

ESCRS 2017

Seeing is Believing. 840nm AS-OCT

How could I work without it before?

Claudio Macaluso



ESCRS 2017

MS-39

AS – OCT *by* CSO

Claudio Macaluso



AS - OCT

Combining in one instrument:

- **topography and accurate AS measurements**
- **detailed morphology of the whole cornea + AS**

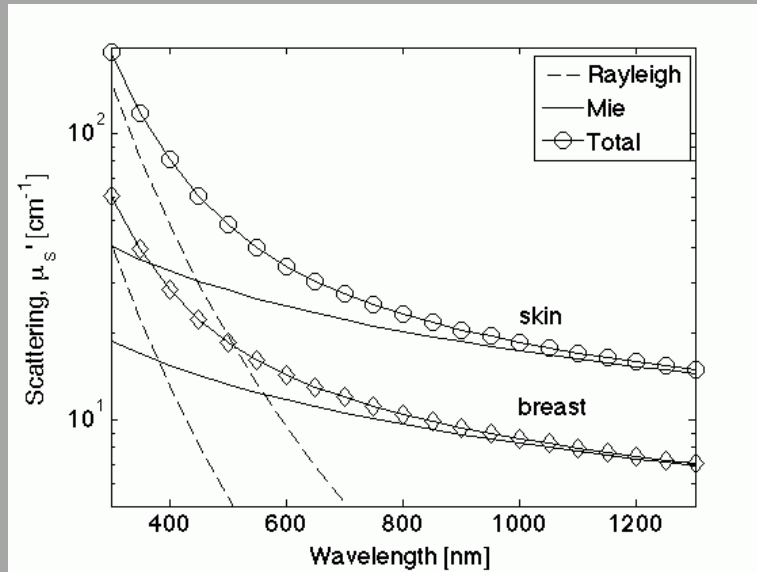
AS - OCT



Tomey CASIA 2

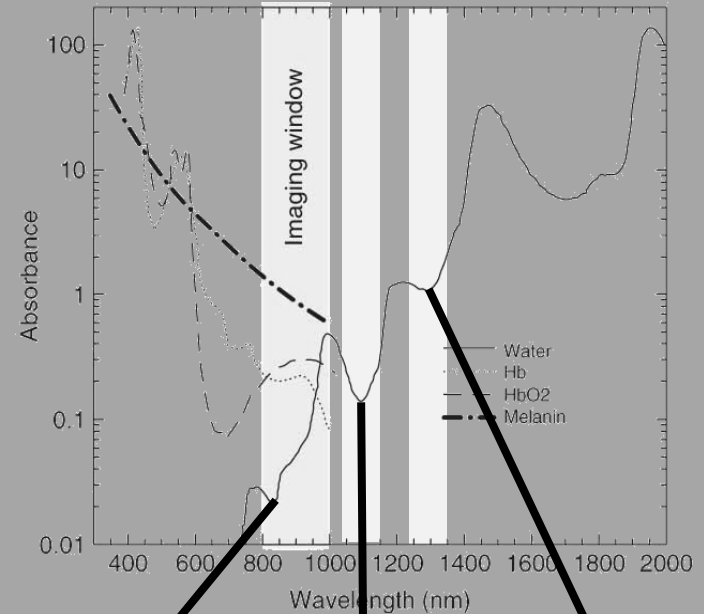
NIR optical window (750nm to 1400nm)

Scattering



Jacques et al, 1989

Absorption



Hamblin and Demidova, 2009

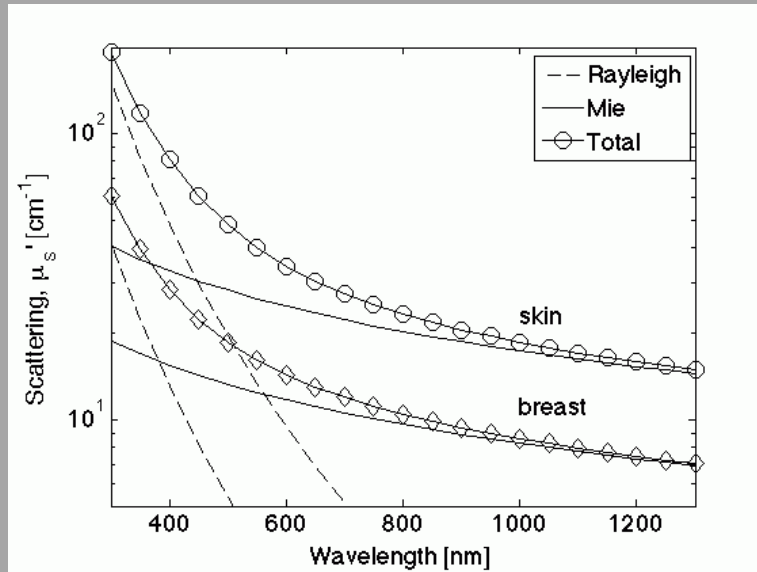
~830nm ~1050nm ~1300nm

~0.75mW ~2mWm ~14mW

American National Standard for the Safe Use of Lasers:
ANSI Z136.1-1993

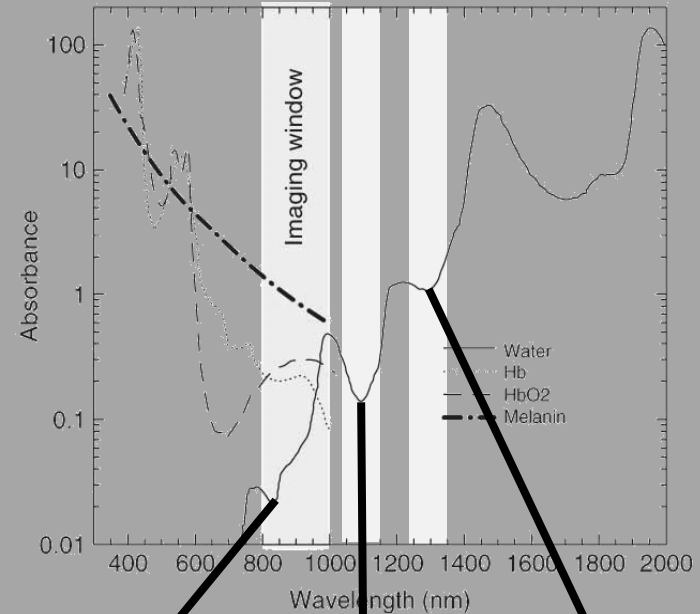
NIR optical window (750nm to 1400nm)

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Jacques et al, 1989

Absorption

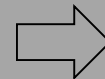


Hamblin and Demidova, 2009

~830nm

~1050nm

~1300nm

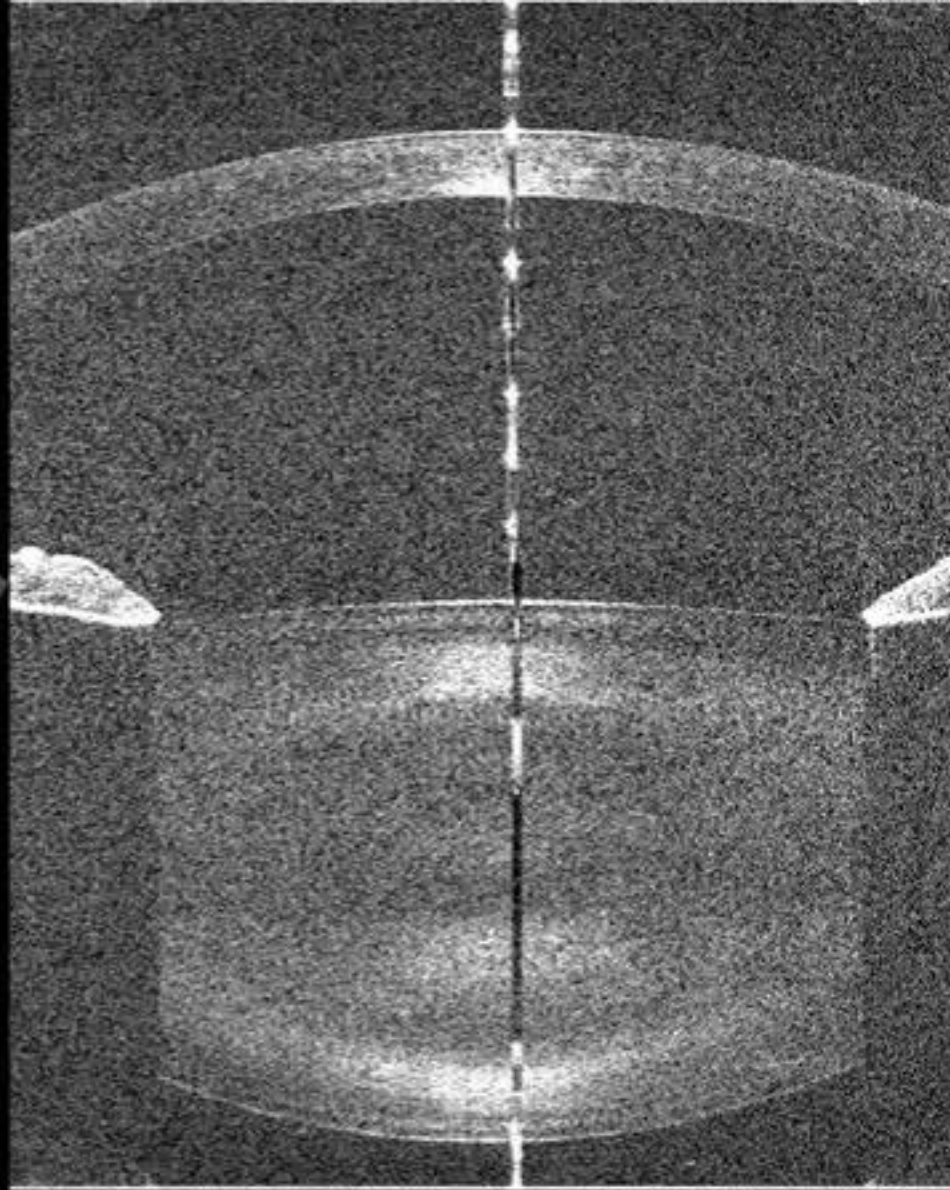
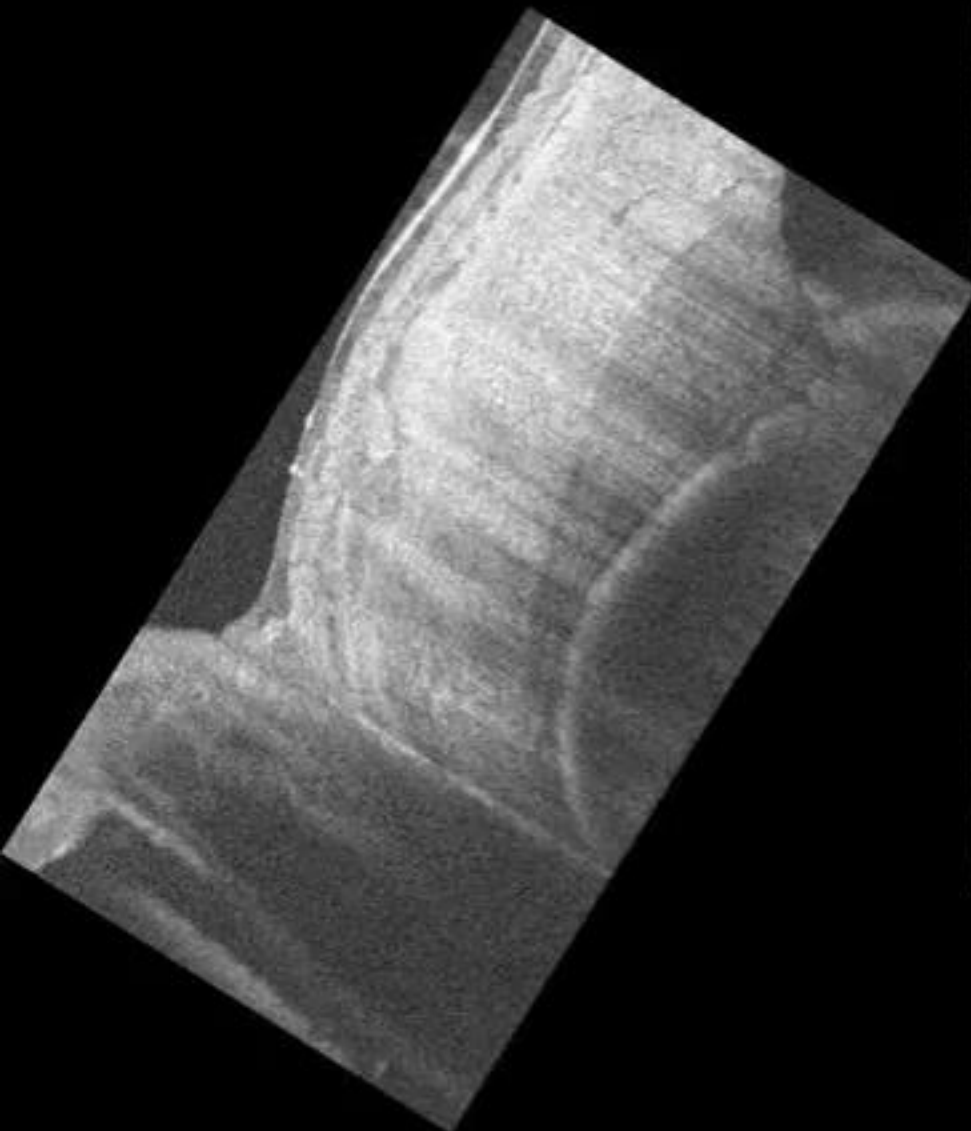


~0.75mW

~2mWm

~14mW

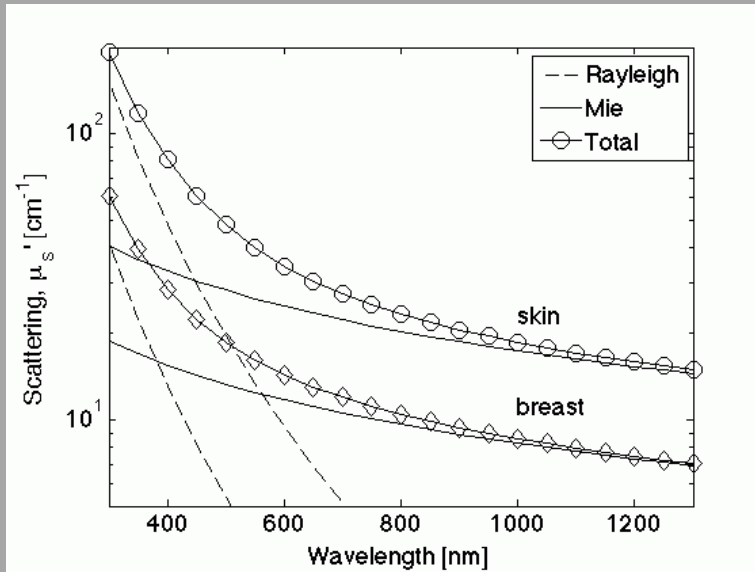
American National Standard for the Safe Use of Lasers:
ANSI Z136.1-1993



Courtesy Dr. Marco Ruggeri, PhD

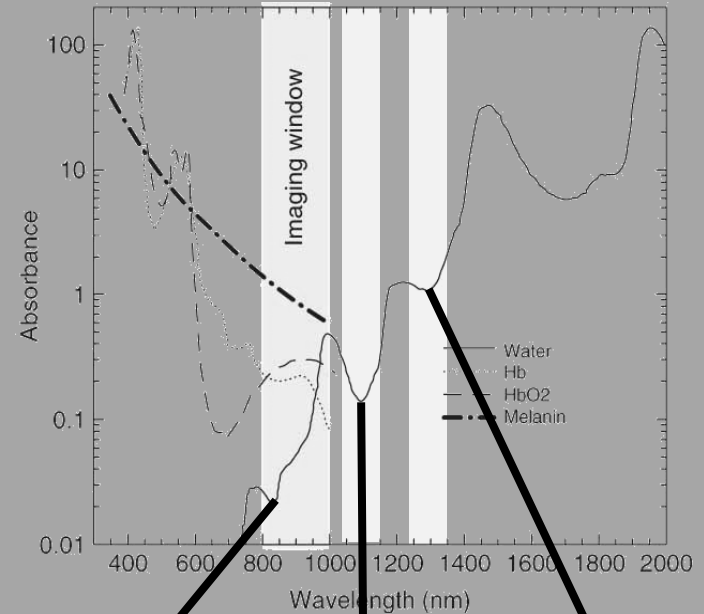
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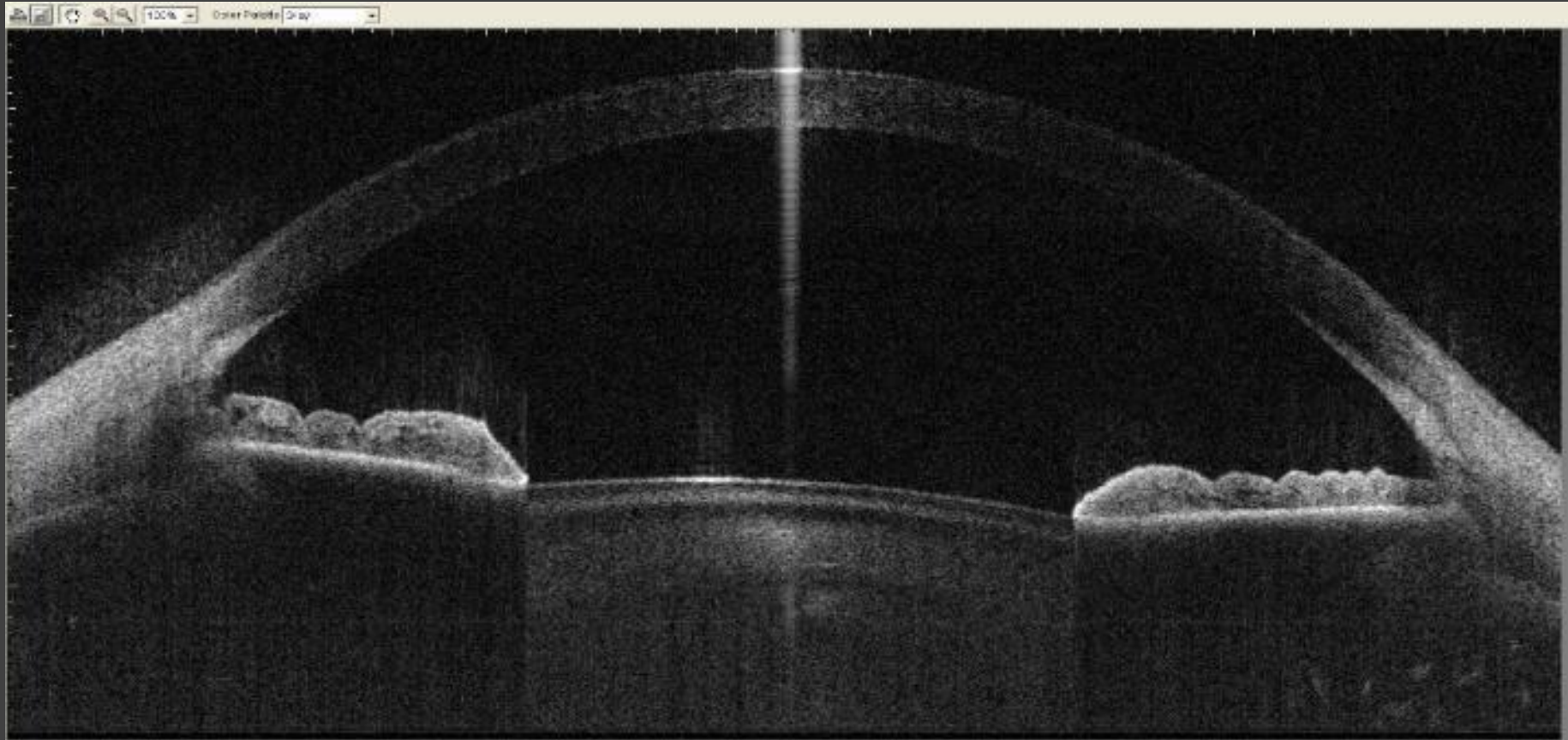
~0.75mW

~2mWm

~14mW

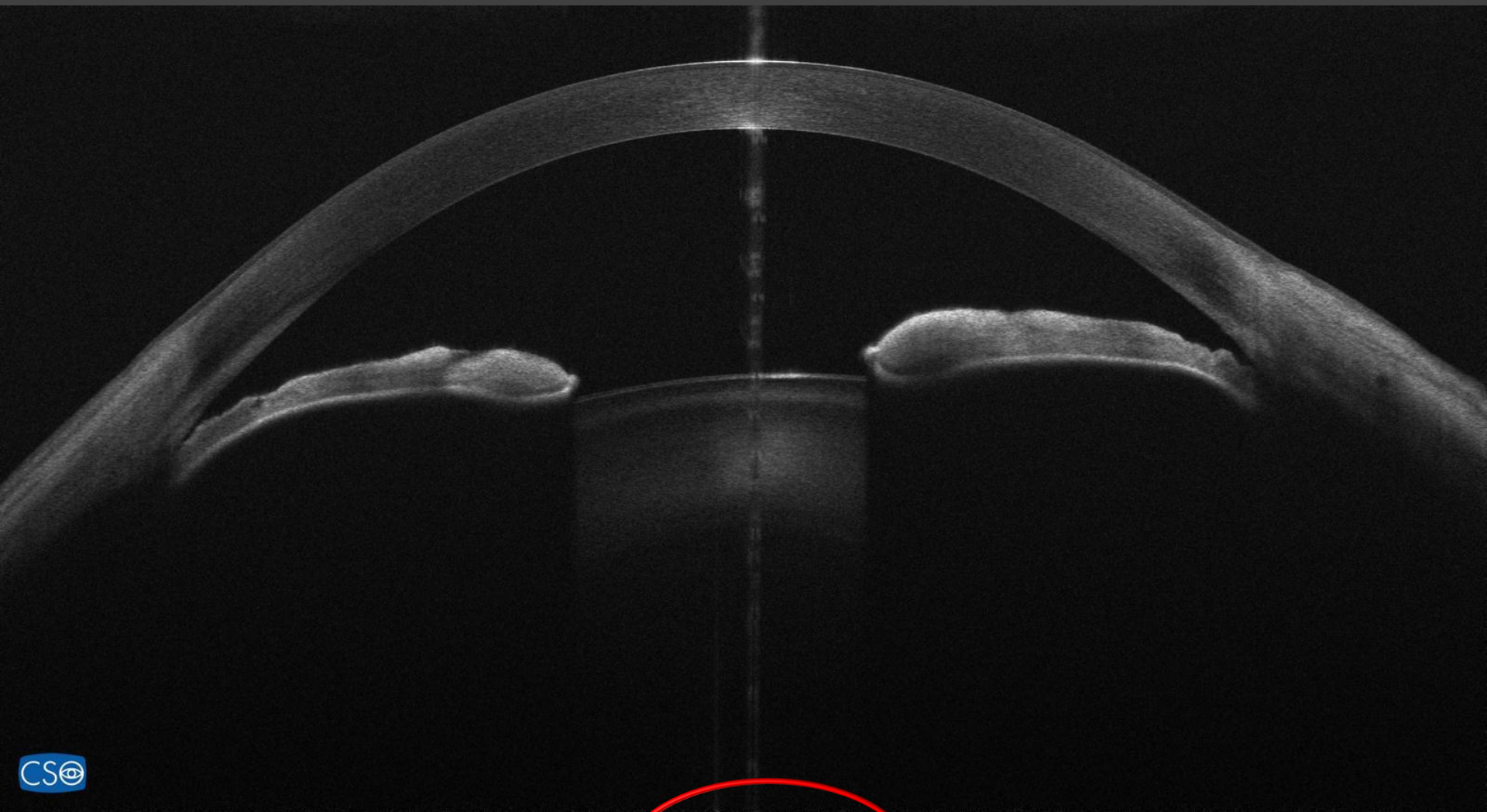
American National Standard for the Safe Use of Lasers:
ANSI Z136.1-1993

AS - OCT



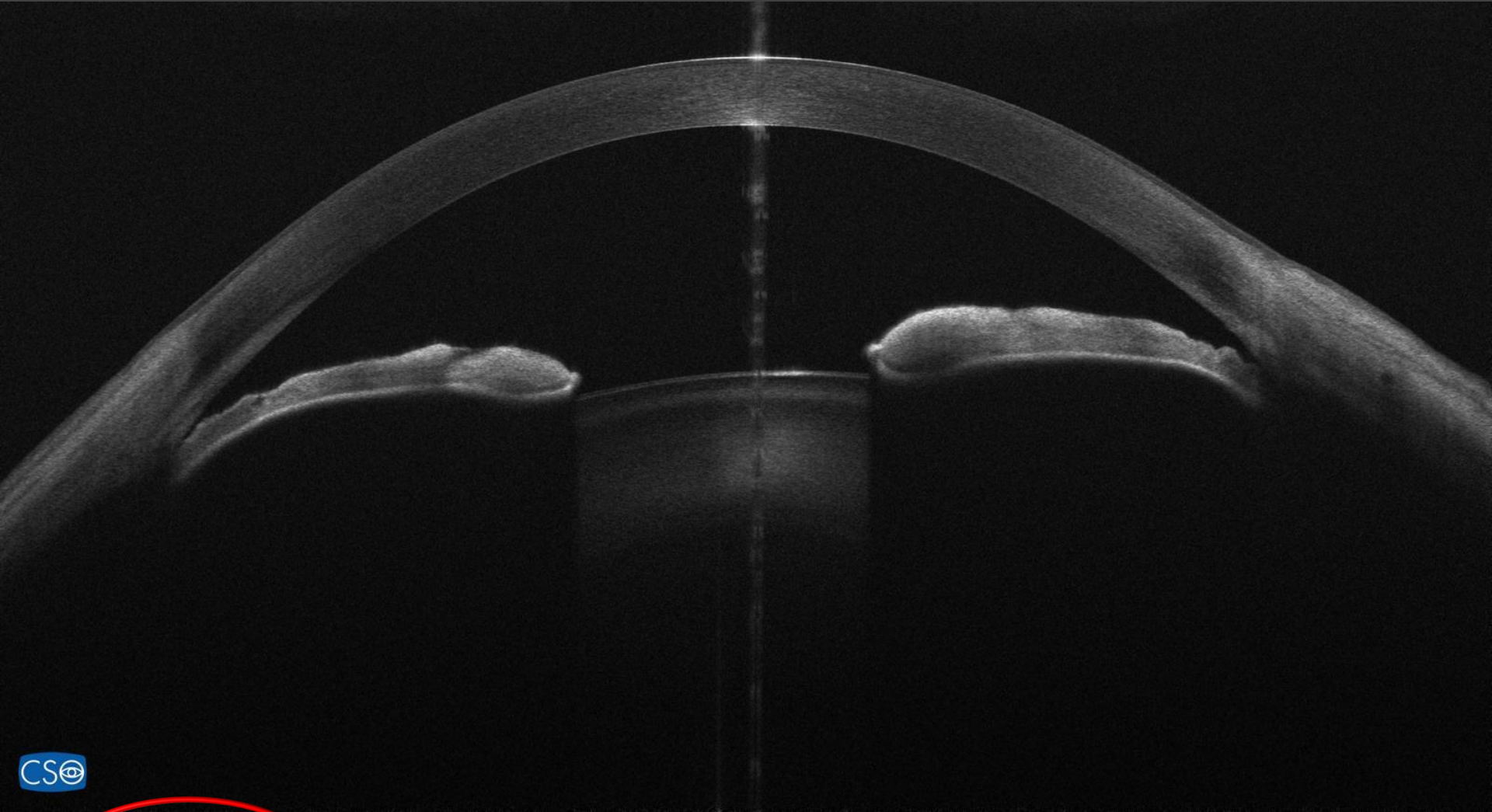
1300 nm

MS-39 AS – OCT by CSO



840 nm

AS - OCT



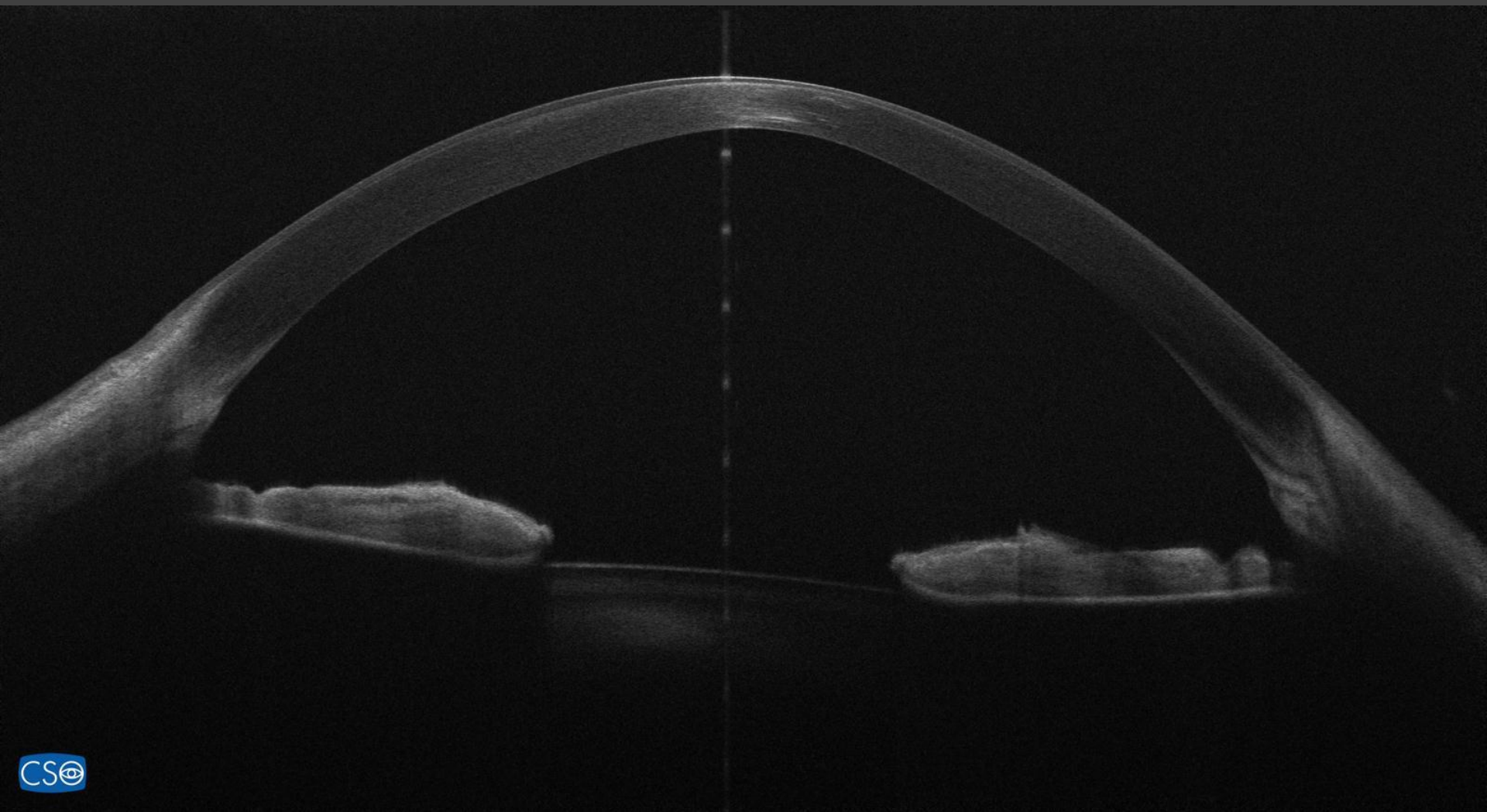
840 nm: closer to the spectrum of visible light

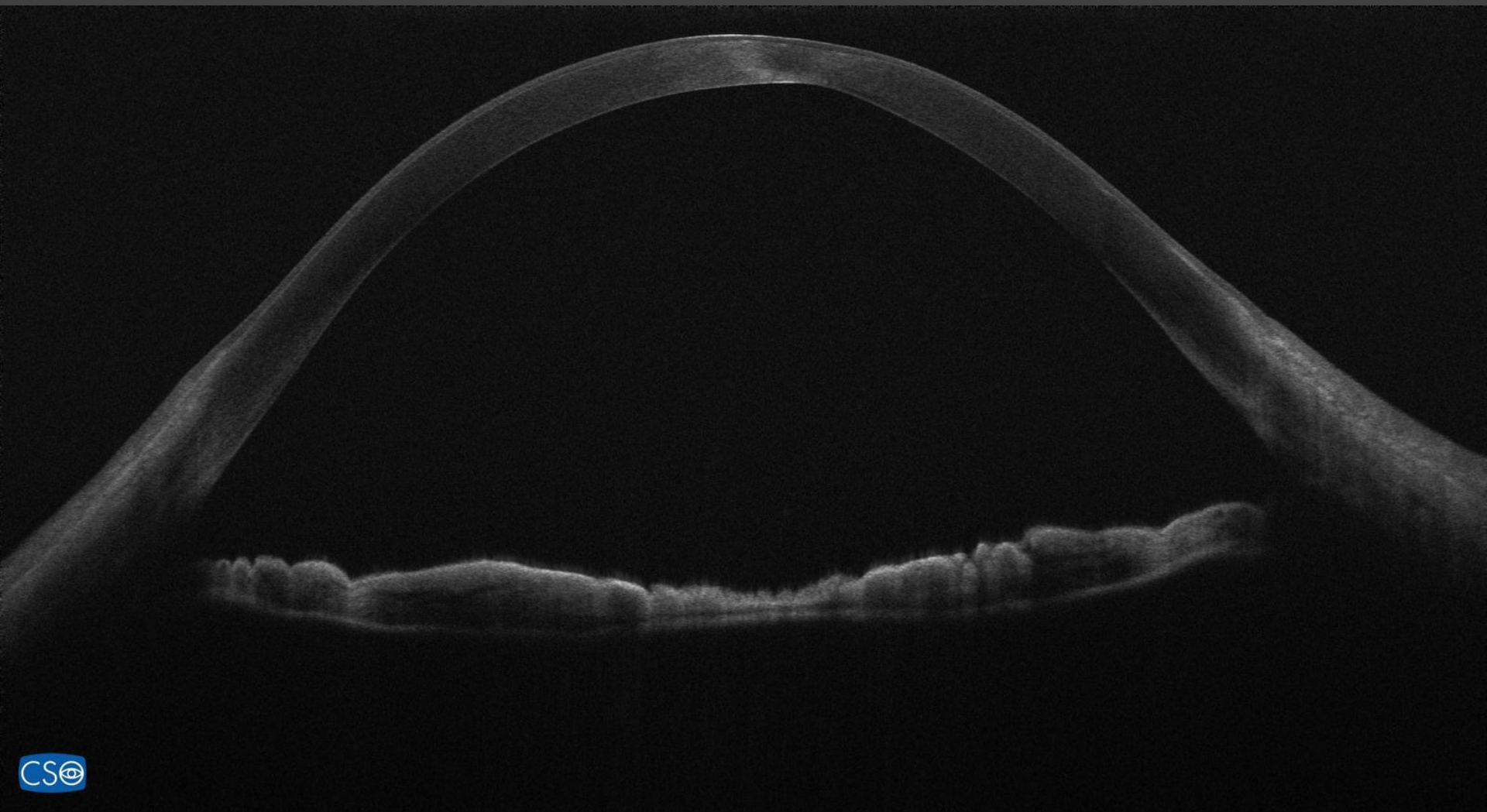
ESCRS 2017

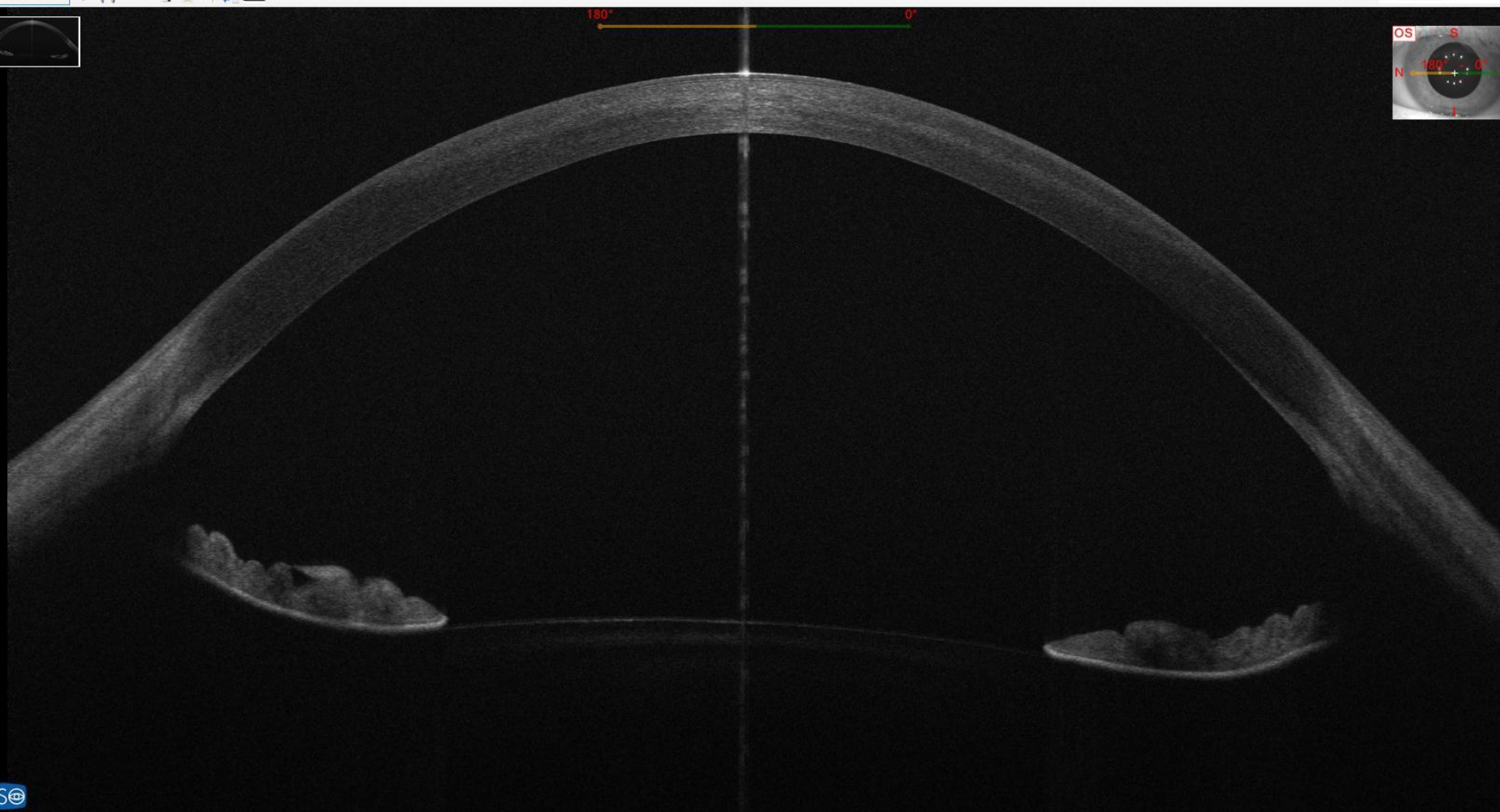
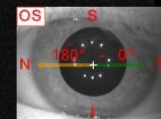
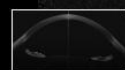
MS-39

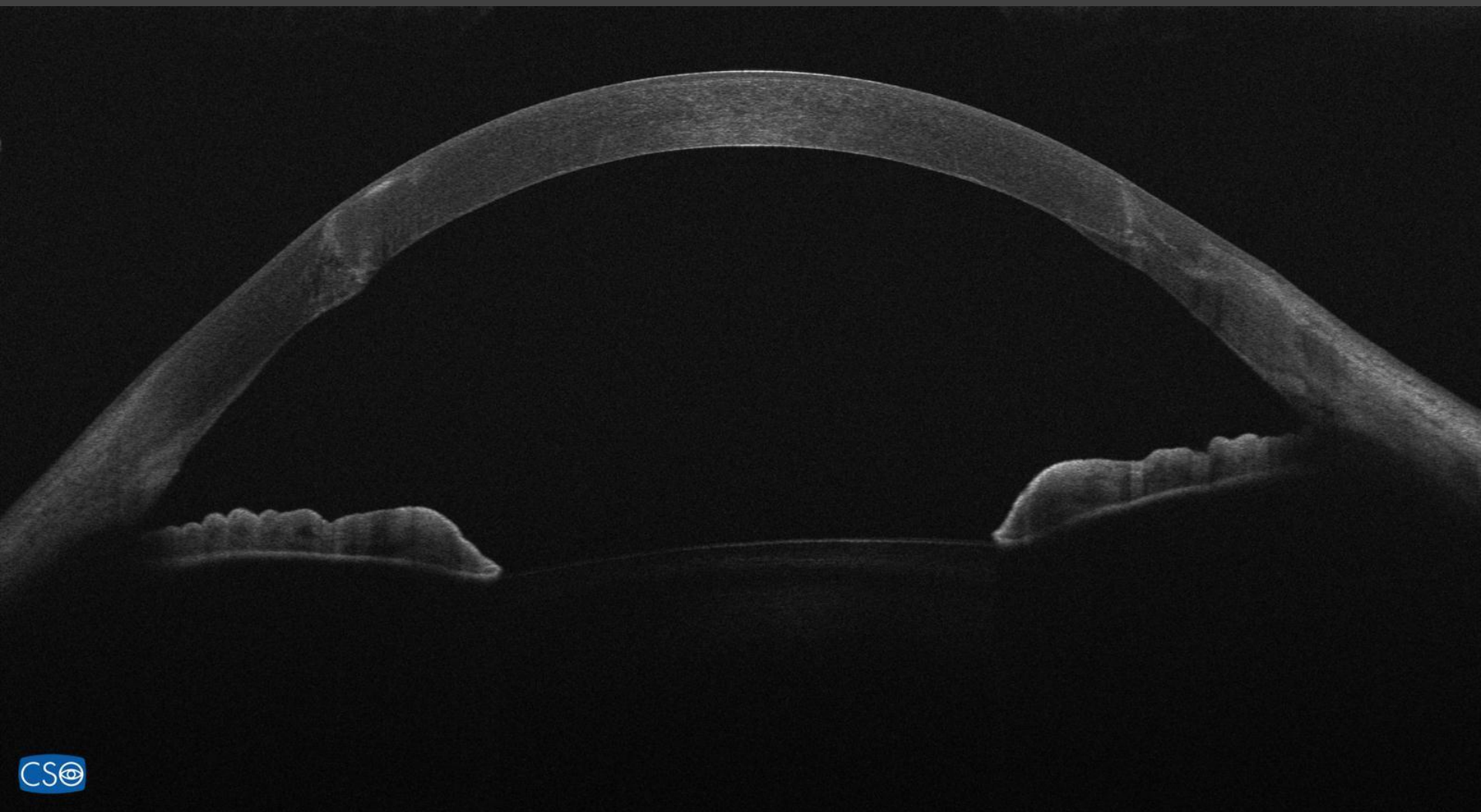
AS – OCT *by* CSO

EXAMPLES

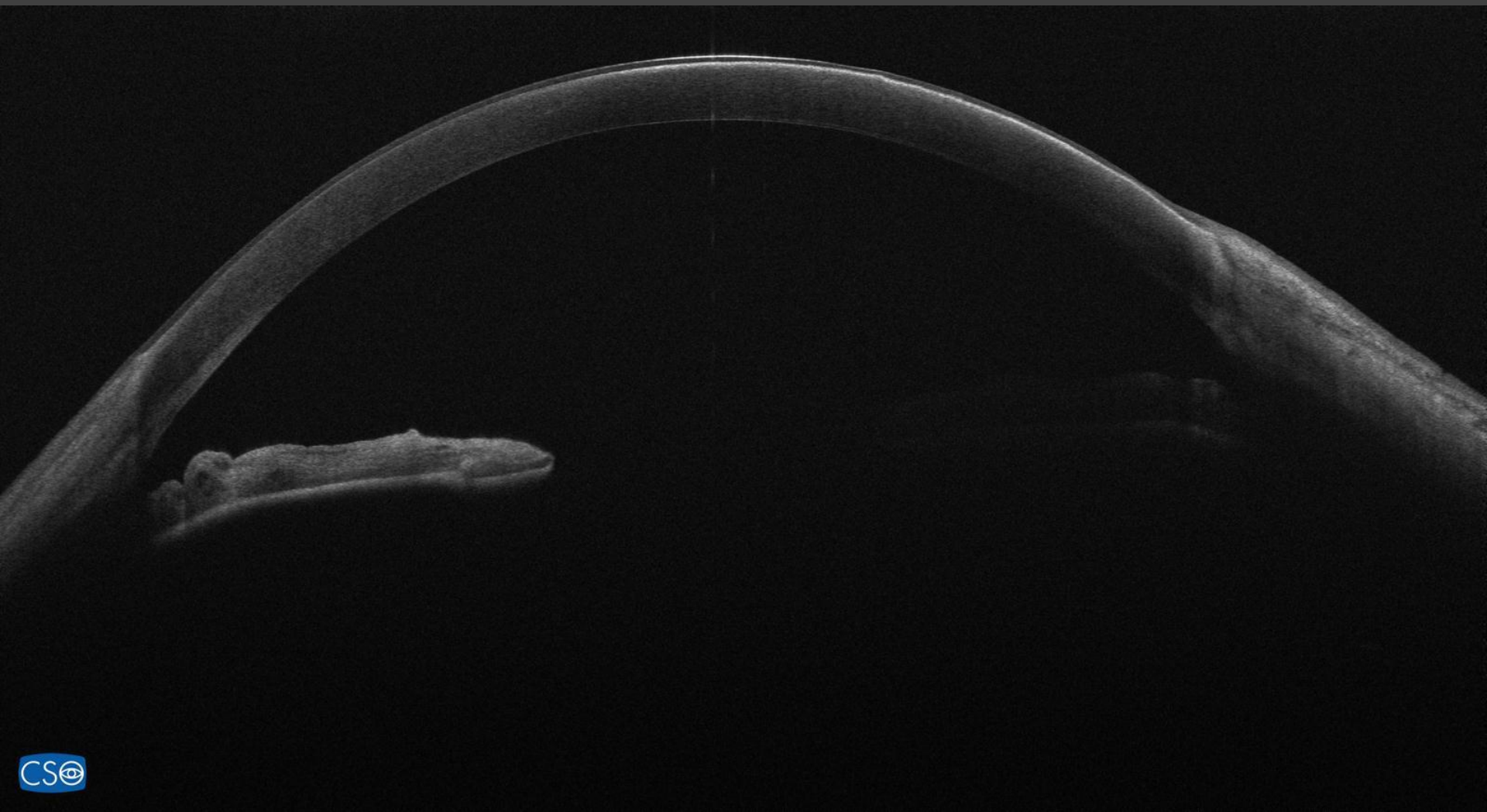


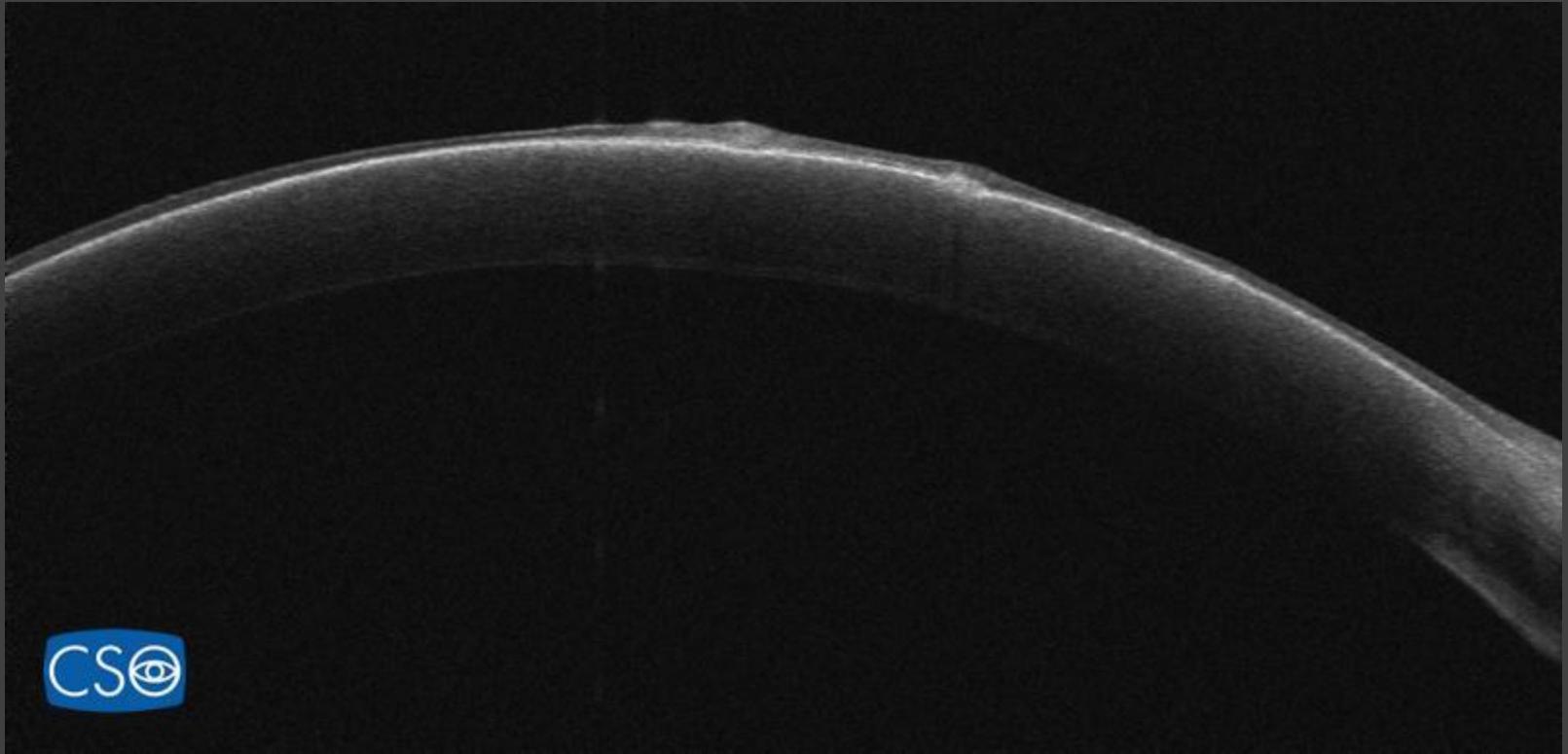


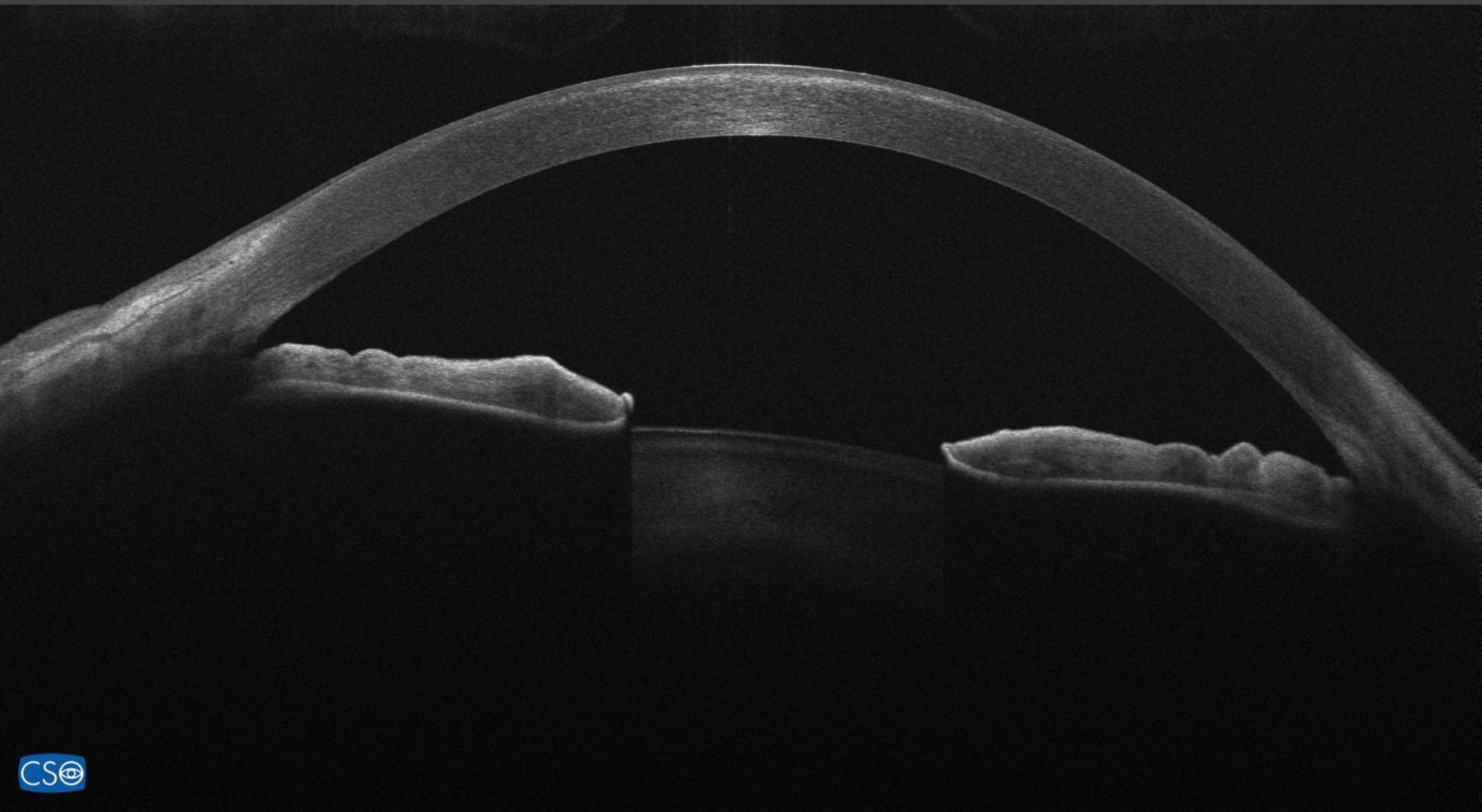


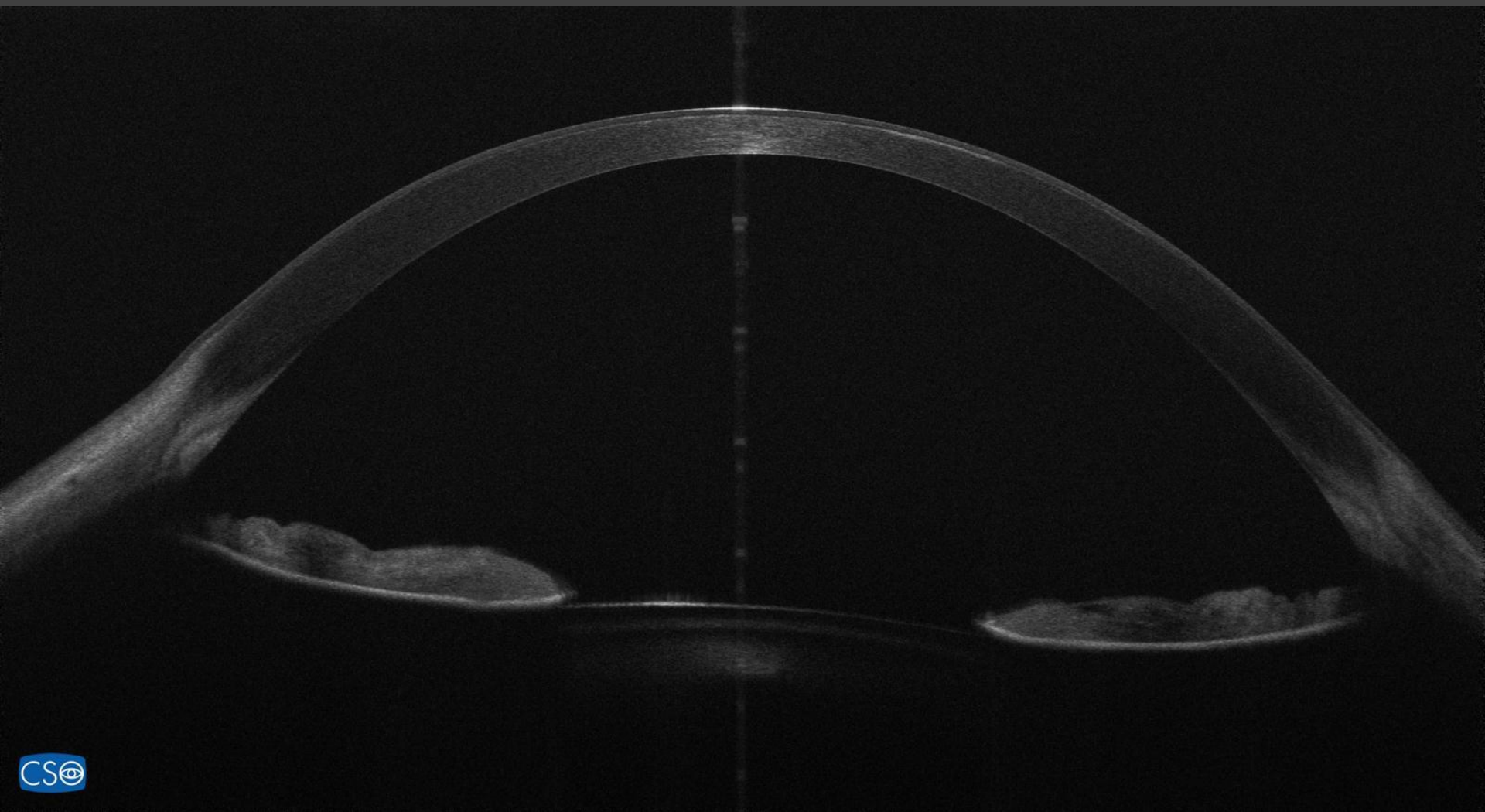


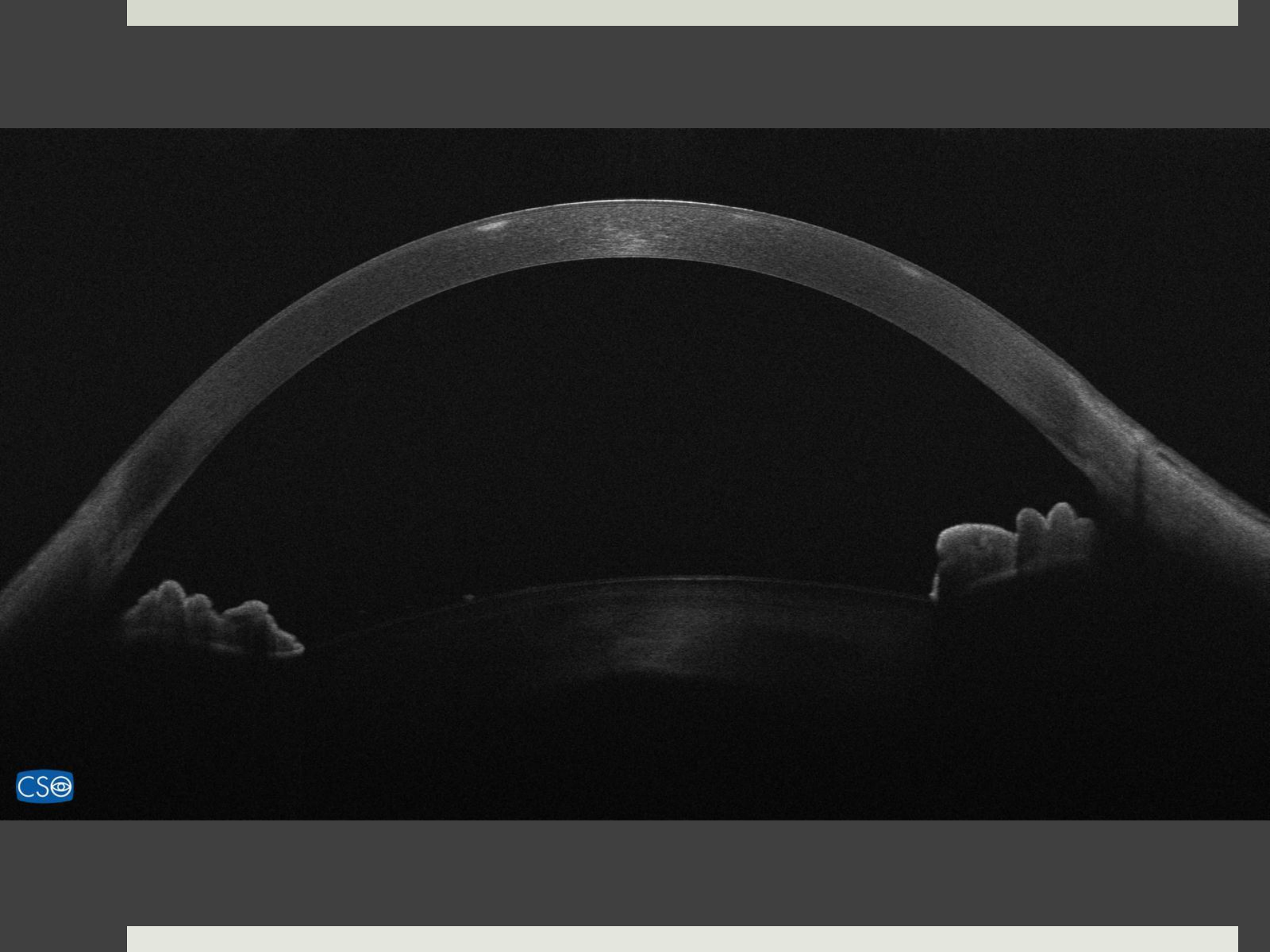


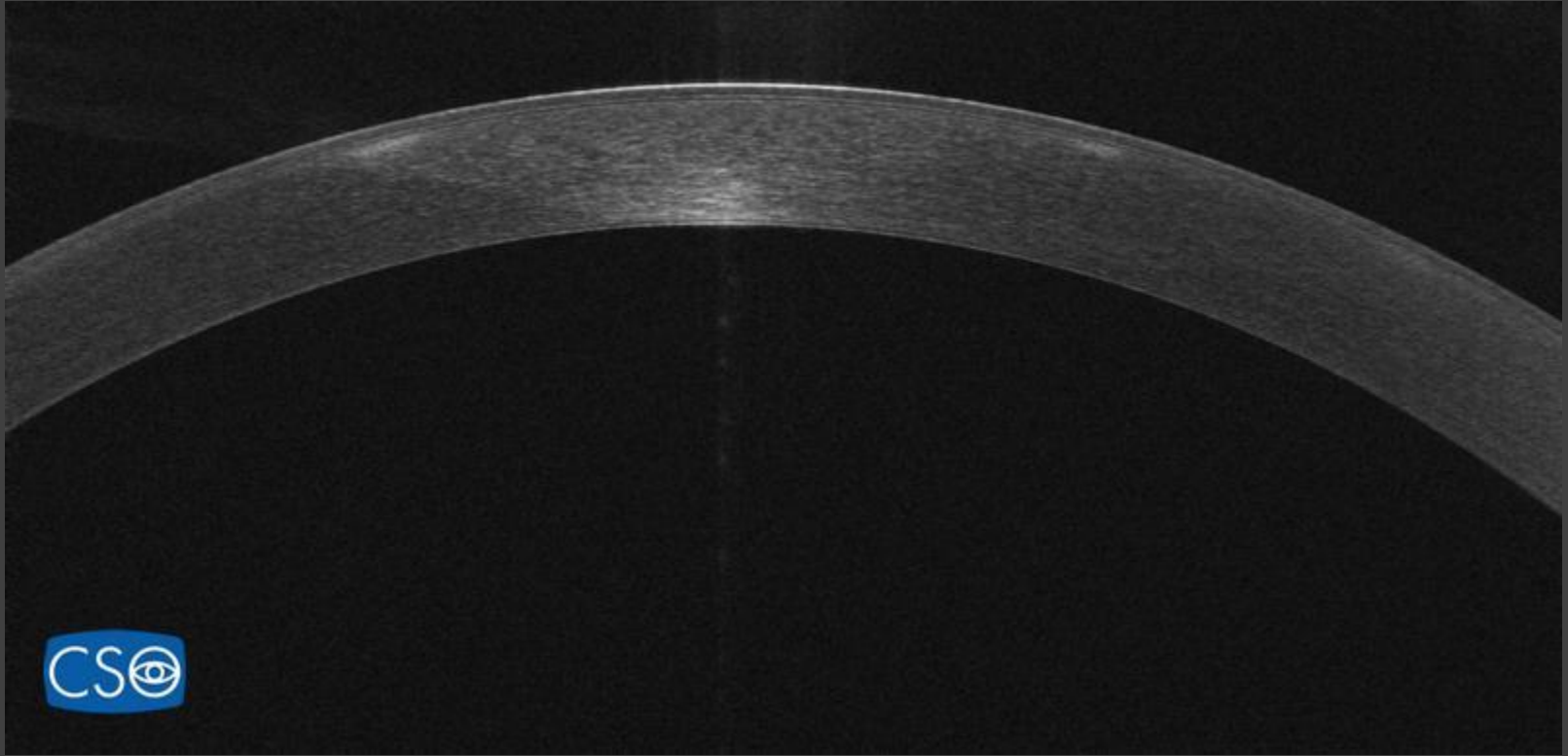






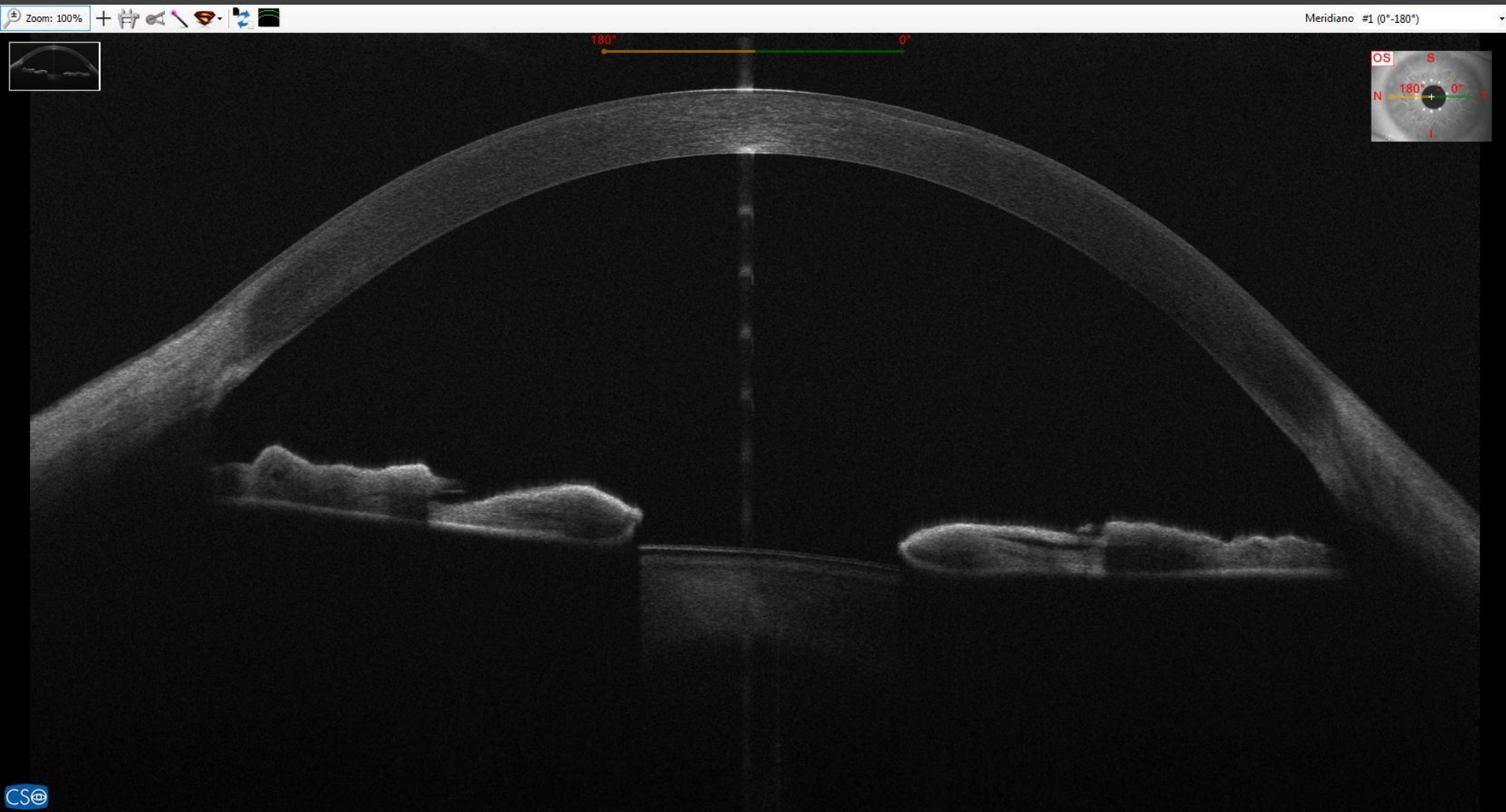




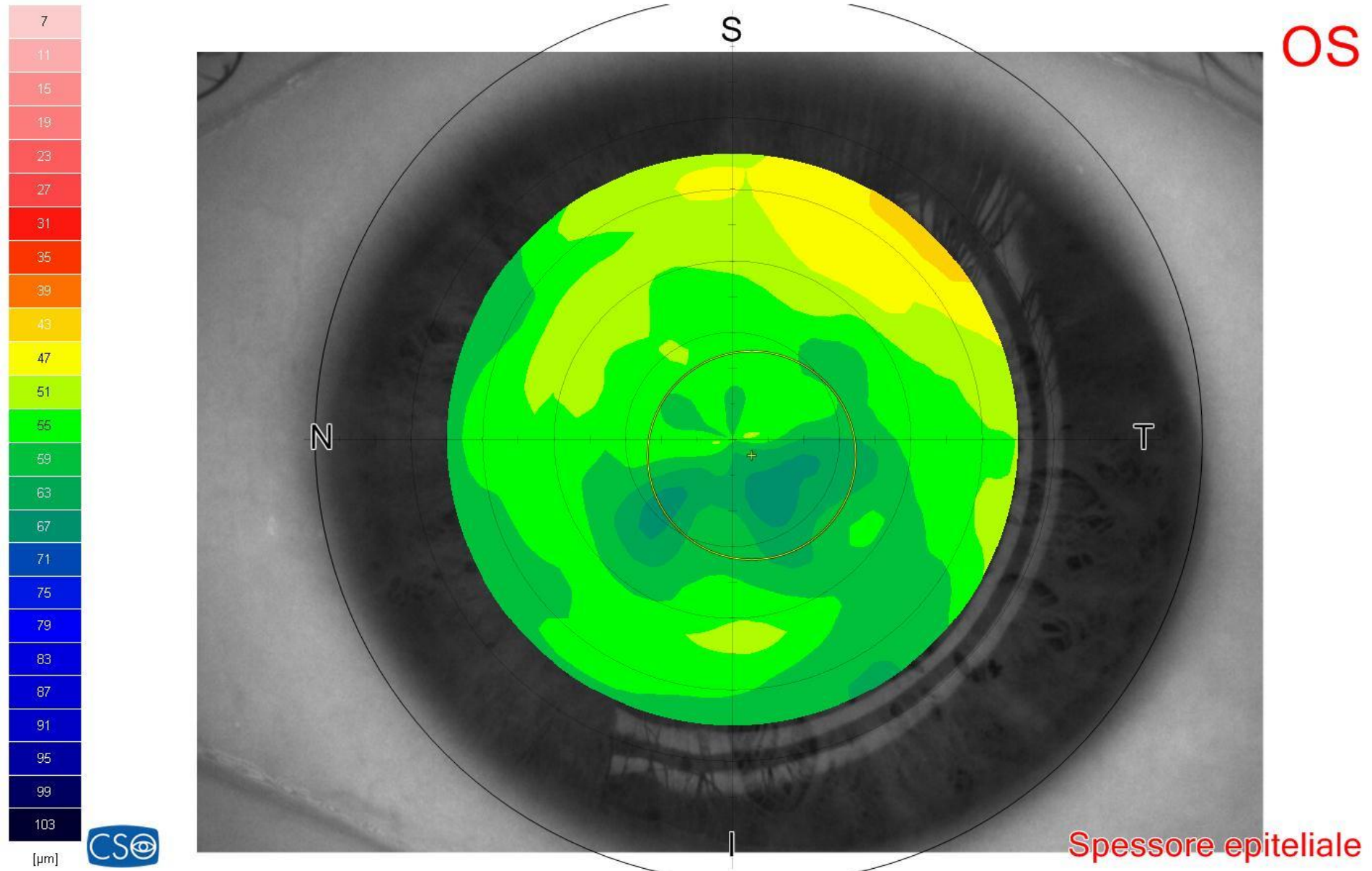




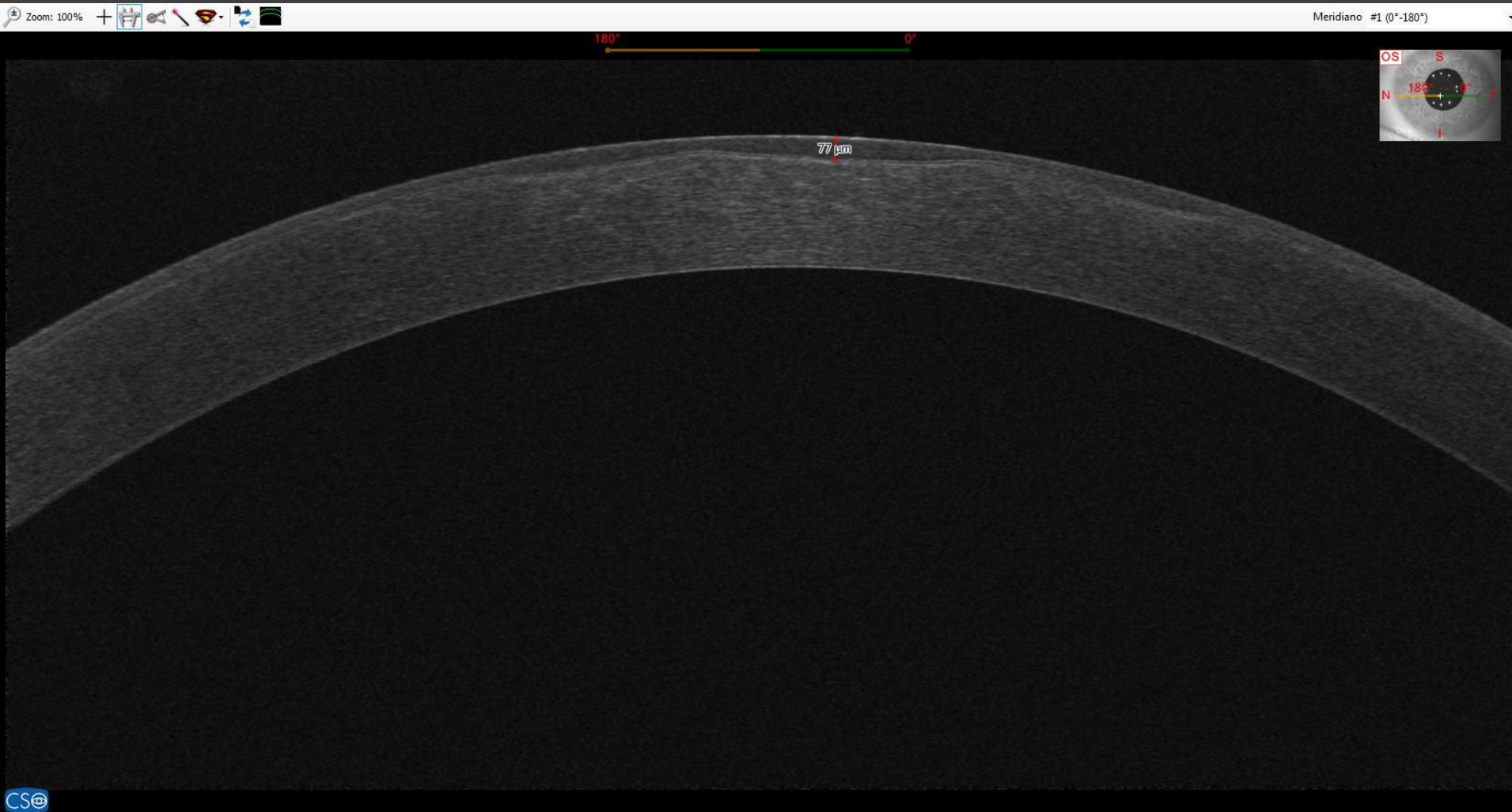
AS-OCT: detailed morphology + epithelial maps



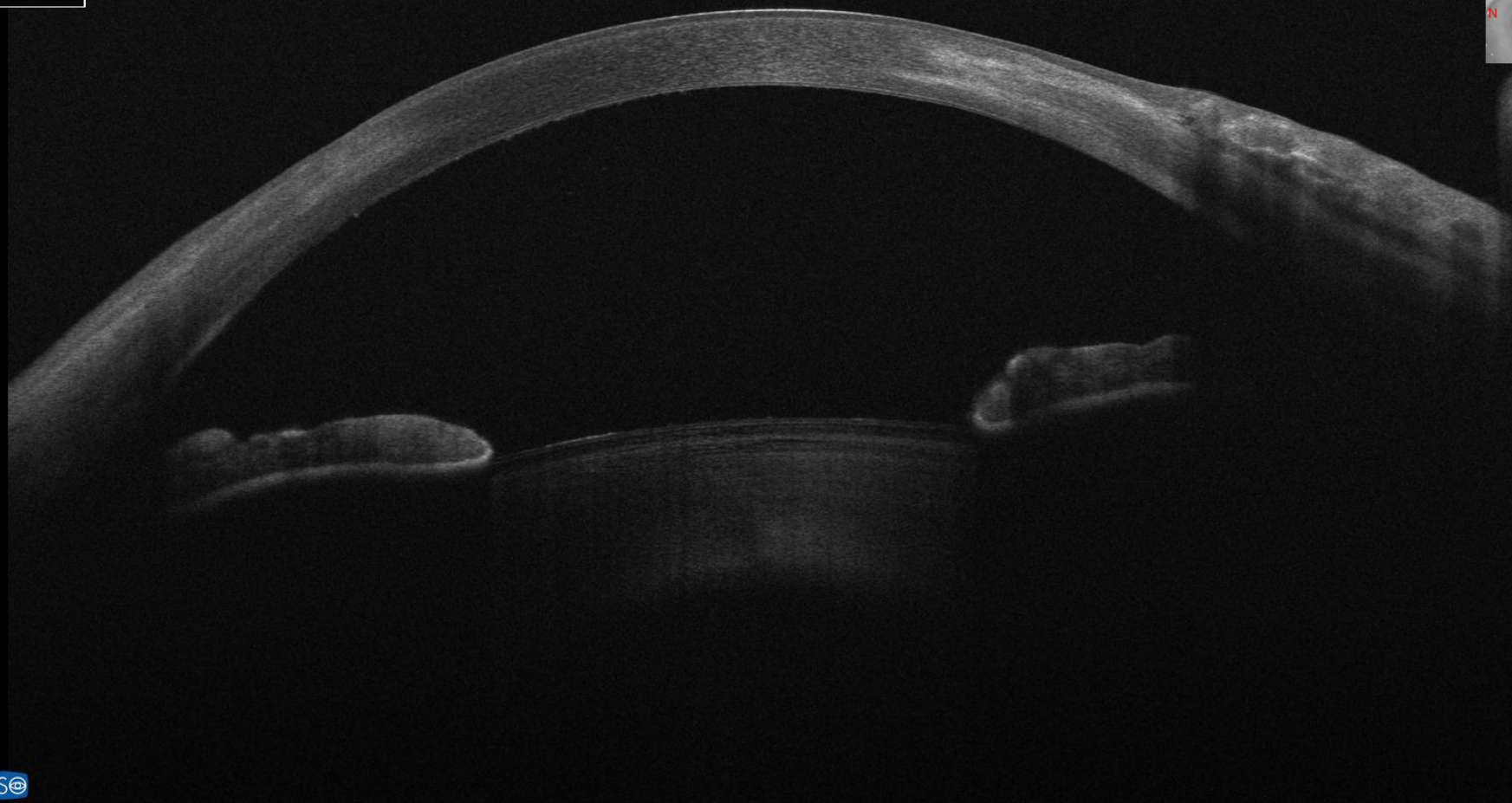
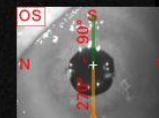
AS-OCT: detailed morphology + epithelial maps



AS-OCT: detailed morphology + epithelial maps

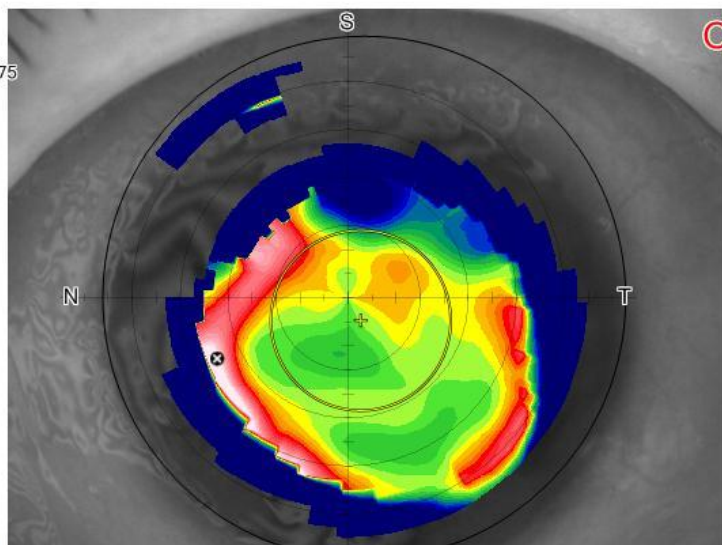


270° 90°



65,50
64,00
62,50
61,00
59,50
58,00
56,50
55,00
53,50
52,00
50,50
49,00
47,50
46,00
44,50
43,00
41,50
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38,50
37,00
35,50
34,00
32,50
31,00
29,50
28,00
[D]

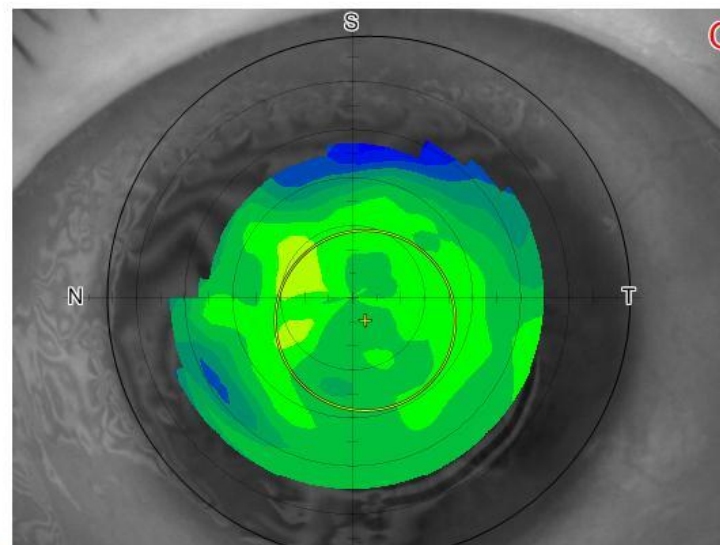
n0 = 1
n1 = 1,3375



Tangenziale anteriore

OS

7
11
15
19
23
27
31
35
39
43
47
51
55
59
63
67
71
75
79
83
87
91
95
99
103
[μm]

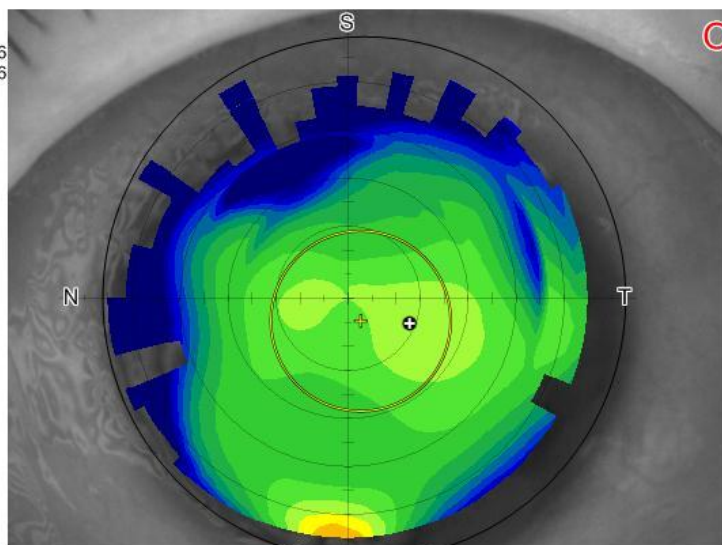


Spessore epiteliale

OS

-10,50
-10,20
-9,90
-9,60
-9,30
-9,00
-8,70
-8,40
-8,10
-7,80
-7,50
-7,20
-6,90
-6,60
-6,30
-6,00
-5,70
-5,40
-5,10
-4,80
-4,50
-4,20
-3,90
-3,60
-3,30
-3,00
[D]

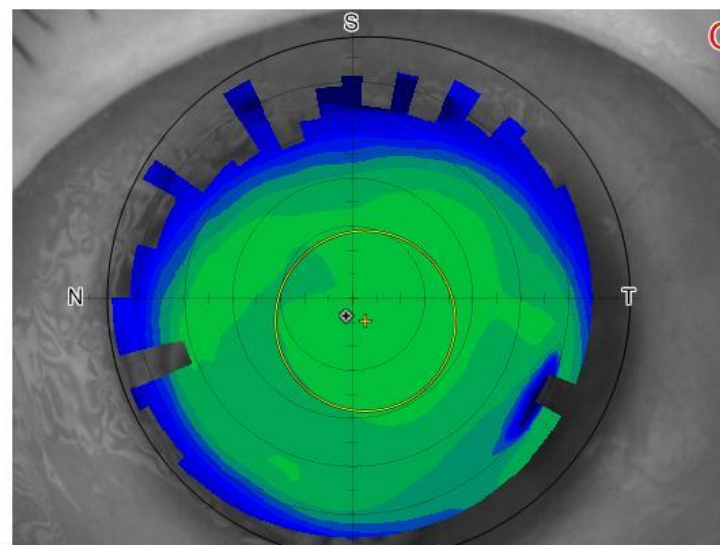
n1 = 1,376
n2 = 1,336



Tangenziale posteriore

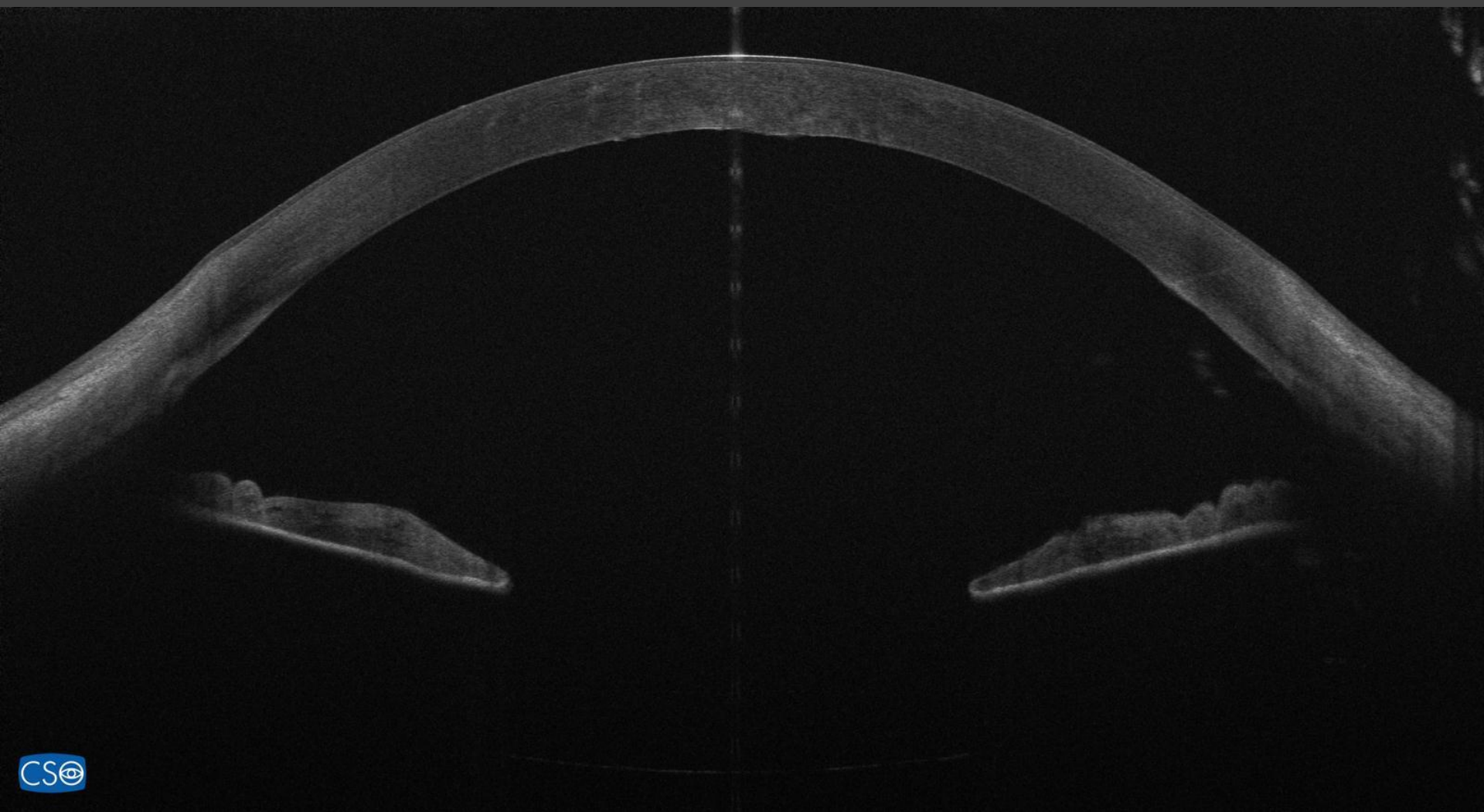
OS

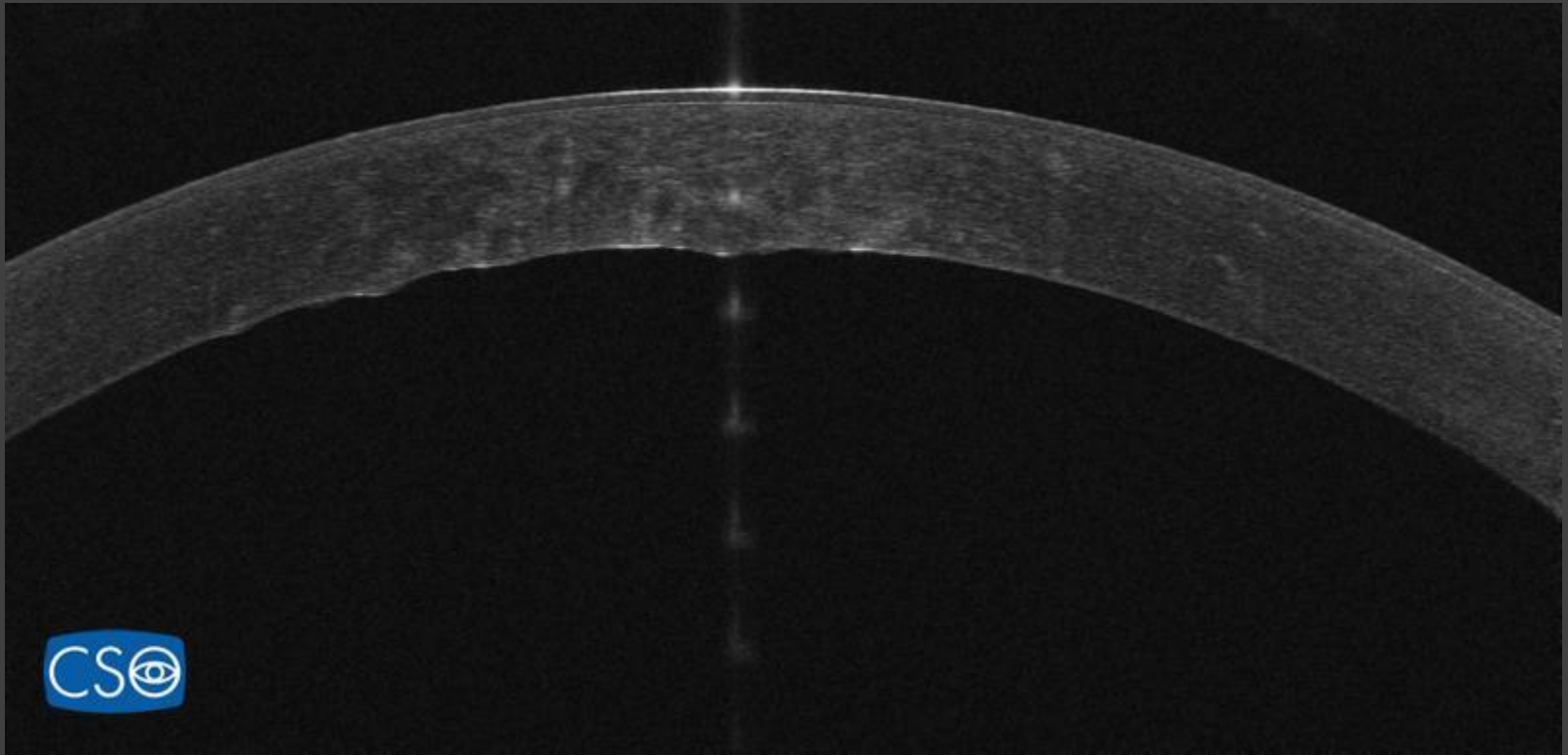
170
200
230
260
290
320
350
380
410
440
470
500
530
560
590
620
650
680
710
740
770
800
830
860
890
[μm]

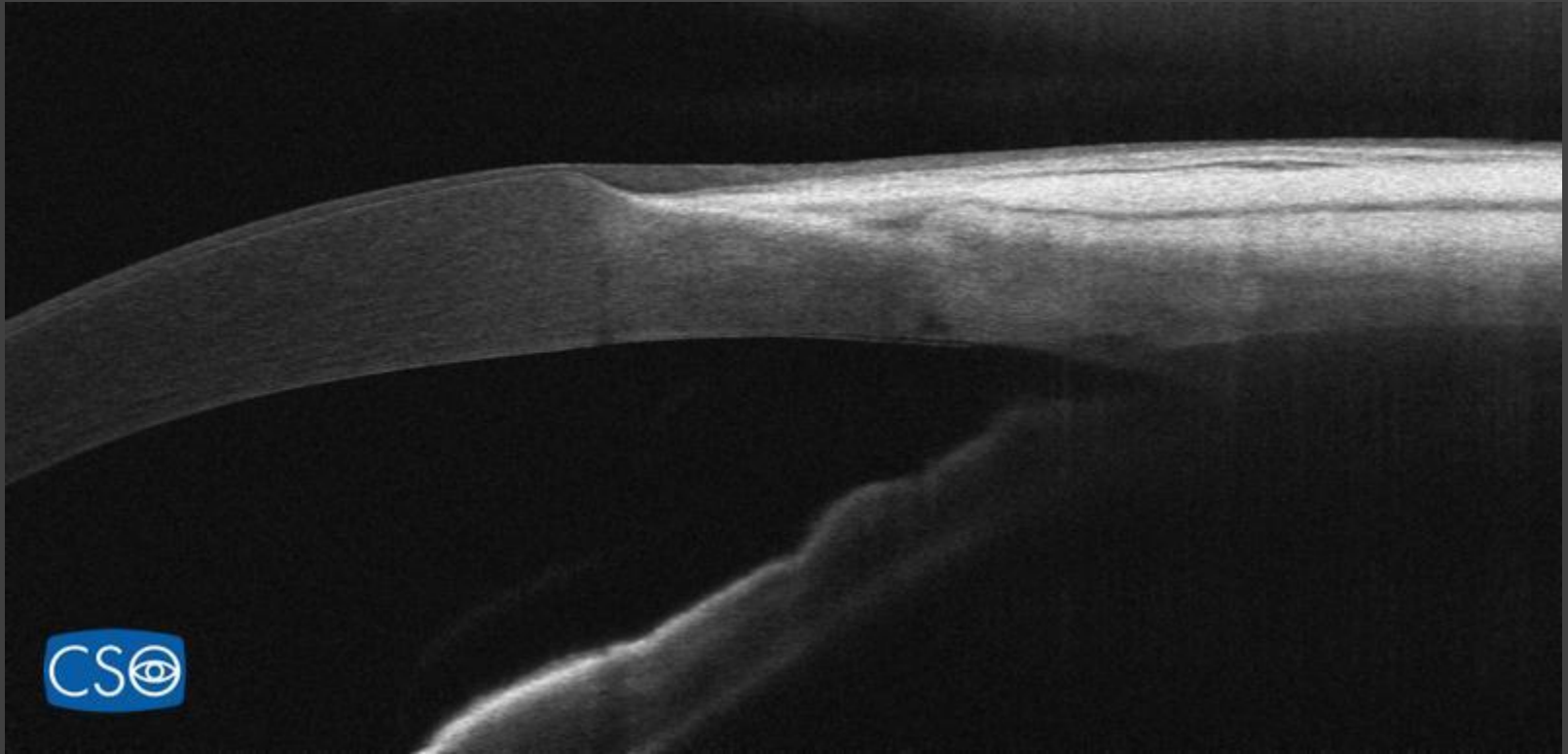


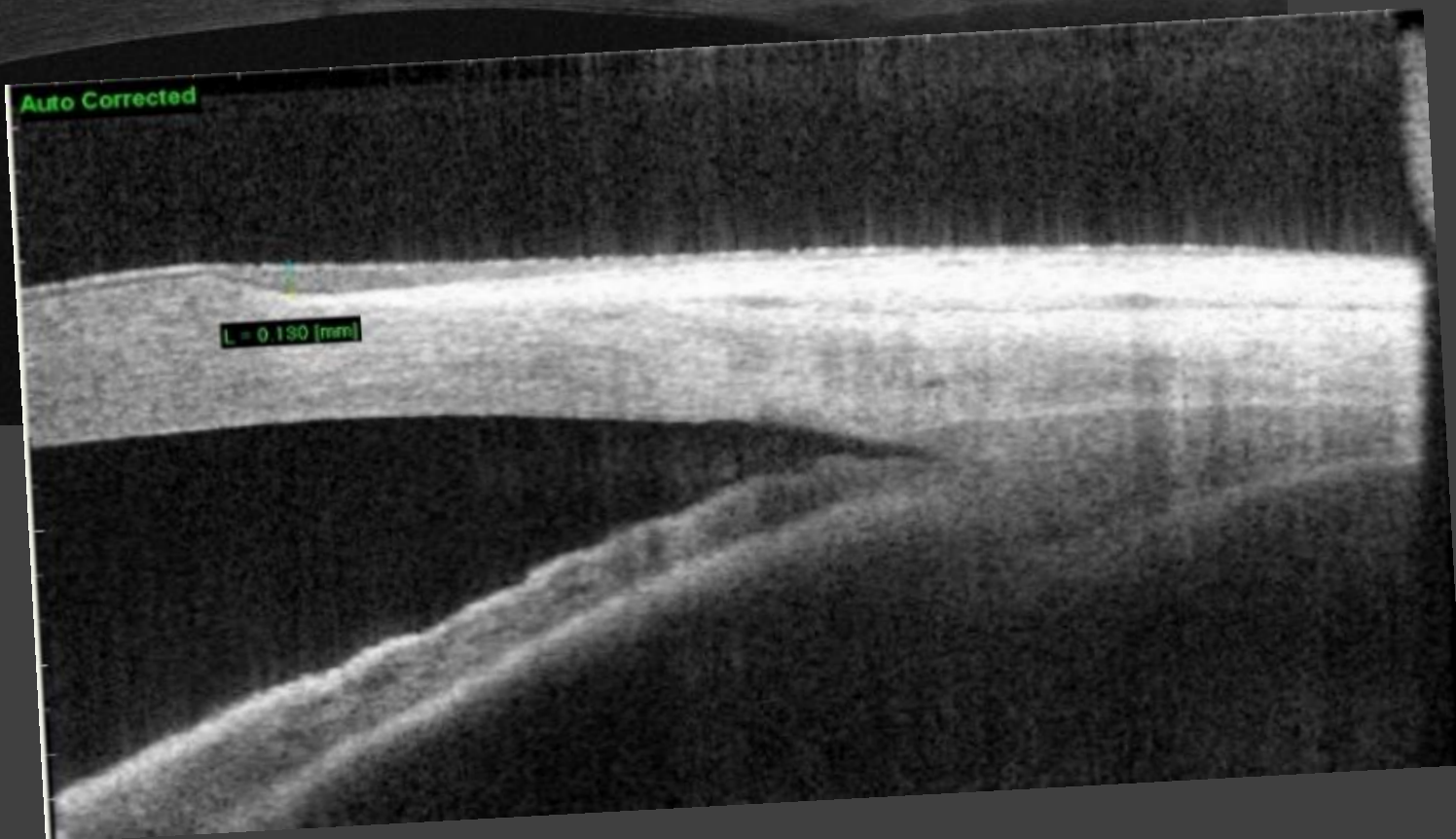
Spessore corneale

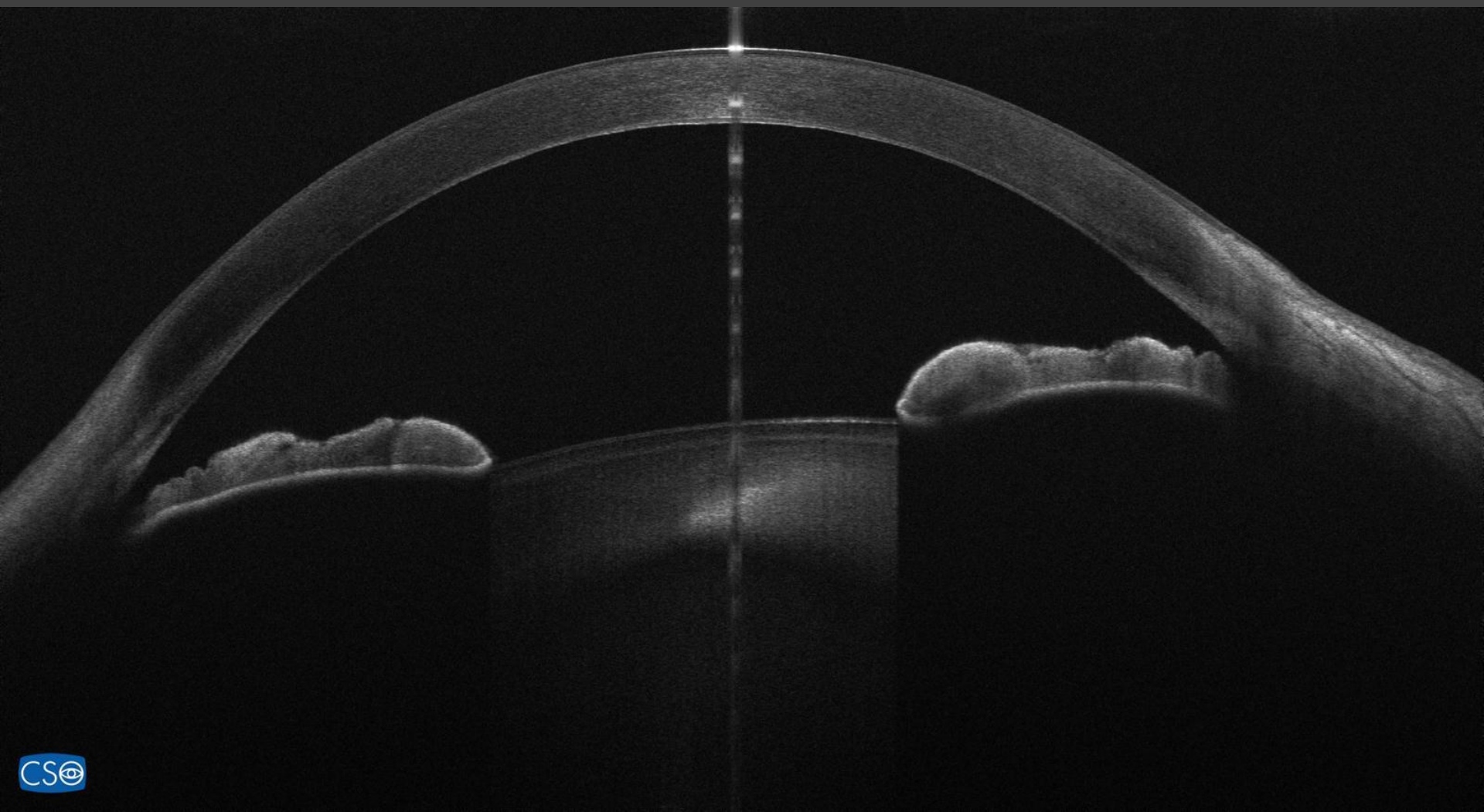
OS

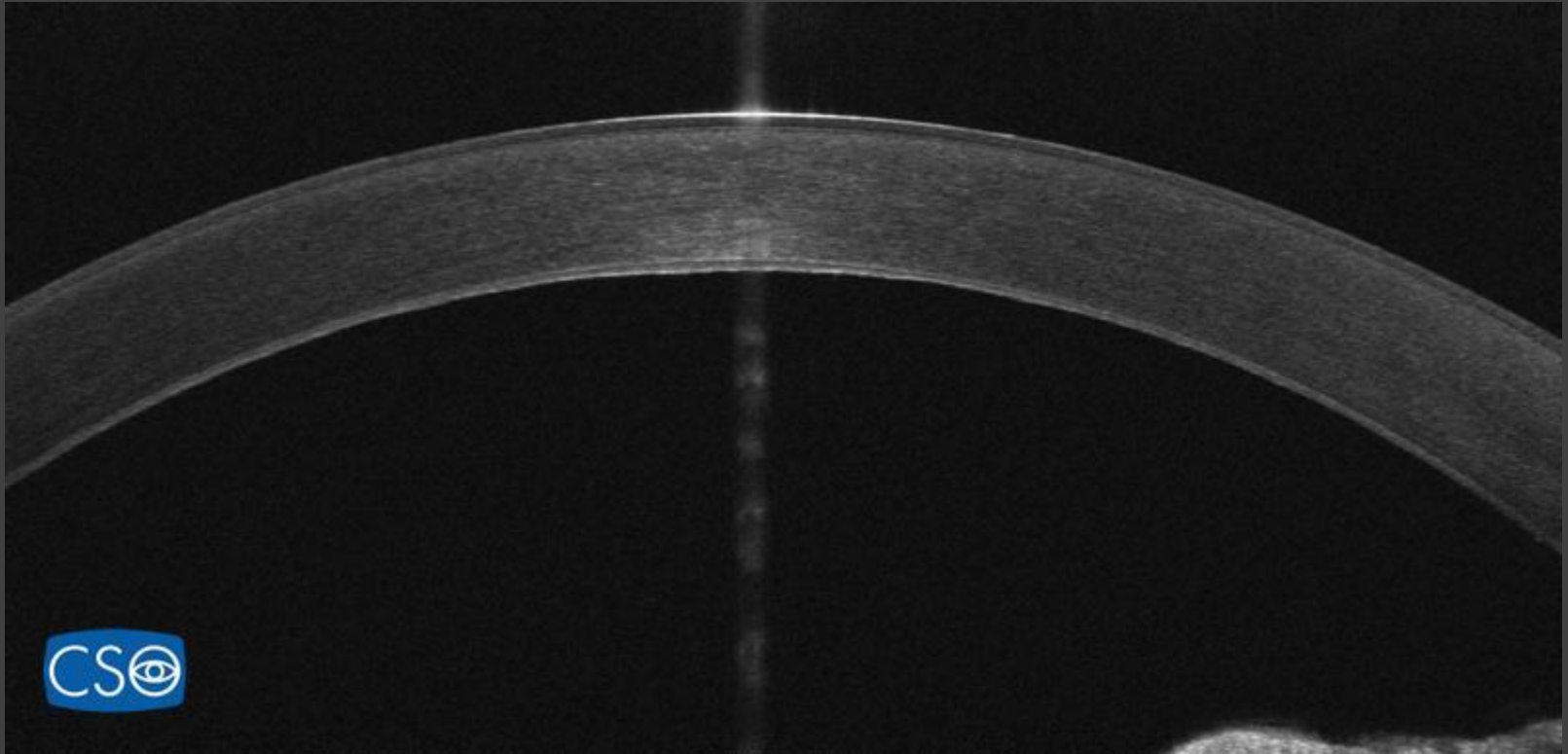


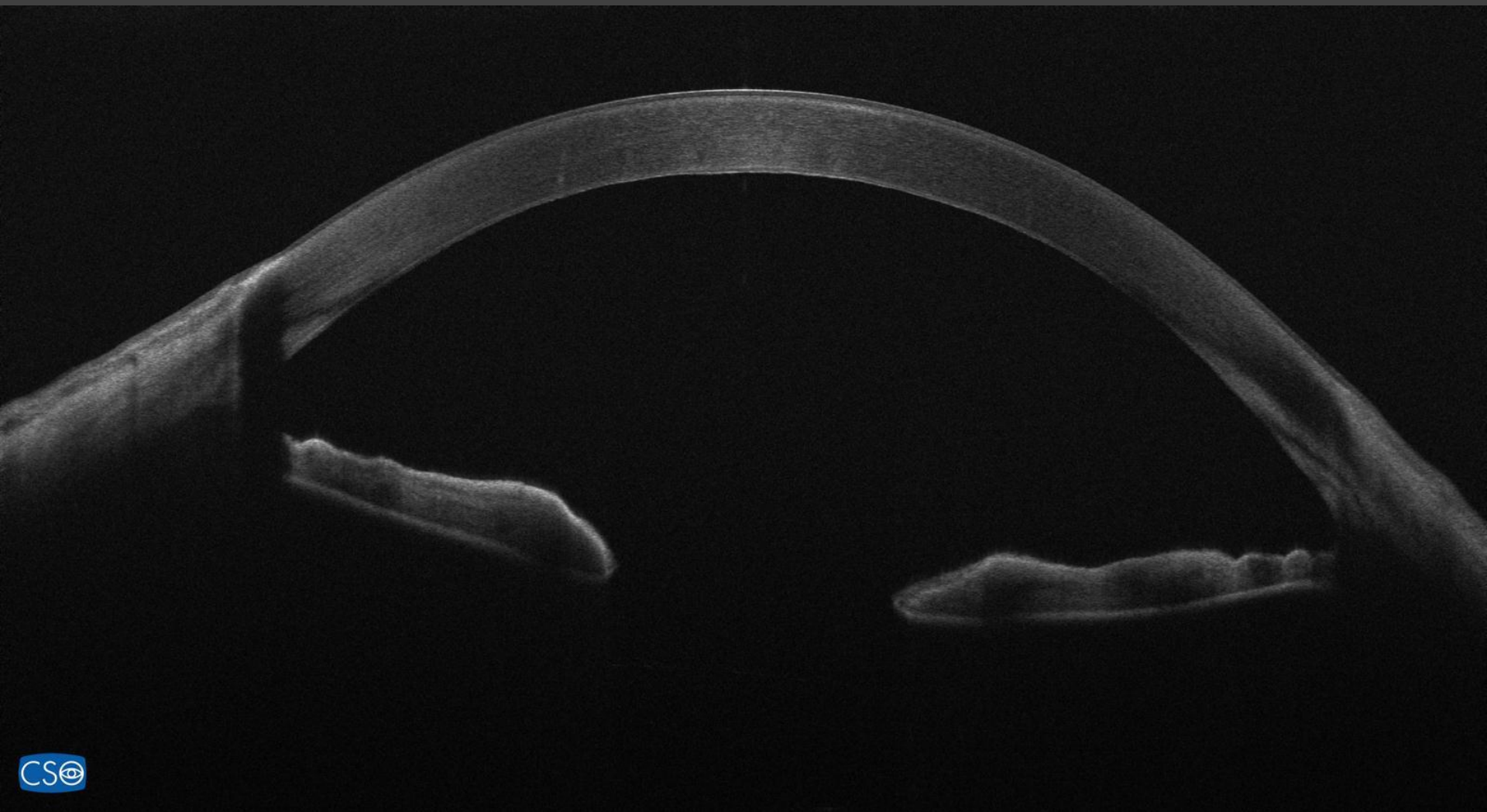


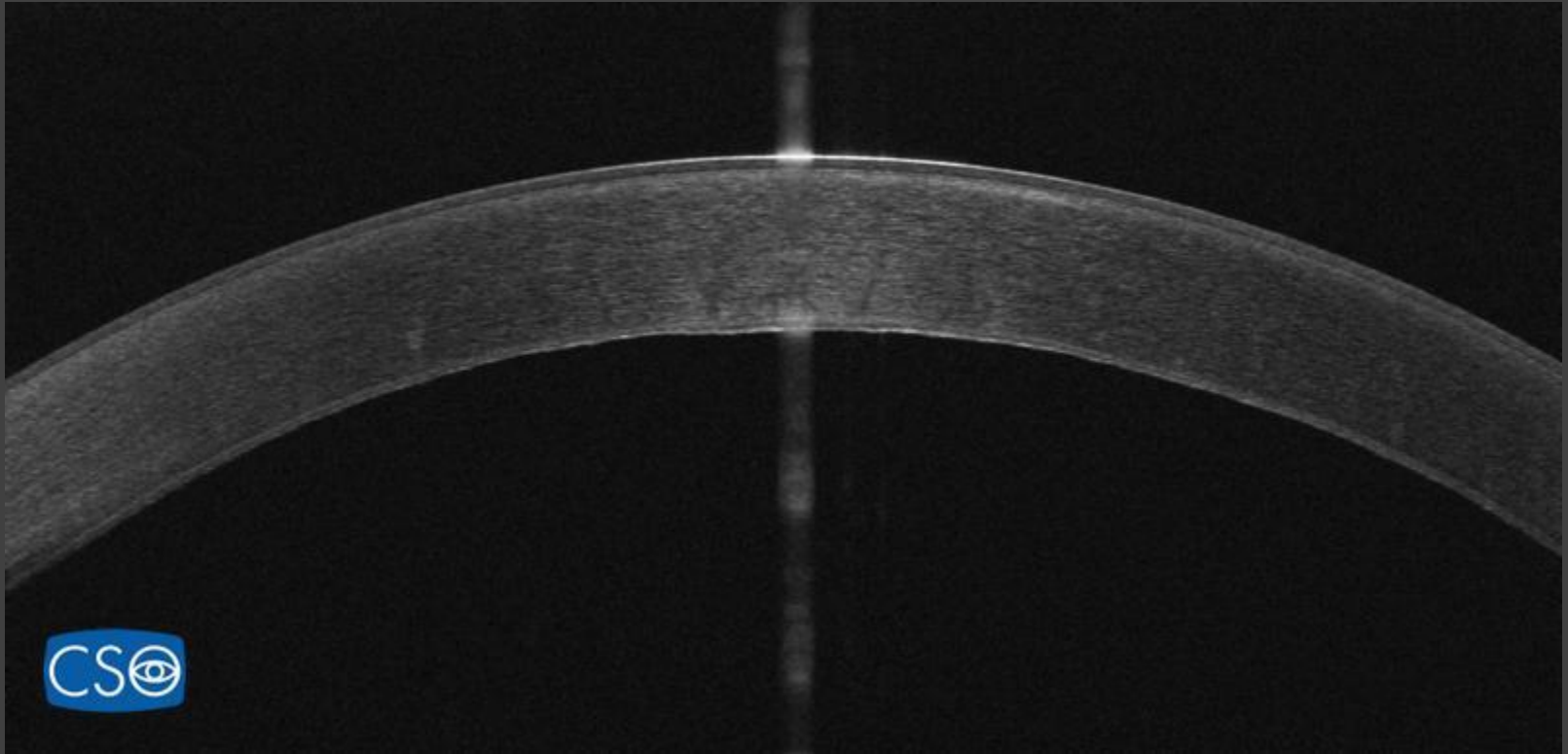


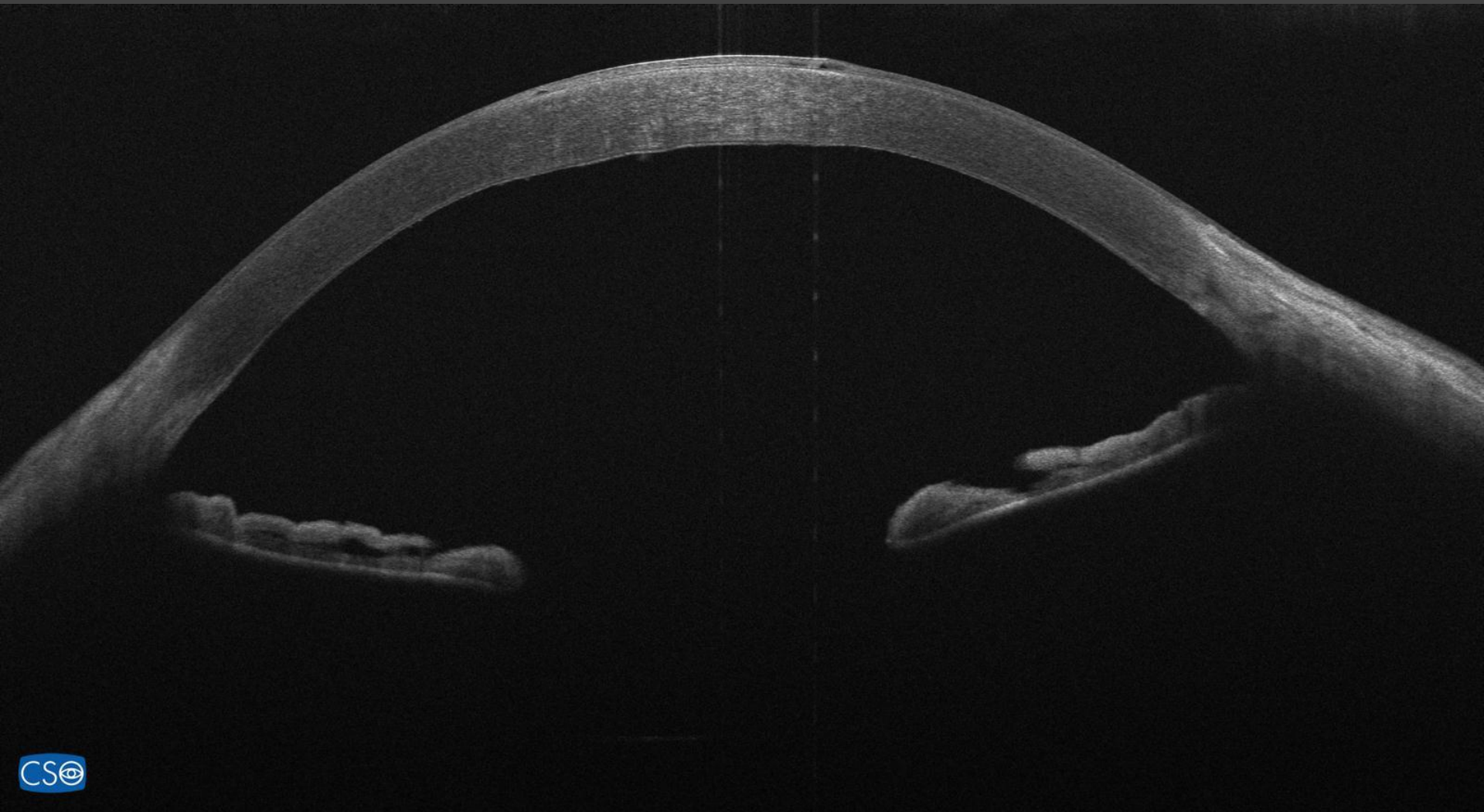


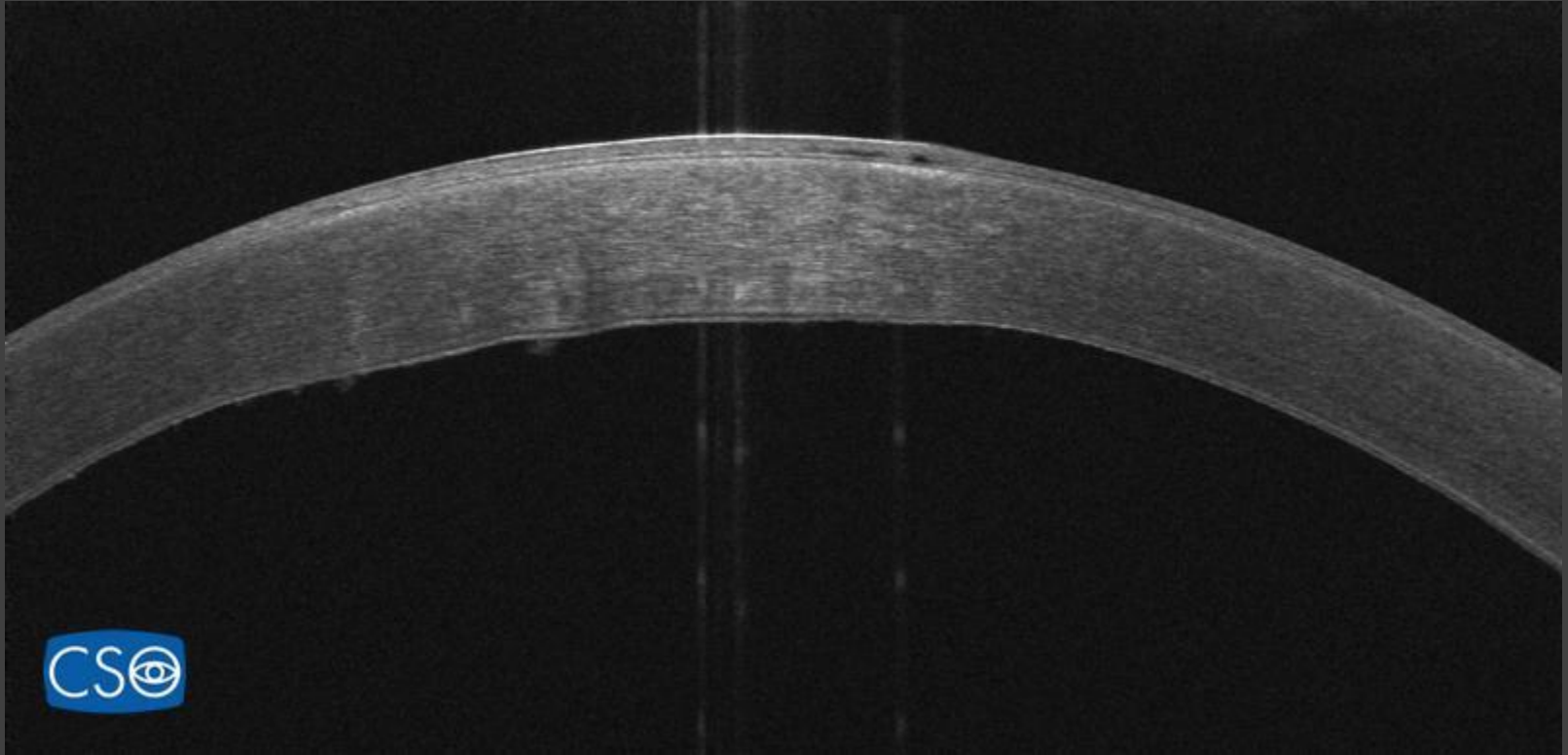


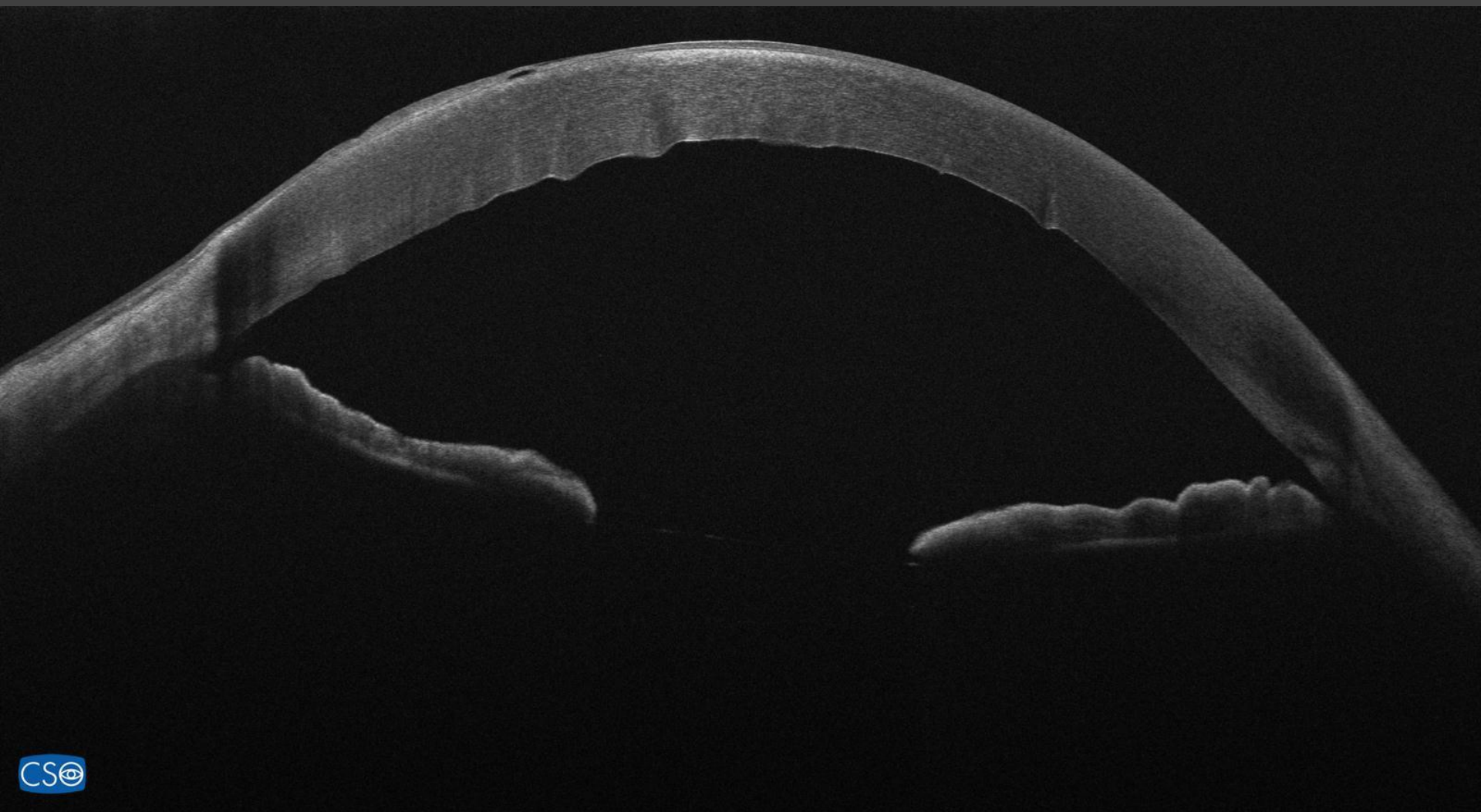


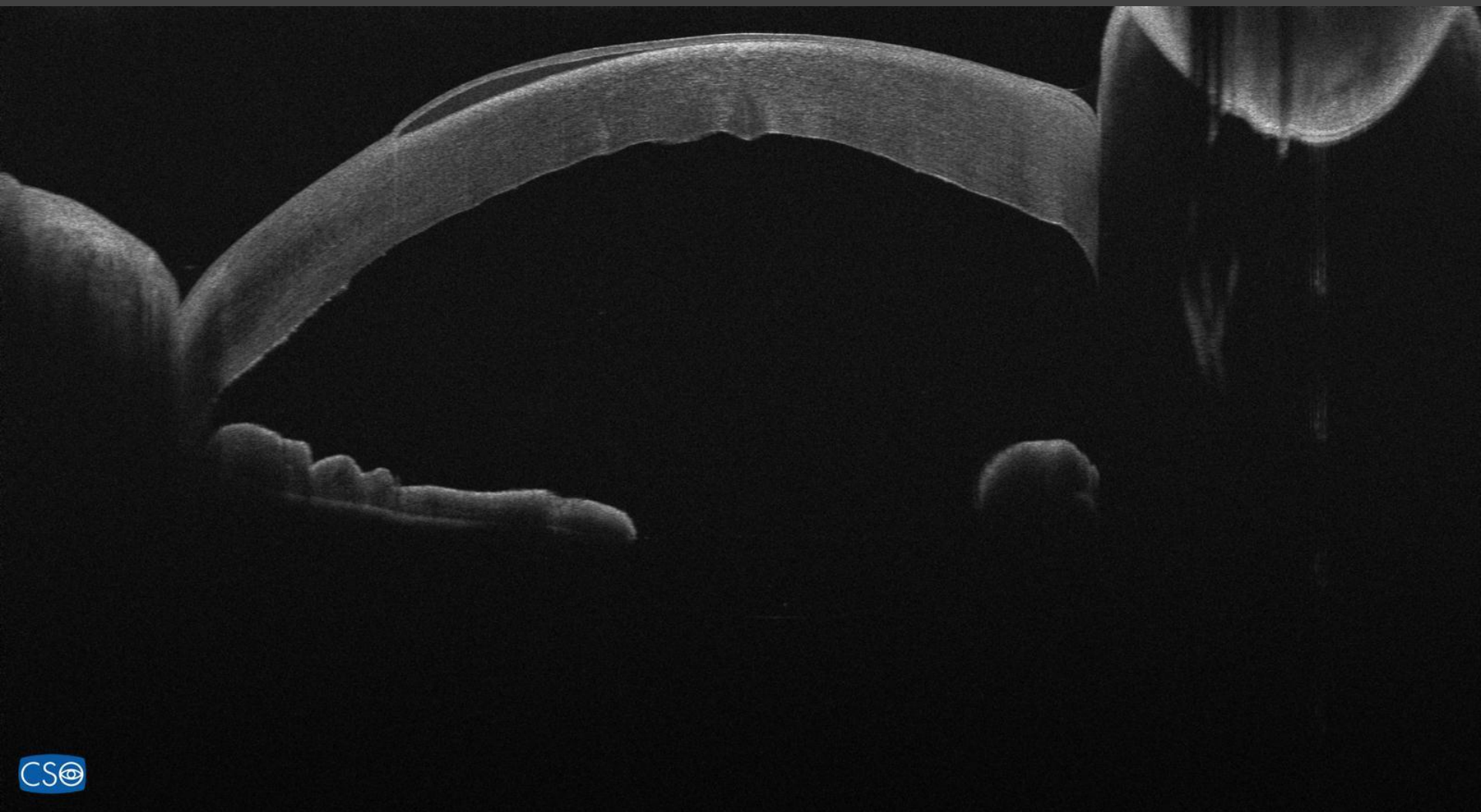


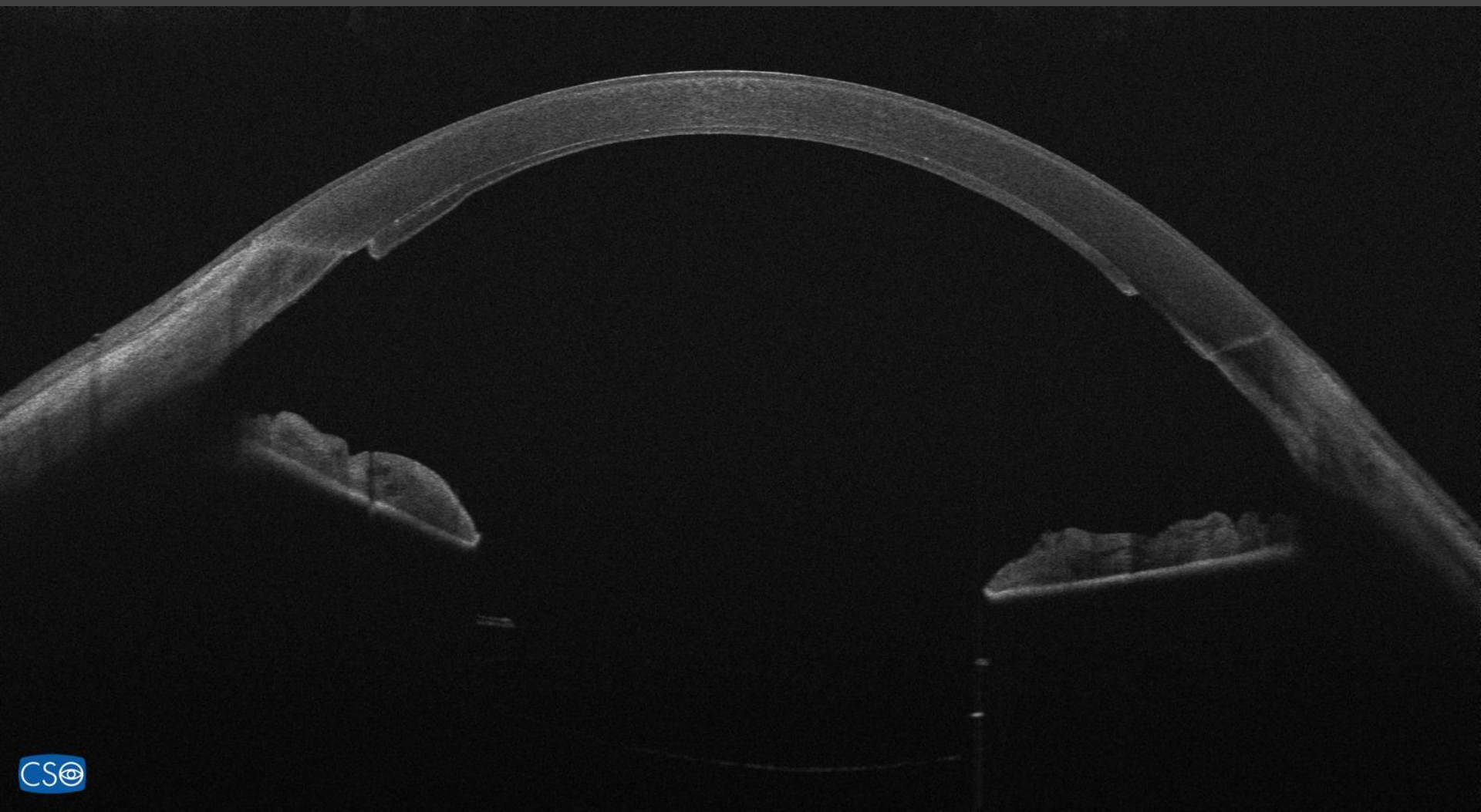


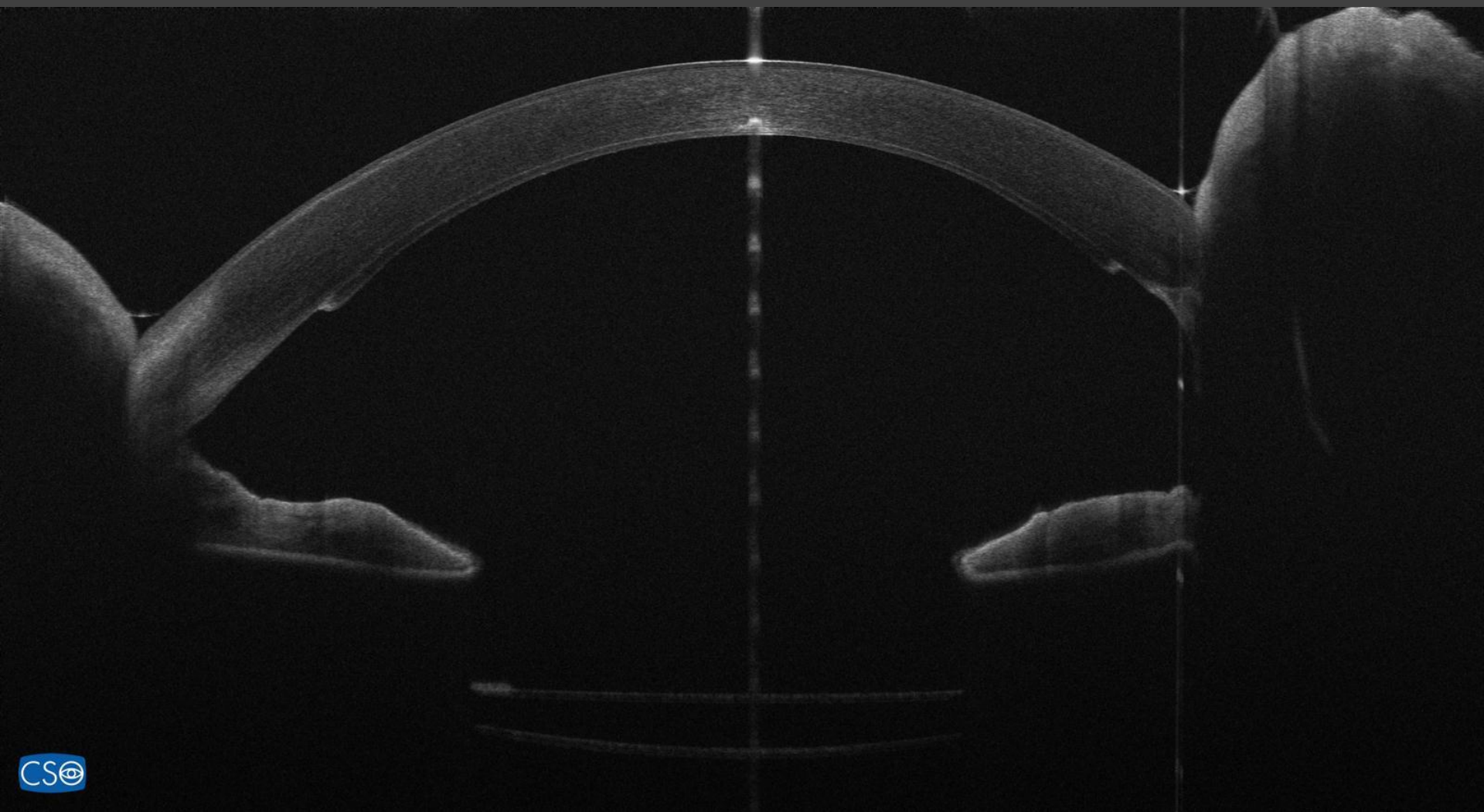


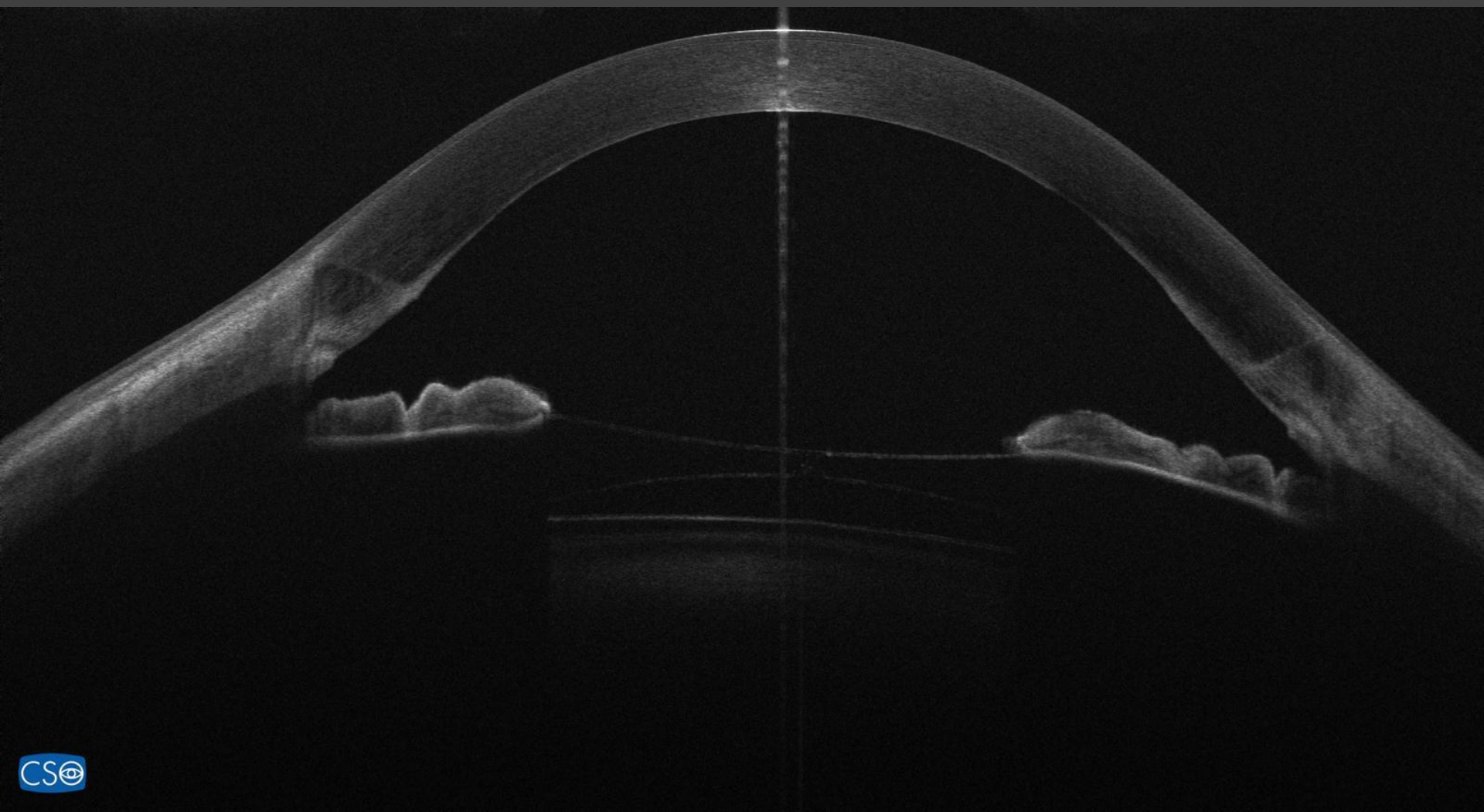


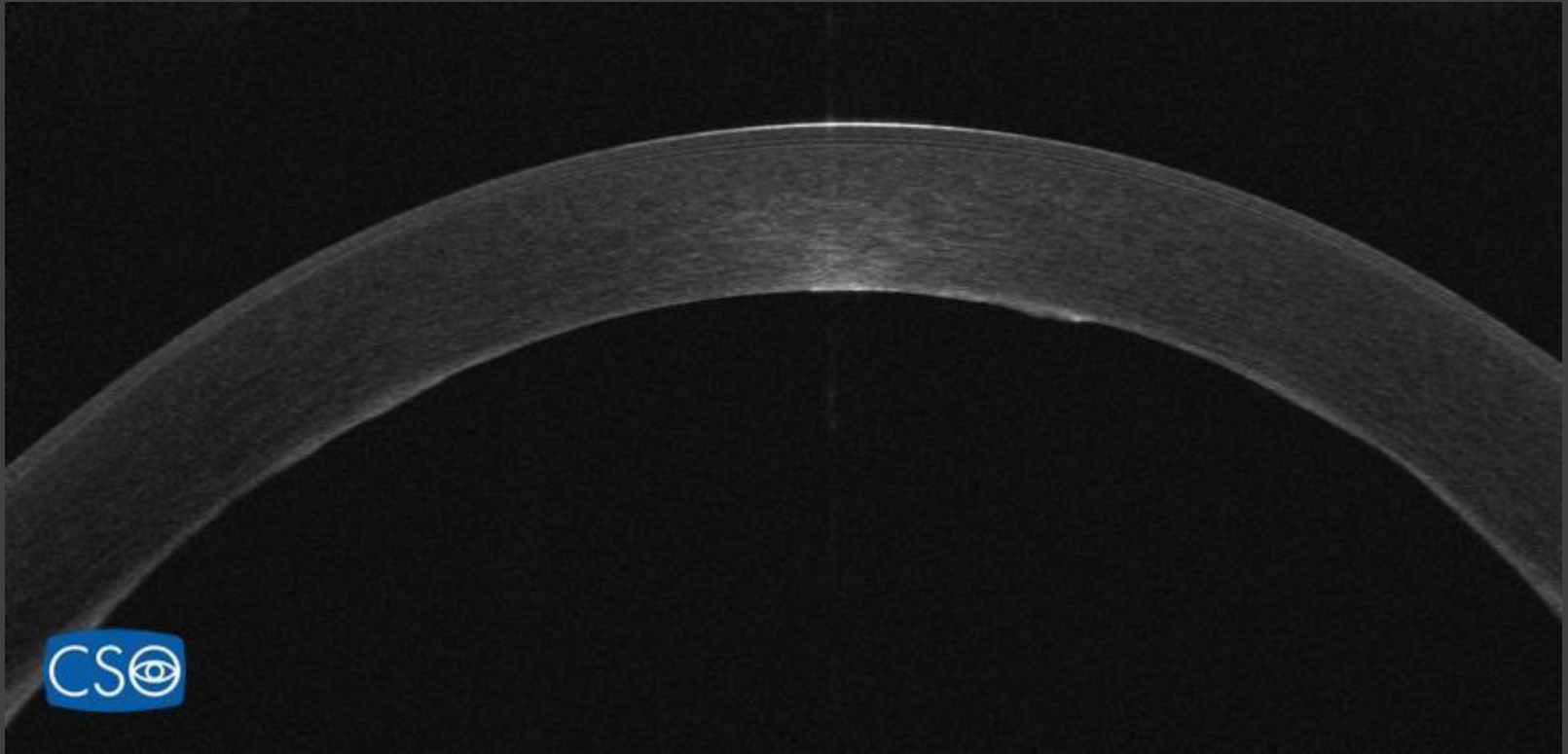




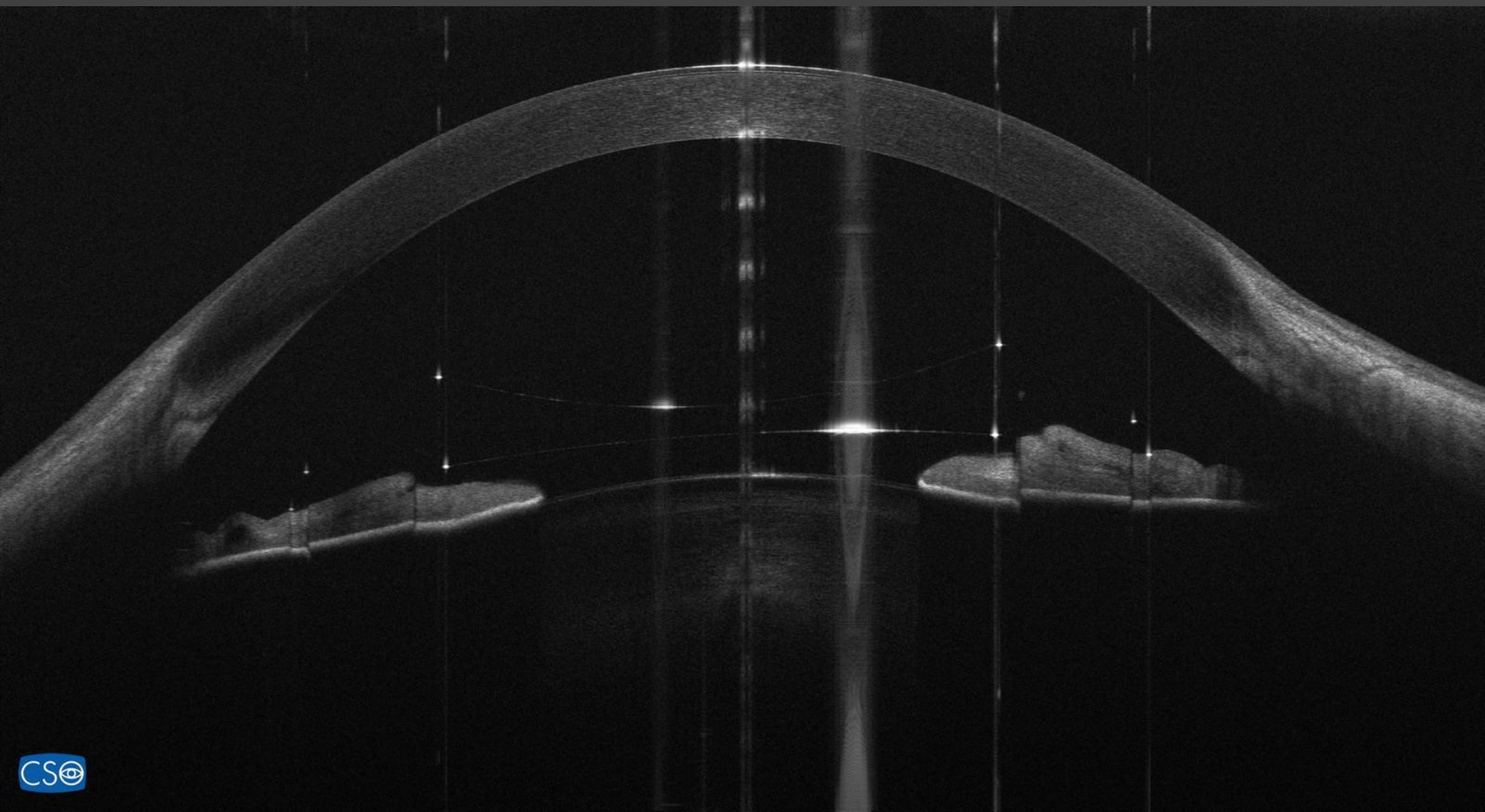


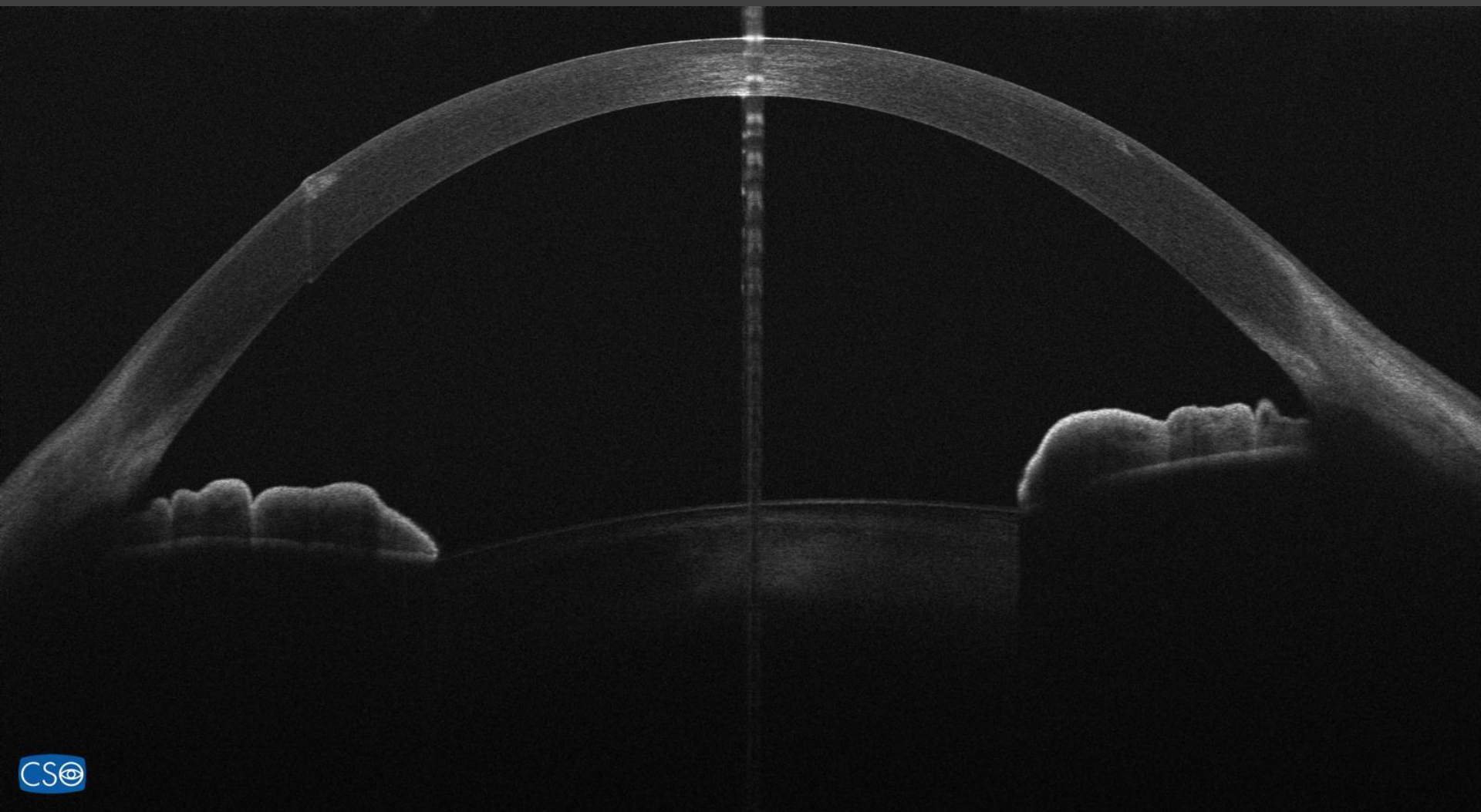


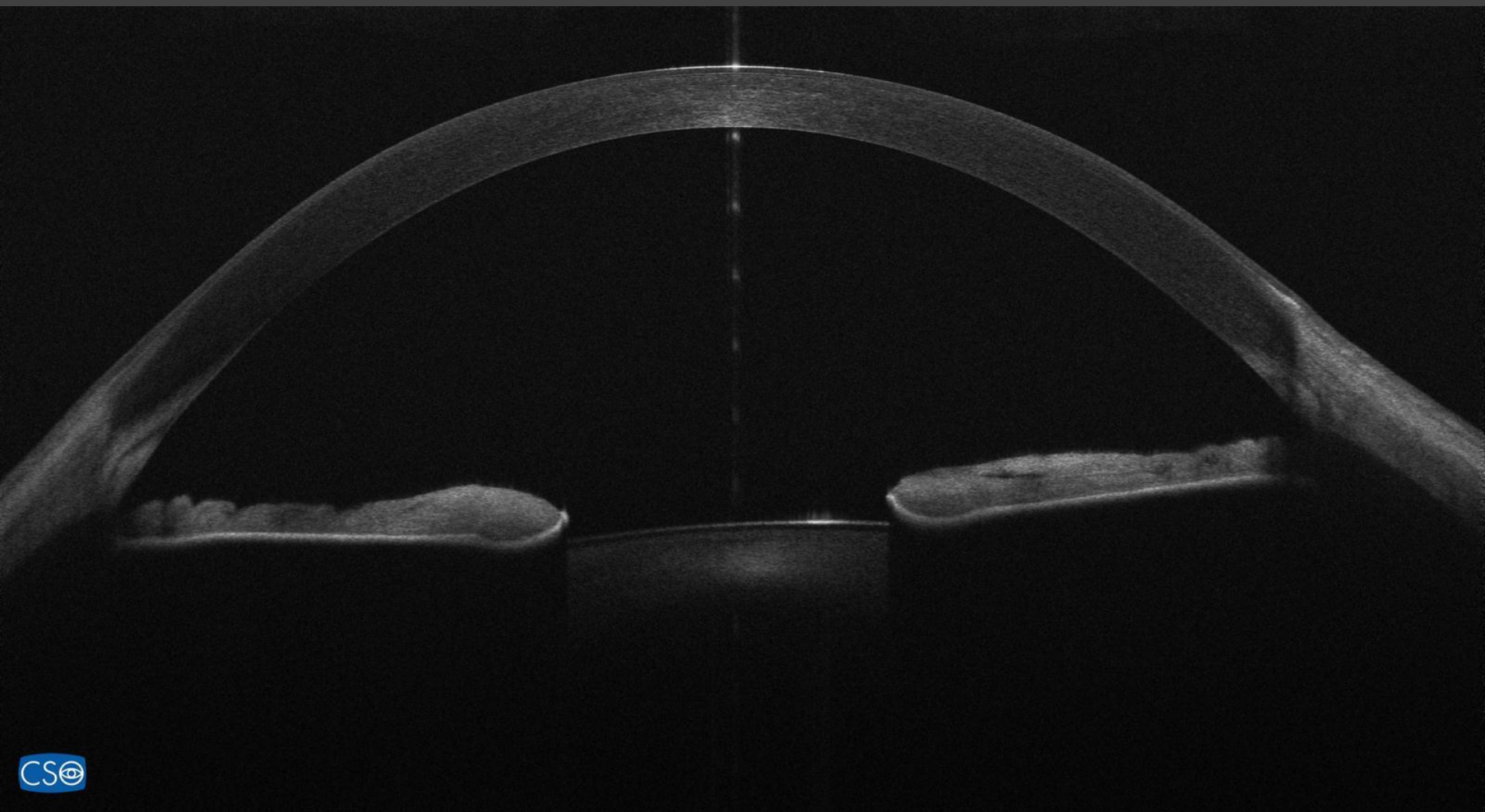


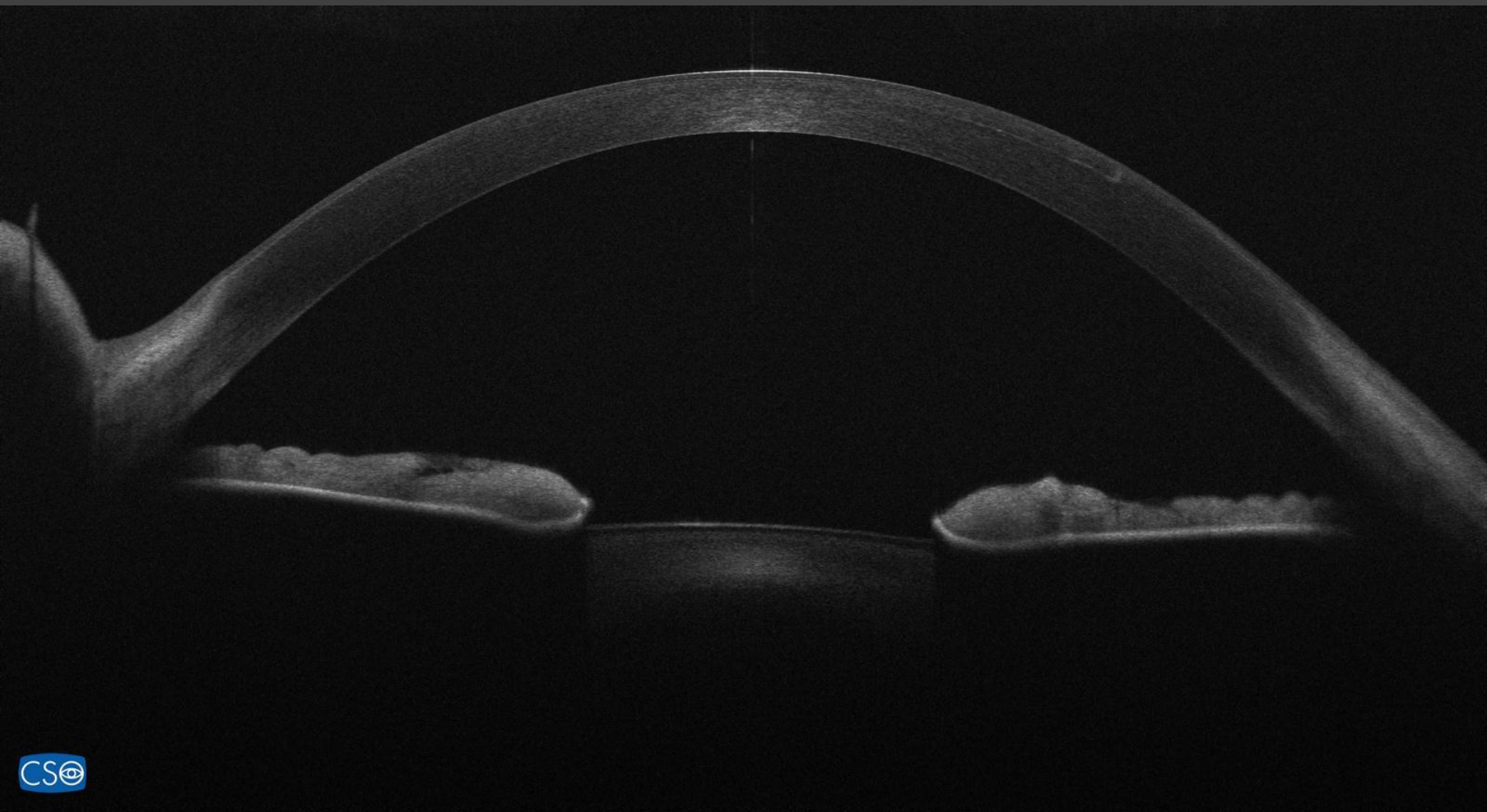


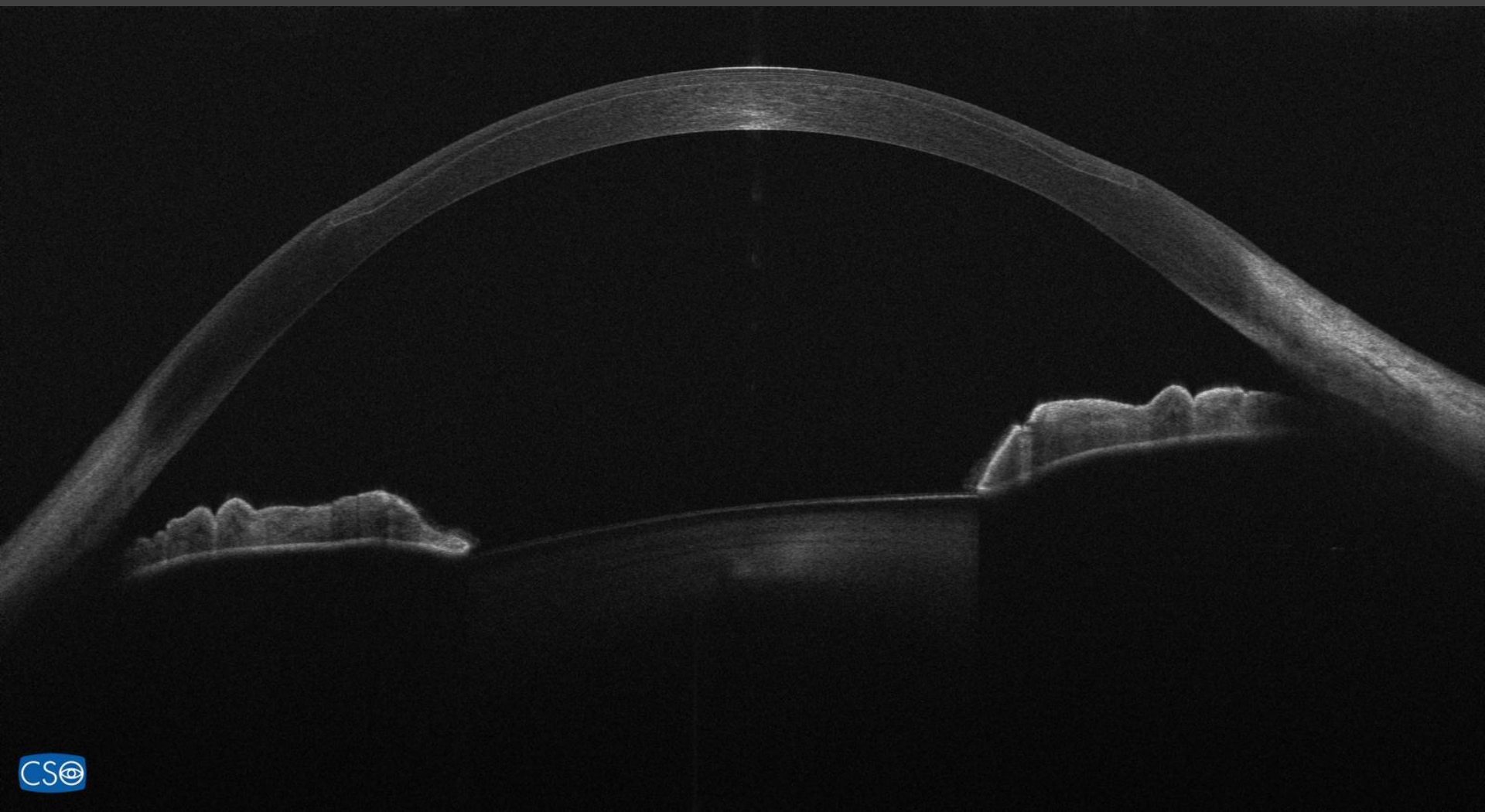


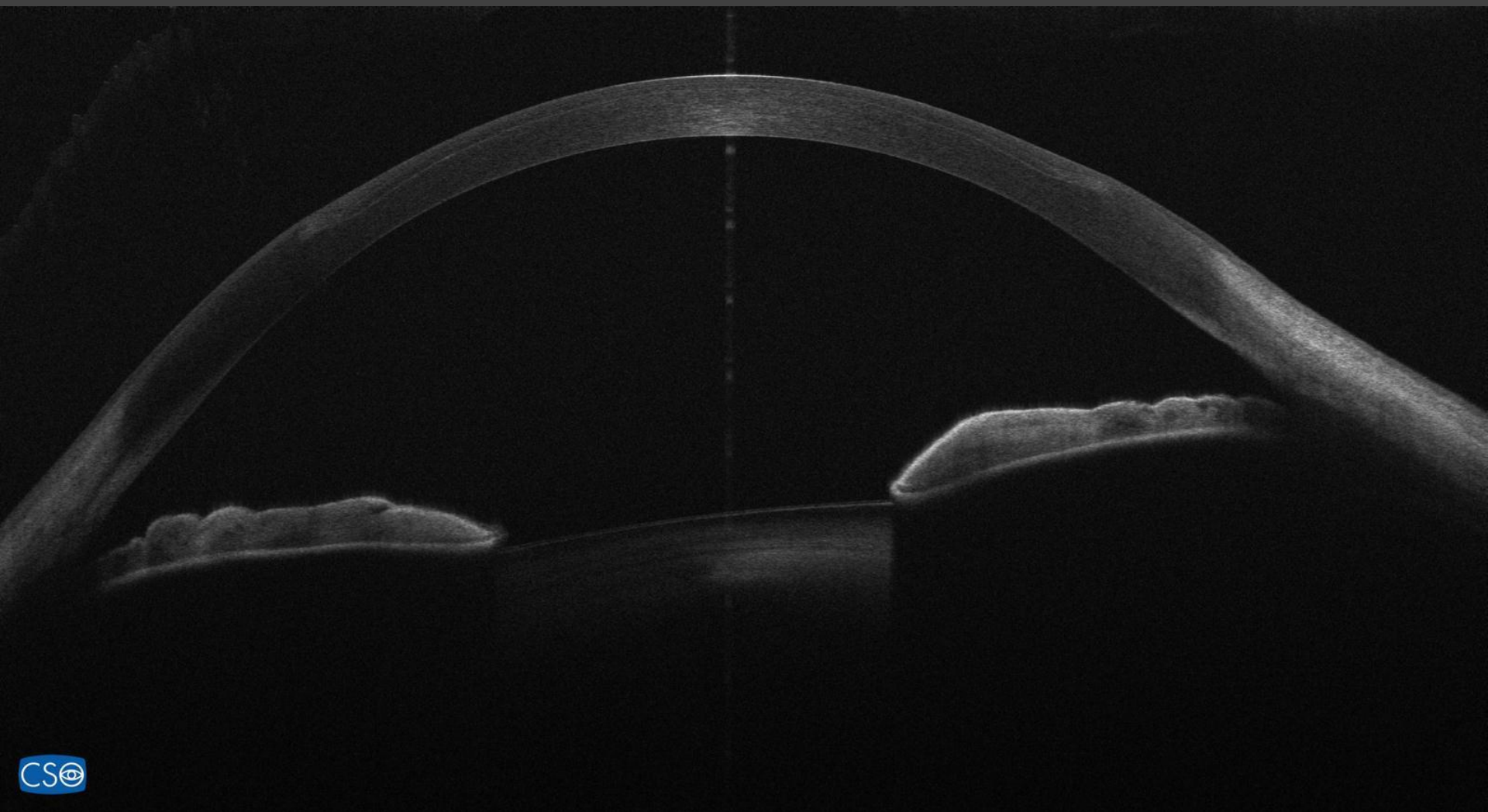


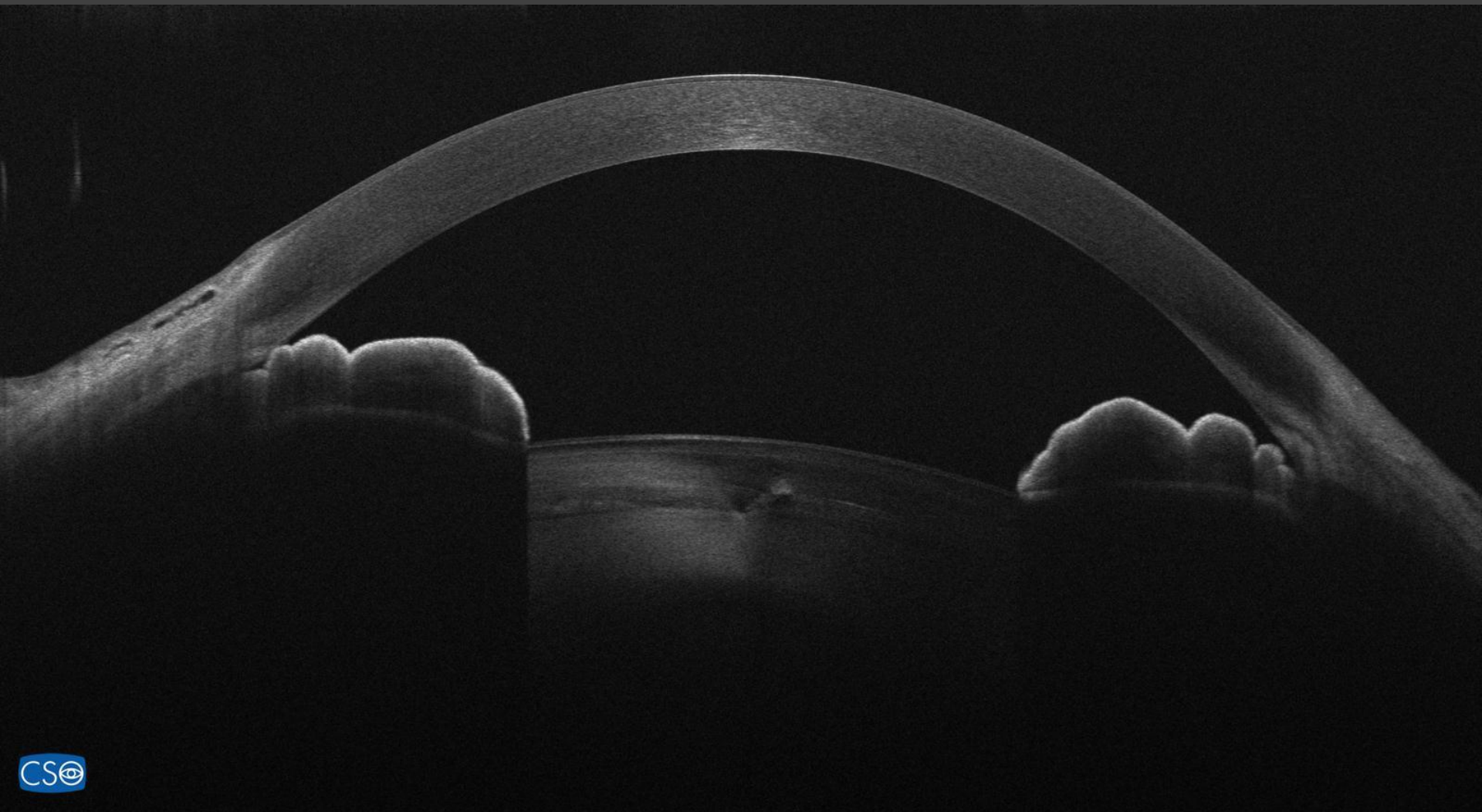


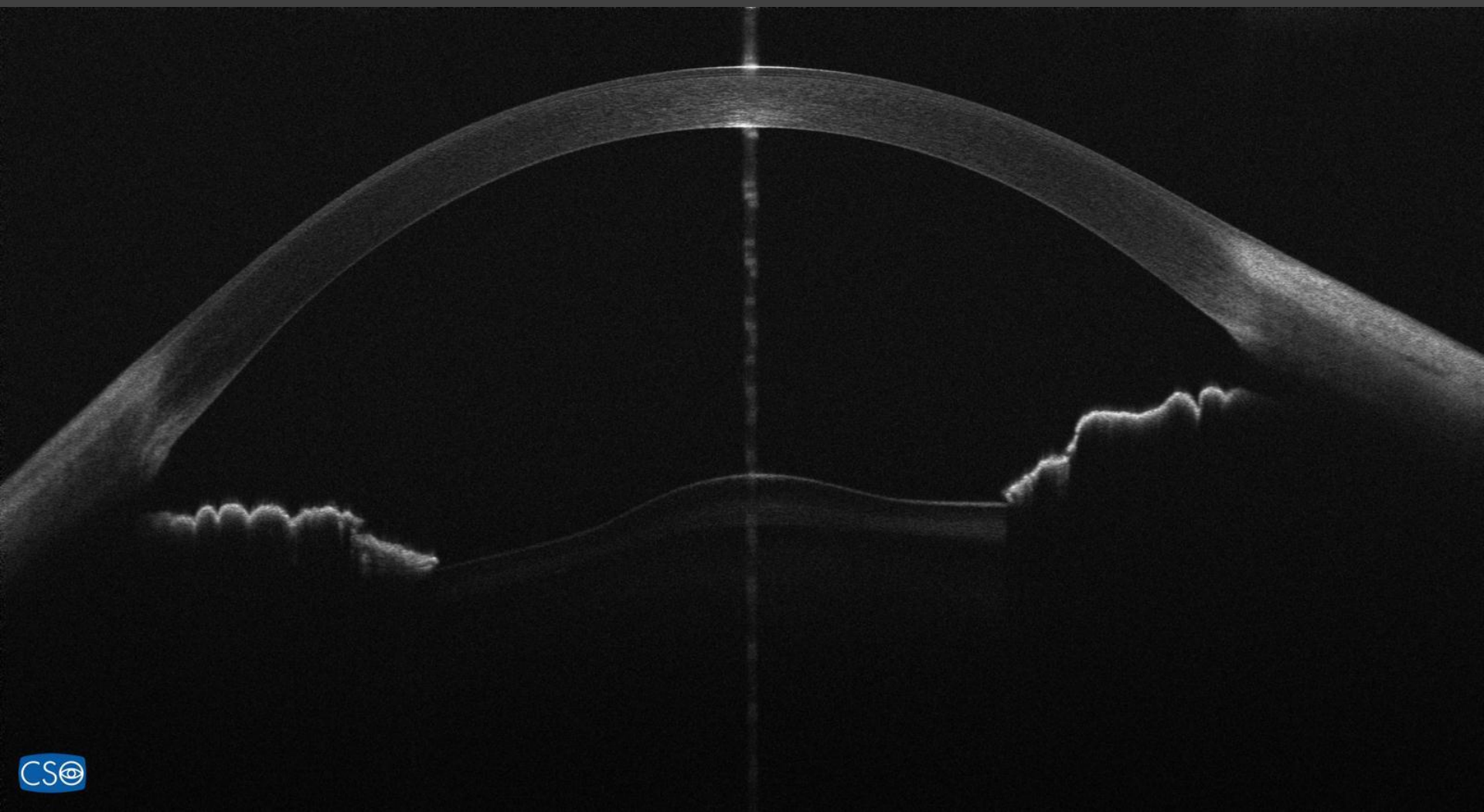


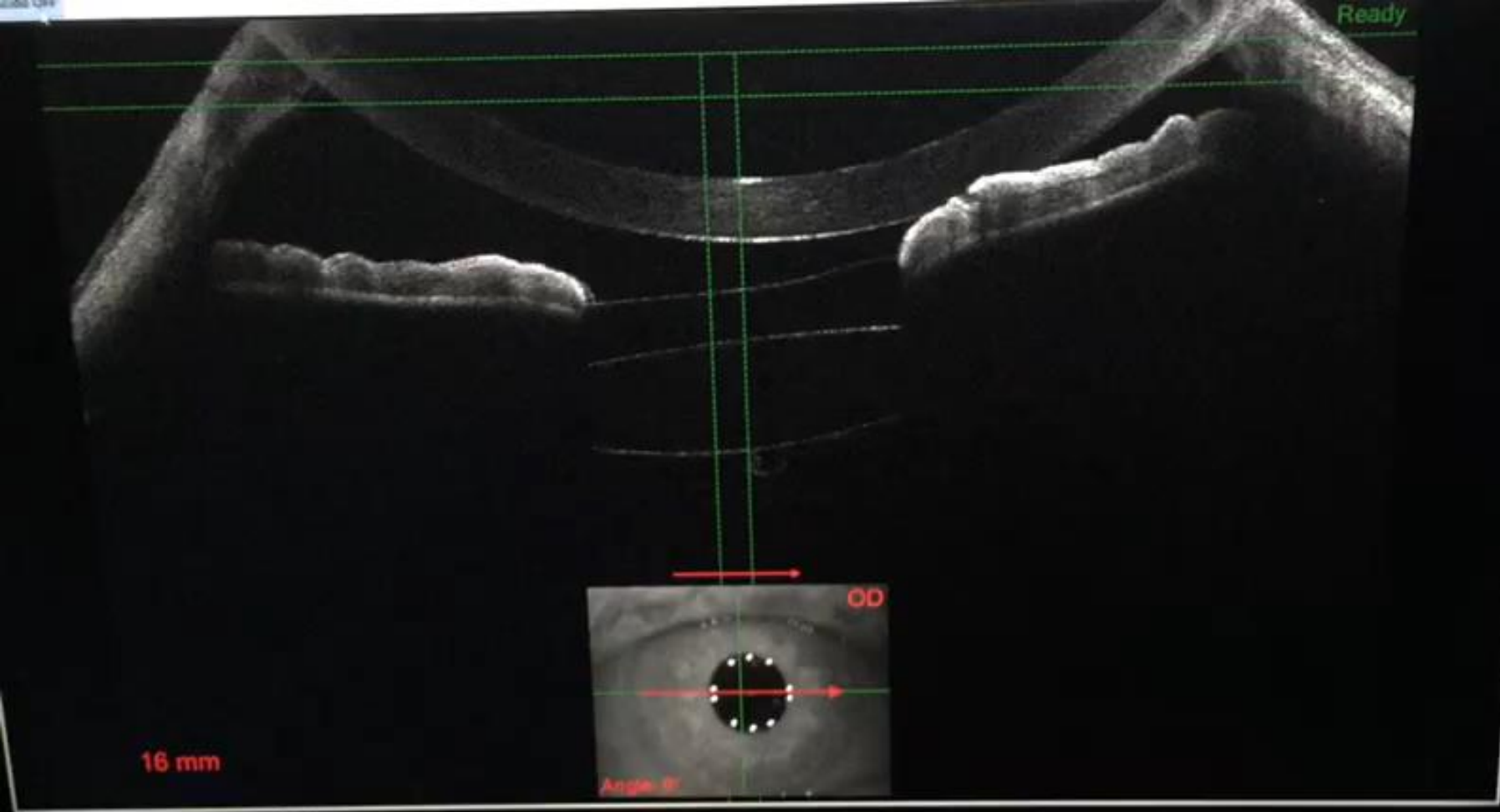


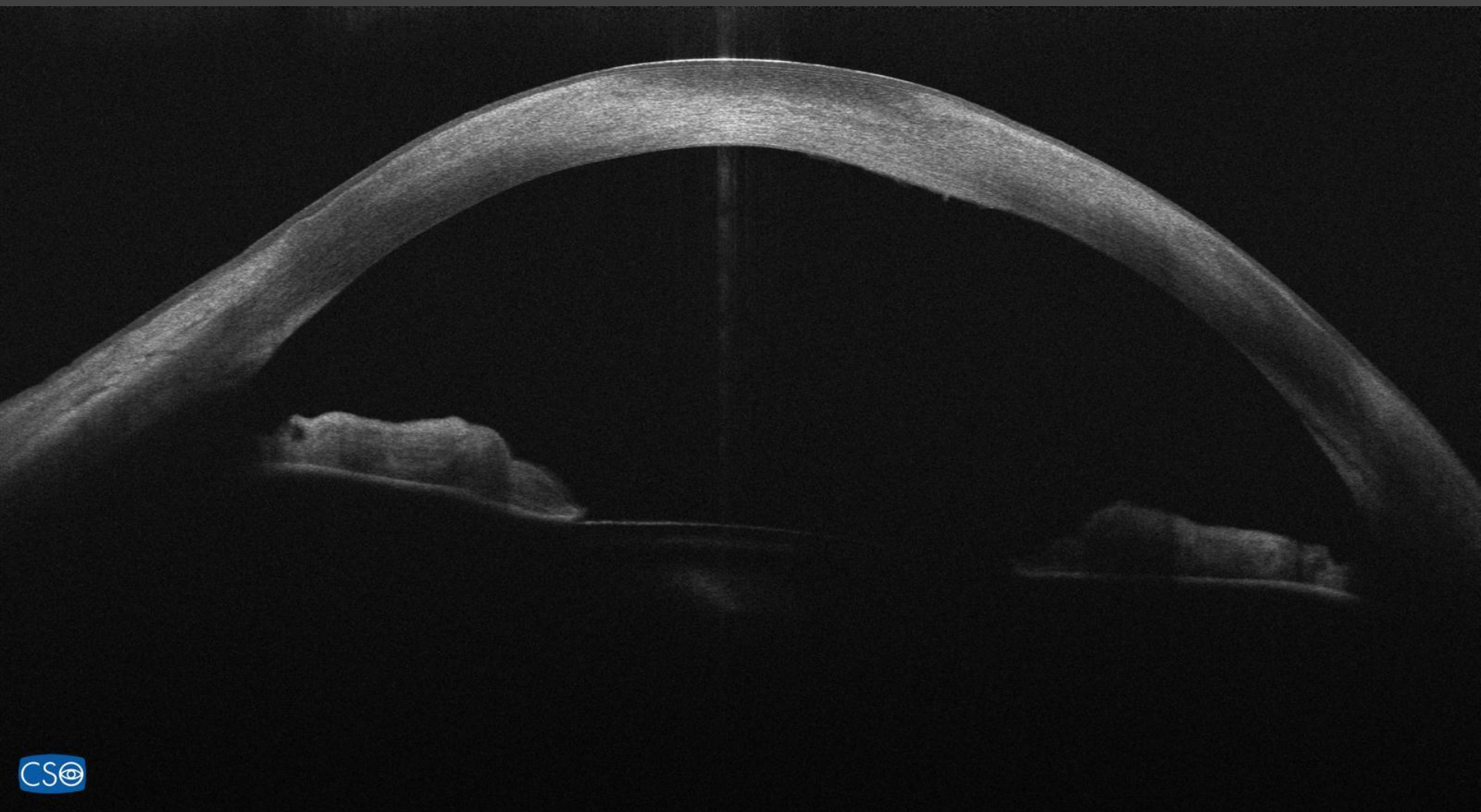


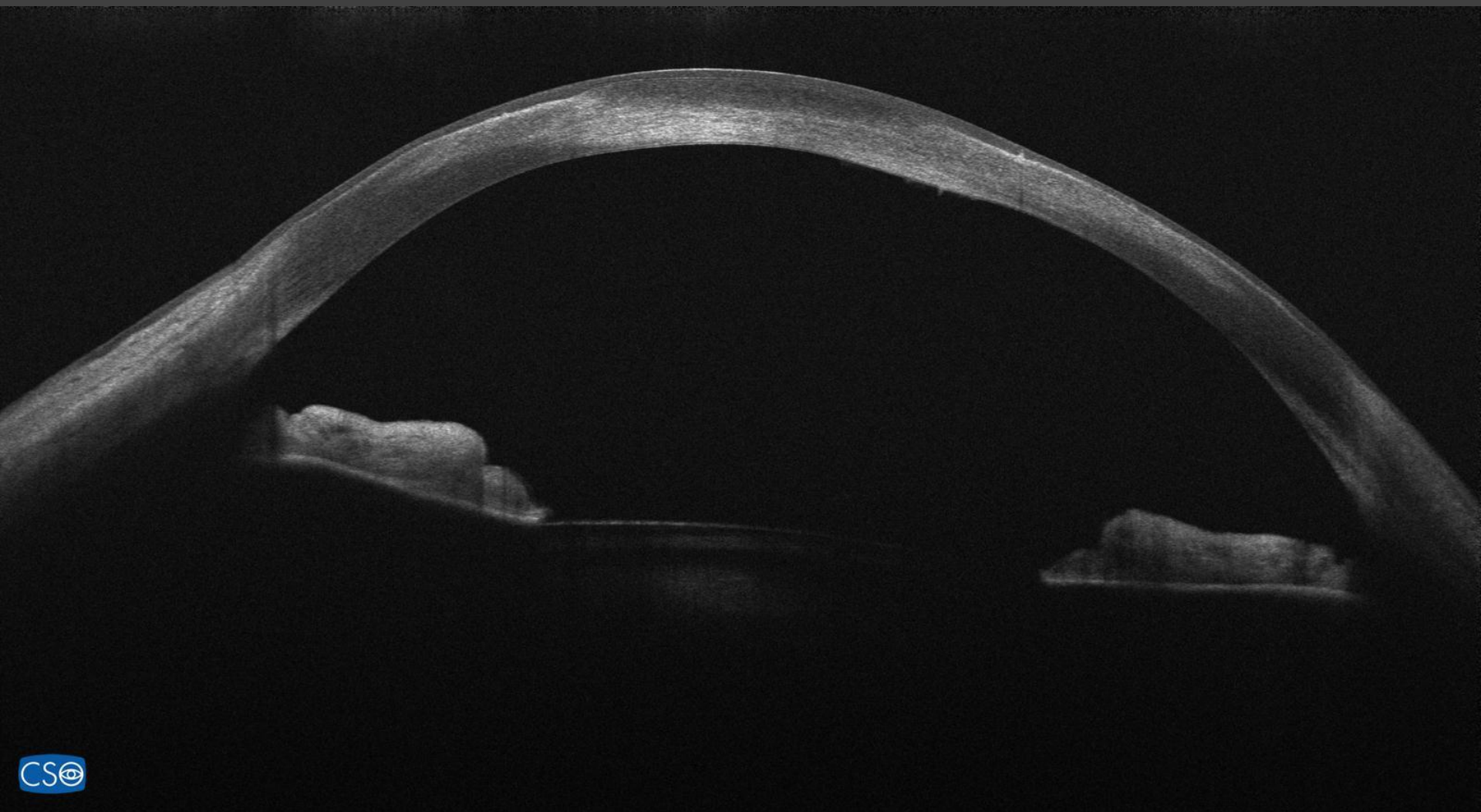


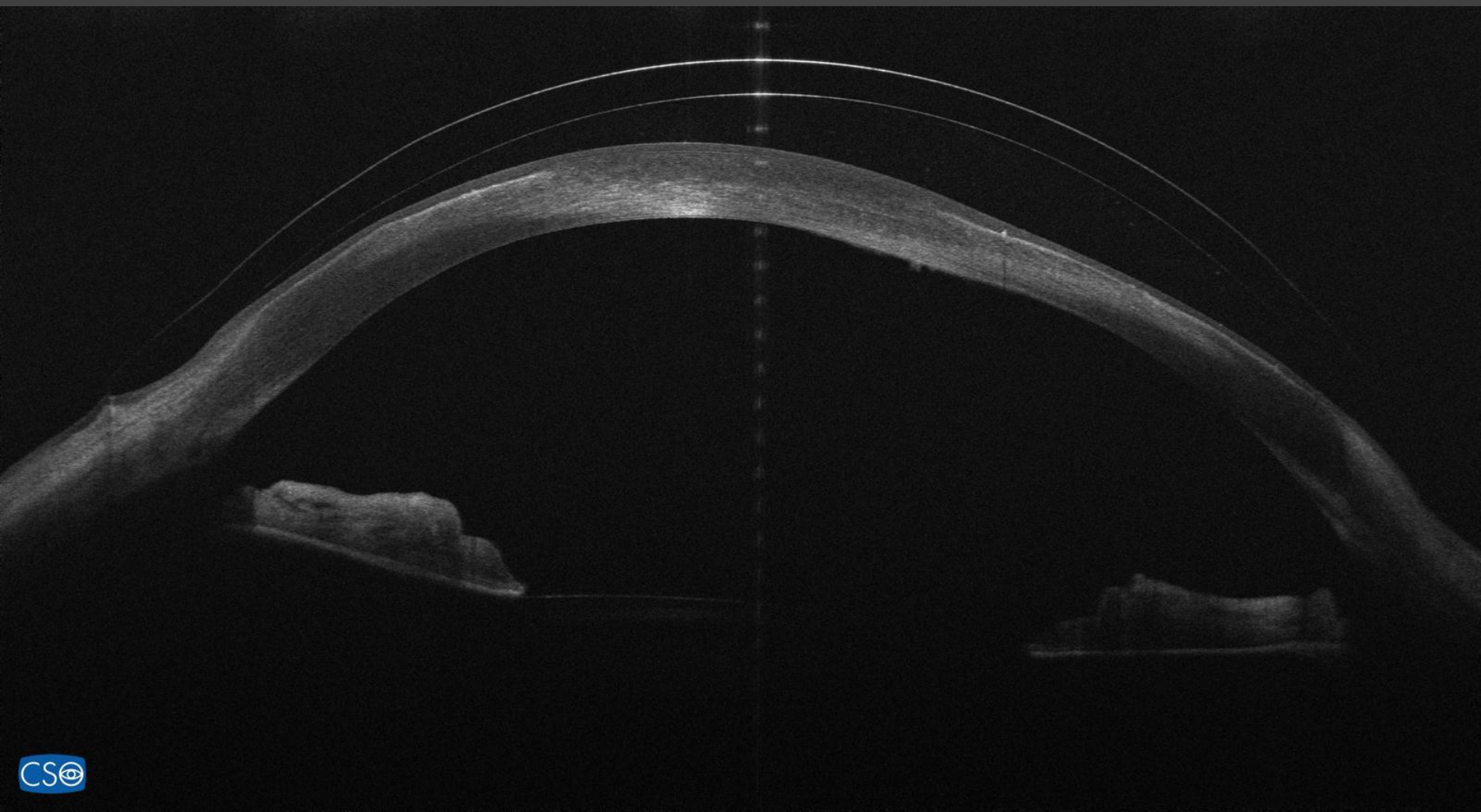


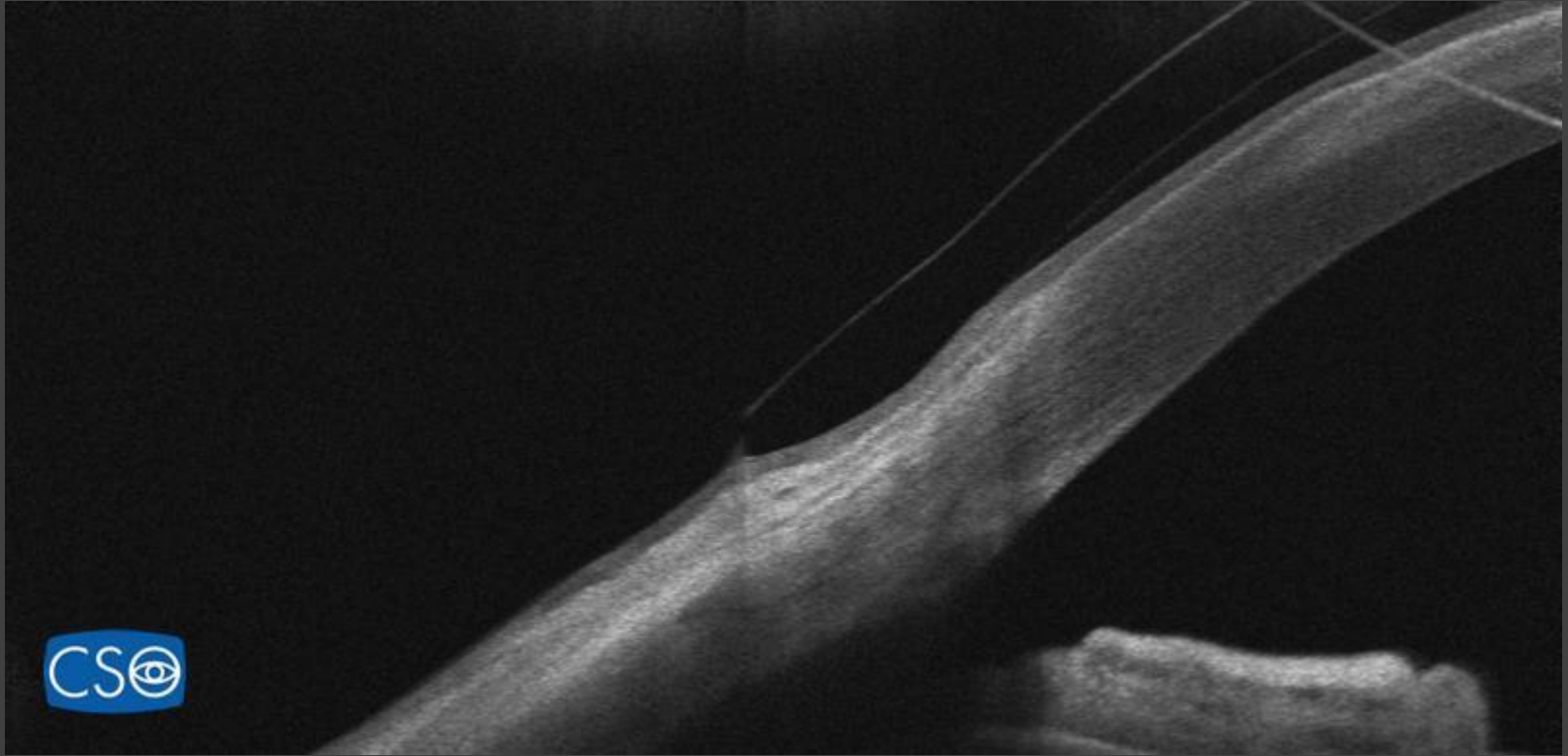


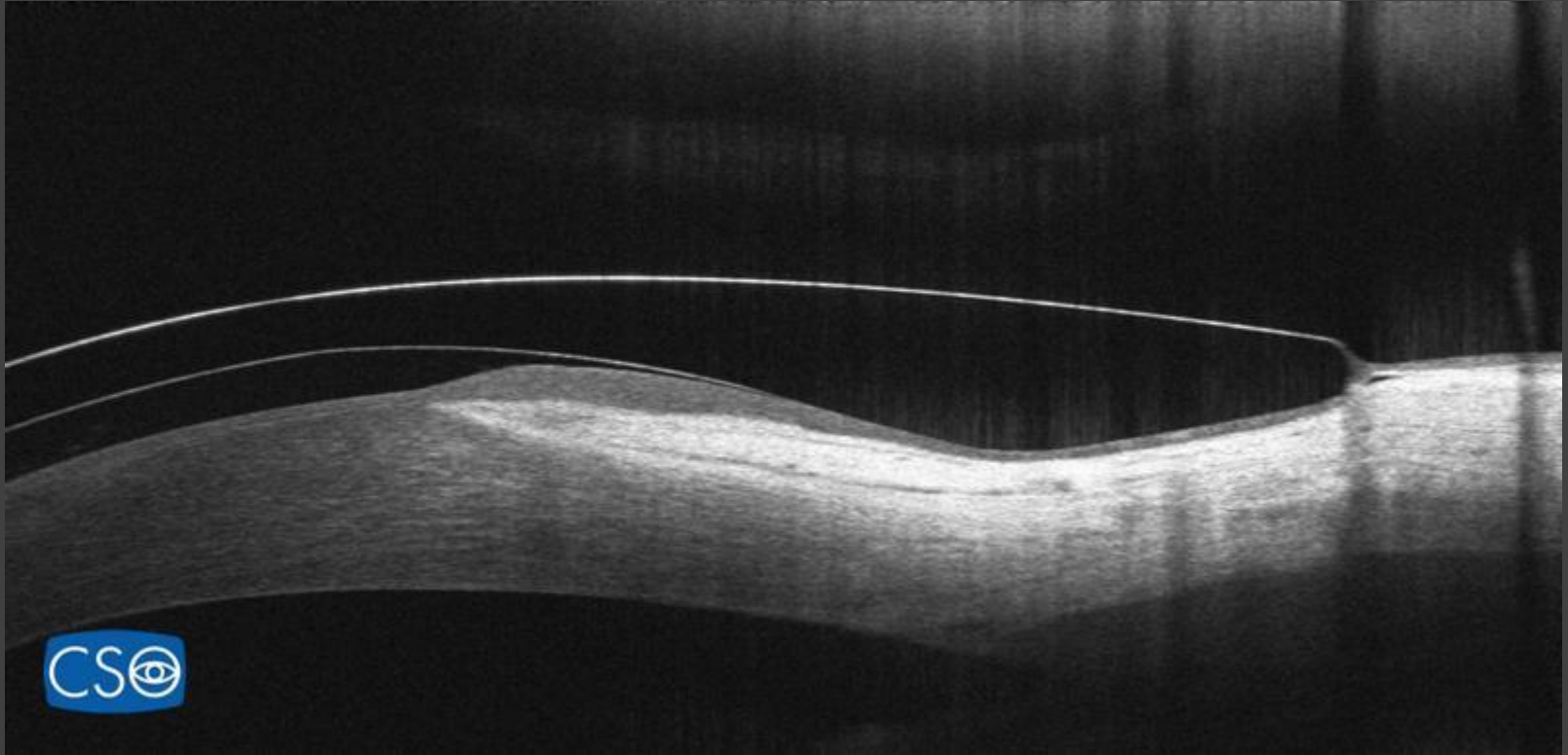


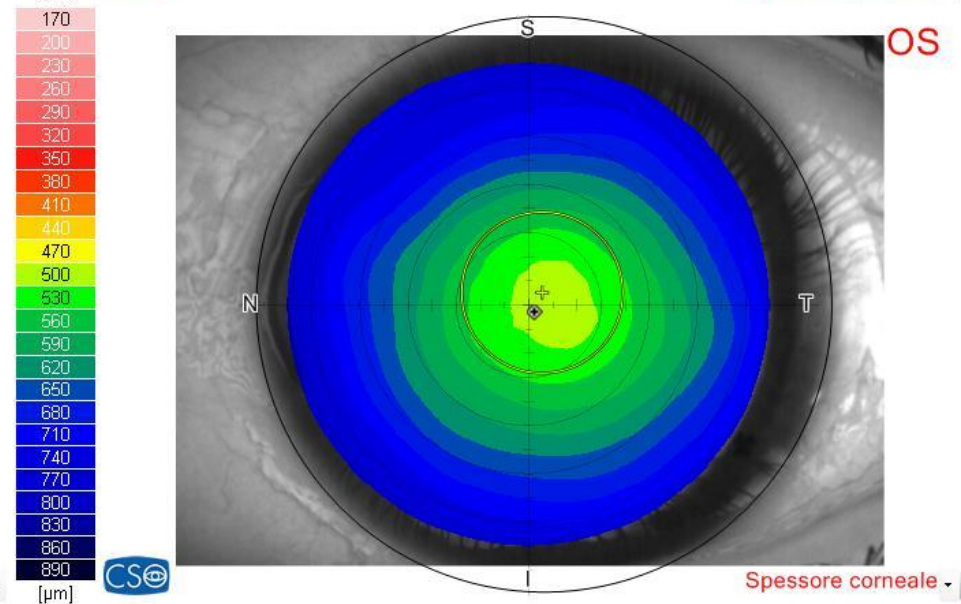
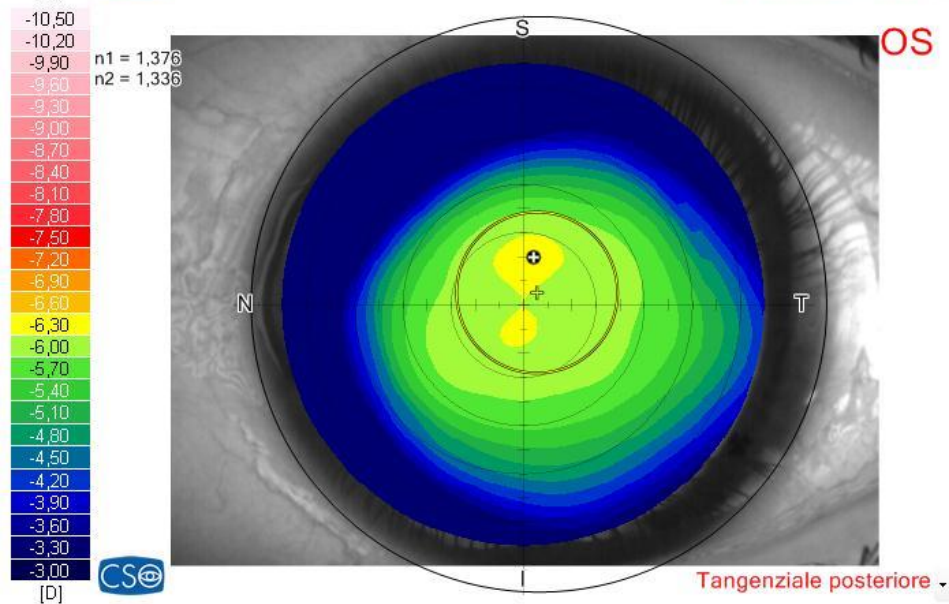
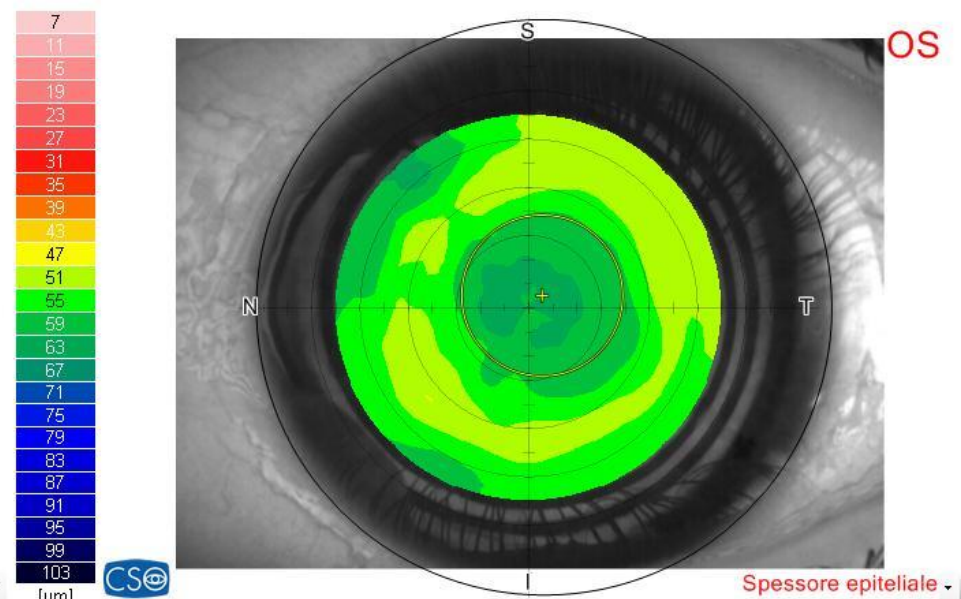
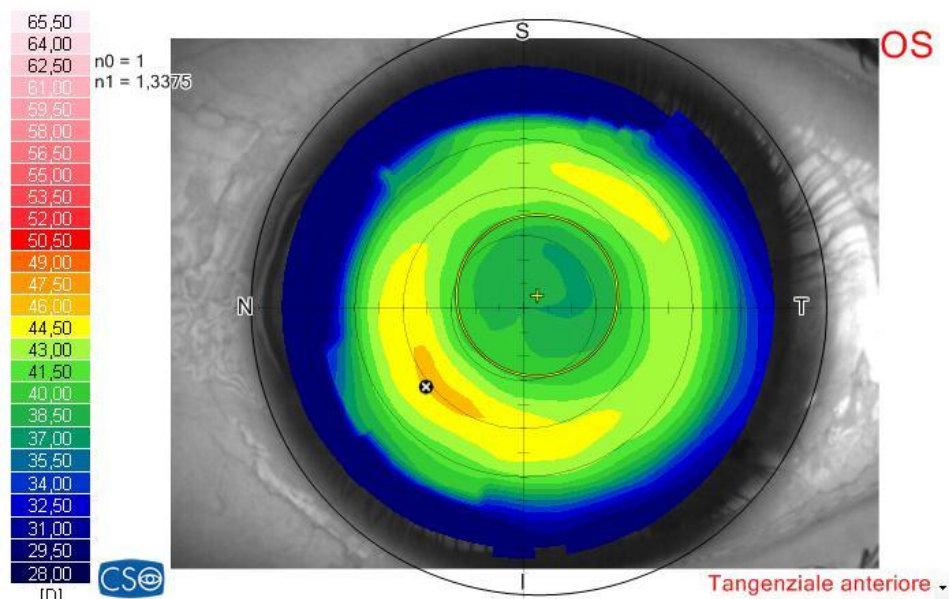


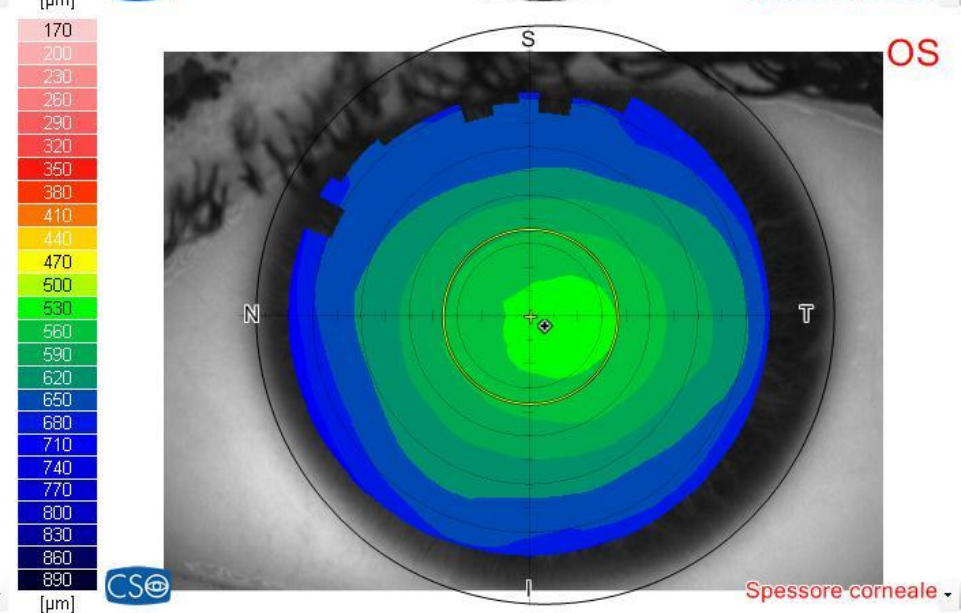
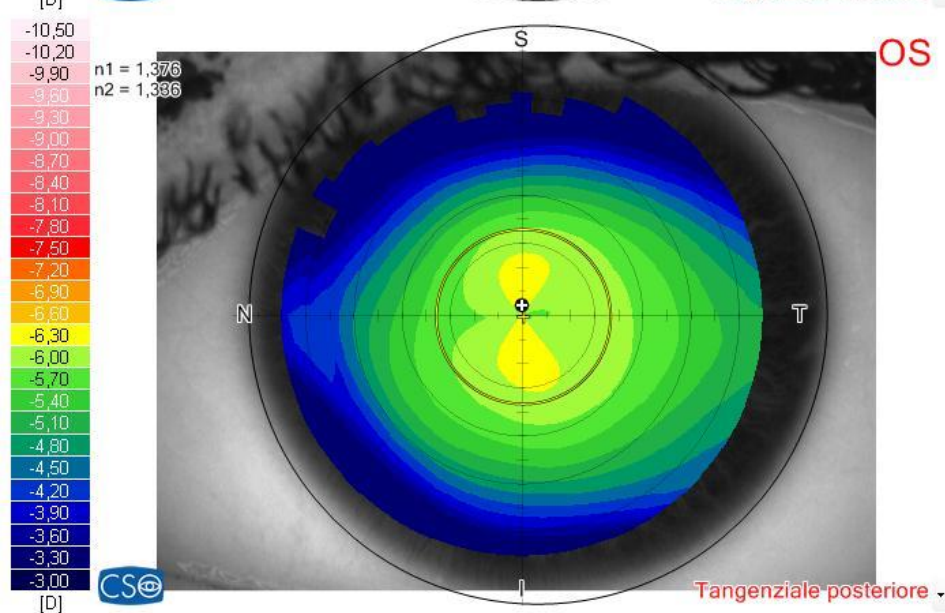
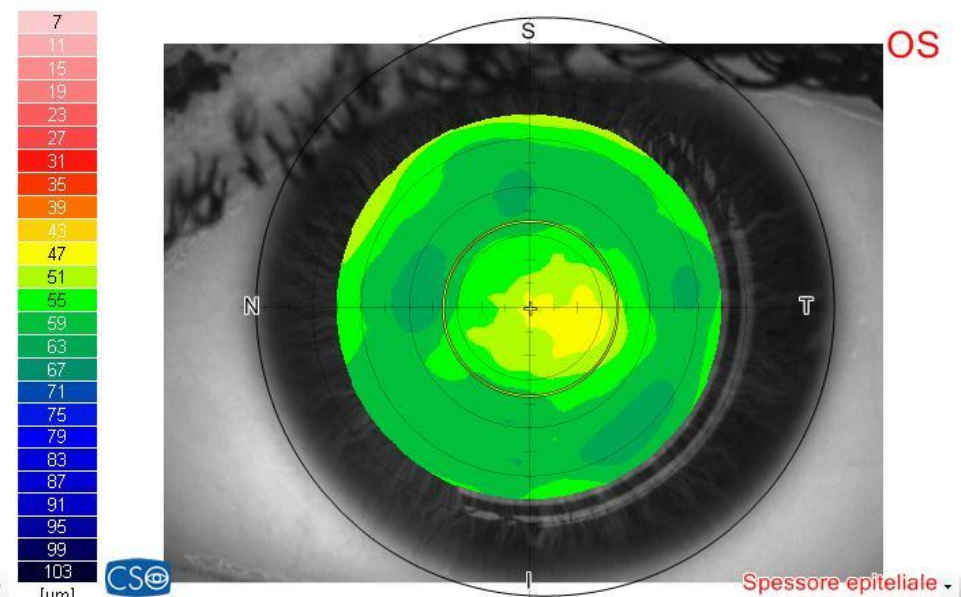
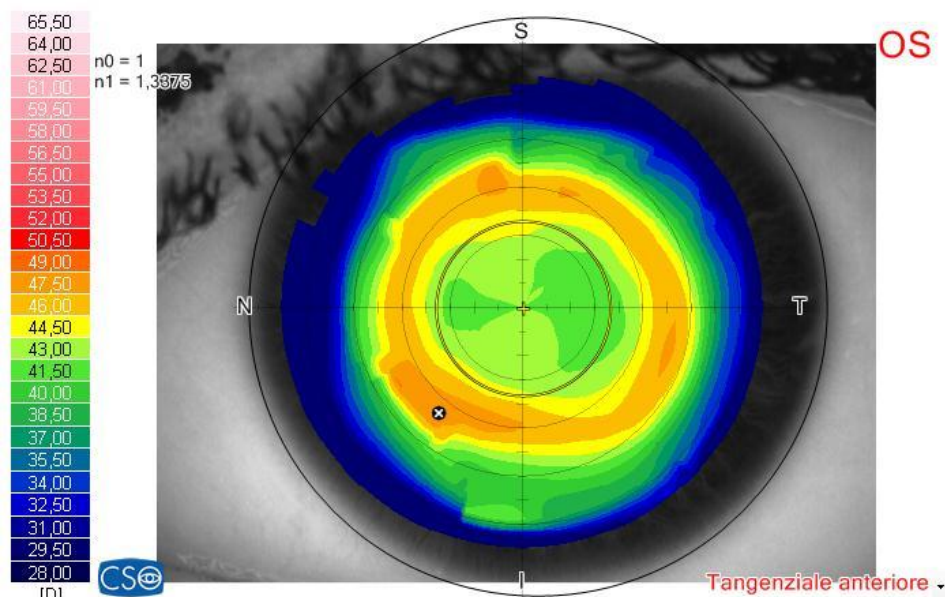












LASER VISION SA

A trusted name in vision

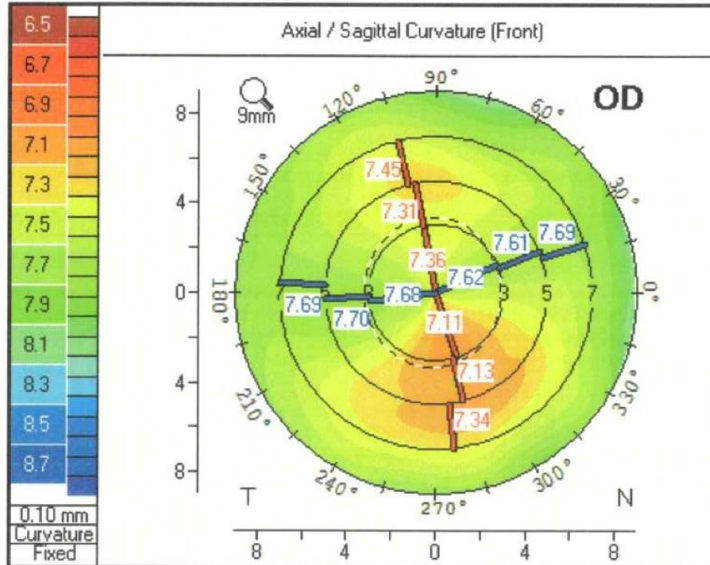
- PENTACAM Topometric / KC Staging

1.20r76

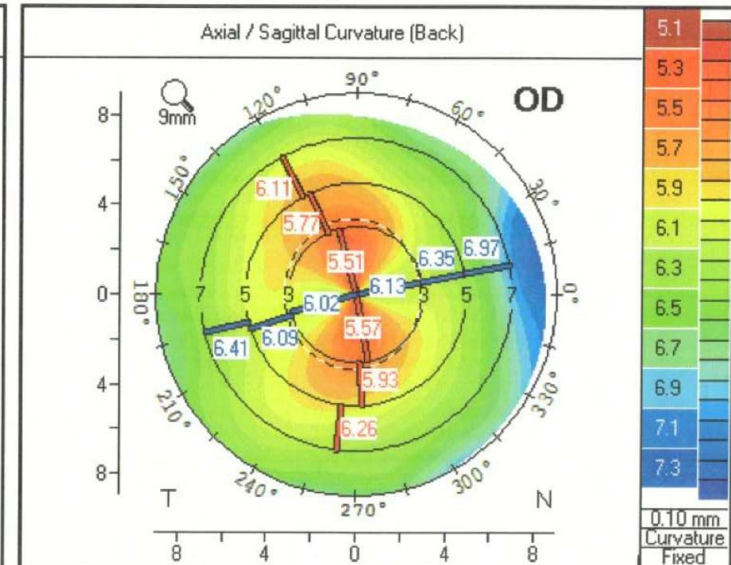
Schneider	
phn	
508101955	
8/10/1955	Eye: Right
0/09/2017	Time: 08:36:41

Cornea Front			
7.63 mm	K1:	44.2 D	
7.25 mm	K2:	46.5 D	
7.44 mm	Km:	45.3 D	
104.2°	Astig:	-2.3 D	
7.68 mm	Rmin:	7.10 mm	

Cornea Back			
6.10 mm	K1:	-6.6 D	
5.52 mm	K2:	-7.2 D	
5.81 mm	Km:	-6.9 D	
98.8°	Astig:	+0.7 D	



Belin ABCD Keratoconus Staging	



Asphericity (Front) of Major Meridians	

Courtesy Dr. Graham Fraenkel, M.D.

Identification code: P0386710146

Courtesy Dr. Graham Fraenkel, M.D.

THANK YOU !

MS-39

AS – OCT *by* CSO

Seeing is Believing with 840nm AS-OCT

How could I work without it before?



UNIVERSITÀ DEGLI
STUDI DI PARMA



CAMO
CENTRO AMBROSIANO OFTALMICO