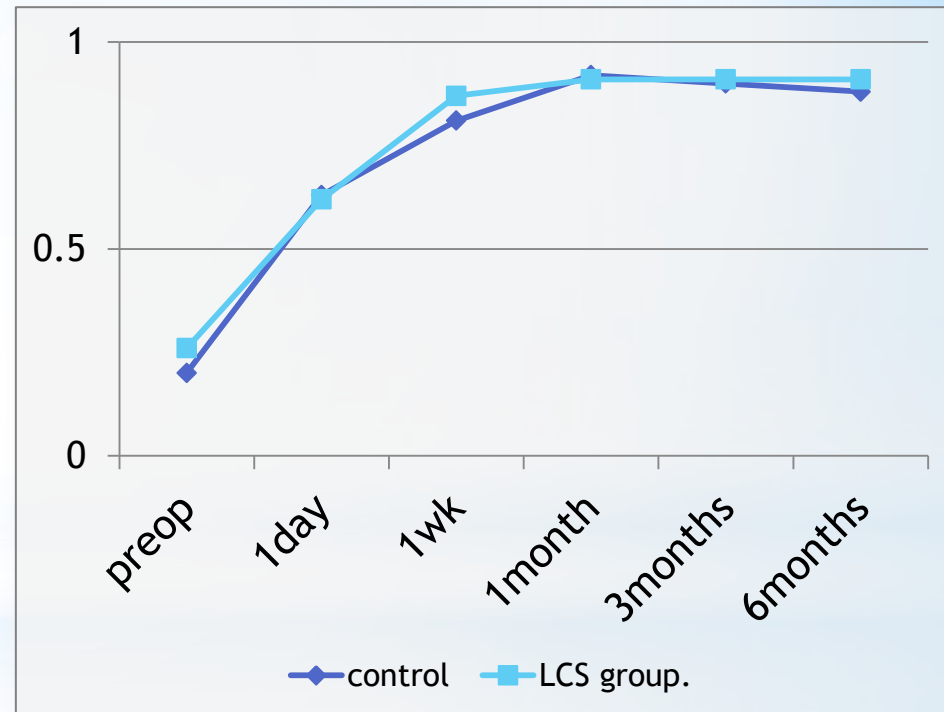
Methods

- No of eyes : 305 eyes
- Femtosecond laser cataract surgery and ReSTOR multifocal IOL (Alcon Laboratories Inc) implantation between May 2012 and April 2013 were included in the study.
- Cases underwent anterior capsulotomy, lens fragmentation, and corneal incisions with the Alcon/LenSx FS laser (Alcon/LenSx, Aliso Viejo, CA).
- The procedure was completed by phacoemulsification and insertion of a multifocal IOL.
- The control group consisted of a retrospective cohort of 321 eyes that underwent conventional phacoemulsification cataract surgery and ReSTOR implantation between May 2011 and April 2012.
- Visual results and complications were analyzed at 1, 3 and 6 months, postoperatively.

Results(1)

Distance Visual Acuity

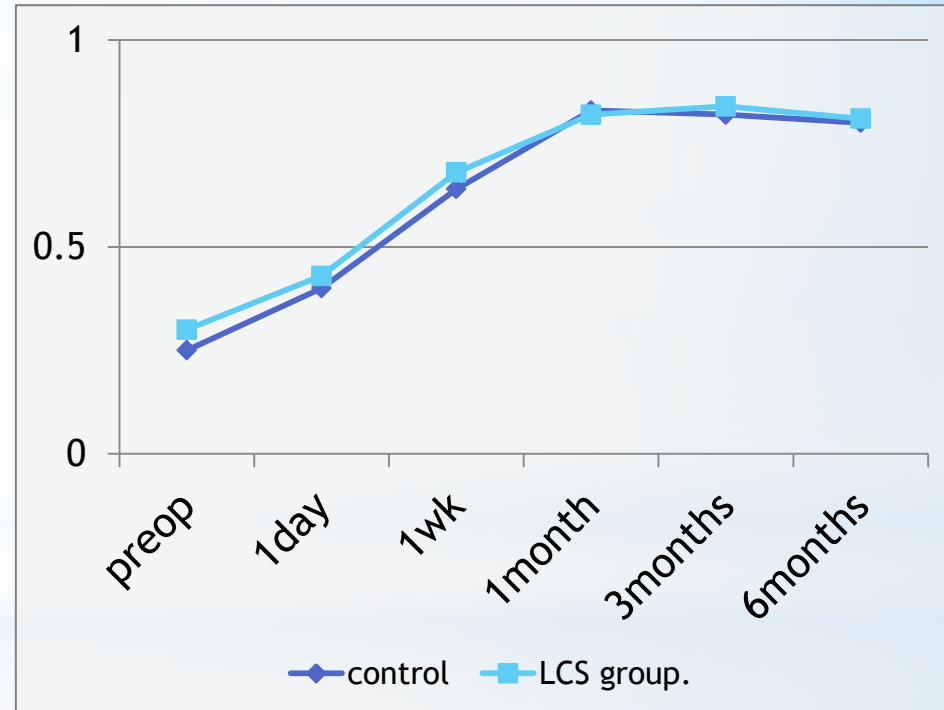
	preop	1day	1wk	1 month	3 months	6 months
Control	0.20± 0.19	0.63± 0.30	0.81± 0.20	0.92± 0.06	0.90± 0.08	0.88± 0.08
LCS group	0.26± 0.22	0.62± 0.32	0.87± 0.14	0.91± 0.04	0.91± 0.02	0.91± 0.04



Results(2)

Near Visual Acuity at 33cm

	preop	1day	1wk	1 month	3 months	6 months
Control	0.25± 0.18	0.40± 0.28	0.64± 0.22	0.83± 0.14	0.82± 0.17	0.80± 0.14
LCS group	0.30± 0.20	0.43± 0.26	0.68± 0.19	0.82± 0.08	0.84± 0.18	0.81± 0.10



Results(3)

Unwanted Complications

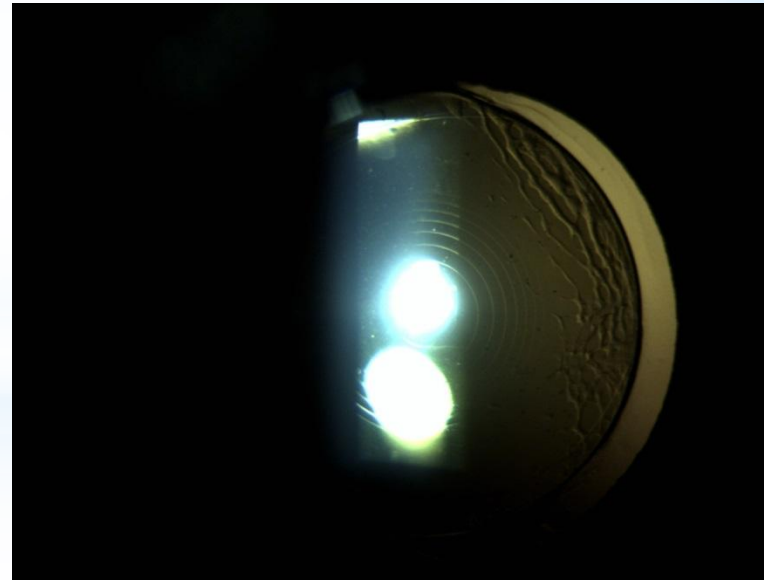
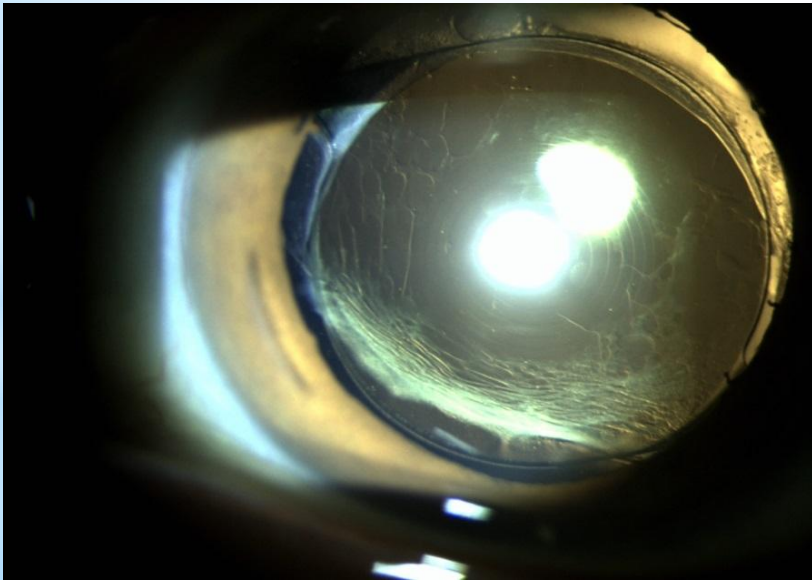
- Docking Failure : 9 cases (total)
 - Narrow fissure : 5 cases
 - Loose conjunctivae : 2 cases
 - Severe pterygium : 2 cases
- Anterior Capsule Tear : 7 cases
 - be cautious in case of milky cataract
- Subconjunctival hemorrhage : minimal, in all cases

Results(4)

Fibrotic posterior capsule opacification

: due to incomplete coverage of anterior capsule over IOL

2.1% in LCS group Vs. **8.2%** in control group



Summary

- Uncorrected distance visual acuity : 0.91 ± 0.04 in LCS group and 0.88 ± 0.08 in control groups (P=.462).
- No significant difference was noted in spherical equivalent refraction and uncorrected near visual acuity between groups.
- Docking failures : 9 cases during femtosecond laser procedure.
- Fibrotic posterior capsular opacification due to incomplete coverage of anterior capsule over IOL - 2.1% of eyes in LCS group and 8.2% of eyes in control group.

Conclusions

- Visual results of laser cataract surgery (LCS) group was comparable to those of conventional phacoemulsification group at 6 months follow-up.
- LCS group showed more stable visual outcome with significantly less incidence of fibrotic posterior capsular opacification.