

Surgical outcome and safety profile of posterior chamber phakic intraocular lenses and iris claw fixated lenses in moderate to high myopic astigmatism.

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INTRODUCTION

Phakic IOLs : Correction of Moderate to High Ametropias Reversibility Maintenance of Accomodation Preserving the Cornea

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Posterior Chamber Intraocular Lens (ICL) and Anterior Chamber Iris Claw Lens (Artiflex)

Safe and Predictable Post operative Refraction

Limited Complications

Bloomenstein MR, Dulaney DD, Barnet RW, Perkins SA. Posterior chamber phakic intraocular lens for moderate myopia and hyperopia. *Optometry*. 2002;73:435-446.

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PURPOSE

To compare the **surgical outcome** and **safety profile** of
implantable posterior chamber phakic lenses (ICLs; Staar Surgical, CA)

versus

iris claw lenses (Artiflex, Ophtec, Netherlands)

for the correction of moderate to high myopic astigmatism.

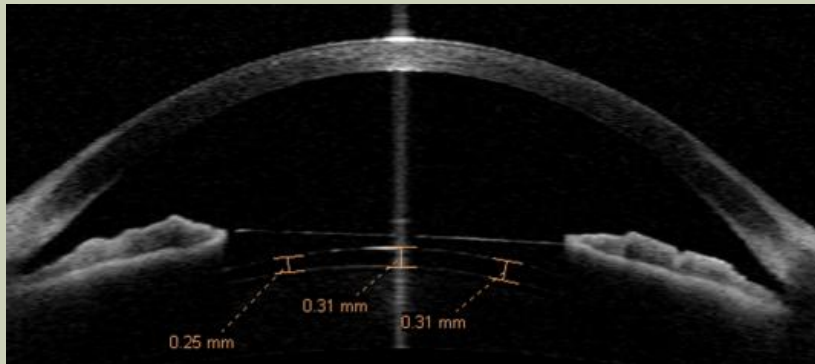
METHODS

Design : Retrospective Observational Case Series

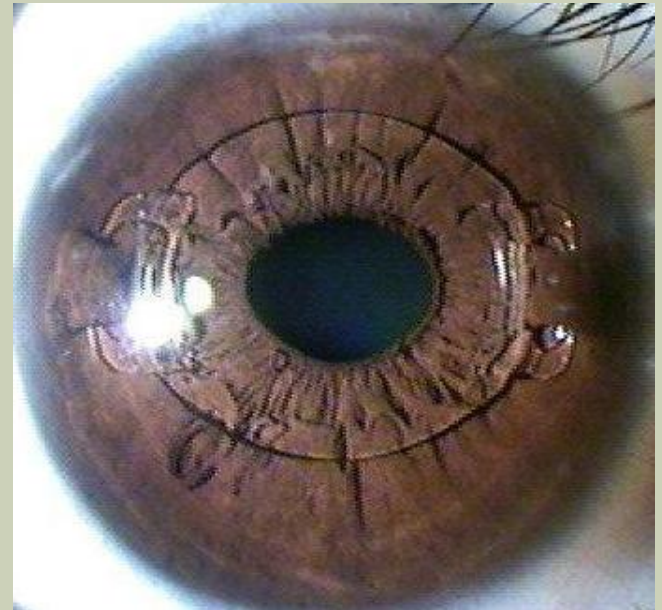
**Cohort : 1974 Eyes of 1184 Patients implanted with Phakic IOLs
with a Follow up Period of at Least 1 Year.**

Phakic Intraocular Lens :

**Posterior Chamber: Intraocular Collamer Lens (Visian ICL, V4, Starr Surgical)
n=1023**



**Iris Claw : Artiflex (Ophtec, Netherlands)
n = 951**



Parameter	ICL (n= 1023)	ARTIFLEX (n=951)	p Value
Age (years)	24.2 ± 6.2	23.9 ± 6.3	0.67*
Sex(%Female)	61%	64%	0.77#
CCT(um)	522.2 ± 22.6	519.1 ± 23.8	0.41\$
ACD(mm)	3.19 ± 0.24	3.24 ± 0.19	0.51\$
WTW(mm)	11.55 ± 1.6	11.59 ± 1.3	0.42\$
ACV(mm ³)	175 ± 20.2	179 ± 16.4	0.43\$
Sphere(D)	-7.15 ± 0.72	-7.37 ± 0.64	0.23\$
Range	-6 - 19.5	-4 - -13.0	
Cylinder(D)	0.92 ± 0.32	0.97 ± 0.43	0.21\$
BCVA (LogMAR)	0.01 ± 0.04	0.02 ± 0.03	0.11\$
IOP(mmHg)	15.6 ± 3.2	16.2 ± 3.1	0.32\$
ECC(cells/mm ²)	2863 ± 234	2932 ± 361	0.28*

CCT = Central Corneal Thickness, ACD = Anterior Chamber Depth (from Endothelium),
ACV = Anterior Chamber Volume (pentacam), WTW = White-to-white, BCVA = Best Corrected Visual Acuity,
ECC = Endothelial Cell Count, IOP = Intraocular Pressure

*Two Sample t Test, #Fischers Exact Test, \$Mann-Whitney U test.

Parameter	ICL (n= 1023)	ARTIFLEX (n=951)	p Value
SE	-0.07 ± 0.36	-0.16 ± 0.31	0.18
Sphere(D)	0.25 ± 0.55	0.35 ± 0.54	0.85
Cylinder(D)	0.66 ± 0.94	0.26 ± 0.84	0.004*
UCVA(LogMAR)	-0.01 ± 0.05	-0.02 ± 0.03	0.29
IOP(mmHg)	16.2 ± 5.1	16.6 ± 2.7	0.39
Vaulting(mm)	0.59 ± 0.21		
Critical Distance(mm)		0.19 ± 0.07	
Change in ECC (cells/mm ²)	-16.2 ± 21.2	-35 ± 31.6	0.22

UCVA = UnCorrected Visual Acuity,
 ECC = Endothelial Cell Count, IOP = Intraocular Pressure
 Two Sample t Test, Fischers Exact Test, Mann-Whitney U test.

Parameter	ICL (n= 1023)	ARTIFLEX (n=951)
Low Grade Inflammation At 1 Month	0	83 (8.8%)
Iris Pigment Dispersion on Optic	21 (2%)	69 (7.2%)
Dislocation	1[#]	1[#]
Exchange	8^{\$}	0
Explantation	0	2[*]

- [#] Dislocation occurred in 1 eye in each IOL group due to trauma. Both IOLs were successfully replaced.
- ^{*} Both IOLs of 1 patient were explanted due to Simple Patient Wishes.
- ^{\$} 8 ICLs were replaced due to inadequate Vaulting.

CONCLUSION

- 1. Posterior Chamber(ICL) and Iris Claw (ARTIFLEX) phakic Intraocular lenses are comparable in safety, efficacy and refractive results.**
- 2. The Different Lens Designs Lead to Different Outcomes.**
- 3. The Different Post-operative Phenomena should be Taken into Consideration when Considering each Lens.**