**Quantitative Evaluation of Anterior Segment Parameters Using AS-OCT in Different Mechanisms of Angle Closure**

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**Purpose**

To quantitatively evaluate anterior segment parameters using Anterior Segment Ocular Coherence Tomography (AS-OCT) to study different mechanisms of angle closure.

**Methods**

148 patients (148 eyes) (primary angle closure + primary angle closure glaucoma were recruited from NUHS. Images of nasal-temporal anterior chamber angles were captured in the dark with Carl-Zeiss Meditec AS-OCT prototype machine. With consensus of 4 glaucoma experts the images were categorized into 4 groups (Figure 1).

A customized software (Anterior Segment Analysis Program, ASAP, National University Health System, Singapore) was used to study the anterior segment parameters. After accurate identification of scleral spur the following anterior segment parameters were computed (Figure 2):

- Scleral Spur-to-Scleral Spur Distance (SSD)
- Pupil diameter, Anterior Chamber Area
- Angle Opening Distance (AOD) 500 µm and 750 µm
- Trabecular Iris Space Area (TISA) 500 µm and 750 µm
- Lens Vault (LV, defined as the perpendicular distance of the anterior lens surface from a line passing through both sciera spura), Angle Recess Area (ARA) 1500, 2000
- Sector area between anterior iris surface and corneal endothelium with 1500 µm and 2000 µm radii from scleral spur respectively.

**Results**

Mean age of patients was 68.3 ± 9.8 years. Gender: 64.9% female. 35.1% male. Ethnicity was predominantly Chinese (87%). No significant difference in age, gender, race, sphere equivalent, Shaffer grading of the angles among the 4 groups.

There was a significant difference in pupil diameter, ACA, LV (P < 0.001). Central ACD, mean of nasal and temporal values of ACD 1000, 2000 µm (Figure 3); AOD 750, ARA 2000 were found to be significantly different (P < 0.001) and AOD 500 (P = 0.040) among the 4 angle closure groups. SSD, ARA 1500, TISA 500 and 750 showed no significant difference between the groups (Table 1).

**Discussion**

- **AS-OCT** is an imaging device that has been recently demonstrated to be useful in the evaluation of the anterior segment and shows good to excellent reproducibility for image acquisition in nasal and temporal angle quadrants.

**Conclusion**

- We can infer that ASOCT can be a useful tool in quantitative evaluation of underlying mechanisms of angle closure in an Asian population.
- Results obtained form basis for establishing normative database for analysis of ASOCT images in angle closure patients.

**References**


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