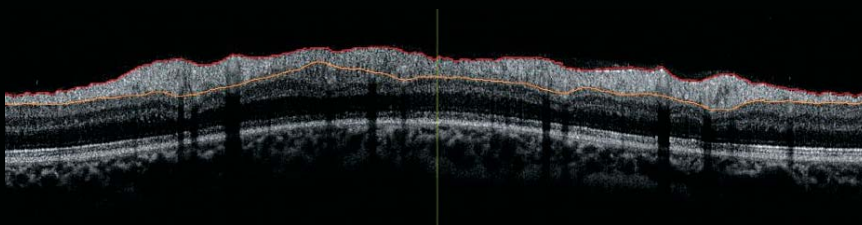
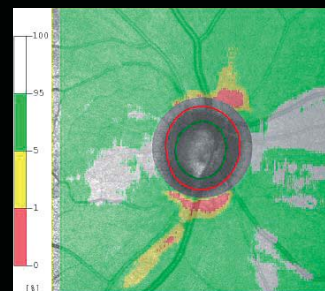
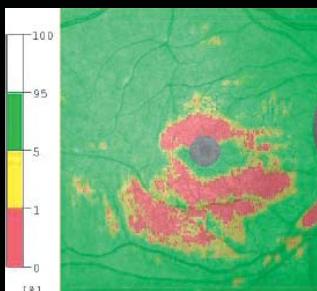
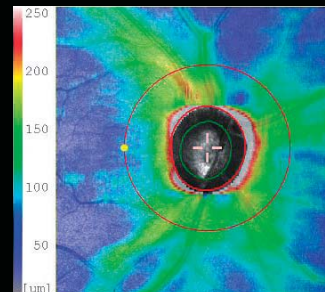
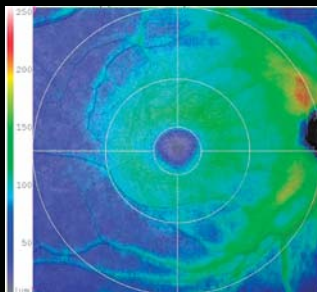




RS-3000
OCT RetinaScan



GLAUCOMA Clinical Data Book



Fernando Gomez Goyeneche, M.D.

CONTENTS

Introduction - Glaucoma Analysis	2
Stages of Glaucoma	3
Normal Eye	
28-year-old male, Right eye, BCVA 20/20	5
Preperimetric Glaucoma 1	
48-year-old female, Right eye, BCVA 20/20	6
Preperimetric Glaucoma 2	
46-year-old male, Right eye, BCVA 20/20	7
Early Glaucoma	
27-year-old female, Right eye, BCVA 20/20	8
Moderate Glaucoma 1	
62-year-old female, Both eyes, BCVA 20/20	9
Moderate Glaucoma 2	
55-year-old female, Right eye, BCVA 20/20	11
Advanced Glaucoma 1	
48-year-old male, Left eye, BCVA 20/20	12
Advanced Glaucoma 2	
75-year-old male, Right eye, BCVA 20/20	13
Author	14

>> RNFL thickness map

SLO image
SLO image showing optic disc

RNFL thickness map
Color-coded thickness map of RNFL layer (ILM to NFL / GCL)


Normative database
Color-coded map indicating distribution range of the patient's RNFL thickness in a population of normative eyes

TSNIT graph
Graph showing thickness from ILM to NFL / GCL on disc circle with comparison to a normative database

TSNIT analysis

Table of each RNFL thickness with color code based on normative database :

- Overall average
- Superior pole average
- Inferior pole average



>> [NFL+GCL+IPL] thickness map

[NFL+GCL+IPL] thickness map
Color-coded thickness map of [NFL+GCL+IPL] layers (ILM to IPL / INL) overlaid on SLO image


Analysis charts (Superior / Inferior pole, GChart)
Analysis charts of average thickness of each sector surrounding the macula with color code based on comparison to a normative database

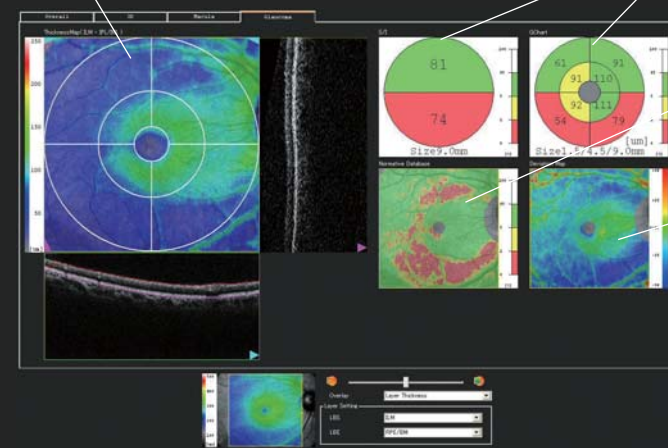
Normative database
Color-coded map indicating distribution range of the patient's [NFL+GCL+IPL] thickness in a population of normative eyes

- More than 95%
- Between 5 to 95%
- Between 1 to 5%
- 0 to 1%

Deviation map
Map indicating the deviation, including early variation even within normal range, from average thickness in a normative database

What the [NFL+GCL+IPL] are.
The [NFL+GCL+IPL] are layers composed of Nerve Fiber Layer (NFL), Ganglion Cell Layer(GCL), and Inner Plexiform Layer (IPL).





>> Retinal Pathology or Glaucoma?

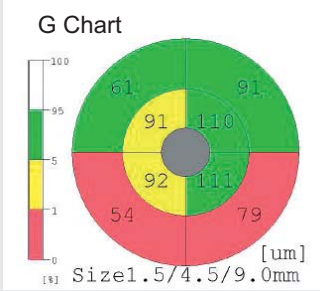
Glaucoma Screening with Normative DB

Thicker [NFL+GCL+IPL] than normal.

Normal [NFL+GCL+IPL] thickness

Thinner [NFL+GCL+IPL] than normal. **(Glaucoma Suspect)**

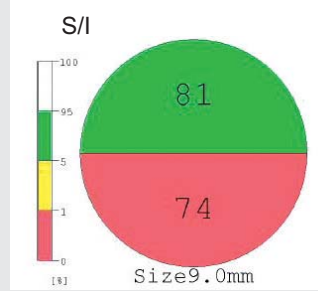
G Chart



Normal thickness temporally.

Thinner than normal inferiorly.

S/I

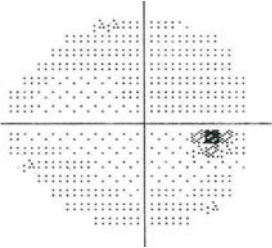
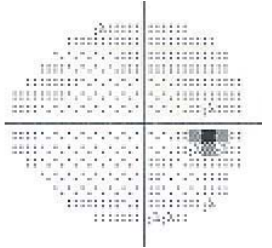
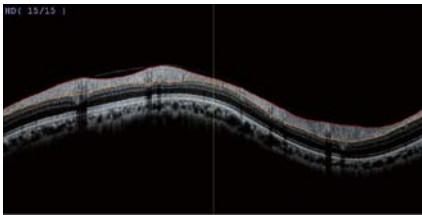
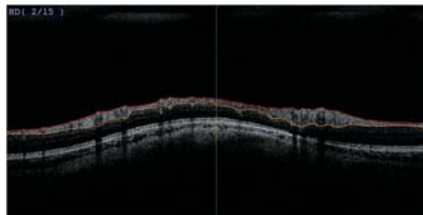
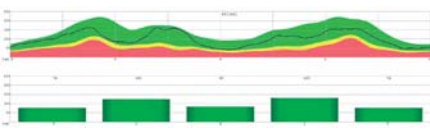
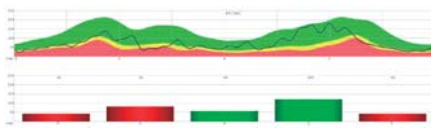
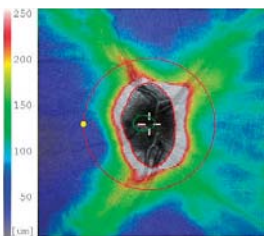
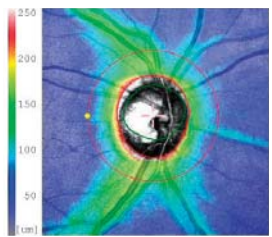
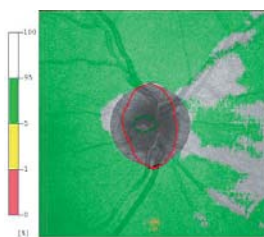
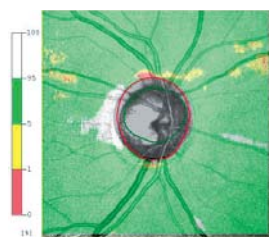
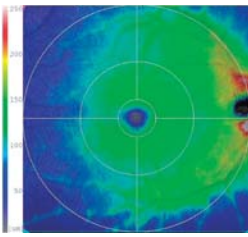
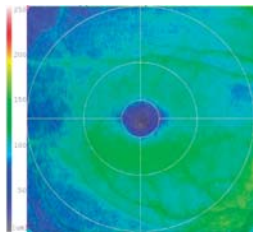
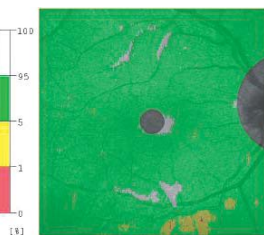
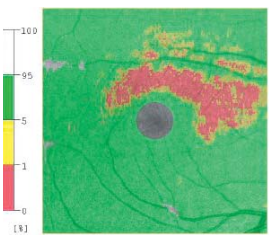


Normal Eye

→ See p.5

Preperimetric Level

→ See p.6

Visual Field			
TSNIT graph	B-Scan		
	Graph		
RNFL	Thickness Map		
	Normative Database		
[NFL+GCL+IPL]	Thickness Map		
	Normative Database		

Early Level

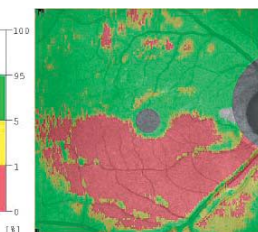
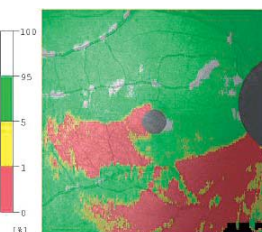
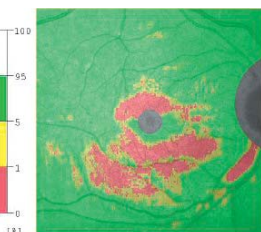
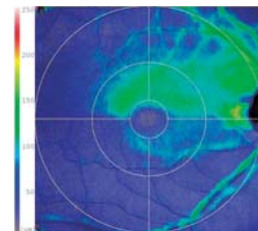
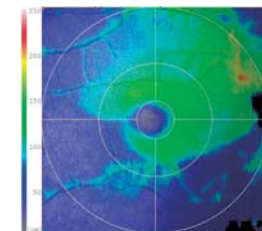
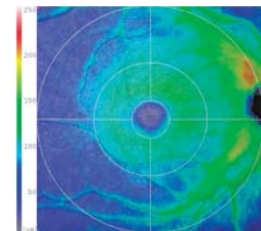
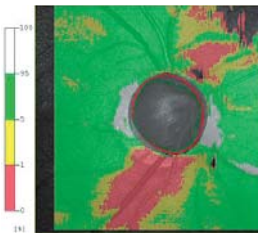
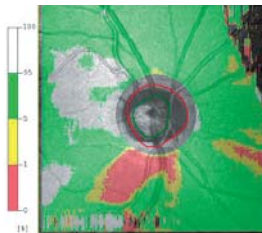
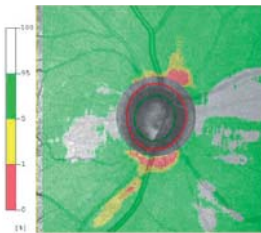
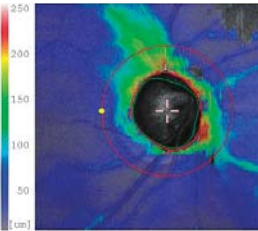
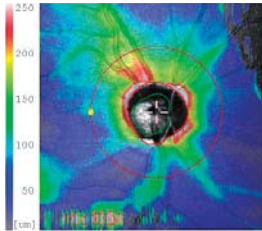
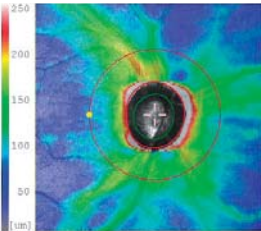
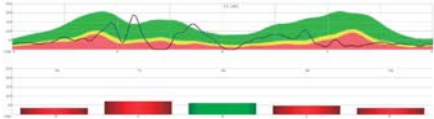
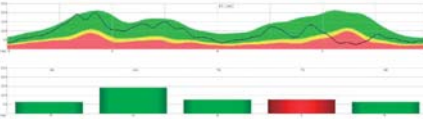
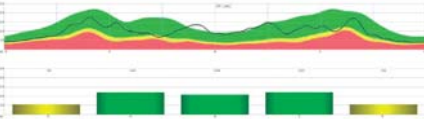
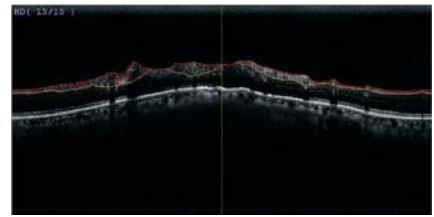
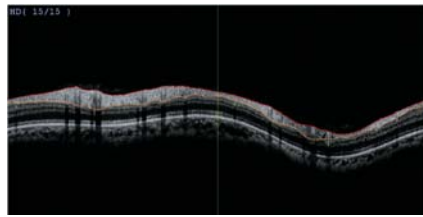
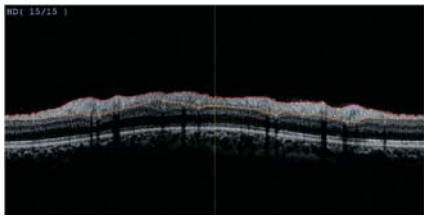
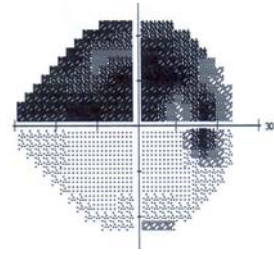
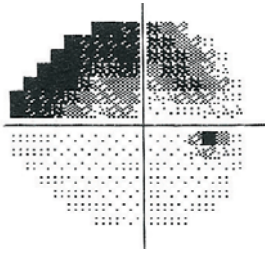
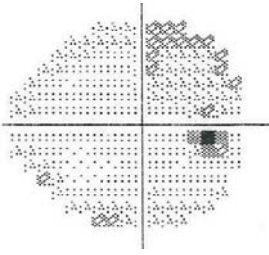
→ See p.8

Moderate Level

→ See p.11

Advanced Level

→ See p.13



Normal Eye

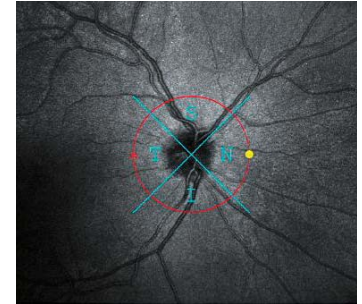
28-year-old male, Right eye, BCVA 20/20

A case of a normal, non-glaucomatous eye. No abnormalities are detected in the **Fundus Photo**, **SLO** (scanning laser ophthalmoscope) image, **TSNIT Graph**, **[NFL+GCL+IPL] thickness map**, **normative data base (NDB/ [NFL+GCL+IPL]) thickness map**, **G Chart** or **visual field**. The green color indicates no deviation in values in comparison to the normative database.

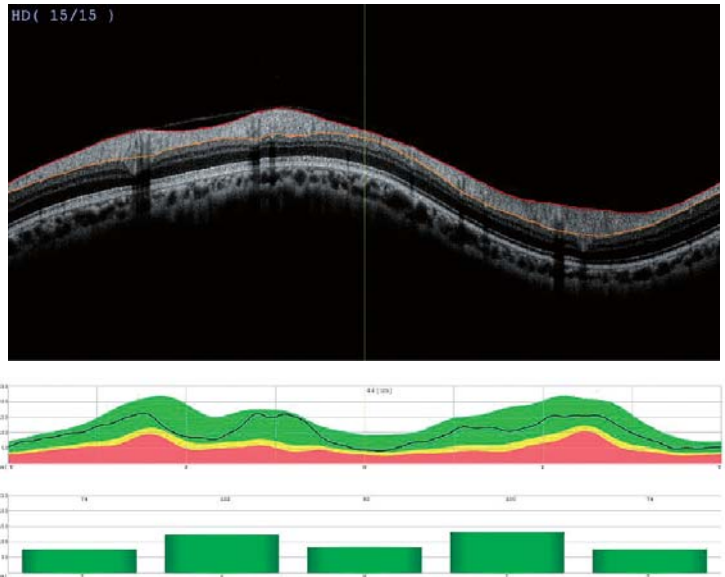
Fundus Photo



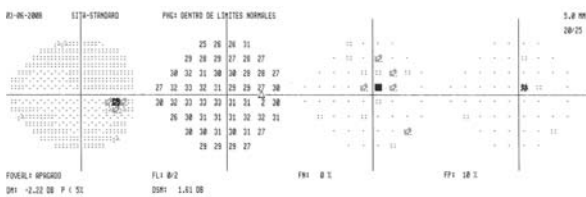
SLO



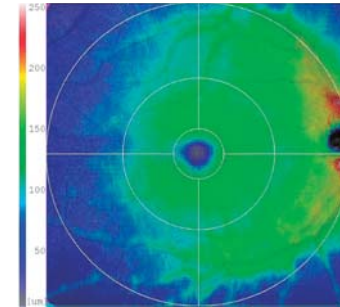
TSNIT Graph



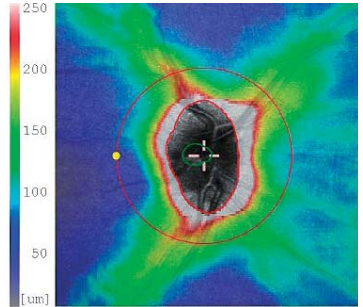
Perimeter
white-white



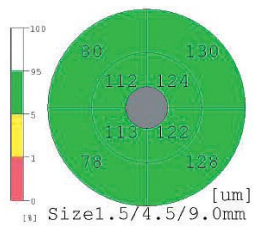
[NFL+GCL+IPL] thickness map



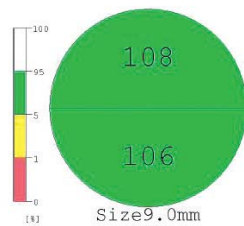
RNFL thickness map



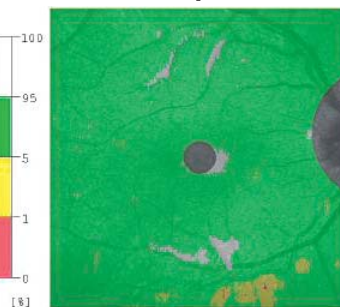
Analysis charts
G Chart



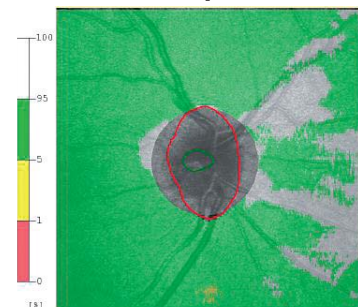
S/I



NDB/ [NFL+GCL+IPL] thickness map



NDB/ RNFL thickness map



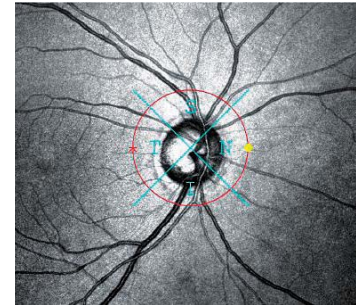
*Average thickness of each sector surrounding macula

A case of ocular hypertension.
 The **Fundus Photo** and the **SLO** image appear normal.
 The **TSNIT Graph** shows thinner than normal superior retinal nerve fiber bundle.
 The **RNFL thickness map** shows that the thinning of the nerve fiber bundle is localized to the superotemporal area.
 On the **NDB/ [NFL+GCL+IPL] thickness map**, the thinnest superior regions are visible.
Perimeter shows normal visual field.
 The **G Chart** shows thinning superiorly that concurs with the location on **[NFL+GCL+IPL] thickness map**.

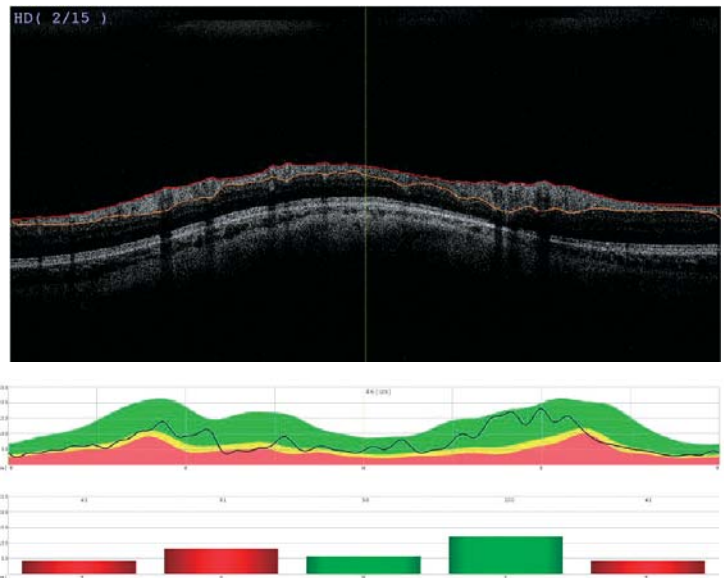
Fundus Photo



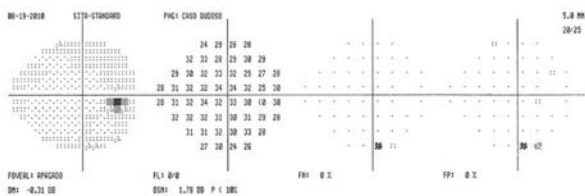
SLO



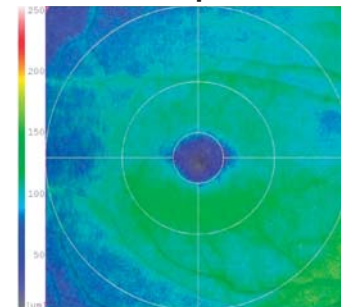
TSNIT Graph



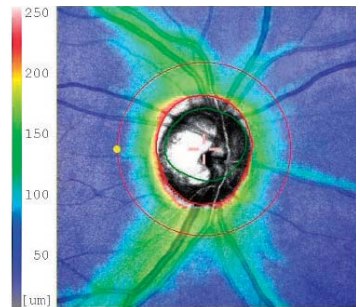
Perimeter
white-white



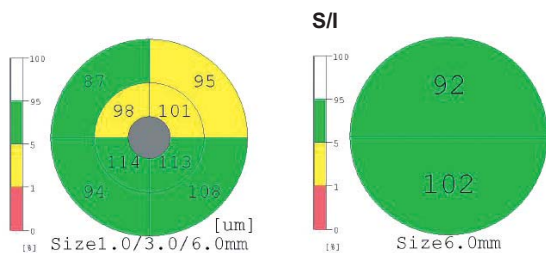
[NFL+GCL+IPL] thickness map



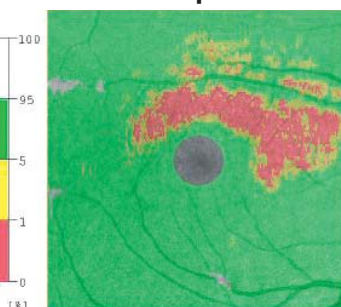
RNFL thickness map



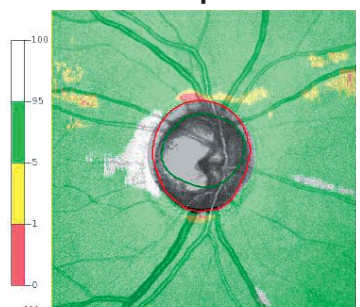
Analysis charts
G Chart



NDB/ [NFL+GCL+IPL] thickness map



NDB/ RNFL thickness map



*Average thickness of each sector surrounding macula

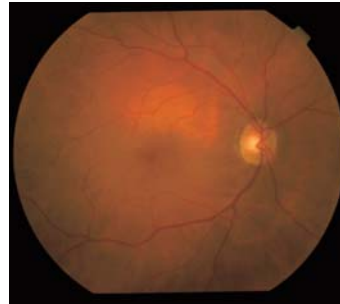
A patient with pigmentary dispersion syndrome and uncontrolled intraocular pressure. The **Fundus Photo** of the right eye and the **SLO** image appear normal.

Inferior and superior thinning can be seen on the **TSNIT Graph** and **[NFL+GCL+IPL] thickness maps**.

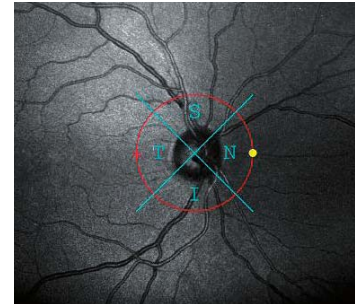
A normative database of the **RNFL thickness map** shows superior and inferior wedge-shaped defects in yellow/red.

White-white and **SWAP** perimetry are normal. The **Analysis charts** show thinning inferiorly. The **TSNIT Graph** shows decreased thickness in the nasal and inferior quadrants.

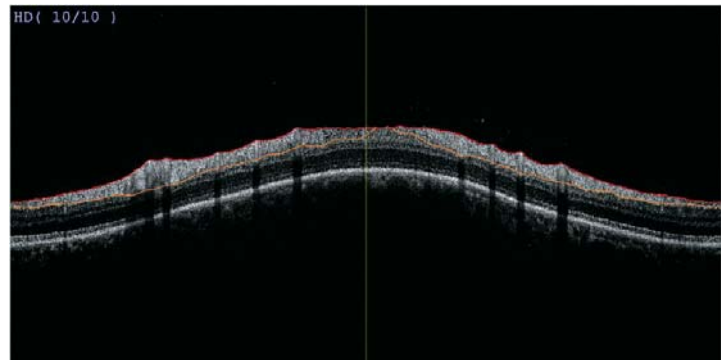
Fundus Photo



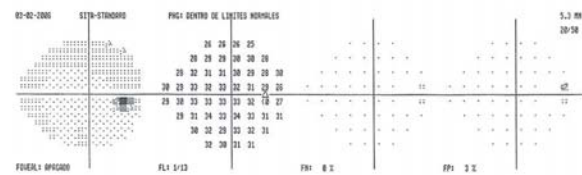
SLO



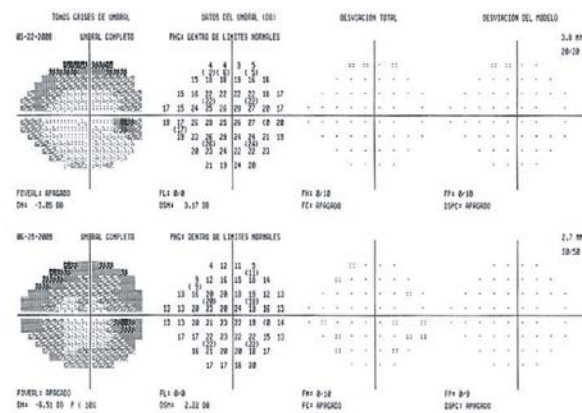
TSNIT Graph



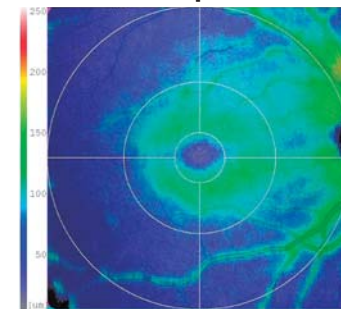
Perimeter white-white



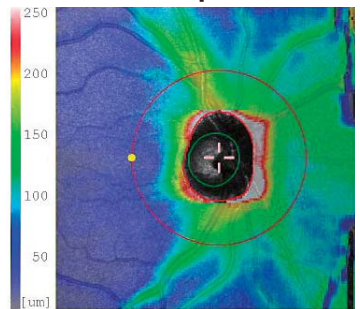
SWAP



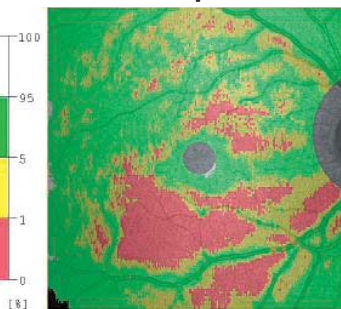
[NFL+GCL+IPL] thickness map



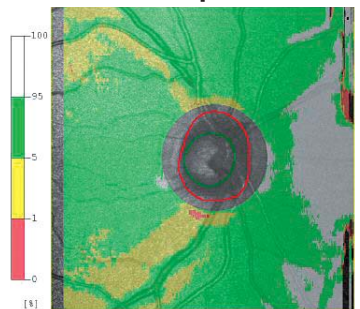
RNFL thickness map



NDB/ [NFL+GCL+IPL] thickness map

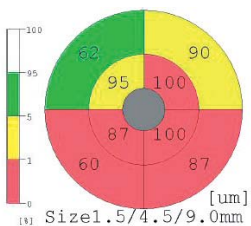


NDB/ RNFL thickness map



Analysis charts

G Chart



SI



*Average thickness of each sector surrounding macula

The right eye of an Ocular Hypertension (OHT) patient.

Suspicious temporal thinning is present on the **TSNIT Graph** and **[NFL+GCL+IPL] thickness map**.

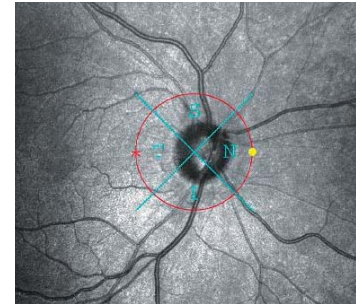
Thinning of the nerve fiber bundle that is localized inferiorly and temporally in the **[NFL+GCL+IPL] thickness map**, is represented in red in the **NDB/ [NFL+GCL+IPL] thickness map** and is quantified in red on the **G Chart**.

Both **white-white** and **SWAP** visual fields have mild changes, generalized depression of sensitivity and enlargement of the blind-spot.

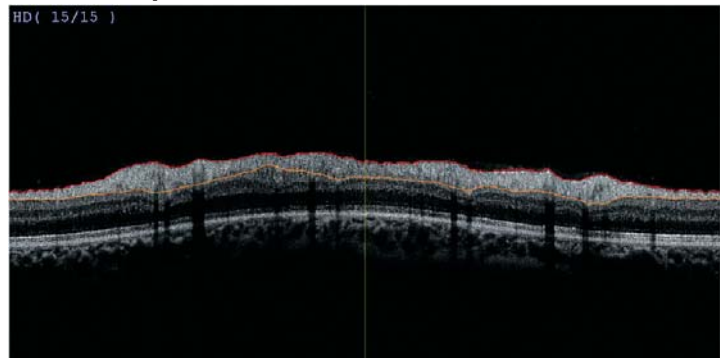
Fundus Photo



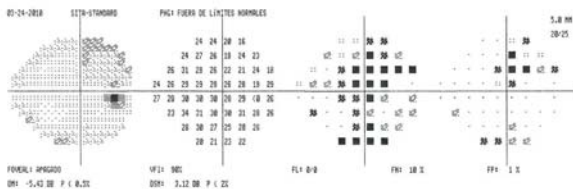
SLO



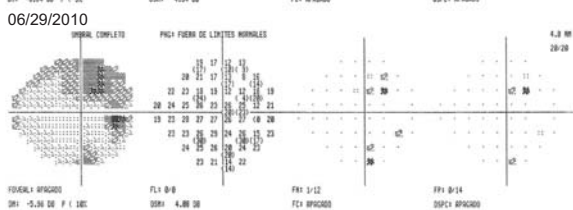
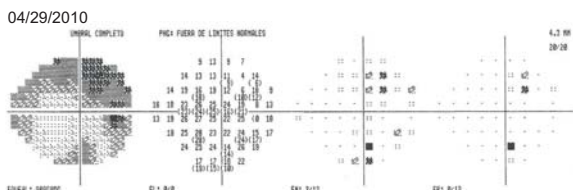
TSNIT Graph



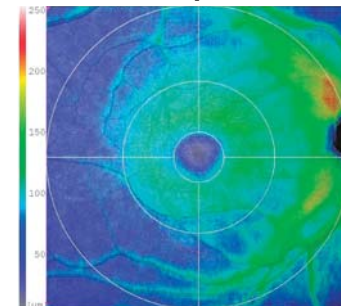
Perimeter white-white



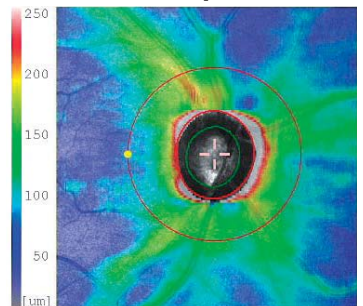
SWAP



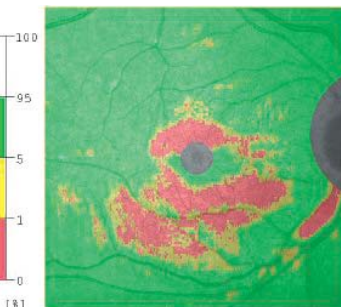
[NFL+GCL+IPL] thickness map



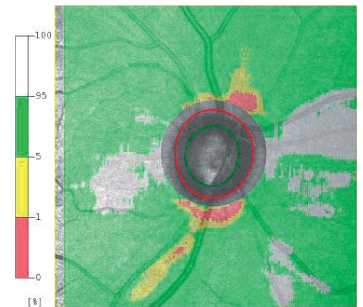
RNFL thickness map



NDB/ [NFL+GCL+IPL] thickness map

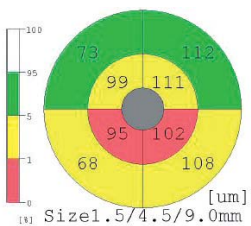


NDB/ RNFL thickness map

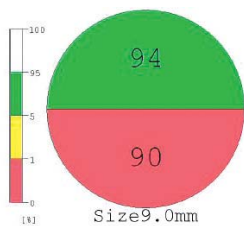


Analysis charts

G Chart



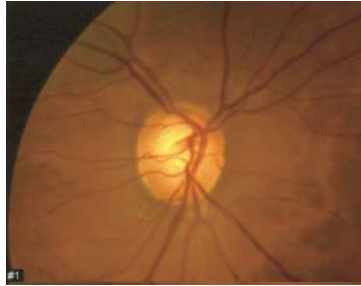
SI



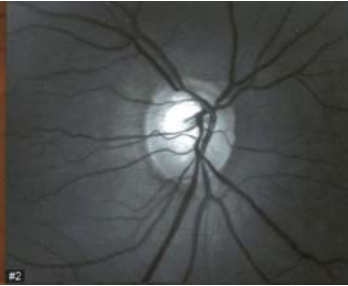
*Average thickness of each sector surrounding macula

Right Eye

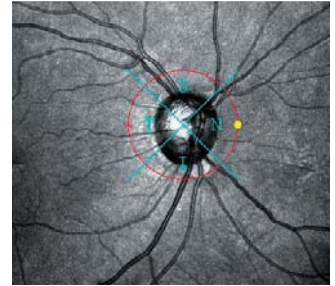
Fundus Photo



(Red-free)

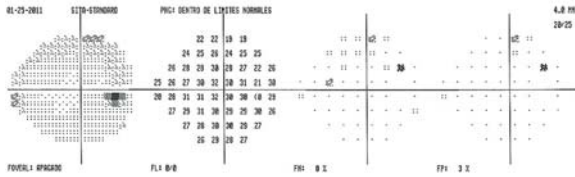


SLO

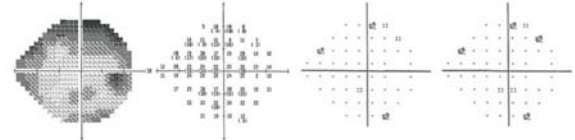


Perimeter

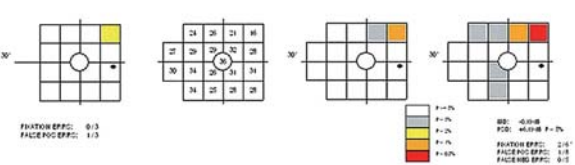
white-white



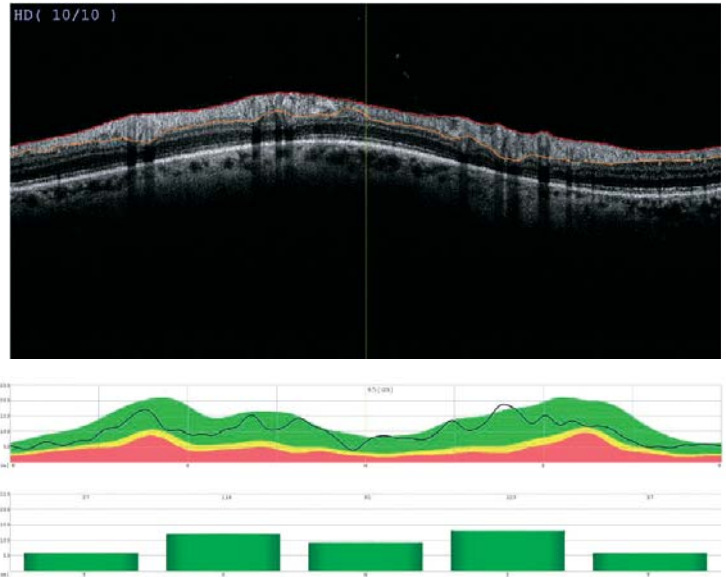
SWAP



FDT

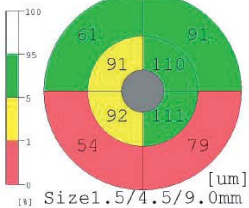


TSNIT Graph

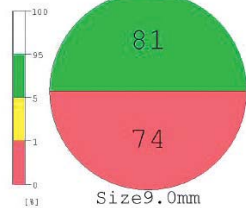


Analysis charts

G Chart

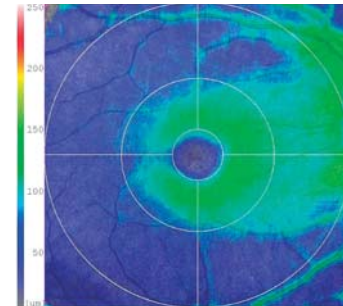


S/I

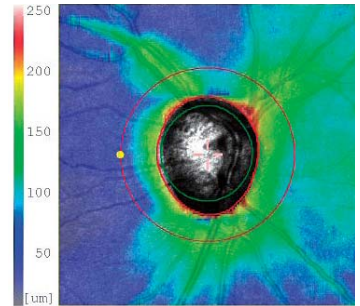


*Average thickness of each sector surrounding macula

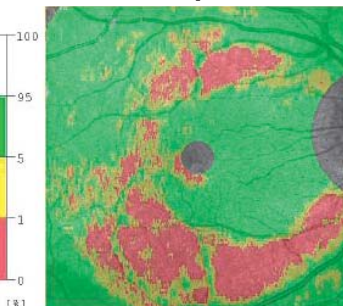
[NFL+GCL+IPL] thickness map



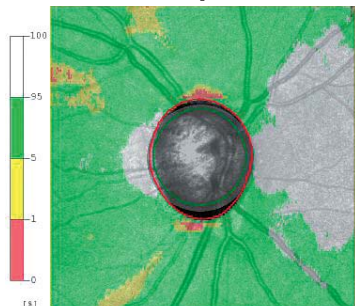
RNFL thickness map



NDB/ [NFL+GCL+IPL] thickness map



NDB/ RNFL thickness map



Fundus Photos and SLO images show abnormal optic disc changes despite a normal TSNIT Graph.

A mild superotemporal defect is evident in blue while a wide localized defect is evident inferotemporally in the [NFL+GCL+IPL] thickness map.

The red color highlights the affected areas in the NDB/ [NFL+GCL+IPL] thickness map.

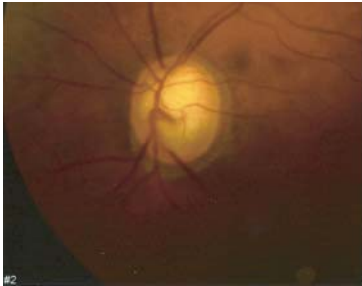
Single field analysis of white-white printout appears normal, and SWAP shows depression of superior sensitivity.

Frequency doubling technology (FDT) shows mild superior defects.

G Chart shows abnormal values inferiorly.

Left Eye

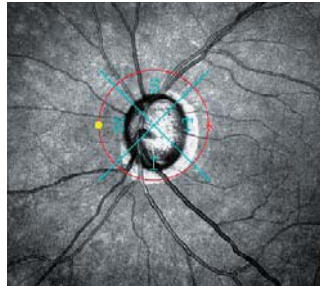
Fundus Photo



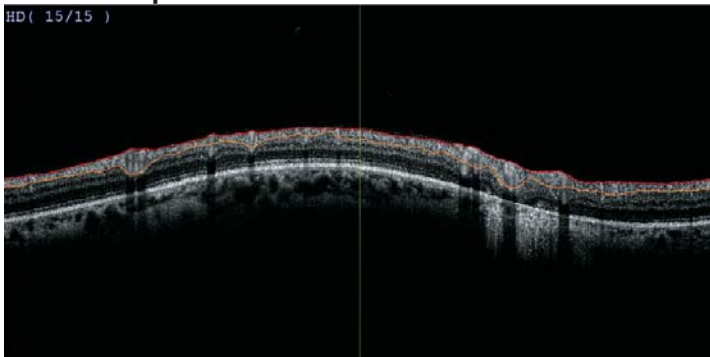
(Red-free)



SLO

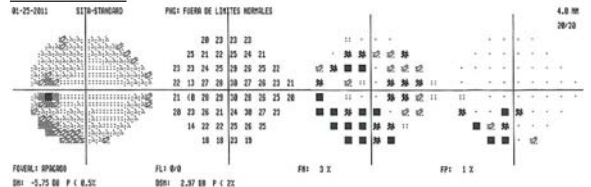


TSNIT Graph

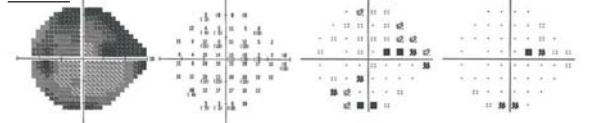


Perimeter

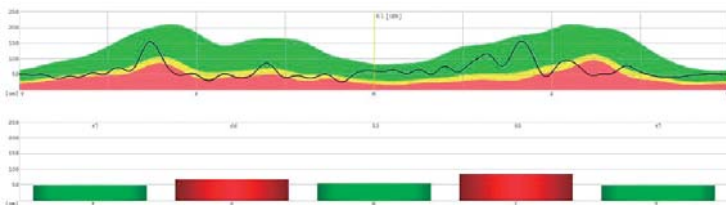
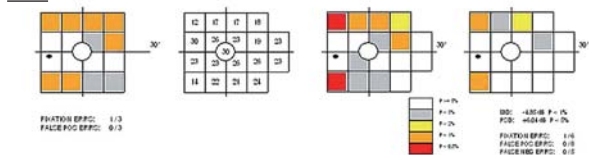
white-white



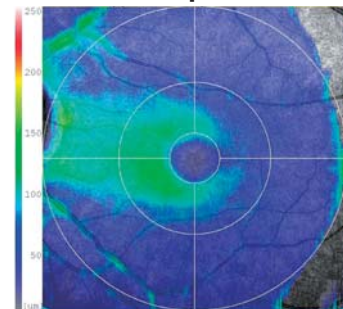
SWAP



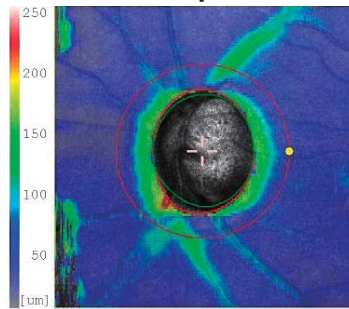
FDT



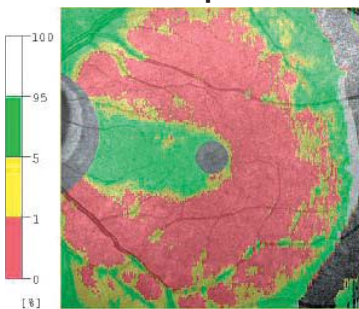
[NFL+GCL+IPL] thickness map



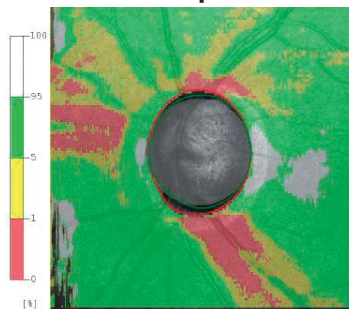
RNFL thickness map



NDB/ [NFL+GCL+IPL] thickness map

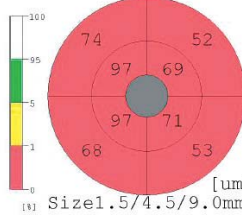


NDB/ RNFL thickness map

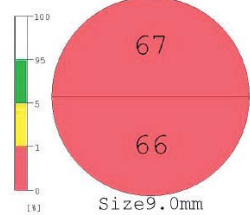


Analysis charts

G Chart



S/I



*Average thickness of each sector surrounding macula

The optic disc of both eyes show mild asymmetry.

The **TSNIT Graph** is abnormal in the superior and inferior quadrants.

The large area in blue on the **[NFL+GCL+IPL] thickness map** indicates the effect on the superior and inferior bundles.

The areas are highlighted in red in the **NDB/ [NFL+GCL+IPL] thickness map**.

The visual field demonstrates diffuse loss of sensitivity and an inferior increase in the size of the blind-spot.

SWAP shows depression of superior sensitivity. Frequency doubling technology (**FDT**) shows superior mild defects.

The entire **G Chart** shows abnormal values (red color).

Primary open angle glaucoma (POAG) of the right eye with an inferior localized notch at 6 o'clock and a wide localized wedge-shaped defect in the inferior temporal nerve fiber layer bundle (Hoyt's sign).

The thinner inferior thickness corresponds well with the red bar in the inferior quadrant in the **TSNIT Graph**.

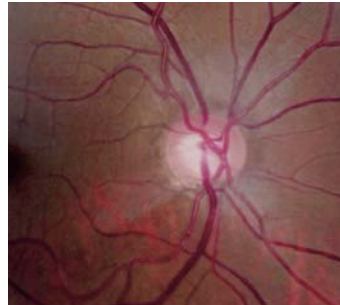
The localized nerve fiber layer defect is blue on the **[NFL+GCL+IPL] thickness map** and red when compared to the normative database (**NDB/ [NFL+GCL+IPL] thickness map**).

The corresponding superior arcuate defect is evident in **white-white** perimetry.

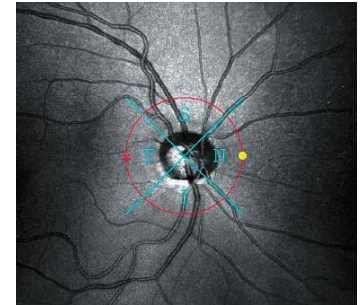
G Chart is abnormal inferiorly.

*Hoyt's sign = Wedge-shaped defect of RNFL, which can be seen in eyes with glaucoma.

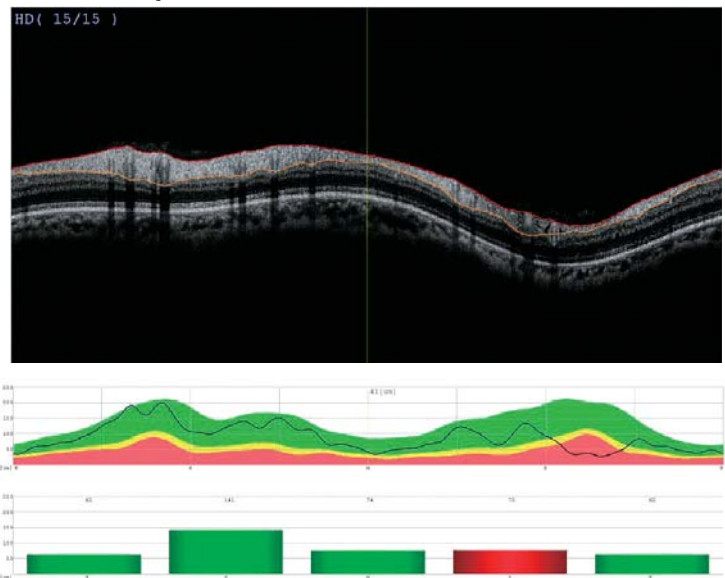
Fundus Photo



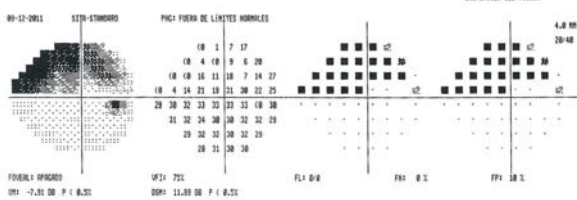
SLO



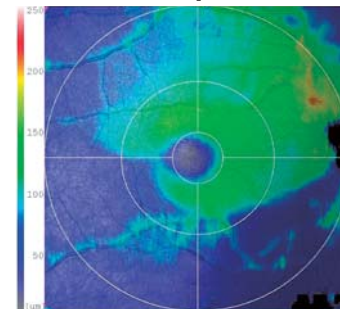
TSNIT Graph



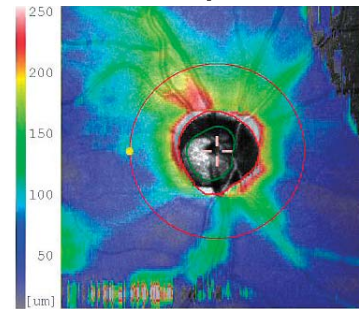
Perimeter
white-white



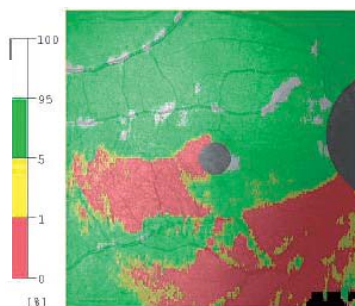
[NFL+GCL+IPL] thickness map



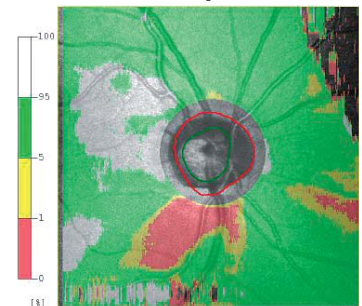
RNFL thickness map



NDB/ [NFL+GCL+IPL] thickness map

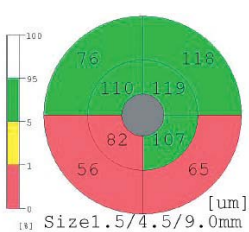


NDB/ RNFL thickness map

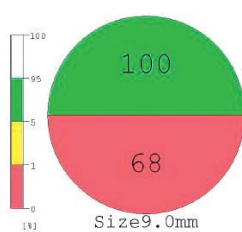


Analysis charts

G Chart



S/I



*Average thickness of each sector surrounding macula

This left eye has been followed as a case of primary open-angle glaucoma (POAG). The **Fundus Photo** shows an slightly tilted disc and the **SLO** image shows small temporal peripapillary atrophy.

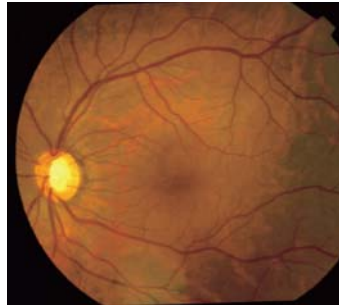
The thickness of the temporal region in the **TSNIT Graph** is abnormal.

A thin area on the **[NFL+GCL+IPL] thickness map** is evident in blue and red color in the superior temporal nerve fiber bundle in **NDB/ [NFL+GCL+IPL] thickness map**.

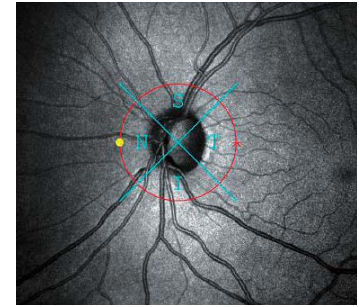
The visual field shows an inferior enlargement of the blind spot.

G Chart is also largely abnormal.

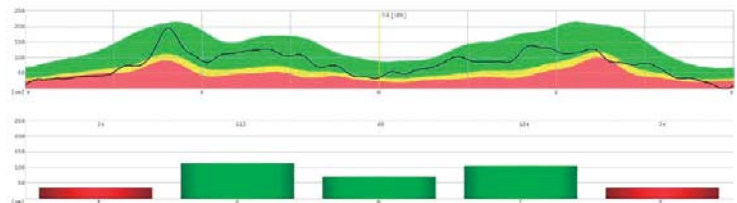
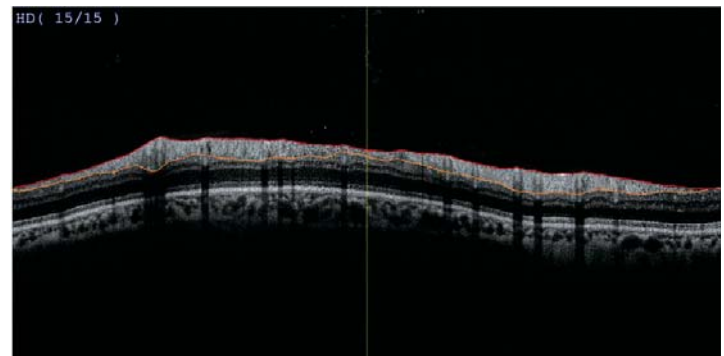
Fundus Photo



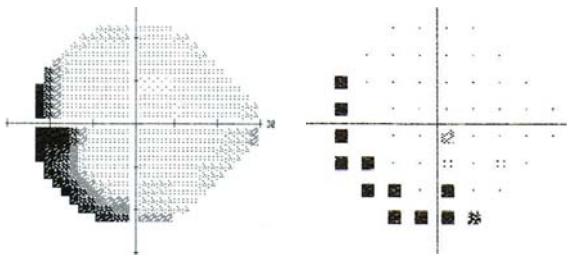
SLO



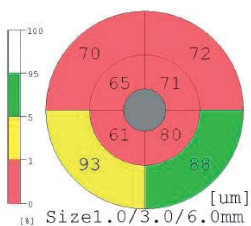
TSNIT Graph



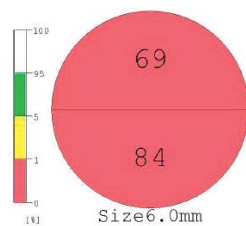
Perimeter
white-white



Analysis charts
G Chart

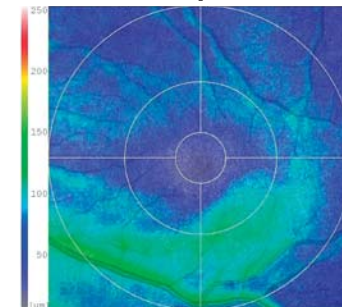


S/I

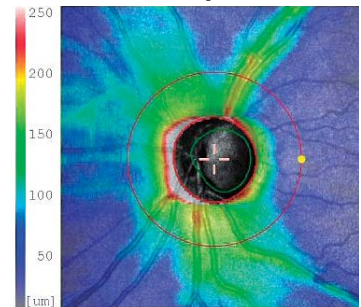


*Average thickness of each sector surrounding macula

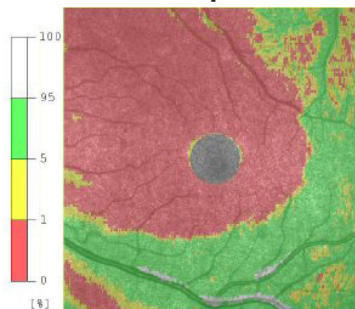
[NFL+GCL+IPL] thickness map



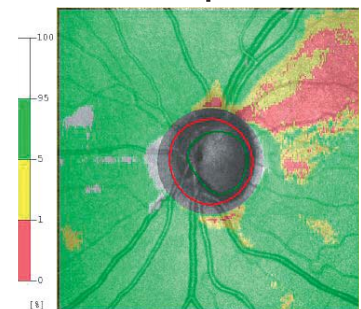
RNFL thickness map



NDB/ [NFL+GCL+IPL] thickness map



NDB/ RNFL thickness map



This patient has advanced primary open-angle glaucoma (POAG) in the right eye. Glaucomatous optic disc with localized inferior notch and a vascular loop can be seen in the **Fundus Photo**.

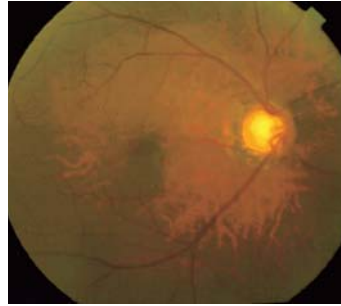
SLO image shows peripapillary atrophy. The **TSNIT Graph** shows a generalized thinning of the RNFL.

Thinning is shown in blue on the **[NFL+GCL+IPL] thickness map** and in red on the **NDB/ [NFL+GCL+IPL] thickness map**.

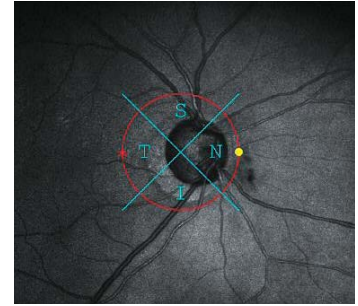
A severe superior bundle defect is shown in the right eye visual field.

The **G Chart** shows an upper normal complex in green and is abnormal inferiorly (red).

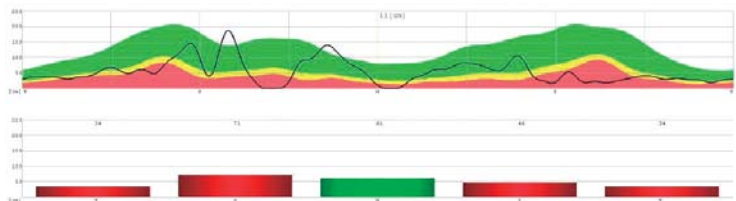
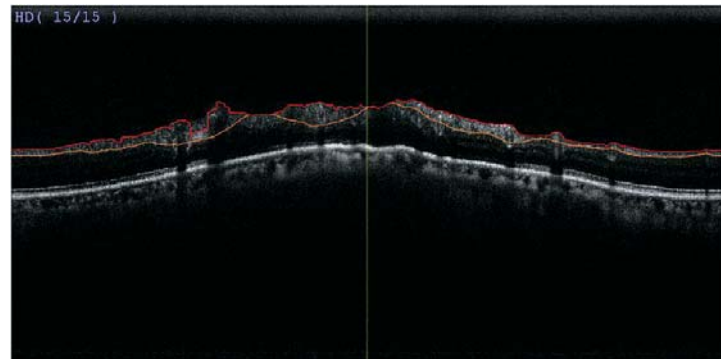
Fundus Photo



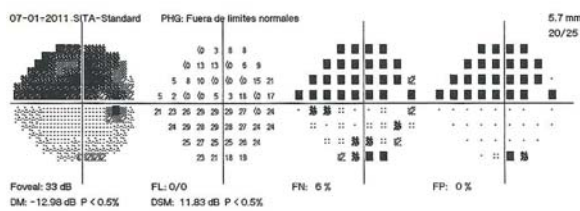
SLO



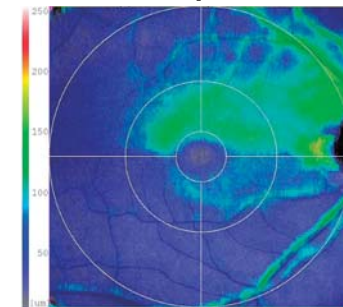
TSNIT Graph



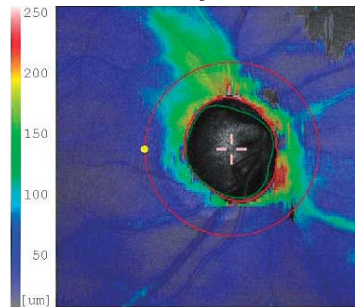
Perimeter white-white



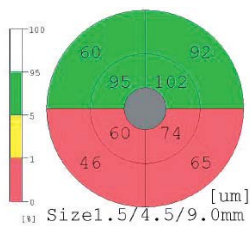
[NFL+GCL+IPL] thickness map



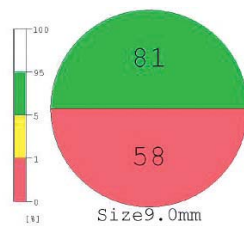
RNFL thickness map



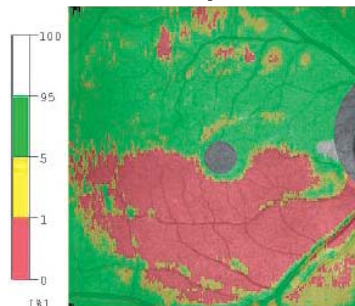
Analysis charts G Chart



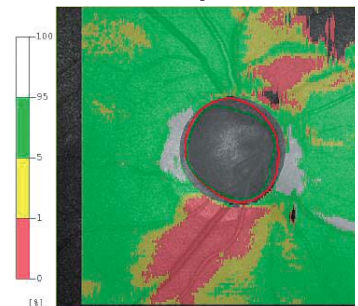
S/I



NDB/ [NFL+GCL+IPL] thickness map



NDB/ RNFL thickness map



*Average thickness of each sector surrounding macula

Author



Fernando Gomez Goyeneche, M.D.
(Bogota, Colombia)

Senior Consultant and Head of the Glaucoma Clinic at Hospital Militar Central

Associate Professor, Department of Ophthalmology 1993 to present
Director of the Glaucoma fellowship program since 2001
Universidad Militar Nueva Granada, Bogota, Colombia

President of the Colombian Society of Ophthalmology (2010 – 2012)
Past President of the Glaucoma Colombia Association (2008 – 2010)
Member of the American Academy of Ophthalmology (AAO),
Association for Research in Vision and Ophthalmology (ARVO),
Pan-American Association of Ophthalmology (PAAO),
Latin America Glaucoma Society (LAGS) and
Pan-American Glaucoma Society

Invited to numerous national and international meetings as a speaker.
Awarded special recognition for various investigational projects.



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