

Natural progression of anterior segment parameters and longitudinal effects of laser peripheral iridotomy in patients with primary angle closure suspect

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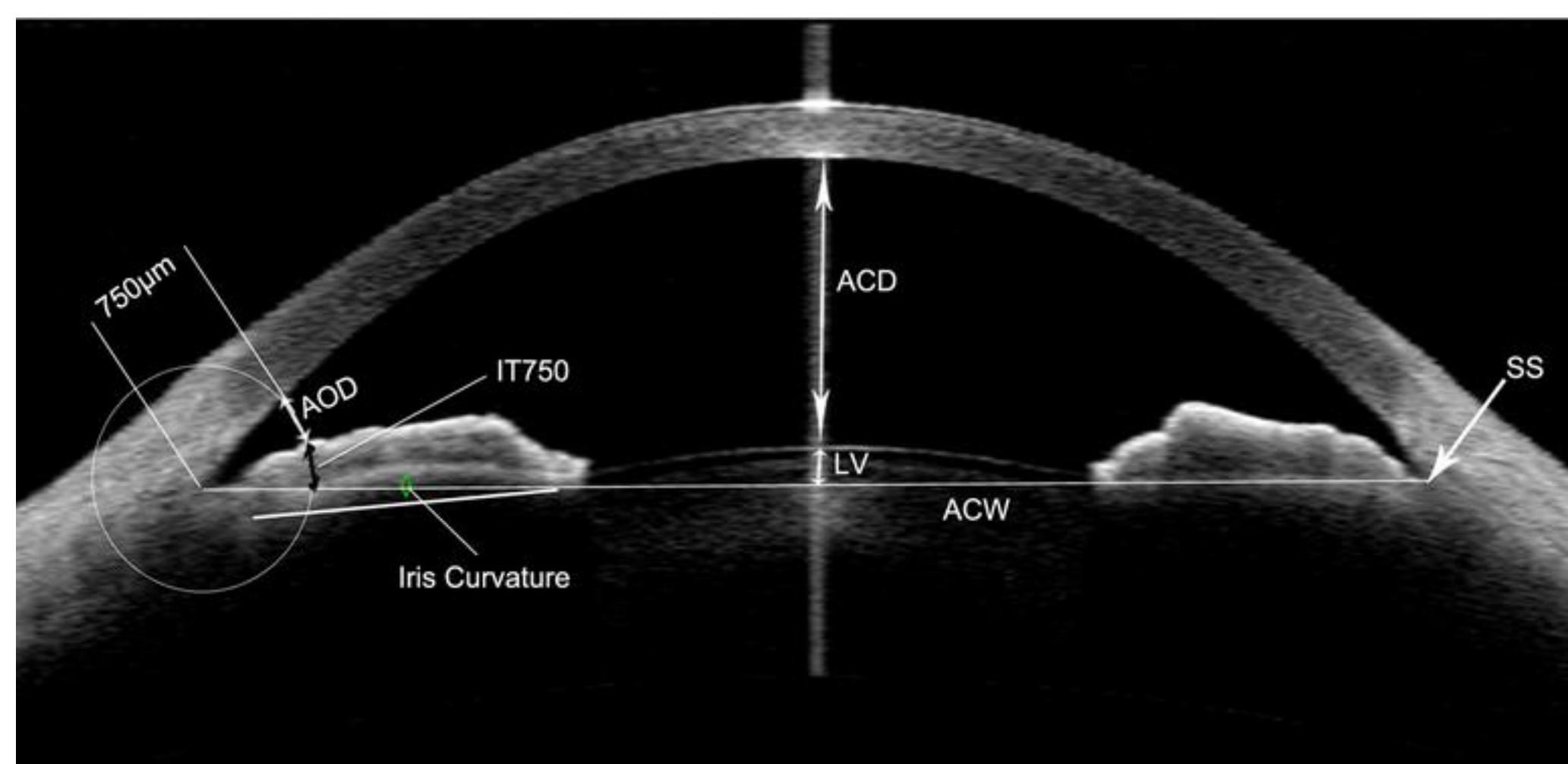
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BACKGROUND

- Primary angle closure glaucoma (PACG) affects over 20 million globally, leading to irreversible blindness.
- Lack of consensus on monitoring algorithm of primary angle closure suspects (PACS)
- LPI's effectiveness in preventing PACG progression remains debated.
- Zhongshan Angle Closure Prevention (ZAP) randomized controlled trial indicated limited risk reduction from prophylactic LPI in PACS.

METHODS

- Secondary analysis of ZAP trial
- 889 PACS patients from Guangzhou, China, randomized to receive LPI treatment in one eye and no treatment in the other
- Anterior segment OCT (AS-OCT) to assess anterior chamber angles, anterior chamber dimensions, and iris dimensions over 72 months
- Statistical analysis utilized generalized estimating equations for comparison between treated vs. untreated eyes



Laser peripheral iridotomy in patients with PACS leads to significant and sustainable changes in eye anatomy, suggesting a preventative effect against glaucoma.

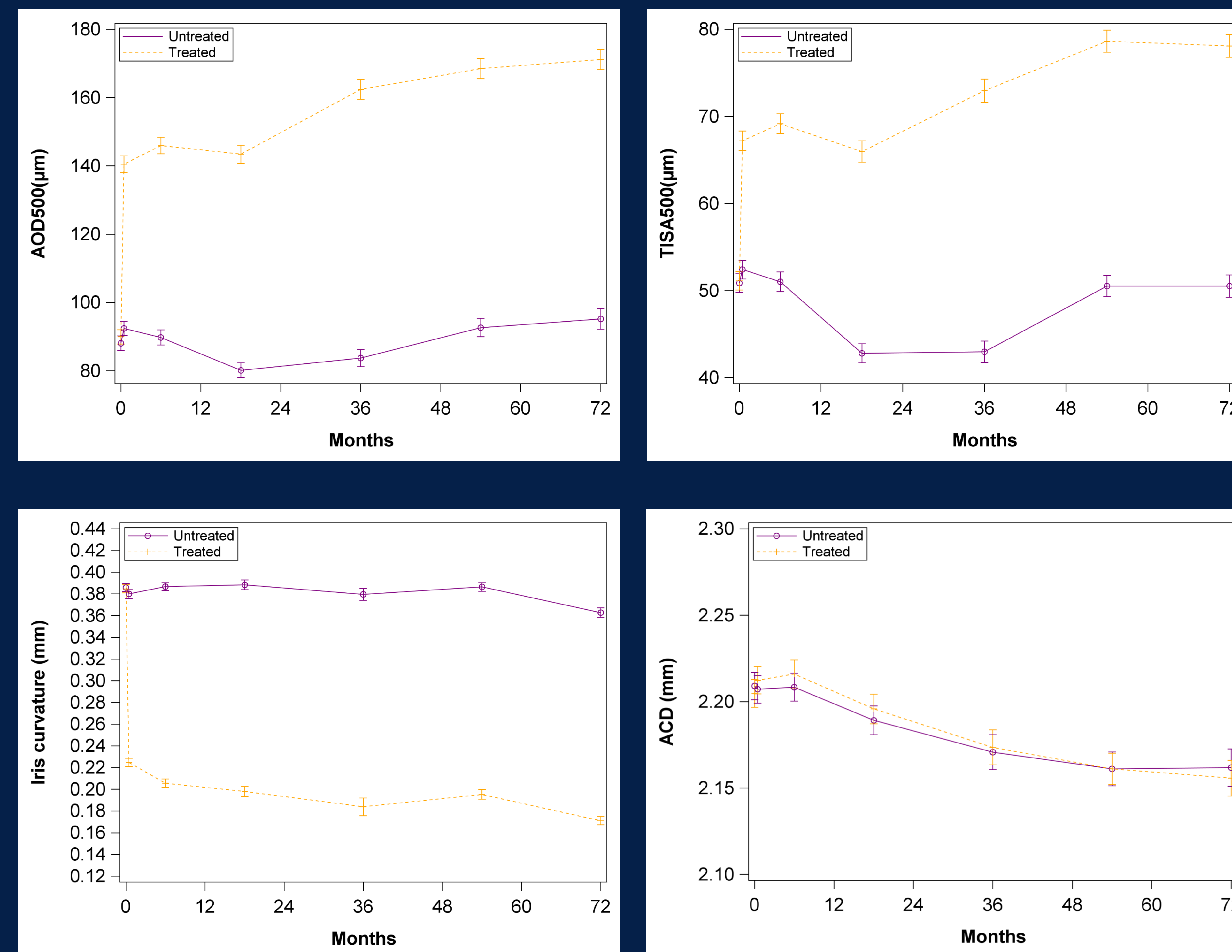


Figure 1. Angle parameters for eyes that were untreated and eyes that received laser peripheral iridotomy treatment at baseline, 2 weeks, 6 months, 18 months, 36 months, 54 months, and 72 months follow-up for A) Angle opening distance at 500 μm from the scleral spur (AOD500), B) Trabecular-iris space area 500 μm from the scleral spur (TISA500), C) Iris curvature, D) Anterior chamber depth (ACD). Error bars represent ± one standard error.

RESULTS

- Widening of the angle (increased AOD500 and TISA500) persisted in LPI-treated eyes at every timepoint up to 72 months
- In treated eyes, the angle continued to widen between 18 and 72 months
- Iris curvature flattened and peripheral iris thickness increased significantly in treated eyes
- ACD decreased slightly but significantly in both treated and untreated eyes
- Minimal changes in untreated eyes except ACD reduction

CONCLUSIONS

- LPI induces significant, lasting anatomical changes in PACS patients, suggesting its preventive role against glaucoma progression
- Emphasizes the value of AS-OCT in patient monitoring
- Future research should analyze the contributions of changes in these parameters as predictors for the progression of PACS