

**VISUAL RESULTS
AFTER
LASER IN-SITU KERATOMILEUIS**

**FEMTOSECOND VERSUS
MECHANICAL MICROKERATOME**

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FINANCIAL DISCLOSURES : NONE

PURPOSE

- To compare the flap thickness, visual and refractive outcomes, and patient satisfaction between LASIK procedures using either MORIA mechanical microkeratome or Ziemer FEMTO LDV laser.

Materials & methods

- This was a prospective, randomised , single centre study (AEH,Jaipur) over a span of 30 days.
- Thirty patients (60 eyes) underwent Lasik for myopia or myopic astigmatism

	Microkeratome assisted	Femtosecond assisted
No. of eyes	30	30
Method	Flap created using the Moria Mechanical microkeratome (110um head)	Flap created using Ziemer Femto LDV laser

Materials & methods

Inclusion criteria

- Myopia up to -8 dioptres.
- Astigmatism up to -2.5 dioptres.
- Central corneal thickness of at least 500 μ m.
- Normal topography

Exclusion criteria

- Unstable refraction
- Predicted stromal bed thickness <250 μ m
- Previous ocular surgery, suspicion of keratoconus, any ocular disease
- Systemic diseases that could alter the wound-healing process such as diabetes and connective tissue disorders, pregnancy and breastfeeding.

Clinical parameters

Basic data

- Age
- UCVA
- BCVA
- Manifest Refraction
- Non – contact tonometry
- Slit lamp evaluation
- Dilated fundus evaluation
- Keratometry

Essential data

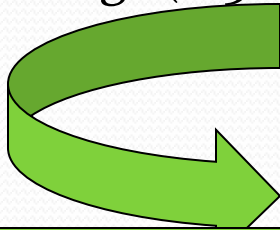
- Pachymetry : AS-OCT/
ultrasound
- Topography (Atlas Zeiss)



Surgical Procedure

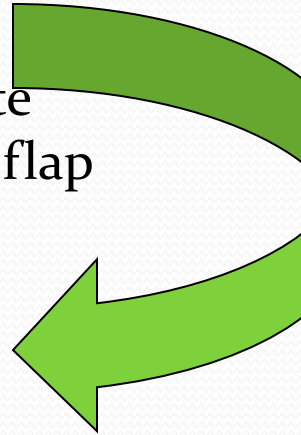
(Flap with Microkeratome)

- Topical anaesthesia
- The Moria microkeratome was used to create the flap.
- The cutting head (110 μ m) and the suction rings (8.5mm or 9.0mm)



(Flap with Femto second laser)

- Topical anaesthesia
- Parameters: superior hinge position, a flap diameter of 8.5-9mm depending on the white-to-white corneal diameter, an attempted flap depth of 120 μ m
- 105-degree rim cut angle, and hinge arc angle of 60 degrees.



- The flap was created with either method, it was raised with a spatula,
- the stromal bed dried with a sponge.
- Ablation was performed using MEL 80 excimer laser
- Patients were examined at postoperative-day 1, 1 week and 1 month
- UDVA, CDVA, and subjective refraction were measured.
- All complications were recorded.
- Safety was defined as the ratio of postoperative CDVA to preoperative CDVA.
- Efficacy was defined as the ratio of postoperative UDVA to preoperative CDVA

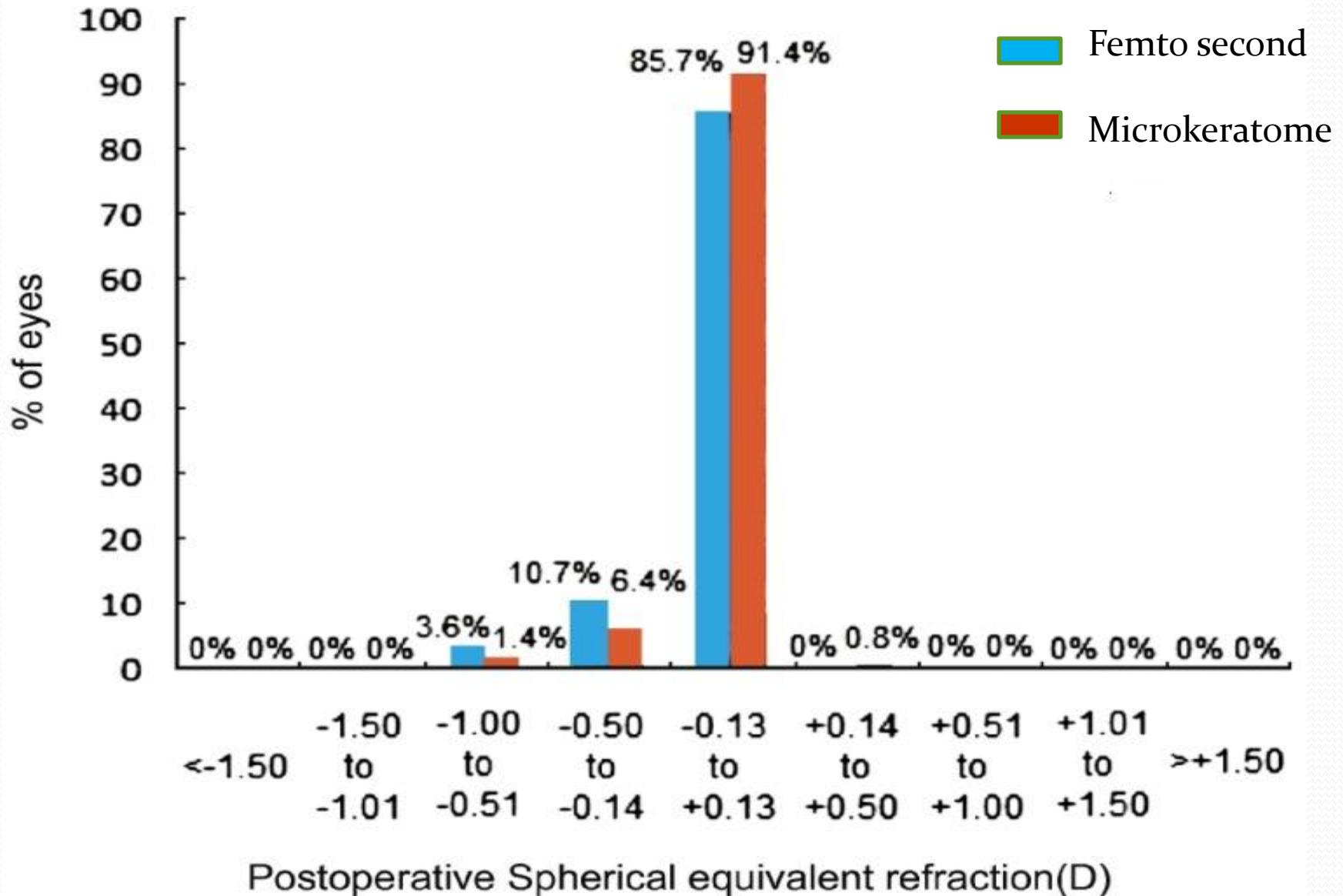
Preoperative comparative data of eyes

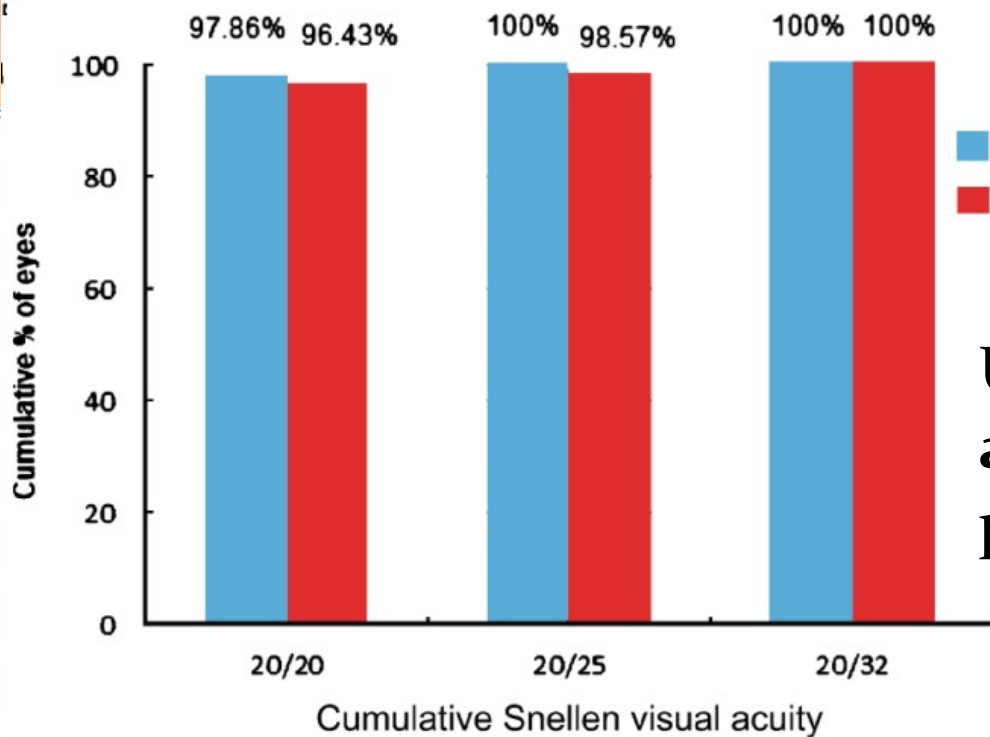
	MICROKERATOME (N= 30)	FEMTOSECOND ASSISTED (N= 30)
AGE	27.34 ± 0.85(18- 35 yrs)	28.24 ± 0.76 (18-39 yrs)
Female/ male ratio	8/7	6/9
Preop Sphere(D)	-3.48±0.17(0.00~ -8.00)	-3.47±0.14 (-0.50 ~ -7.75)
Preop Cylinder(D)	-0.89 ± 0.07 (0 ~ -2.25)	-0.75 ± 0.07 (0 ~ -2.50)
Preop Spherical Equivalent (SEQ)	-3.92±0.17 (-0.75 ~ -8.50)	-3.82±0.14 (-1.00 ~ -7.75)

Visual and refractive results 1 month after LASIK

	MICROKERATOME (N= 30)	FEMTOSECOND ASSISTED (N= 30)	P value
Post op Sphere(D)	-0.02 ± 0.01 (-0.50 ~ 0.25)	0.02 ± 0.01 (-0.75 ~ 0.50)	0.677
Preop Cylinder(D)	-0.04 ± 0.01 (-0.75 ~ 0)	-0.05 ± 0.01 (-0.50 ~ 0.00)	0.761
Postop Spherical Equivalent (SEQ)	-0.04±0.01 (-0.50 ~ 0.25)	-0.04±0.01 (-0.75 ~ 0.25)	0.919
Safety	1.00±0.00 (1.00 ~ 1.00)	1.00±0.00 (1.00 ~ 1.00)	1.000
Efficacy	0.998±0.001 (0.9 ~ 1.0)	0.995±0.001 (0.8 ~ 1.0)	0.280

Spherical equivalent refractive accuracy at 1 month postoperatively



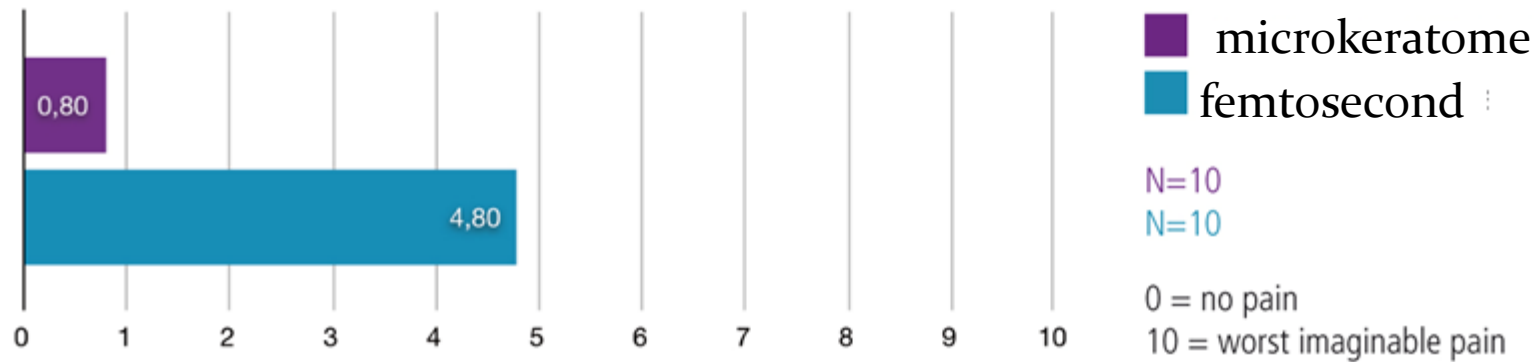


Uncorrected distance visual acuity at 1 month postoperatively

Complications	Microkeratome(n=30)	Femtosecond (n=30)
Minor flap adhesions	0	1(0.03%)
Subconjunctival hemorrhages	1 (0.03%)	2 (0.067%)
Mild DLK	0	1 (0.03%)
Microstriae	0	2 (0.067%)

Pain score

Pain score at 1 to 5 hours post surgery



The pain occurred at a much lower frequency and intensity
With MK in the first 1 to 5 hours after surgery
than with Femtosecond

Conclusion

- Since the follow up period in our study is short as 1 month, our patients are being followed up for refractive stability and any incidence of ectasia.
- In conclusion, LASIK performed both with femtosecond laser and microkeratome achieved satisfactory refractive and visual results at 1 month postoperatively, without significant differences in efficacy, safety, and complication rates between the two procedures.