One-Year Dynamic Range of Visual Outcomes After Laser Anterior Ciliary Excision Procedure

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Introduction

Ocular Rigidity recently Correlated with Loss of Accommodation

- Decreased Ciliary Muscle Force To adjust the Lens
- Increased Scleral Rigidity
- Increased Lens Stiffness

Laser Anterior Ciliary Excision Procedure

LASERACE MECHANISM OF ACTION OBJECTIVE: DECREASE OCULAR RIGIDITY

Ciliary Muscles (CMM)
Sclera

Animation Courtesy Dr. Daniel Goldberg

Restoration of Dynamic Accommodation
Methods/Inclusion Criteria

- 40 eyes of 20 patients underwent laser anterior ciliary excision
- Inclusion criteria:
  - ≥40 years of age with a demonstrated loss of accommodative function
  - Less than (<) 1.00D of astigmatism in each eye, measured in their manifest refraction
  - DCVA equal to or better than 20/40 in both eyes
  - Less than 0.50 D difference between manifest and cycloplegic refraction
  - LVC patients who met inclusion criteria were included (N=1)
Laser Anterior Ciliary Excision

- Procedure Objective:
  - Restore mechanical efficiency of the natural accommodative mechanism
  - Improve biomechanical mobility to achieve accommodative power

- Er:Yag laser with fiber optic probe
- 600um spot size
- Nine micro-excisions in the 4 oblique quadrants
- Micro-excisions in 3 critical zones over the ciliary complex
- Creation of pliable matrix zones in the Sclera

Results: Uncorrected Vision After Laser Anterior Ciliary Excision at 12 months Post Op

- **UDVA**
  - No statistical significant change in distance Vision.

- **UIVA:**
  - 95% were 20/32 or better
  - 85% were 20/25 or better
  - 70% were 20/20 or better

- **UNVA:**
  - 85% were 20/32 or better
  - 75% were 20/25 or better
  - 25% were 20/20 or better
Distance Corrected Vision at 12 Months Post-Op

- **DCDVA:**
  - No statistically significant change

- **DCIVA:**
  - 95% were 20/32 or better
  - 90% were 20/25 or better
  - 75% were 20/20 or better

- **DCNVA:**
  - 85% were 20/32 or better
  - 80% were 20/25 or better
  - 25% were 20/20 or better
Results: Stereopsis

Stereopsis unaffected & actually improved over time
## Results: Patient Satisfaction

### Catquest – 9SF Results Summary

<table>
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Results: IOP Reduction from Baseline

- IOP was measured pre-operatively, and at each follow-up visit.
- N = number of eyes (OD)
- No cases of hypotony in the immediate postoperative period (days 1-7)
Results

• No statistically significant loss of distance vision
• Patients achieved improvement of both Near & Intermediate Vision both Uncorrected & Distance Corrected
  • 2 to 4 lines of improved reading vision obtained
• Stereopsis was unaffected and stereopsis values actually improved over time following the procedure.
• High patient satisfaction postoperatively based upon Catquest 9F survey
• Approximately 2.1mmHG (approx. 20% ) mean drop in IOP from baseline sustained over 12 months.