



**Massachusetts  
Eye and Ear  
Infirmiry**

*A Teaching Affiliate of Harvard Medical School*



# Femtosecond-Assisted Lamellar Corneal Tattooing for Visual Disturbances from Traumatic and Post-Surgical Iris Defects

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# Purpose

- To describe the technique of femtosecond-assisted lamellar intrastromal corneal tattooing as a treatment modality to correct visual disturbances and cosmetic defects from iris abnormalities.
- We report the results of this method in a case series.

# Methods

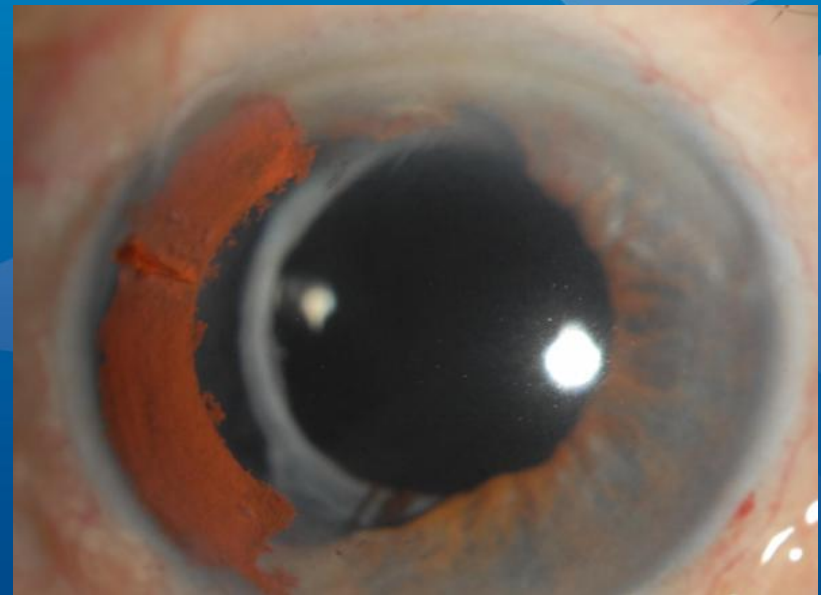
- The study involved 7 eyes with symptomatic iris defects (sector iridectomy, iridodialysis, abnormally large pupil).
- Symptoms included:
  - Visually significant glare
  - Peripheral light scatter
  - Diplopia
  - Tripplopia

# Methods

- A femtosecond laser was used for creation of 1 or more intrastromal corneal channels and a peripheral incision.
- Laser parameters were adjusted in depth and diameter depending on the ocular condition and location of the iris defect.

# Methods

- Using a cannula, commercially available tattoo pigment was injected into the lamellar stromal bed. The color of the dye was adjusted for each iris color for adequate color blending.



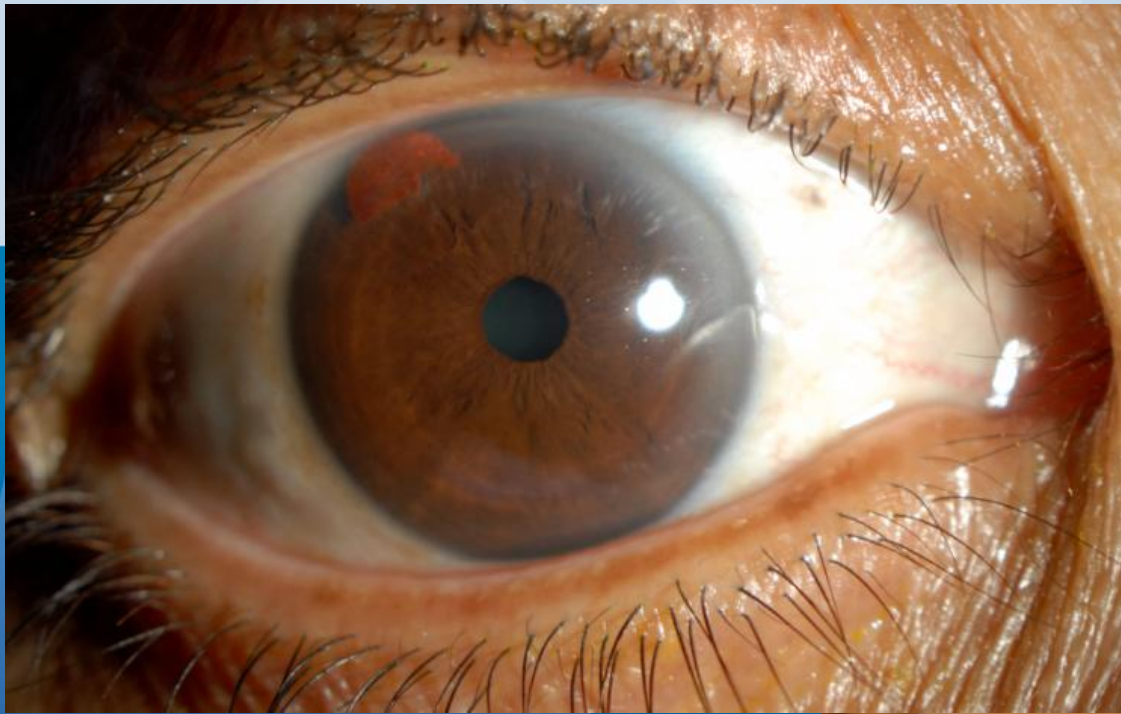
# Results

- The design and application of the femtosecond laser for lamellar dissection for dye injection was successful in all cases.
- There were no intraoperative or postoperative adverse events seen by the 6-month or 1-year follow-up.

# Results

- Resolution of visual disturbances was achieved in all patients.
- Adequate color blending to match the recipient iris was achieved.







# Potential Complications

- Underpigmentation
- Overpigmentation
- Pigment migration
- Infection
- Perforation
- Delayed healing
- Uveitis

# Conclusion

- The technique of femtosecond-assisted corneal tattooing is simple and efficient for treating visual symptoms from iatrogenic or traumatic iris defects.

# Conclusion

- Advantages of this technique include precise, customized design, safety over manual dissection, reduced risk of perforation, and minimal inflammation.
- In some patients, this technique provides a practical alternative to undergoing pupilloplasty.