

A Novel Ocular Registration-Guided Graphical Overlay with a New Surgical Microscope for Toric IOL Alignment during Cataract Surgery



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Presented: During annual ASCRS 2023 in San Diego.

Purpose:

To evaluate the accuracy of axis marking with a recently introduced surgical microscope that incorporates a novel ocular registration-guided graphical overlay for toric IOL alignment during cataract surgery.

Methods:

This prospective study will include up to 50 eyes that will undergo toric IOL implantation during cataract surgery. Patients are analyzed with Cassini Ambient topographer which provides a reference image. The unique anatomical landmarks of the entire eye are registered with the topographer preoperatively and AVENTA surgical microscope intraoperatively. The data from Cassini Ambient topographer integrates with the AVENTA surgical microscope that overlays graphical data in real-time in the surgeon's field of view to allow accurate toric IOL alignment along the intended axis. The accuracy of axis marking is

validated by comparing the image obtained intraoperatively with that obtained preoperatively.

Results:

Results: Interim analysis on the accuracy of toric IOL axis alignment using a surgical microscope that incorporates novel ocular registration-guided graphical overlay for the alignment of toric IOL showed that in over 90% of eyes, graphic overlay for axis marking was within 3 degrees of the intended axis.

Conclusion:

The surgical microscope that incorporates ocular registration-guided graphical overlay for toric IOL alignment during cataract surgery is an accurate method for aligning toric IOLs.