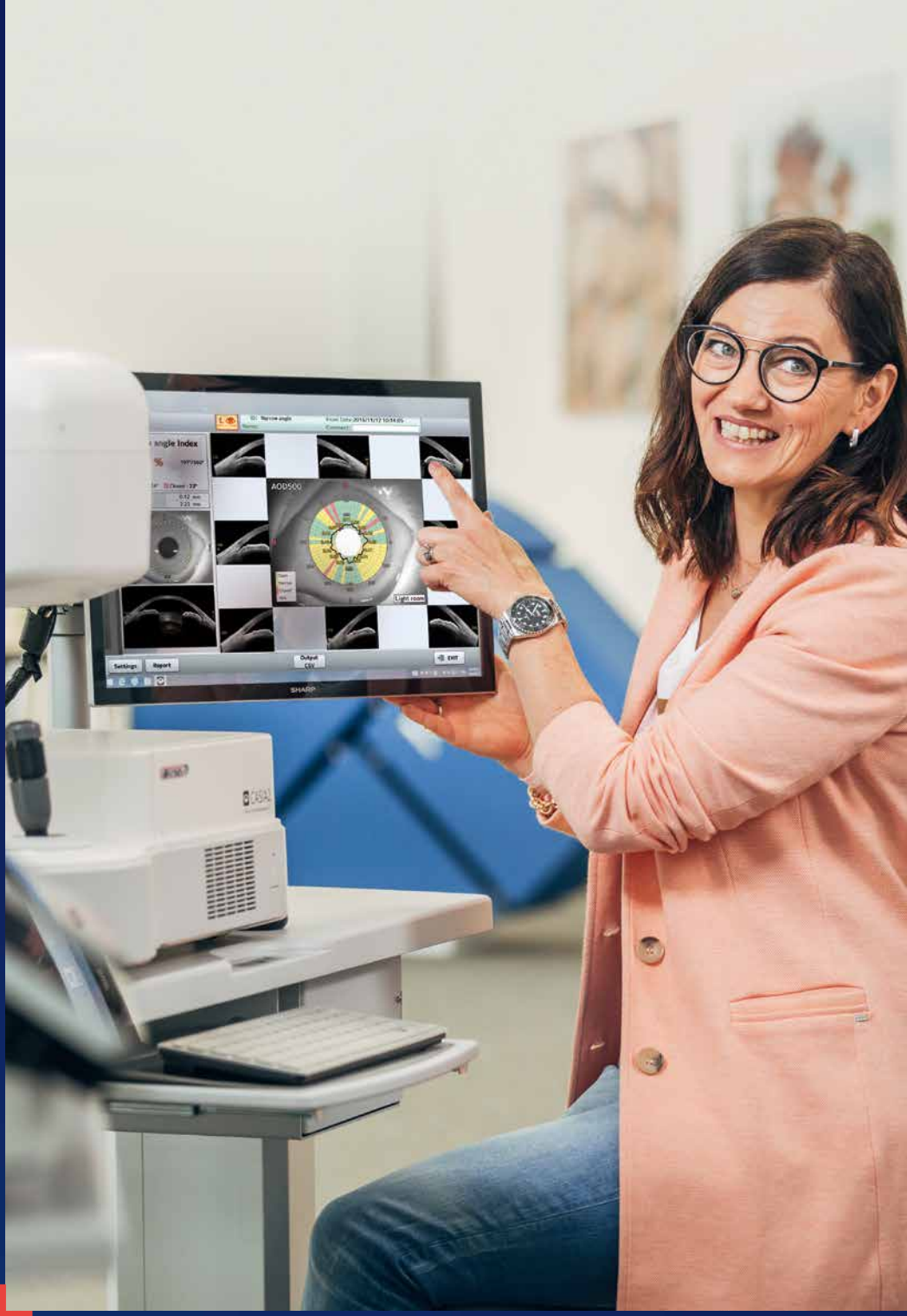
TOMEY



STAR Analysis

Glaucoma application of TOMEY CASIA2

PRECISION MEETS INNOVATION.

CASIA2

Cornea/Anterior Segment OCT

The CASIA2 provides an impressive user experience with intuitive operation and automation, supported by an unbelievable measurement speed (a topographic image is captured in just 0.3 seconds). Our software guides you through measurement, analysis and the final report. Get inspired now and see the eye from a different perspective.

Get to know its excellent features

+ Testing application for cataract/ glaucoma/cornea surgery
+ Special glaucoma analysis (STAR 360°)
+ Advanced imaging with deep scanning depth (13 mm)
+ Very fast scanning speed (50,000 A-scans/second)
+ Corneal topography, trend analysis, IOL choice and calculation
+ Lens shape analysis incl. tilt and decentration
+ Phakic IOL simulation
+ ICL Pre- and Post-OP application
+ Colour fixation camera

STAR Analysis

Glaucoma application

With our STAR 360° application, the CASIA2 automatically measures the anterior chamber angles all around the anterior segment – thanks to its automatic scleral spur detection. It provides you with specific parameters needed to detect and treat glaucoma. With the new* added function “Narrow Angle Index” you immediately receive data about a possible narrow angle plus a referring index based on normative data.

*available from version 60, optional feature “STAR Analysis software”

visit us
tomey.de

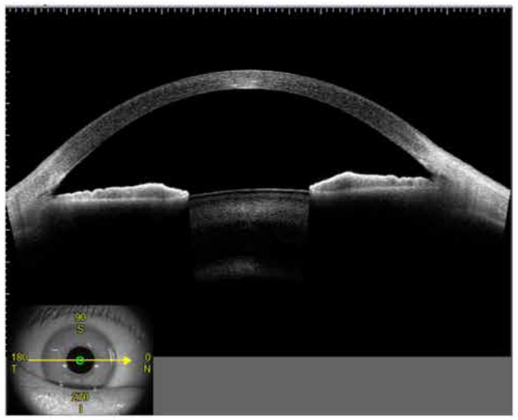
STAR Analysis

Glaucoma Application

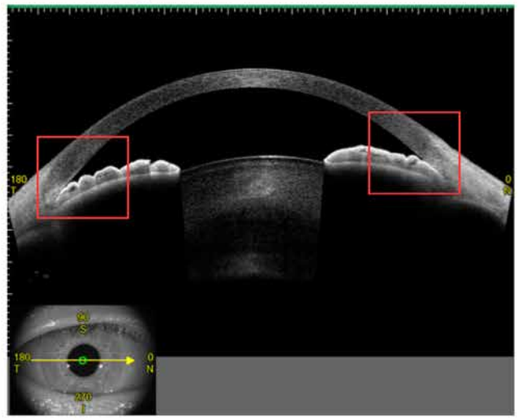
Immerse yourself more deeply into the background of glaucoma examination and profit from the benefits using STAR Analysis application.

Anterior Segment OCT Image

Open angle

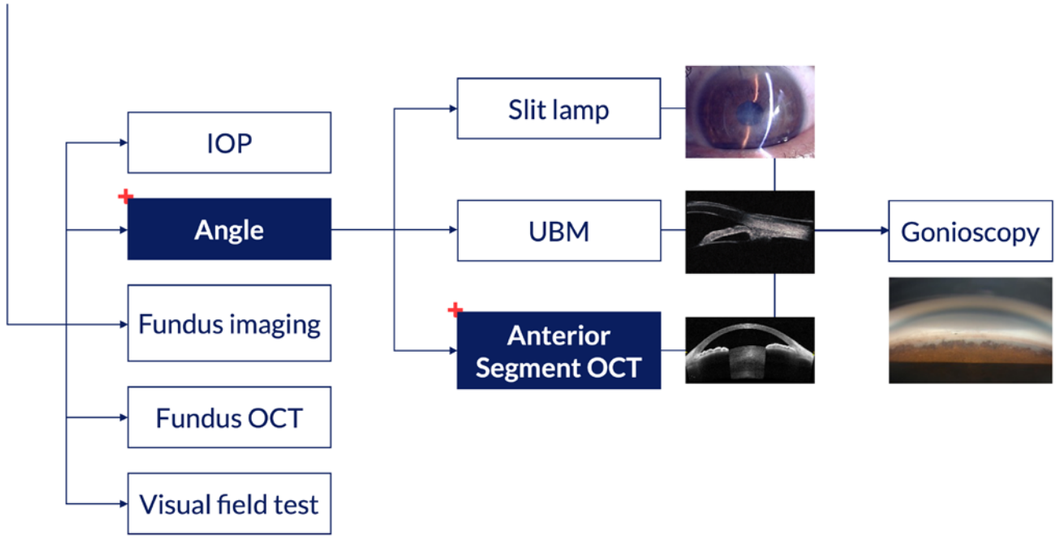


Closure angle



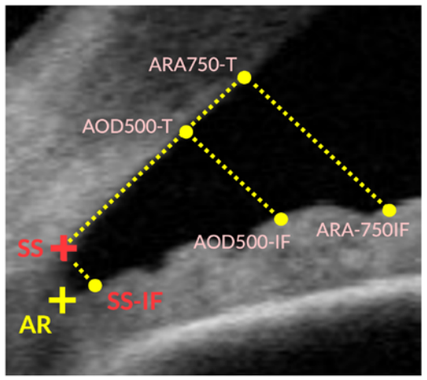
Narrow angle can be found easily with CASIA2 images

Examination of Glaucoma



Quantification of the Angle

After 1992, many parameters for angle analysis by UBM have been suggested by Pavlin.
(AJO 1992)



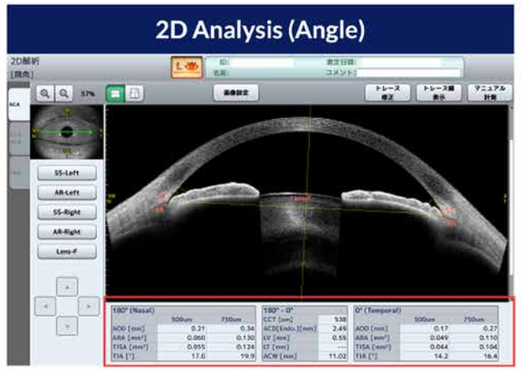
AOD	[mm]	Angle Opening Distance	Perpendicular length between corneal posterior (250um, 500um and 750um far from SS) and iris.
TIA	[degree]	Trabecular Iris Angle	Angle of anterior chamber.
ARA	[mm^2]	Angle Recess Area	Area of entire angle that is surrounded by AOD line.
TISA	[mm^2]	Trabecular Iris Space Area	Area of angle that is surrounded by SS and AOD line.

All parameters in the table can be measured by CASIA2

Challenges solved with STAR Analysis

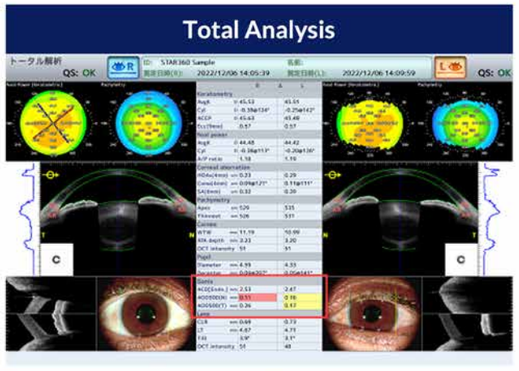
Challenge 1: There are parameters but no normative data for the angle

2D Analysis (Angle)



Many parameters are available,
but there is no normative data.

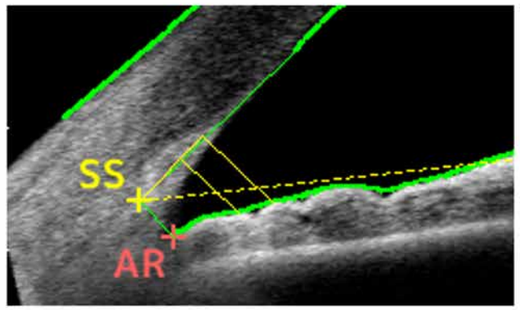
Total Analysis



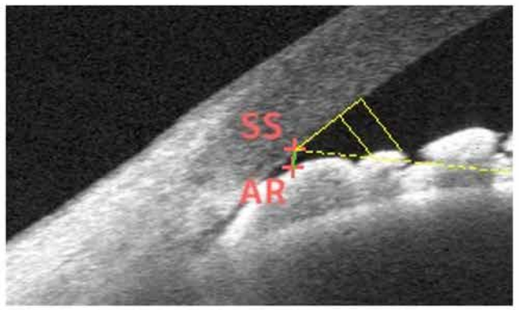
There are normative data, but they are
for regular eye only (not for angle closure).

Challenges solved with STAR Analysis

Challenge 2: There were cases where the auto detection of SS and AR failed and required manual correction



Segmentation error



There were cases where important measurement points could not be found automatically.

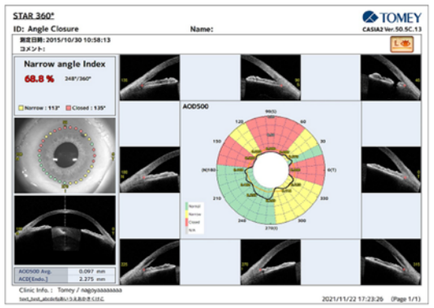
SS (scleral spur) | AR (angle recess)

Release of STAR Analysis

STAR: Scleral spur Tracking for Angle analysis and Registration

(Application supervisor: Christopher Leung MD, MB ChB | The University of Hong Kong)

Feature 1	360˚ analysis with visualization of the angle is similar to that of a gonioscope.
Feature 2	Simple and easily readable result with chart display.
Feature 3	Improved result thanks to improvements in characteristic point detection.



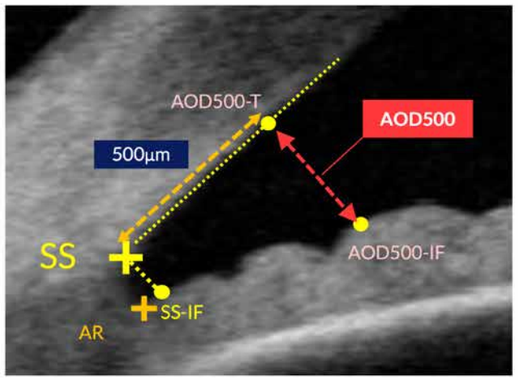
STAR Analysis: Angle Opening Distance AOD500

In STAR Analysis, angle condition is checked by the parameter ***AOD500***.

What is AOD500?

Perpendicular "length" between corneal posterior (500µm from SS [scleral spur]) and iris.

- SS is used as basic characteristic point.
- Improvement of SS auto-detection means a more seamless experience examining the angle.
- Angle opening condition is automatically evaluated.



STAR Analysis: Image Layout

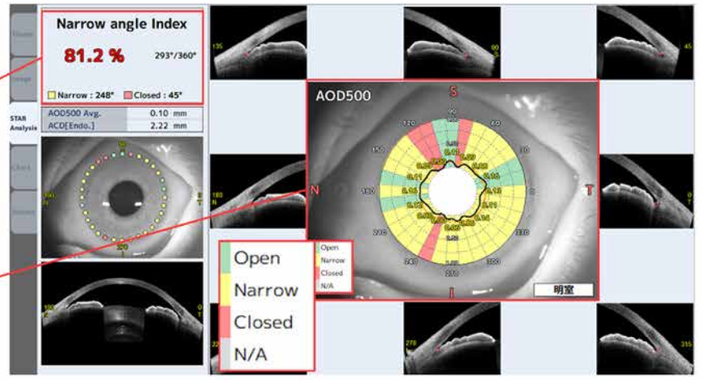
In STAR Analysis, the following image layout is provided.

Analysis result
(Range of closure angle area)

- : 0% ~ 13.8%
- : 13.9% ~

360° chart

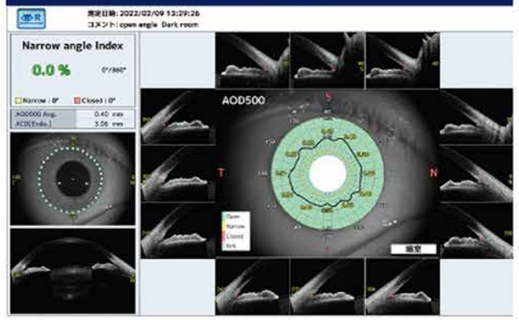
- (Open): ≧ 5th percentile
- (Narrow): < 5th percentile
- (Closed): AOD500 = 0.0
- N/A: Data is not available



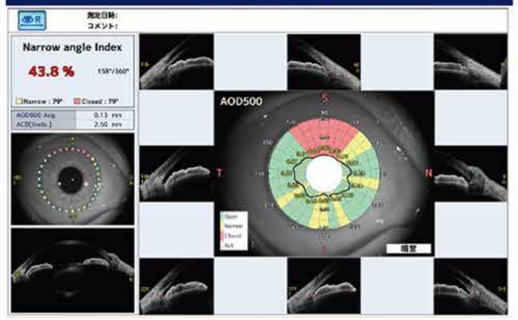
STAR Analysis: Image Layout

In STAR Analysis, the following image layout is provided.

Open Angle

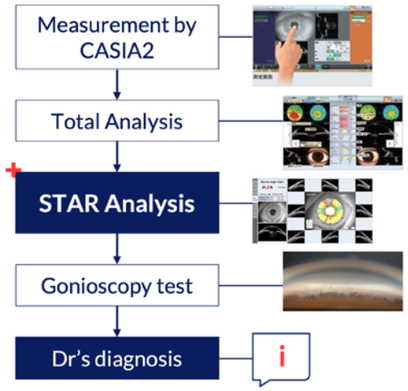


Closure Angle



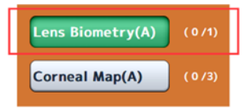
Basic Clinical Flow

Flow

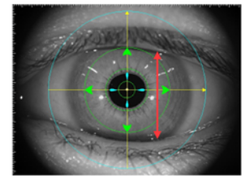


Hint for measurement

- STAR Analysis can use the data collected by Lens Biometry(A) of cataract protocol



- Eye should be open more than ***φ8 mm***

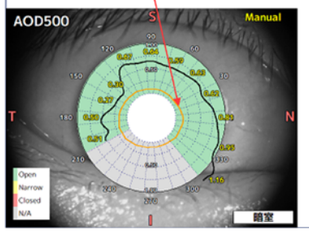


Analysis Criteria

1st step

AOD500 value check for each angle (360°)
⟶ Open/Narrow/Closed

AOD500 threshold for each angle



Normative data:
394 eyes 394 subjects
AOD500 5th percentile

2nd step

Calculate NAI (Narrow Angle Index):

NAI = (Narrow+Closed)/(Open+Narrow+Closed)

NAI >= 13.9% ⟶ High possibility of closure angle
NAI < 13.9% ⟶ Low possibility of closure angle

Summary

The benefits of ***STAR Analysis*** are the following:

Users can easily grasp risk level for Narrow/ Closure angle.

- Reduce the chance of missing Narrow angle eye
- Decide on need for Gonioscopy
- Informed consent based on OCT images

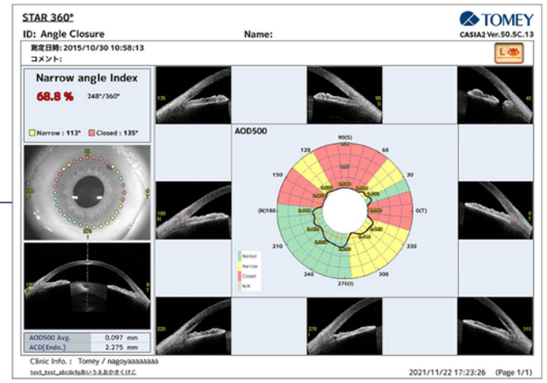
Measurement by CASIA2

Total Analysis

STAR Analysis

Gonioscopy test

Dr's diagnosis



You + eye.

We care.

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