

Three-year Postoperative Objective and Subjective Results of Small-Aperture Corneal Inlay for Correction of Presbyopia

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Patients and Methods

- Prospective study including all patients operated with a small aperture inlay during the last 3 years.
- Out of 75 patients, 21 accepted to join the study and they all had the following measurements:

Objectives Measures:

- UCVA (near, intermediate and distance monocular and binocular VA).
- Defocus Curve
- OCT Visante
- Placido Topography



Patients and Methods – Task Performance

- Patients were asked to rate how “easy” it is to:
 - See using both eyes
 - When performing daily tasks without glasses

- 1) Are you able to read in good lighting conditions?
- 2) Are you able to read in dim lighting conditions?
- 3) Are you satisfied from your Kamra surgery?
- 4) Are you satisfied from your near vision?
- 5) Would you do the surgery again?
- 6) How easy is it to:
 - Read a magazine
 - Read a book
 - Read a computer screen
 - Read your phone
 - Read very small characters
 - Perform very meticulous action at near
 - Watch a movie
 - Watch the TV
 - Driving in daylight conditions
 - Driving at night
 - Participate to sport games

7 = Very easy



1 = Not easy at all



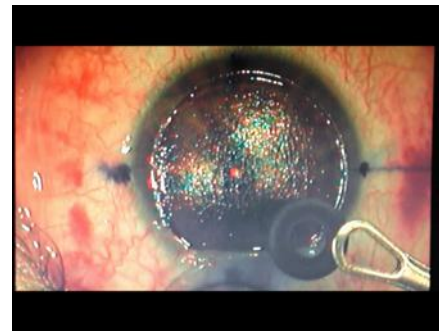
Patients and Methods – Procedure

Surgical Techniques

- **Inlay implanted monocularly** in the non-dominant eye
- Femtosecond-laser used to create a pocket lamellar pocket for inlay insertion if pre op refraction between -0.25 and -1.00, or a 200 microns flap if excimer ablation needed.
- **Endpoint refraction: -0.75 D**



Pocket Emmetropic Kamra



Combined Lasik Kamra



Results

Demography:

- N=21
- Mean Age= 55,4 yo {47-66 years}
- Sex ratio = 0,75 (9M for 12W)
- Follow up: mean: 902 days {612-1225 days}

	Mean Spherical Equivalent (SE) Kamra eye	Mean SE Non Kamra eye	Mean Sphere	Mean Cylinder
Pre-op	+0,48 ± 1,61 D		+0,65 ± 1,59 D {-6 ; +2}	-0,34 ± 0,38 D {-1,25 ; 0}
Post-op	-0,33 ± 0,97 D	+0,14 ± 0,48 D	-0,21 ± 0,9 D {-1,75 ; +1,5}	-0,4 ± 0,29 D {-1 ; 0}



Results

	UNVA Kamra eye (logMAR)	Binocular UNVA	UNVA non Kamra eye
Distance Vision	0,08 ± 0,13	-0,07 ± 0,06	
Intermediate Vision	0,19 ± 0,13	0,14 ± 0,14	
Near Vision	0,24 ± 0,19	0,22 ± 0,17	0,52 ± 0,17

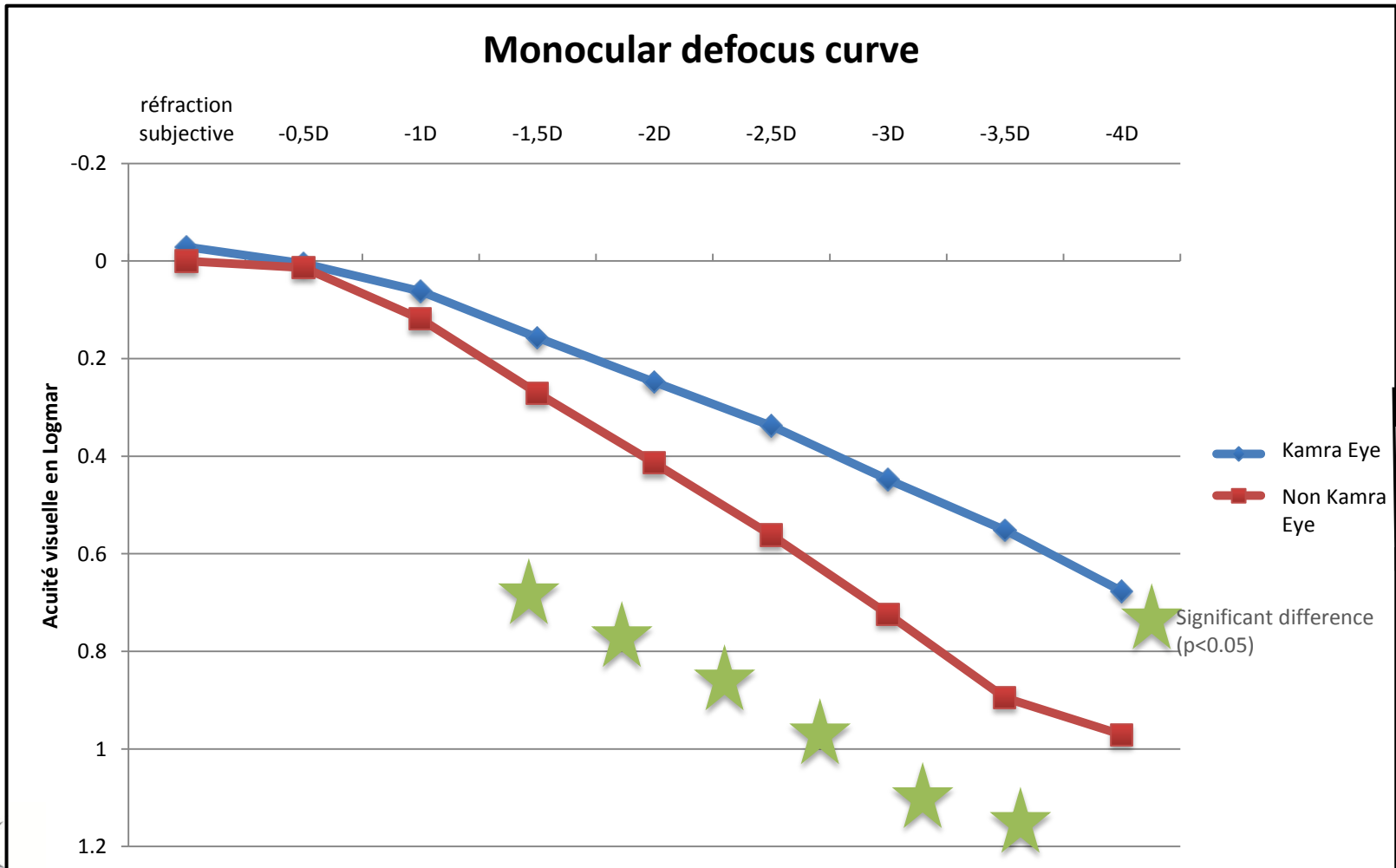
	BCVA Kamra eye	BCVA Binocular
Distance Vision	-0,03 ± 0,05	-0,11 ± 0,08
Near Vision	0,26 ± 0,18	0,23 ± 0,16

logMAR	Decimal	Parinaud
0.6	0.25	P5
0.5	0.32	P4
0.4	0.4	P3
0.3	0.5	
0.2	0.63	P2
0.1	0.8	
0.0	1.0	P1.5
-0.1	1.25	

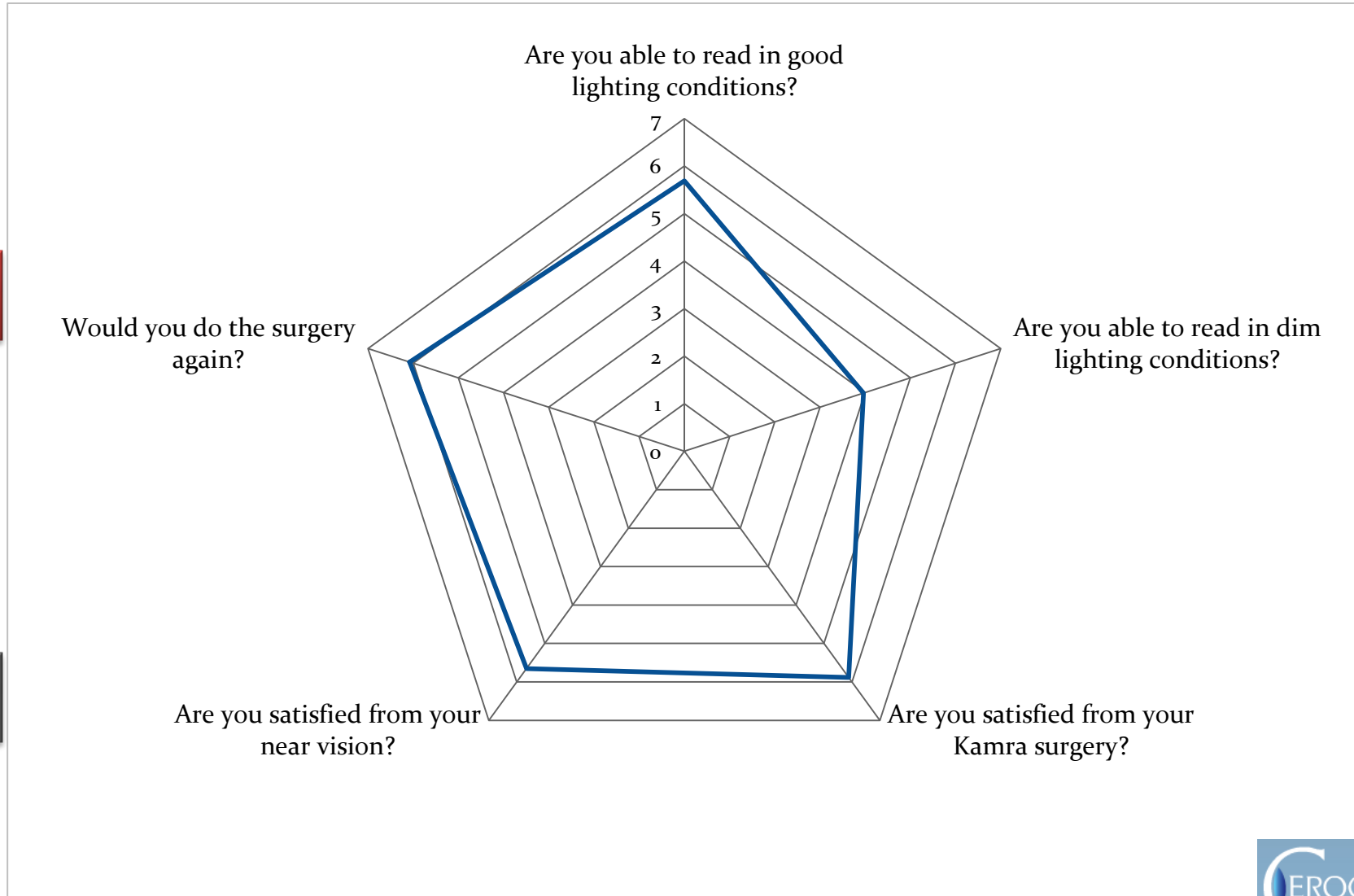


Results

Monocular Defocus Curve in the Kamra eye (blue) and non Kamra eye (red).
The defocus curve was plotted after correcting distance vision and adding minus lenses monocularly.



Results: Task Performance



7 = Very easy

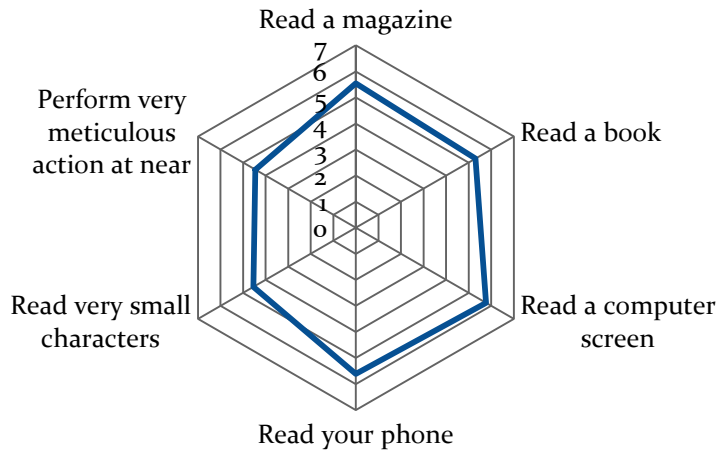


1 = Not easy at all

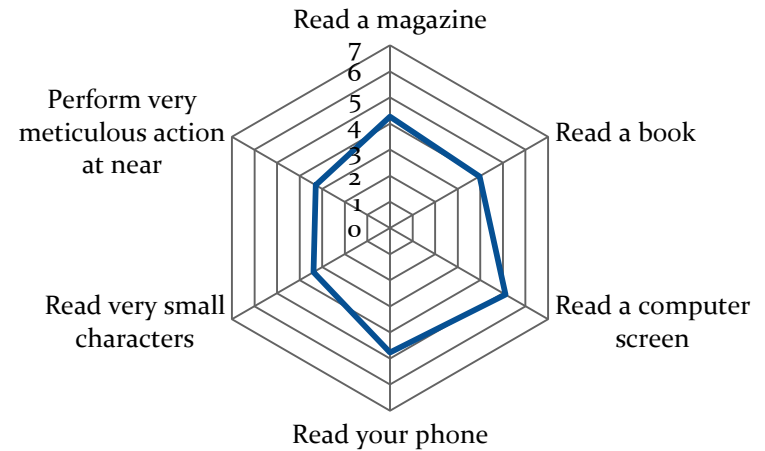


Results: Task Performance

Good lighting conditions



Dim lighting conditions



7 = Very easy



1 = Not easy at all



Discussion

- **Explantation (4/75)**
 - Haze (1)
 - Not Satisfied (2)
 - Eye Trauma (1)
- **Insatisfaction** (other than explanted patient)
 - 3/21 would not do it again
 - Dryness (patient #5 ; 200 microns flap)
 - Not happy with his near vision (patient #9)
 - Other expectations (patient #18)



Discussion

VA (LogMar) in not satisfied patients:

Patient	Pre-op refraction	UCDVA Kamra eye	UCDVA binocular	UCNVA Kamra eye	UCNVA binocular
	Post-op refraction				
#5	+1	0,1	0	0,4	0,4
	-0,25 (-0,5@5°)				
#9	+0,5 (-0,25@105°)	0	-0,1	0,5	0,5
	+1,5				
#18	-6 (-0,5@175°)	0,2	0	0,2	0,2
	-1,75				

=> Hyperopic Shift in one case (#9), Undercorrection or regression in one case (#18) and acceptable objective result in one case (#5) but patient expectations not achieved (+dryness).



Conclusion

Efficient treatment for **emmetropes** and **ametropes**.

Good near VA with maintained distance VA.

Very Good near task performance in good lighting conditions.

Very good distance task performance

Acceptable performance in dim light conditions

Halos, glare and dry eye remains the most reported symptoms but are quantified as “not important”

