Astigmatic keratotomy with PRK for correction of mixed Astigmatism
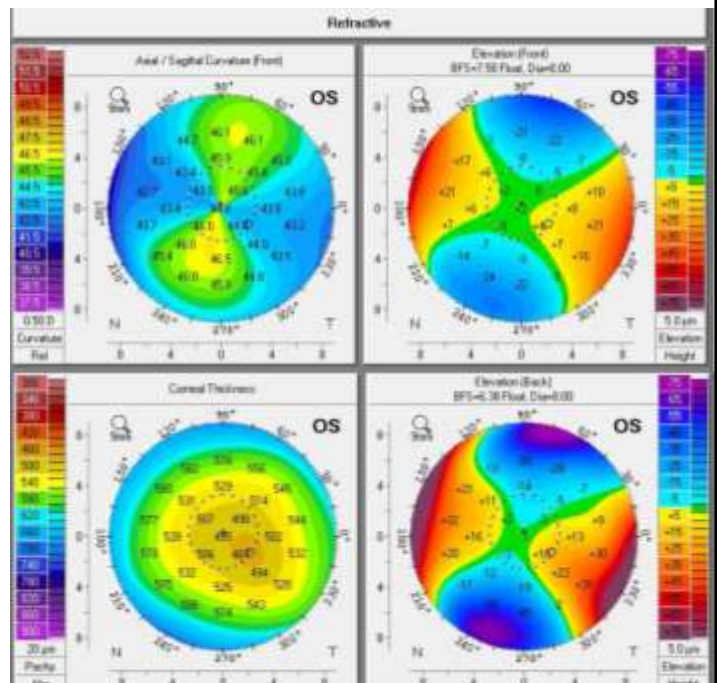
Complex solution for complex cases

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Consultant Cornea and Refractive surgery

Background

- Mixed Astigmatism

- Good corneal topography

- Relatively thin cornea

PRK for mixed Astigmatism

The higher the Cylinder treated with PRK:

• The higher the Astigmatism the higher the haze   J Cataract Refract Surg. 2016

• Under correction of Astigmatism   J Refract Surg. 2016

• Un satisfactory UCDVA   Ophthalmic Surg Lasers Imaging. 2007

Severe corneal haze post PRK
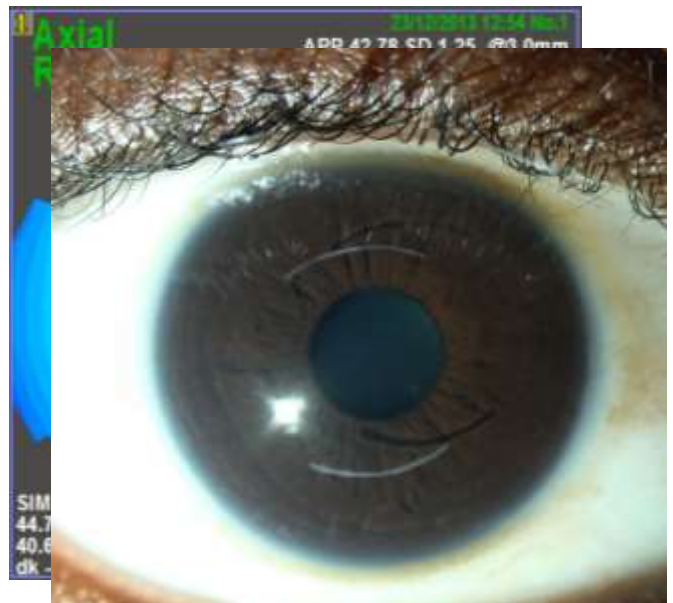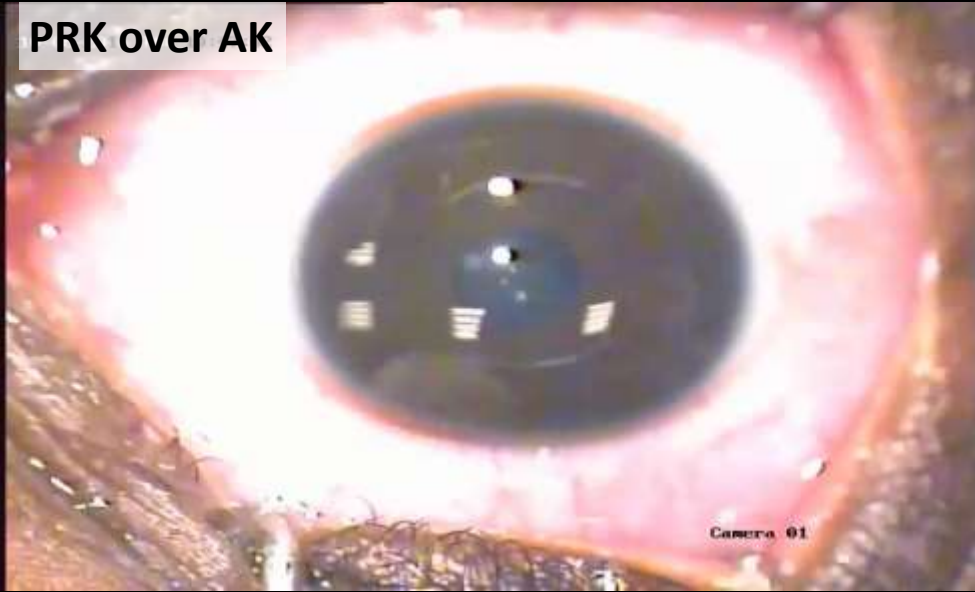
Inclusion criteria

- Mixed Astigmatism

- Stable refraction

- Corneal thickness < 500 μm

- Normal Topography profile

Methods

- Diameter   : 6mm

- Arc   : 70 degrees

- Depth   : 80% @ site of incision

- IFS 200 - Intralase

- Six months later → PRK + MMC
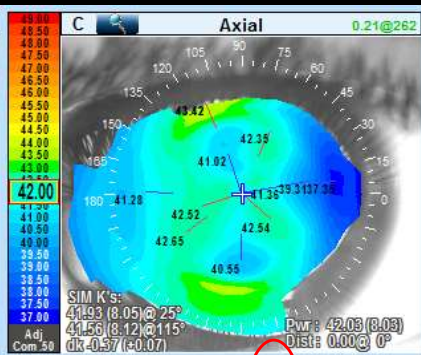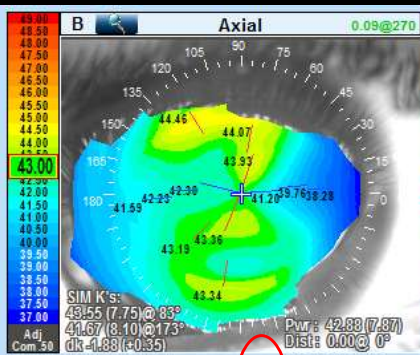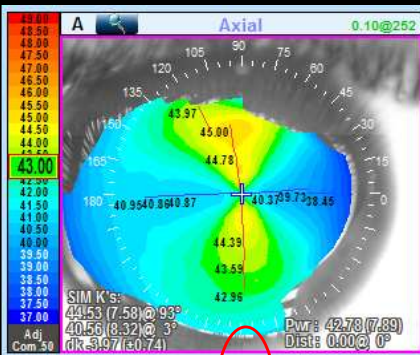
PRK over AK

Before AK   After AK   After PRK

Patient Population and Average Values

number of eyes pre OP: 20

average age@surgery: 29 years (range 19 to 48)

| gender | female: | 35.0% or 7 eyes | male: | 45.0% or 9 ey |
| eye | left: | 50.0% or 10 eyes | right: | 50.0% or 10 e |

Results

pre SR equiv: mean -1.53 D ± 1.06 D° (range -2.88 to 0.25)
pre SR sph: mean 0.68 D ± 0.91 D° (range -0.75 to 2.25)
pre SR cyl: mean -4.40 D ± 1.07 D° (range -6.50 to -2.00)

number of eyes last: 20 (follow up rate 100.0%)

post SR equiv: mean -1.44 D ± 1.09 D° (range -2.50 to 2.38)
post SR sph: mean -0.25 D ± 1.19 D° (range -1.50 to 3.50)
post SR cyl: mean -2.39 D ± 0.98 D° (range -4.50 to -0.25)

° ± 1 standard deviation

Patient Population and Average Values

number of eyes pre OP: 20

average age@surgery: 28 years (range 19 to 48)

| gender | female: | 35.0% or 7 eyes | male: | 45.0% or 9 eyes |
| eye | left: | 50.0% or 10 eyes | right: | 50.0% or 10 eye |

pre SR equiv: mean -1.53 D ± 1.06 D° (range -2.88 to 0.25)

Results pre SR sph: mean 0.68 D ± 0.91 D° (range -0.75 to 2.25)
pre SR cyl: mean -4.40 D ± 1.07 D° (range -6.50 to -2.00)

number of eyes last: 20 (follow up rate 100.0%)

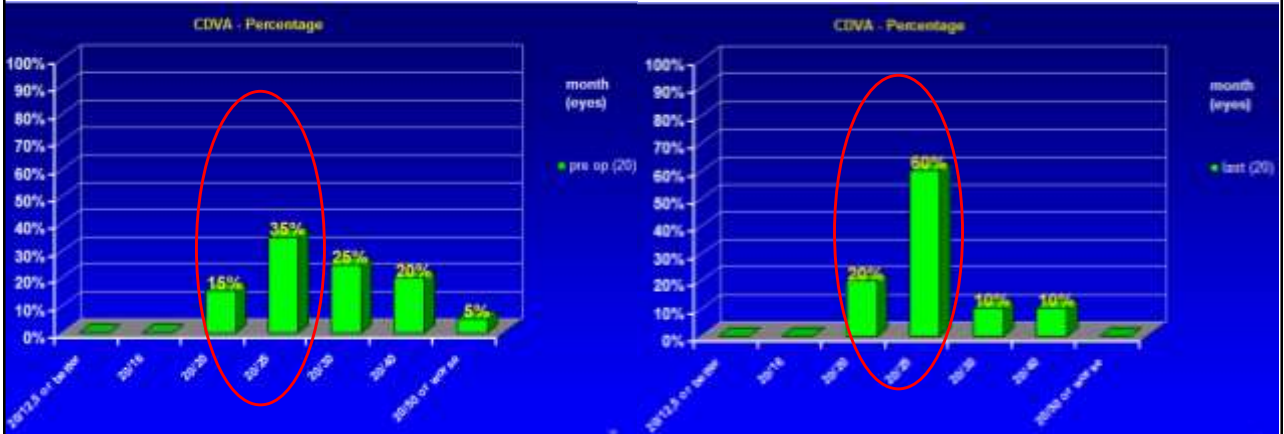post SR equiv: mean -0.33 D ± 0.67 D° (range -1.63 to 0.63)
post SR sph: mean 0.23 D ± 0.72 D° (range -1.50 to 1.75)
post SR cyl: mean -1.10 D ± 0.79 D° (range -2.75 to -0.25)

° ± 1 standard deviation
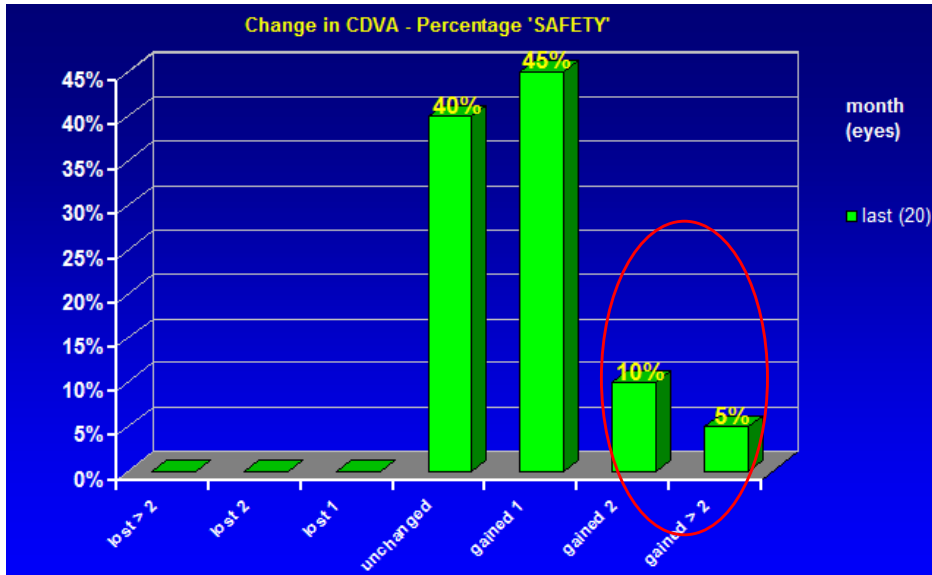
Results – Visual Acuity (CDVA)

Before

After

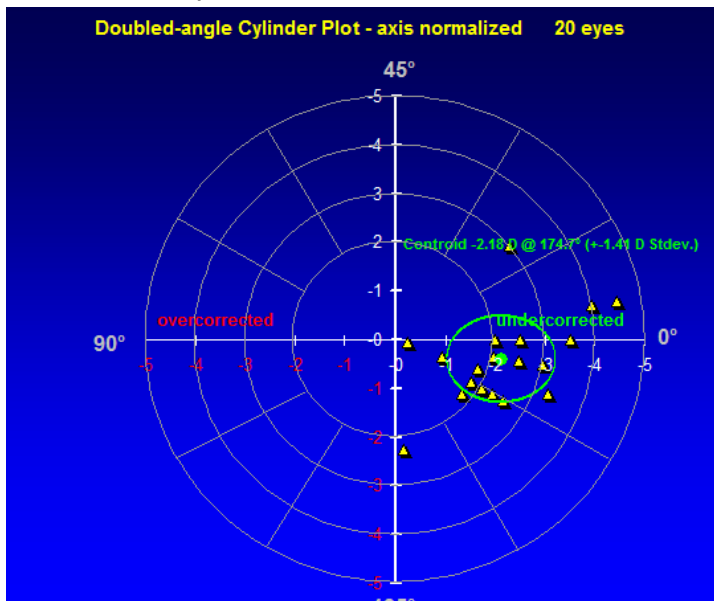# Results – Visual Acuity UDVA (after) vs CDVA (before) Efficacy
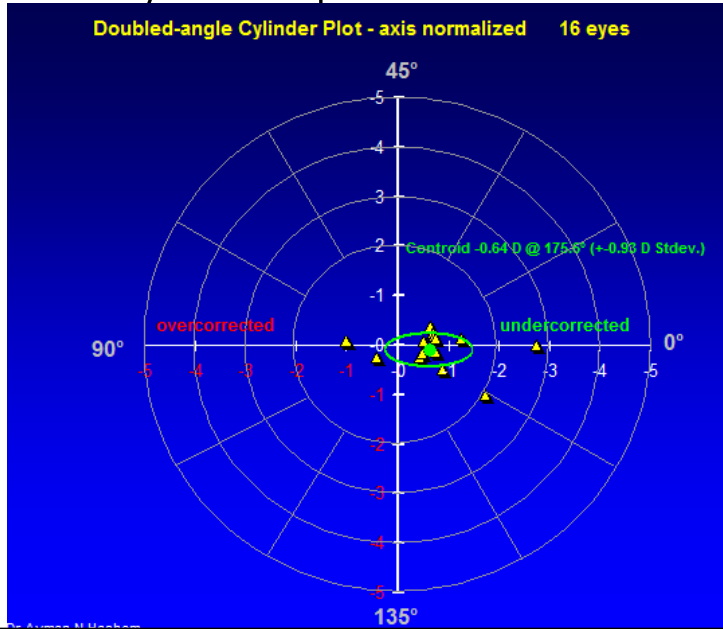

CDVA - before

UDVA - after

Visual Acuity - Safety

Predictability - Post AK

Predictability - PRK post AK

Conclusion

Combined Femto-Ak and PRK is safe and relatively predictable for correction of mixed astigmatism

Yes It's More costy

Yes It's More time consuming   BUT

Yes It's Worth it . .   it is the ONLY option

Thank you