An Approach to Papilledema

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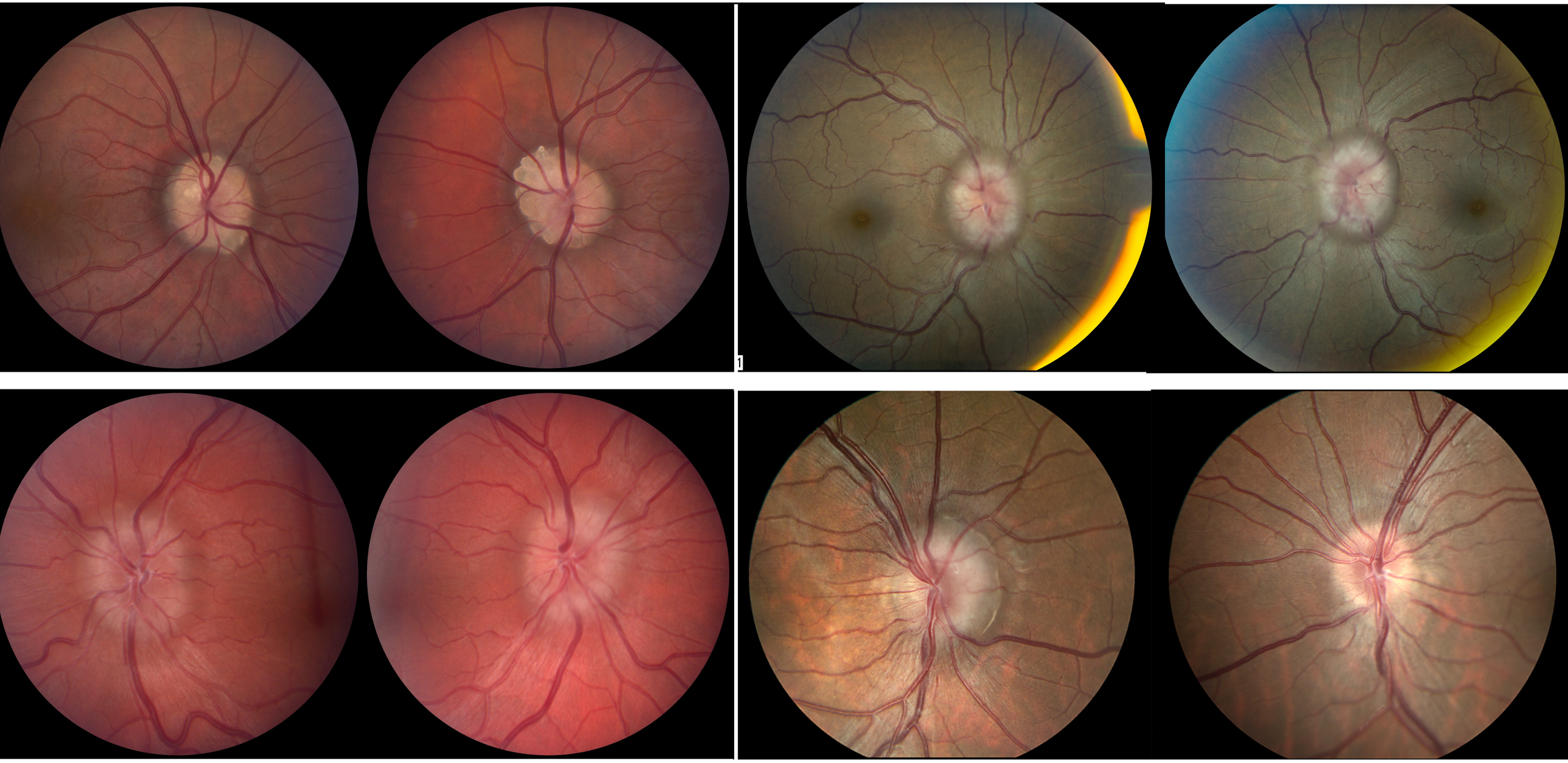
Learning objectives

1. Distinguish true papilledema from pseudopapilledema using examination and ancillary testing methods
2. Differentiate optic disc swelling from elevated intracranial pressure from other disorders
3. Initiate a directed and timely workup for underlying causes of papilledema
4. Institute a management plan based on best available evidence



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Ancillary testing

Visual fields

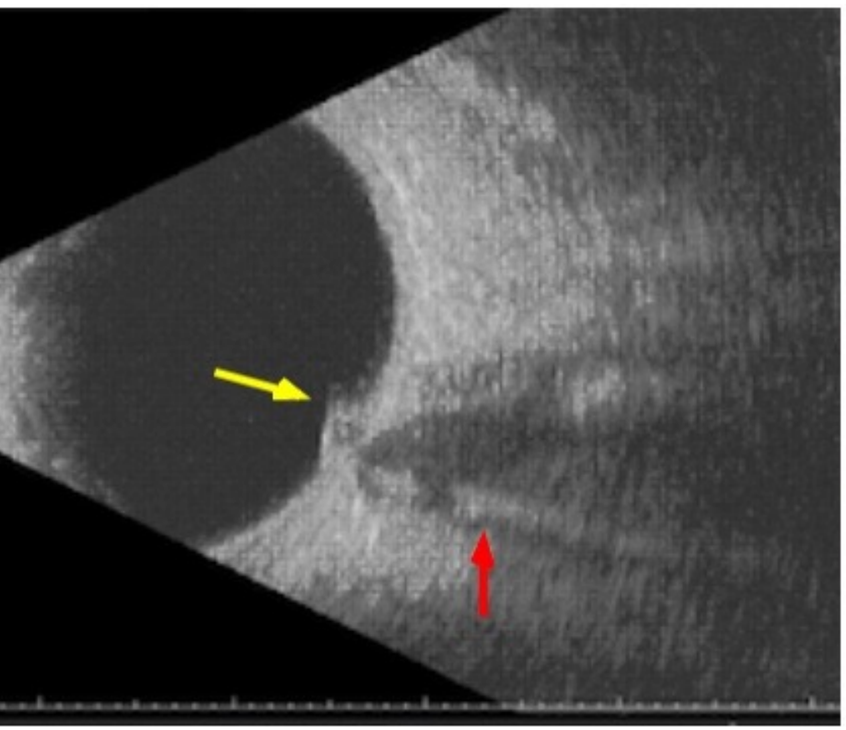
- Automated perimetry
- Goldmann (kinetic) perimetry

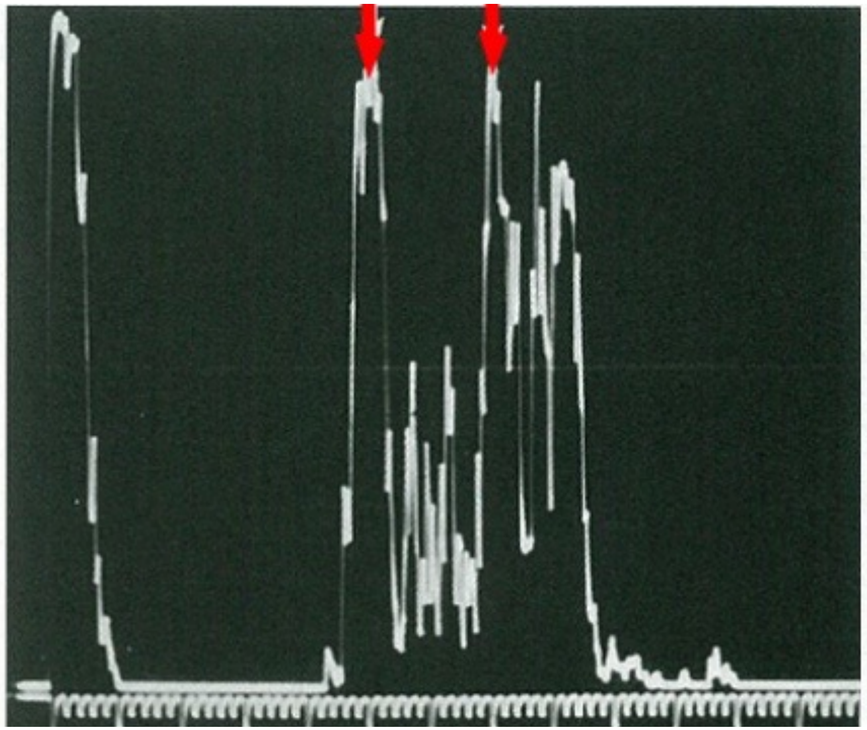
Echography

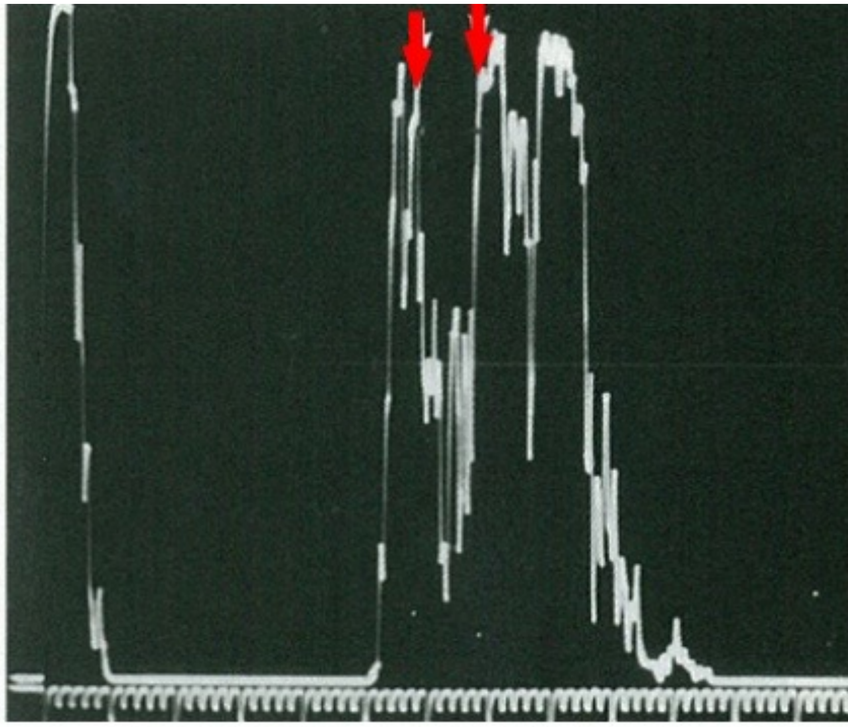
- B-scan
- A-scan + B-scan

Optical coherence tomography

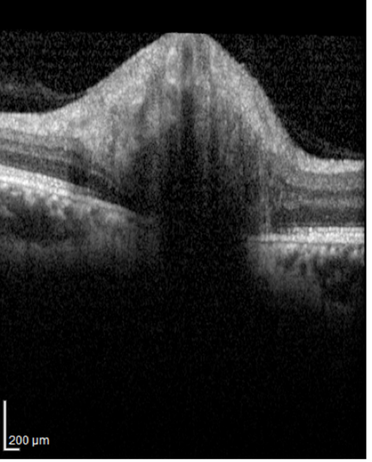
- Peripapillary retinal nerve fibre layer
- Macular GCIPL complex
- OCT-A

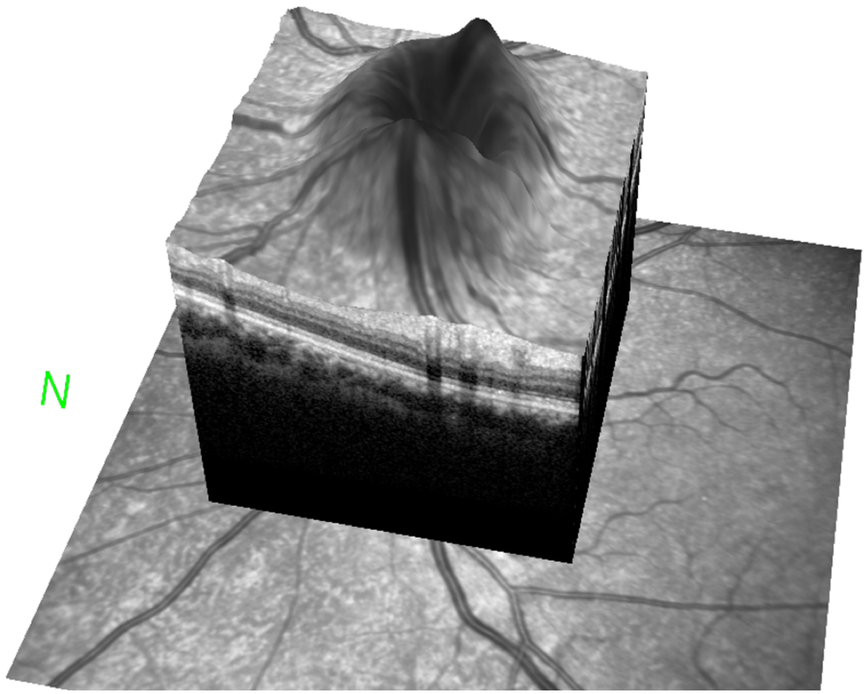


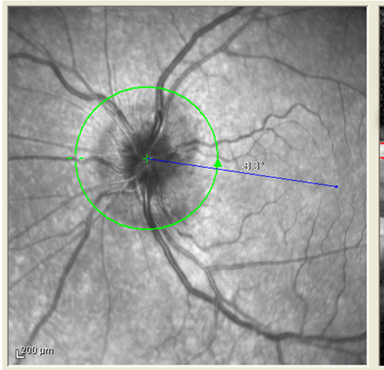


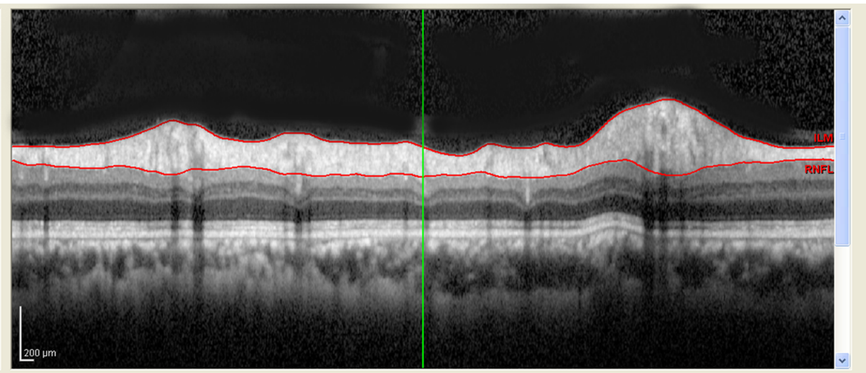


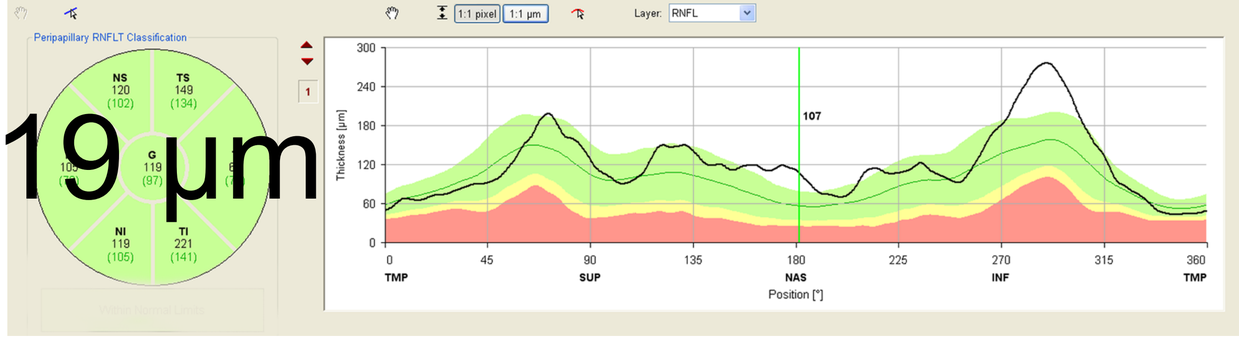
Kohlil et al. 43rd Annual Meeting of NANOS, Washington DC 2017



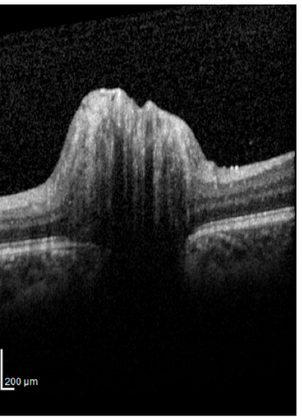


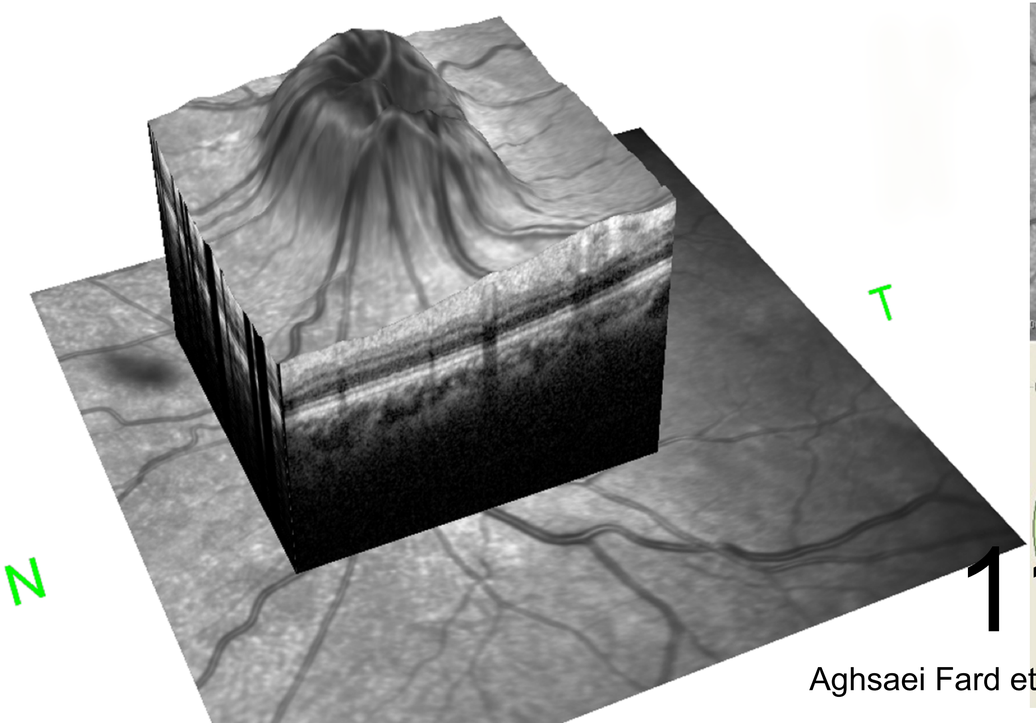


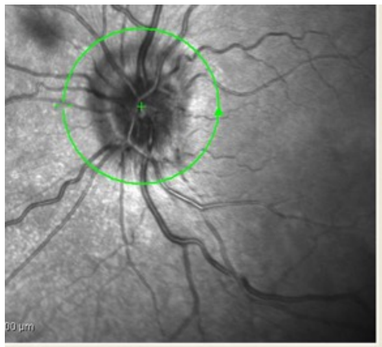


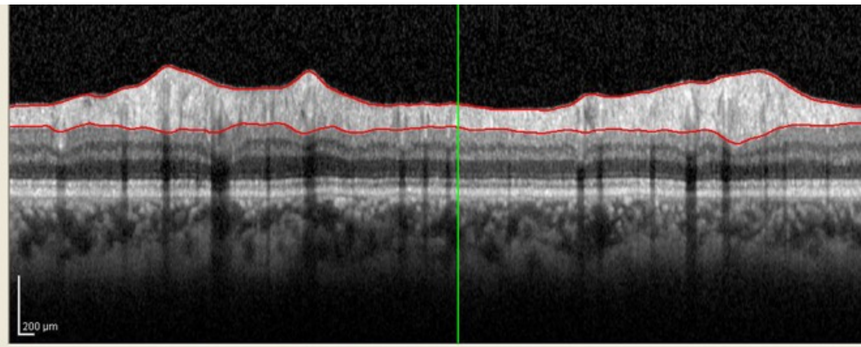


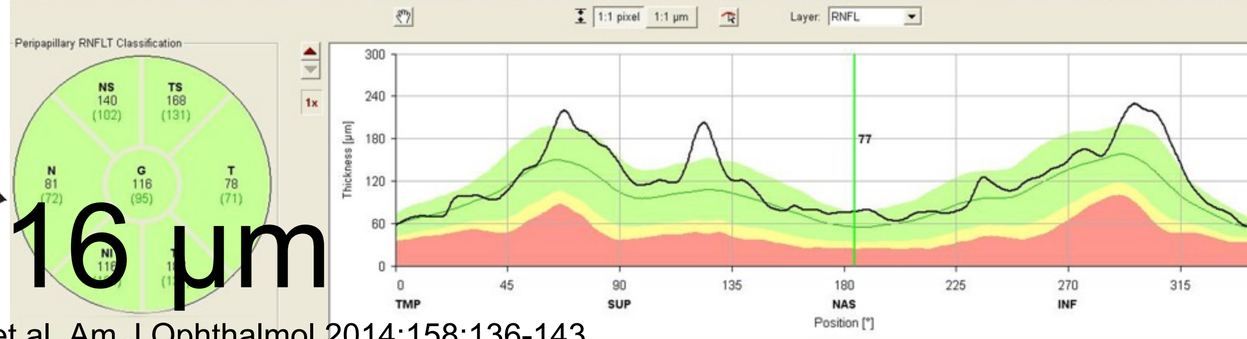
119 µm





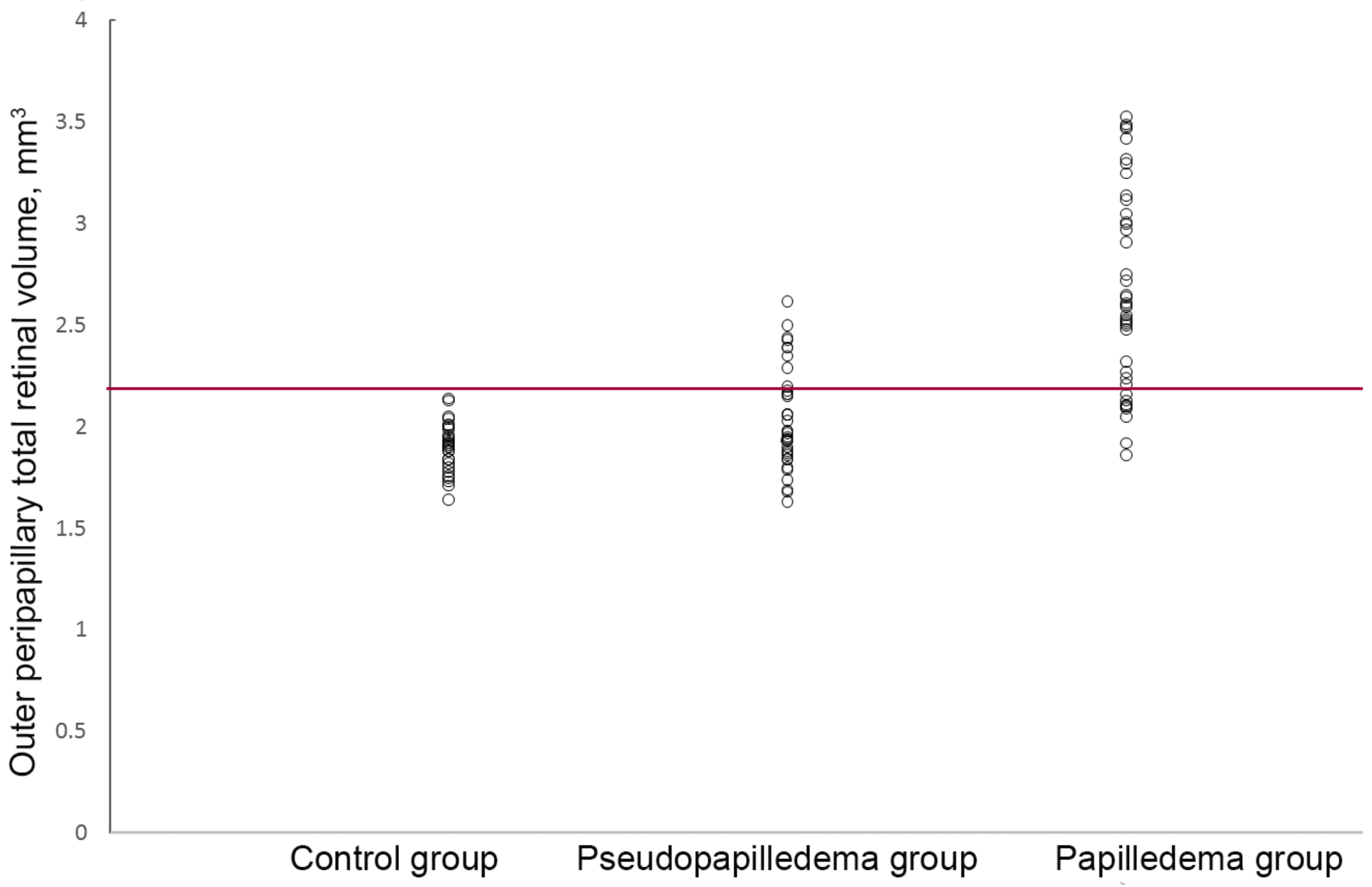




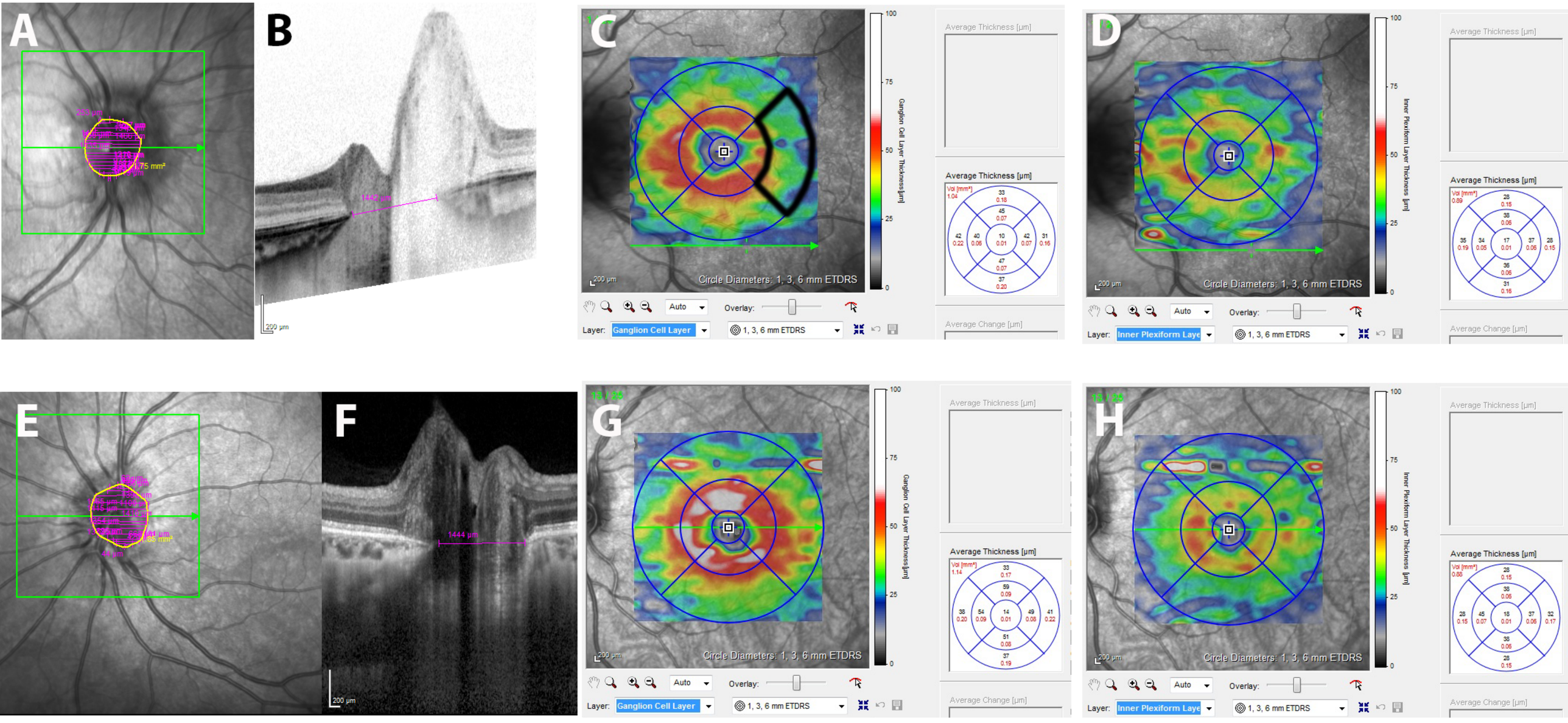


116 µm

Aghsaei Fard et al. Am J Ophthalmol 2014;158:136-143.



Aghsaei Fard et al. Am J Ophthalmol 2014;158:136-143.



Aghsaei Fard et al. J Neuroophthalmol 2019;39:28-34

Papilledema vs disc swelling from other causes

Severity of vision loss vs disc swelling

Accompanying symptoms

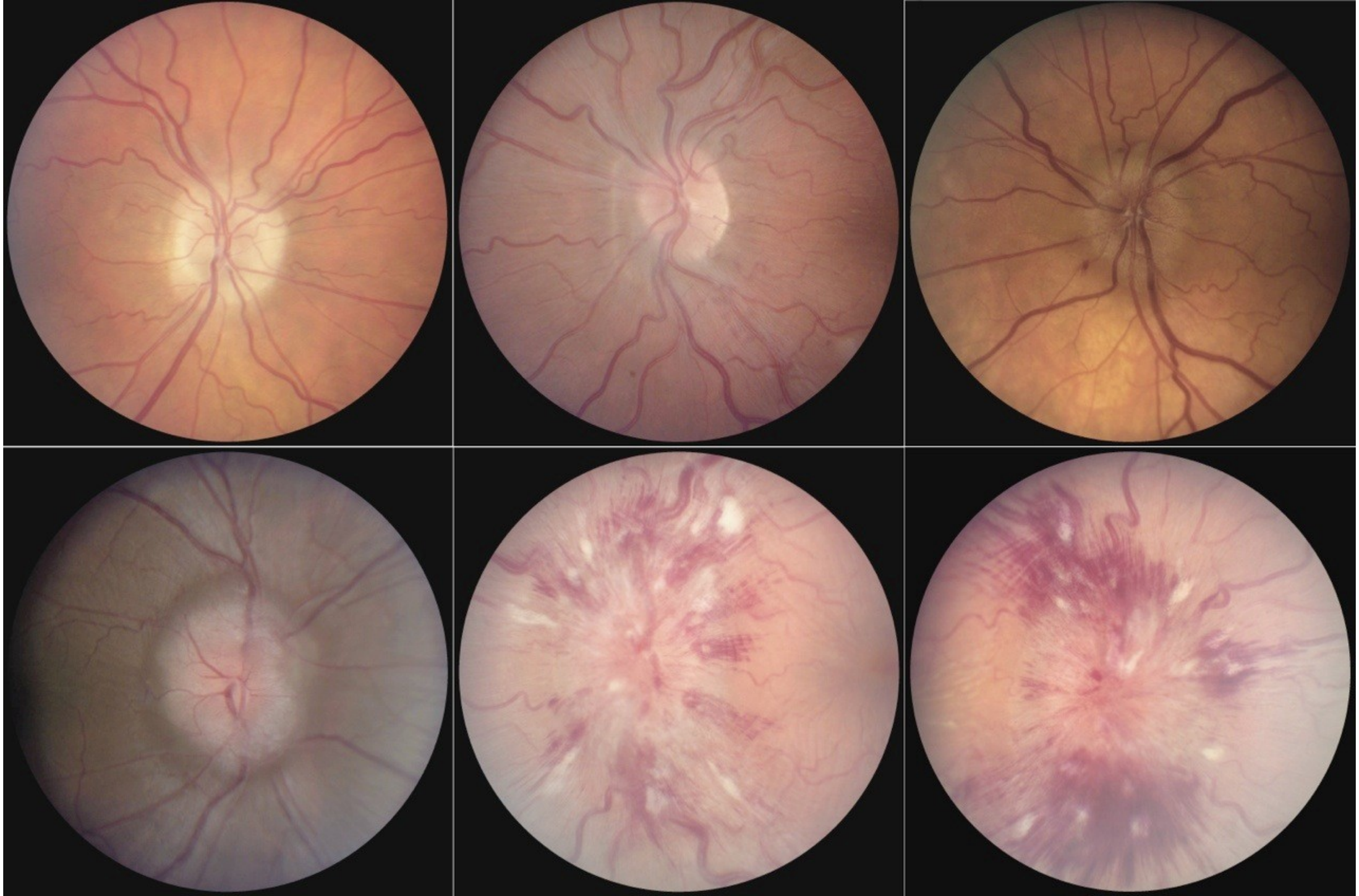
Timing/onset of findings

Unilateral vs bilateral?

Presence of hemorrhages?

Cotton wool spots?

Demographics?



Idiopathic Intracranial Hypertension (IIH)

AKA pseudotumor cerebri

Elevated intracranial pressure without identifiable anatomic cause

Diagnosis generally conforms to modified Dandy criteria

Elevated ICP

Normal CSF contents

No focal neurological deficits (except...)

Normal neuroimaging

All criteria must be satisfied!!

Revised diagnostic criteria for the pseudotumor cerebri syndrome in adults and children

1. Required for diagnosis of pseudotumor cerebri syndrome[a]

A. Papilledema

B. Normal neurologic examination except for cranial nerve abnormalities

C. Neuroimaging: Normal brain parenchyma without evidence of hydrocephalus, mass, or structural lesion and no abnormal meningeal enhancement on MRI, with and without gadolinium, for typical patients (female and obese), and MRI, with and without gadolinium, and magnetic resonance venography for others; if MRI is unavailable or contraindicated, contrast-enhanced CT may be used

D. Normal CSF composition

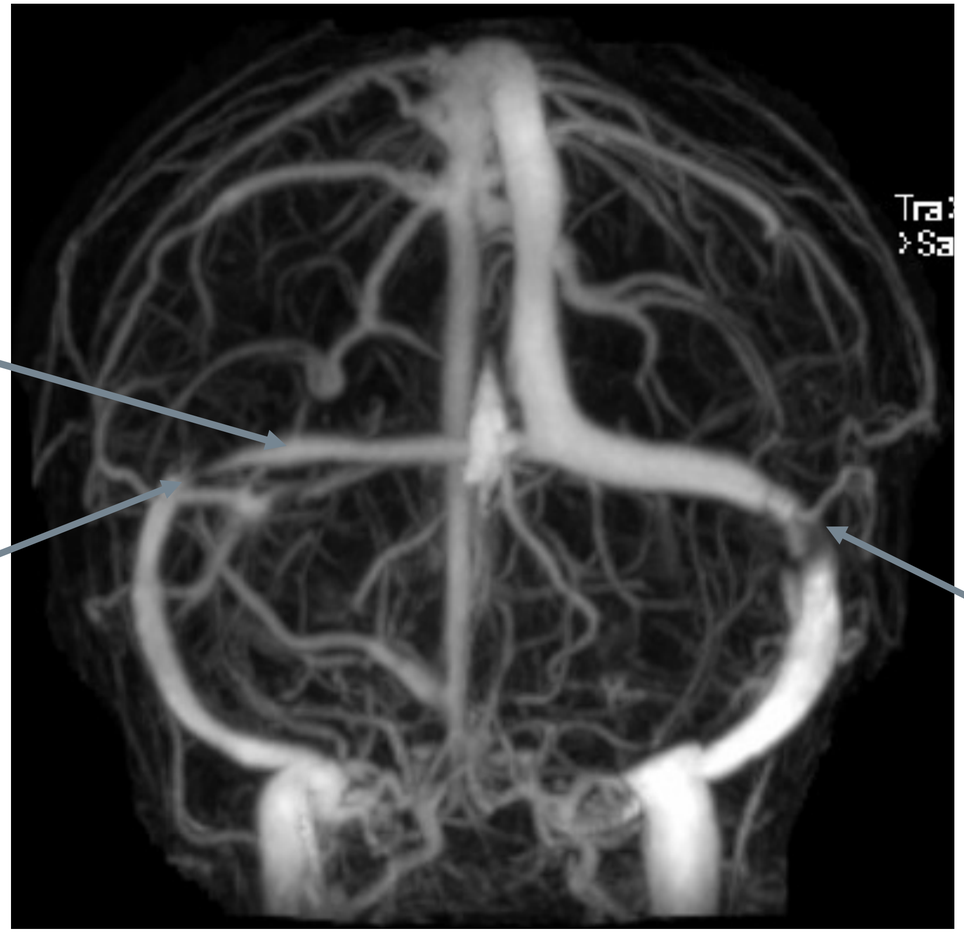
E. Elevated lumbar puncture opening pressure (≥250 mm CSF in adults and ≥280 mm CSF in children [250 mm CSF if the child is not sedated and not obese]) in a properly performed lumbar puncture

Friedman et al. Neurology 2013;81:1159-65.

Findings

Smooth tapering stenosis or hypoplasia

Focal stenosis

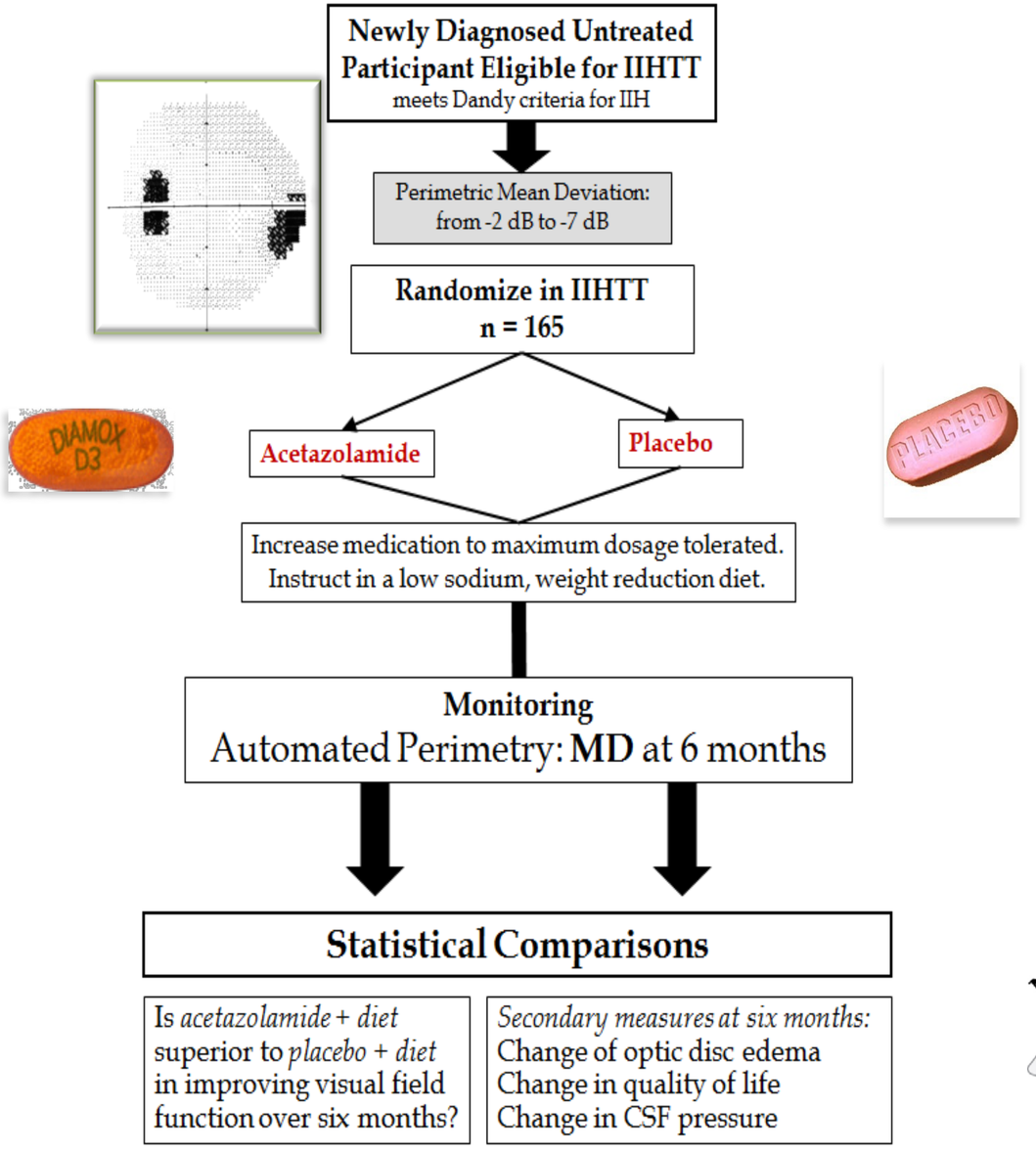


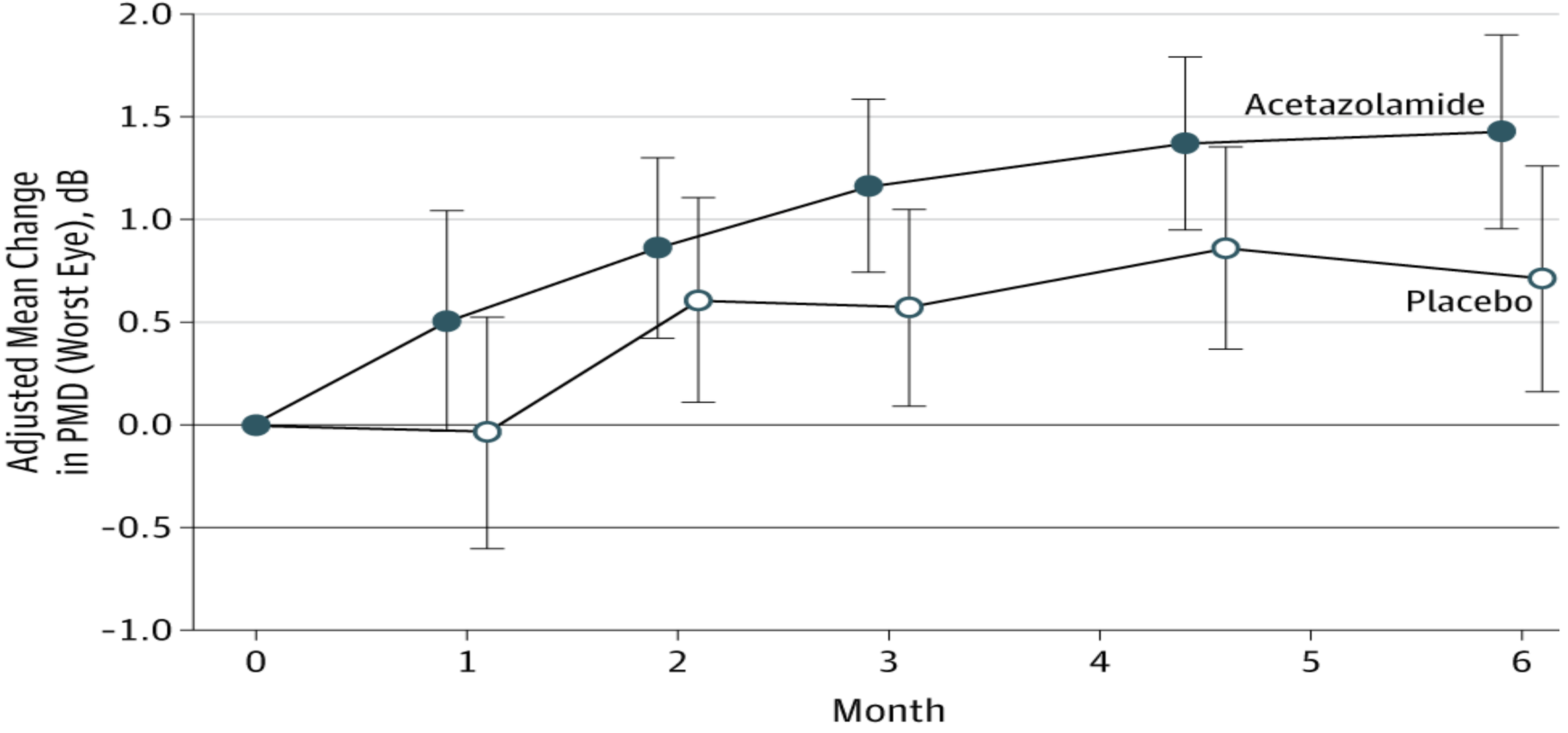
Focal stenosis

IIH Treatment Trial

Double-masked, randomized placebo controlled trial of IIH treatment

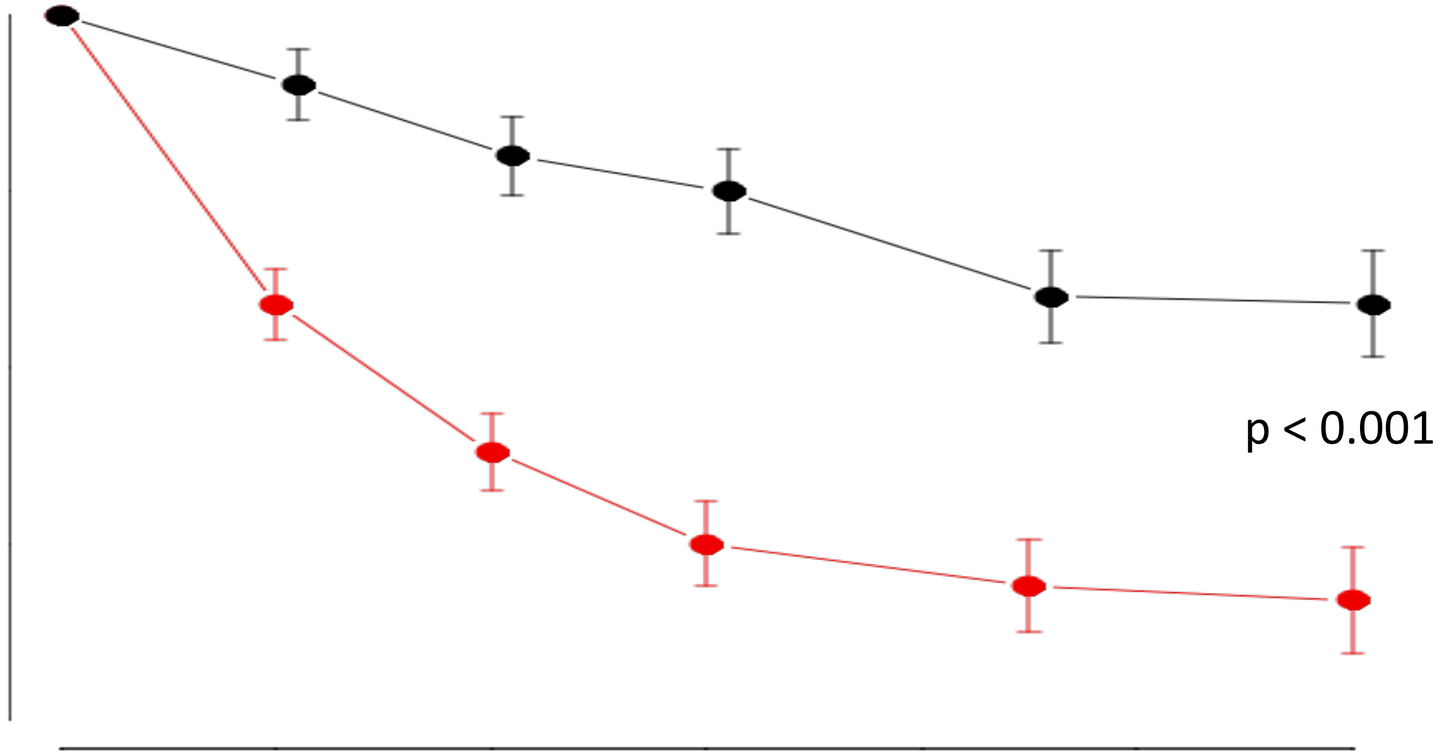
- Mild pseudotumor cerebri
  - 2 dB < MD < 7 dB
- Study drug up to 4 g/day
- Outcomes compared at 1 yr, longterm followup to 5 years



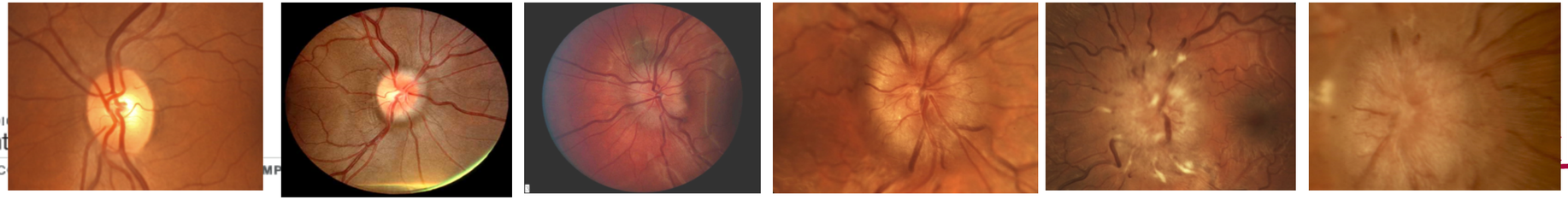


No. of patients						
Acetazolamide	86	82	76	76	67	70
Placebo	79	73	67	60	60	59

Change in Papilledema Grade Worse Eye



Grades of Papilledema 0 1 2 3 4 5



IIHTT Conclusions

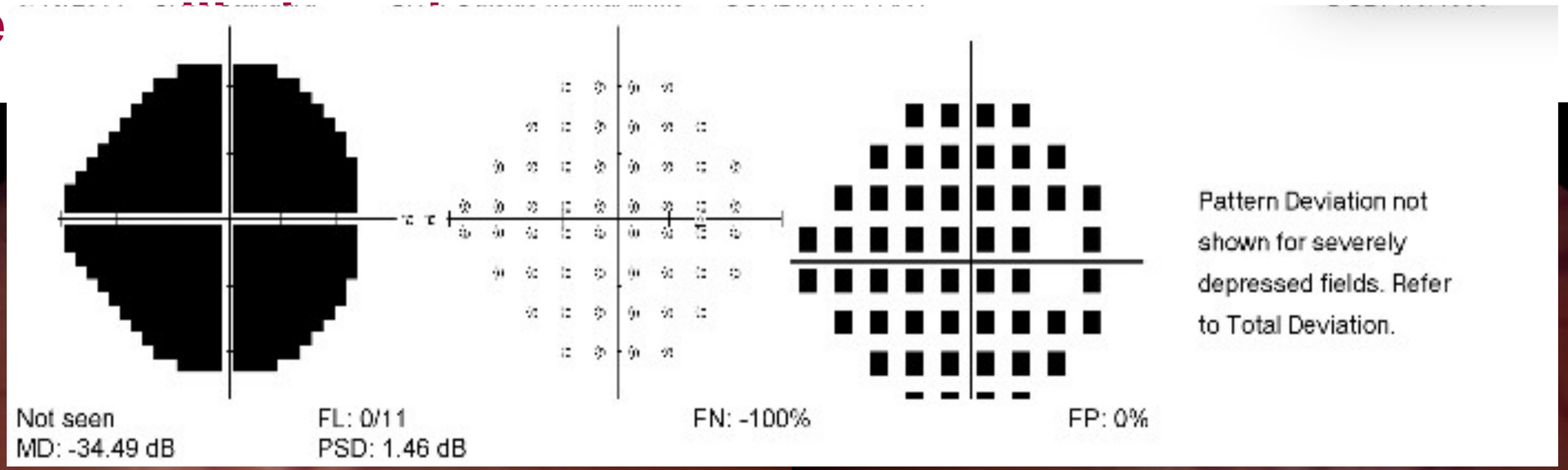
Acetazolamide combined with weight loss is more effective than weight loss alone

Effect on papilledema and quality of life

More severe vision loss/papilledema may benefit even more

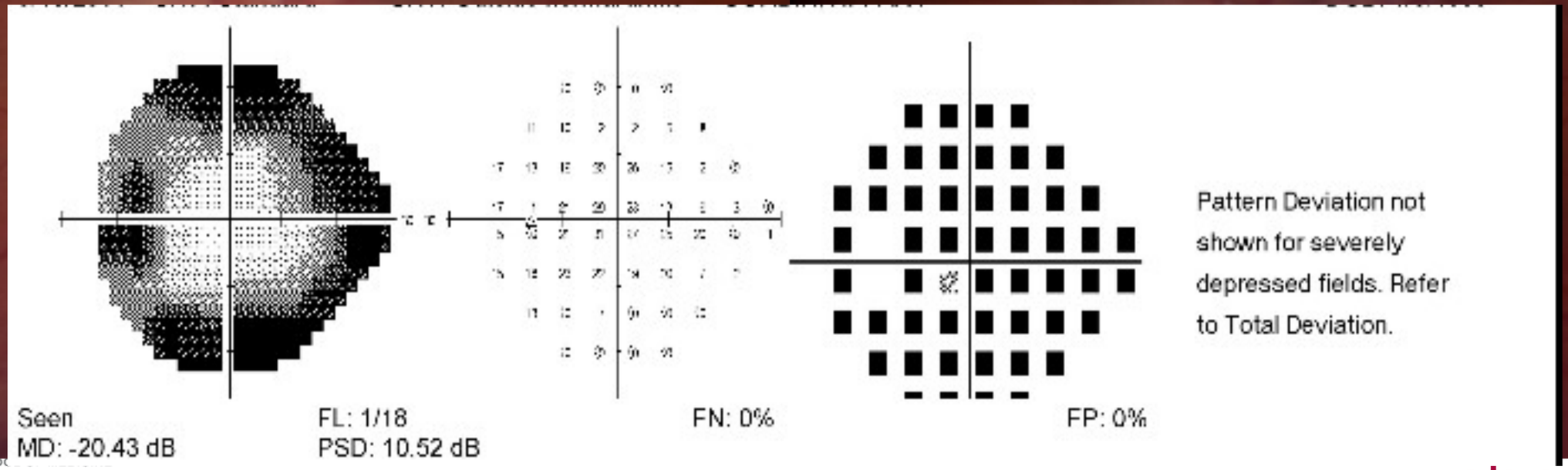
Does not address worse than -7 dB!!

Seve



Not seen
MD: -34.49 dB
FL: 0/11
PSD: 1.46 dB
FN: -100%
FP: 0%

Pattern Deviation not shown for severely depressed fields. Refer to Total Deviation.



Seen
MD: -20.43 dB
FL: 1/18
PSD: 10.52 dB
FN: 0%
FP: 0%

Pattern Deviation not shown for severely depressed fields. Refer to Total Deviation.

Conclusions

1. Use appropriate testing methods to diagnose papilledema
   - Misdiagnosis is frequent
   - Can lead to unnecessary workup and treatment
2. Obtain timely imaging and lumbar puncture
3. Exclude secondary cause of papilledema/high ICP
4. Achieve long-term remission of disease