

MULTIFOCAL E.R.G.

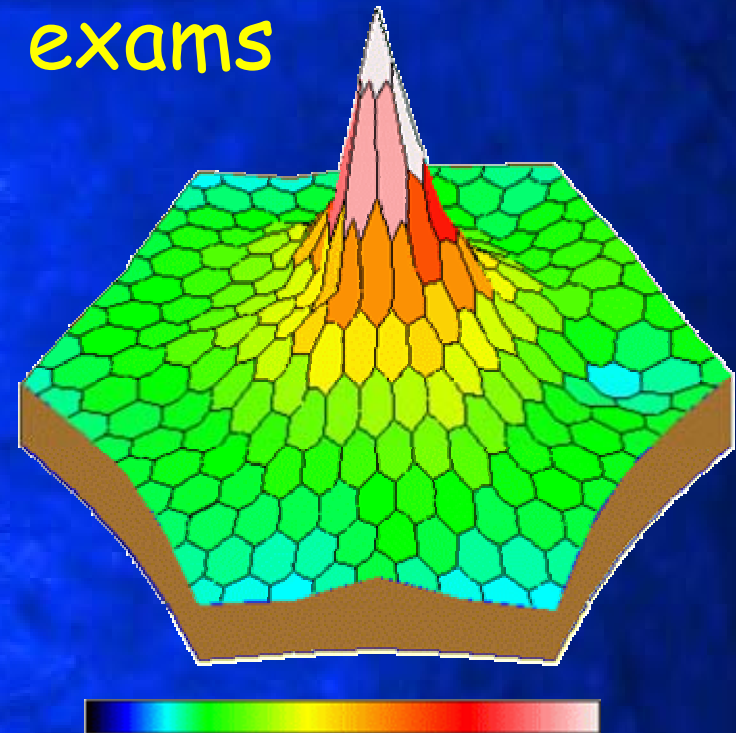
Comparison with clinical and
other functional exams

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University Medical Center, Lille, France

Jacques CHARLIER

Metrovision, France

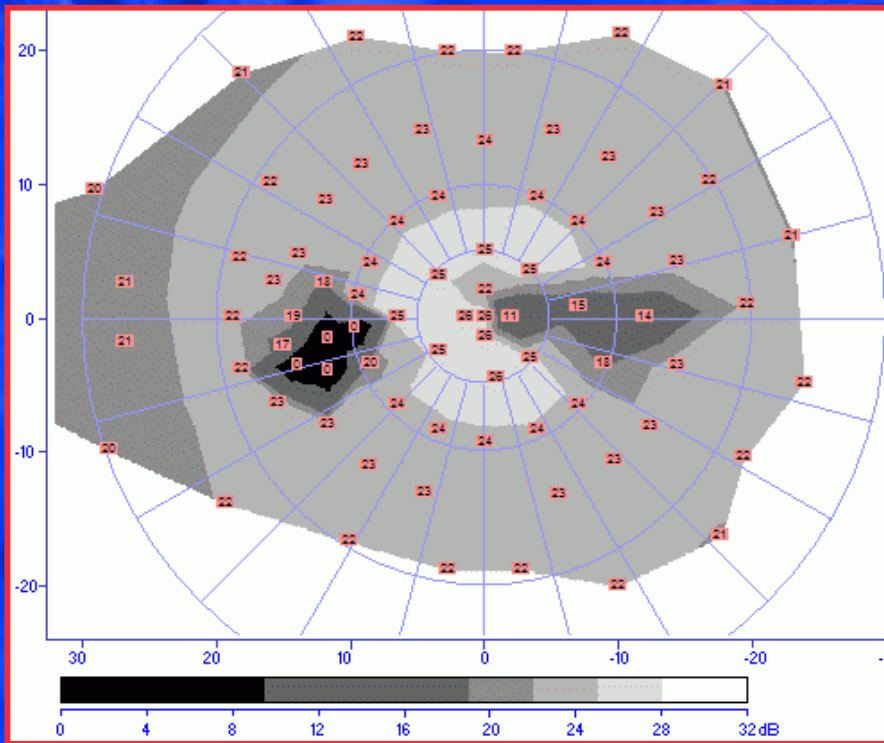


Case N°1:

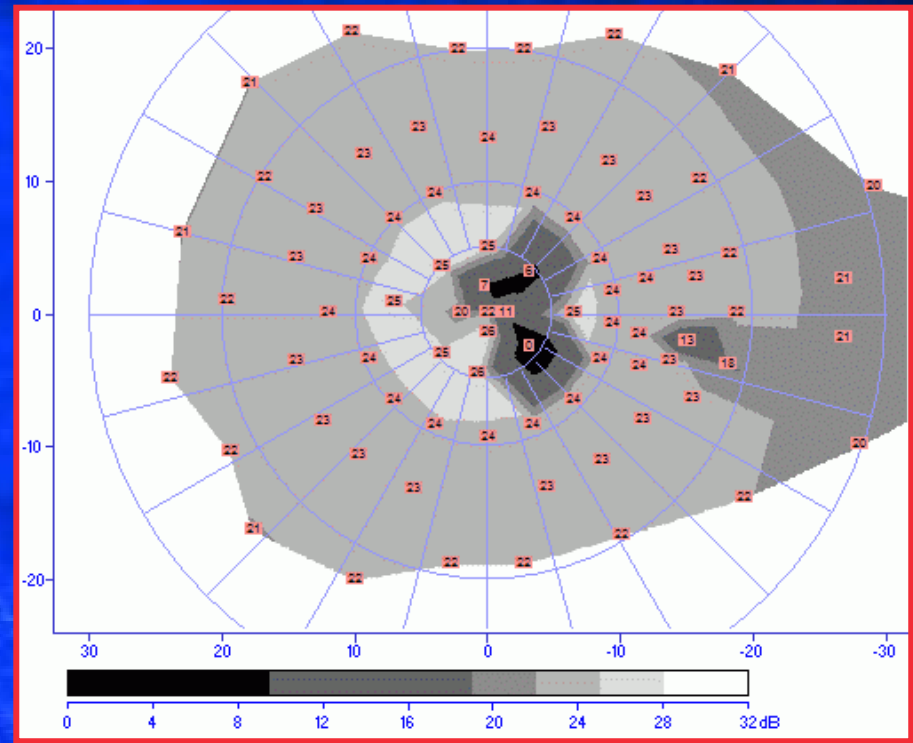
- 33 years old
with Stargardt disease

Visual field

automated FAST static strategy

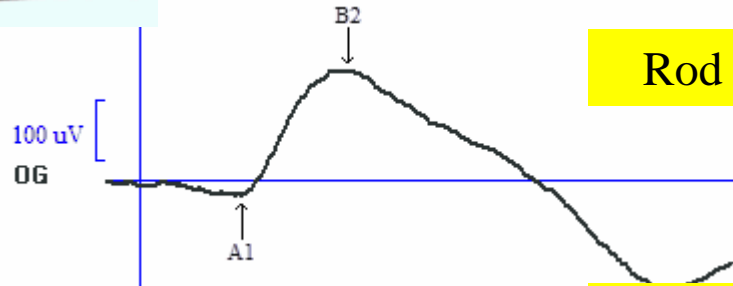


OS

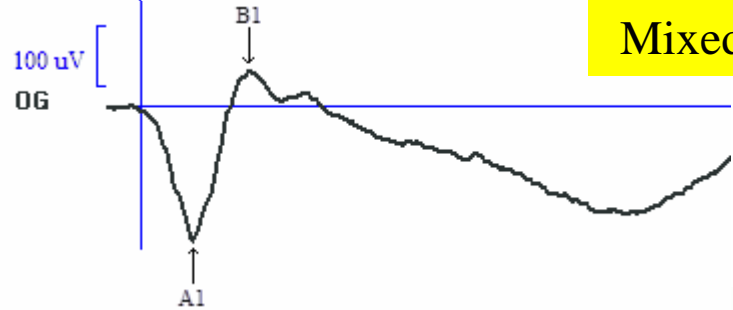


OD

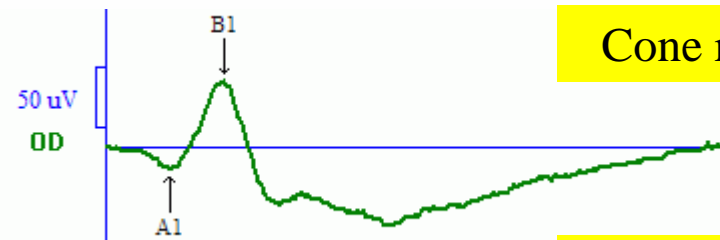
Standard ERG



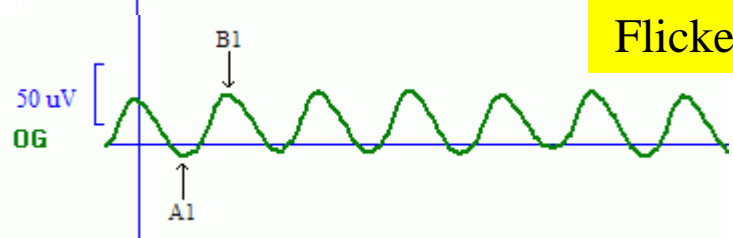
Rod response



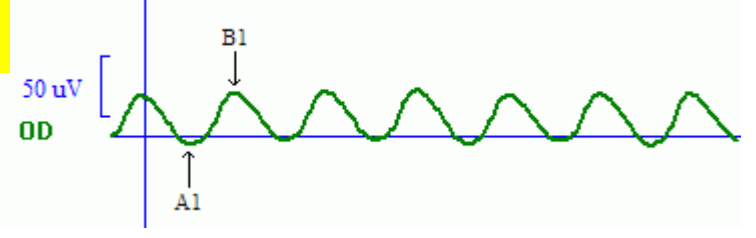
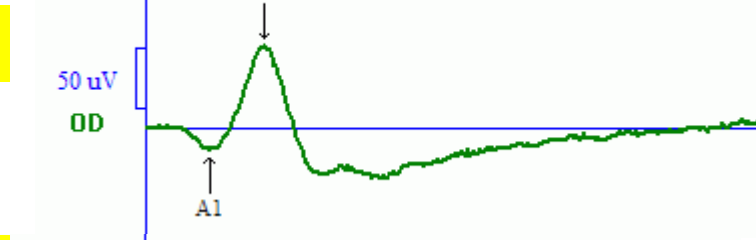
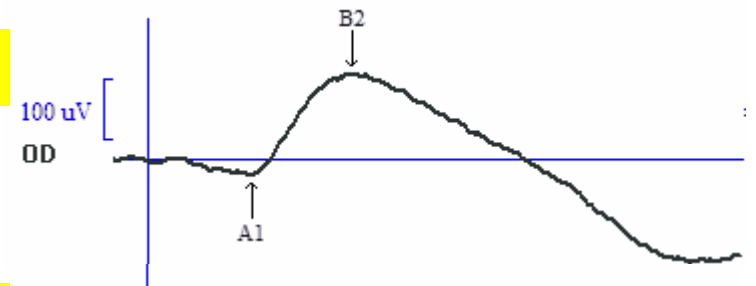
Mixed response



Cone response



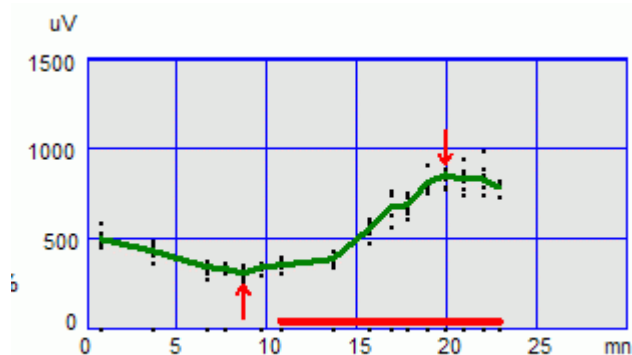
Flicker response



OS

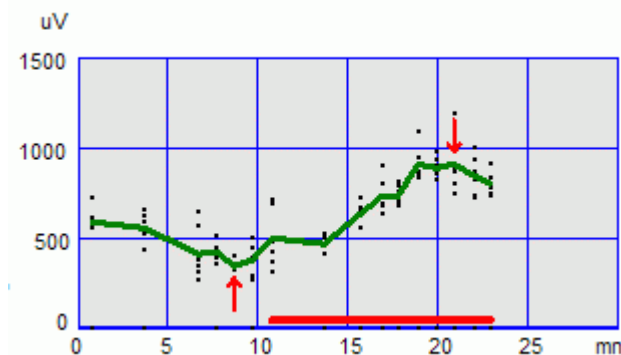
OD

Sensory EOG



minimum = 313uV 1
maximum = 863uV
rapport de ARDEN = 276%

OS



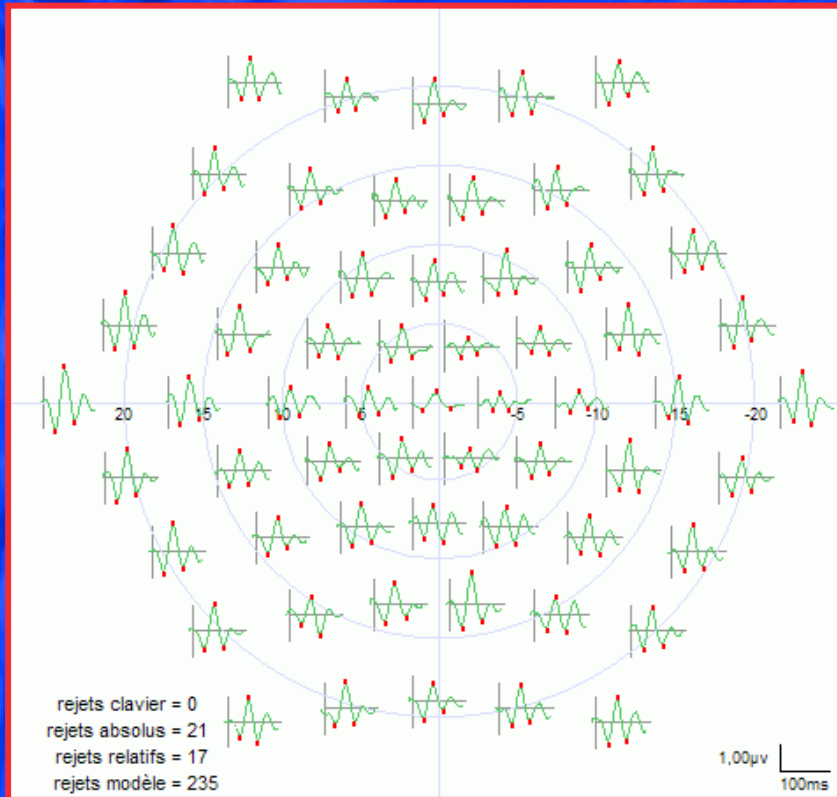
minimum = 349uV
maximum = 914uV
rapport de ARDEN = 262%

OD

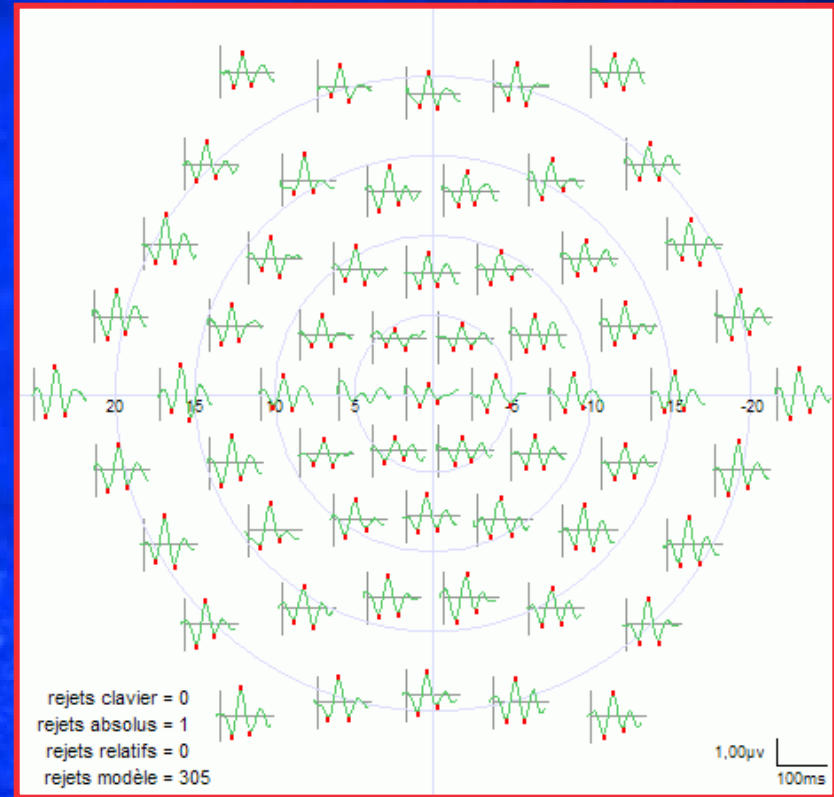


Multifocal ERG

map of local responses



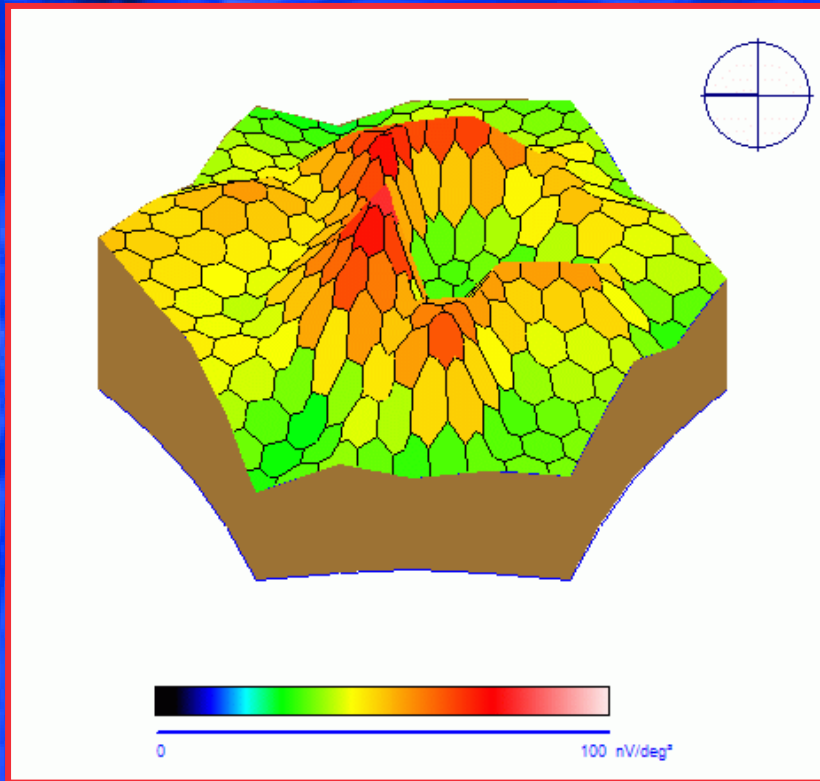
OS



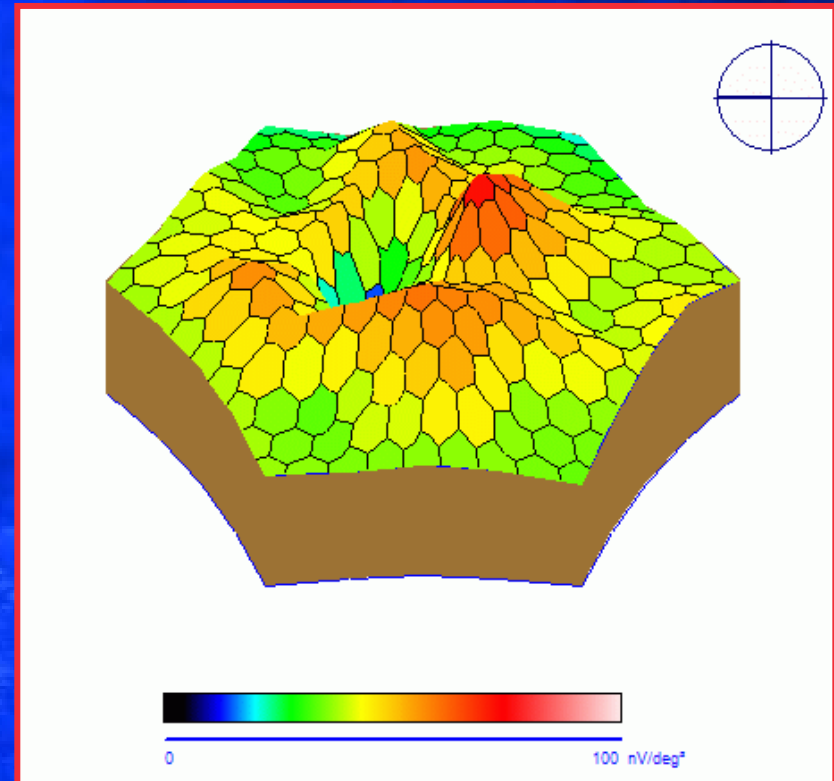
OD

Multifocal ERG

3D map of P1 amplitudes



OS



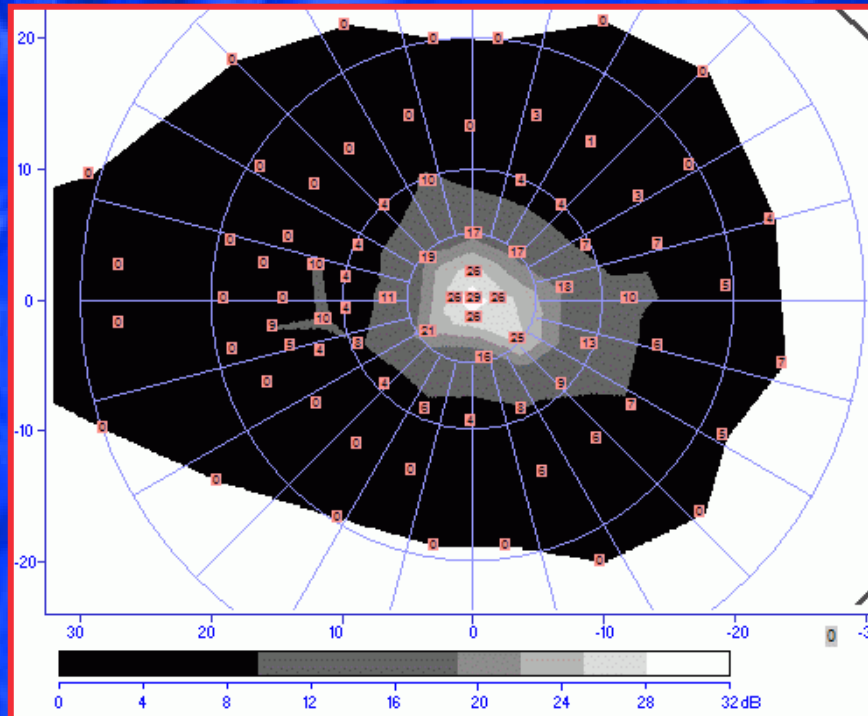
OD

Case N°2:

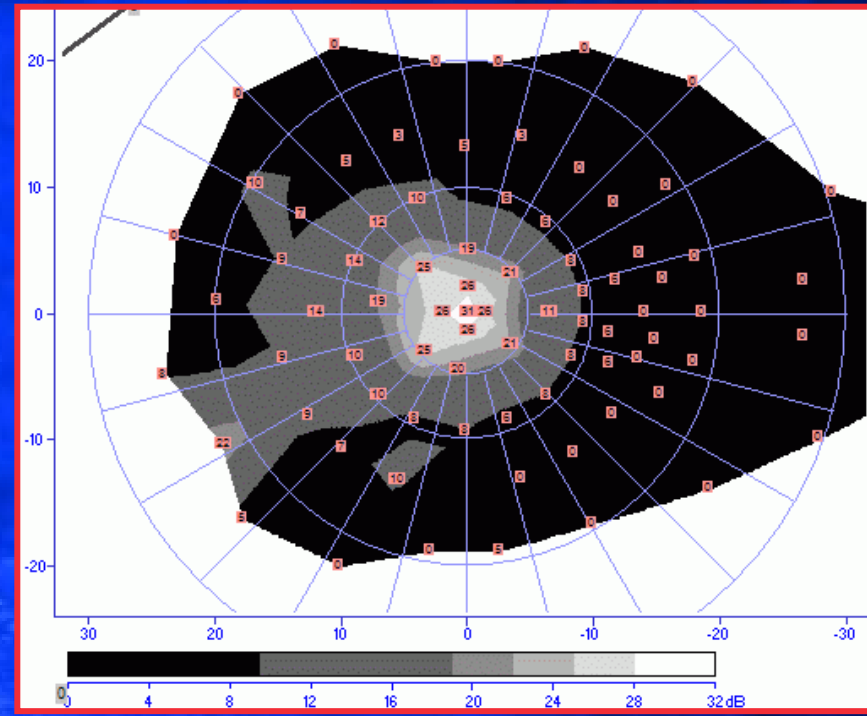
- 21 years old
with retinitis pigmentosa

Visual field

automated FAST static strategy



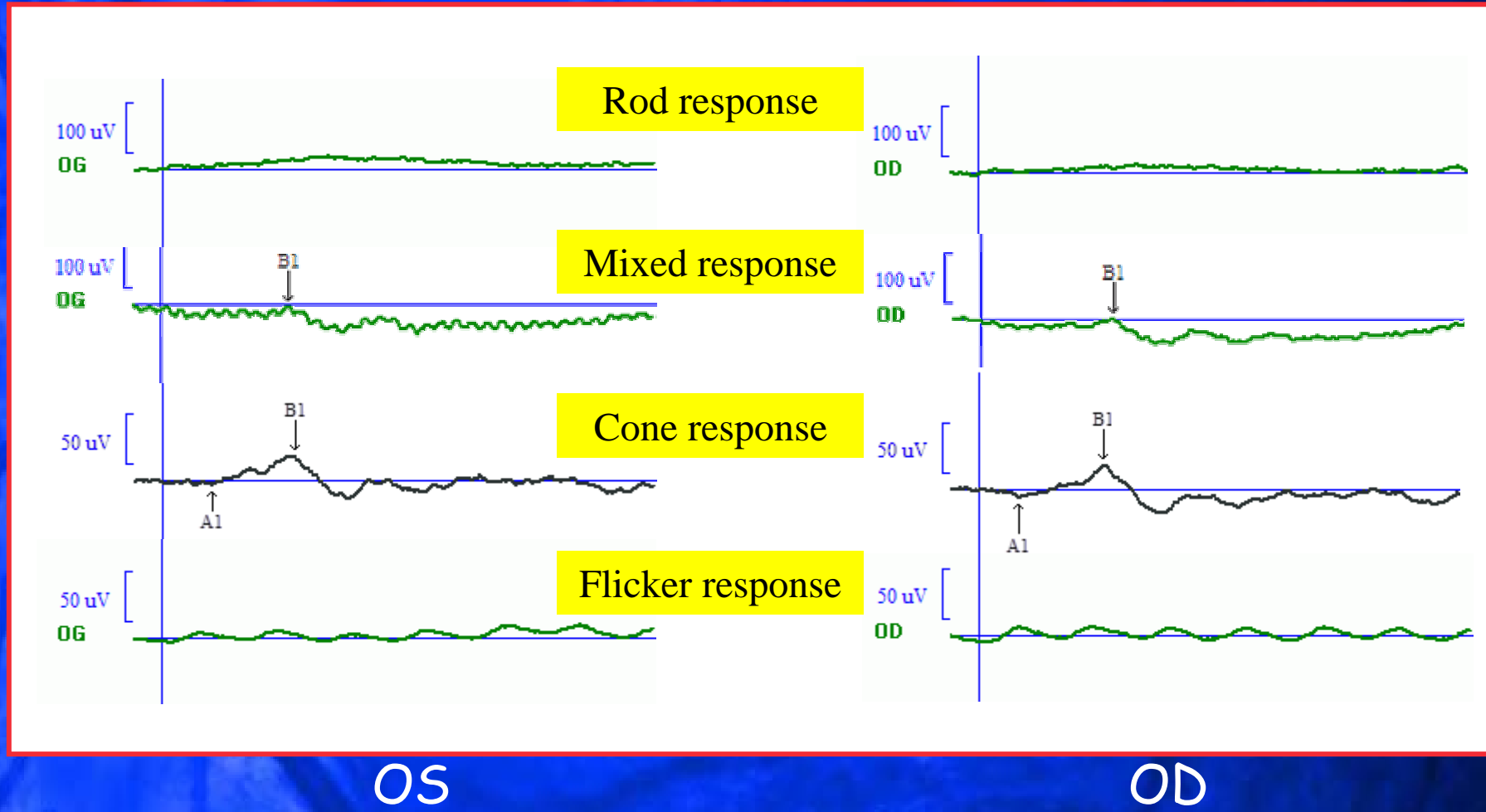
OS



OD

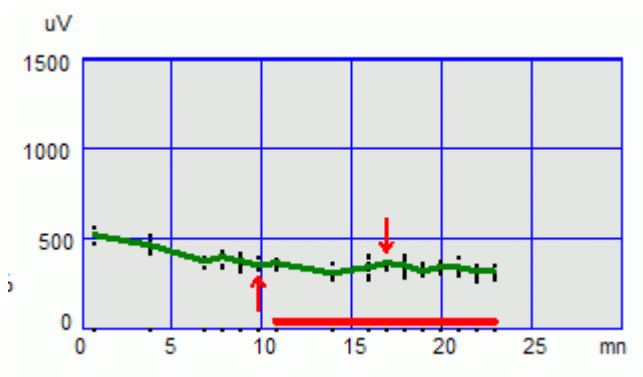


Standard ERG



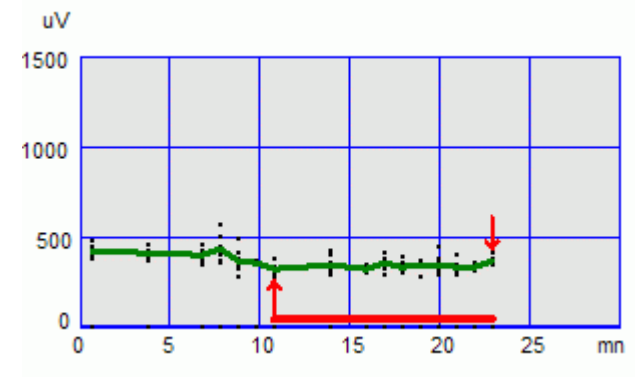


Sensory EOG



minimum = 361uV
maximum = 377uV
rapport de ARDEN = 104%

OS

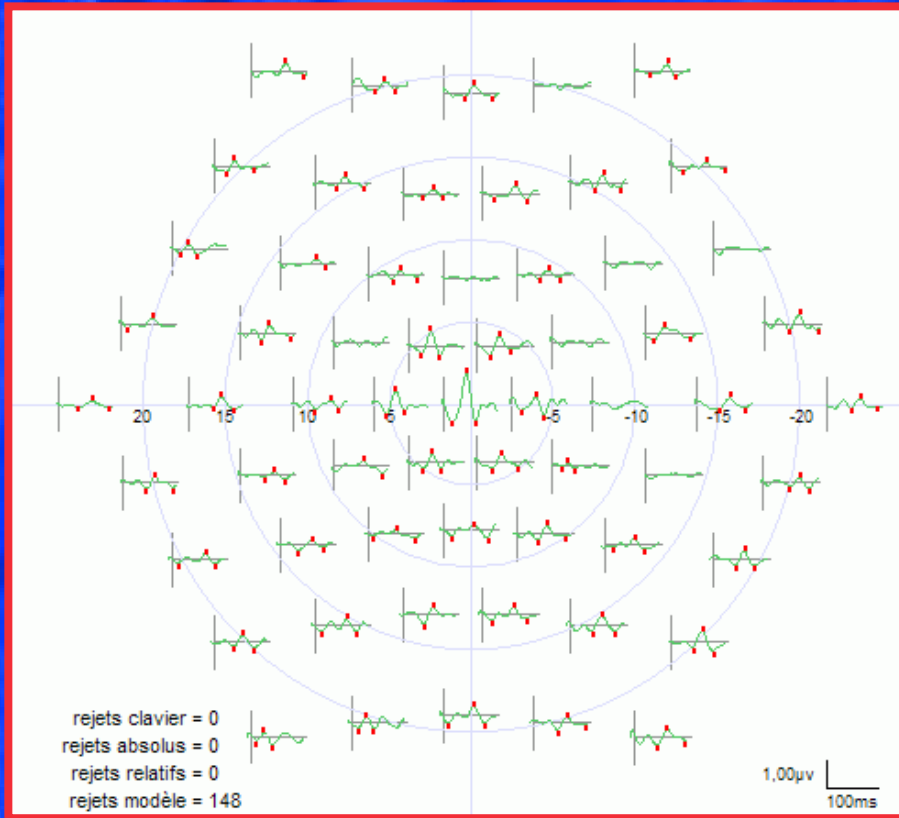


minimum = 327uV
maximum = 373uV
rapport de ARDEN = 114%

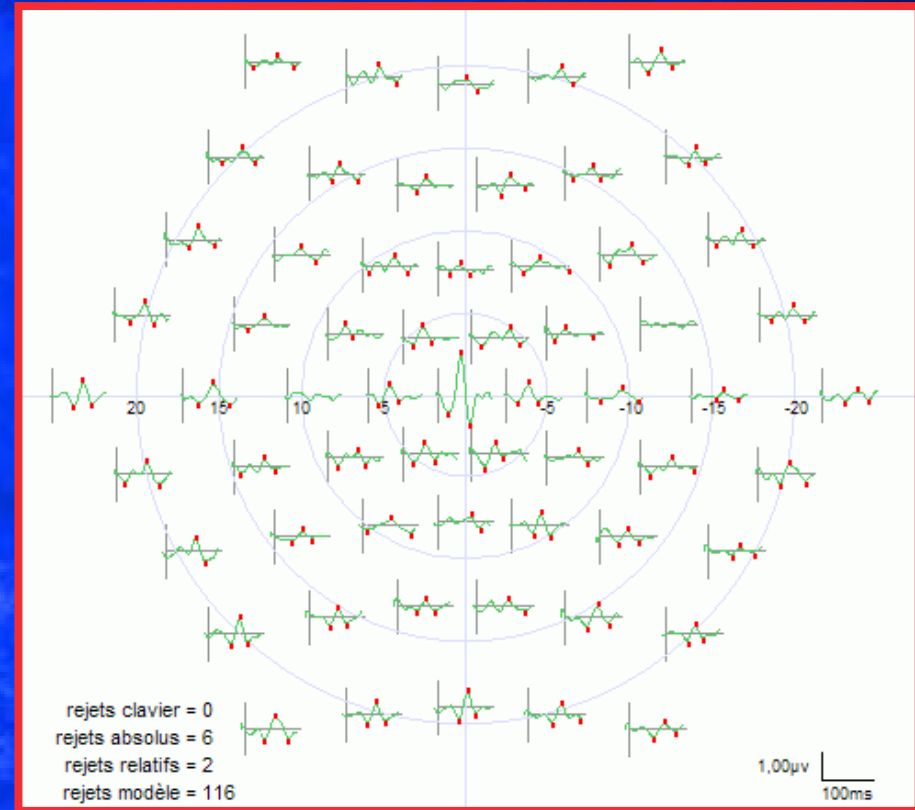
OD

Multifocal ERG

map of local responses



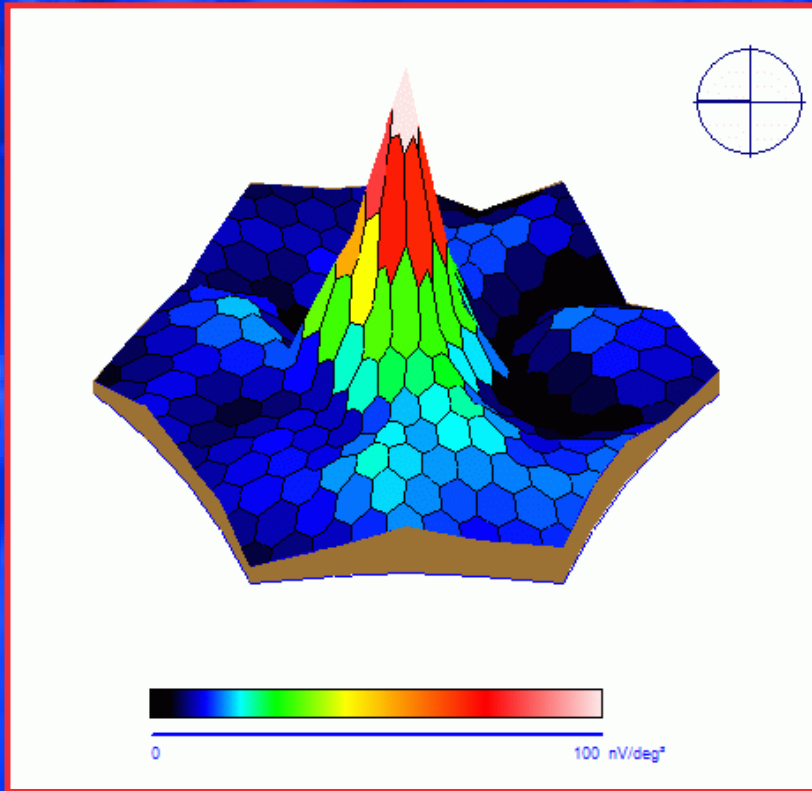
OS



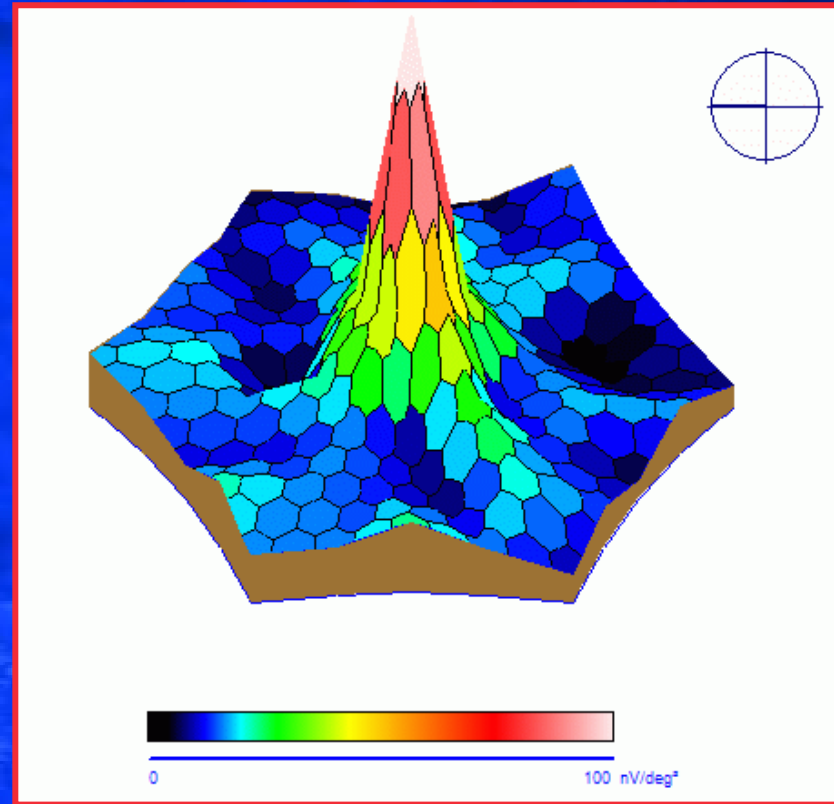
OD

Multifocal ERG

3D map of P1 amplitude



OS

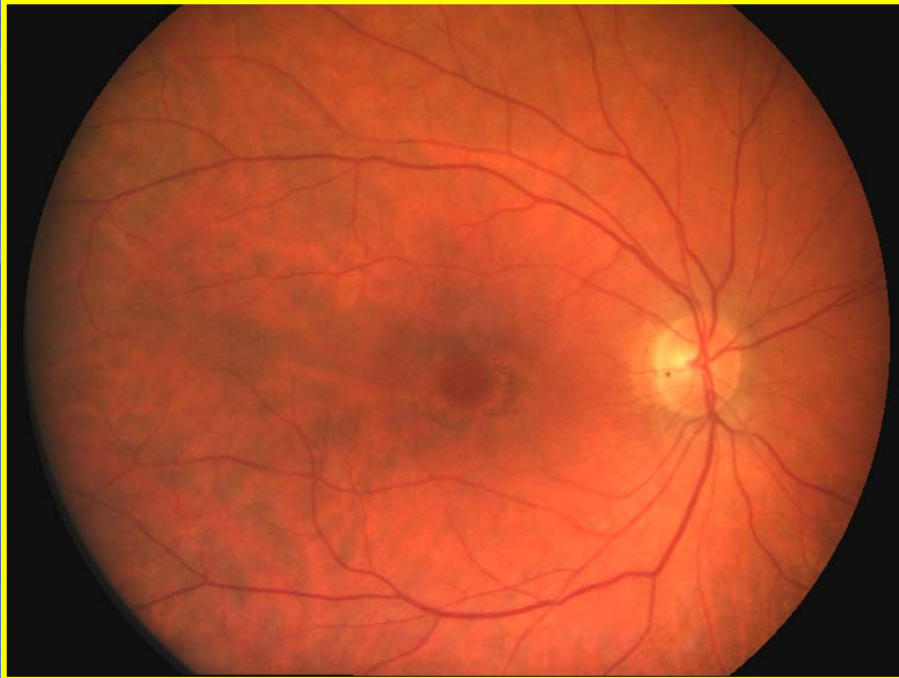


OD

Case N°3:

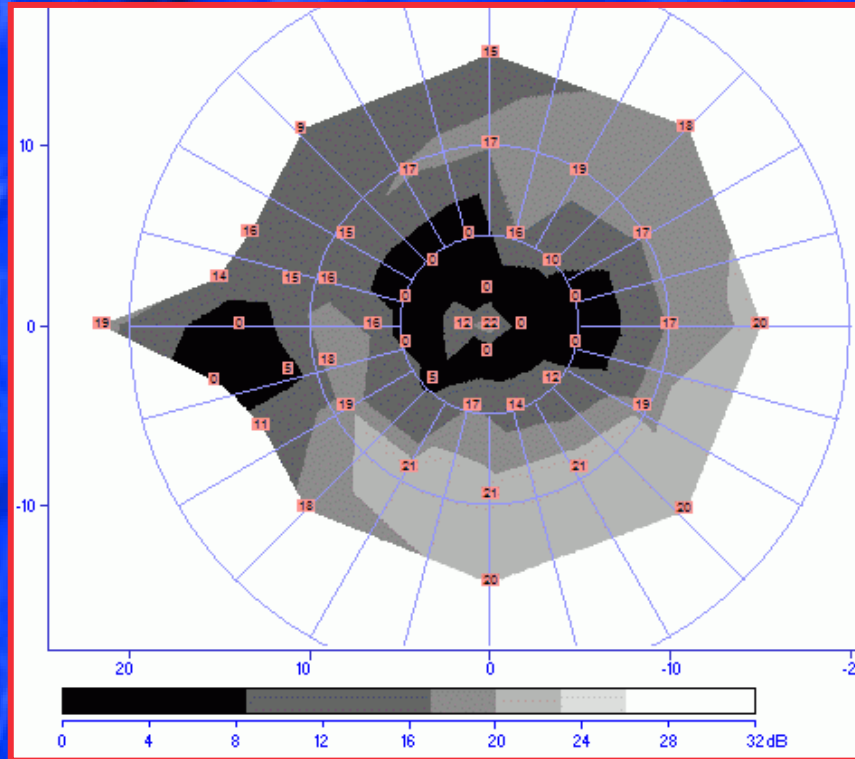
- Chloroquine intoxication

Eye fundus

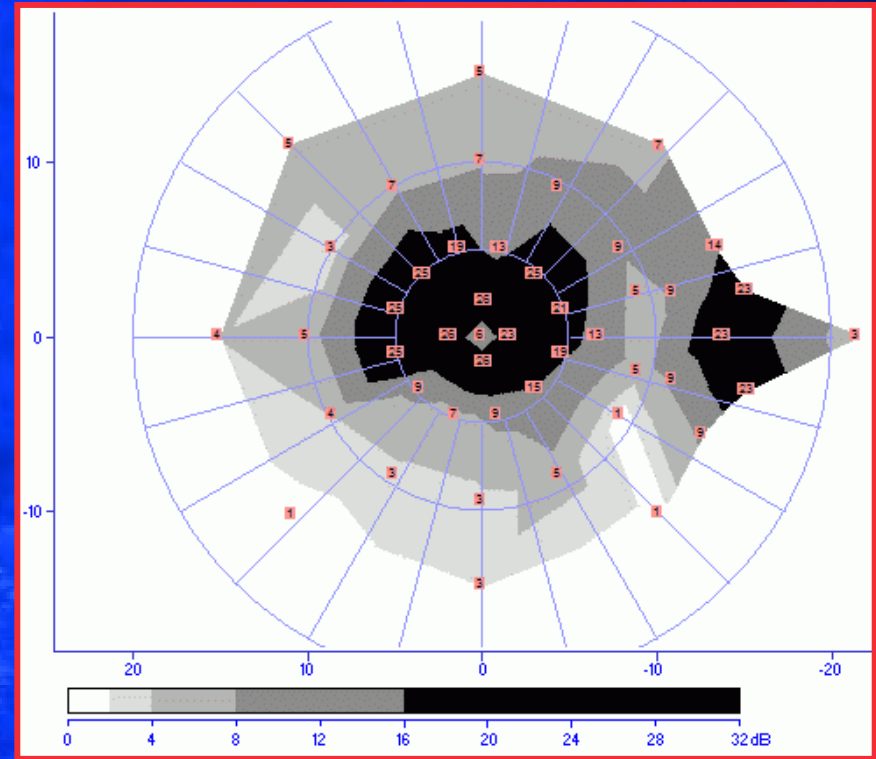


Visual field

automated FAST static strategy



OS

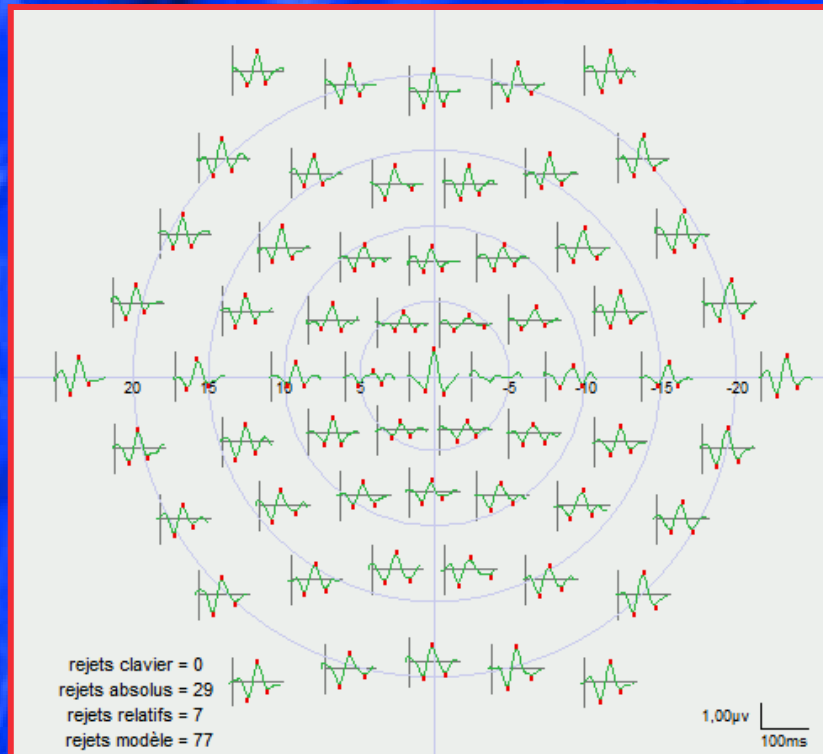


OD

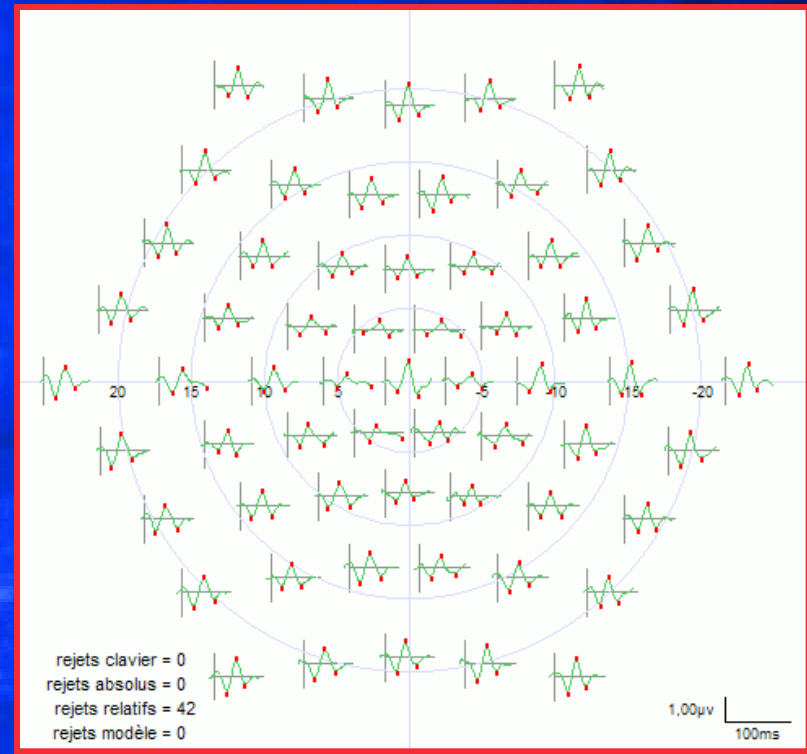


Multifocal ERG

Map of local responses



OS

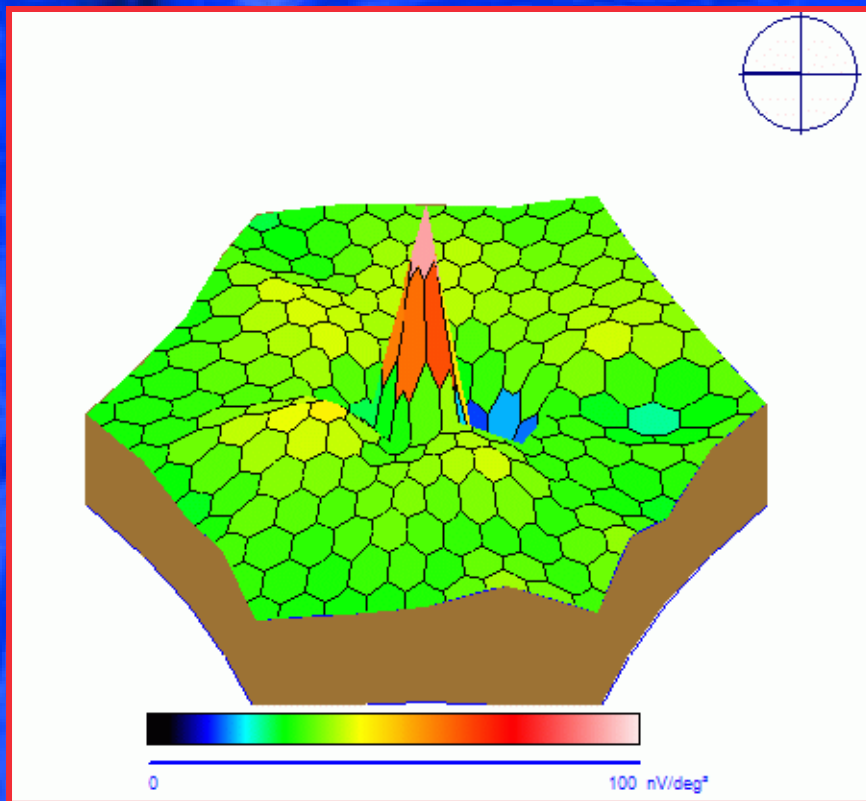


OD

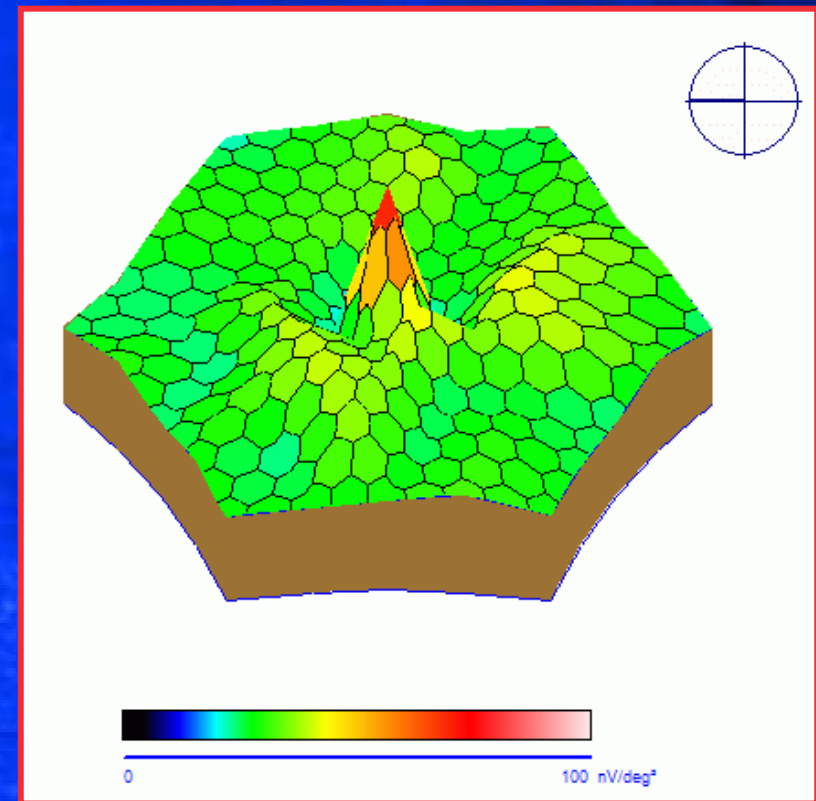


Multifocal ERG

3D map of P1 amplitude



OS



OD

Case N°4:

49 years old patient with
parapapillar hemangioma

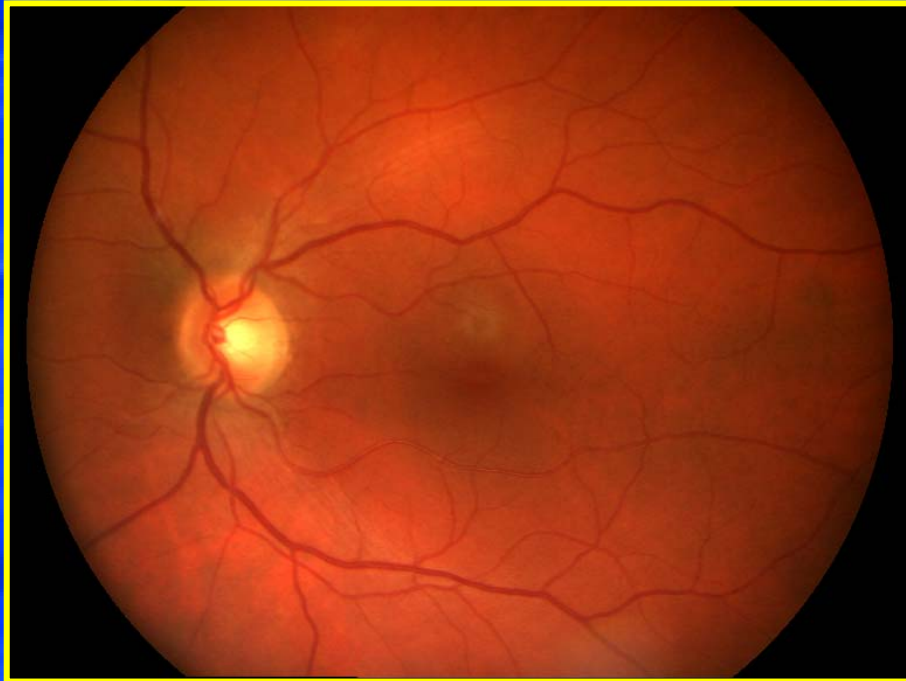
Visual acuity: OD: 0.6 OS: 1.0

Slit lamp exam: no visible alteration

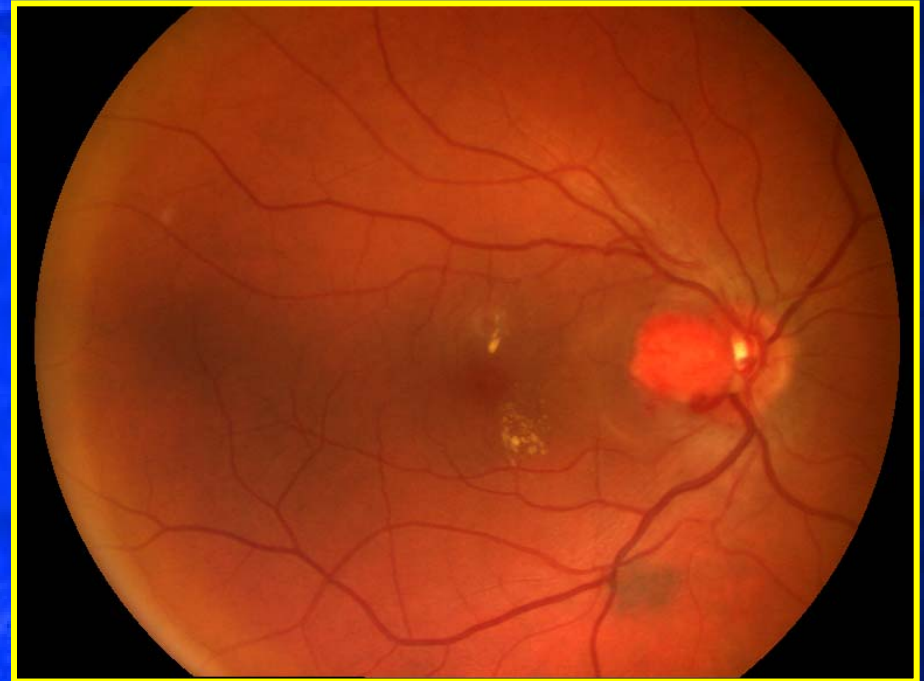
Intra ocular pressure:

OD: 17mmHg OS: 18mmHg

Eye fundus:



OS
normal

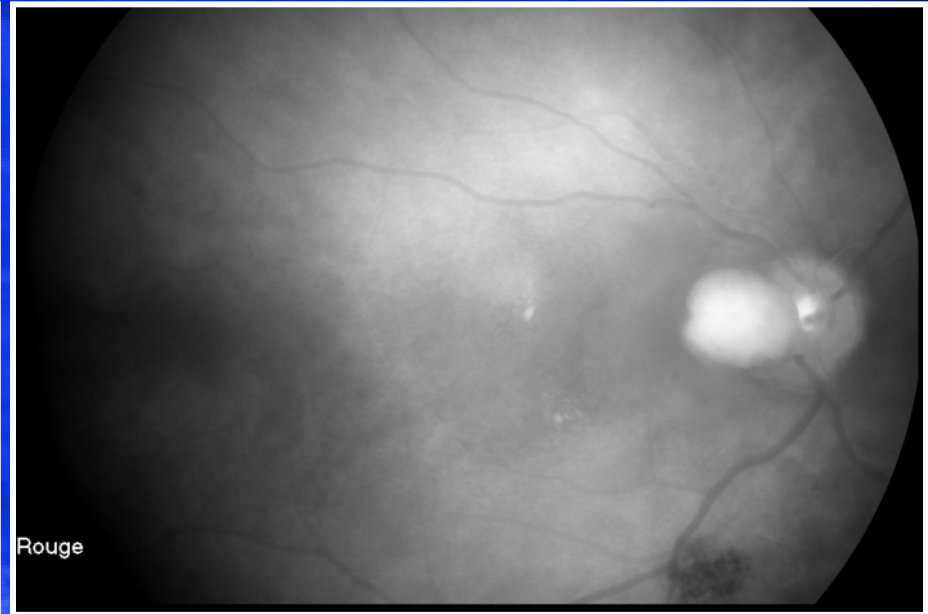


OD
para-papillar lesion

Fluorescein angiography OD

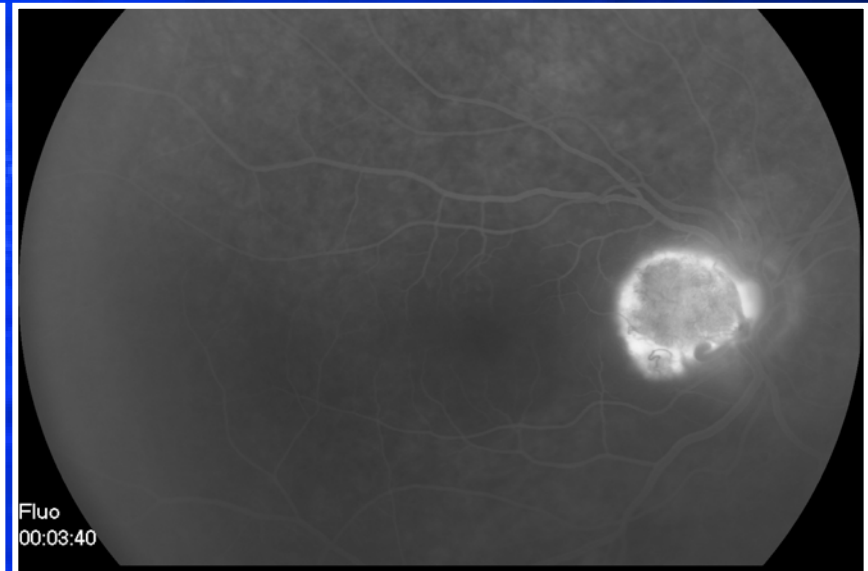
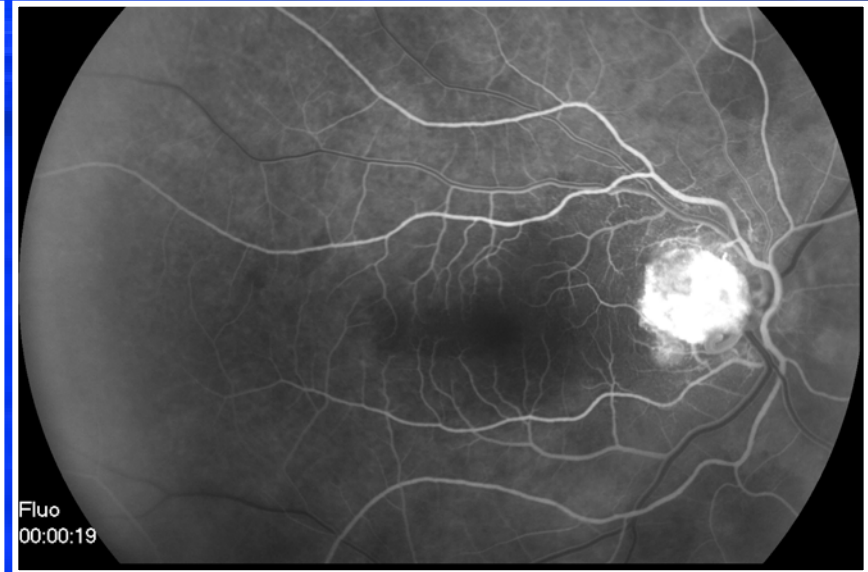
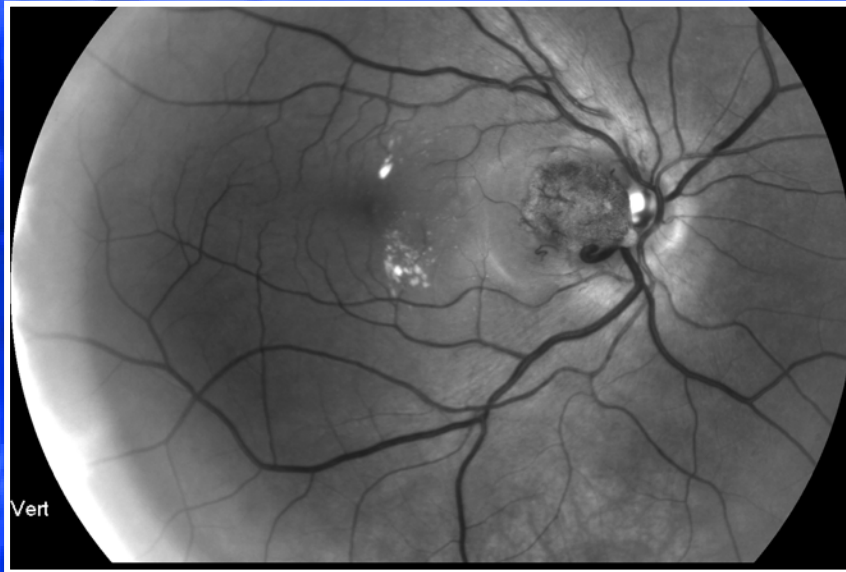


Blue filter



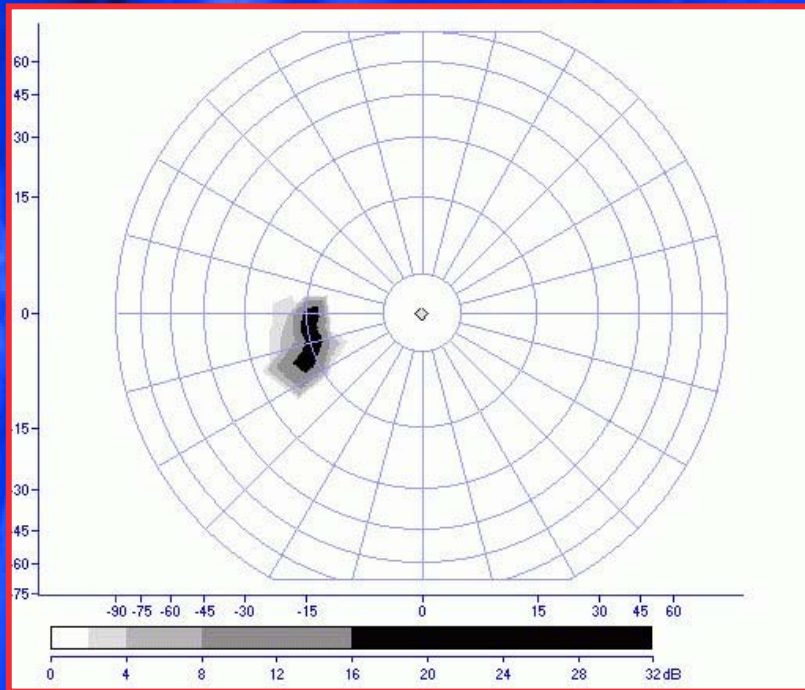
Red filter

Angiographic sequence OD

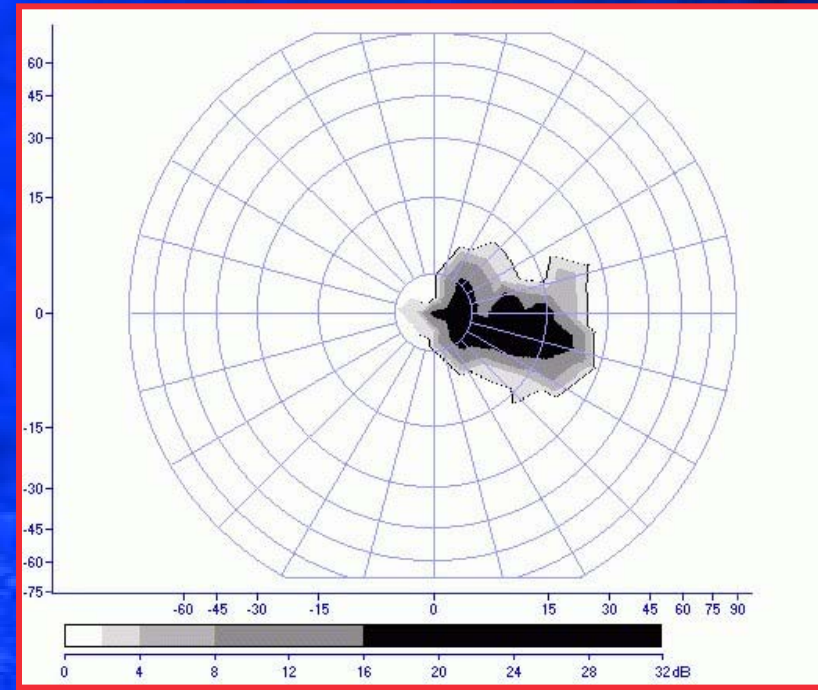




Visual field automated FAST static strategy



OS
Normal

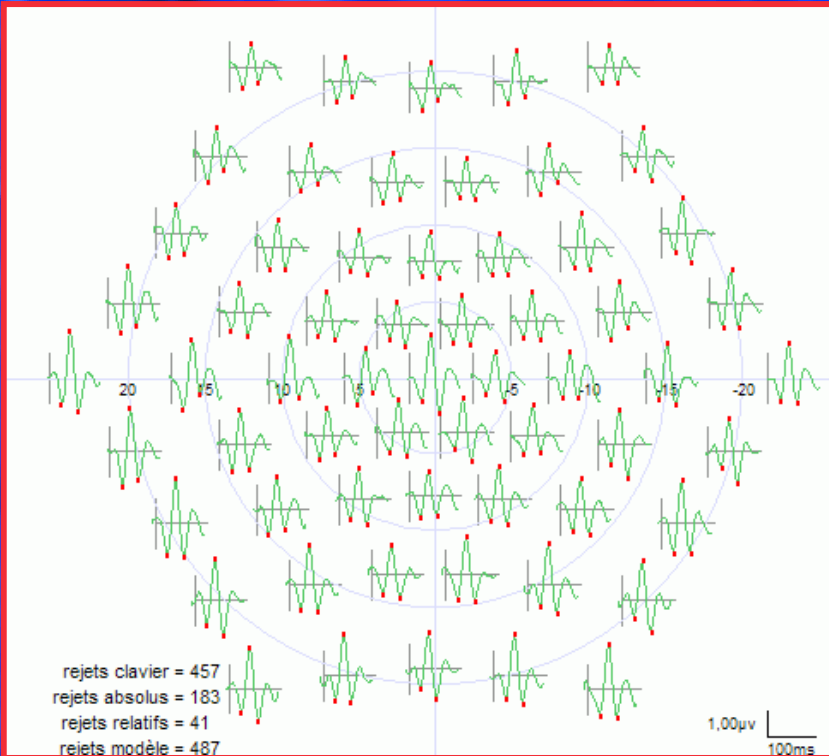


OD
Centro-caecal scotoma

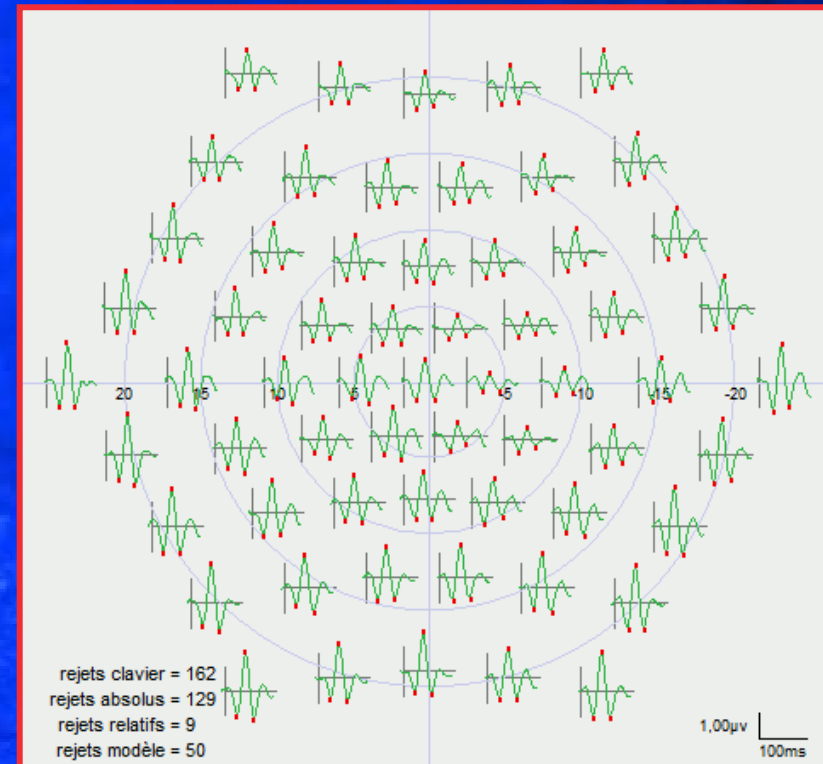


Multifocal ERG

Map of local responses



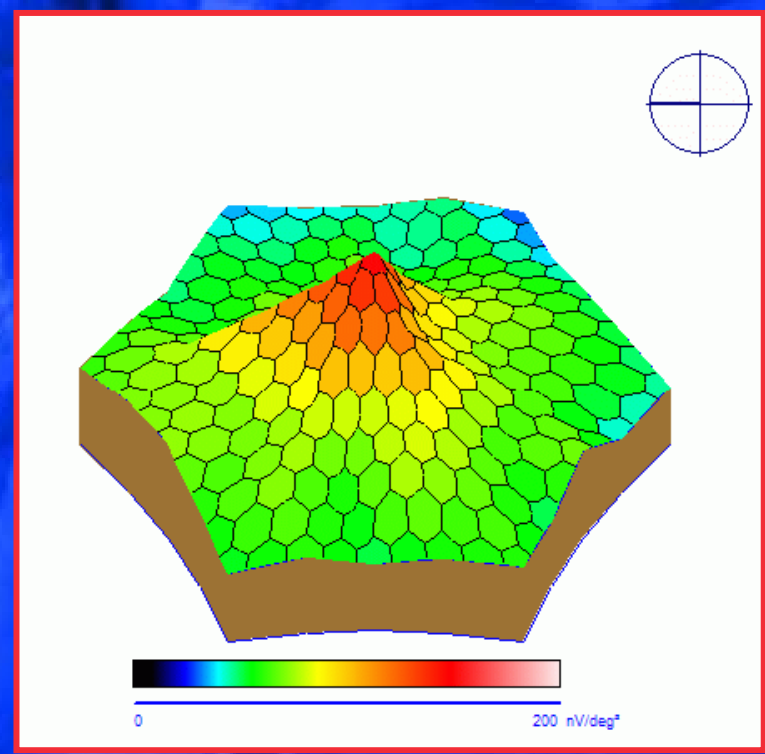
OS



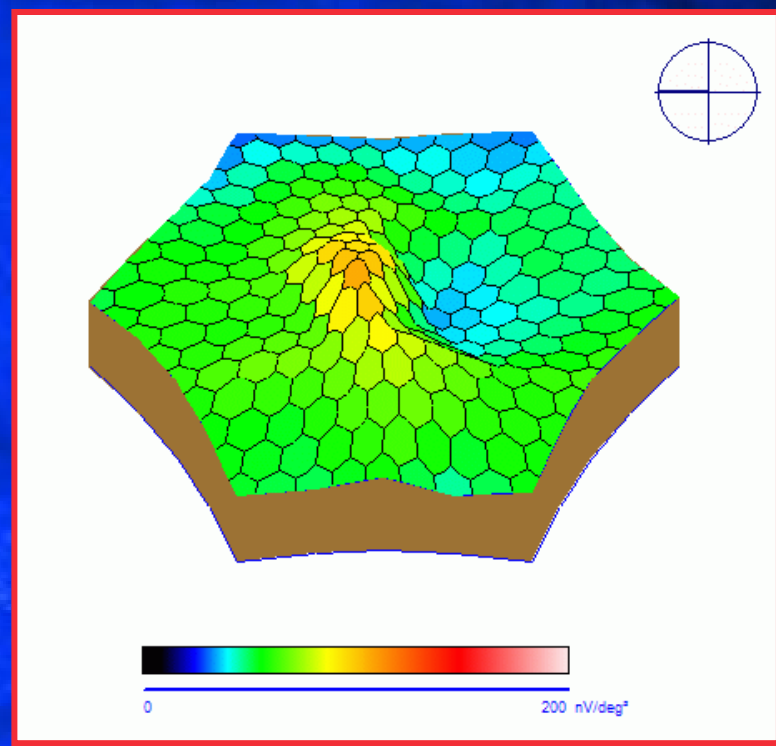
OD

Multifocal ERG

3D map of P1 amplitude



OS

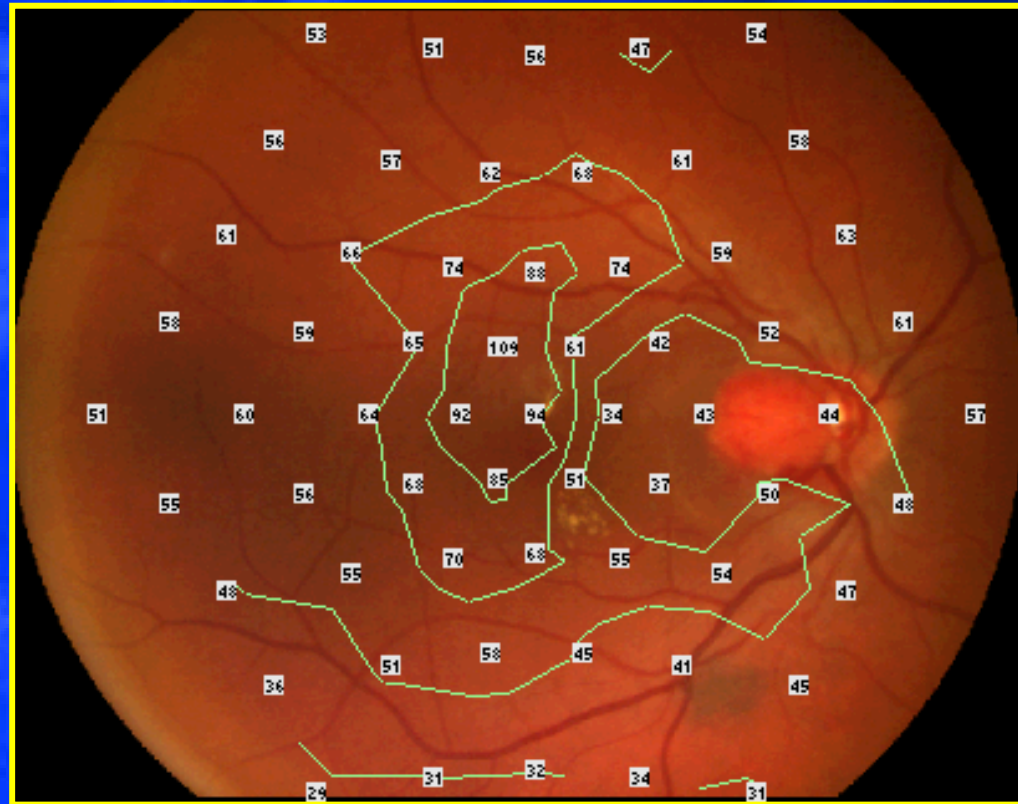


OD



Multifocal ERG:

Superposition with the image of the right eye fundus



Case N°5:

- follow-up of 19 years old woman with loss of VA in the left eye after a car accident without eye and head trauma.

First visit in February 2002 :

Visual acuity: OD: 1.0 OS: 0.8

Slit lamp exam : no alteration

Intra-ocular pressure: OD: 21 mm OS: 25 mm

2nd visit in June 2002:

Visual acuity: OD: 1.2 OS: 1.2

Slit lamp exam: no alteration

Intraocular pressure: OD: 19 mm OS: 21 mm

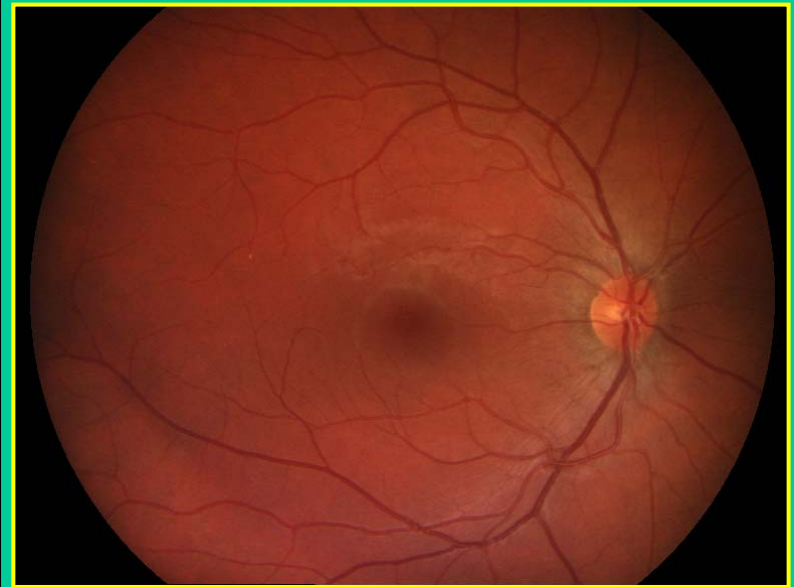
Evolution of eye fundus

5- eye trauma

1st visit

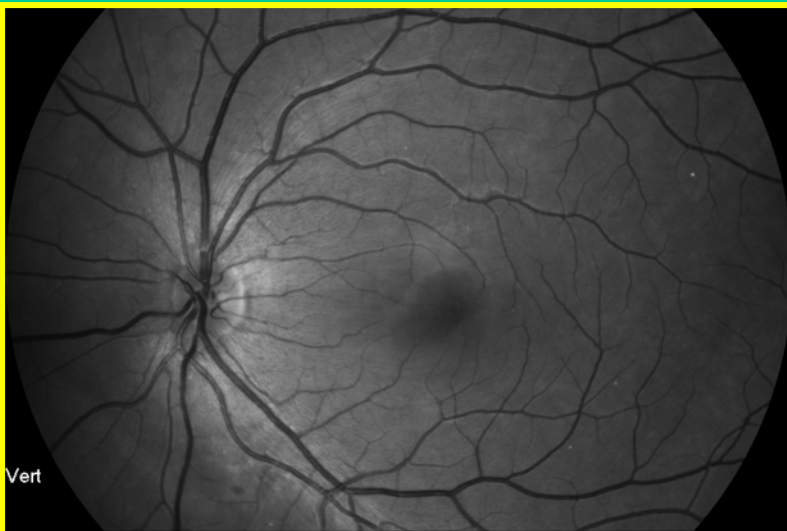


OS



OD

2nd visit

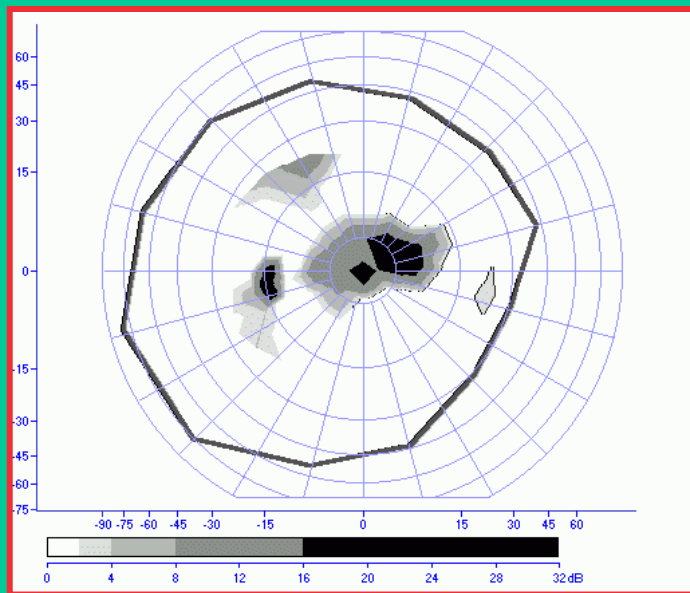


Evolution of visual field (automated FAST static strategy)

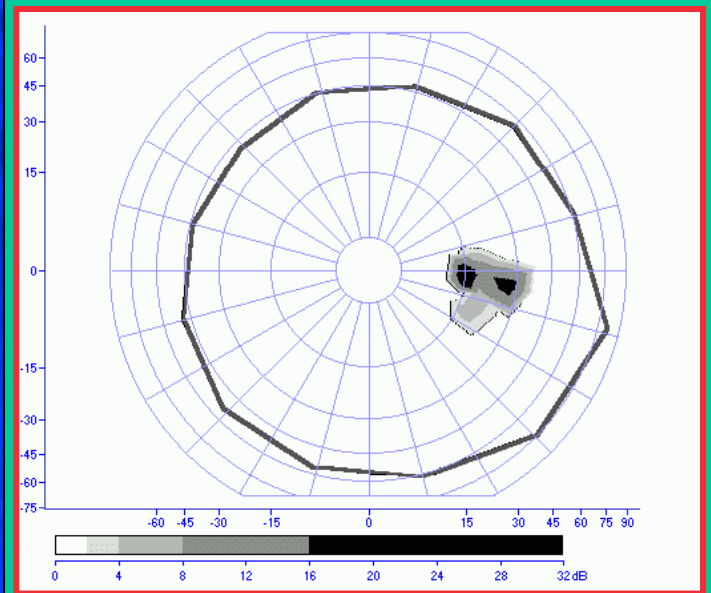
5- eye trauma



1st visit

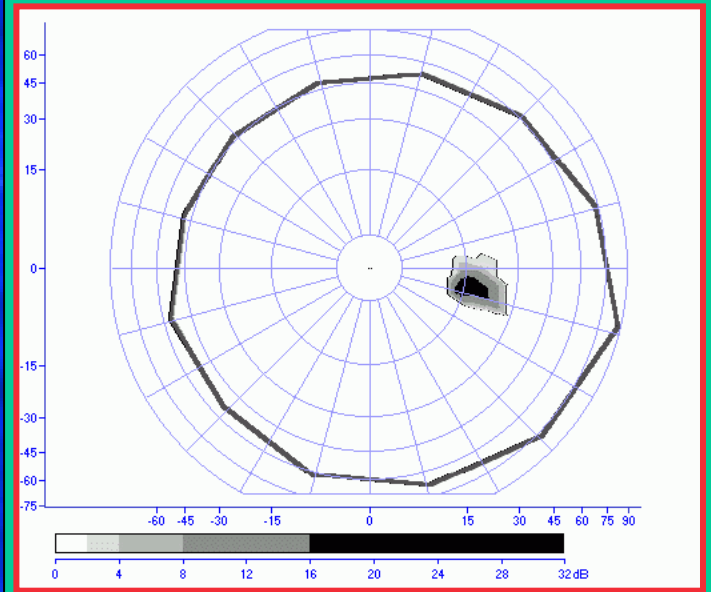
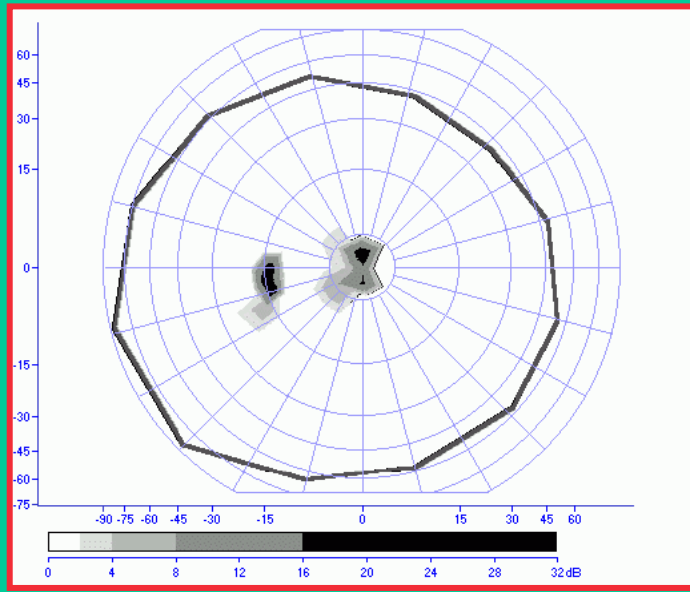


OS



OD

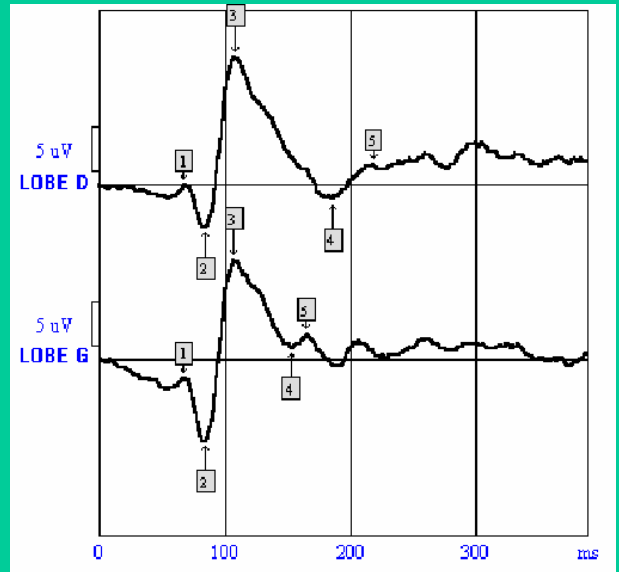
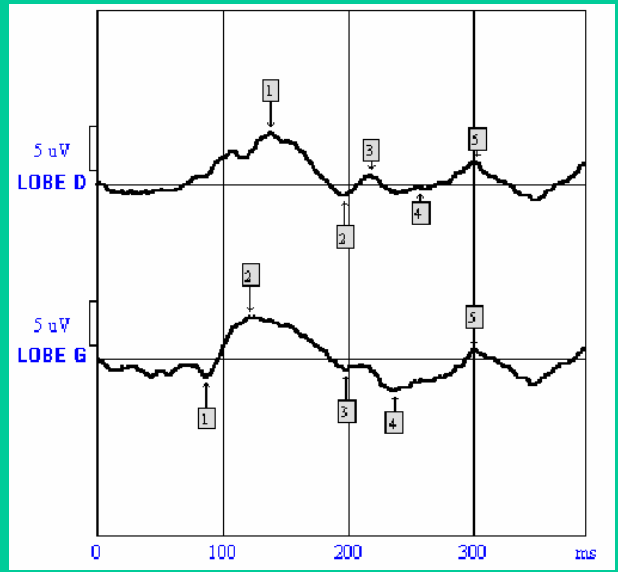
2nd visit



Evolution of VEP (pattern reversal 15 arc min)



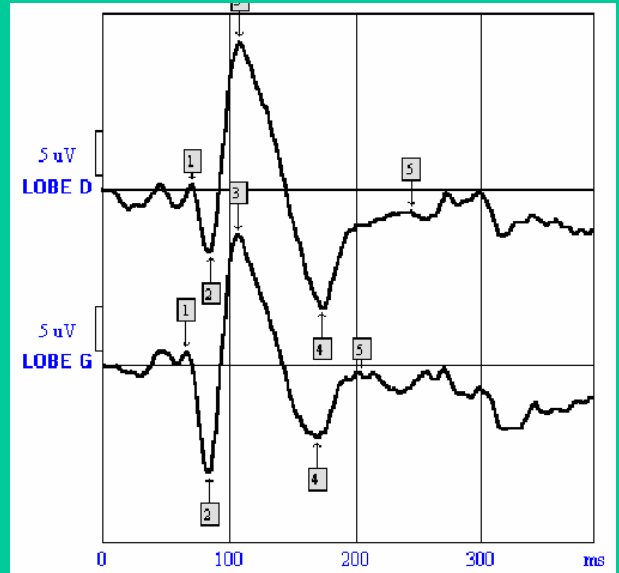
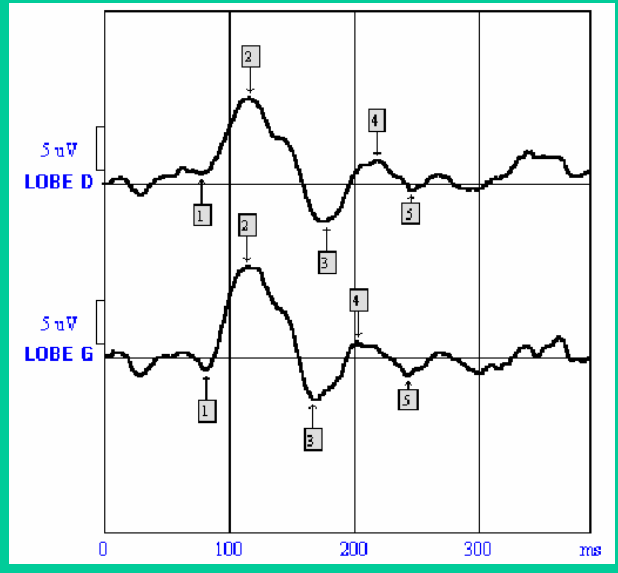
1st visit



OS

OD

2nd visit

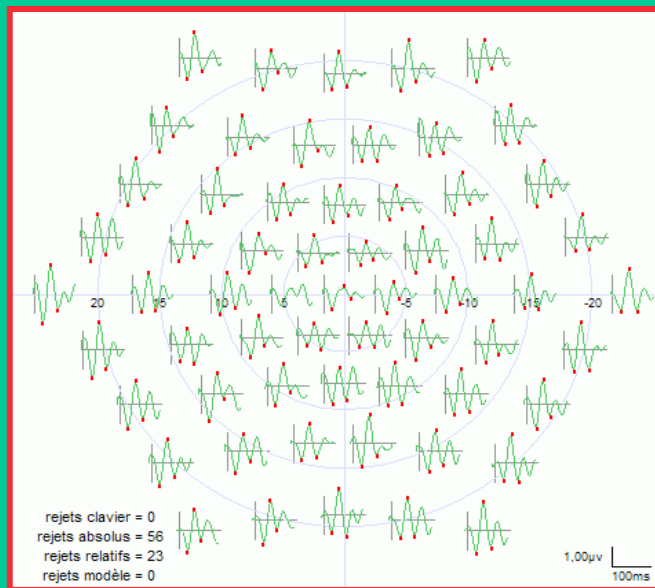


Evolution of multifocal ERG (local responses)

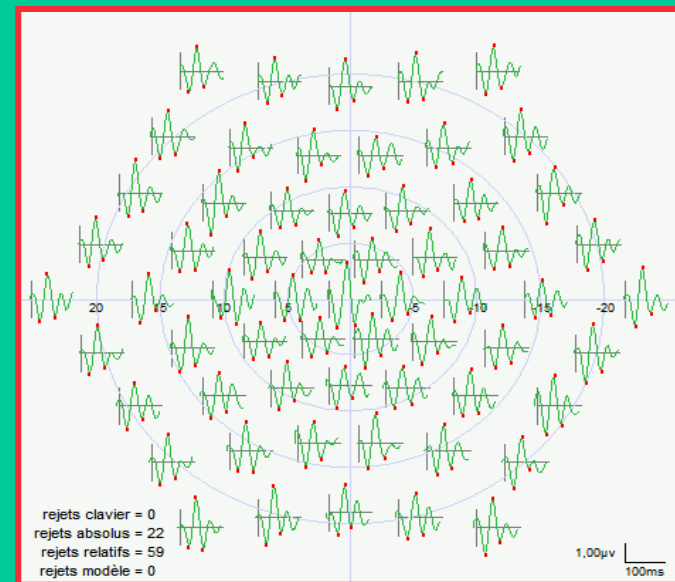
5- eye trauma



1st visit

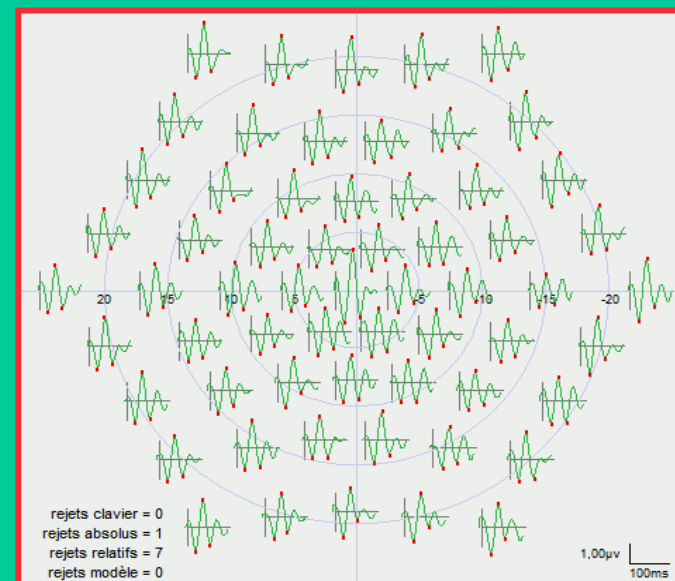
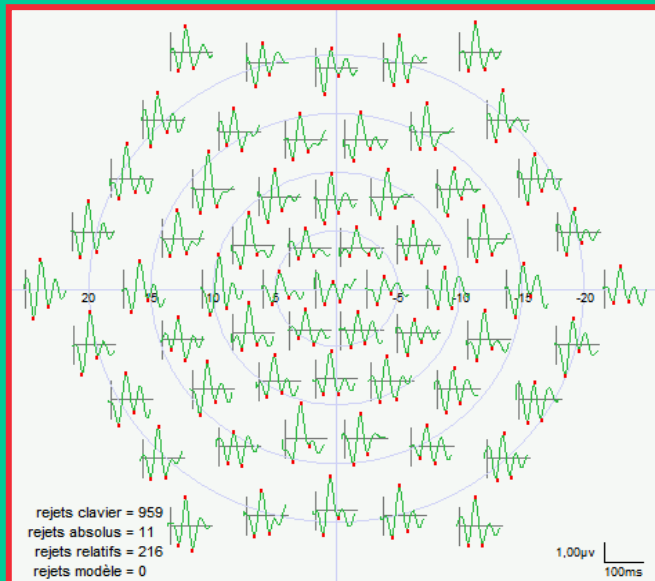


OS



OD

2nd visit

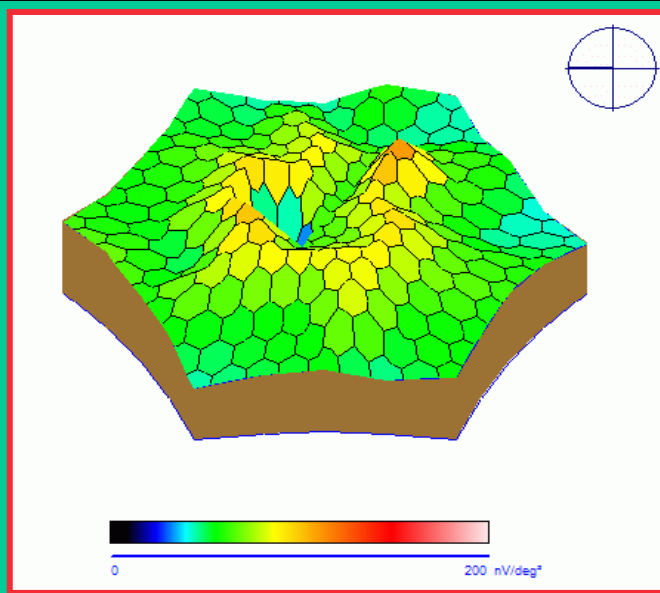


Evolution of multifocal ERG (3D map of P1 amplitude)

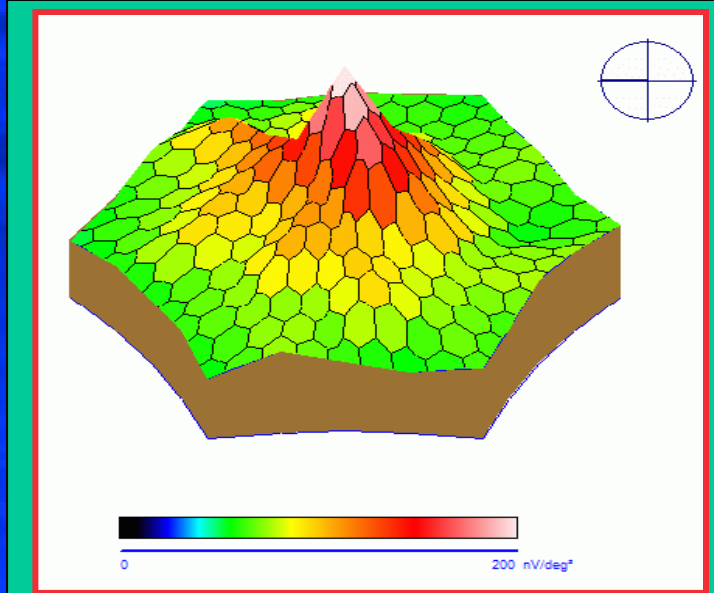
5- eye trauma



1st visit

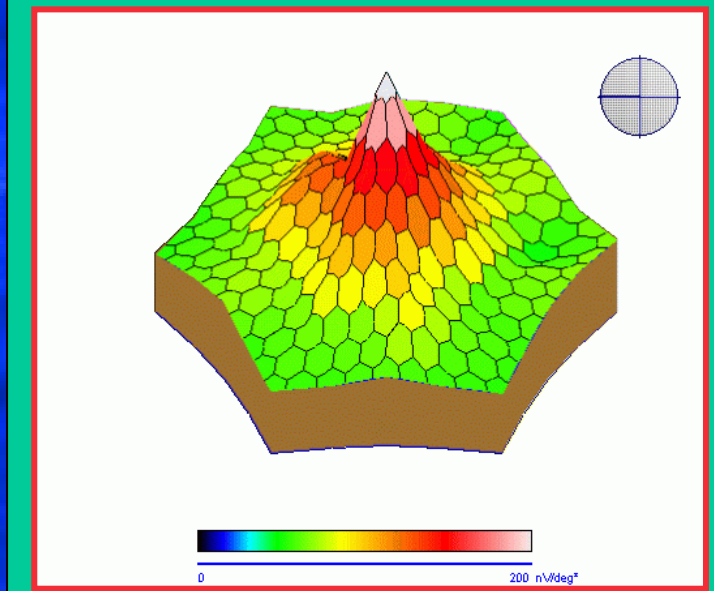
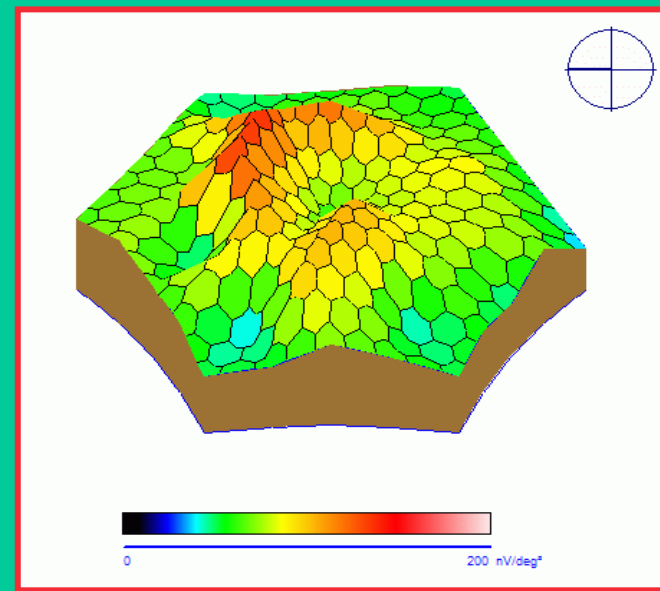


OS

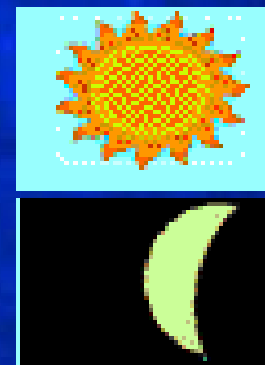
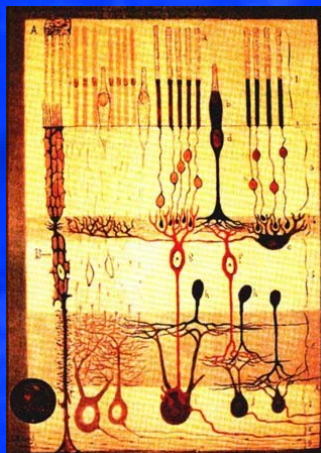


OD

2nd visit



Diagnosis specificity



	<i>LAYERS</i>	<i>ZONES</i>	<i>SUBSYSTEMS</i>
<i>VISUAL FIELD</i>	0	++++	0
<i>Standard ERG, EOG, VEP</i>	++++	0	++++
<i>Multifocal ERG, VEP</i>	+++	+++	0

Requirements

	<i>FIXATION</i>	<i>ATTENTION</i>
<i>Visual field</i>	++++	++++
<i>Standard ERG</i>	0	0
<i>Multifocal ERG</i>	++++	0
<i>Sensory EOG</i>	++	0
<i>Flash VEP</i>	0	0
<i>Pattern VEP</i>	+	+++
<i>Multifocal VEP</i>	++++	+++