Evaluation of Femtosecond Laser-assisted Clear Cornea Cataract Surgery

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Introduction

• Cataract surgery today is a quick and efficient procedure. However, it still has limitations.

• Poor wound integrity and subclinical wound leaks from clear corneal incisions have led to an increased rate of endophthalmitis.[1]

• Inconsistent capsulorhexis creation can lead to refractive errors, lens tilt, and decentration of the lens.[2-5]

• Phacoemulsification energy can decrease endothelial cell count.[6]

• The refractive accuracy is variable with only 75% of patients achieving an outcome within 0.5 D of emmetropia.[7]

• Femtosecond laser has the potential to improve on these shortcomings.

Purpose

The purpose of this study was

• To evaluate the efficacy of femtosecond laser assisted clear cornea cataract surgery

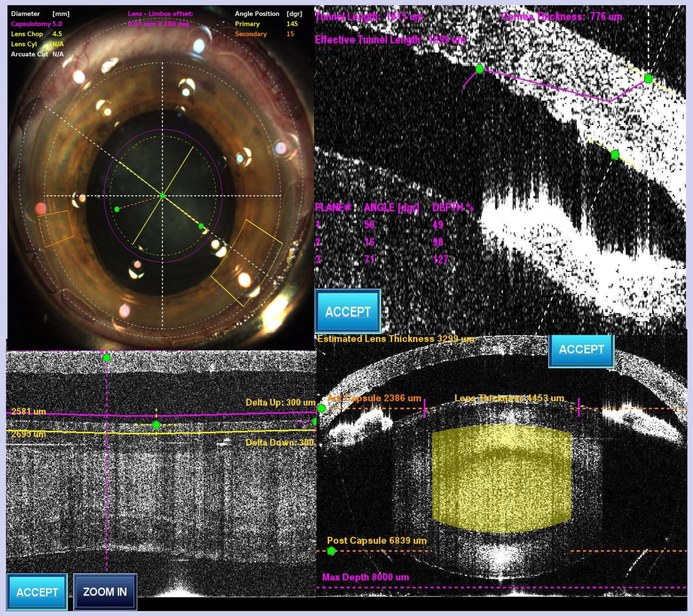
• To determine the safety concerns and complications of the procedure

Methods

• 115 eyes of 78 consecutive patients who underwent femtosecond laser assisted clear cornea cataract surgery were evaluated preoperatively and 6 months post-operatively.

• These patients were evaluated for age, uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA), refraction, cylinder, capsulorrhexis diameter, topographic cylinder change, endothelial cell count, and complications.

LenSx Femtosecond Laser



	Pre Op	6 months post op
Age	68	--
UCVA	20/100	20/25
BCVA	20/40	20/22
Sph Equivalent Ref.	3.7D	0.5D
Cylinder	-2.25D	-0.55D
Capsulorrhexis Diameter	5.8mm	--
ECC	1850	1650

Discussion

• The use of femtosecond laser assisted clear cornea cataract surgery is effective at achieving emmetropia in this series of patients.

• Uncorrected visual acuity was 20/25.

• Cylinder was reduced and endothelial cell count was preserved.

• Two patients had incomplete capsulorrhexis that were completed manually.

• No other complications were noted in this series.

Conclusions

• Current phacoemulsification cataract surgery has excellent visual results. However, this has led to an increase in patient expectations.

• The use of femtosecond laser allows for a more precise capsulorrhexis which is necessary with the evolution of multifocal IOLs.[8-10]

• Less phacoemulsification time is required, reducing energy exposure to the endothelium.[11]

• Cost considerations are still an issue.

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