REVIW OF

KERATECTASIA AFTER LASIK

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SUMMARY

LASIK is currently gaining acceptance as an effective surgical procedure for the correction of refractive errors. But it weakens the cornea from the mechanical aspect because of the inherent tissue ablation and the lamellar keratectomy involved in the procedure. This weakening can precipitate progressive anterior shift of the cornea - ectasia of the cornea

Several theories have been proposed to explain the development of this condition and to explain the biomechanical changes that occur due to corneal thinning by ablation. It was proposed that this biomechanical remodeling involves not only the mechanical aspects of the load-bearing collagen fibrils but also the hydration response of the stroma which is also affected by wound-healing response of the stromal cells.

Another theory was put forward and noting that the elastic deformation starts in the posterior surface and depends on inherent corneal factors, the intraocular pressure (IOP), and the ablation profile. And it was concluded that these changes rise proportionally with the

AIM OF WORK

This review aims to evaluate the current knowledge relating to risk factors, pathogenesis and suggested recent trends in treatment of post-LASIK keratectasia.

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CONTENT

LIST OF ABBREVIATIONS

ABT	**Asymmetric Bowtie**
BMP	**Bone morphogenic proteins**
BSF	**Best Sphere Fit**
CH	**Corneal Hysteresis**
CRF	**Corneal Resistance Factor**
CT	**Preoperative Corneal Thickness**
CXL	**Collagen cross-linking**
DALK	**deep anterior lamellar**
D	**Diopters**
DSPG	**dermatan-sulfate proteoglycan**
ECM	**Extracellular matrix**
EGF	**Epidermal growth factor**
FFKC	**Forme Fruste Keratoconus**
IL-1	**Interleukin**
IOP	**Intraocular pressures**
IS	**Inferior steepening**
KSPG	**keratan-sulfate proteoglycan**
LASIK	**Laser in situ keratomileusis**
MMPs	**Matrix metalloproteinase's**
µm	**Micrometer**
MRSE	**Spherical equivalent manifest**
OCT	**Optical coherence tomography**
OLCR	**Optical Low Coherence**
ORA	**Ocular Response Analyzer**
PDGF	**Platelet derived growth factor**
PKP	**penetrating keratoplasty**
PMD	**Pellucid marginal degeneration**
PRK	**Photorefractive Keratectomy**
RST	**Residual stromal thickness**
TNF	**Tumor necrosis factor**
SBT	**Symmetric Bowtie**
SRA	**Skewed Radial Axis**
US	**Ultrasound**
VHF	**Very high frequency**

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KERATECTASIA AFTER LASRE IN SITU KERATOMELUISIS (LASIK)

Post-LASIK Ectasia can be defined as: Progressive non inflammatory corneal thinning after surgery resulting in irregular topographic steepening and resultant irregular astigmatism.[1]

And defined as inferior topographic steepening of 5 diopters (D) or greater compared with immediate postoperative appearance.

Associated with a loss of 2 or more Snellen lines of uncorrected visual acuity.

And a change in manifest refraction of 2 D or more in either sphere or cylinder.[2]

The incidence of ectasia after refractive surgery is not known precisely, but have been estimated to be 0.2% to 0.66% in two studies.[3,4]

BIOMECHANICAL AND BIOLOGICAL RESPONSES TO LASIK

I. Biomechanical Response:

It is evident from incisional refractive surgery that the cornea is not mechanically inert. The role of biomechanics is therefore important to consider in routine procedures and in special cases where the biomechanical status of the cornea is abnormal (for example, after any previous refractive surgery or after penetrating keratoplasty). Biomechanical changes can manifest clinically as immediate corneal shape changes, shape instability over time and increased sensitivity to shape changes from stimuli such as altered hydration, hypoxia and subsequent injury or surgery. [5-7].

Foundations of the biomechanical response:

1.Corneal architecture:

Bowman's layer and the stroma contain collagen fibrils, so these layers thus provide the majority of the cornea's tensile strength.[8]