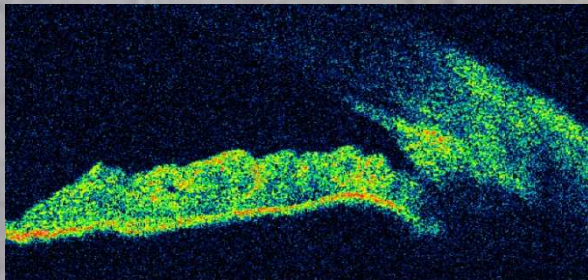


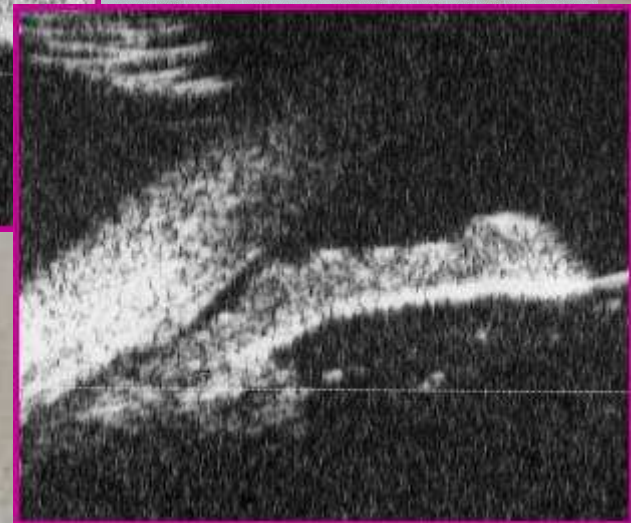
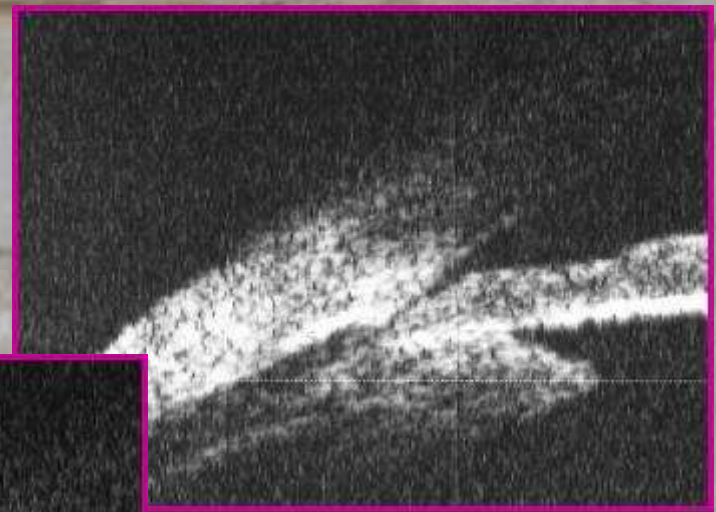
Apport de l'OCT Visante et de l'UBM dans la stratégie thérapeutique du glaucome (GFA-GCAO)

Alain Bron, CHU Dijon



Imageurs antérieurs

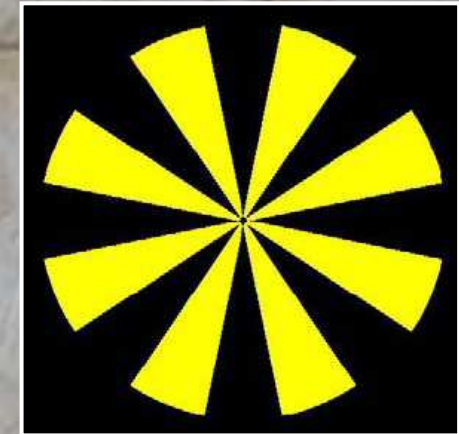
	Echo	UBM	OCT
Prix	+++	++	+
Facilité	++	+	++++
Résolution	+	+	++++
Polyvalent	++	++	+++
SAV	++++	+	++++



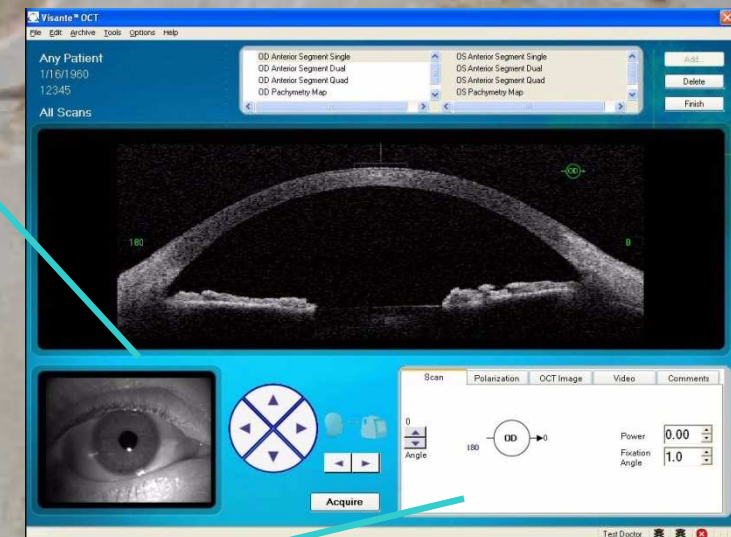
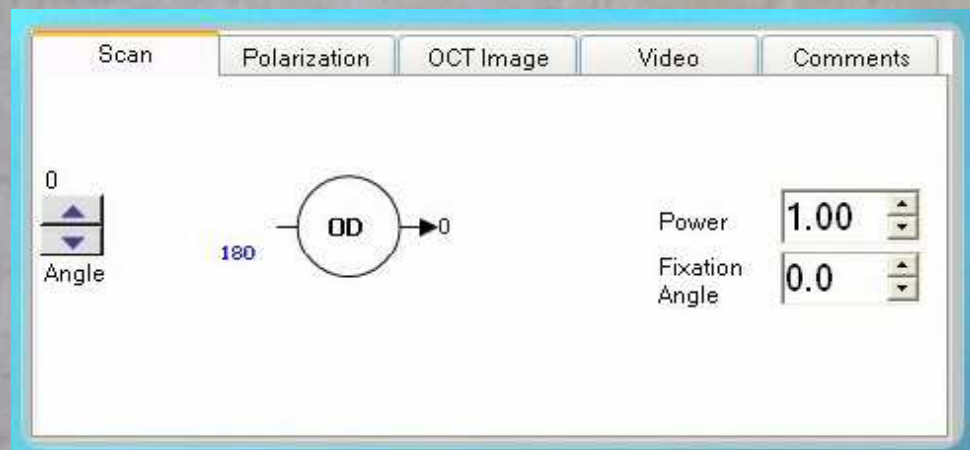
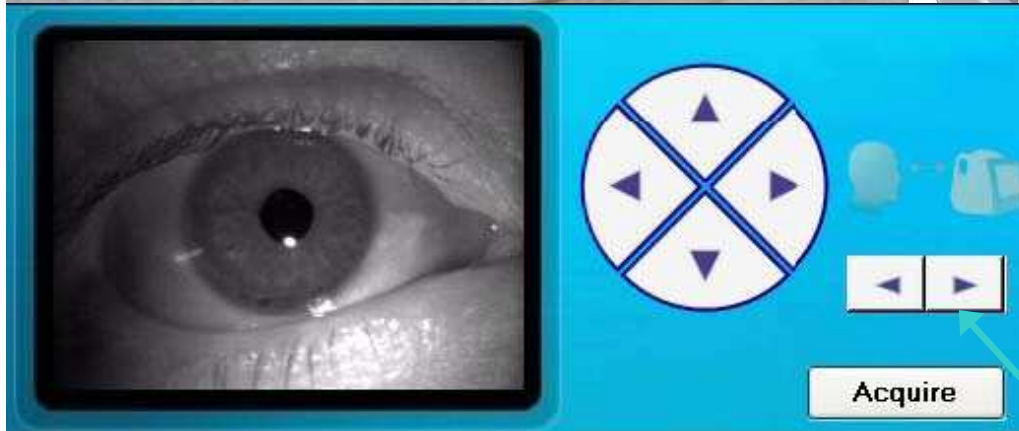
Technologie

- Source lumineuse = diode superluminescente (SLD 1310nm)
- Résolution (transversale $60\mu\text{m}$, axiale $18\mu\text{m}$)
- Résolution pixels 256x1024 (SA) 512x1024 (HR)
- Acquisition : 0,125s / 0,25s / 0,5s (<1s)
- Aire de balayage : 16x6mm (SA) / 10x3mm

Aquisition



Cible étoilée

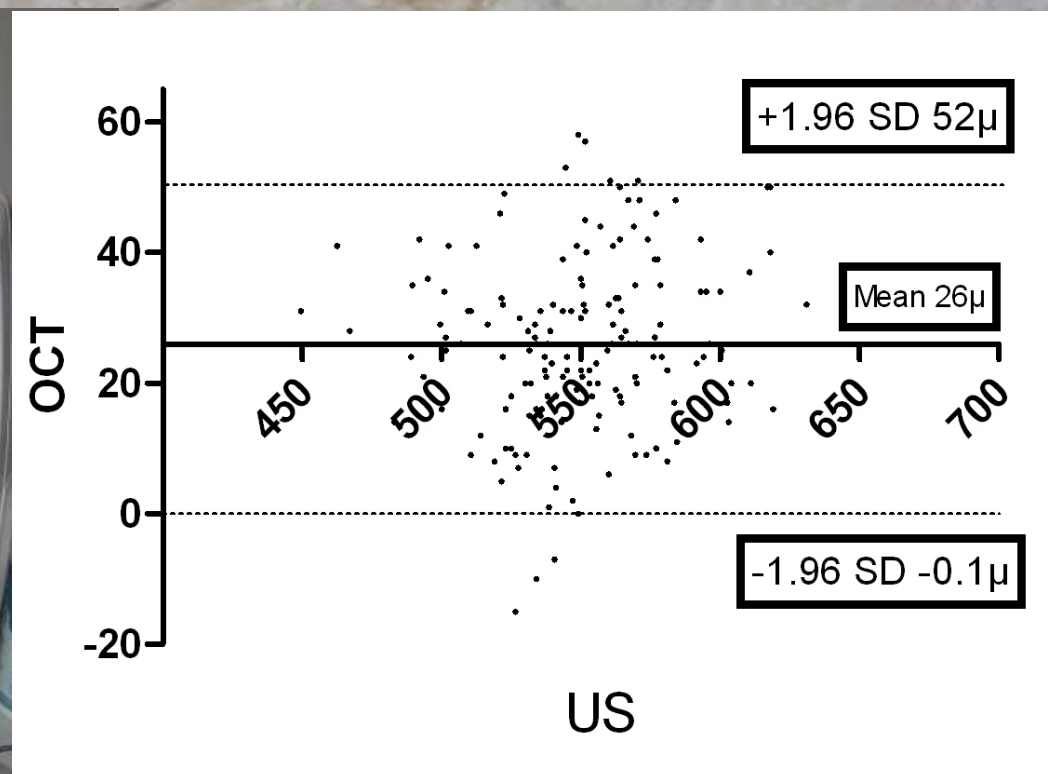
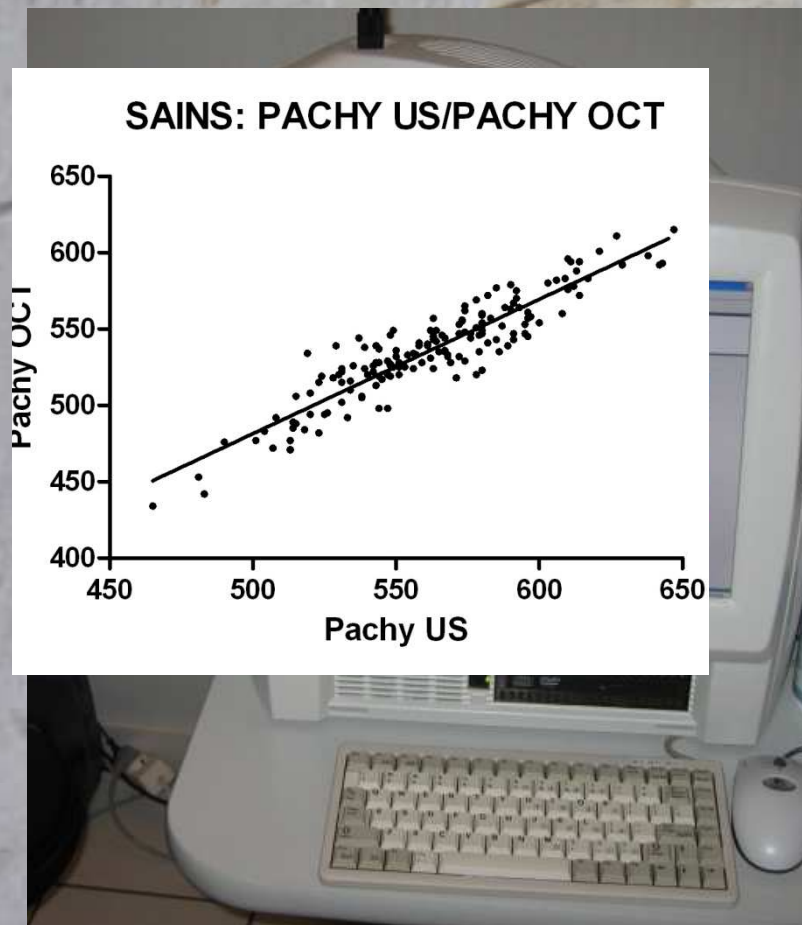


Fenêtre d'acquisition de données

OCT visante et glaucome

- Pachymétrie non contact
- Mieux comprendre
 - Obscurité
 - Cristallin
- Fermetures de l'angle
 - Dépistage
 - Suivi
 - ICE
 - Iris plateau +++
- Suivi des bulles

Module pachymétrie



Mieux comprendre

Anatomical Changes of the Anterior Chamber Angle With Anterior-Segment Optical Coherence Tomography

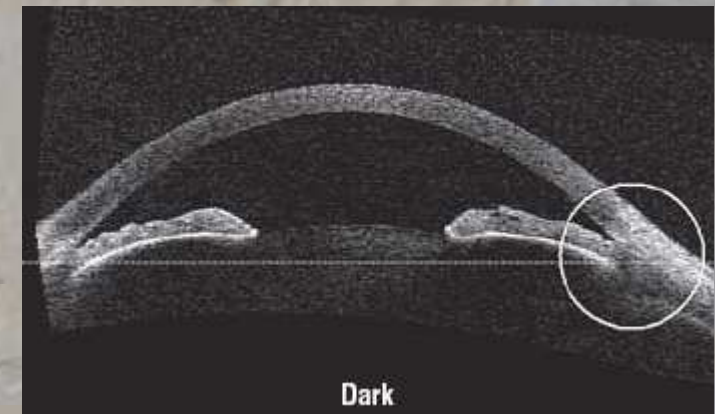
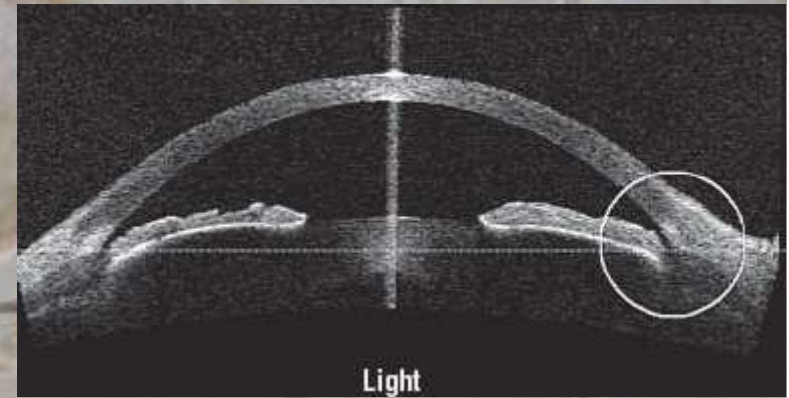
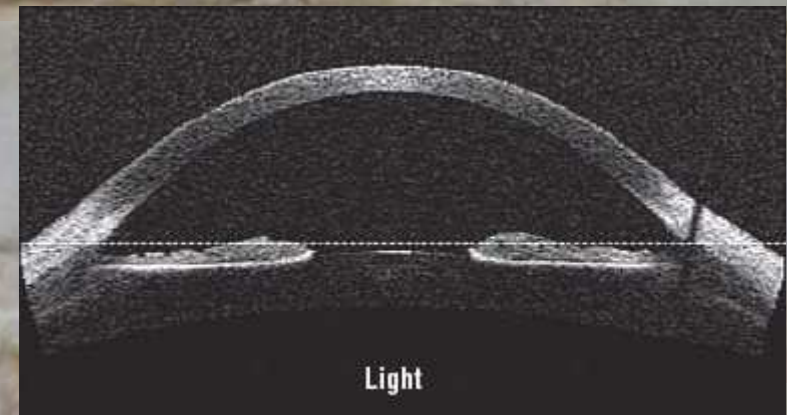
Lance Liu, FRANZCO

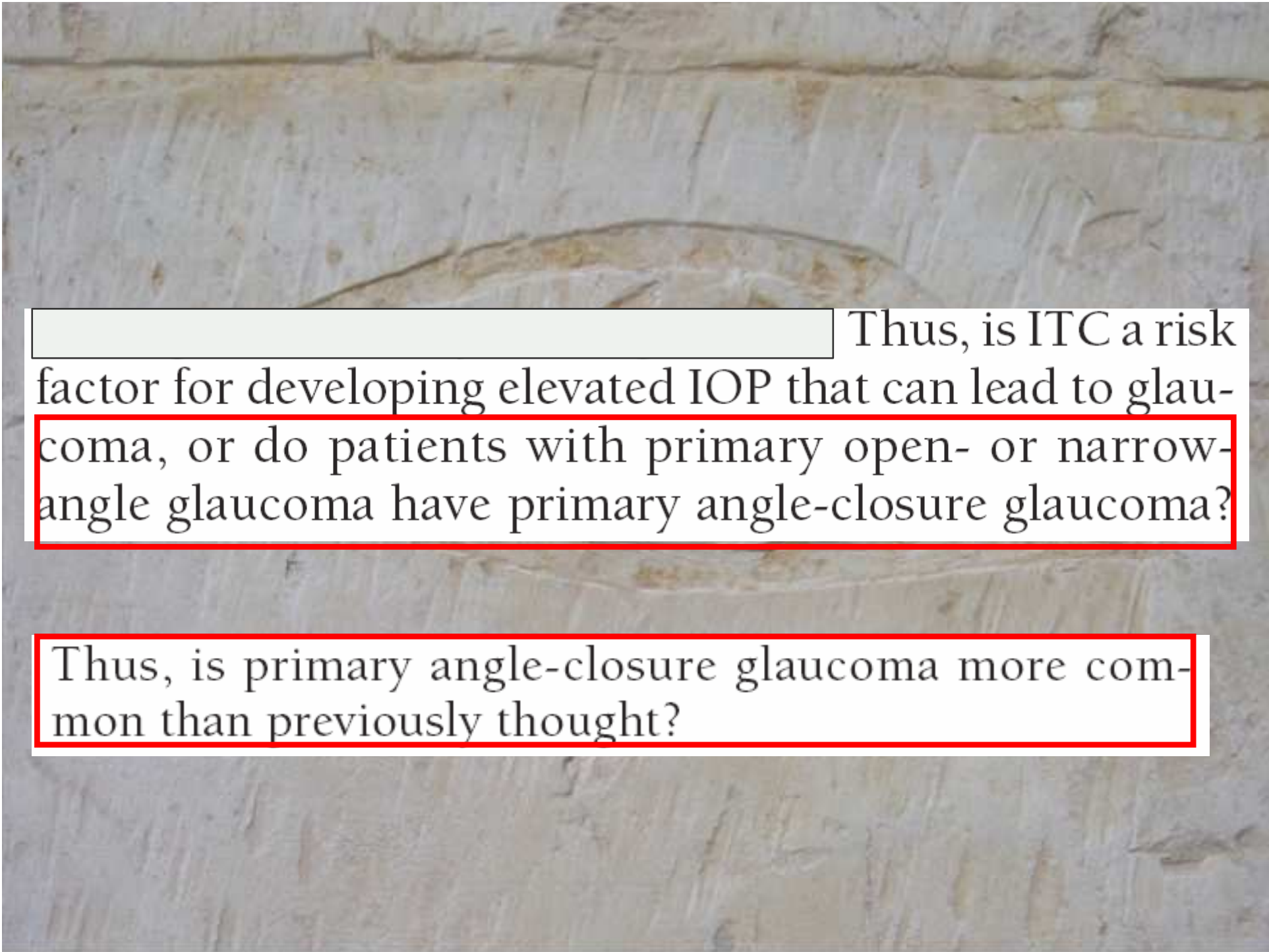
Arch Ophthalmol. 2008;126(12):1682-1686

Table 2. Incidence of ITC in Any Quadrant in the 3 Groups Studied

ITC in Any Quadrant	Patients With Healthy Eyes		Patients With OHT-GL (n=58)
	Age, 1-30 Years (n=24)	Age, 60-70 Years (n=40)	
ITC, % (No. of patients)			
None in light conditions	100 (24)	90 (36)	88 (51)
None in dark conditions	100 (24)	33 (13)	22 (13)
Present in dark conditions	0	68 (27)	78 (45)
<i>P</i> value		<.01	.001
ISC present in dark conditions	0	15 (6)	16 (9)
Poor image superiorly	0	0	2 (1)

Abbreviations: ISC, iridoscleral spur contact; ITC, iridotrabecular contact; OHT-GL, ocular hypertension or glaucoma.



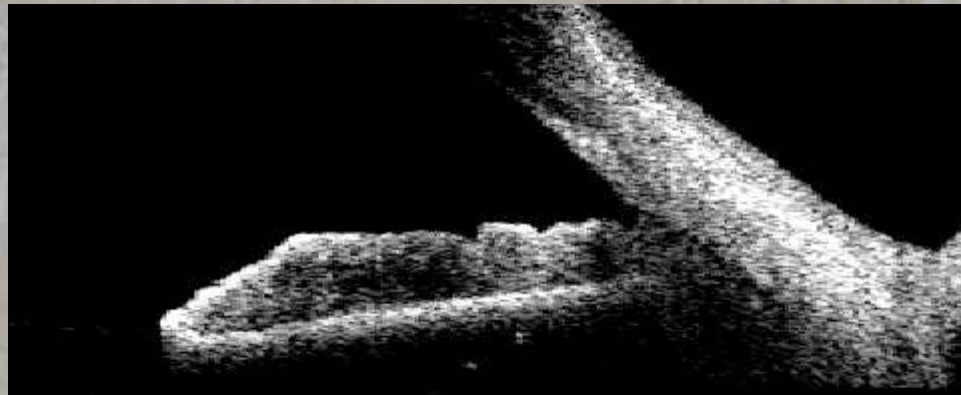
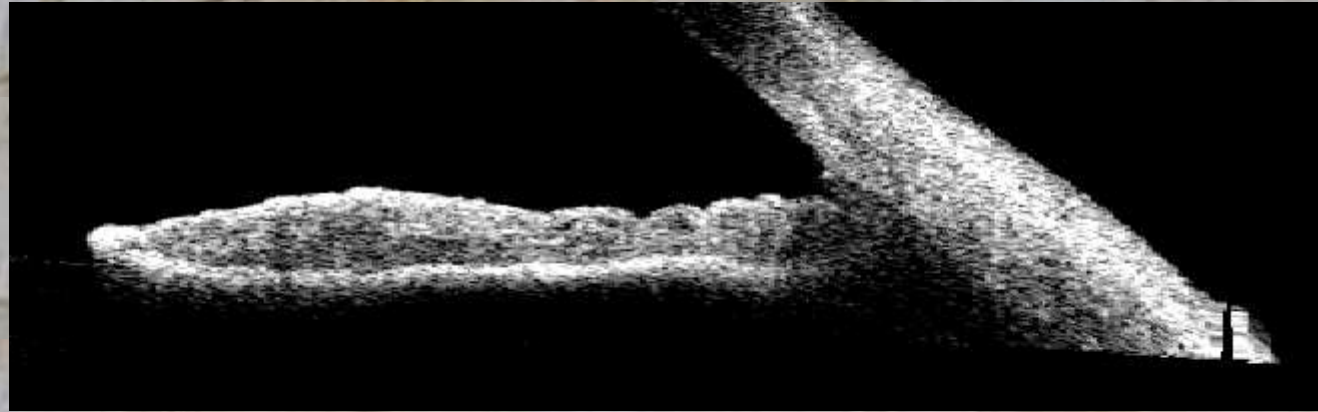


Thus, is ITC a risk factor for developing elevated IOP that can lead to glaucoma, or do patients with primary open- or narrow-angle glaucoma have primary angle-closure glaucoma?

Thus, is primary angle-closure glaucoma more common than previously thought?

Physiologie angle iris

(myope, 29 ans)



Physiologie angle iris (emmétrope 76 ans)



Physiologie angle cristallin





Visante™ OCT
ANTERIOR SEGMENT IMAGING

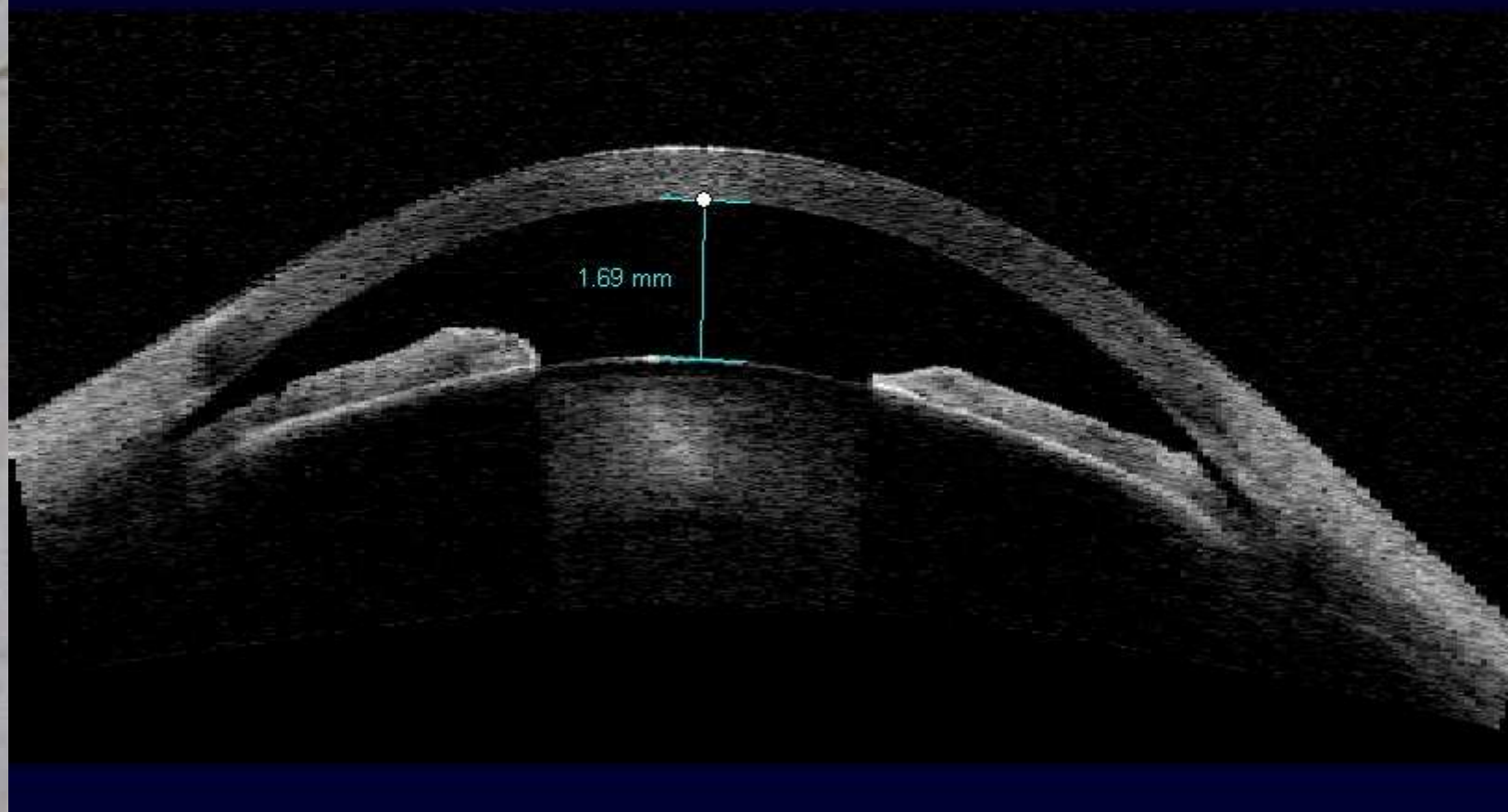
SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 78

Anterior Segment Single

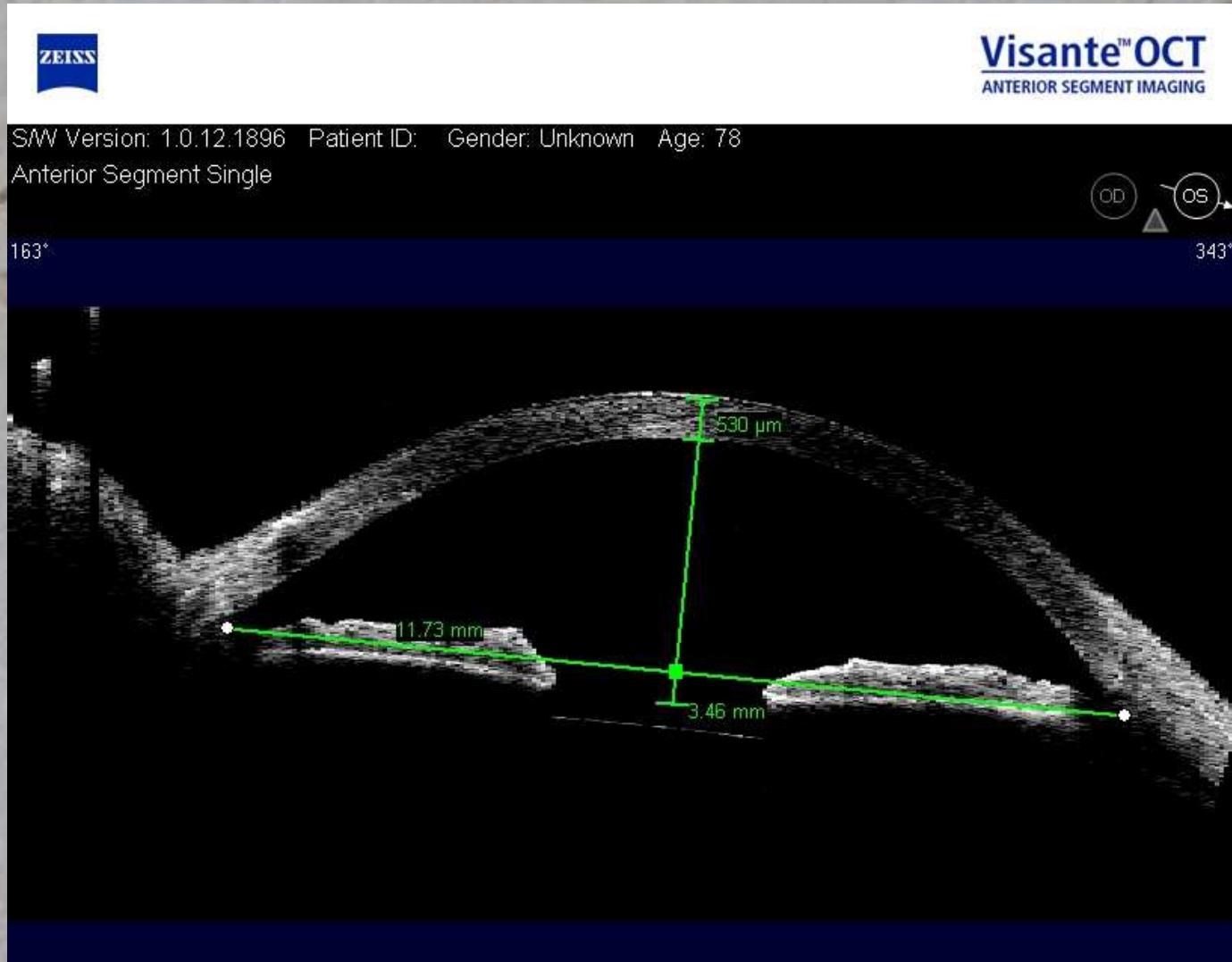


180°

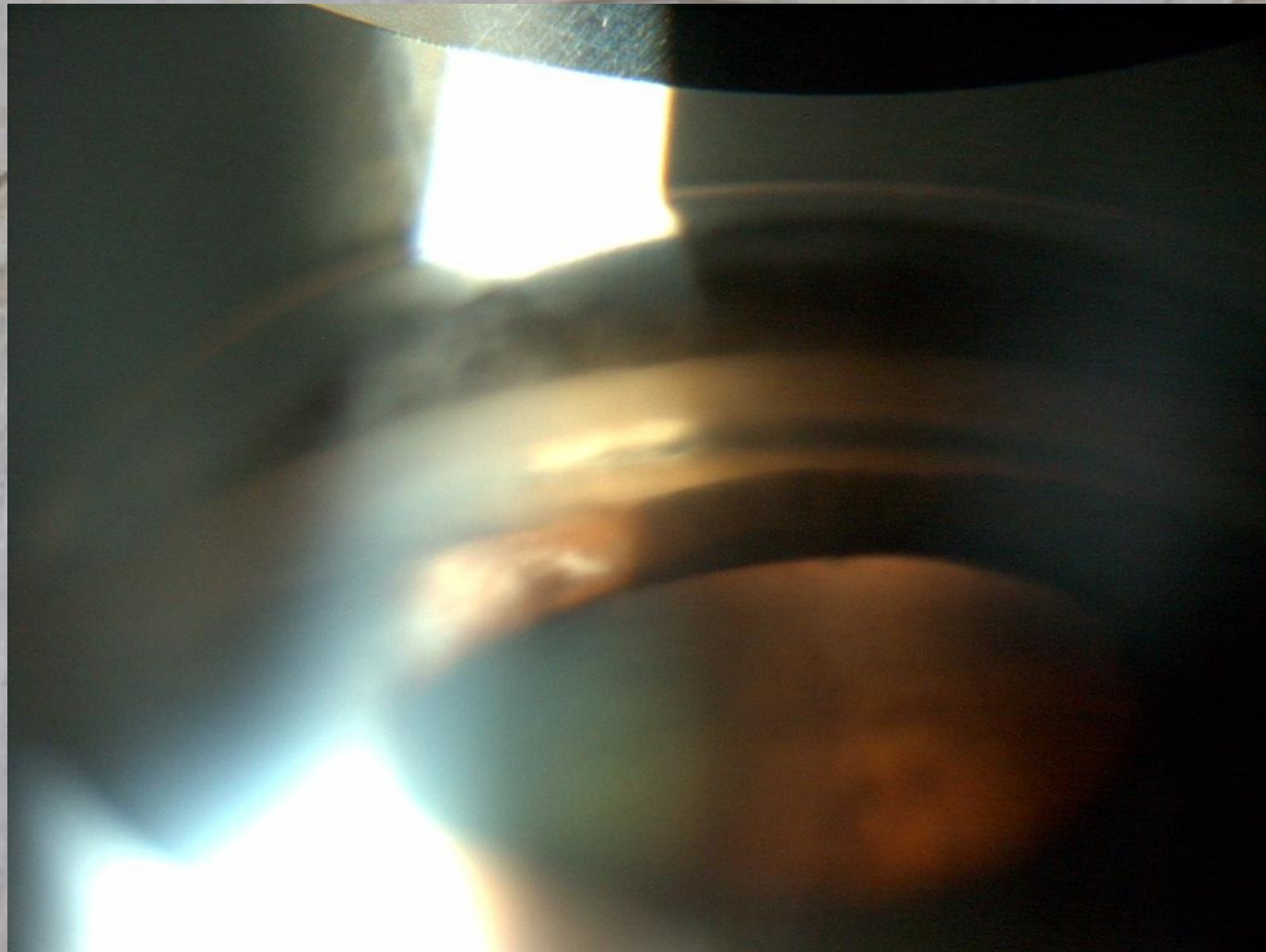
0°



Après extraction cristallin



Crise aiguë de fermeture de
l'angle (femme 62 ans)





Visante™ OCT
ANTERIOR SEGMENT IMAGING

SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 62
Anterior Segment Single



180°

0°





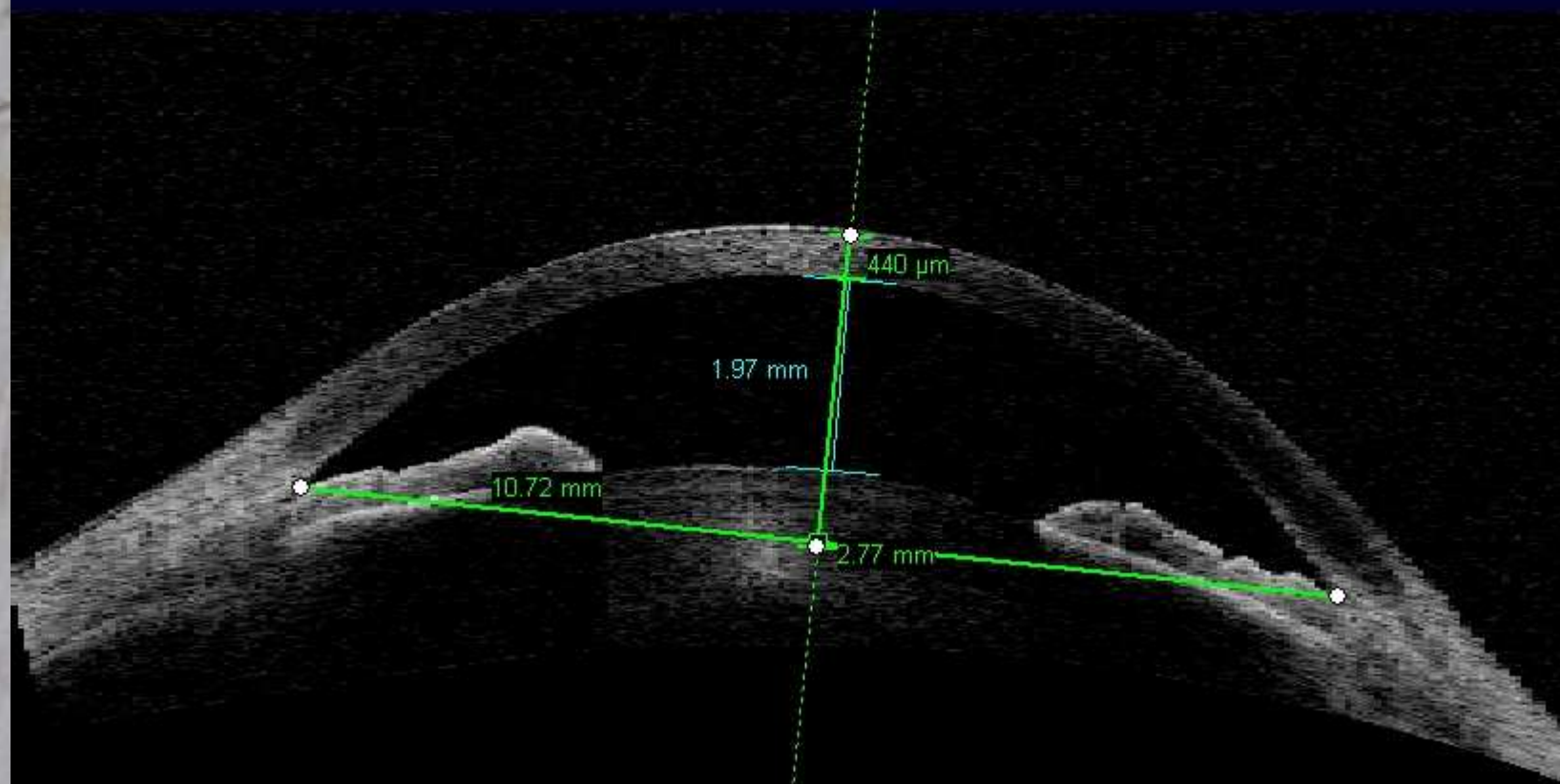
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 62
Anterior Segment Single



180°

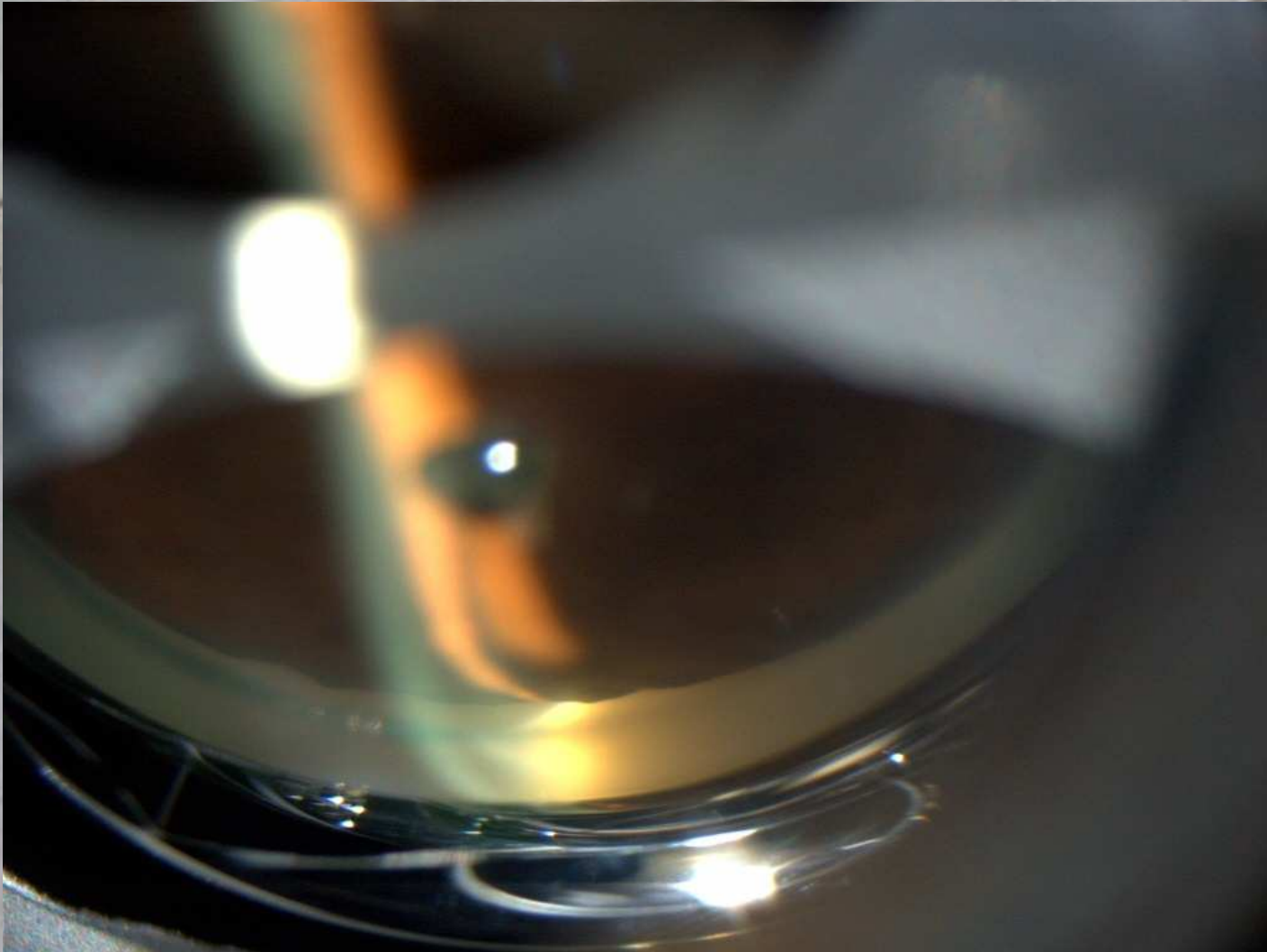
0°



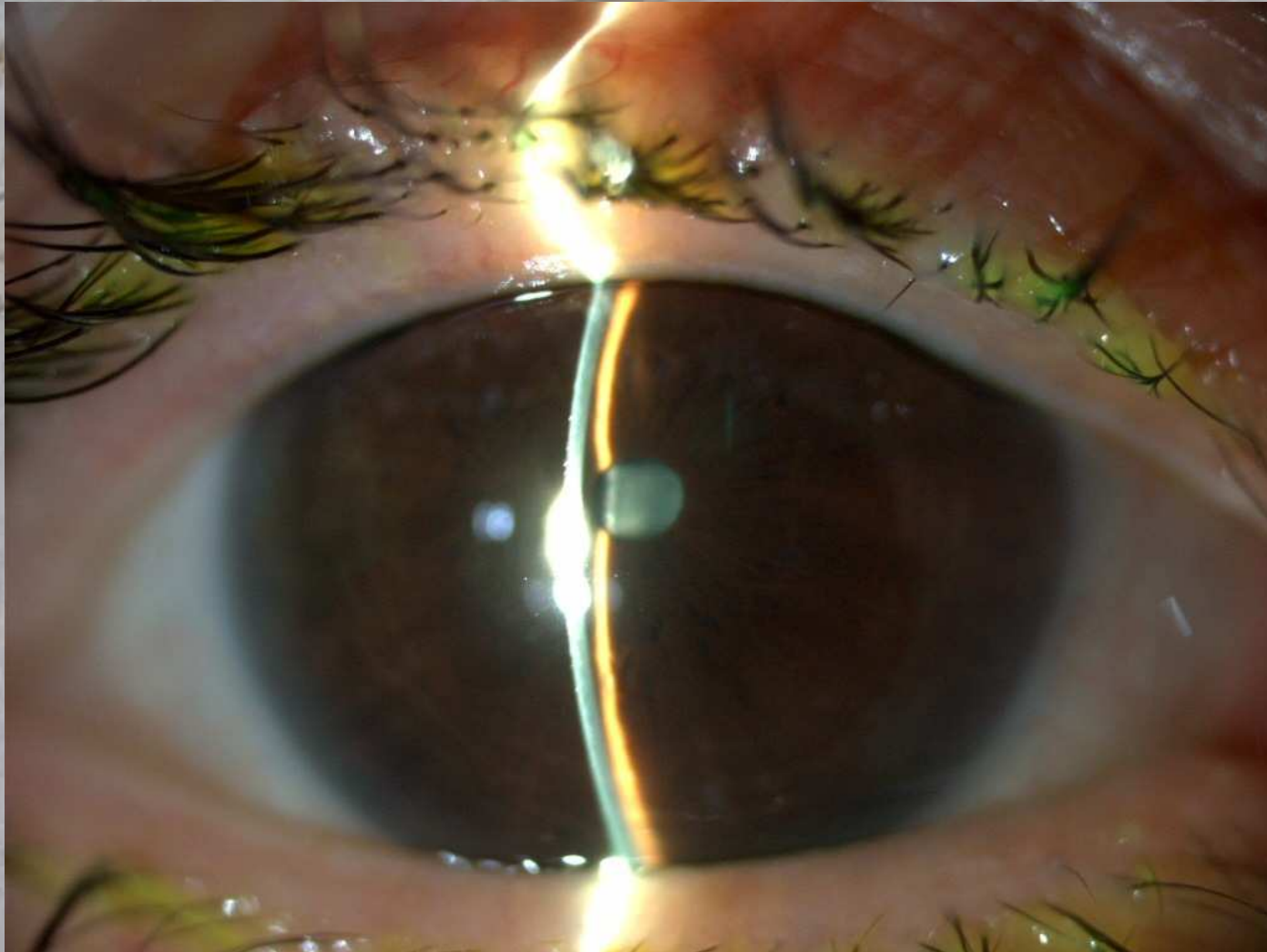
Nanophthalmie OD



OG

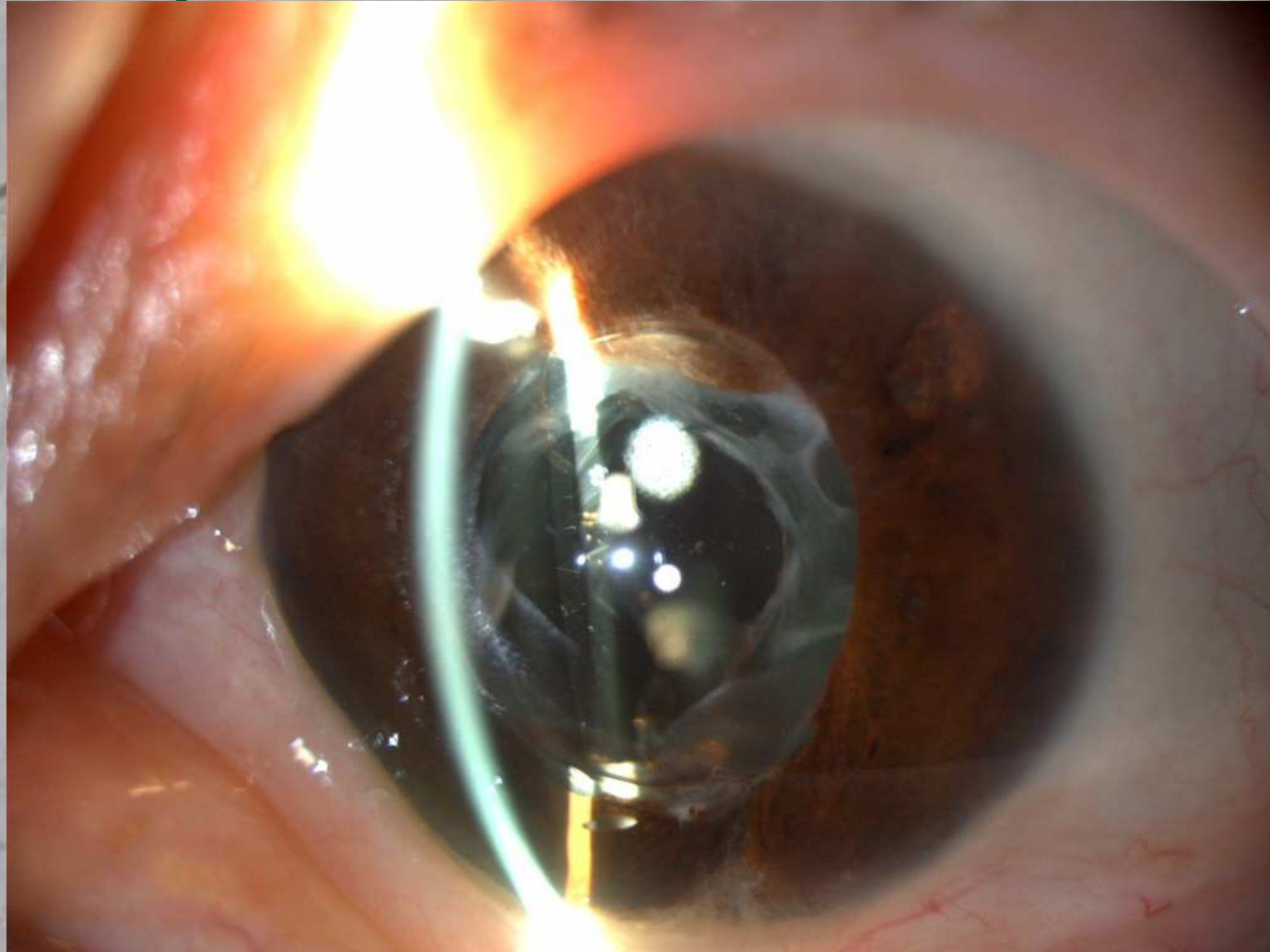


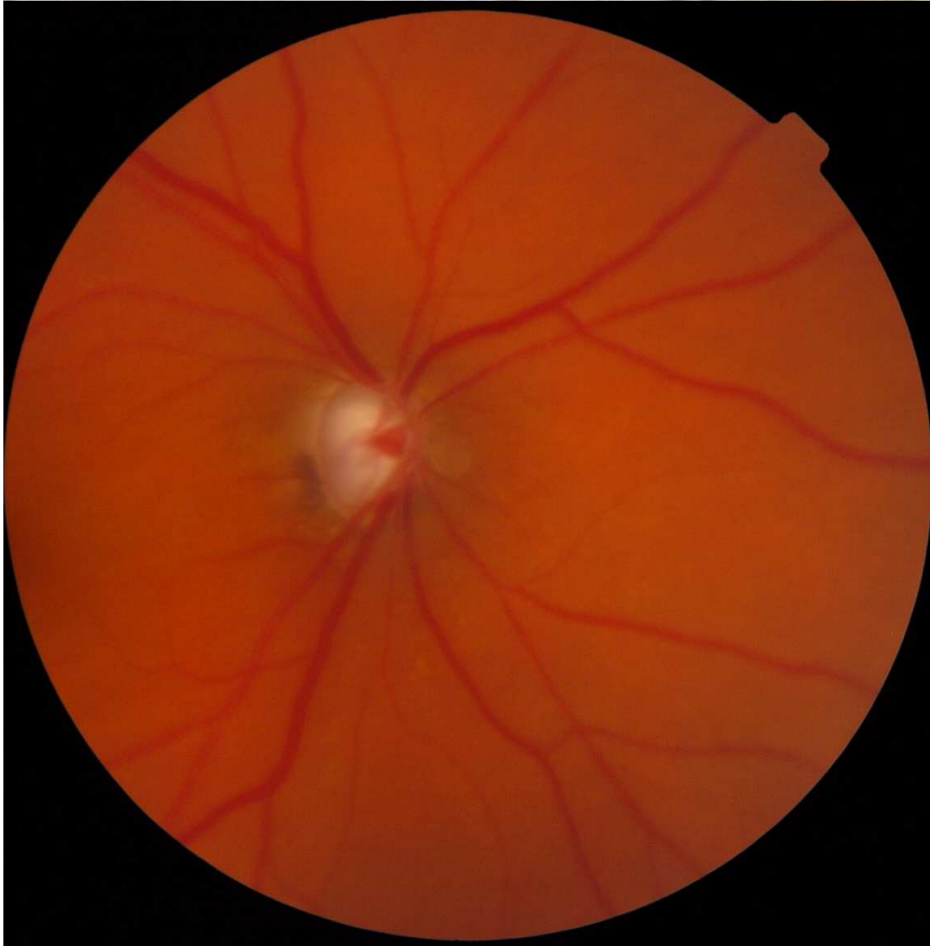
Oeil droit préop





Post op OG







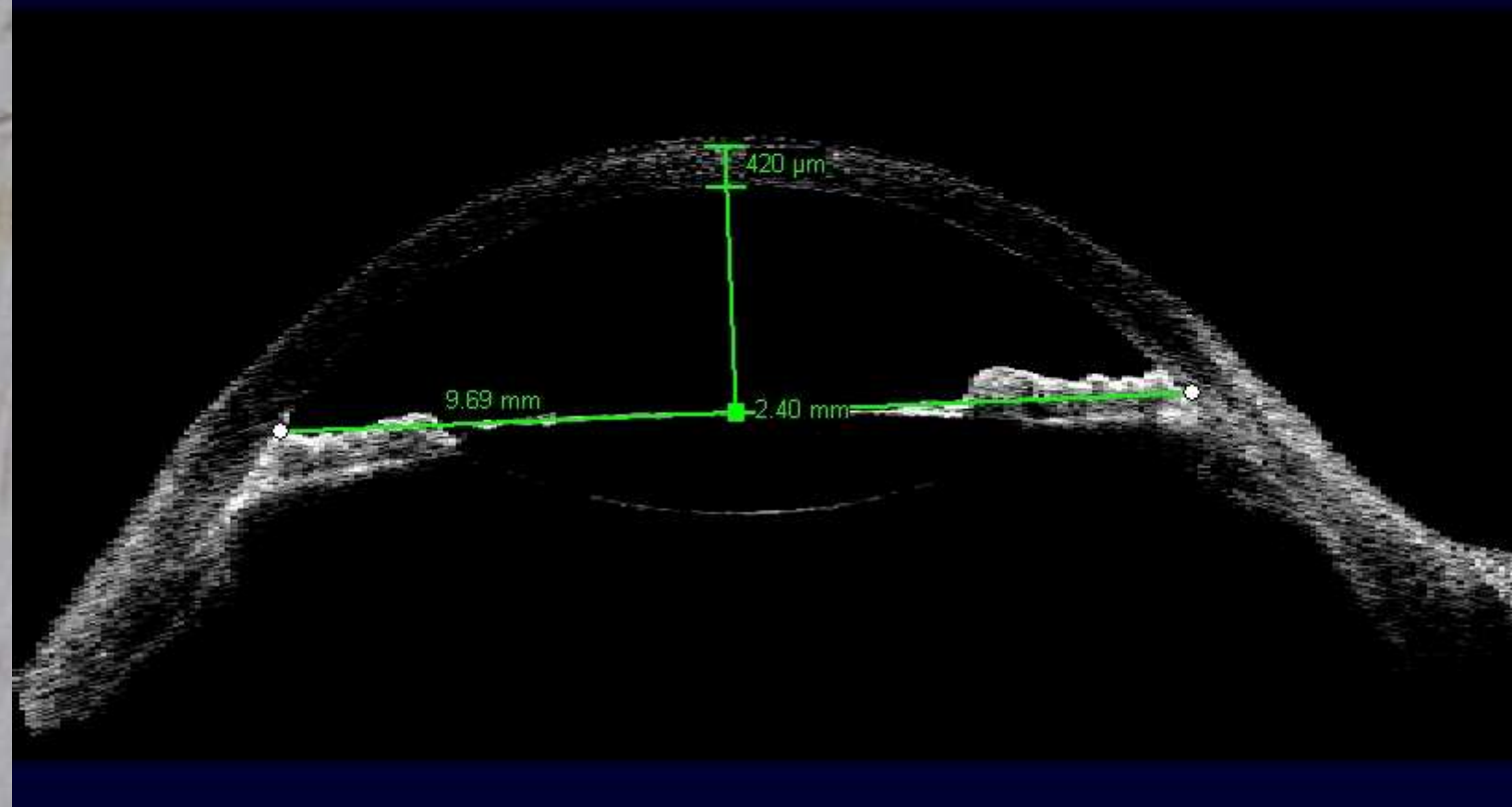
SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 56

Anterior Segment Single



180°

0°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 56
High Res. Corneal



180°

0°





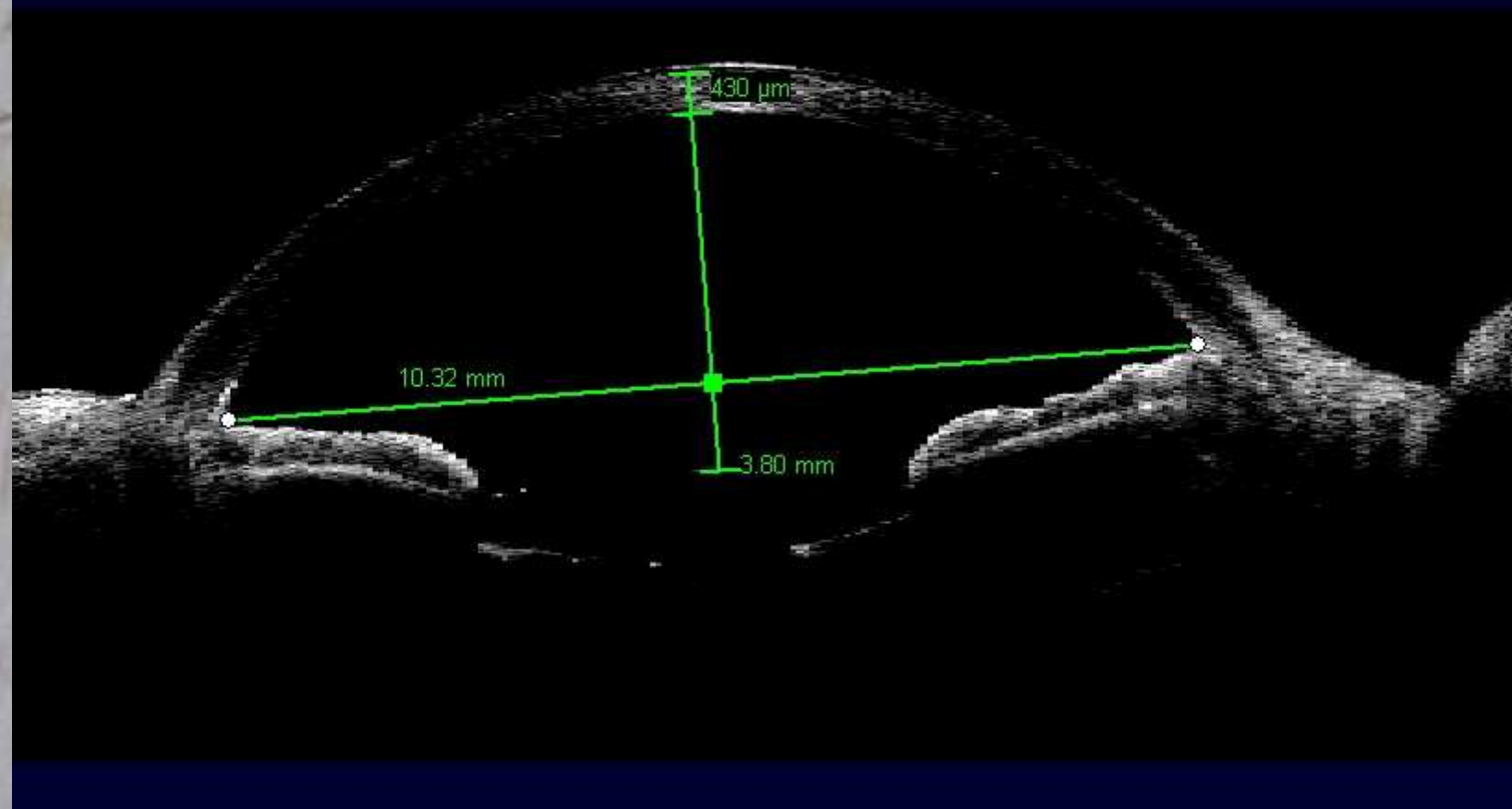
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Anterior Segment Single

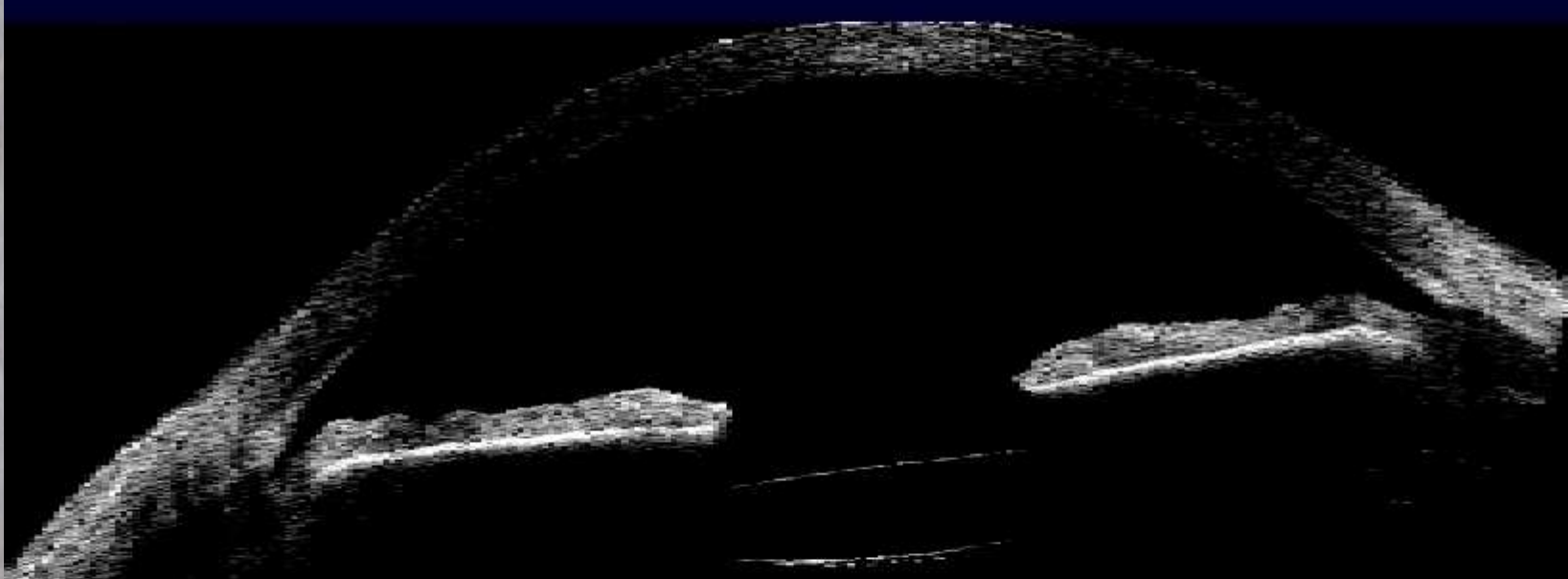
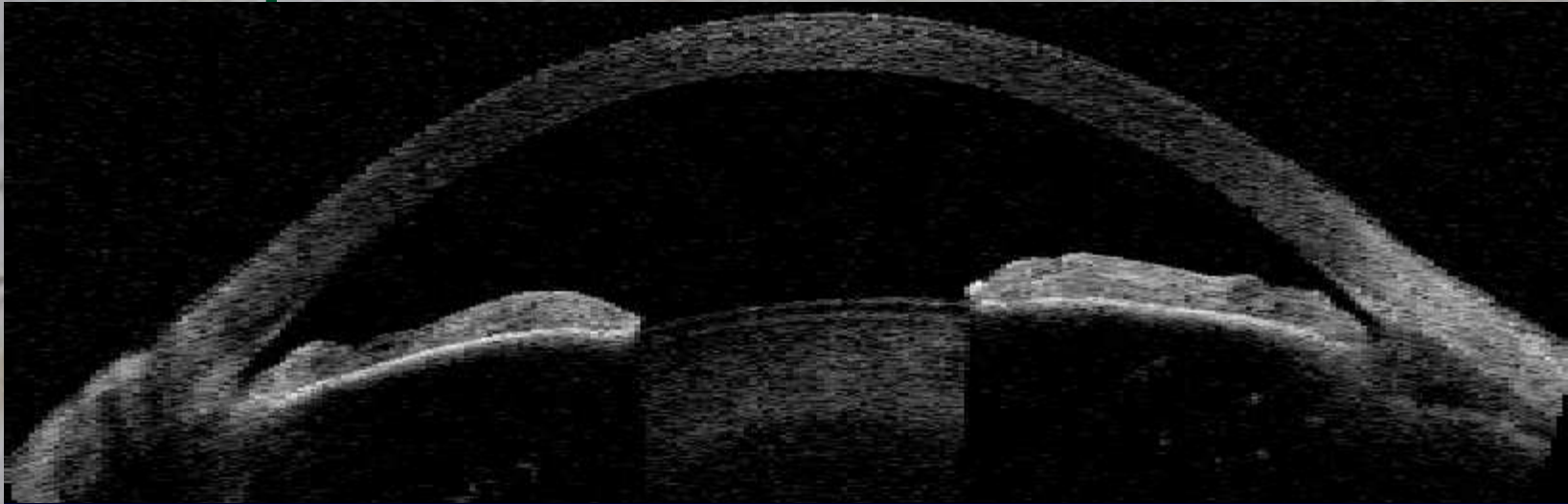


180°

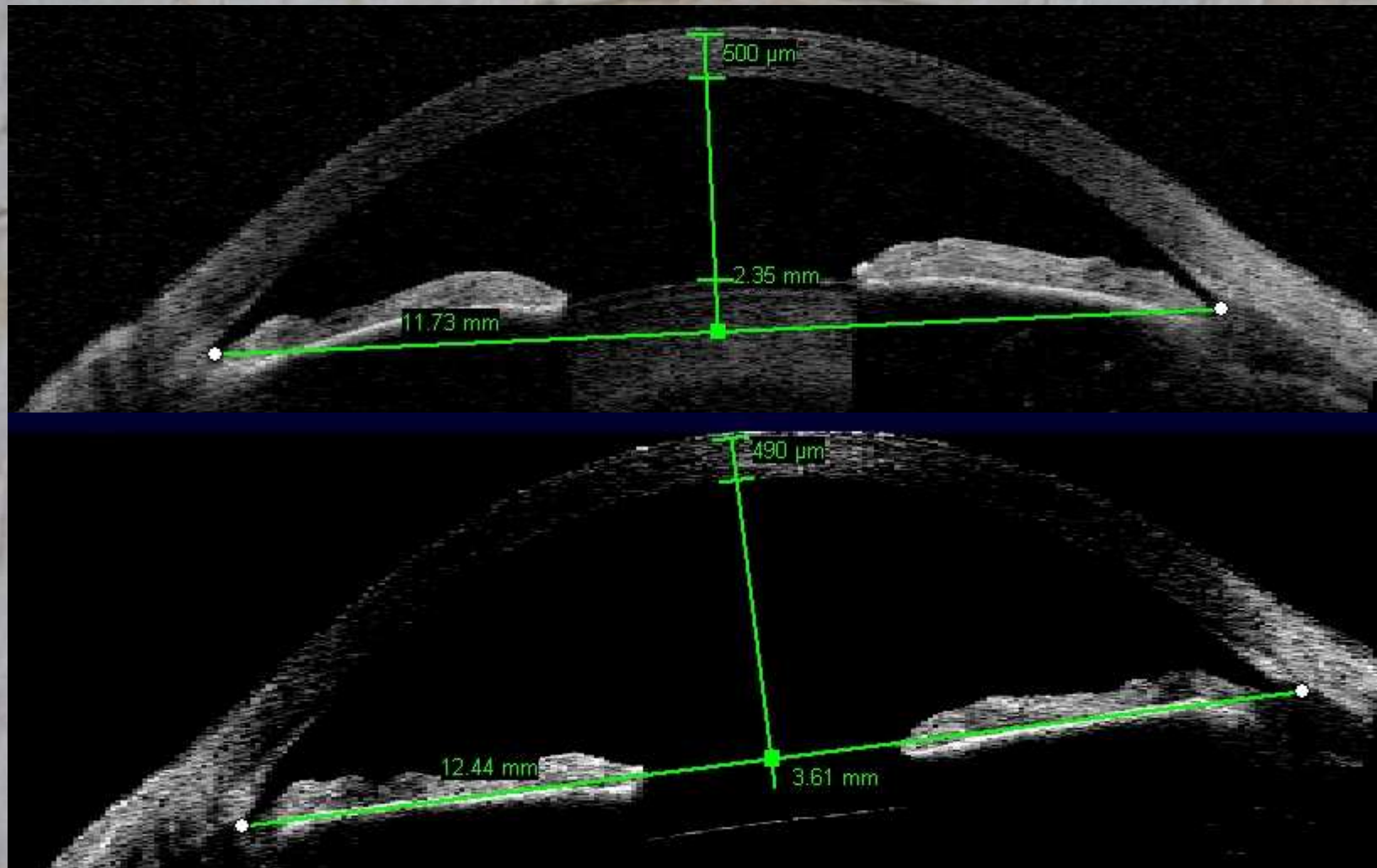
0°



Iris plateau et cristallin



Iris plateau et cristallin



Quizz pour les amies et amis de FOCAL

- Homme 59 ans
- PIO : 40-35
- Iridotomies





Visante™ OCT
ANTERIOR SEGMENT IMAGING

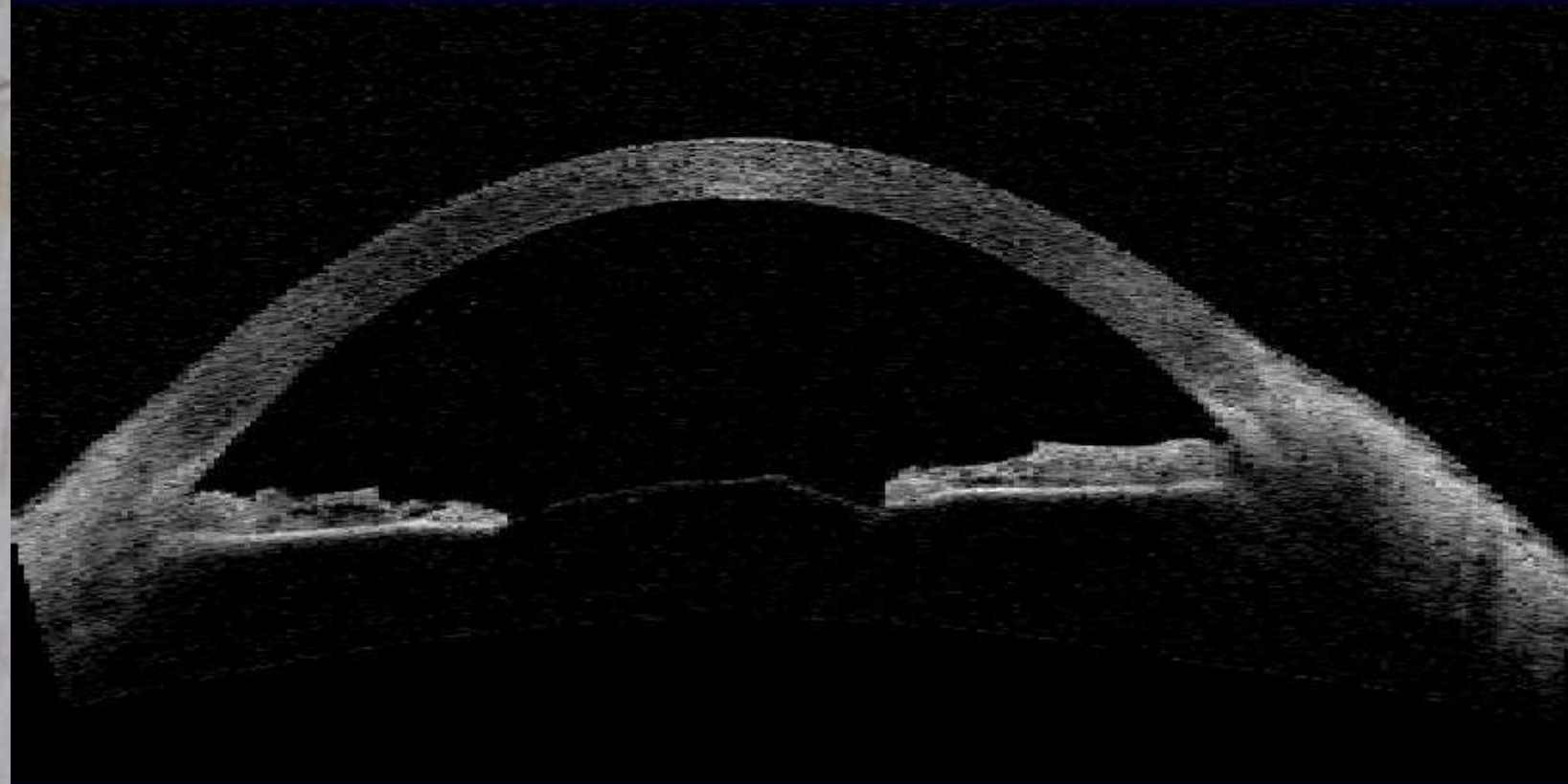
SAW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 59

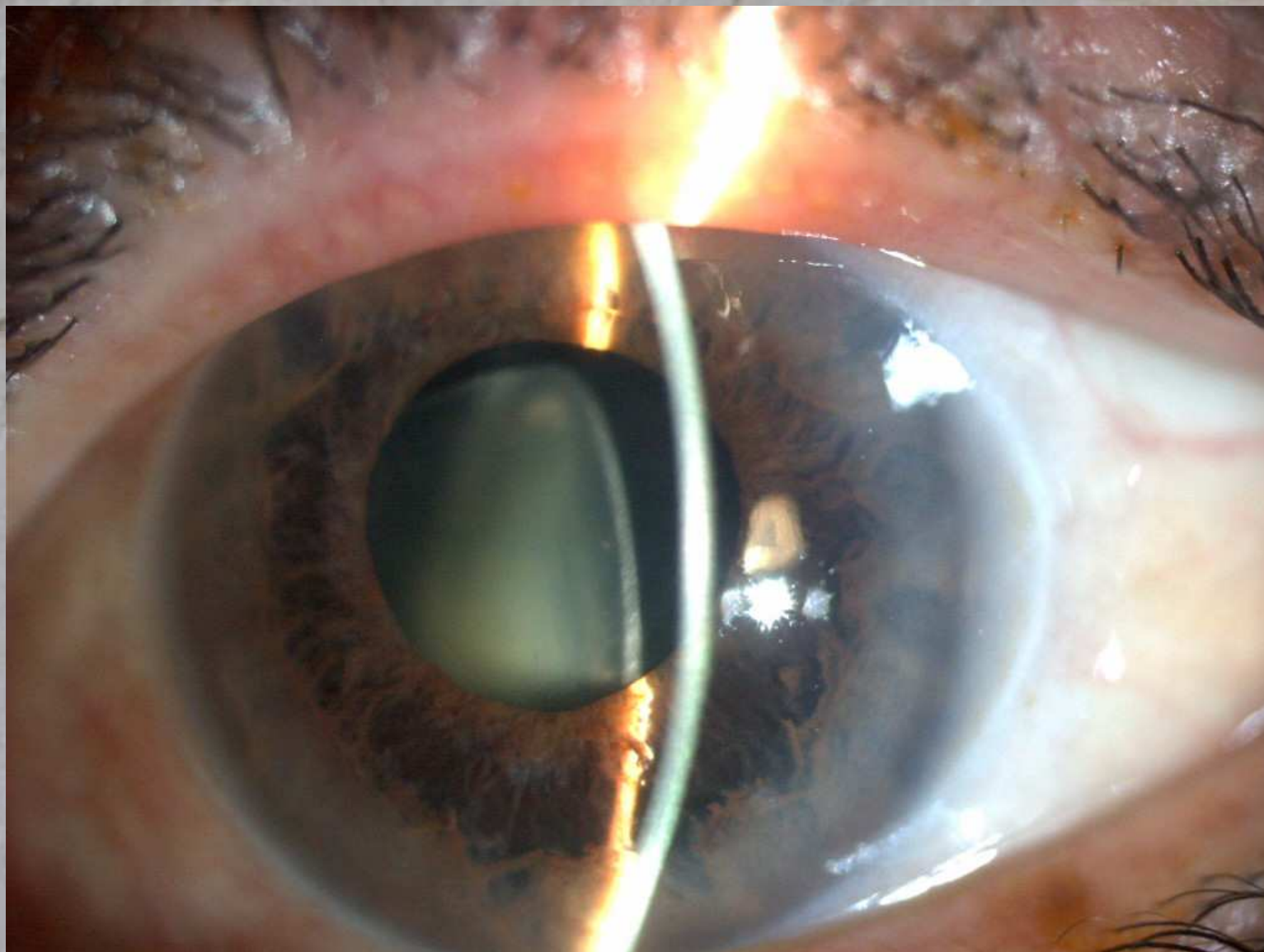
Anterior Segment Single



180°

0°







Visante™ OCT
ANTERIOR SEGMENT IMAGING

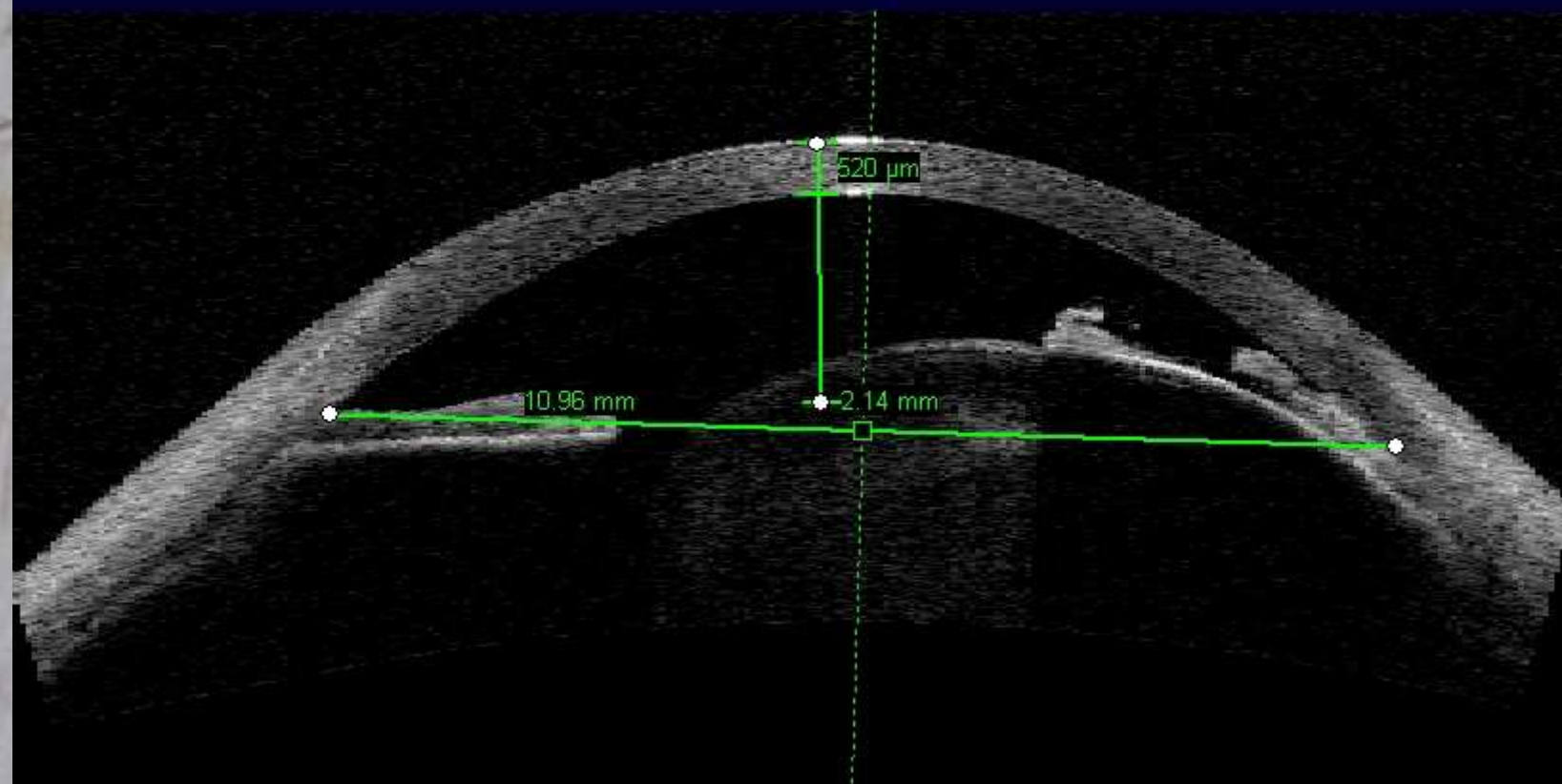
SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 59

Anterior Segment Single

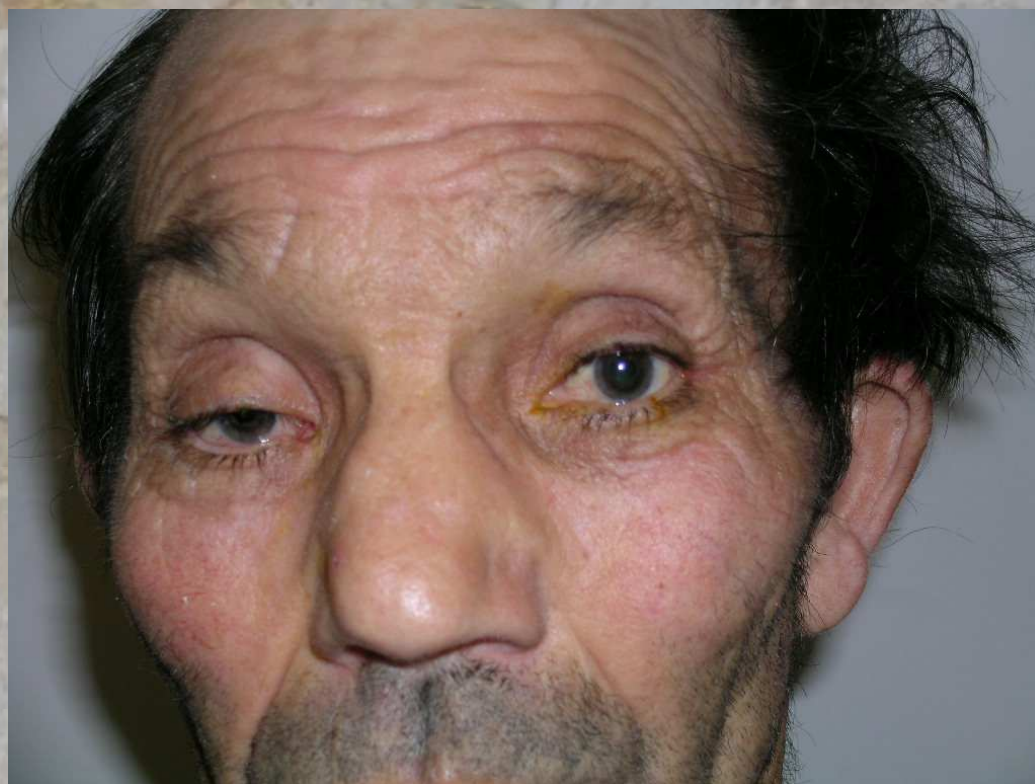


90°

270°







Dépistage

- N=2052
- Gonioscopie= 20.4% PACS

	IOLMaster (2.87 mm)	OCT Visante (TIC 2 quadrants)
Sensibilité	87.7%	88.4%
Spécificité	77.7%	62.9%

Lavanya R, Foster PJ, Sakata LM, et al. Screening for narrow angles in the singapore population: evaluation of new noncontact screening methods. Ophthalmology 2008;115:1720-7, 1727 e1-2.

Diagnostic

- Définition imagerie
 - Tout contact entre l'iris et ce qui est antérieur à l'éperon scléral
- Définition gonioscopie
 - Non visibilité du trabéculum pigmenté

Nolan W. Anterior segment imaging: identifying the landmarks. Br J Ophthalmol 2008;92:1575-6.

Diagnostic

- Sur cotation des imageurs d'environ 25%
- N=423
- Gonioscopie vs OCT (1 quadrant)
- 33% vs 59%

Sakata LM, Lavanya R, Friedman DS, et al. Comparison of gonioscopy and anterior segment ocular coherence tomography in detecting angle closure in different quadrants of the anterior chamber angle.

Ophthalmology 2008;115:769-74.

Suivi

Table 3 Interobserver agreement in measurements on narrow

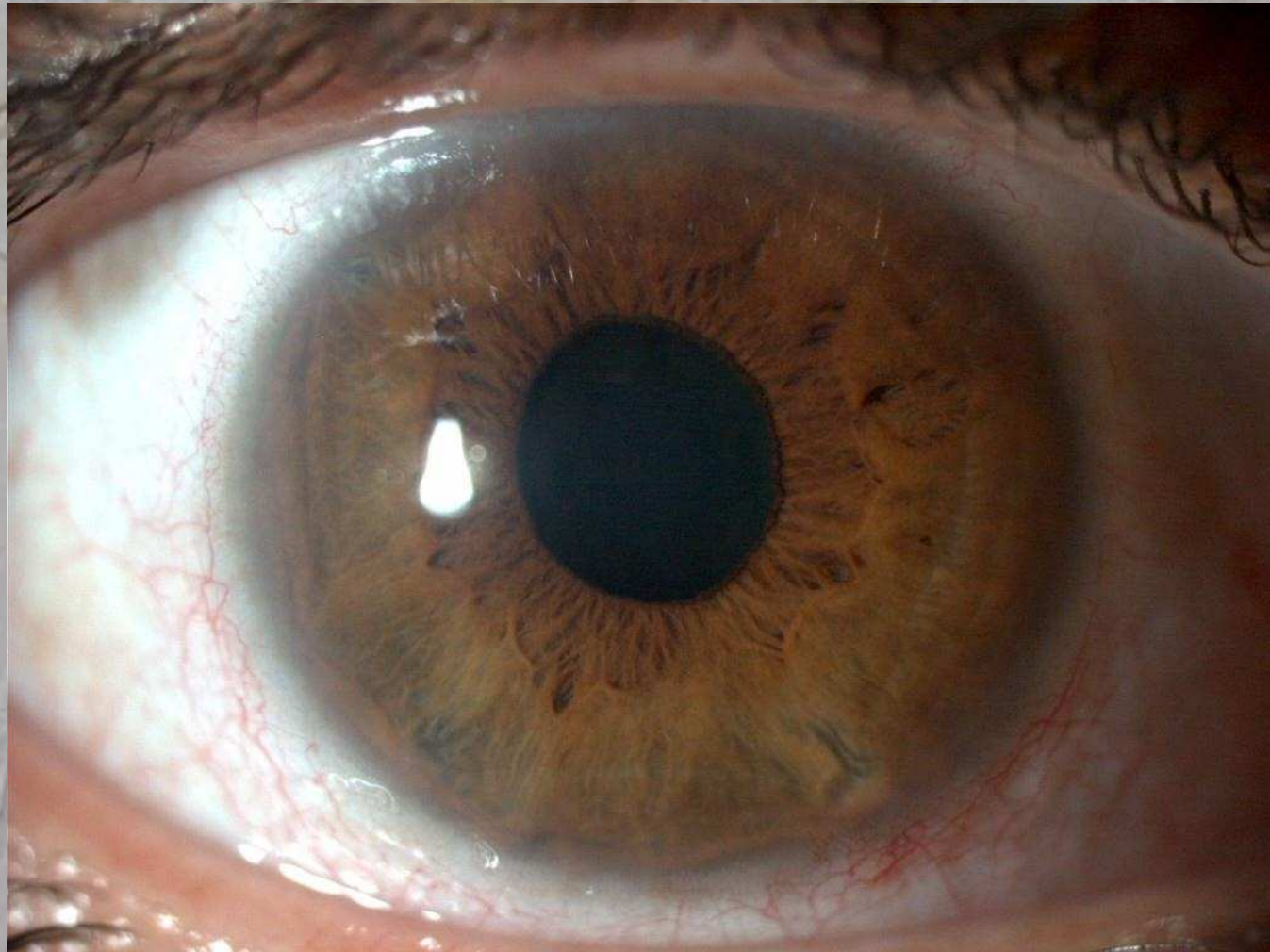
Normal vs narrow	All images		
	Mean (SD))	LOA	CV%
AOD250 (mm)	0.201 (0.158)	−0.083 to +0.097	22.8
AOD500 (mm)	0.269 (0.201)	−0.078 to +0.108	17.6
AOD750 (mm)	0.363 (0.266)	−0.070 to +0.112	12.8
TISA500 (mm ²)	0.117 (0.076)	−0.023 to +0.028	11.1
TISA750 (mm ²)	0.204 (0.136)	−0.038 to +0.058	12.0
ARA750 (mm ²)	0.245 (0.164)	−0.052 to +0.091	14.9

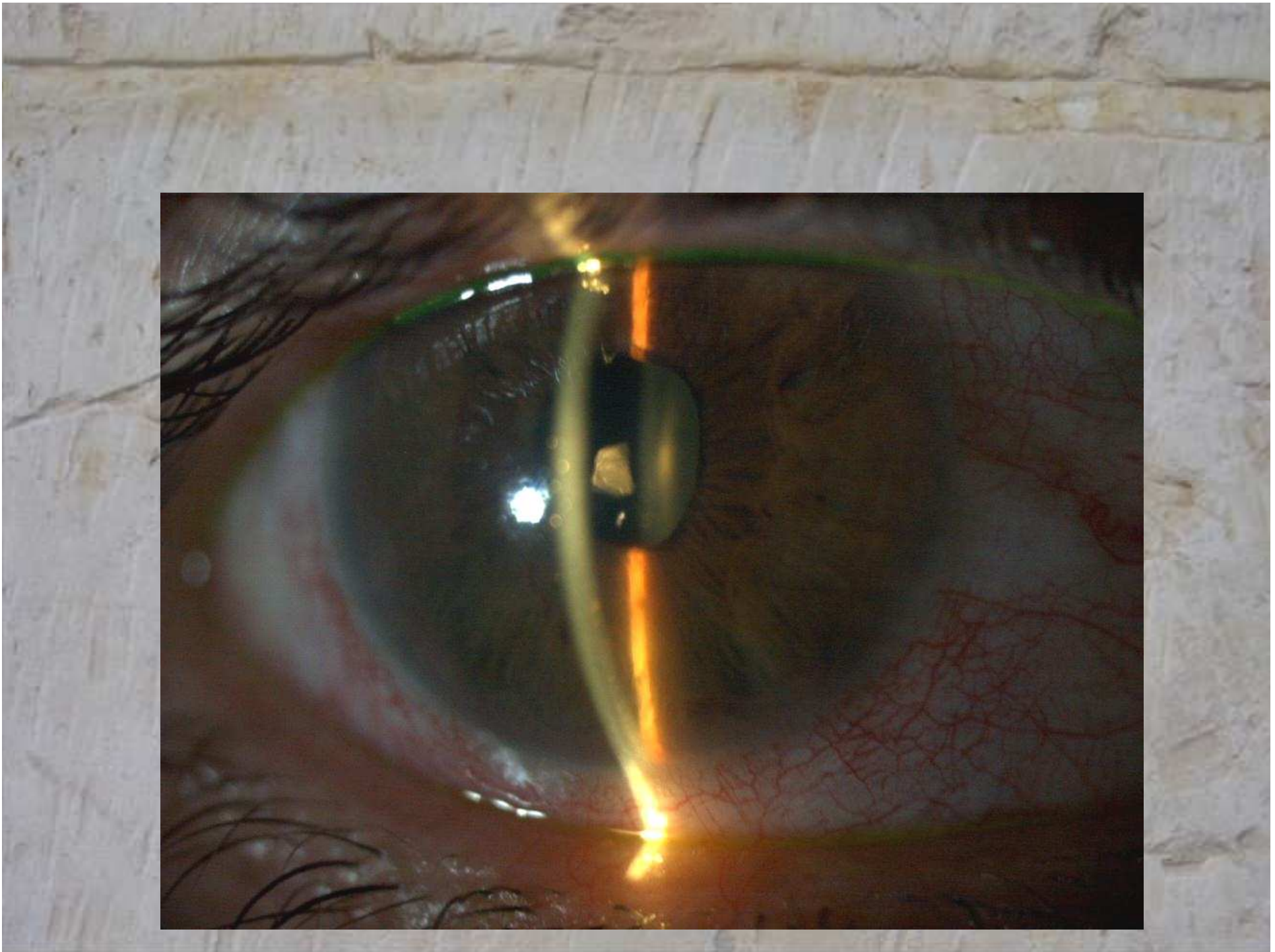
w and wide angles†

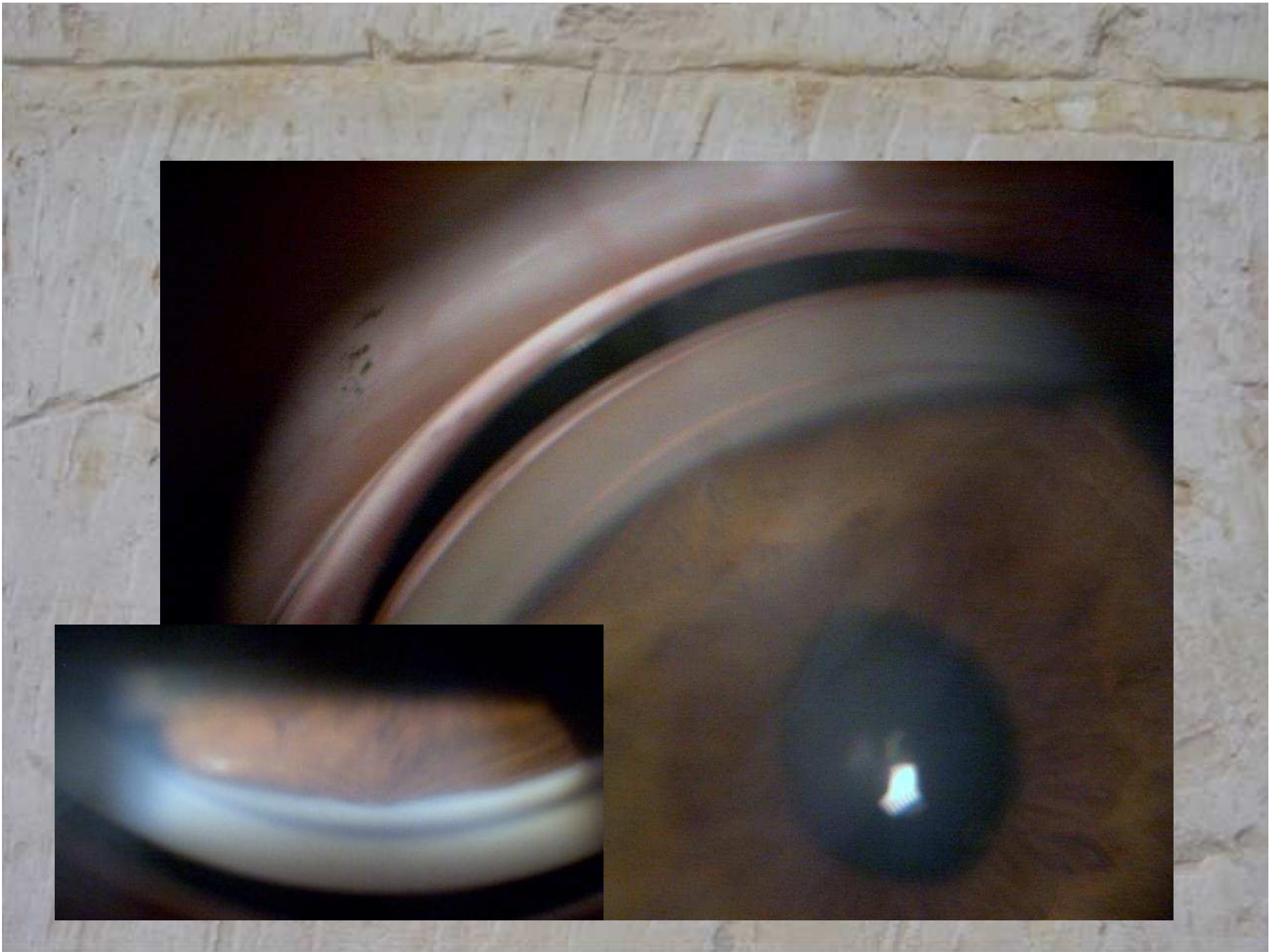
Wide angles			Narrow angles		
Mean (SE)	LOA	CV%	Mean (SE)	LOA	CV%
0.332 (0.123)	−0.131 to +0.133	20.3	0.077 (0.050)	−0.084 to +0.076	53.1
0.426 (0.169)	−0.107 to +0.116	13.4	0.114 (0.077)	−0.079 to +0.088	37.4
0.556 (0.210)	−0.151 to +0.097	11.4	0.161 (0.079)	−0.064 to +0.079	22.7
0.166 (0.026)	−0.038 to +0.044	12.6	0.056 (0.025)	−0.019 to +0.018	16.9
0.287 (0.094)	−0.066 to +0.057	10.9	0.096 (0.042)	−0.035 to +0.036	19.0
0.328 (0.111)	−0.096 to +0.089	14.4	0.115 (0.052)	−0.038 to +0.050	19.5

Console JW, Sakata LM, Aung T, Friedman DS, He M. Quantitative analysis of anterior segment optical coherence tomography images: the Zhongshan Angle Assessment Program. Br J Ophthalmol 2008;92:1612-6.

Les ICE (OD)









Visante™ OCT
ANTERIOR SEGMENT IMAGING

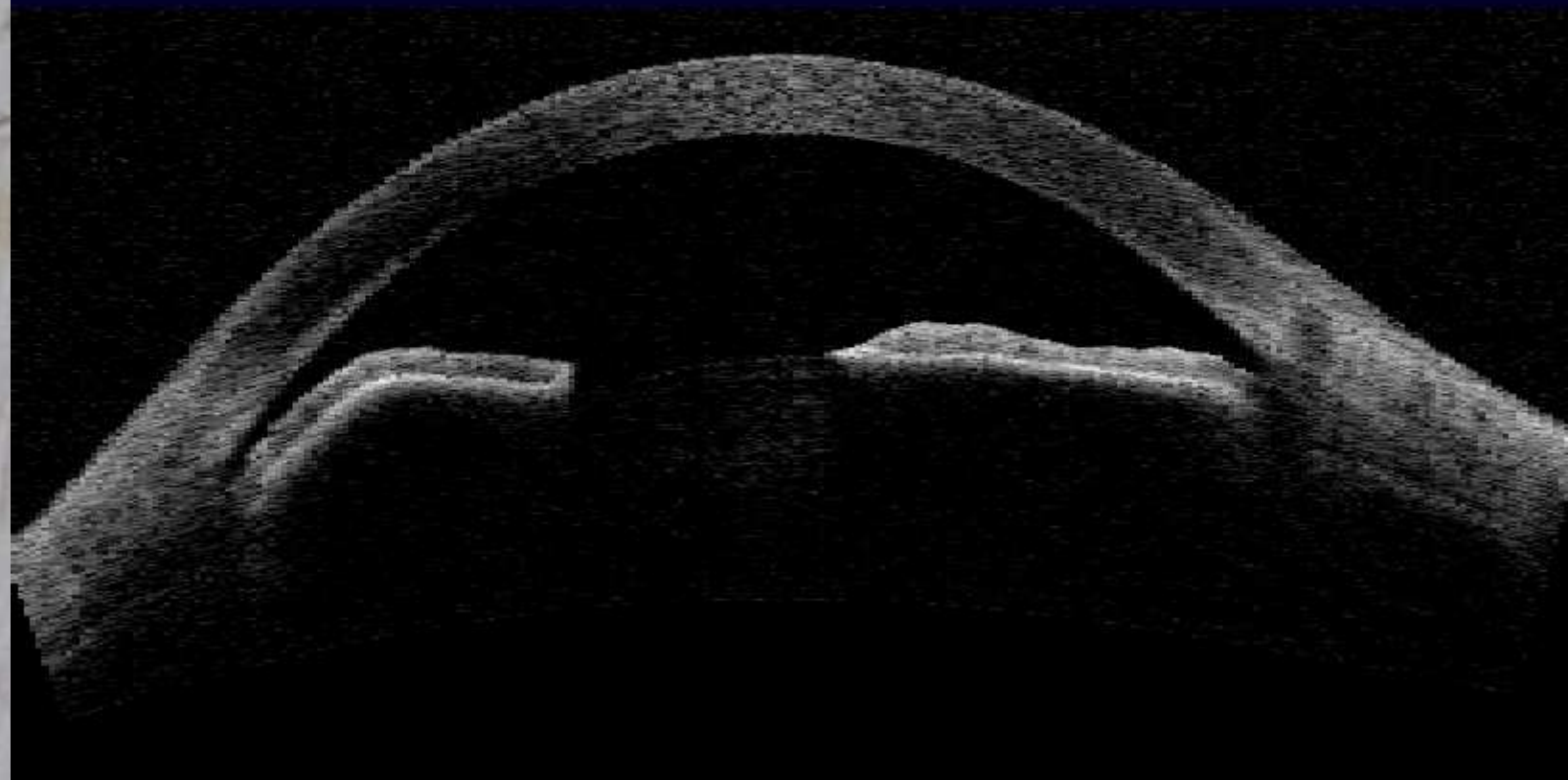
SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 48

Anterior Segment Single



180°

0°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

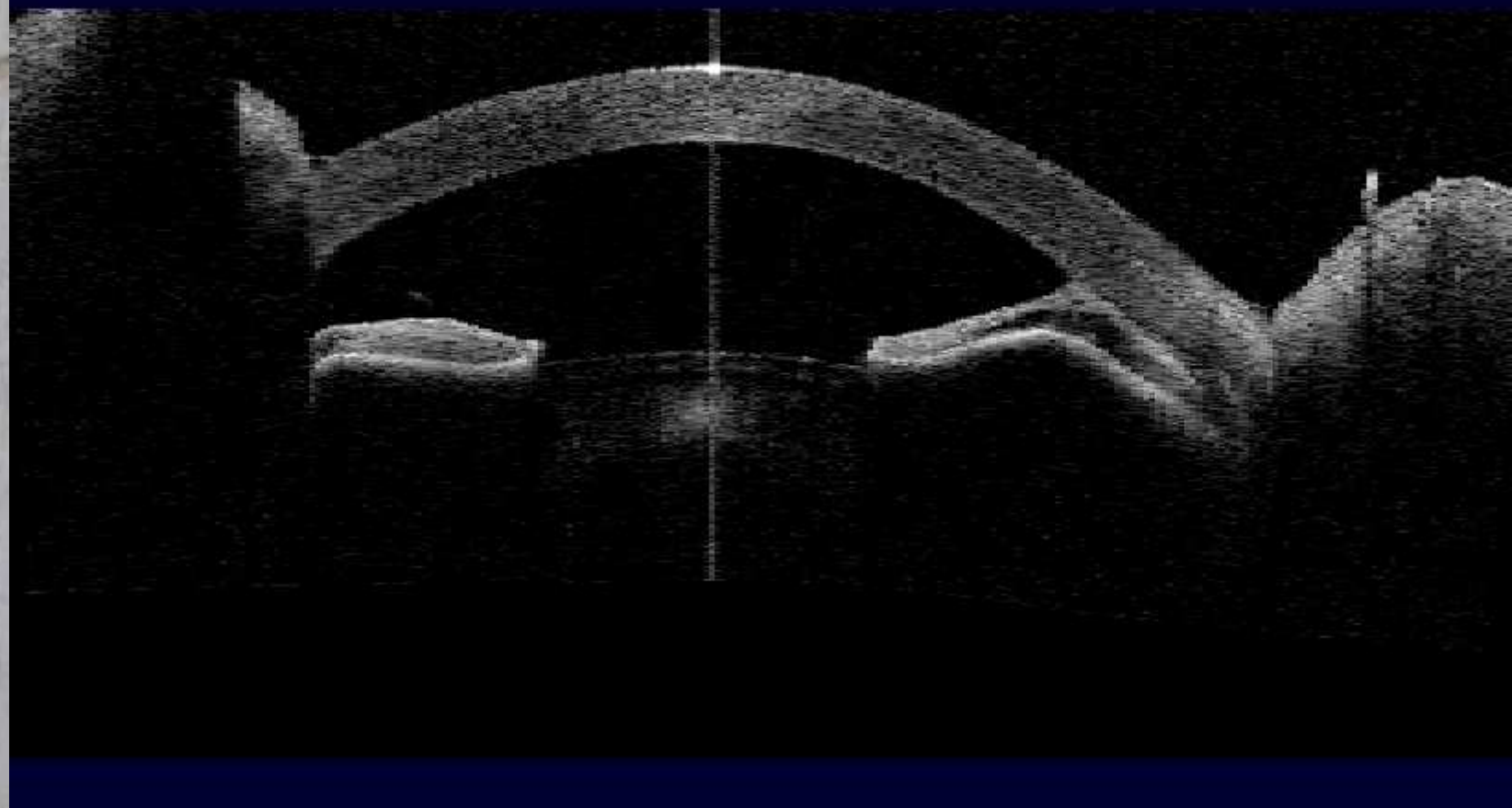
SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 48

Anterior Segment Single



103°

283°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

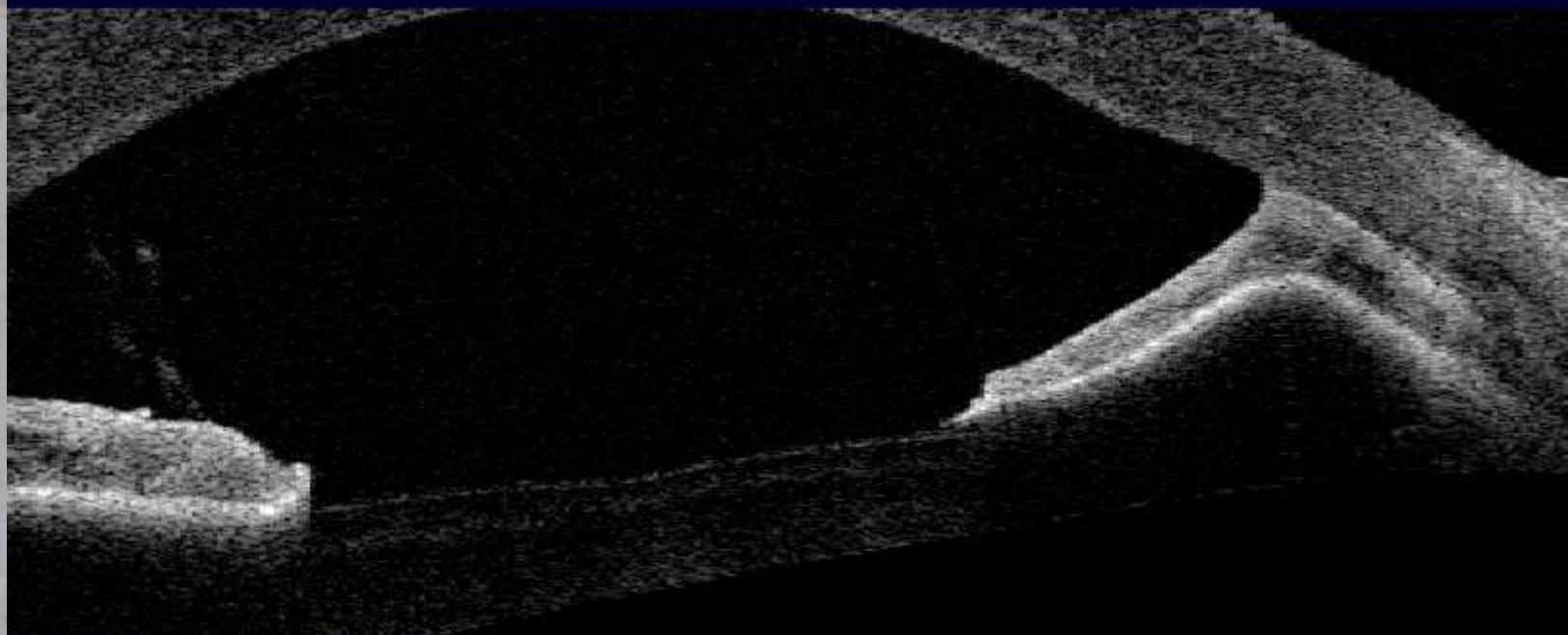
SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 48

High Res. Corneal

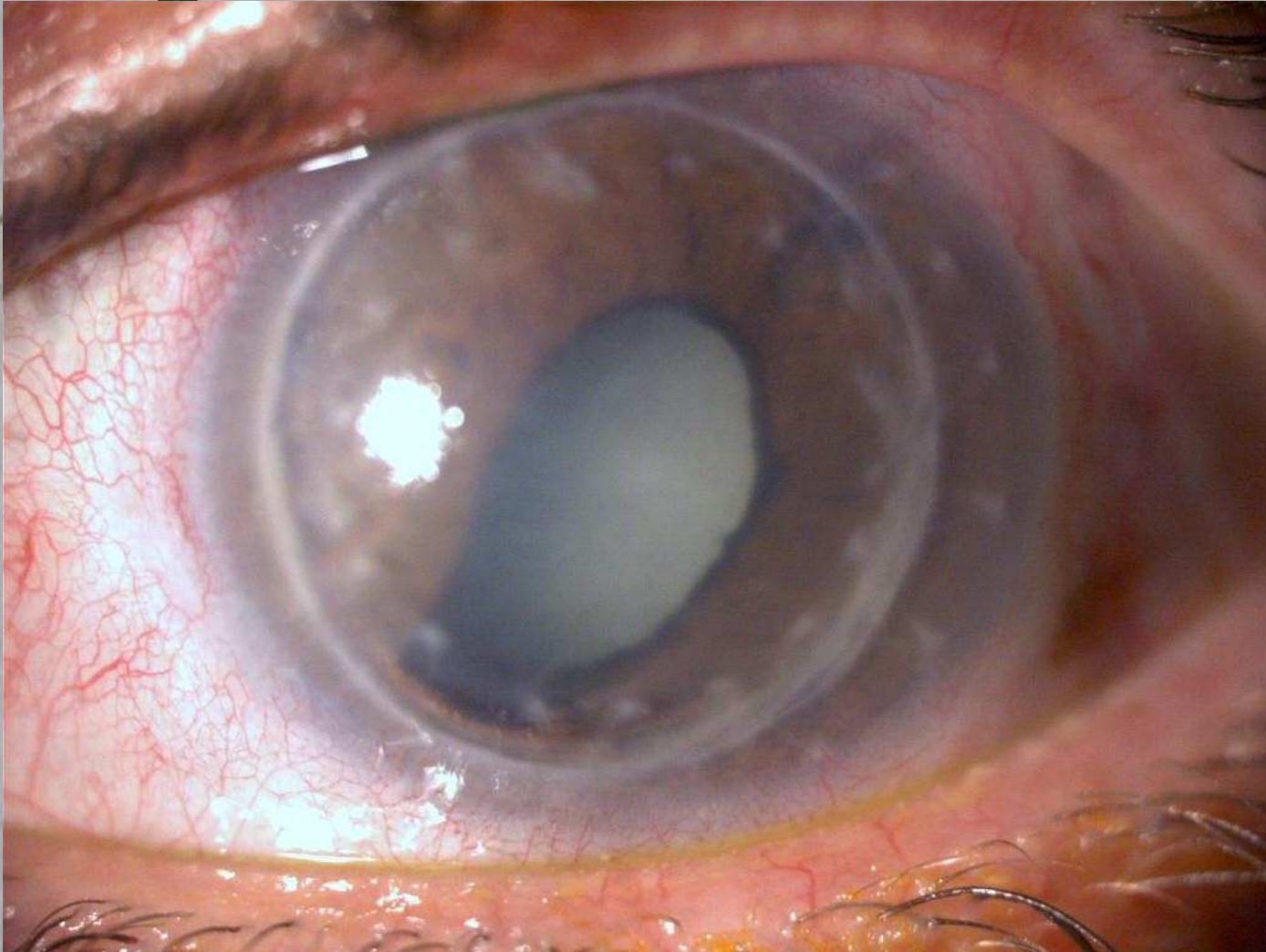


114°

294°



Oeil gauche





Visante™ OCT
ANTERIOR SEGMENT IMAGING

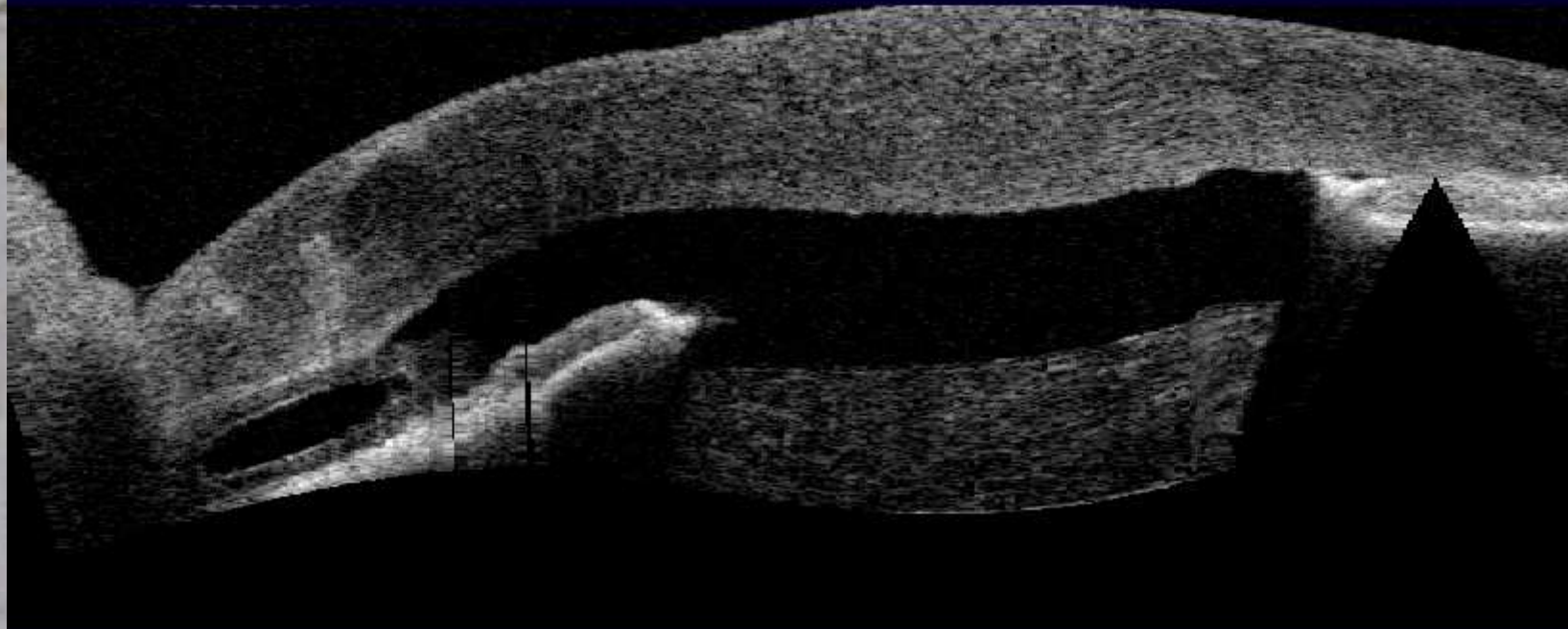
SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 48

High Res. Corneal



60°

240°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

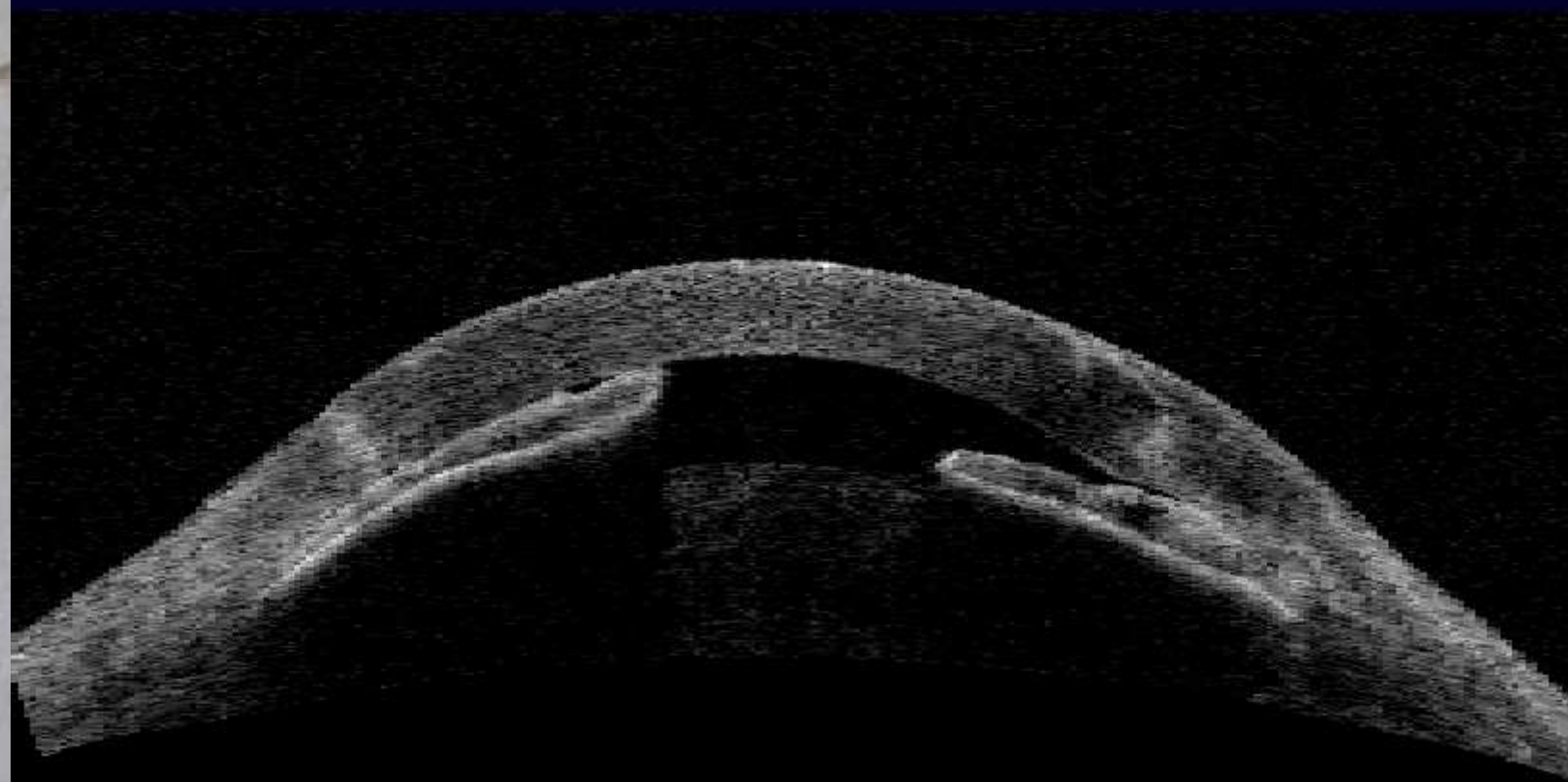
SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 48

Anterior Segment Single



180°

0°

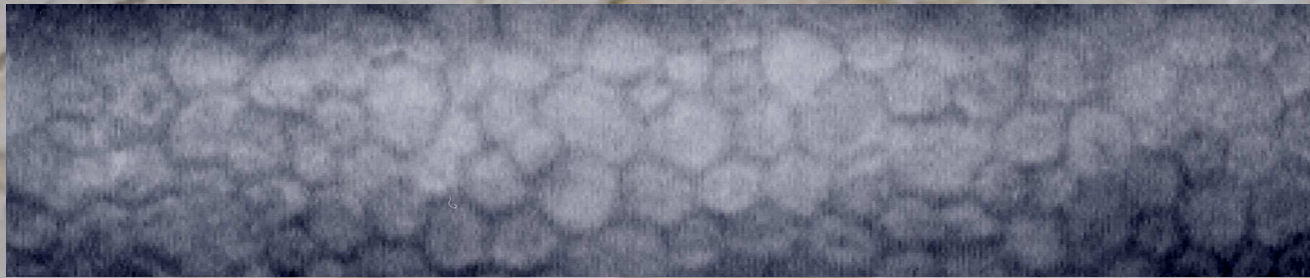


ICE

- Bernard R
- 52 ans
- Opéré OG trabéculéctomie 2006
- 6 mois après PIO 45

ICE

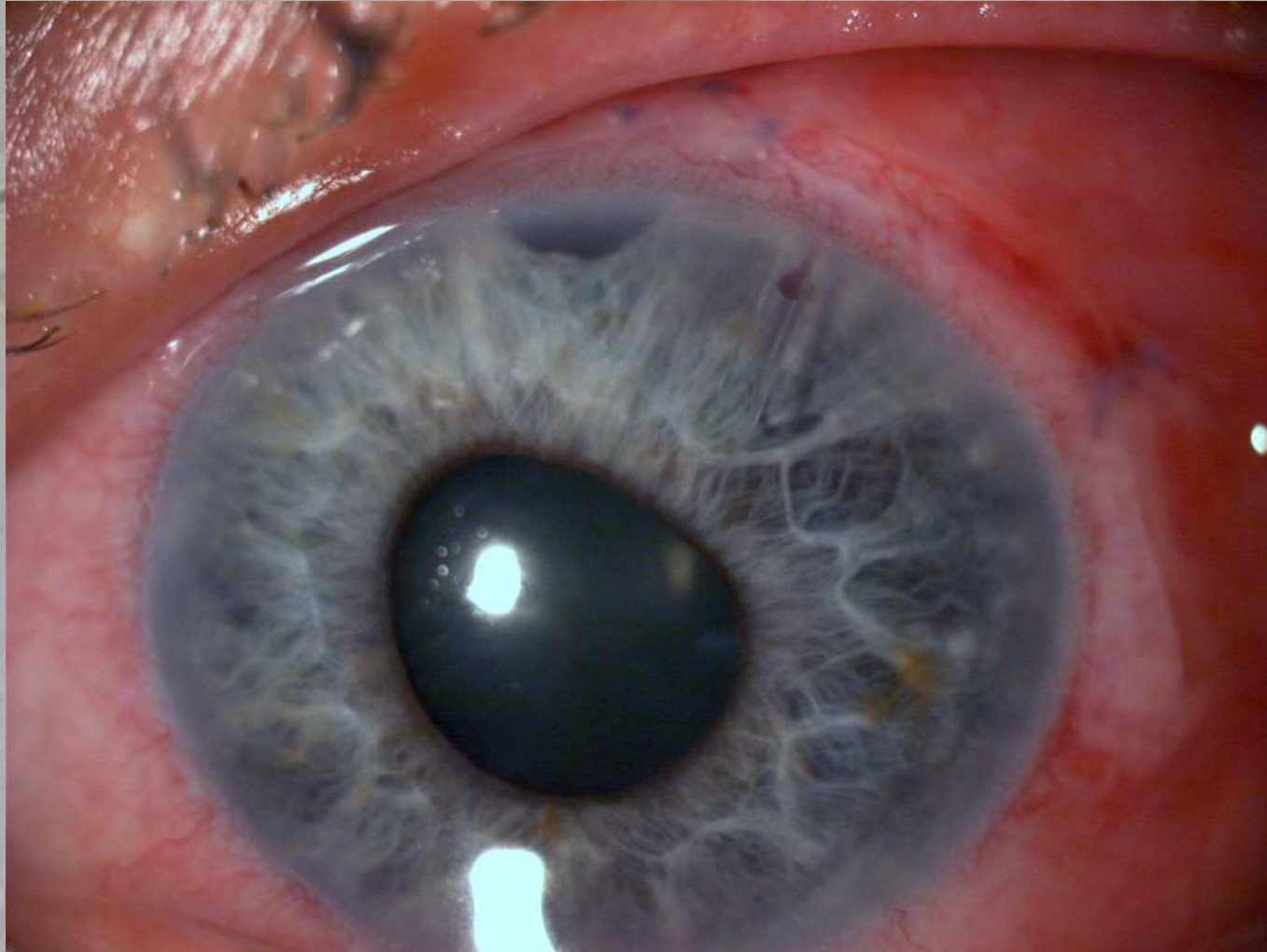
Droit



Gauche



J1 post opératoire







Visante™ OCT
ANTERIOR SEGMENT IMAGING

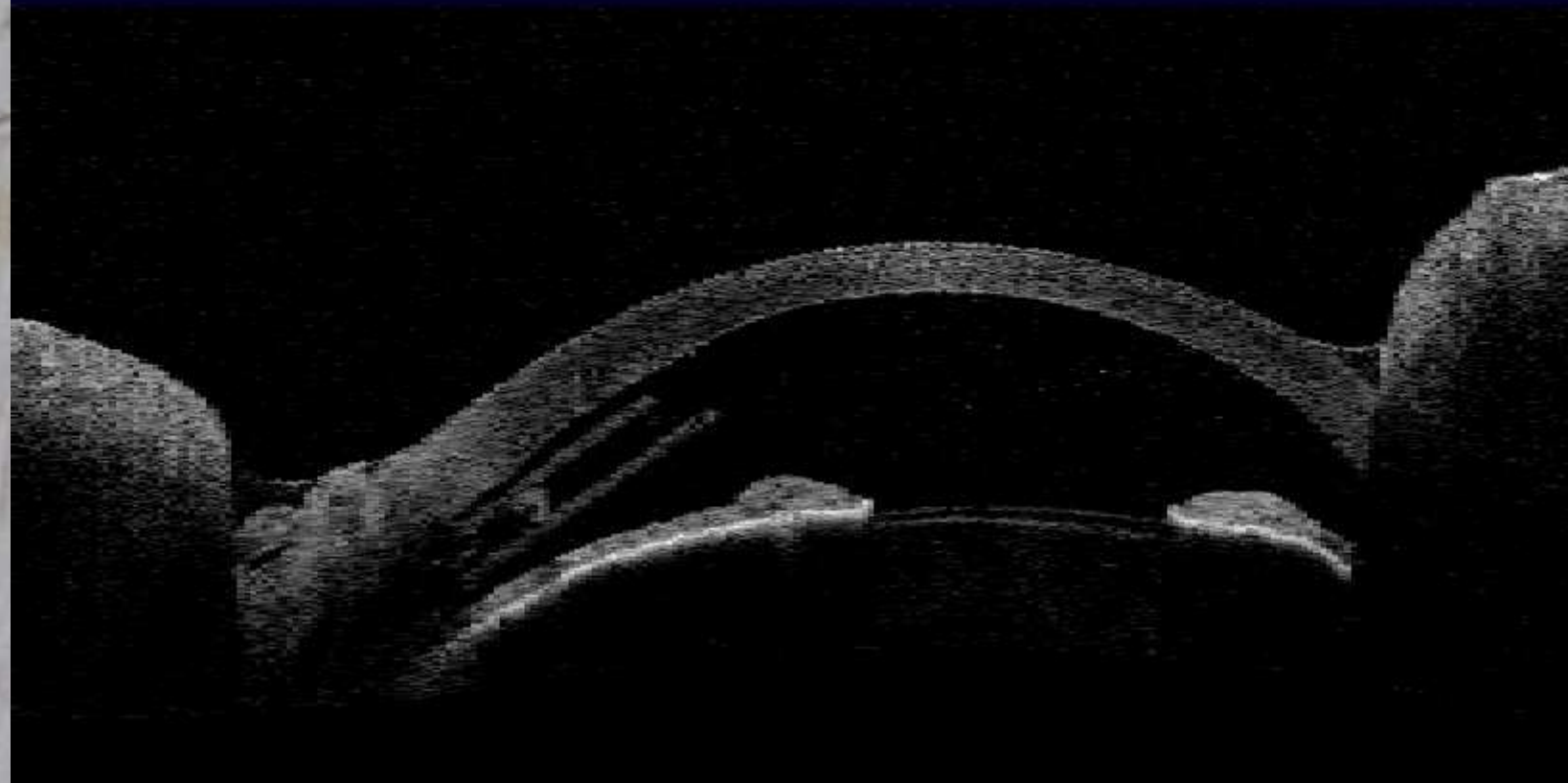
SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 52

Anterior Segment Single



71°

251°





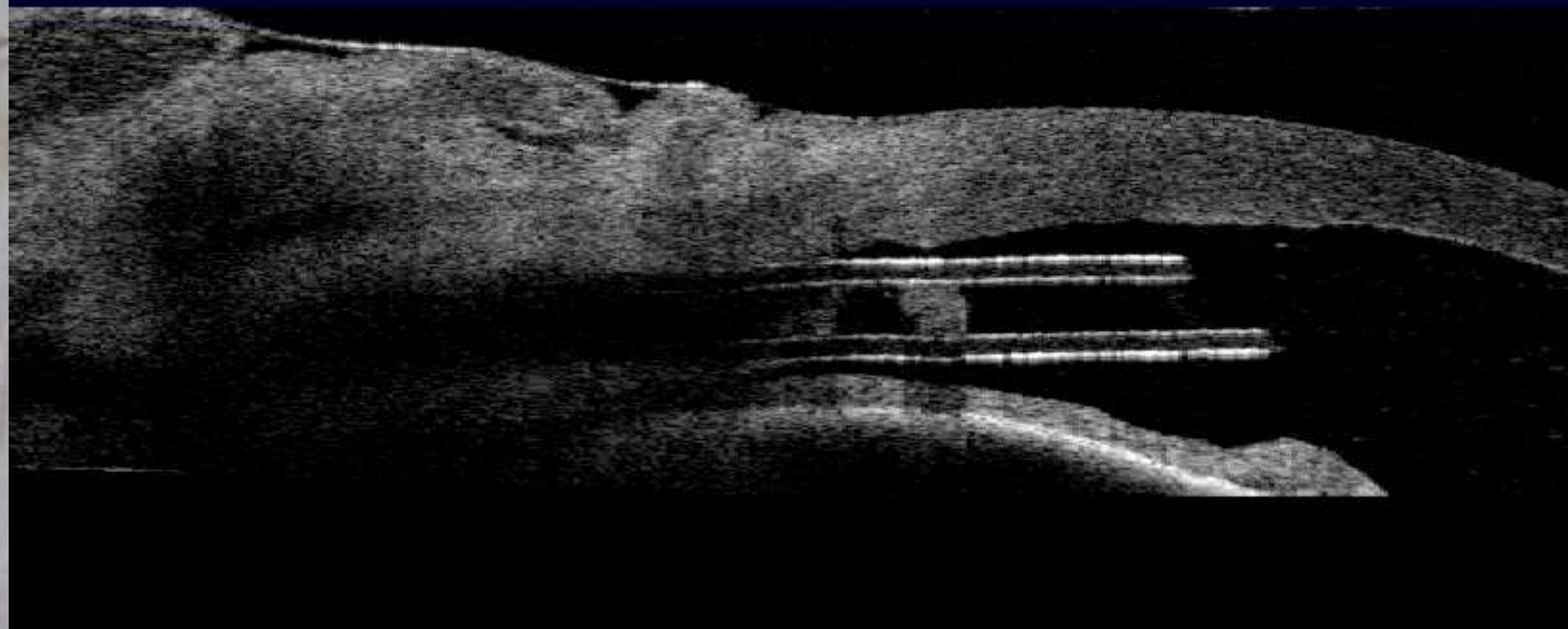
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 52
High Res. Corneal

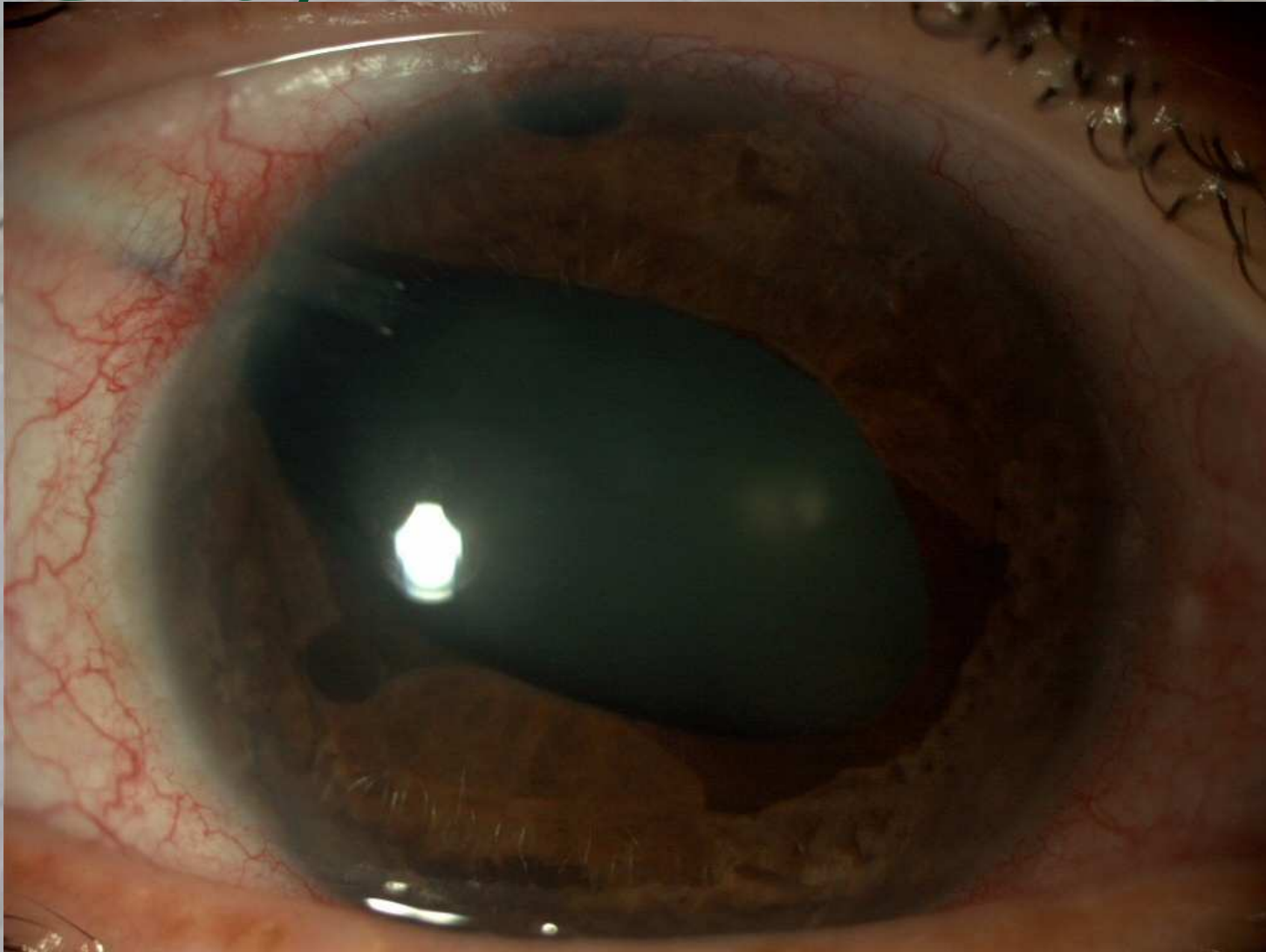


62°

242°

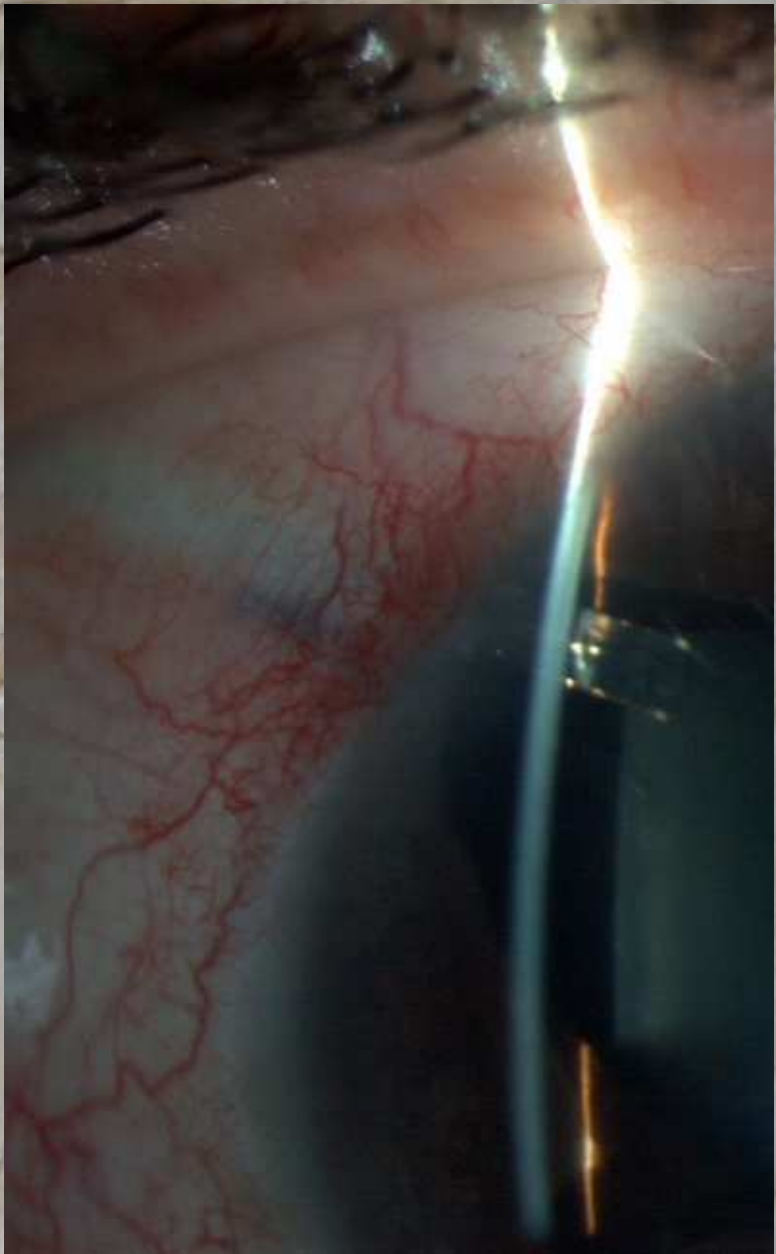
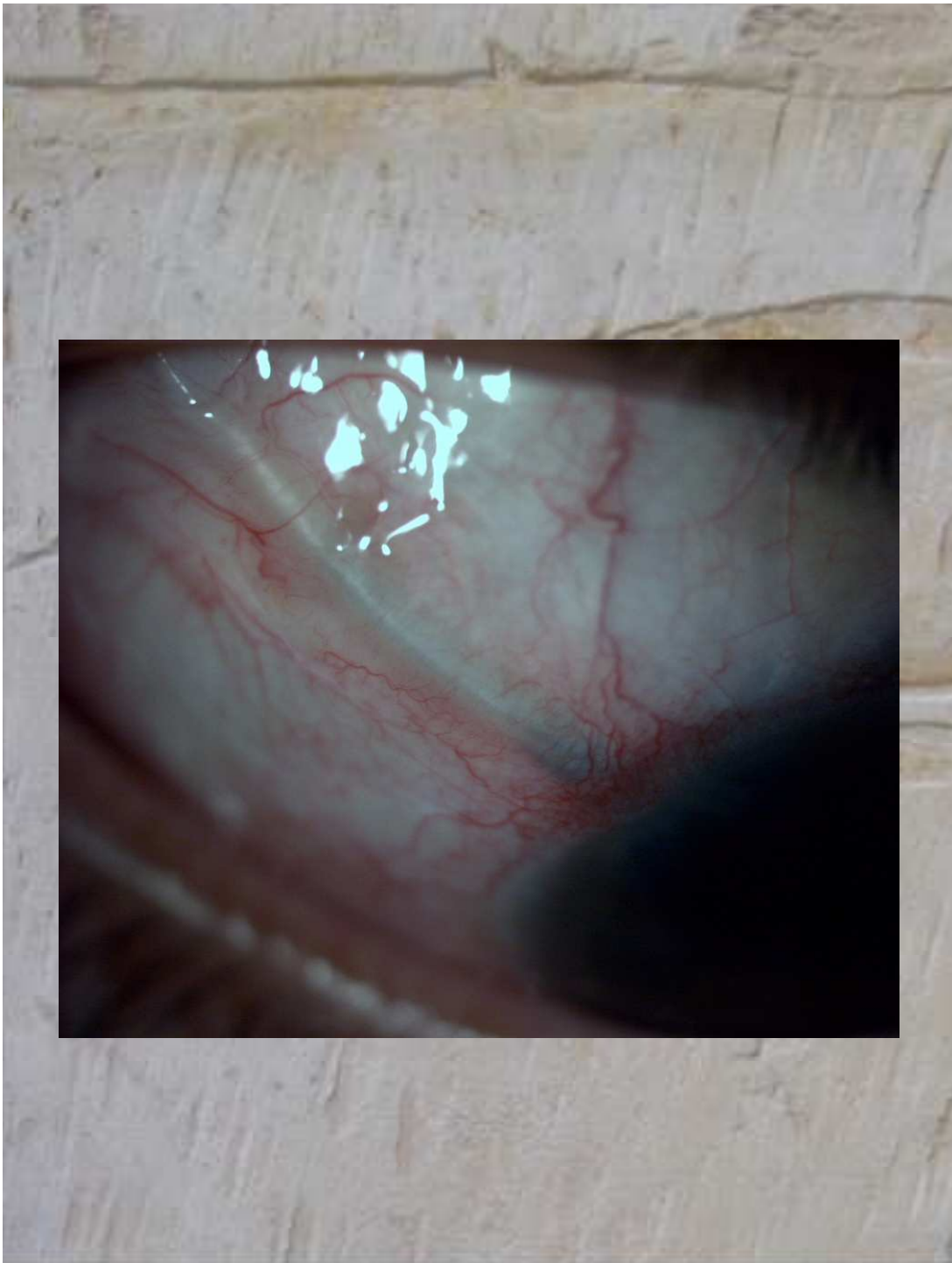


ICE OD, tube 2002



ICE OG







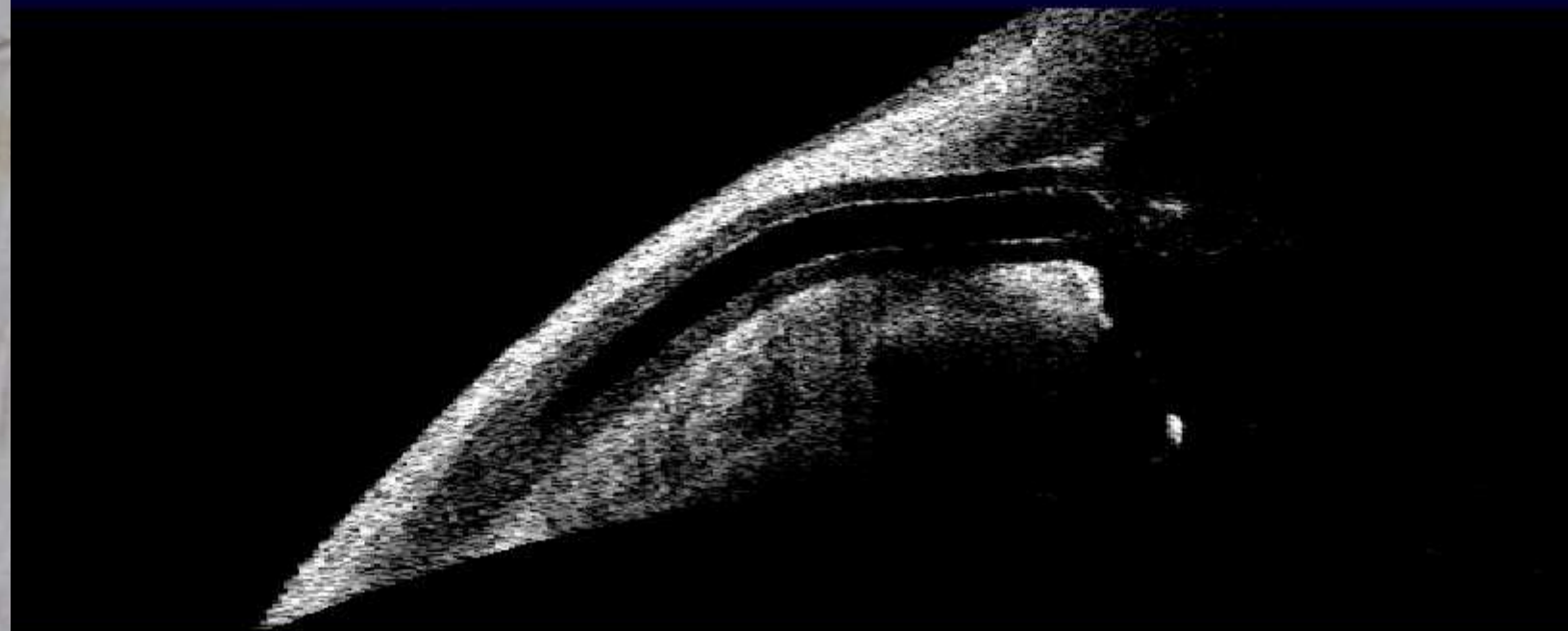
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 55
High Res. Corneal



142°

322°





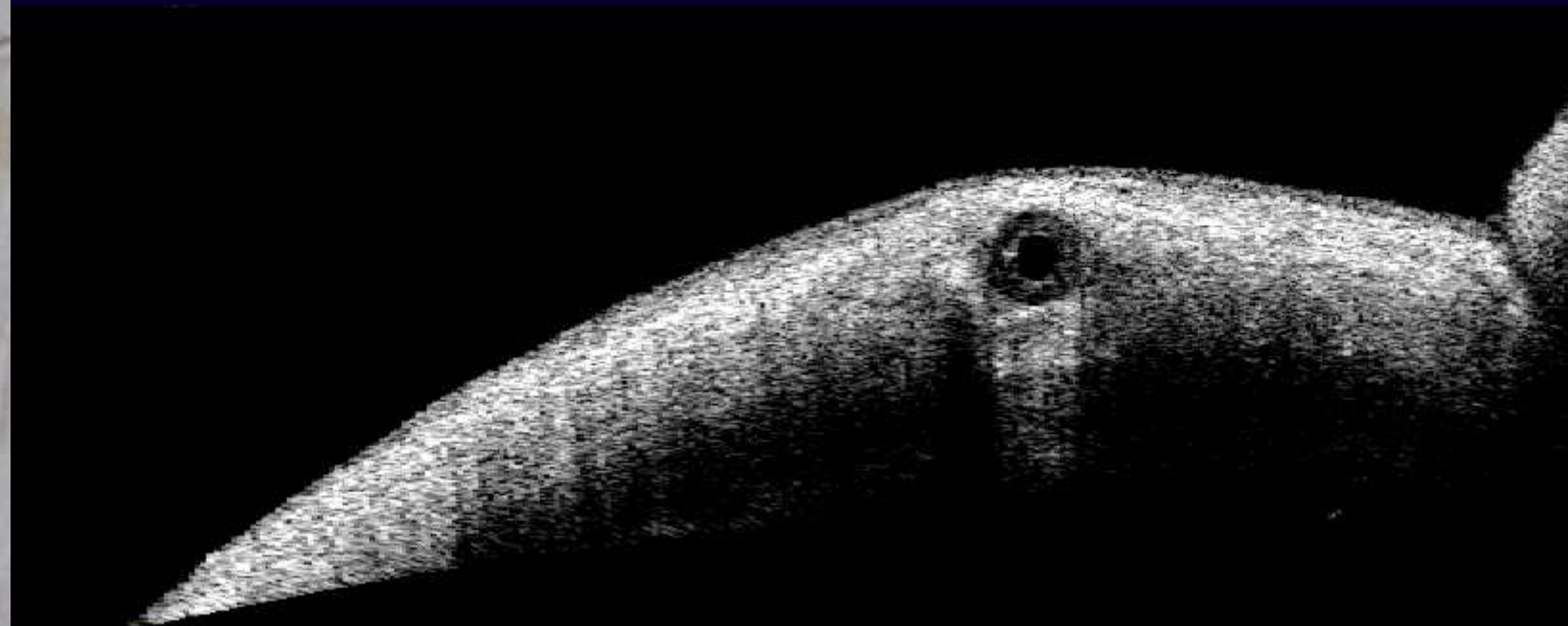
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 55
High Res. Corneal



239°

59°



Suivi des bulles

- Claude W
- 77 ans
- GPAO
- SPNP OD J1
- SPNP OG 24 mois

J1 Post op





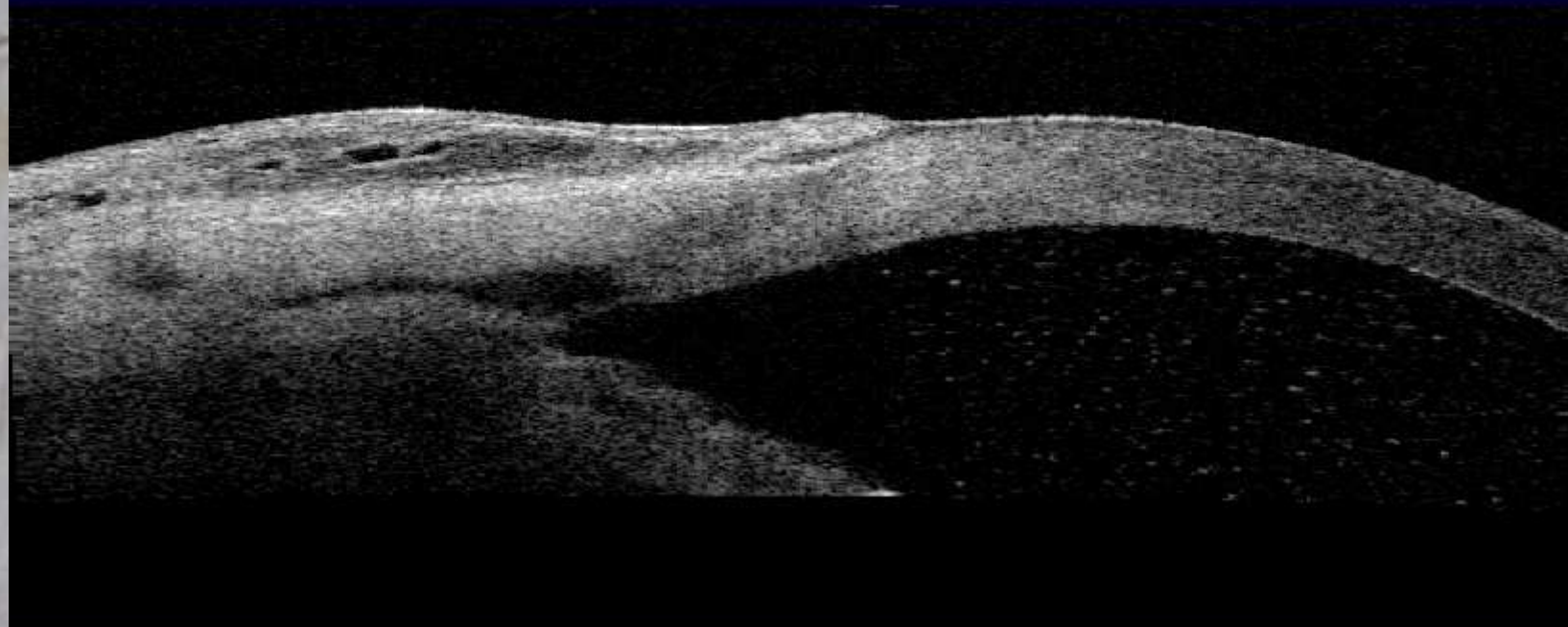
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 77
High Res. Corneal



82°

262°





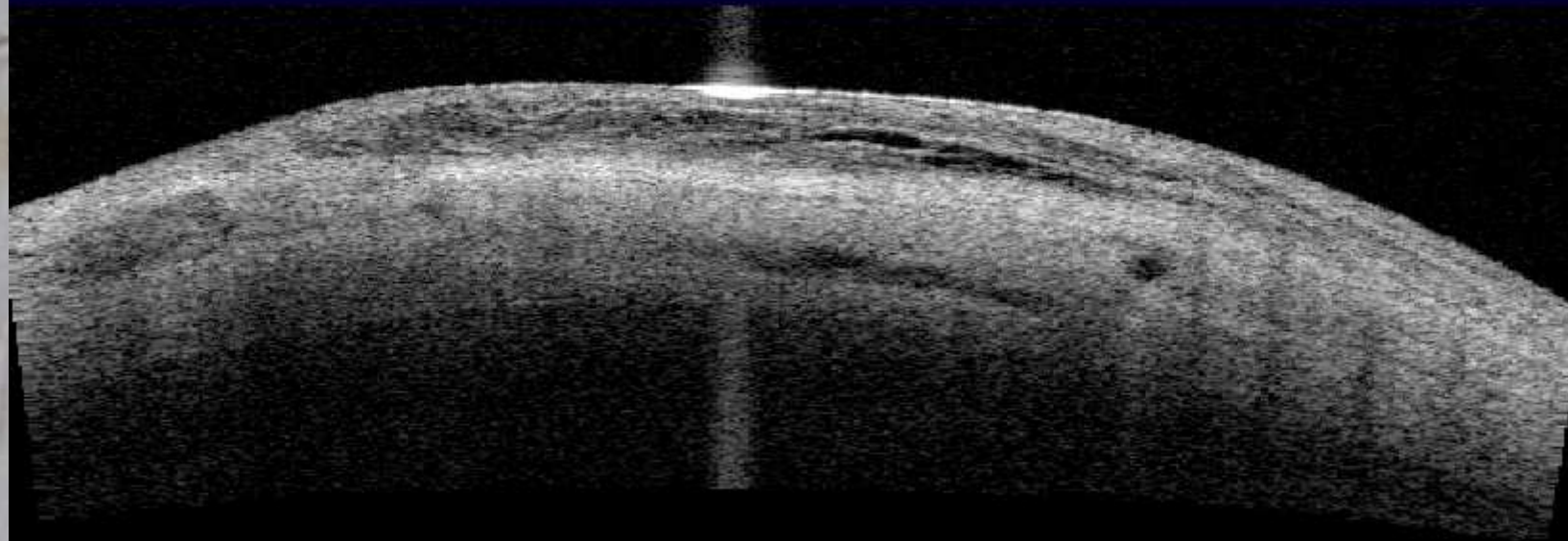
Visante™ OCT
ANTERIOR SEGMENT IMAGING

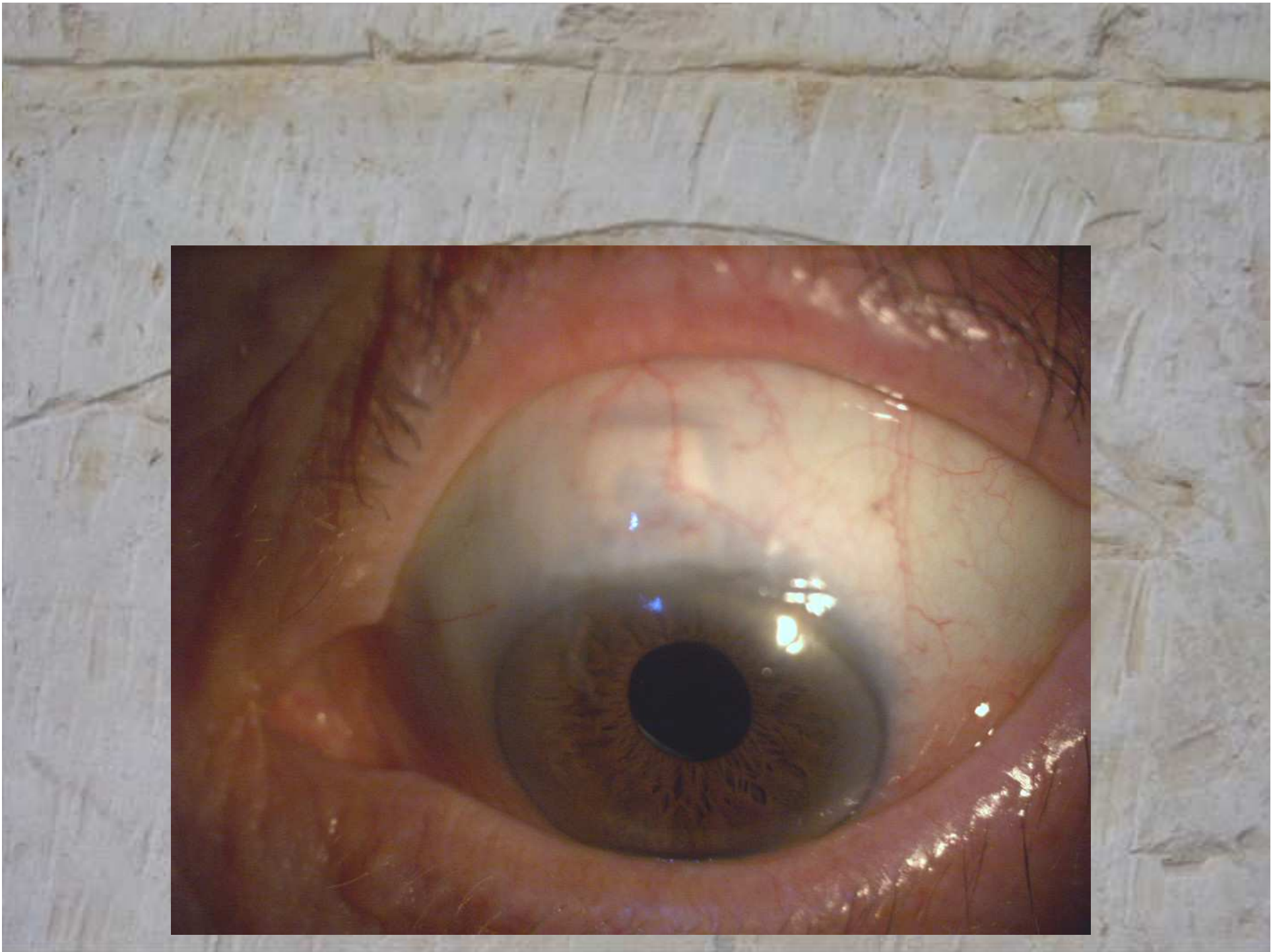
SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 77
High Res. Corneal



180°

0°







Visante™ OCT
ANTERIOR SEGMENT IMAGING

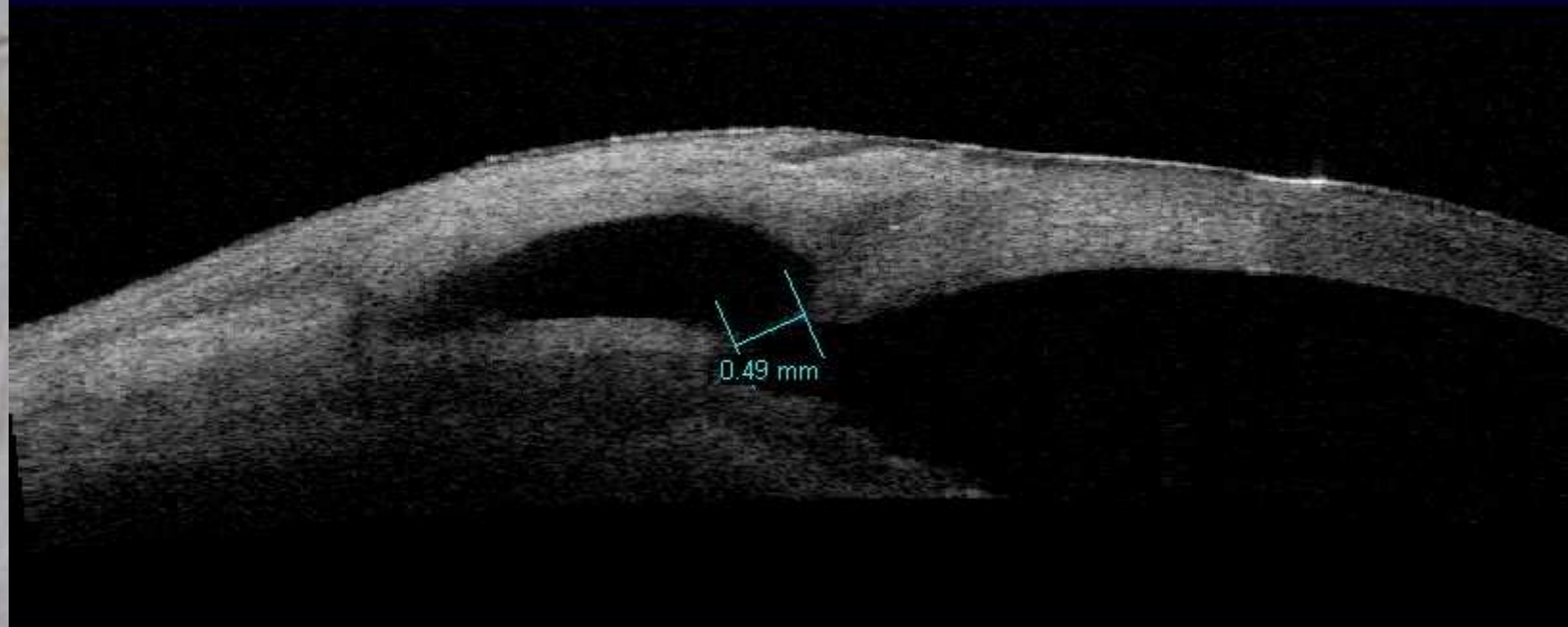
SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 77

High Res. Corneal



90°

270°





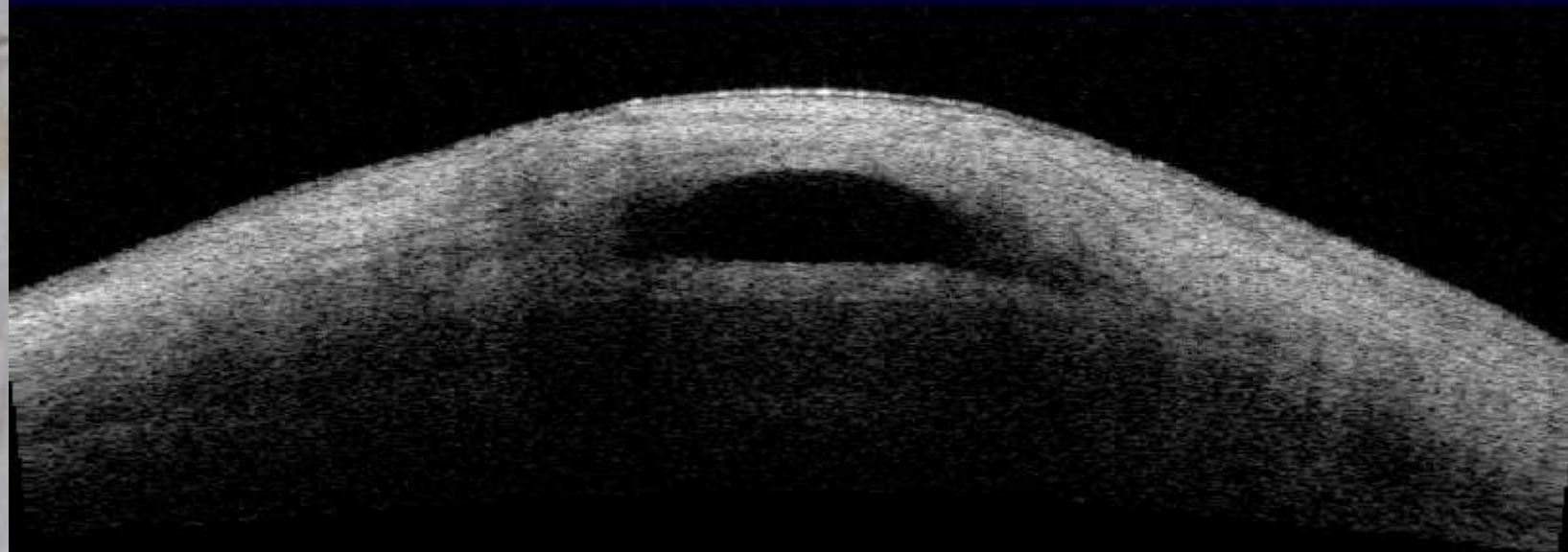
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 77
High Res. Corneal



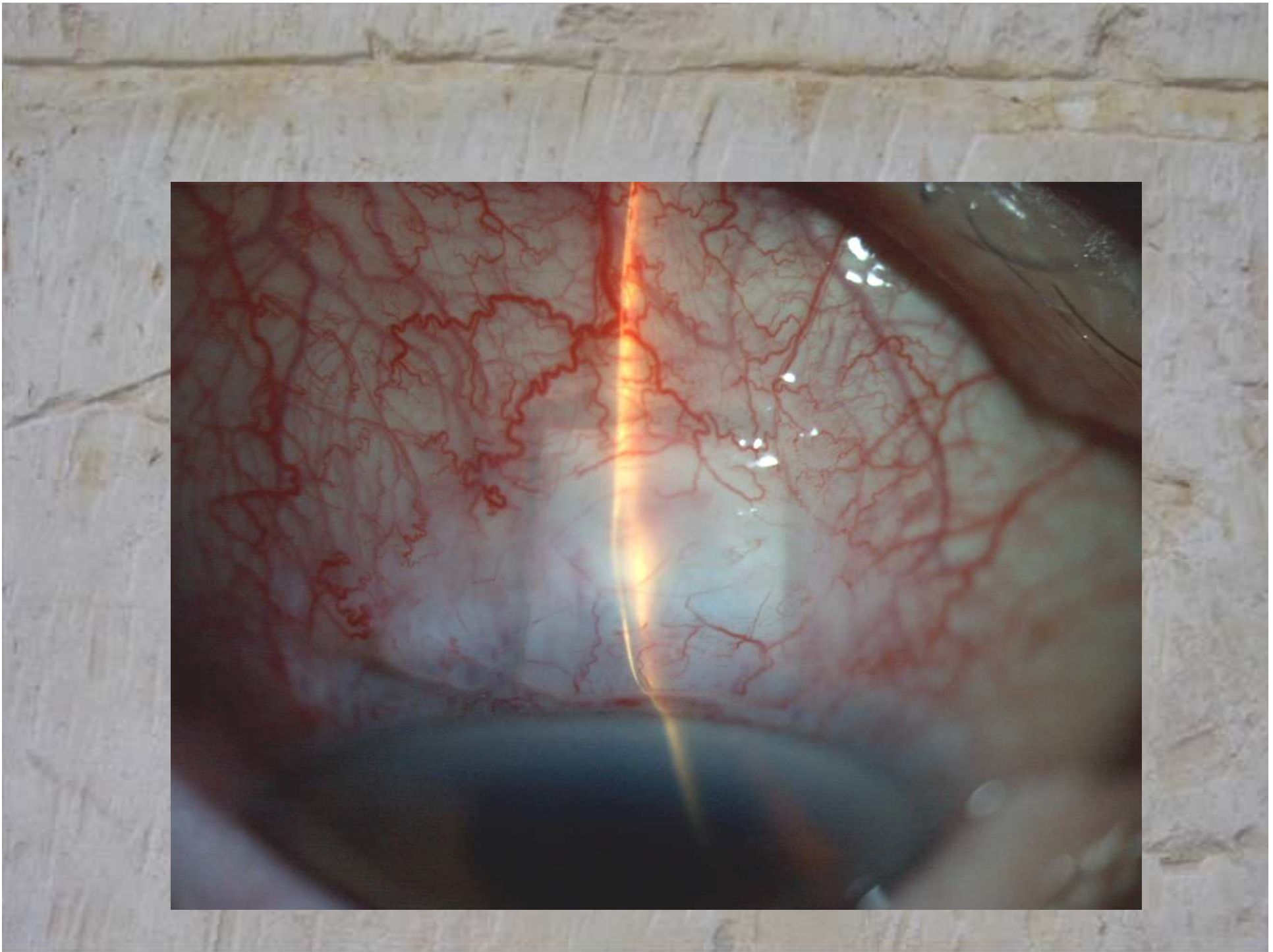
180°

0°



Andrée B

- Andrée B
- 82 ans
- GPAO
- SPNP et cataracte Mois 1
- PIO préop 19 (Cosopt, Xalatan)
- PIO post op 10 (Tobradex)





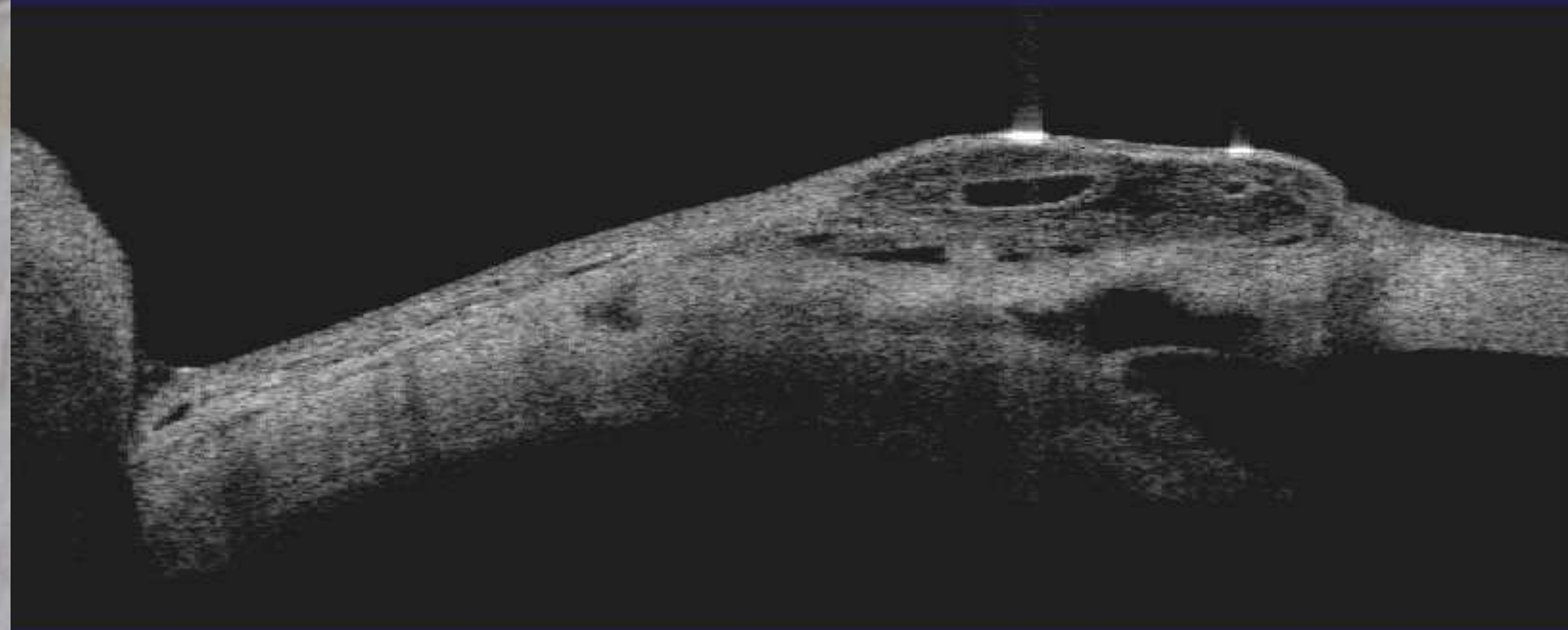
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SAW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 82
High Res. Corneal



90°

270°





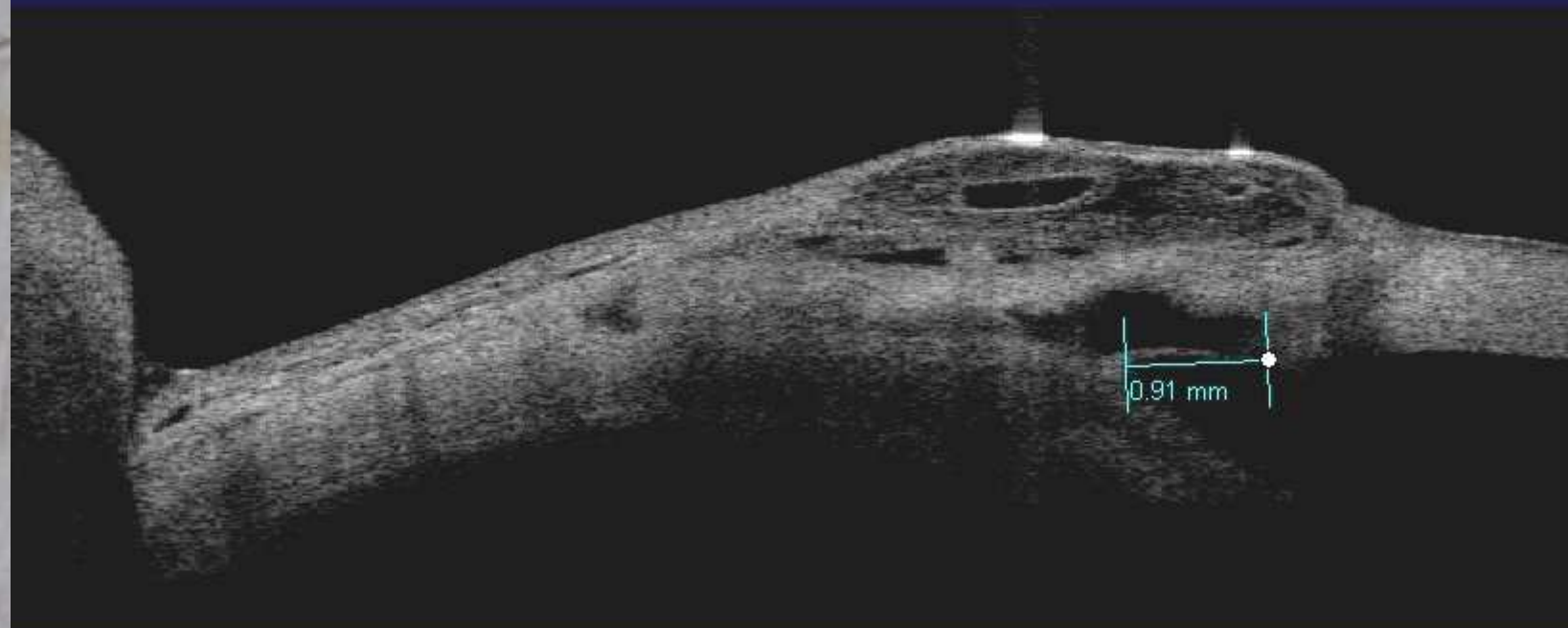
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 82
High Res. Corneal



90°

270°





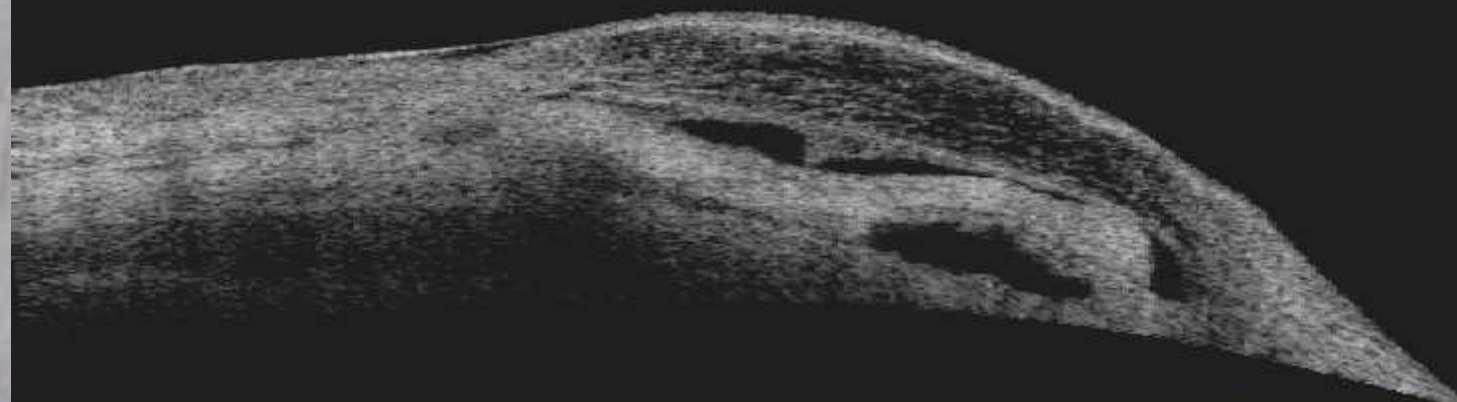
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Unknown Age: 82
High Res. Corneal



178°

358°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

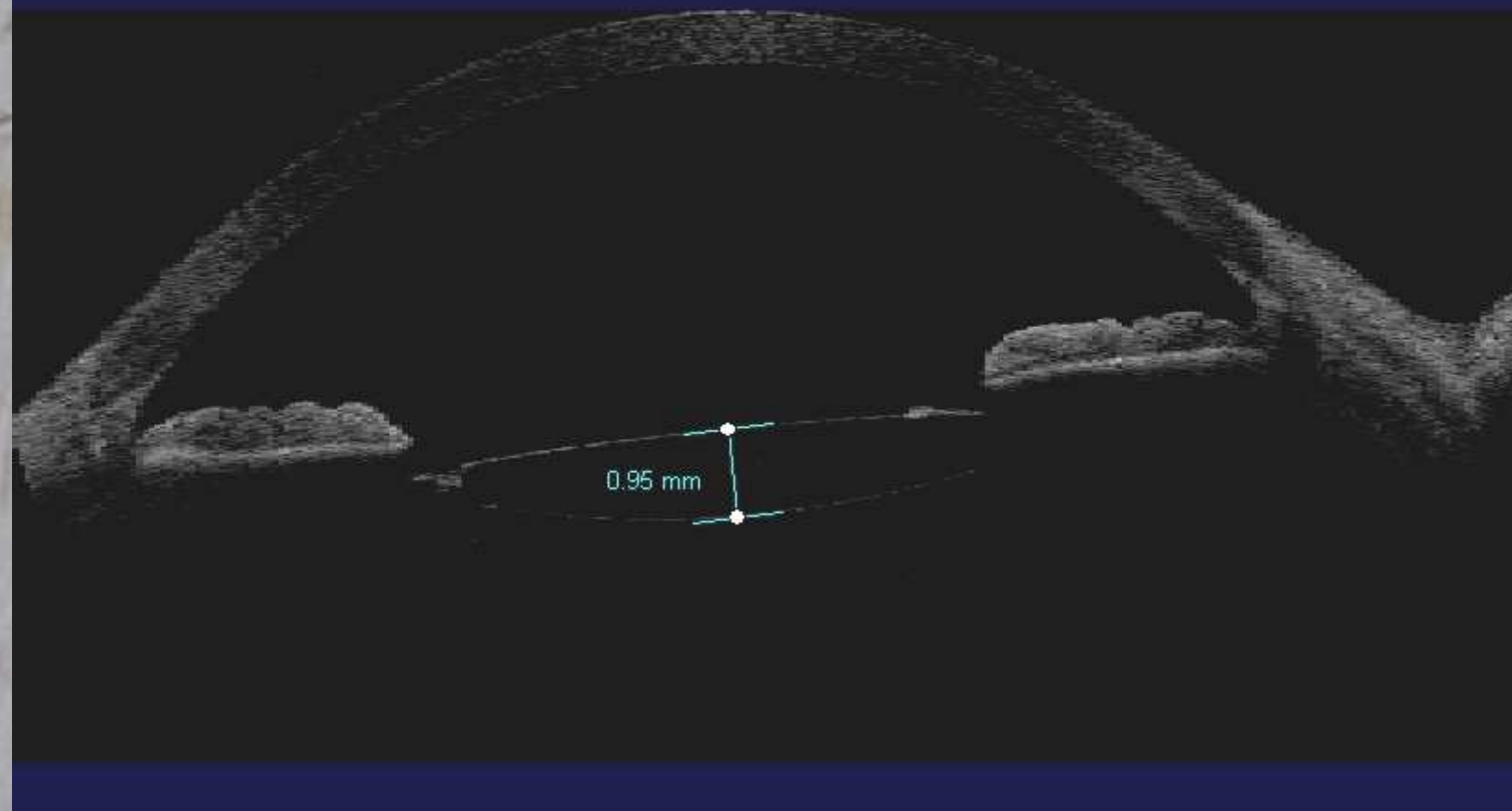
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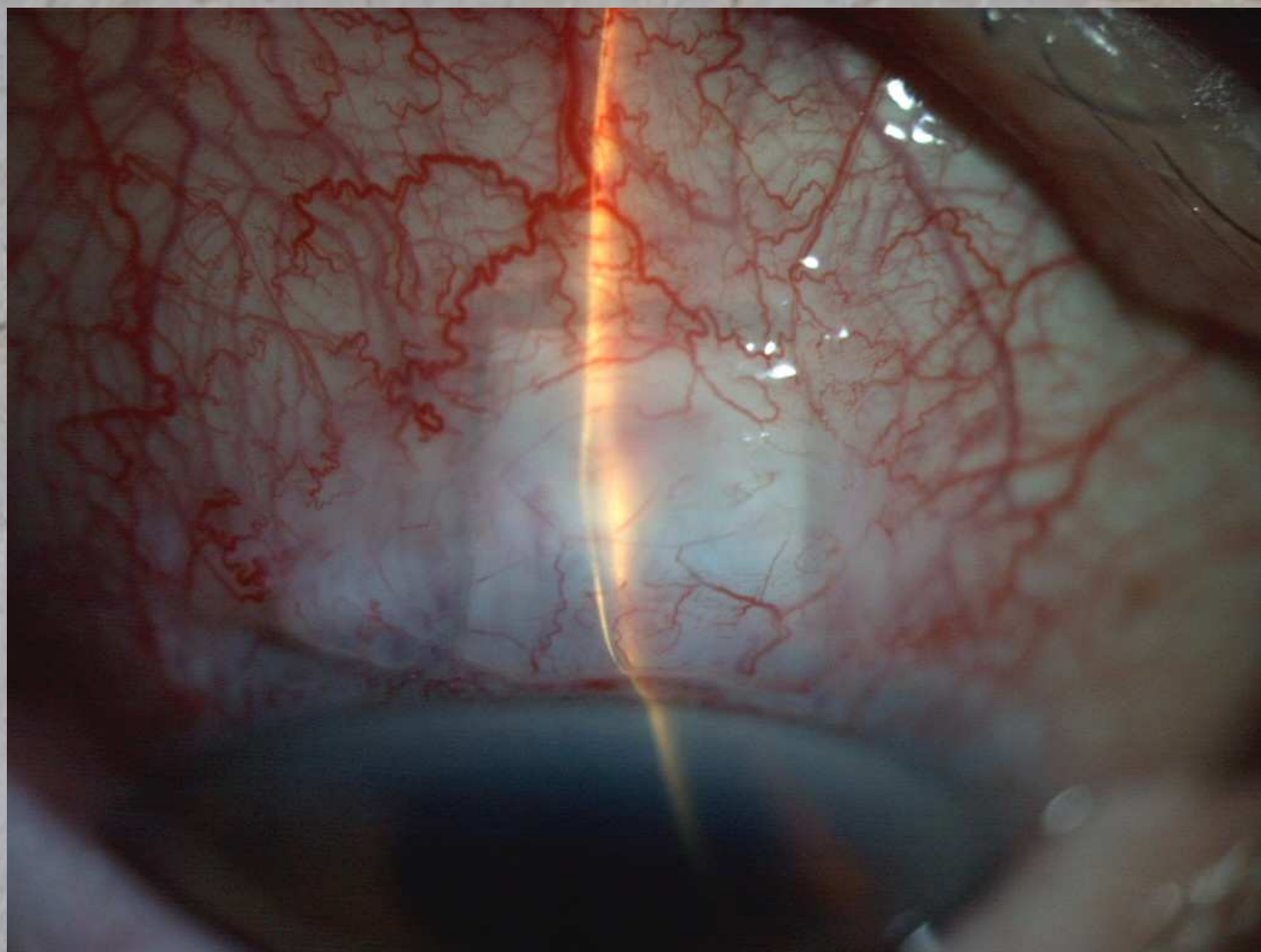
Anterior Segment Single



180°

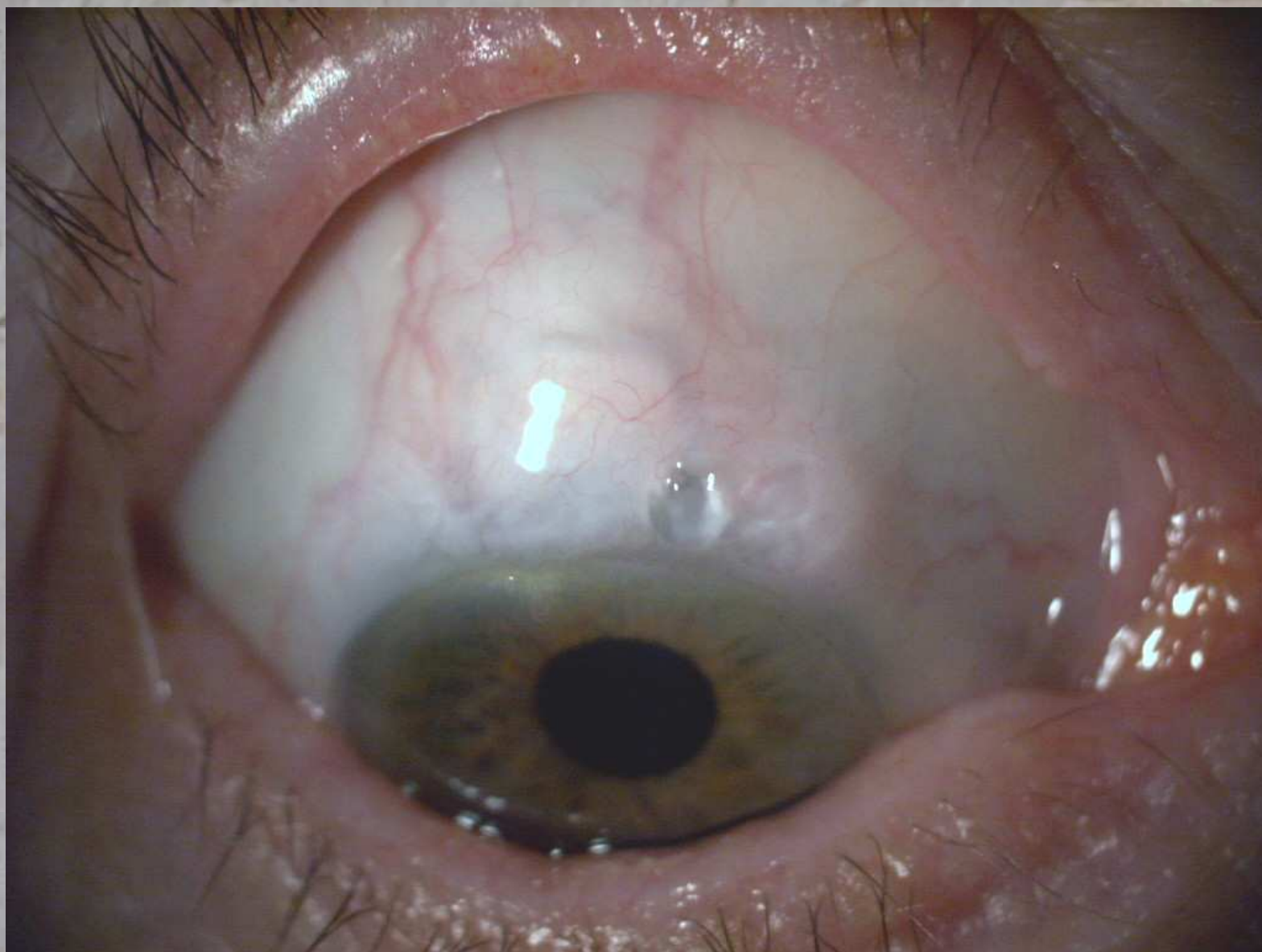
0°





Moyen terme

- V. Jeanine
- 79 ans, GPAO
- PIO préop 19 ODG, Xalatan et Cosopt
- Cataracte SPNP OD 12 mois
- Cataracte SPNP OG 18 mois
- PIO janvier 2007, 12 OD, 13 OG





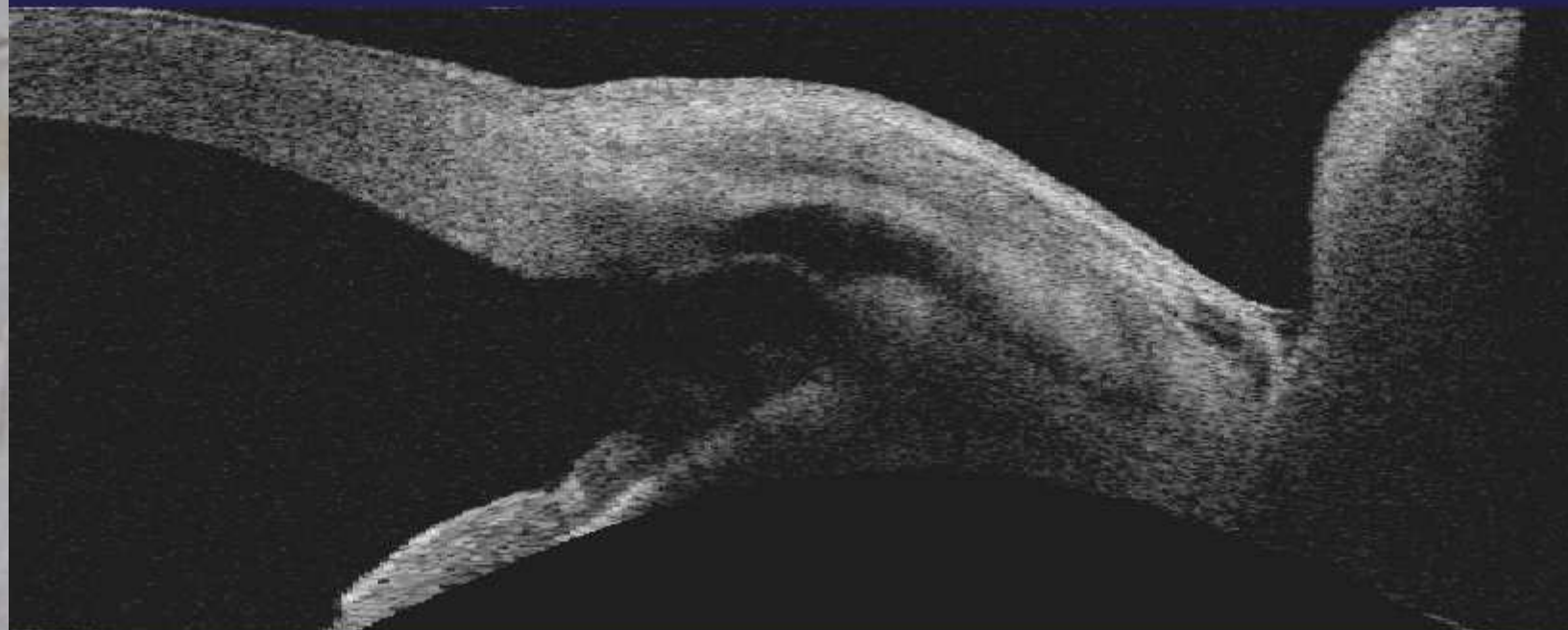
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 79
High Res. Corneal



270°

90°





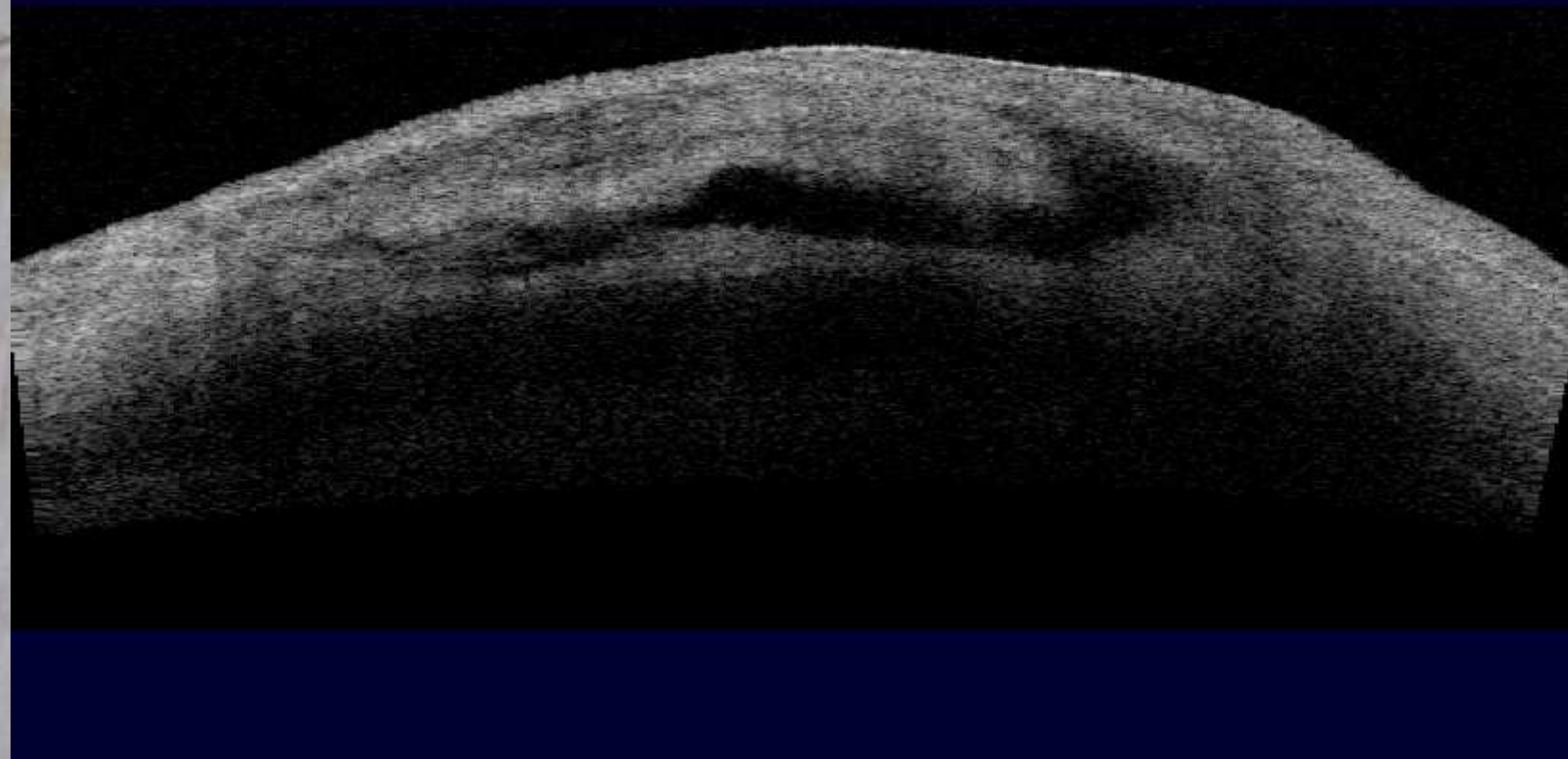
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 79
High Res. Corneal



182°

2°







Visante™ OCT
ANTERIOR SEGMENT IMAGING

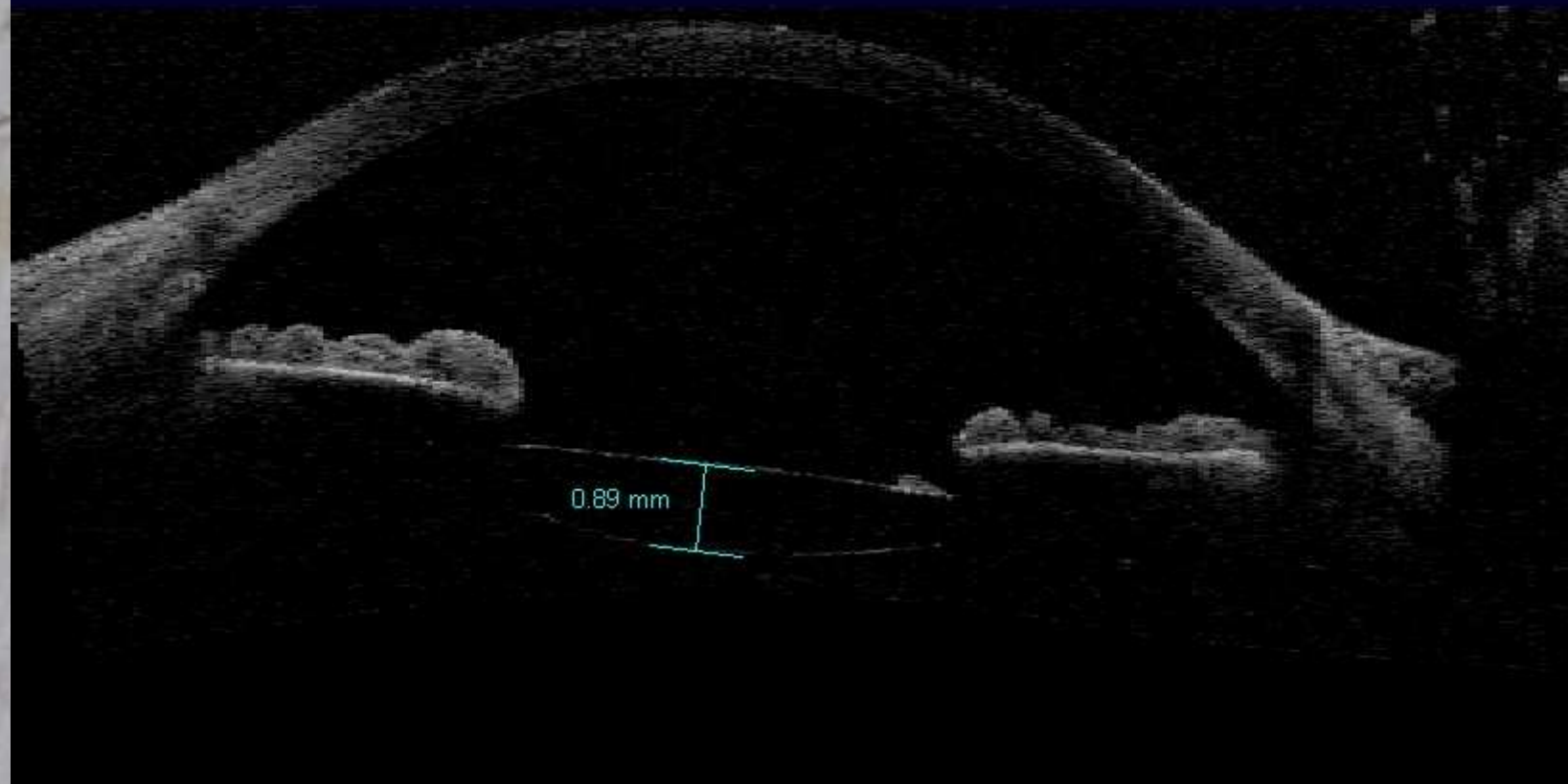
SW Version: 1.0.12.1896 Patient ID: Gender: Male Age: 79

Anterior Segment Single



184°

4°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

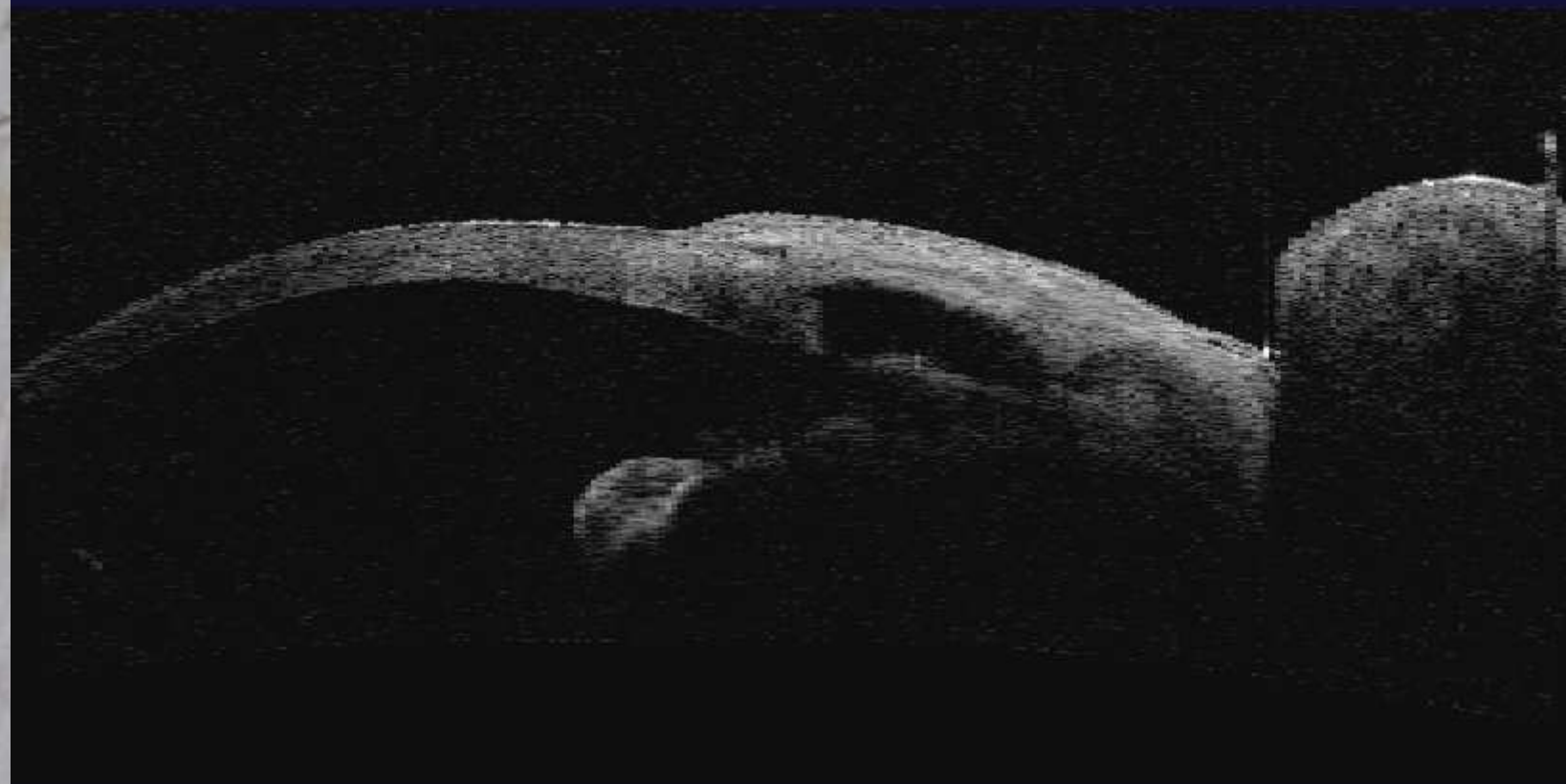
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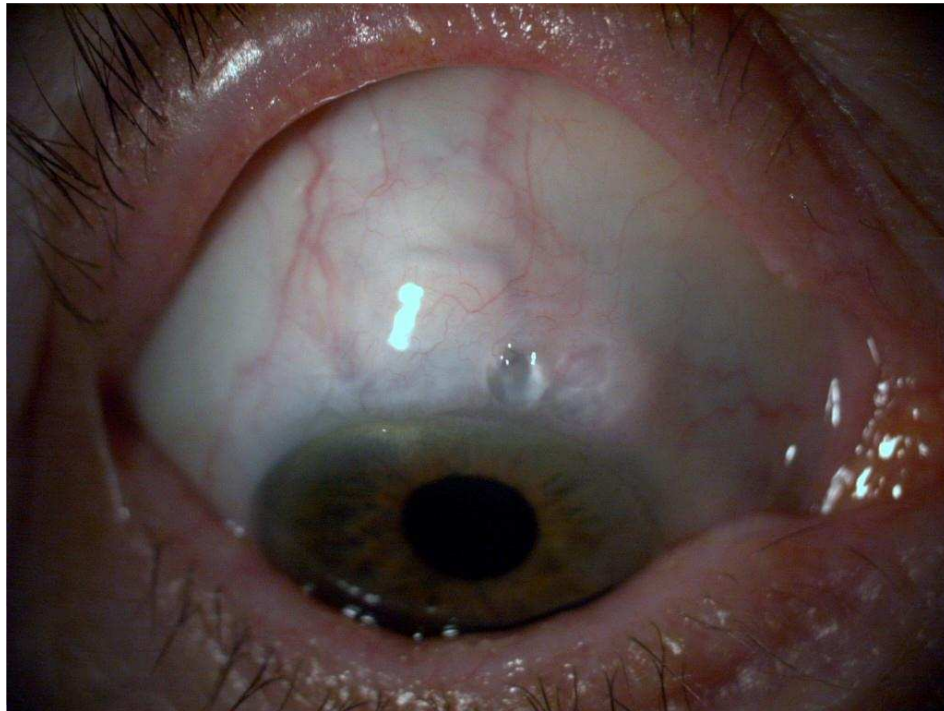
Anterior Segment Single



267°

87°





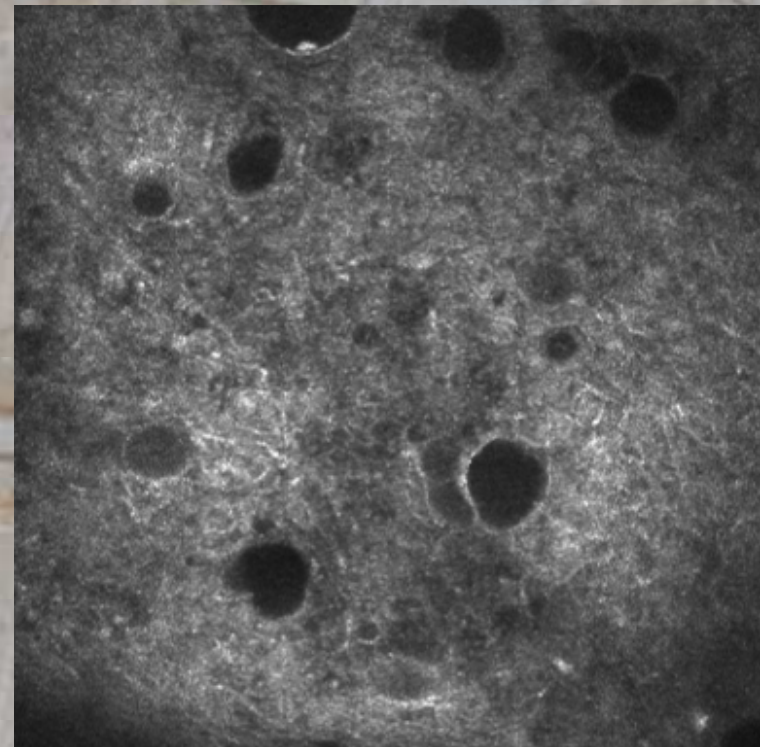
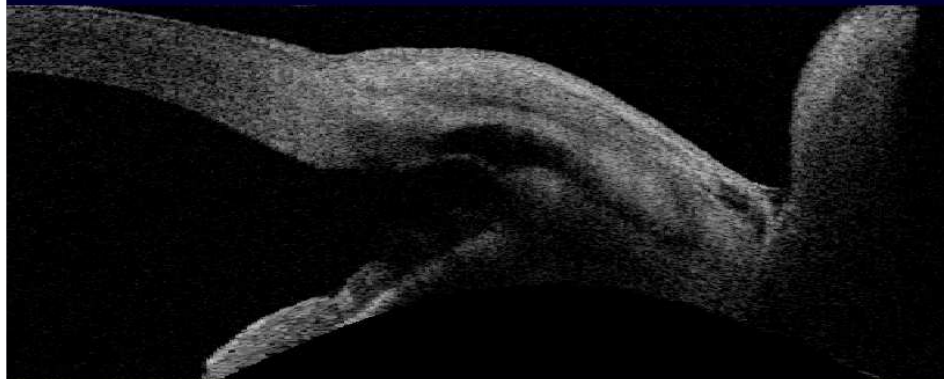
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SWV Version: 1.0.12.1896 Patient ID: Gender: Male Age: 79
High Res. Corneal



270°

90°

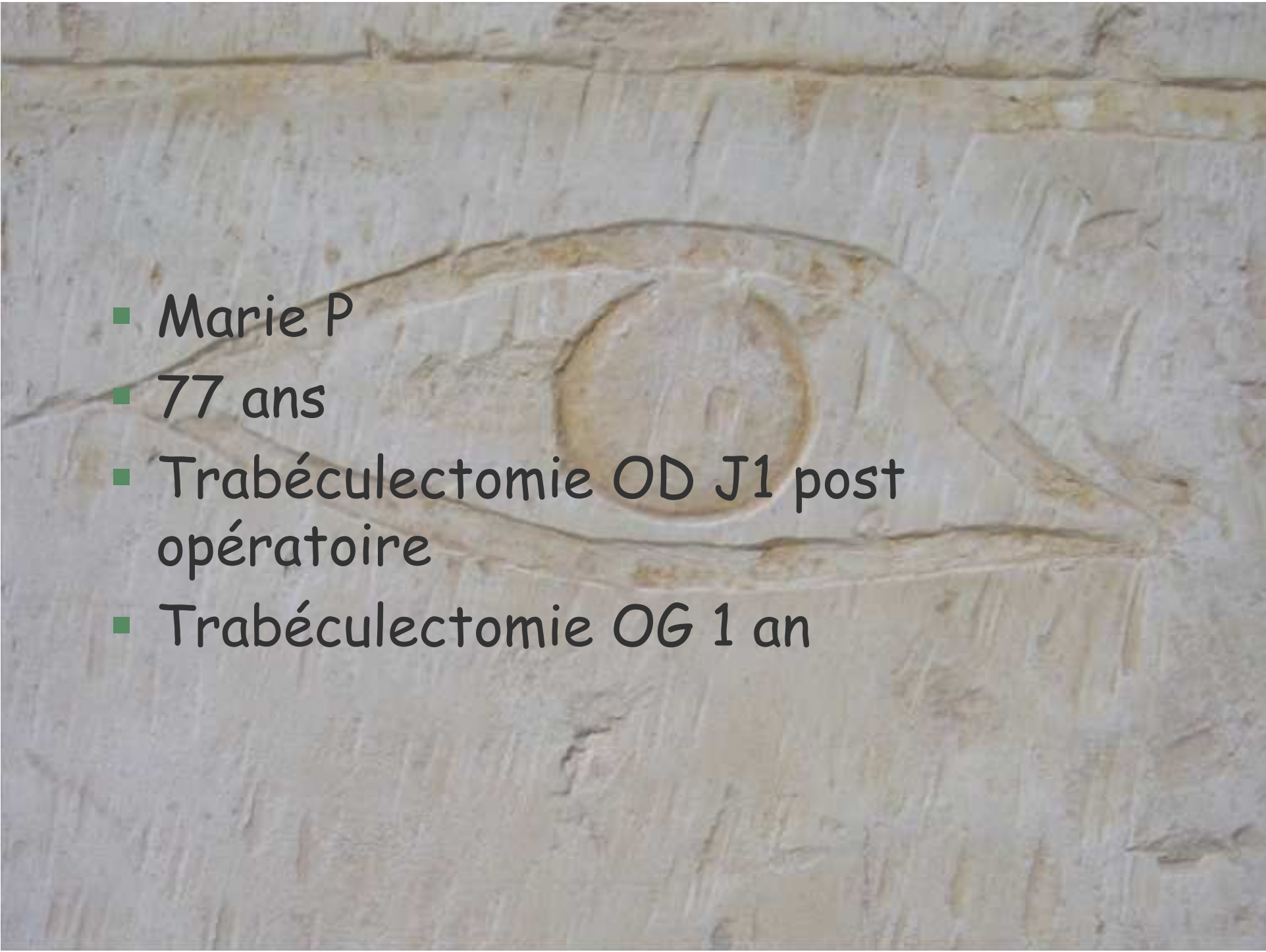


VION, J., 30/01/1927

Cornea Section [2], 17/01/2007, OS

1 / 1: 11 μ m

HEIDELBERG
ENGINEERING

- 
- Marie P
 - 77 ans
 - Trabéculéctomie OD J1 post opératoire
 - Trabéculéctomie OG 1 an



Visante™ OCT
ANTERIOR SEGMENT IMAGING

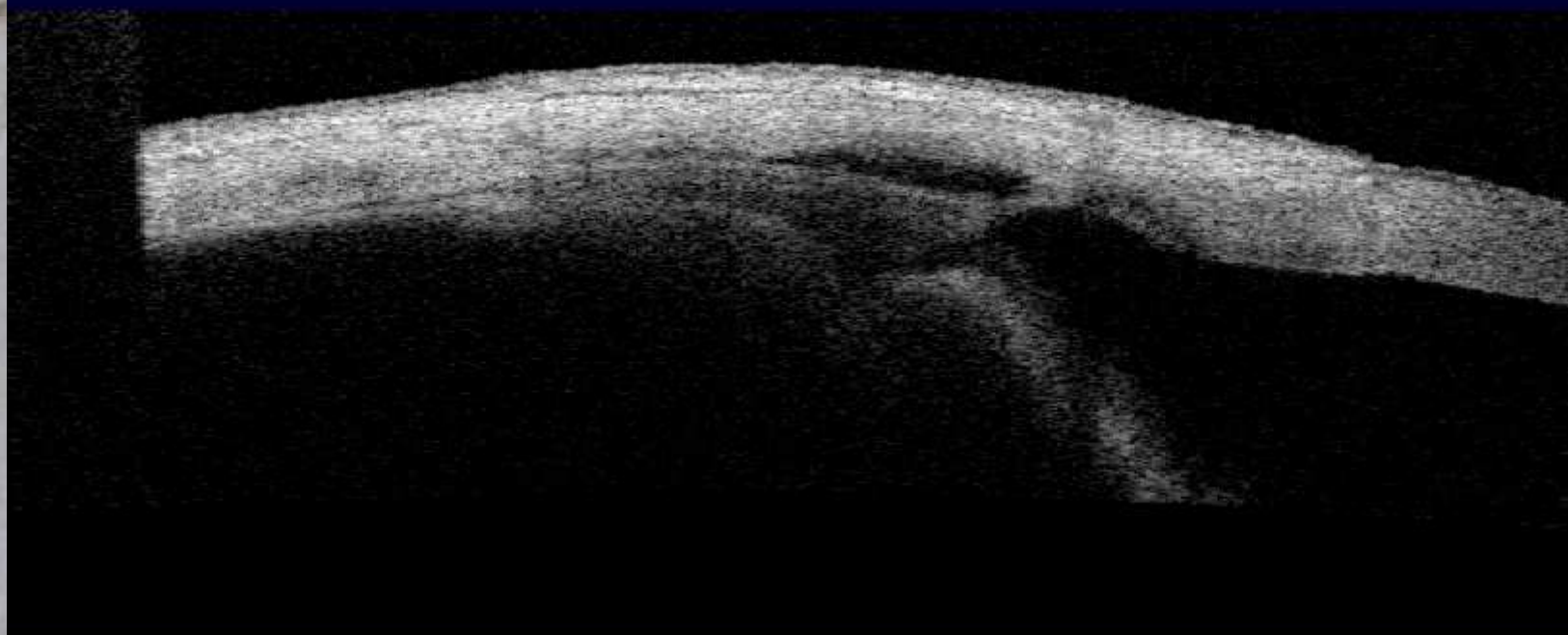
SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 77

High Res. Corneal



90°

270°





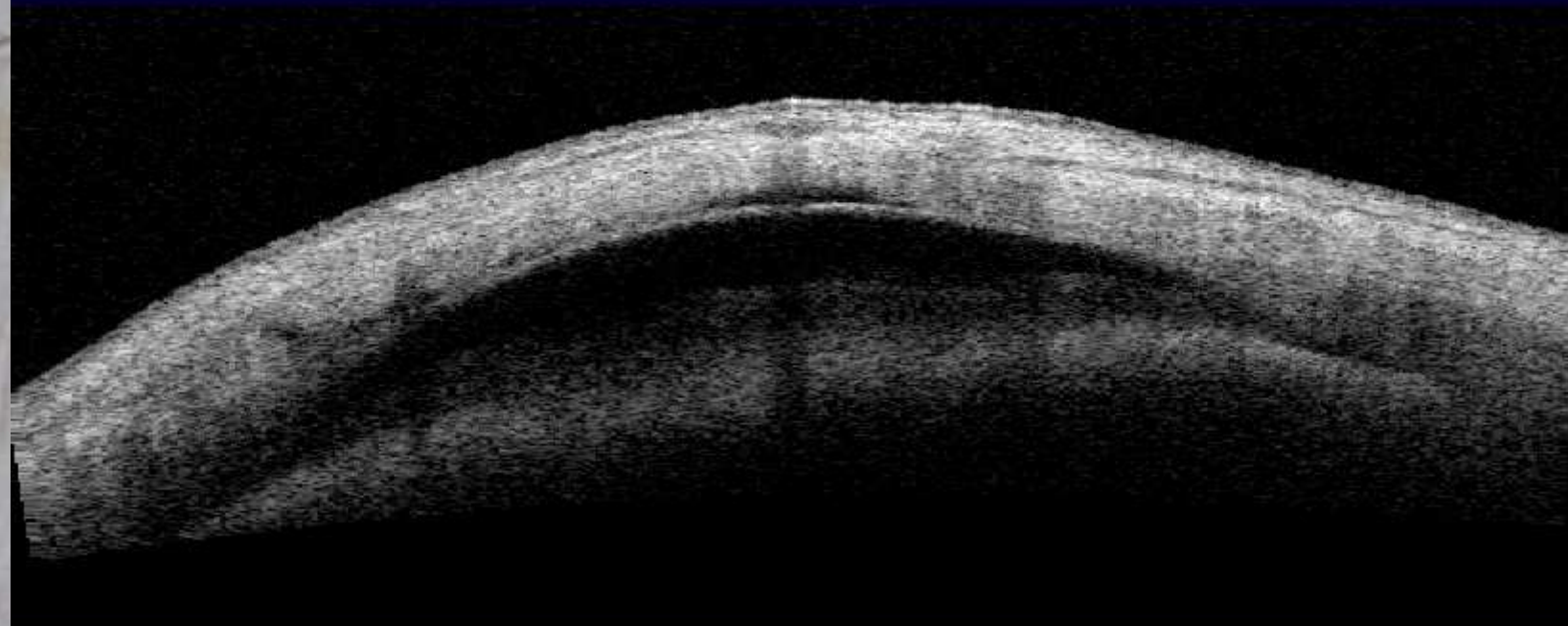
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 77
High Res. Corneal



180°

0°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

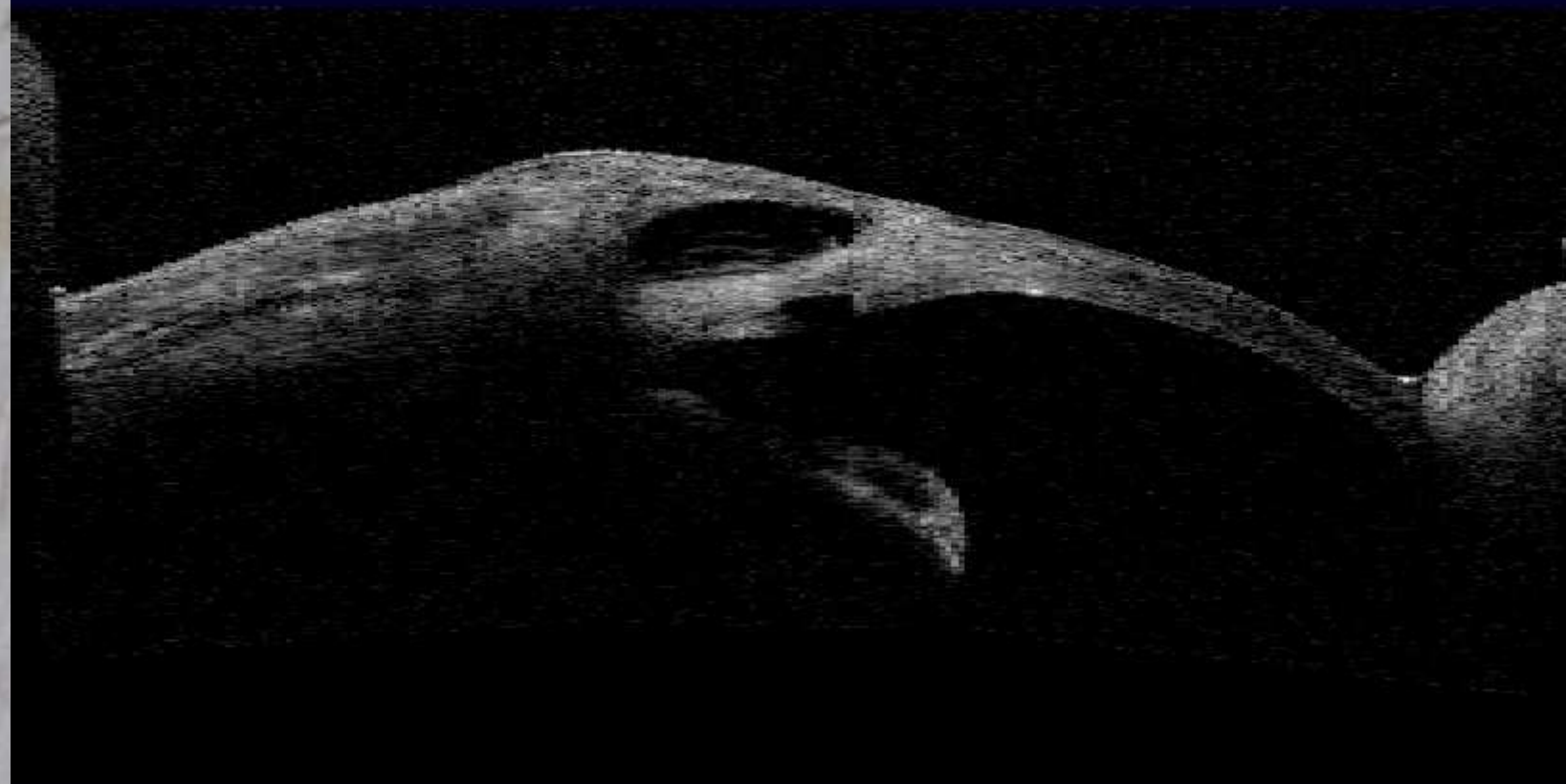
SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 77

Anterior Segment Single



90°

270°





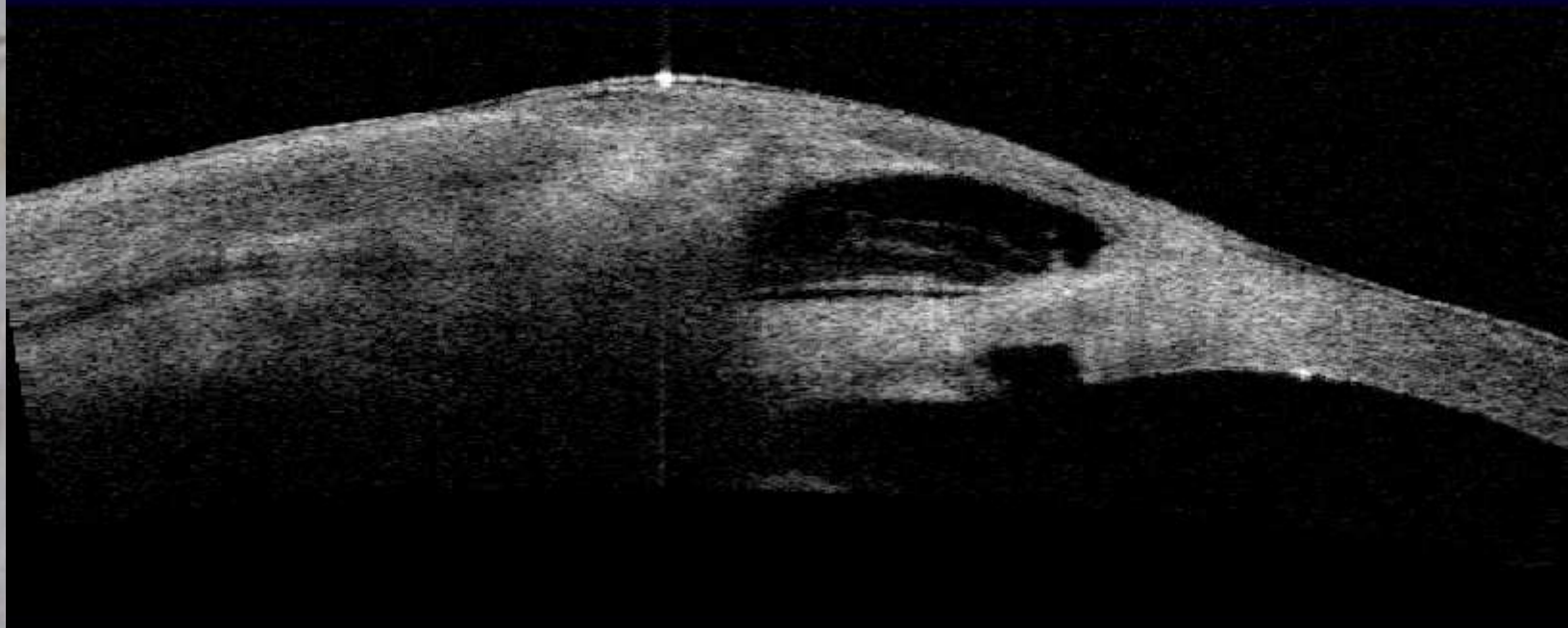
Visante™ OCT
ANTERIOR SEGMENT IMAGING

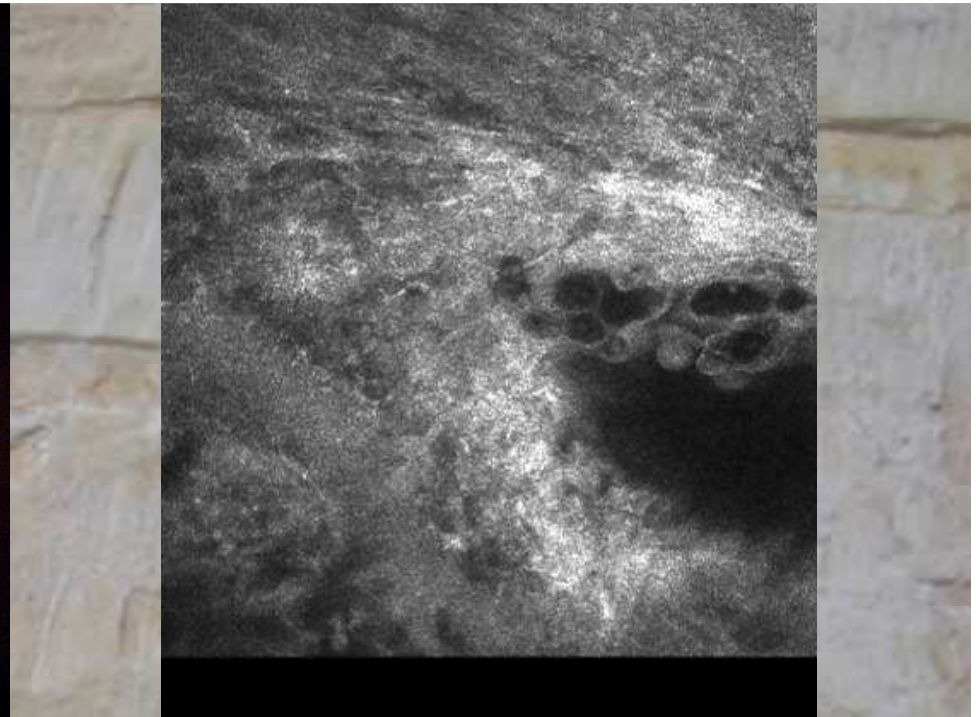
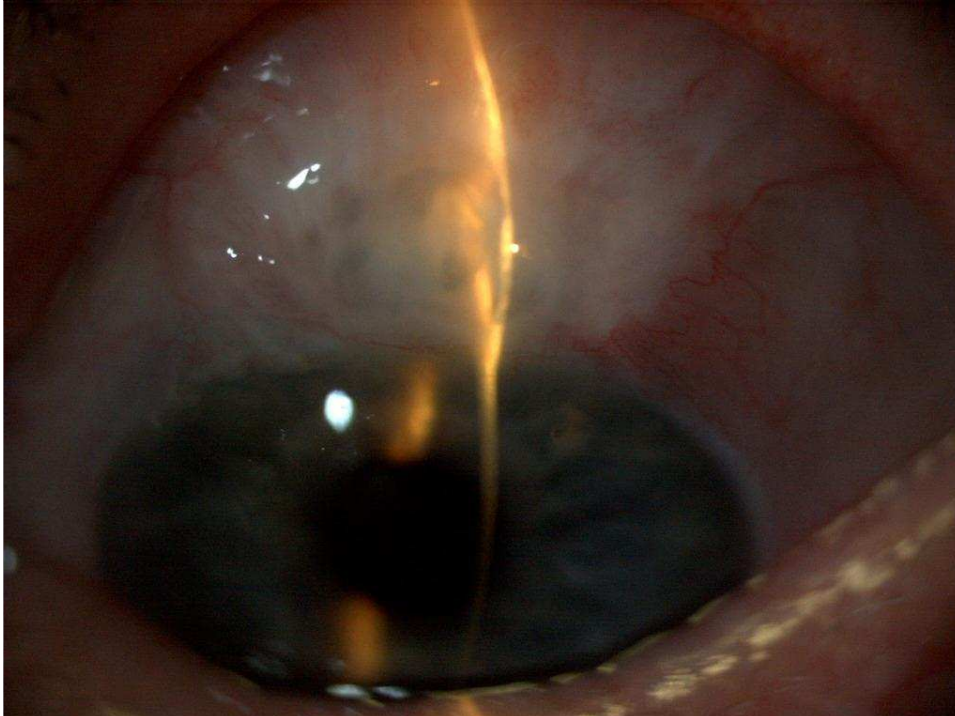
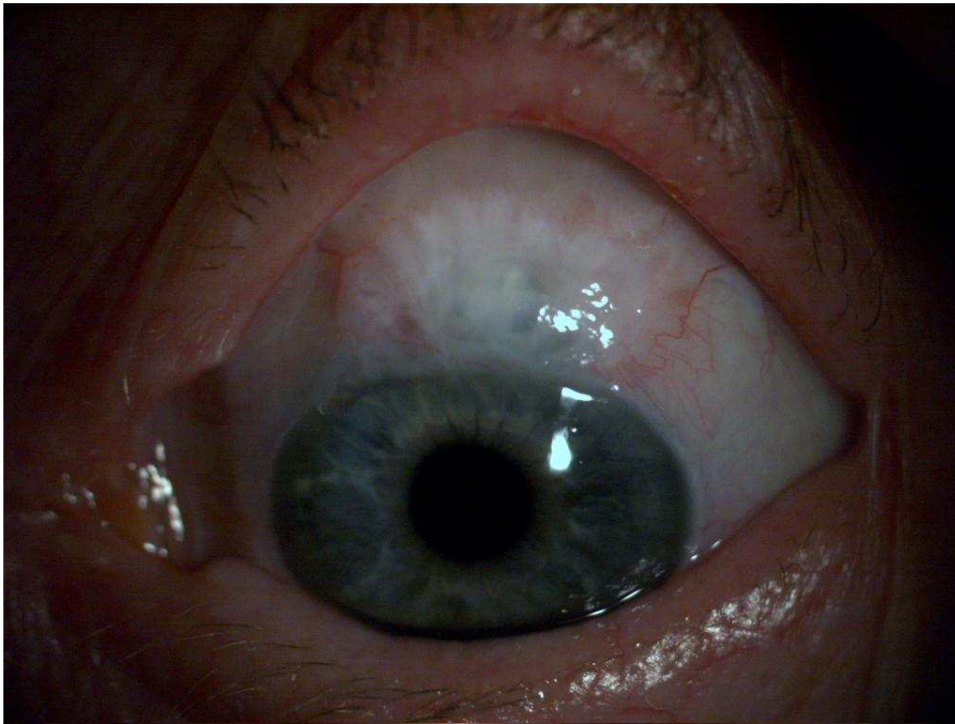
SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 77
High Res. Corneal



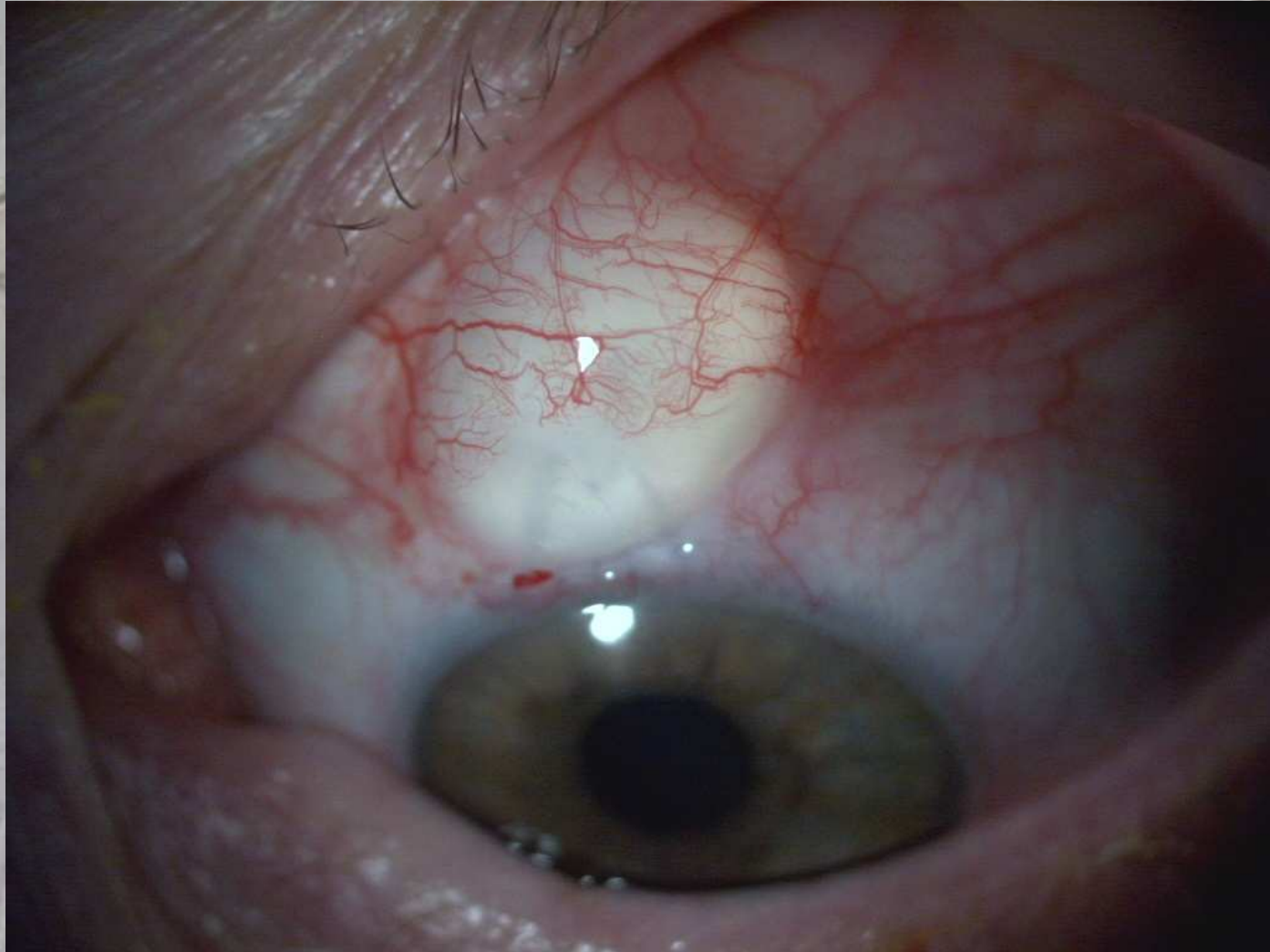
90°

270°





Tenon cyst





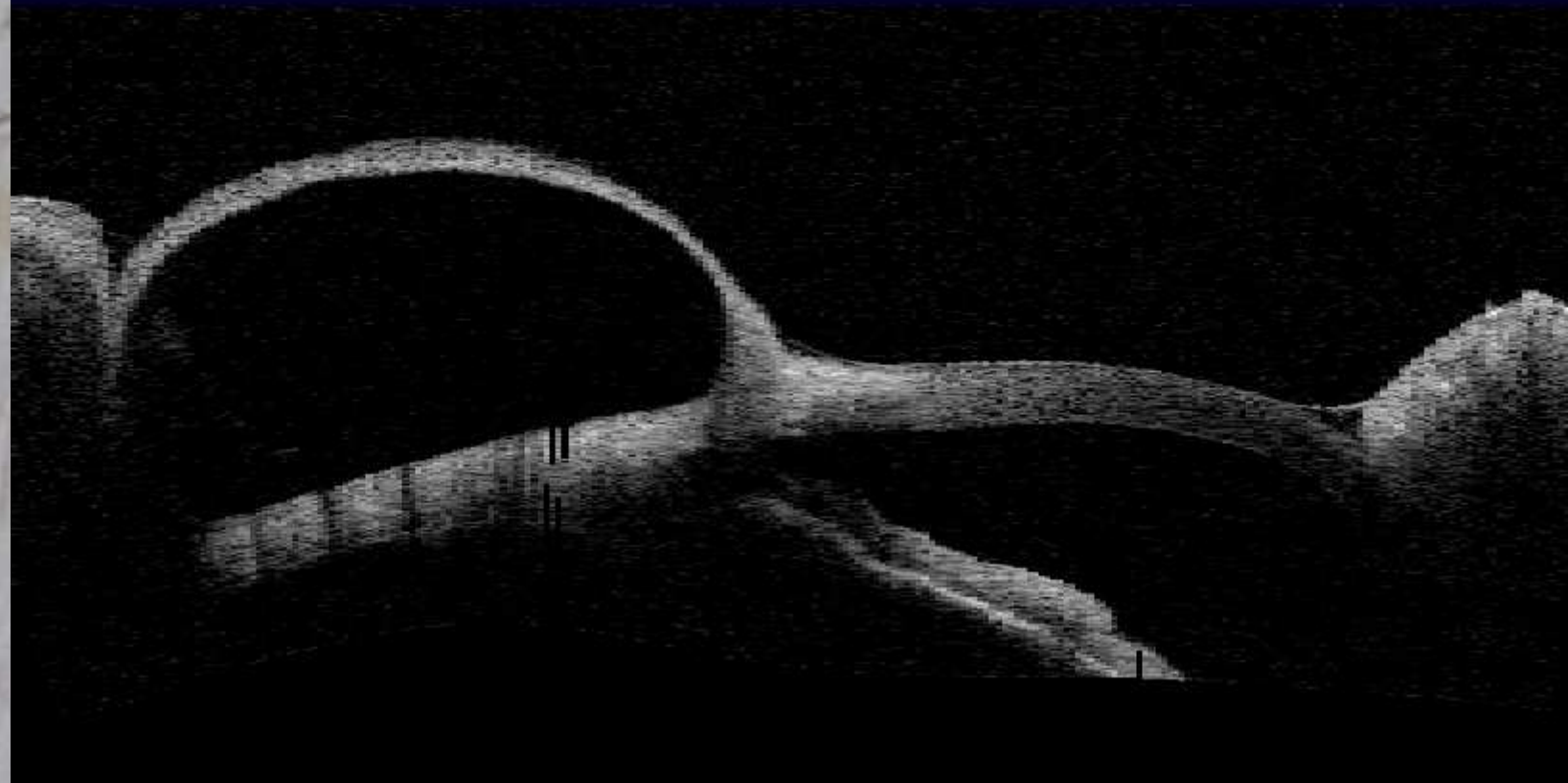
Visante™ OCT
ANTERIOR SEGMENT IMAGING

SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 61
Anterior Segment Single



93°

273°







Visante™ OCT
ANTERIOR SEGMENT IMAGING

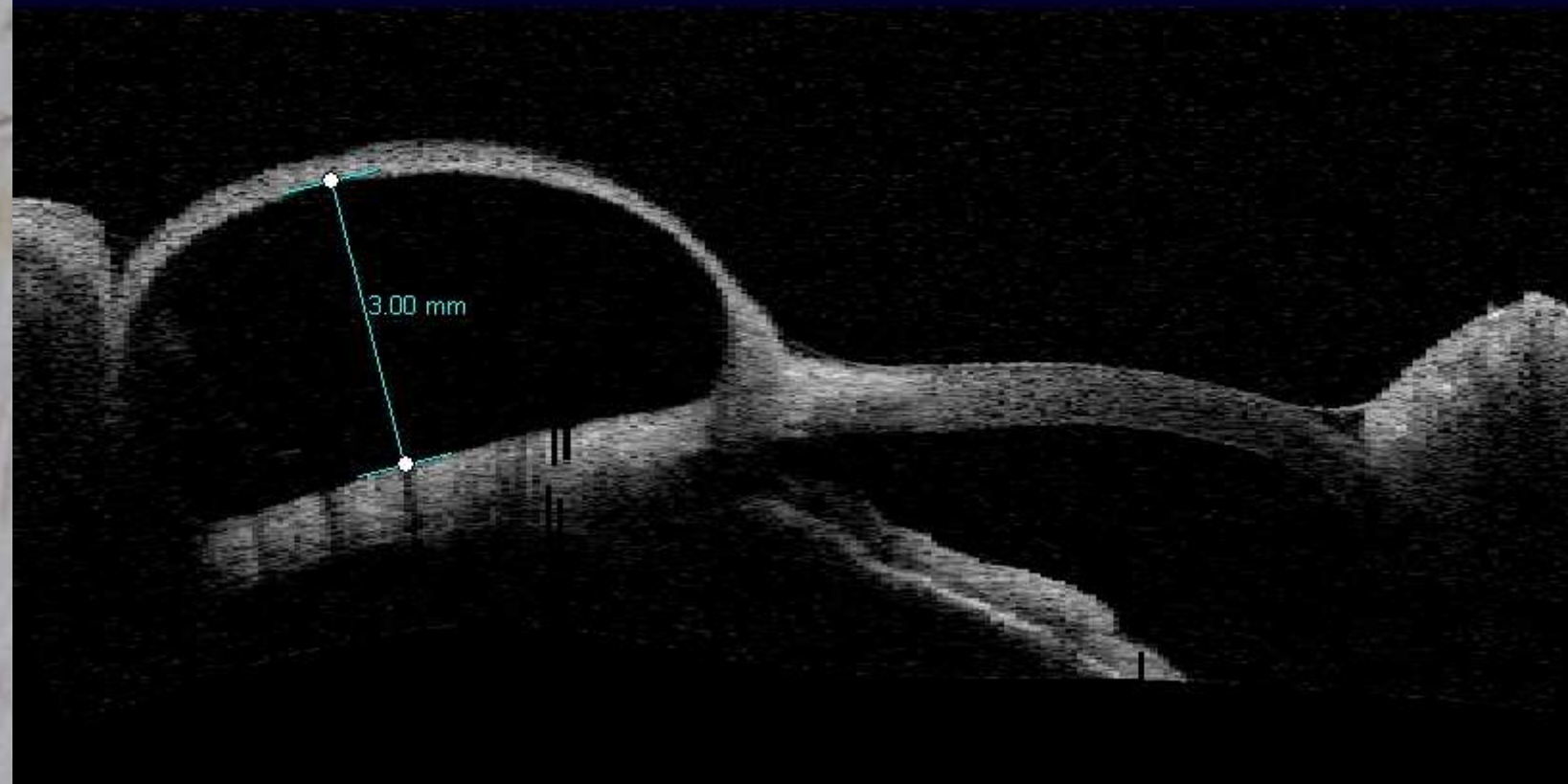
SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 61

Anterior Segment Single

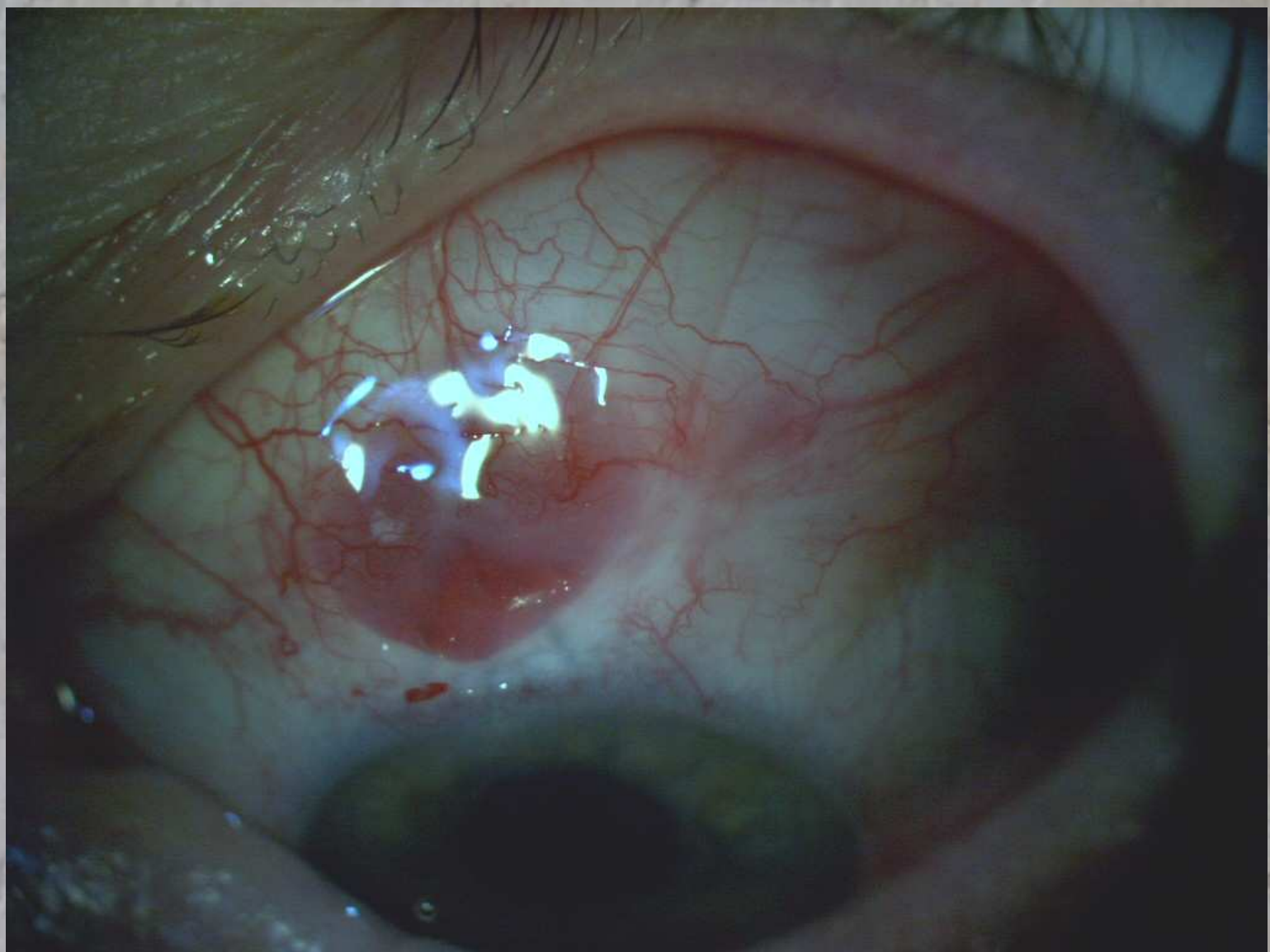


93°

273°









Visante™ OCT
ANTERIOR SEGMENT IMAGING

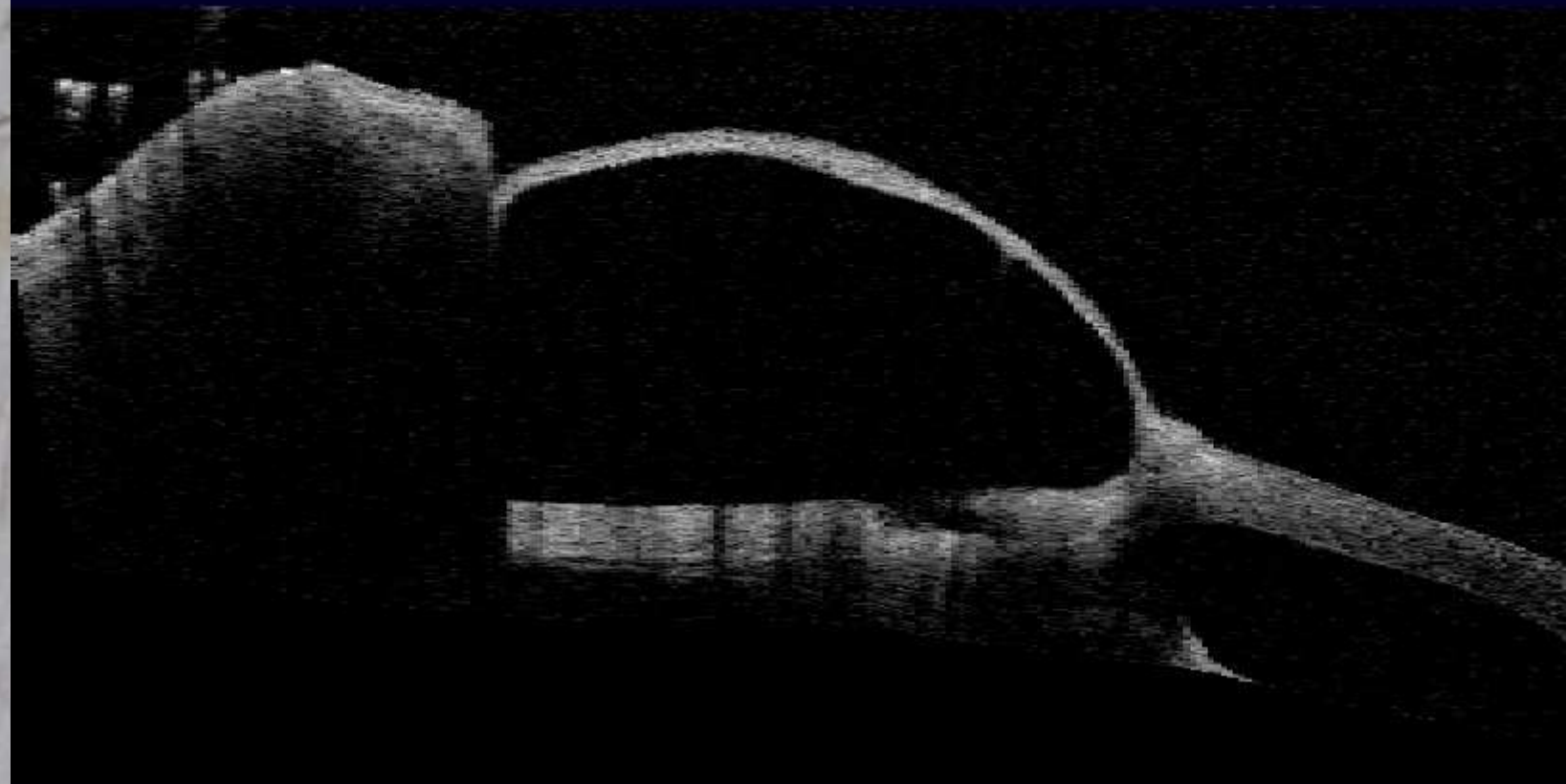
SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 61

Anterior Segment Single



93°

273°





Visante™ OCT
ANTERIOR SEGMENT IMAGING

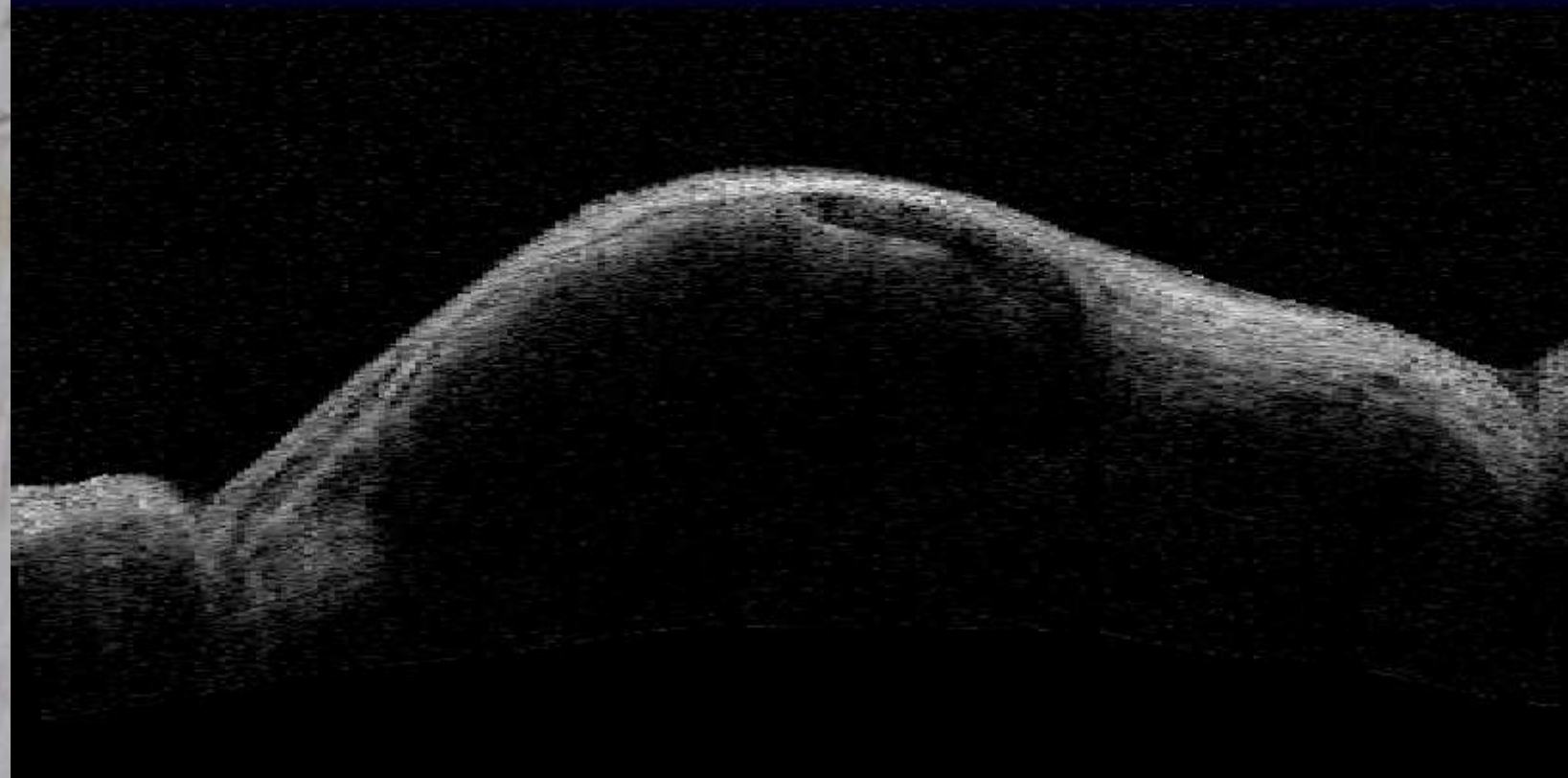
SW Version: 1.0.12.1896 Patient ID: Gender: Female Age: 61

Anterior Segment Single

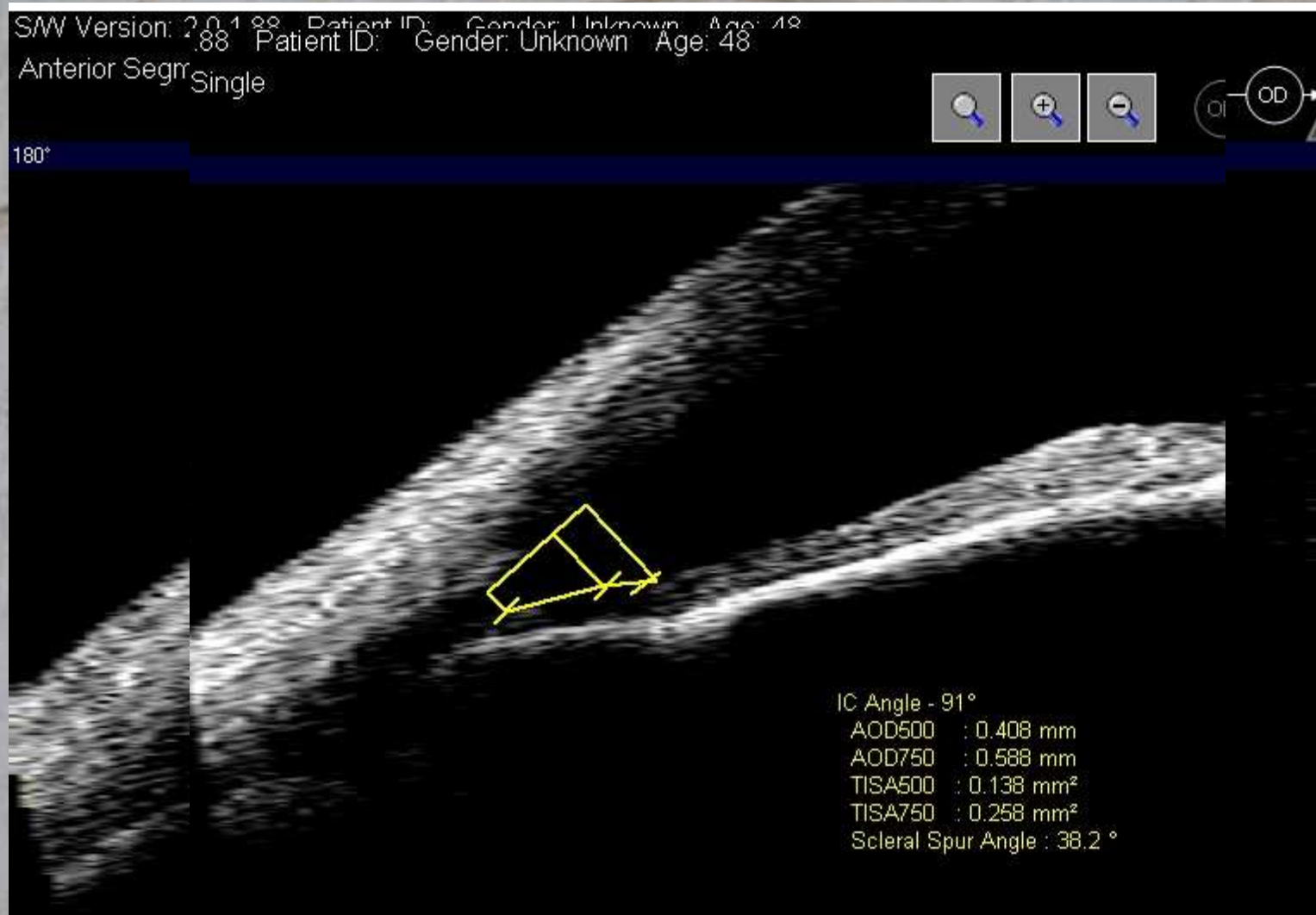


177°

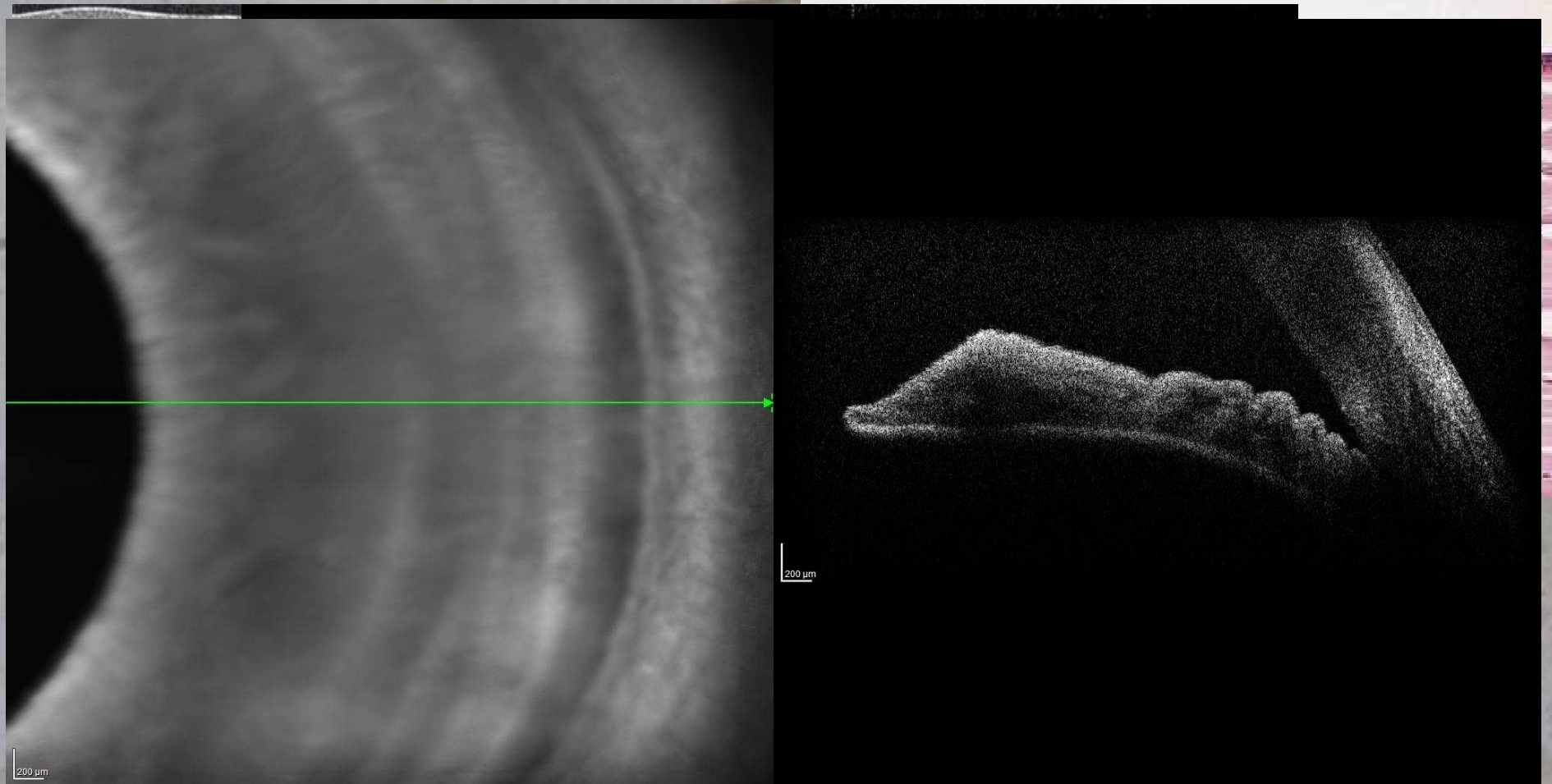
357°



Le futur déjà présent



Le futur



11/08/2009, OS
IR&OCT 20° ART

Angle of the Eye. Arch Ophthalmol 2005;127:250-260.

HEIDELBERG
ENGINEERING

La gonioscopie

