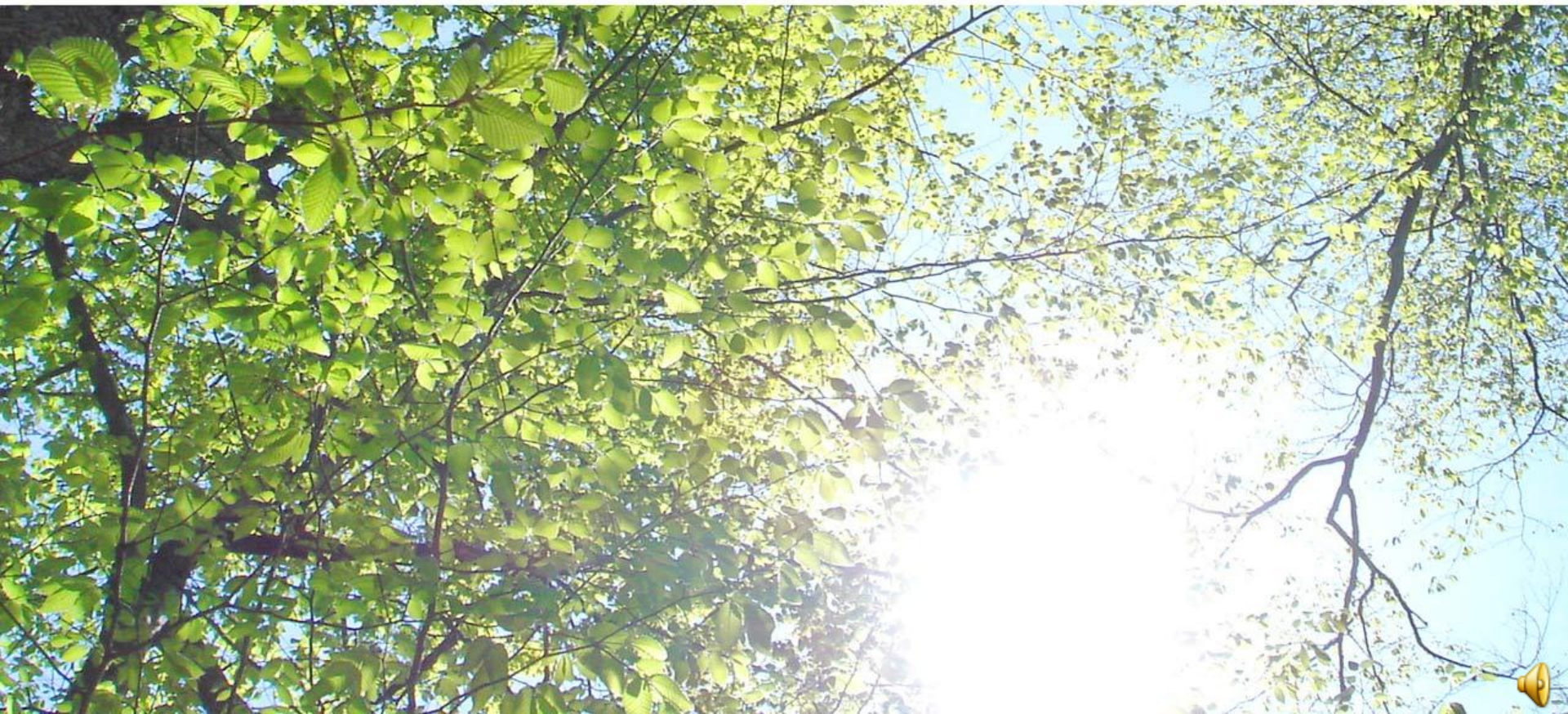




Republic of Kazakhstan, Astana city

ASTANA
VISION





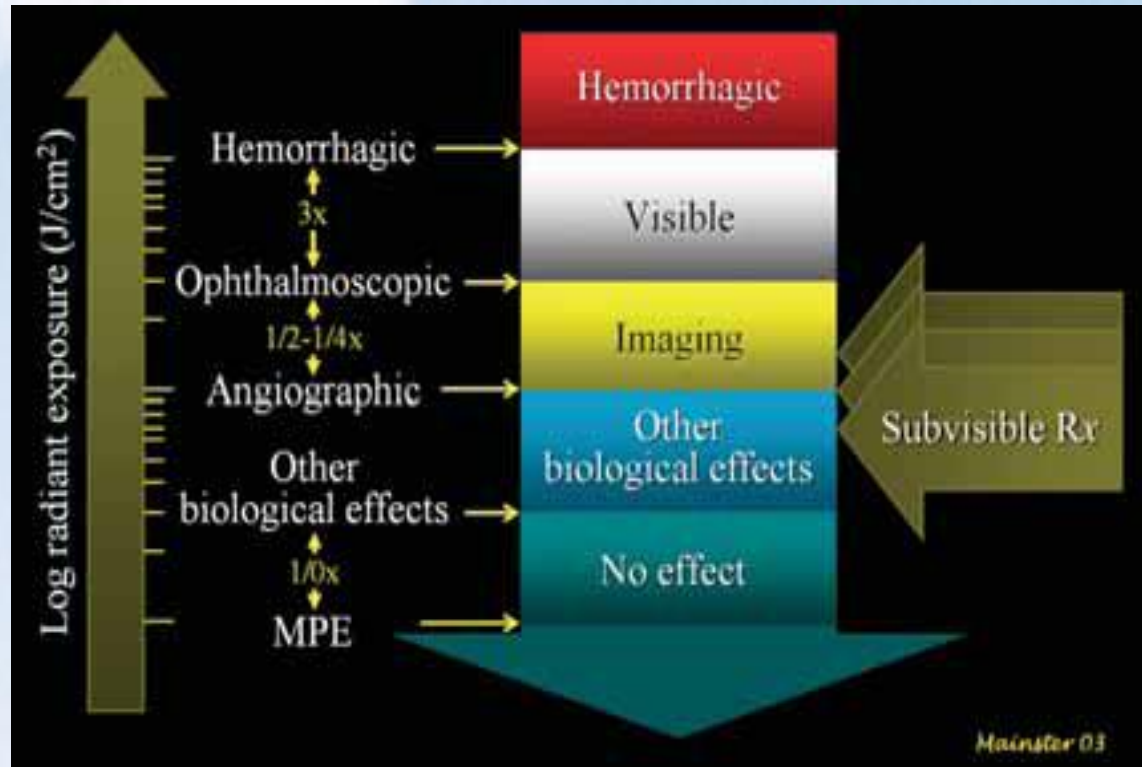
көзді түзету орталығы
ASTANA
VISION
ЦЕНТР КОРРЕКЦИИ ЗРЕНИЯ

Sub-Threshold MicroPulse Yellow 577 Laser Treatment of Retinal Diseases

Igor Remesnikov, MD

**Sub-Threshold MicroPulse
Yellow 577 Laser Treatment
(SMPT) – non-coagulative
method!!!**

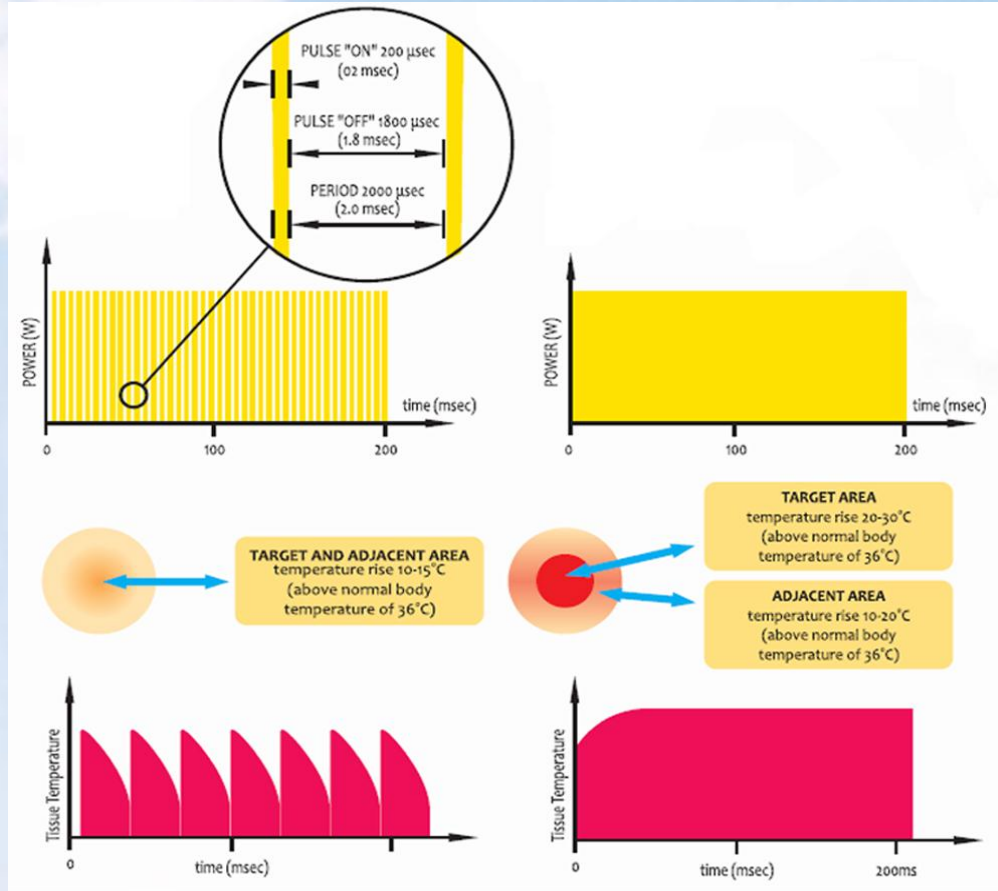
Biological effects from laser on eye fundus



There are different damage thresholds and potential treatment endpoints for clinical laser therapy

SMPT Method

MP →



← **CW**

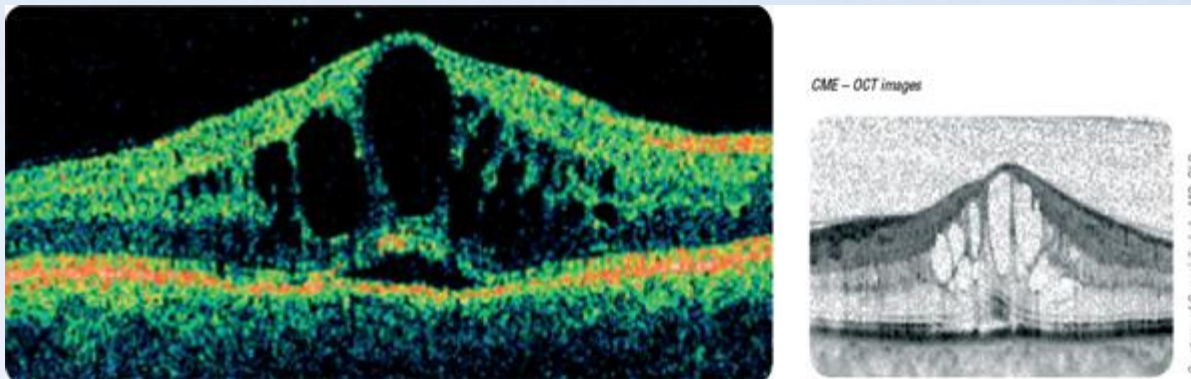
- Prevents laser induced thermal retinal damage and related treatment side effects
- Stimulates RPE, releases the cytokines that modify the genetic expression and the production of VEGFs
- Ideal for treatment in Macular Zone
- Completely painless, Repeatable

CME AFTER CATARACT SURGERY

Some new treatments now under investigation include anti-VEGF therapy
by Roibeard O'hEineachain

Posted in: **EUROTIMES** ESCRS, April 2014

Studies suggest that clinical, symptomatic **CME occurs in 0.1 % - 2.35 %** of eyes undergoing cataract surgery when prophylactic measures are taken. **Angiographic CME occurs at least 10 times as often**. Chronic CME occurs in about **1% - 2%** of uncomplicated cases and in about **8%** of complicated cases. The inflammatory condition typically occurs from 4-12 weeks after surgery and its incidence reaches its peak at 4-6 weeks postoperatively. Patients will commonly complain of impaired vision after an initial period of improved vision. OCT examination is usually sufficient to confirm the diagnosis.



NB! No any notice about SMPT in these article, about **“Some New Treatments”** !

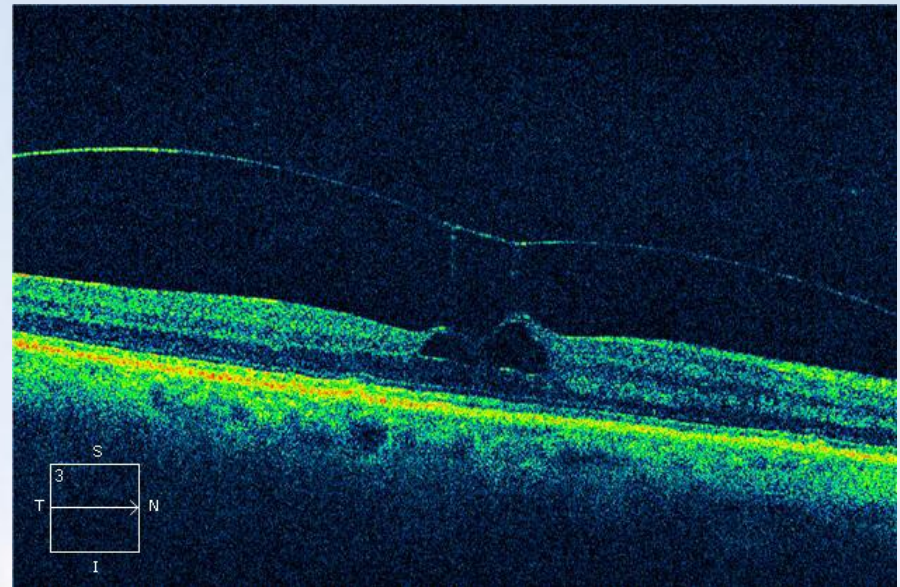
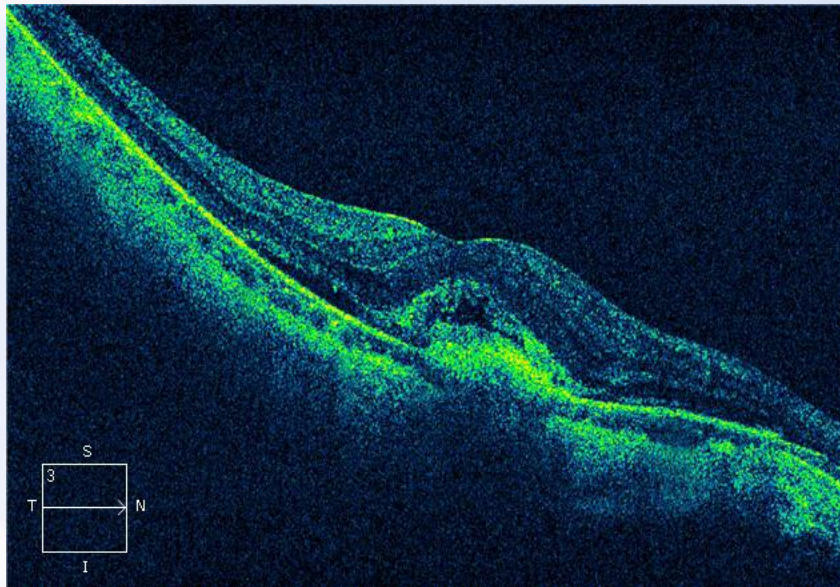
Indications

- Macular Edema (CME, DME)
- CSC (Neurosensory Retinal Serous Detachment)
- Serous Detachment of the RPE
- Soft drusen of the RPE

Contrindications

➤ CNV

➤ Vitreomacular Traction Syndrome



LightLas YAG/Combo 577 (LightMed)



TREATMENT PARAMETERS

Parameters	Pre-Treatment Test Burn	SMPT
Emission Mode	CW	MicroPulse
SLA Spot Size	100 μ m	
Surgical Contact Lens& Magnification	Mainster Focal Grid 1X	
Duration	0.2 sec	
Duti Cycle	100% (CW)	10% (MP)
Power	Starting at 60 mW and increase power with 10 mW steps, every on a new location, until barely visible lesion is seen	2X power determined in the test burn
Technique	Performed outside vascular arcades	Dense treatment – contiguous pattern with the laser over the pathologic area based on OCT
Treatment Endpoint	Barely visible tissue reaction, as the coagulate of 0-I degree	Not visible – rely on objective post-treatment outcome measures (VA, OCT, FA)

Clinical Cases

- No previous or subsequent treatment with anti-VEGF intravitreal injections, except CW focal-grid coagulation in macular zone in some cases
- Now we starting to combine the SMPT with the anti-VEGF intravitreal injections

Case Report № 1

Patient: 73 yo female

DS: DME, Pseudophakia OS

Pre-Op

VOS = 0.05 = 20/400 =

1.3 logMAR

CRT = 616 μm

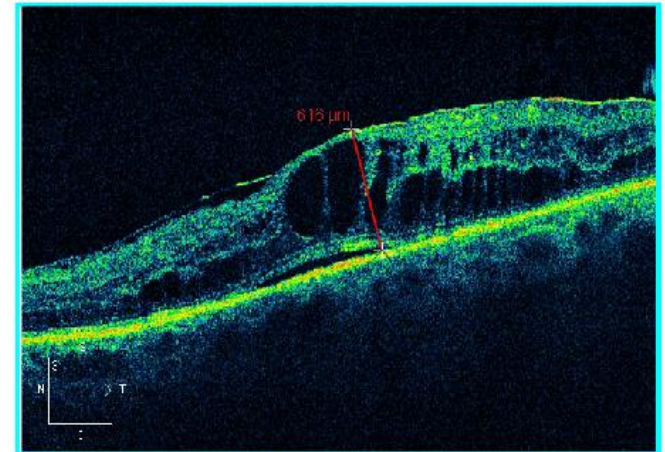
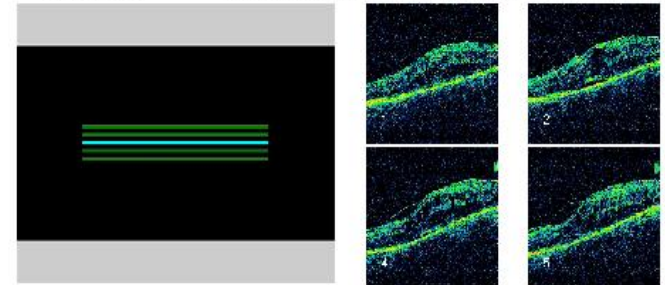
**Nd:YAG Laser Capsulotomy for
PCO: 05/28/2013**

Sandwich technique -

**Focal Grid CW MZ coagulation
+ SMPT OD: 06/26/2013**

Name:	Faxrutdinova, Galina	ZEISS	
ID:	3168	Exam Date:	6/25/2013
DOB:	6/7/1941	Exam Time:	2:56 PM
Gender:	Female	Technician:	Operator, Cirrus
Doctor:		Signal Strength:	6/10
High Definition Images: 5 Line Raster			
		OD	<input type="radio"/> OS

Scan Angle: 0° Spacing: 0.25 mm Length: 6 mm



Comments	Doctor's Signature	SW Ver: 5.2.0.210 Copyright 2011 Carl Zeiss Meditec, Inc. All Rights Reserved Page 1 of 1
Analysis Altered: 4/2/2014 10:01 AM		

Case Report № 1

Patient: 73 yo female

DS: DME, Pseudophakia OS

9m Post-Op

VOS = 0.05 Sph+3.00 Cyl-0.50

Ax137° = 0.20 = 20/100 =
0.7 logMAR

Subnormal OCT foveal profile
OS

Name: Faxrutdinova, Galina

ID: 3168

DOB: 6/7/1941

Gender: Female

Doctor:

Exam Date: 4/1/2014

Exam Time: 3:19 PM

Technician: Operator, Cirrus

Signal Strength: 7/10



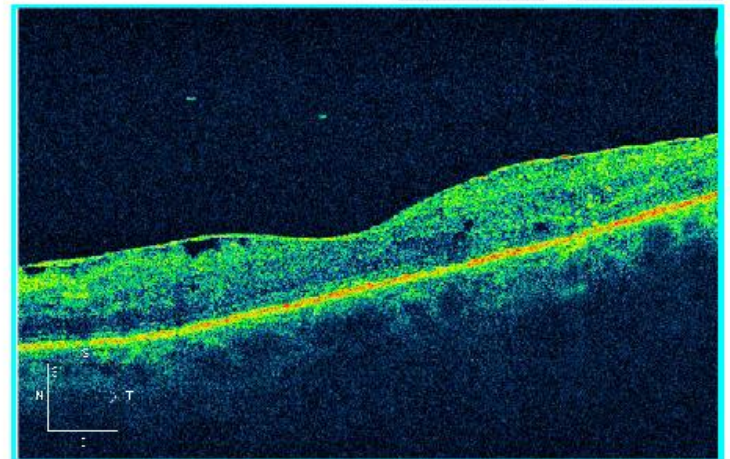
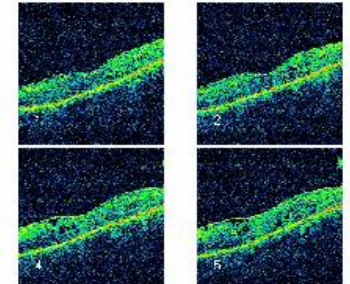
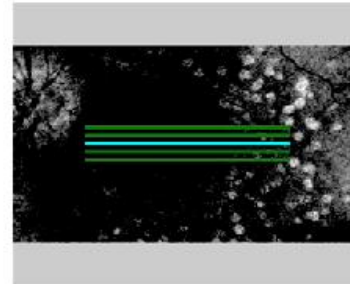
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



Comments

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Case Report № 2

Patient: 68 yo female
DS: CME, Pseudophakia OD

Pre-Op

VOD = 0.05 = 20/400 =
1.3 logMAR

CRT = 704 μm

SMPT OD: 03/02/2013

Name: Pogorelova, Valentina 12

ID: 1251

DOB: 3/14/1946

Gender: Female

Doctor:

Exam Date: 9/2/2013

Exam Time: 3:42 PM

Technician: Operator, Cirrus

Signal Strength: 8/10



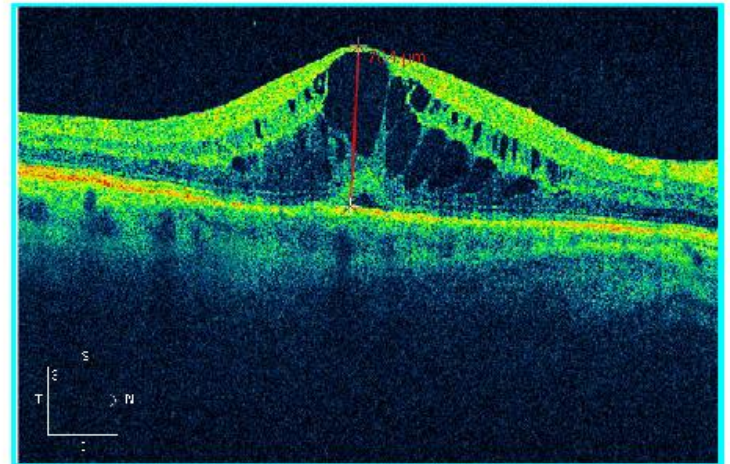
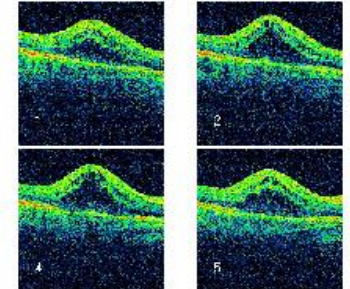
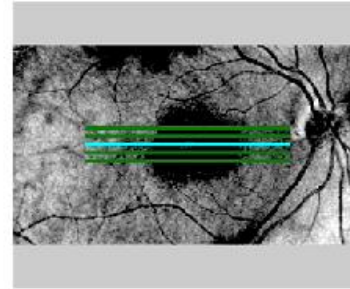
High Definition Images: 5 Line Raster

OD ☒ OS ☐

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



Comments

Doctor's Signature

Analysis Altered: 2/4/2014 9:12 AM

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Case Report № 2

Patient: 68 yo female
DS: CME, Pseudophakia OD

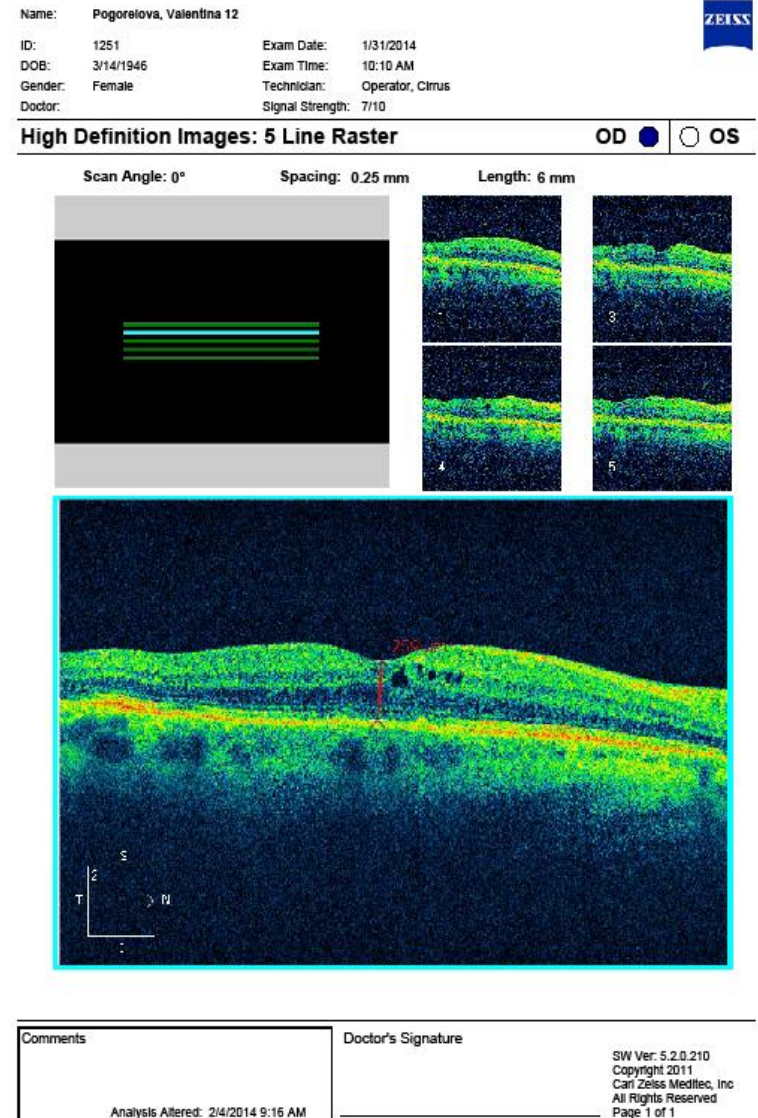
5m Post-Op

VOD = = 0,05 Sph-6.75

Cyl-1.75 Ax141° = 0.4
= 20/50 = 0.4 logMAR

CRT = 259 µm

Subnormal OCT foveal profile
OD



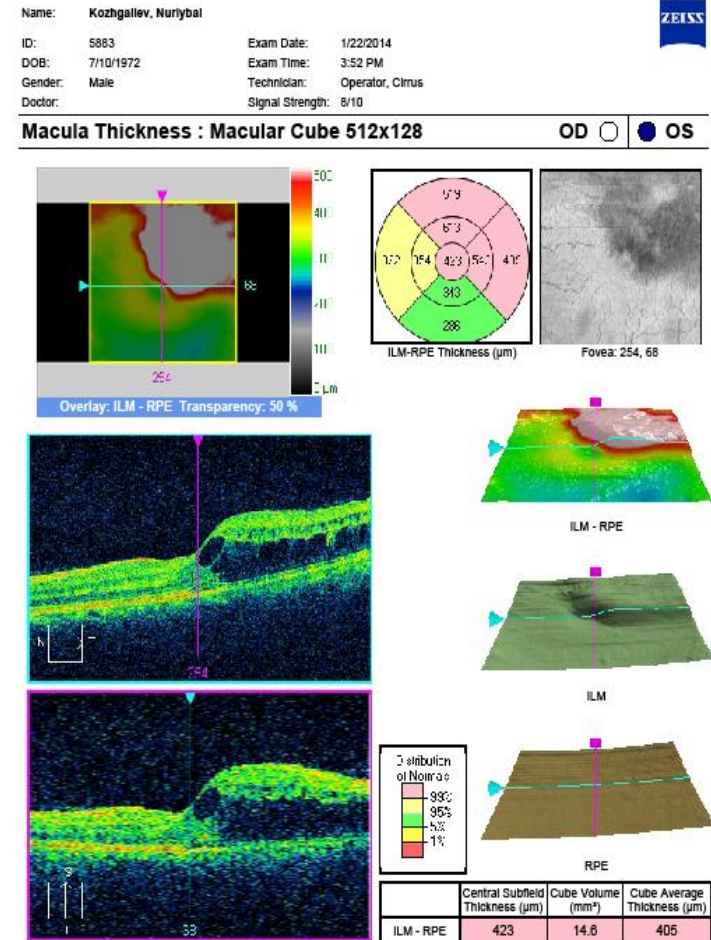
Case Report № 3

Patient: 42 yo male
DS: CME, BRVO OS

Pre-Op VOS = 0.2 = 20/100
= 0.7 logMAR

CRT = 628 μm

Sandwich technique -
Focal Grid CW MZ coagulation
+ SMPT OD: 02/03/2014



Comments

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Case Report № 3

Patient: 42 yo male
DS: CME, BRVO OS

Pre-Op

VOS = 0.2 = 20/100
= 0.7 logMAR

CRT = 628 μ m

Sandwich technique -
Focal Grid CW MZ coagulation
+ SMPT OD: 02/03/2014

Name: Kozhgaliev, Nuriybal
ID: 5863
DOB: 7/10/1972
Gender: Male
Doctor:
Exam Date: 1/22/2014
Exam Time: 3:53 PM
Technician: Operator, Cirrus
Signal Strength: 8/10
ZEISS

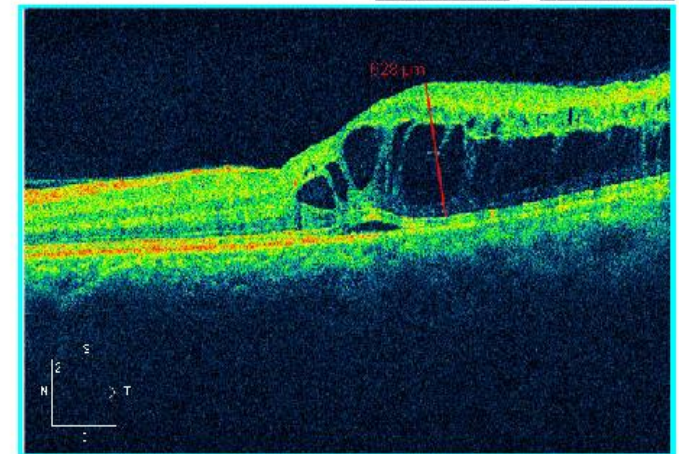
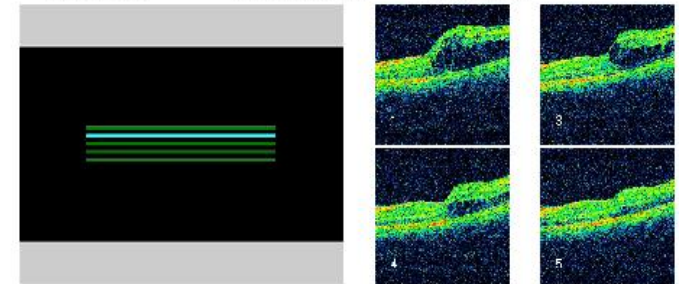
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OD ☐ OS ☒

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Comments

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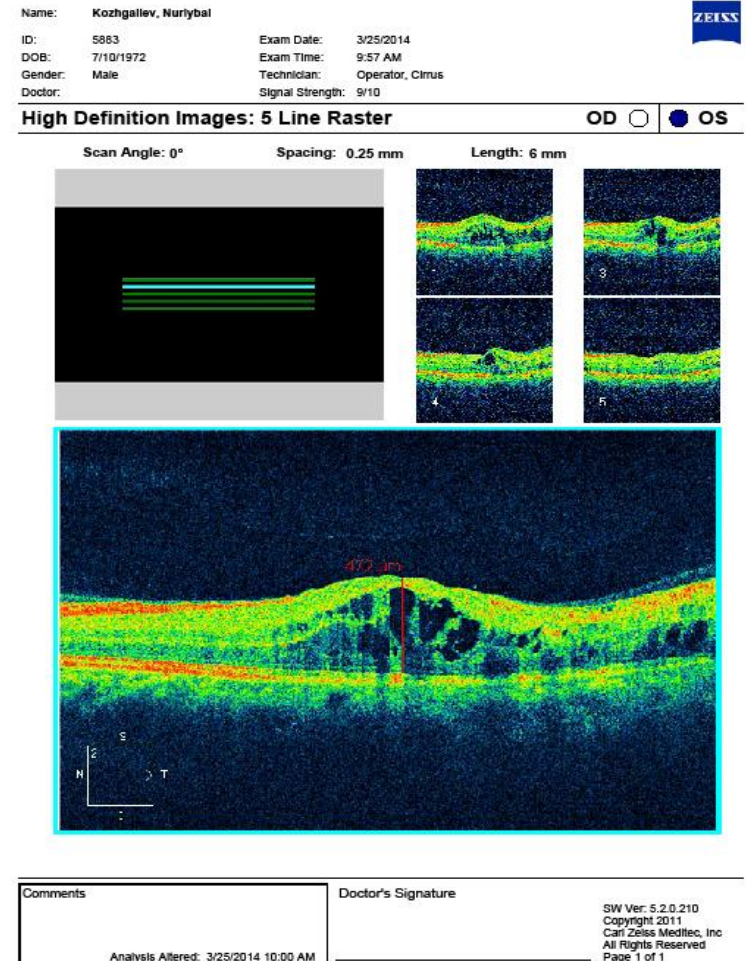
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Case Report № 3

Patient: 42 yo male
DS: CME, BRVO OS

1.5m Post-Op
VOS = 0.2 = 20/100 =
0.7 logMAR

CRT = 472 μm



Case Report № 3

Patient: 42 yo male
DS: CME, BRVO OS

3m Post-Op

VOS = 0.4 = 20/50 =
0.4 logMAR

Name: Kozhgaliev, Nuriybal
ID: 5883
DOB: 7/10/1972
Gender: Male
Doctor:
Exam Date: 4/30/2014
Exam Time: 10:21 AM
Technician: Operator, Citrus
Signal Strength: 9/10



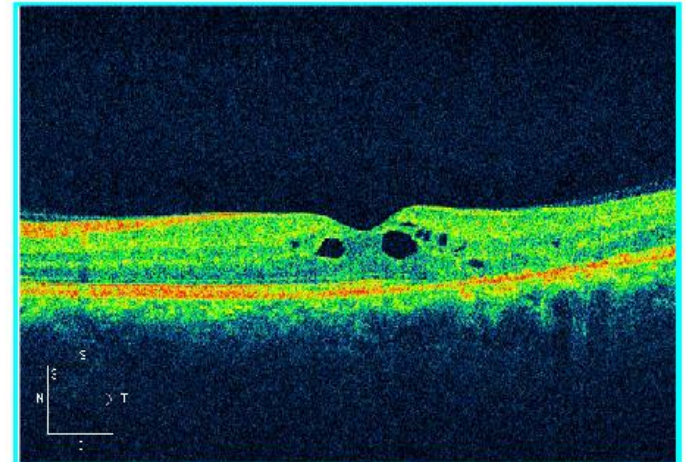
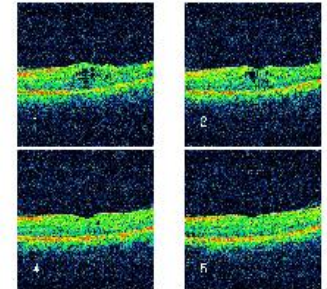
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Case Report № 3

Patient: 42 yo male
DS: CME, BRVO OS

3,5m Post-Op

VOS = 0.6 = 20/32 =
0.2 logMAR

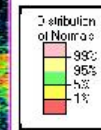
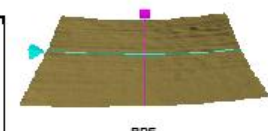
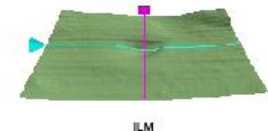
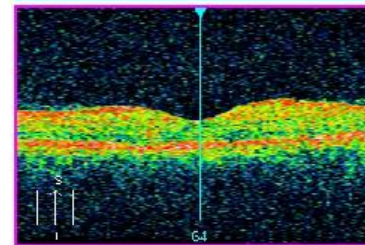
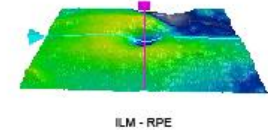
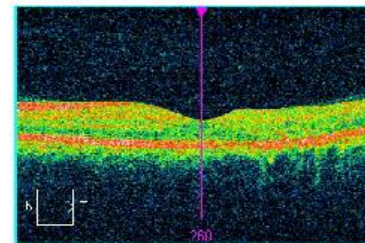
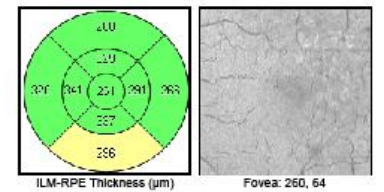
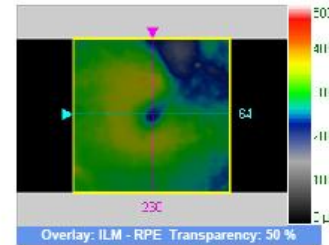
CRT = 261 μ m

Name: Kozhgaliev, Nuriybal
ID: 5883
DOB: 7/10/1972
Gender: Male
Doctor:
Exam Date: 5/17/2014
Exam Time: 10:26 AM
Technician: Operator, Citrus
Signal Strength: 10/10



Macula Thickness : Macular Cube 512x128

OD ☐ OS ☒



	Central Subfield Thickness (μ m)	Cube Volume (mm^3)	Cube Average Thickness (μ m)
ILM - RPE	261	10.5	290

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Case Report № 3

Patient: 42 yo male
DS: CME, BRVO OS

3.5m Post-Op

VOS = 0.6 = 20/32 =
0.2 logMAR

CRT = 261µm

Name: Kozhgaliev, Nuriybal
ID: 5883
DOB: 7/10/1972
Gender: Male
Doctor:
Exam Date: 5/17/2014
Exam Time: 10:27 AM
Technician: Operator, Citrus
Signal Strength: 10/10



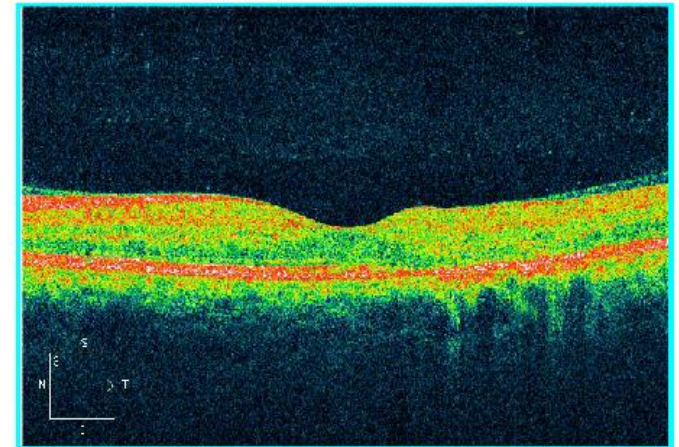
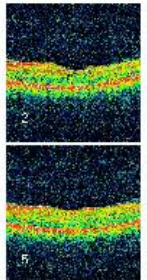
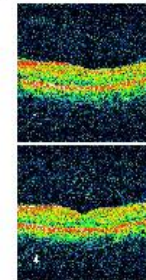
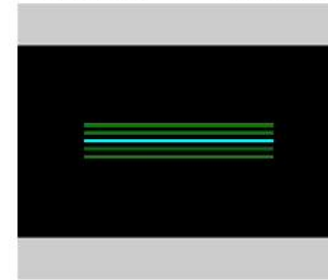
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OD ☐ OS ☒

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Spacing: 0.25 mm

Length: 6 mm



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Case Report № 4

Patient: 76 yo female
DS: CNV, wet-AMD **OS**

$$\text{VOS} = 0.01 = 20/2000 = 2 \log\text{MAR}$$

Name: Zhukovina, Tamara

ID: 4266

DOB: 7/27/1938

Gender: Female

Doctor:

Exam Date: 4/3/2014

Exam Time: 12:02 PM

Technician: Operator, Citrus

Signal Strength: 6/10



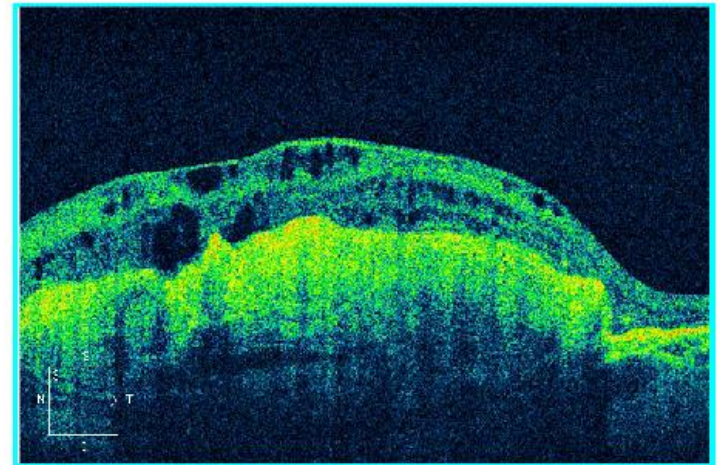
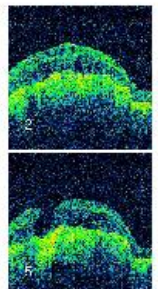
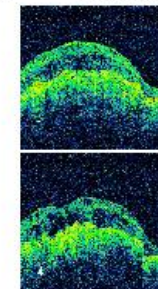
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Case Report № 5

Patient: 76 yo female
DS: RPE Detachment OD

Pre-Op

VOD = 0.05 = 20/400 =
1.3 logMAR

CRT = 873 μm

SMPT OD: 04/17/2014

Name: Zhukovina, Tamara

ID: 4266

DOB: 7/27/1938

Gender: Female

Doctor:

Exam Date: 4/17/2014

Exam Time: 12:18 PM

Technician: Operator, Cirrus

Signal Strength: 6/10



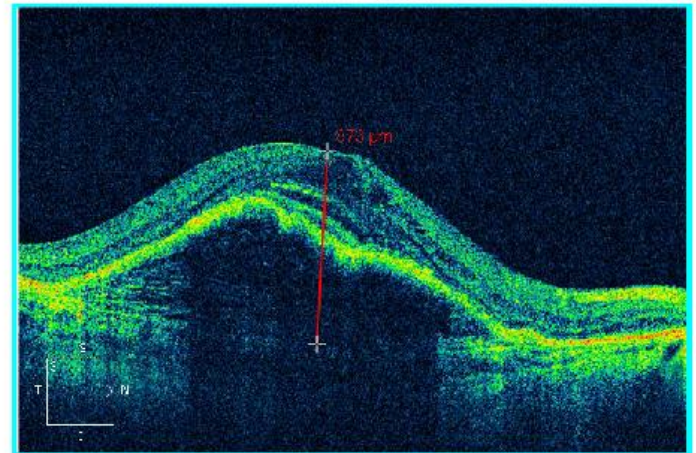
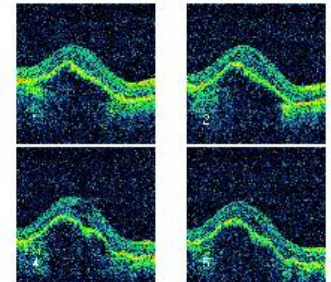
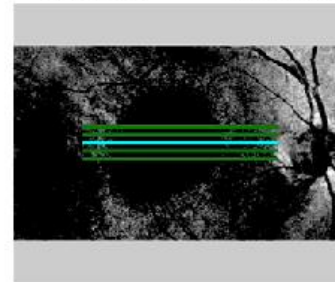
High Definition Images: 5 Line Raster

OD ☒ OS ☐

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Page 1 of 1

Case Report № 5

Patient: 76 yo female
DS: RPE Detachment OD

1.5m Post-Op

VOD = 0.1 sph+ 3.25 cyl+0.25 ax
132° = 0,4 = 20/50
= 0.4 logMAR

CRT = 183 μm

Name: Zhukovina, Tamara
ID: 4266
DOB: 7/27/1938
Gender: Female
Doctor:
Exam Date: 5/29/2014
Exam Time: 12:03 PM
Technician: Operator, Cirrus
Signal Strength: 6/10



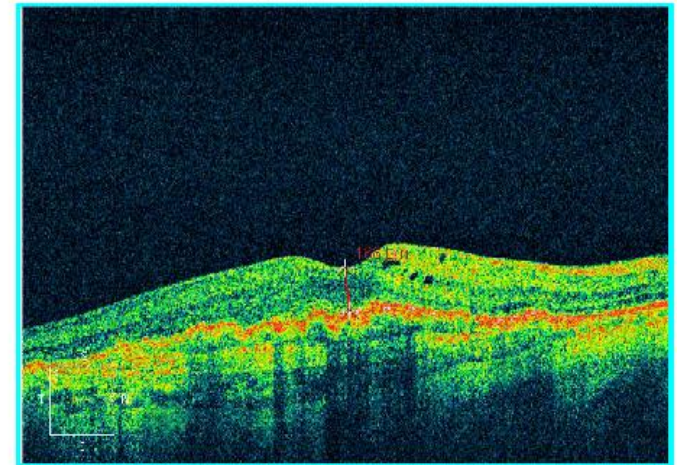
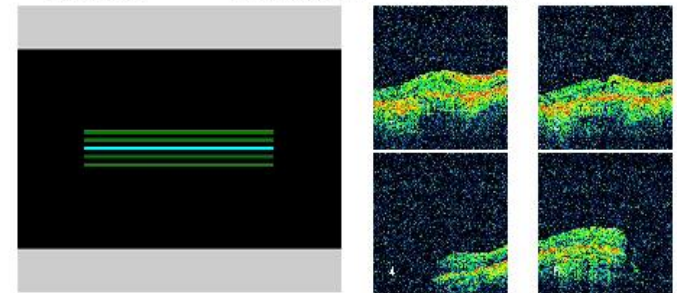
High Definition Images: 5 Line Raster

OD ☒ OS ☐

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Central serous chorioretinopathy (CSC)



Case Report № 6

Patient: 55 yo male
DS: CSC OS

Pre-Op

VOS = 0.1 = 20/200 = 0.8

logMAR

CRT = 736 μm

SMPT OD: 02/25/2014

Name: Karligashev, Meiram

ID: 6292

DOB: 7/1/1958

Gender: Male

Doctor:

Exam Date: 2/24/2014

Exam Time: 9:54 AM

Technician: Operator, Cirrus

Signal Strength: 6/10



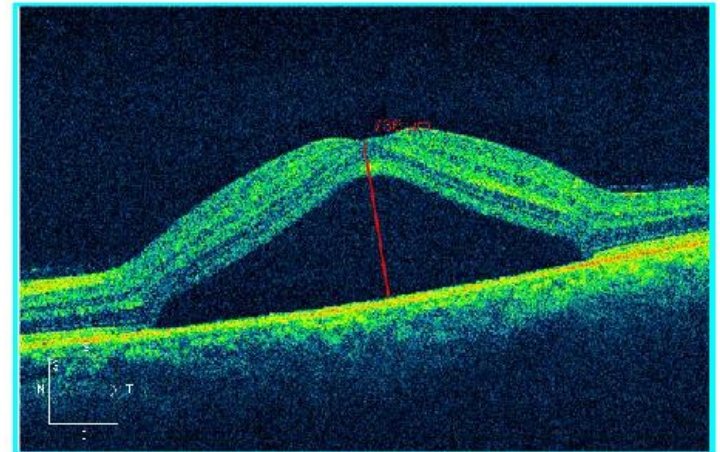
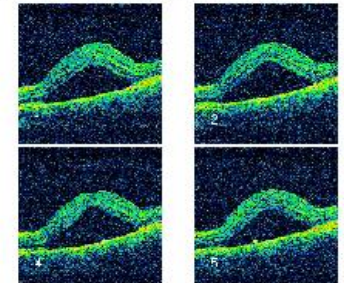
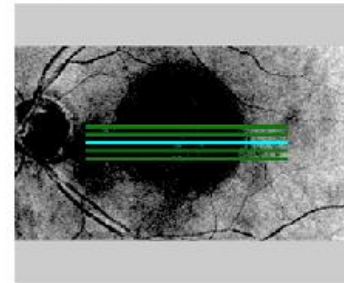
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Page 1 of 1

Case Report № 6

Patient: 55 yo male
DS: CSC OS

2w Post-Op

CRT = 297 μm

Name: Karligashev, Melram

ID: 6292

DOB: 7/1/1958

Gender: Male

Doctor:

Exam Date: 3/17/2014

Exam Time: 10:23 AM

Technician: Operator, Citrus

Signal Strength: 8/10



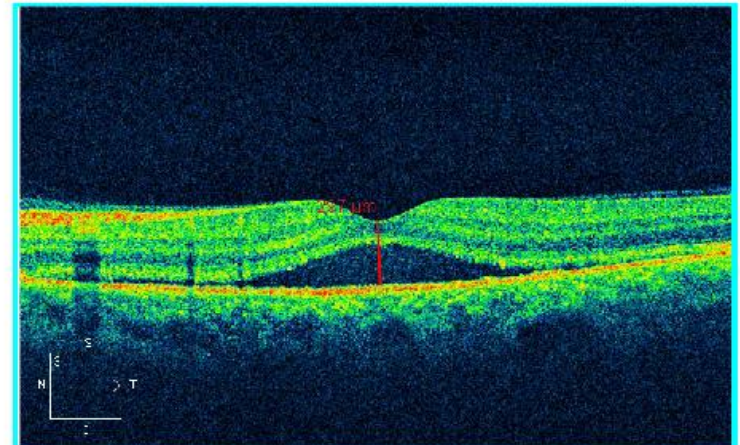
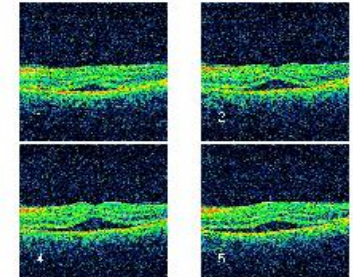
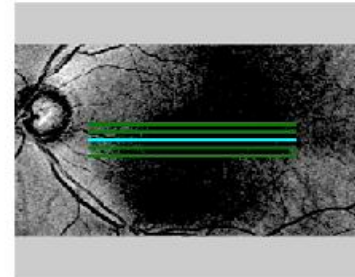
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



Comments

Doctor's Signature

Analysis Altered: 3/17/2014 10:32 AM

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Case Report № 6

Patient: 55 yo male
DS: CSC OS

1m Post-Op

VOS = 0.8 = 20/25
= 0.1 logMAR

CRT = 201 μm

Name: Karligashev, Melram

ID: 6292

DOB: 7/1/1958

Gender: Male

Doctor:

Exam Date: 3/31/2014

Exam Time: 9:22 AM

Technician: Operator, Cirrus

Signal Strength: 9/10



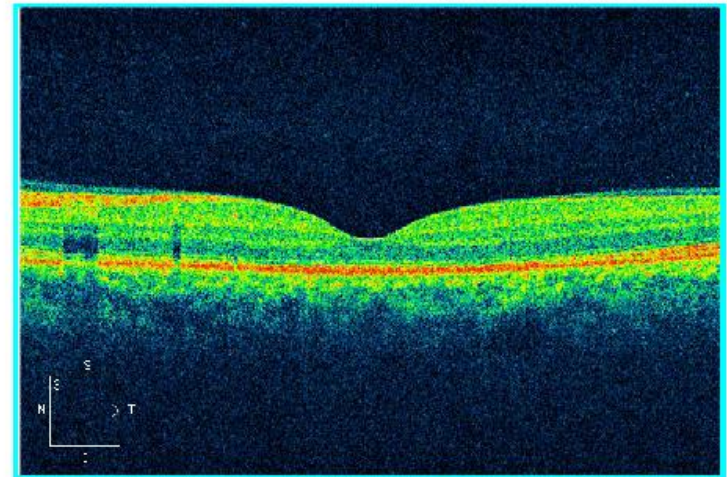
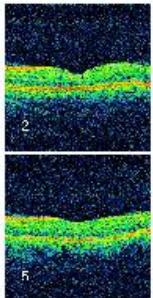
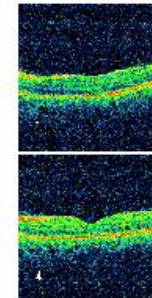
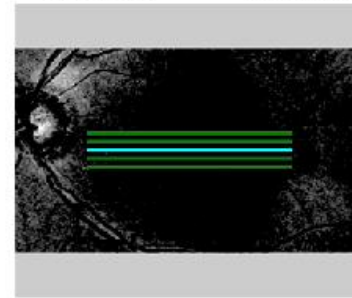
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



Comments

Doctor's Signature

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Page 1 of 1

Case Report № 7

Patient: 43 yo male
DS: CSC OS

Pre-Op

VOS = 0.4 = 20/50 =
0.4 logMAR

CRT = 675 μ m

SMPT OD: 09/30/2013

Name: Saribaev, Serik

ID: 4529
DOB: 6/4/1971
Gender: Male
Doctor:

Exam Date: 9/19/2013
Exam Time: 3:12 PM
Technician: Operator, Citrus
Signal Strength: 7/10



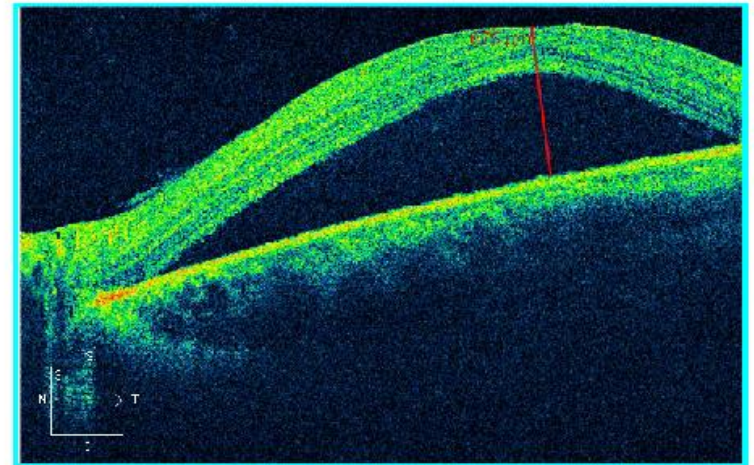
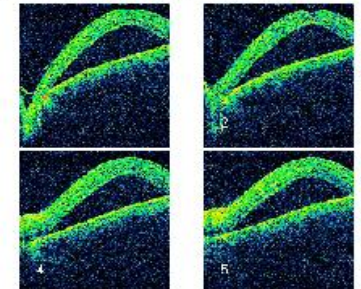
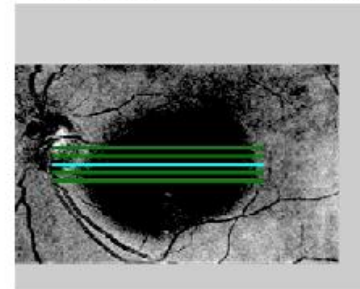
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Analysis Altered: 2/4/2014 9:04 AM

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Case Report № 7

Patient: 43 yo male
DS: CSC OS

2w Post-Op

VOS = 0.4 = 20/50
= 0.4 logMAR

CRT = 444 μm

Name: Saribaev, Serik

ID: 4529
DOB: 6/4/1971
Gender: Male
Doctor:

Exam Date: 10/17/2013
Exam Time: 11:06 AM
Technician: Operator, Cirrus
Signal Strength: 8/10



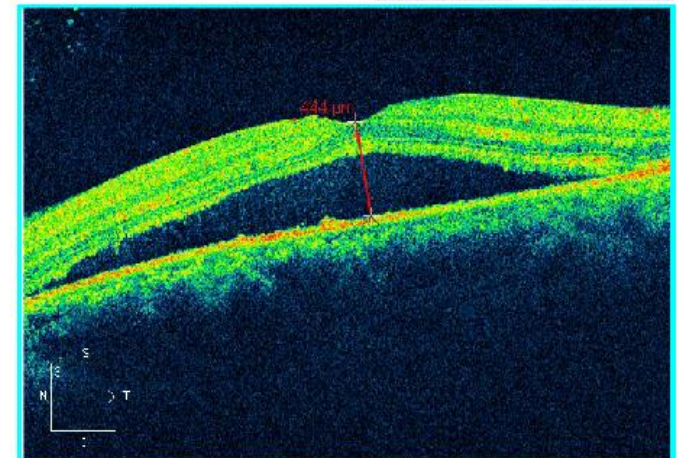
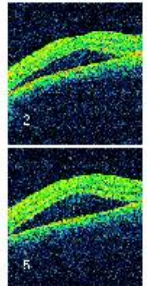
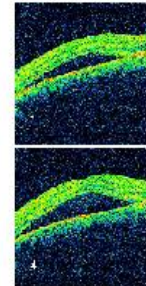
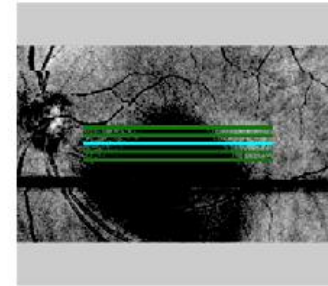
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



Comments

Doctor's Signature

Analysis Altered: 2/4/2014 9:08 AM

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Page 1 of 1

Case Report № 7

Patient: 43 yo male
DS: CSC OS

1m Post-Op

VOS = 0.4 = 20/50
= 0.4 logMAR

CRT = 379 μm

Name: Saribaev, Serik

ID: 4529
DOB: 6/4/1971
Gender: Male
Doctor:

Exam Date: 10/31/2013
Exam Time: 3:04 PM
Technician: Operator, Citrus
Signal Strength: 8/10



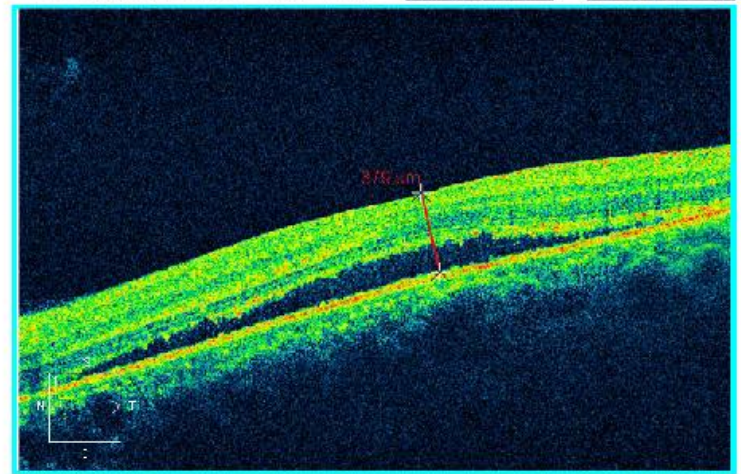
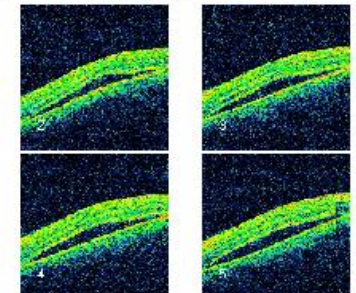
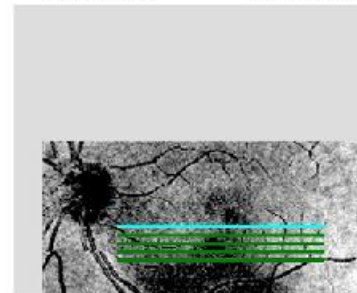
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Analysis Altered: 2/4/2014 9:09 AM

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Case Report № 7

Patient: 43 yo male
DS: CSC OS

1m Post-Op

VOS = 0.8 = 20/25
= 0.1 logMAR

CRT = 208 μm

Name: Saribaev, Serik
ID: 4529
DOB: 6/4/1971
Gender: Male
Doctor:
Exam Date: 12/24/2013
Exam Time: 10:11 AM
Technician: Operator, Citrus
Signal Strength: 8/10



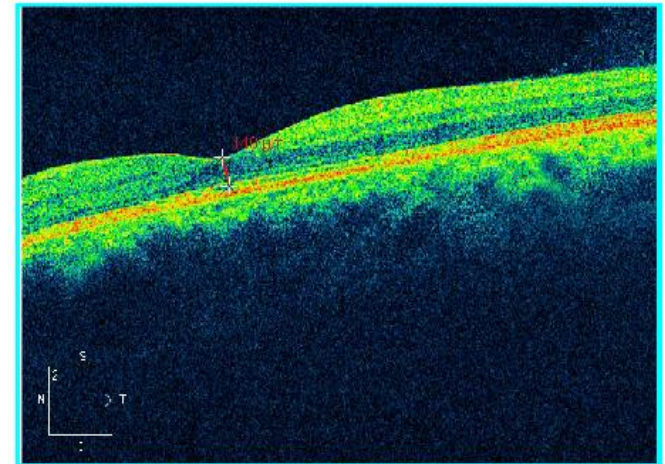
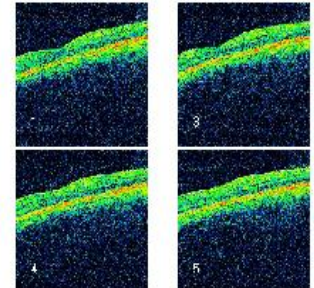
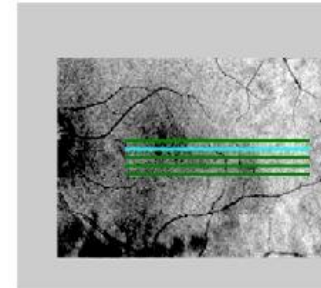
High Definition Images: 5 Line Raster

OD ☐ OS ☒

Scan Angle: 0°

Spacing: 0.25 mm

Length: 6 mm



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Analysis Altered: 2/4/2014 9:10 AM

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Conclusion

- SMPT is an effective treatment for macular edema of different pathophysiological origins, CSC, AMD in the form of serous RPE detachment
- SMPT is tissue-sparing, repeatable method without complications and side effects of classical coagulation in macular zone
- SMPT is well-combined with classical CW coagulation in macular zone and anti-VEGF intravitreal injections

Thank you for attention!

astanavision.com

[mailto: laserdoc@mail.ru](mailto:laserdoc@mail.ru)

