

UNIVERSIDAD DE EXTREMADURA

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CENTRO INTERNACIONAL DE OFTALMOLOGIA AVANZADA

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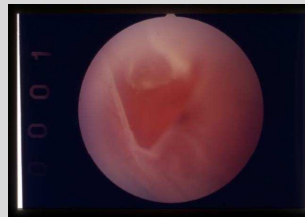
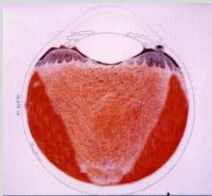
BADAJOS

No financial
interest.

Biometric changes during microkeratome suction
in patients with intraocular lens and primary lasik

PURPOSE: To study the biometric modifications of the ocular globe during suction In lasik surgery in patients with intraocular lens and primary lasik.

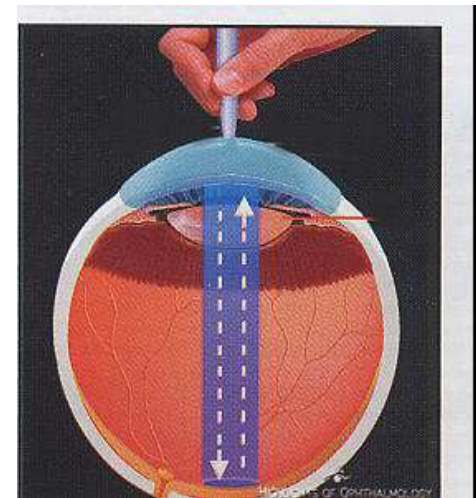
Some papers have associated intraocular changes and pathologic alterations in myopic eyes during lasik (1-11).



Vitreous, retinal and macular complications. Optic neuropathy.

METHODS: 68 eyes of 50 patients subdivided in 2 groups,
a) primary lasik: 50 eyes of 34 patients with myopia and myopic astigmatism and
b) 18 eyes of 16 patients with residual refractive defect after cataract surgery and posterior chamber intraocular lens (PC IOL) implantation

METHODS (II): We perform conventional lasik surgery with manual microkeratome. Before and during suction maneuver, we measured depth of the anterior chamber, lens or PC IOL-posterior capsula complex thickness , vitreous cavity length and antero-posterior diameter using a 11 Mhz biometric probe. Student T test was applied to analyze the results.



Biometry pre and during suction.

RESULTS (I):

In primary lasik group during suction:

- 1.- axial length increased by 0,07 mm (P=0.08),
- 2.- anterior chamber depth increased 0,06 mm (P=0.5) and
- 3.- vitreous cavity 0,25 mm (P<0.01).
- 4.- Lens thickness decreased 0,17 mm (P<0.01).

In intraocular lens group

- 1.- axial length increased by 0,08 mm (P=0.5),
- 2.- anterior chamber depth decreased 0,26 mm (P=0.08),
- 3.- iol-lens complex thickness reduced by 0,45 mm (P=0.08) and
- 4.- vitreous cavity increased by 0,79 mm (P=0.09).

Antero posterior diameter increased in 60% of the eyes, vitreous cavity increased in 84% of the eyes, lens thickness was reduced in 76% of the eyes in primary lasik group.

MOST IMPORTANT DATA (LASIK GROUP):

Changes pre and during suction.

ANTERIOR CHAMBER: (>0.06 mm) (1.8%)

3.2 \pm 0.34 INCREASES 3.26 \pm 0.28 mm

LENS: (<0.17 mm) (4%)

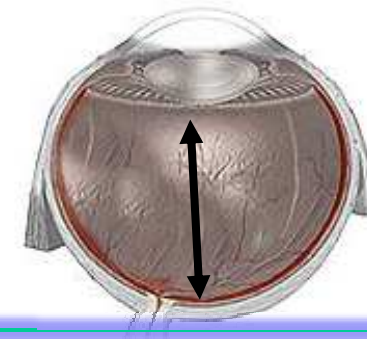
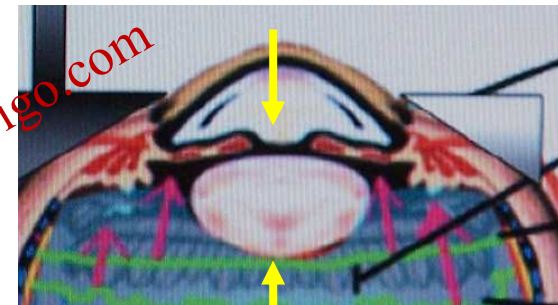
4.16 \pm 0.34 DECREASES 3.99 \pm 0.33 mm

VITREOUS: (>0.25 mm) (1.45%)

17.2 \pm 1.15 INCREASES 17.45 \pm 1.22 mm

ALX: (>0.08 mm) (0.3%)

24.54 \pm 1.05 DECREASES 24.62 \pm 1.01 mm



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In the whole population during suction axial length increased by 0,08 mm (P=0.08), anterior chamber depth decreased 0,06 mm (P=0.17) and vitreous cavity increased 0,43 mm (P<0.01). Lens thickness decreased 0,24 mm (P<0.01).

CONCLUSIONS:

Suction maneuvers during lasik surgery in patients with intraocular lens and primary lasik produce changes of little magnitude in the ocular globe mainly decrease in lens thickness and increase in vitreous cavity length, these modifications have little possibility to produce anatomic alterations.

BIBLIOGRAPHY

- 1.- Ang E, Couper T, Dirani M, Vajpayee R, Baird P. Outcomes of laser refractive surgery for myopia. J Cataract Refract Surg 2009; 35:921-933 ,
- 2.- Arévalo, JF. Posterior segment complications after laser-assisted in situ keratomileusis. Curr Opin Ophthalmol 2008; 19: 177-184.
- 3.- Mirshahi A, Kohnen T. Effect of microkeratome suction during LASIK on ocular structures. Ophthalmology 2005; 112: 645-649.
- 4.- Chan CK, Tarasewicz DG, Lin SG. Relation of pre-LASIK and post-LASIK retinal lesions and retinal examination for LASIK eyes. Br J Ophthalmol 2005; 89: 299-301.
- 5.- Arévalo JF, E, Suárez E, Cortez R, Ramírez G, Yopez J. Retinal detachment in myopic eyes after laser in situ keratomileusis. J Refract Surg 2002; 18:708-714.
- 6.- Quin B, Huang L, Zeng J, Hu J. Retinal detachment after laser in situ keratomileusis in myopic eyes. Am J Ophthalmol 2007; 144: 921-923
- 7.- Arévalo JF, Mendoza A, Velez-Vazquez W, Rodríguez FJ, Rodríguez A, Rosales-Meneses J et al. Full thickness macular hole after lasik for the correction of myopia. Ophthalmology 2005; 112: 1207-1212.
- 8.- Lee A, Kohnen T, Ebner R, Bennett J, Miller N, Carlow T, Koch D. Optic neuropathy associated with laser in situ keratomileusis. J Cataract Refract Surg 2000; 26:1581-1584.
- 9.- Fernández-Vigo J, Macarro Merino A, Fernández Sabugal J. Retratamientos en cara interna del colgajo corneal en lasik. Estudio comparativo con un grupo control. Arch Soc Esp Oftal 2007; 82: 697-704.
- 10.- Whitson J, McCulley J, Cavanagh D, Song J, Bowman W, Hertzog L. Effect of laser in keratomileusis on optic nerve head topography and retinal nerve fiber layer thickness. J Cataract Refract Surg 2003; 29: 2302-2305
- 11.- Flaxel C, Choi Y, Sheety M, Oeinck SC, Lee J, McDonnell P. Proposed mechanism for retinal tears after LASIK. Ophthalmology 2004; 111: 24-27