# Five Ways an Ophthalmic Tech Can Save Someone's Life in Ophthalmology

Andrew G. Lee, MD

Chair, Department of Ophthalmology

## The Methodist Hospital

## The Texas Medical Center

## Houston, Texas, USA

Professor of Ophthalmology, Weill Medical College of Cornell University

Adjunct Professor, University of Iowa

2013_Utah_regional_lo.pdf - Adobe Reader

File Edit View Document Tools Window Help

1 / 3 125% Find

# 34th Annual

# UTAH

## Ophthalmic Technical Staff Education Program

**February 22, 2013**

**Program Director:**
Annette Mahler, Executive Director,
Utah Ophthalmology Society

**Program Chairs:** Sandra Staker, COT and
Dana Dillon, COT, OSA, BS

*Sponsored by*

Eye M.D.s of Utah

Utah Ophthalmology Society

JCAHPO
JOINT COMMISSION ON ALLIED HEALTH PERSONNEL IN OPHTHALMOLOGY

3.45 x 8.50 in

Start Utah 2013_Utah... 9:56 AM

2013_Utah_regional_lo.pdf - Adobe Reader

File Edit View Document Tools Window Help

Sheraton Salt Lake City Hotel
Salt Lake City, Utah

3.45 x 8.50 in

Start | Utah | UtahJCAHPO... | 2013_Utah... | SBSDKHelper | Microsoft Po... | 9:59 AM

I have no financial interest in the contents of this presentation


Start with a philosophical question & two really quick cases. Why are you here… because you believe as we all do that you can….?

# Fiveeasy exam errors

Check pupil in light & dark (Don’t use abbreviation “PERRLA ”: Pupils, equal, round, reactive, light & accommodation)

Letting only tech only check pupil

Not taking “Blurred disc margins” seriously Misusing the term “ papilledema ”

Writing “ Dysconjugate gaze” or “EOMI”

Thinking “optic atrophy” is a diagnosis

The ways that an ophthalmic technician can save a life….

Avoid sole use of PERRLA for the pupil exam

Savino's rule - if there is a problem with the lid, motility, or pupil all three areas must be evaluated and documented

Don't use EOMI as the only assessment of motility

Don't order the same scan on all patients; and

Signs or symptoms are not diagnoses.


STARBUCKS
COFFEE
cingular
DRIVE THRU
LAWYER

http://www.crstoday.com/PDF%20Articles/0207/0207_supp_legal.pdf - Microsoft Internet Explorer

File Edit Go To Favorites Help

Back Search Favorites

Address http://www.crstoday.com/PDF%20Articles/0207/0207_supp_legal.pdf

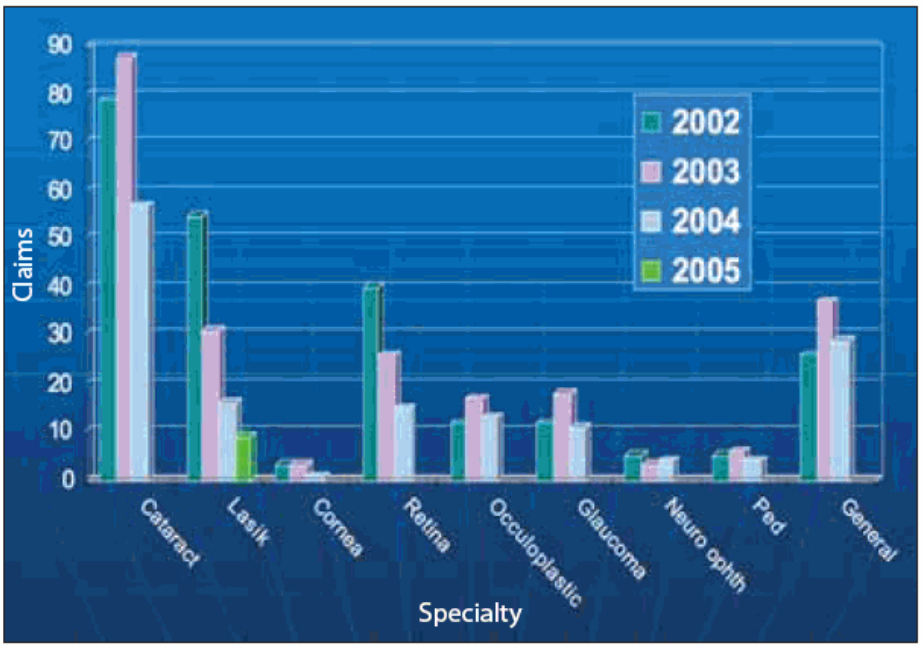
Save a Copy Search 150% Search Web Adobe Reader 7.0

Search across one or more PDF files

Pages Attachments Comments

*imer: This supplement to*
**t & Refractive Surgery Today**
*ed for informational purposes*
*l is not intended as legal advice*
*ve as a substitute for consulta-*
*n an experienced attorney or*
*agement professional. The legal*
*s and issues discussed in this*
*ent are governed by laws that*
*ry from state to state. It is there-*
*ortant that you consult a risk*
*ment professional and/or an*
*specializing in the areas of the*
*ussed herein in the jurisdiction*
*vern you and your practice.*

URRENT LEGAL
ONMENT IN
HALMOLOGY




(Courtesy of Ophthalmic Mutual Insurance Company.)

Figure 1. This graph shows OMIC's malpractice insurance claims by specialty,

8.00 x 10.75 in 6 of 32

Downloaded (1.02 GB of 1.03 GB) : Unknown Zone

The big five

Refractive/cataract surgery (missed endophthalmitis )

Diabetic retinopathy

Glaucoma

Delayed diagnosis of brain tumor

Retinal detachment

http://www.crstoday.com/PDF%20Articles/0207/0207_supp_legal.pdf - Microsoft Internet Explorer

File Edit Go To Favorites Help

Back Search Favorites

Address http://www.crstoday.com/PDF%20Articles/0207/0207_supp_legal.pdf

Go Links

Google nt payment specialty Go Bookmarks 13 blocked Check AutoLink AutoFill Send to Settings

Search Web Mail My Yahoo! Personals Games Music Answers Sign In

Save a Copy Search 150% Search Web Adobe Reader Tips Here

Pages Attachments Comments

he plaintiff that she was not
candidate for this procedure.
ndant's failure to do so was
to be below the appropriate
l of care.

**tter:** In my experience, a good
s attorney will sway the jury by
ng it that the doctor could have
mething more for the benefit of
nt. The jury will not believe
ysician would have done some-
liberately and willfully harmful
ent. During the course of the
plaintiff's attorney will plant in
s mind a seed of doubt that, if
or had just been a little more
e could have prevented the
from suffering loss of vision and
mages.

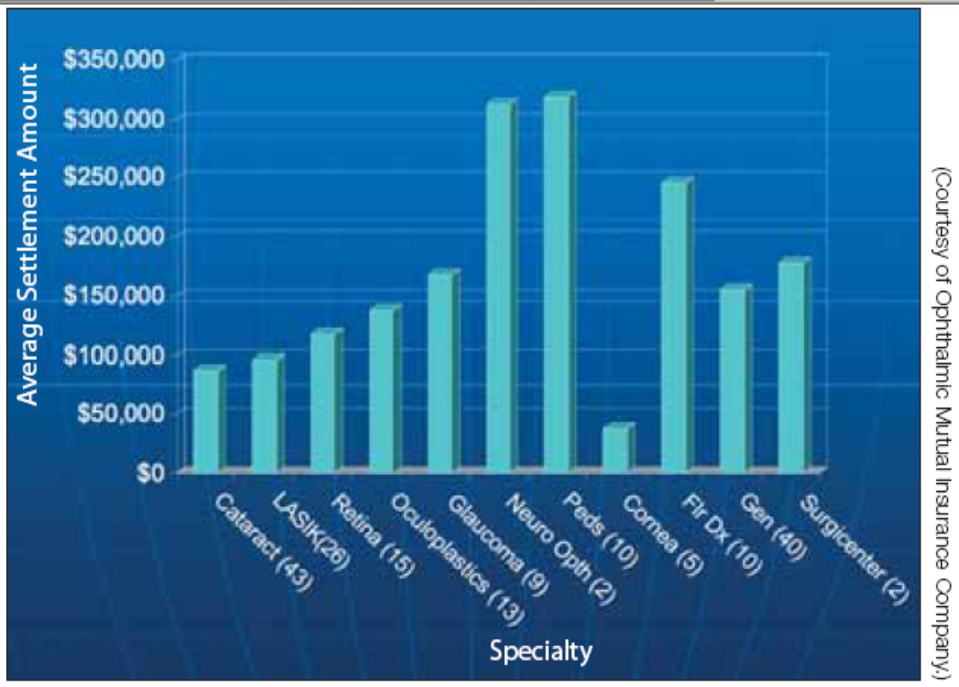



Figure 2. This chart shows OMIC's average malpractice settlement payment per specialty from 2001 to 2004.

8.00 x 10.75 in

8 of 32

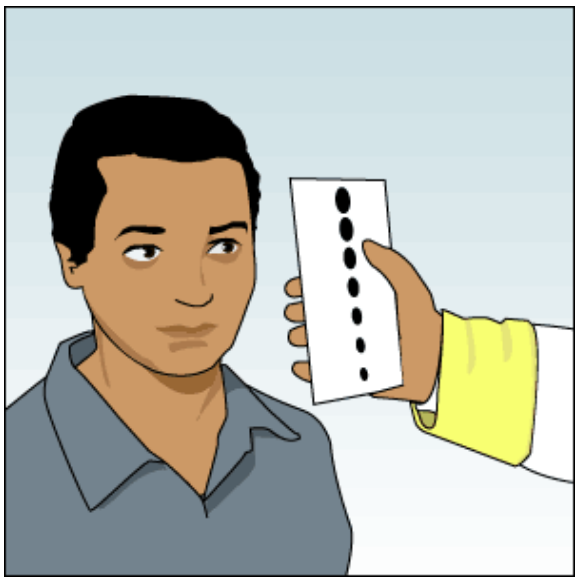
Done Unknown Zone

# Here’s a pearl don’t use “PERRLA”

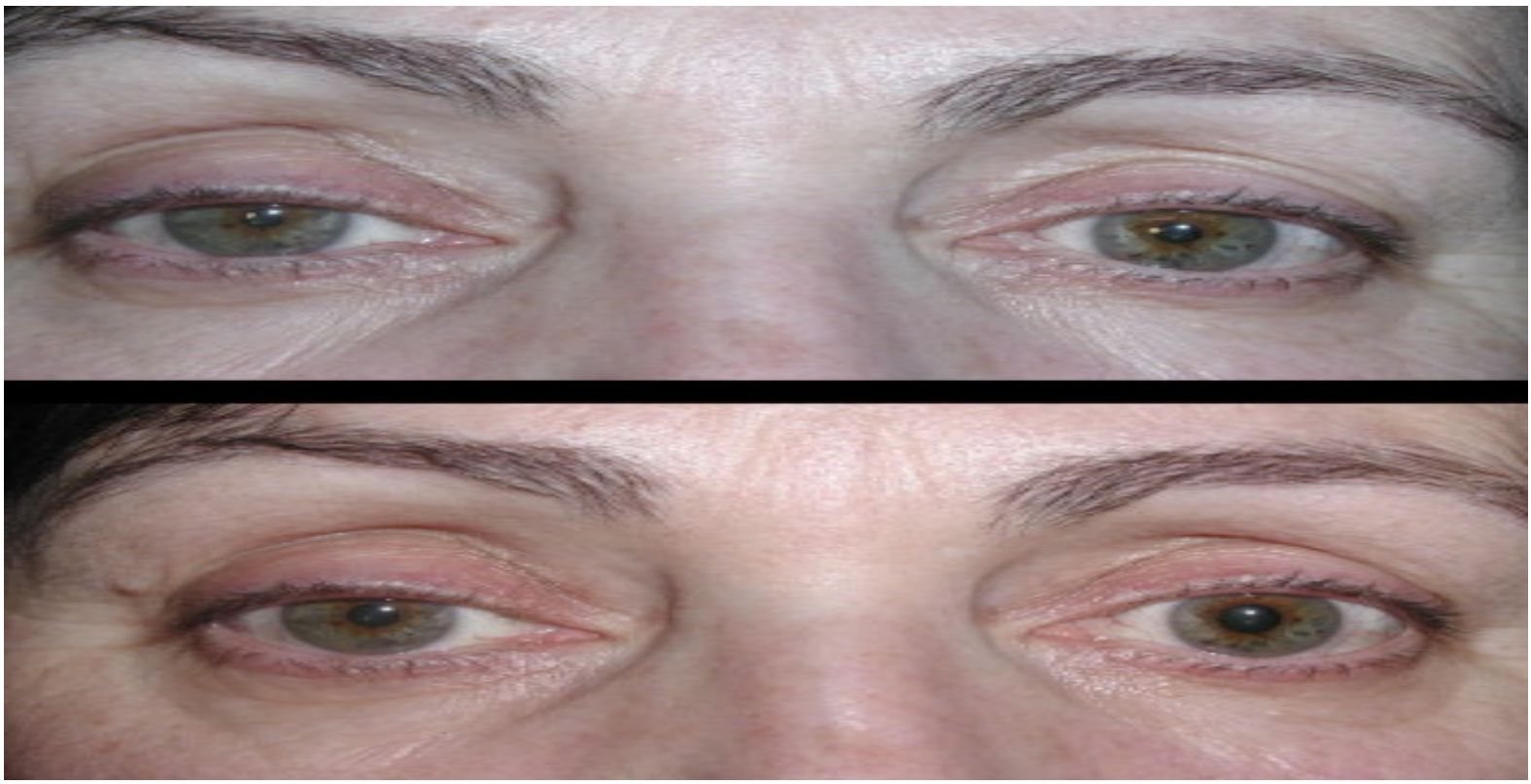
Pupils equal, round, reactive to light and accommodation (PERRLA)

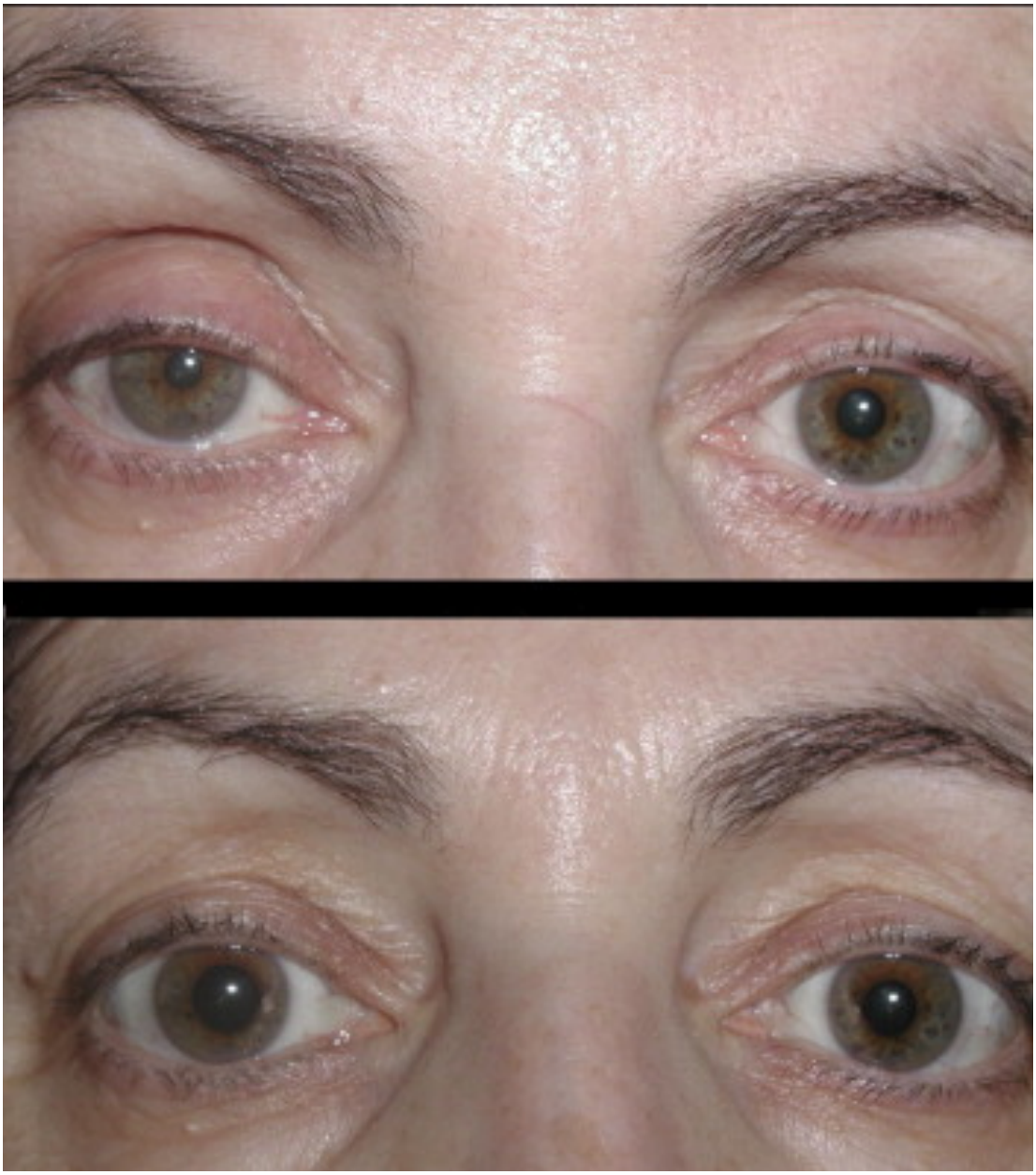
Pupils can be equal, round & reactive to light and accommodation and have a HORNER syndrome

PERRLA only checks PNS pathway

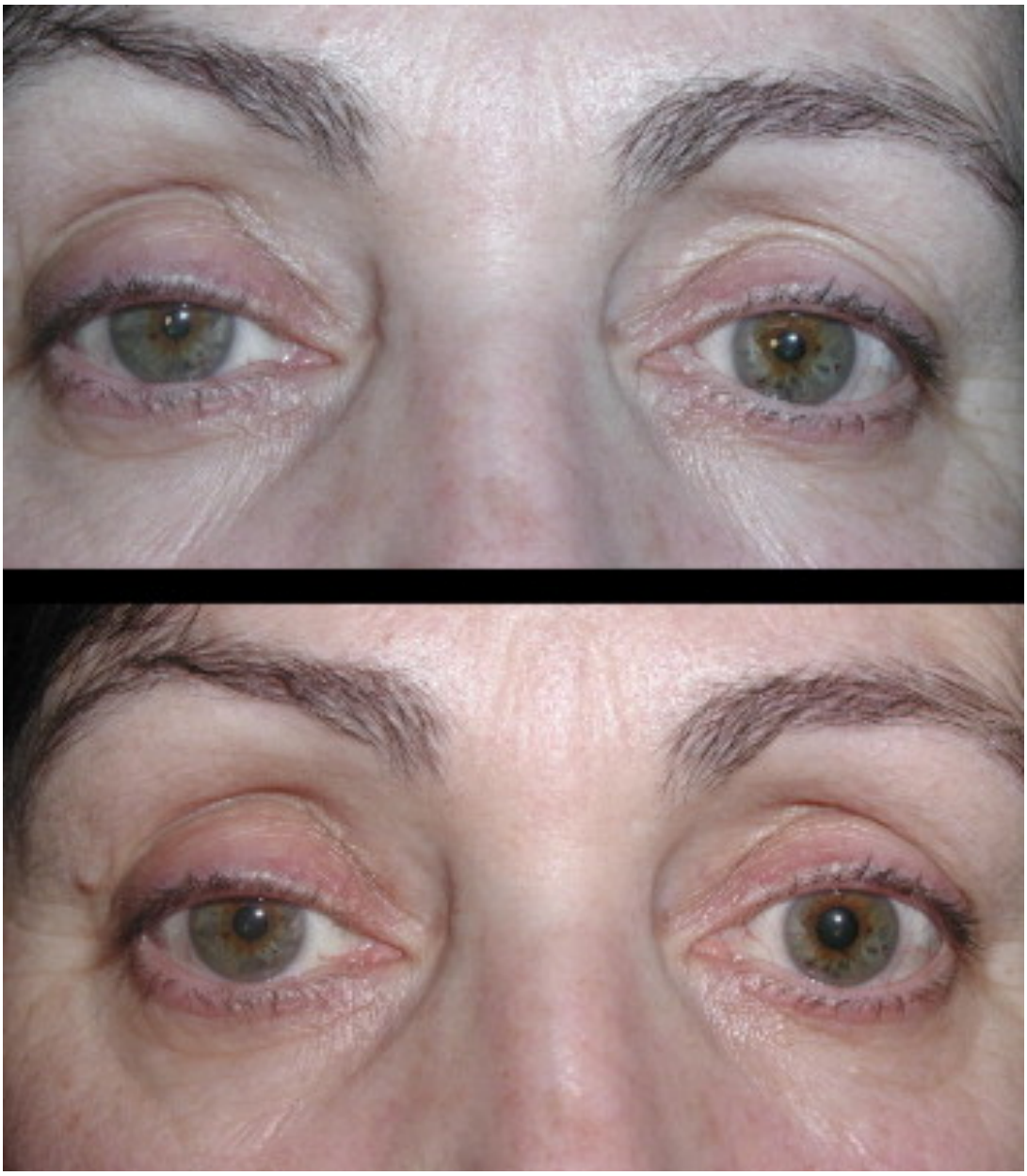


Checking pupils in ambient light easily misses Horner syndrome (“PERRLA” ≠ NORMAL)





Apraclonidine test (inferior image) confirmed suspected diagnosis of Horner syndrome. González Martín -Moro et al. Horner Syndrome, a New Complication. J Oral Maxillofac Surg 2009.



LIGHT

DARK

AFTER APRACLONIDINE

BEFORE APRACLONIDINE

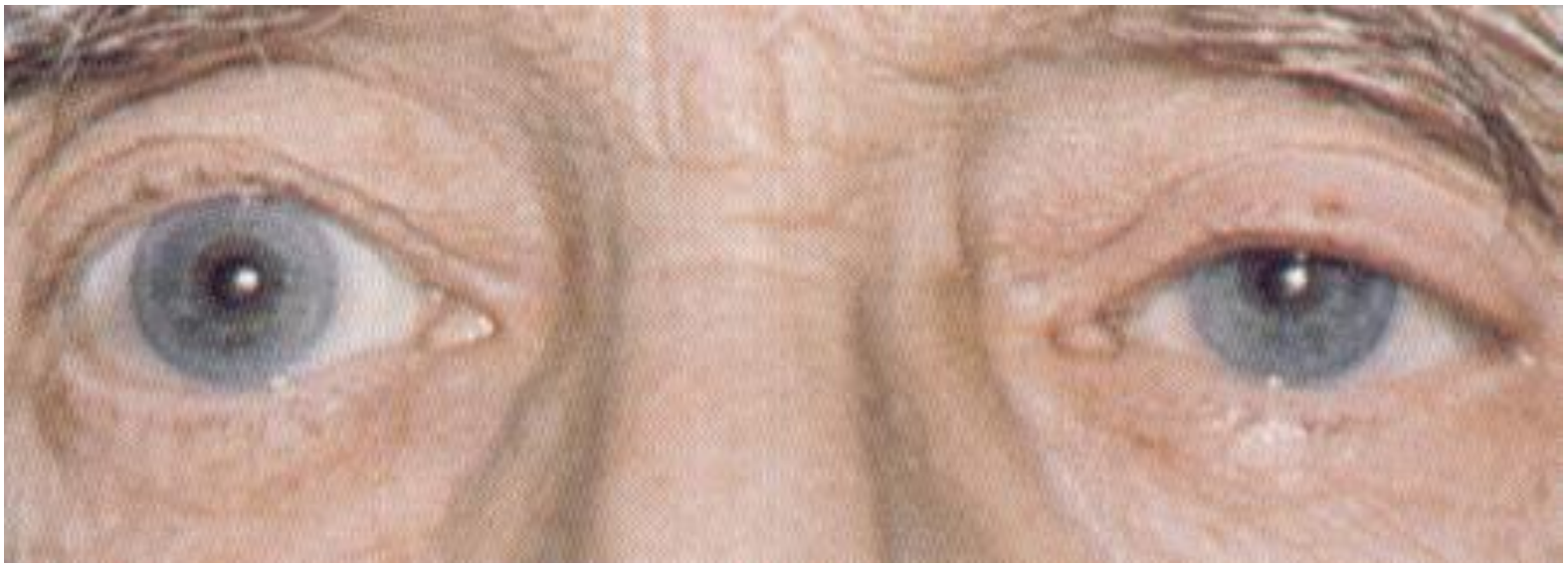
Horner syndrome

Anisocoria is greater in the dark

If pupil tested in light only then easy to miss subtle anisocoria : PERRLA can miss Horner pupil

Ptosis is always mild in HS (12% no ptosis )

Book Horner does not look like real world sometime



ANISOCORIA IS LESS IN THE LIGHT!

# How is your tech checking the pupil?

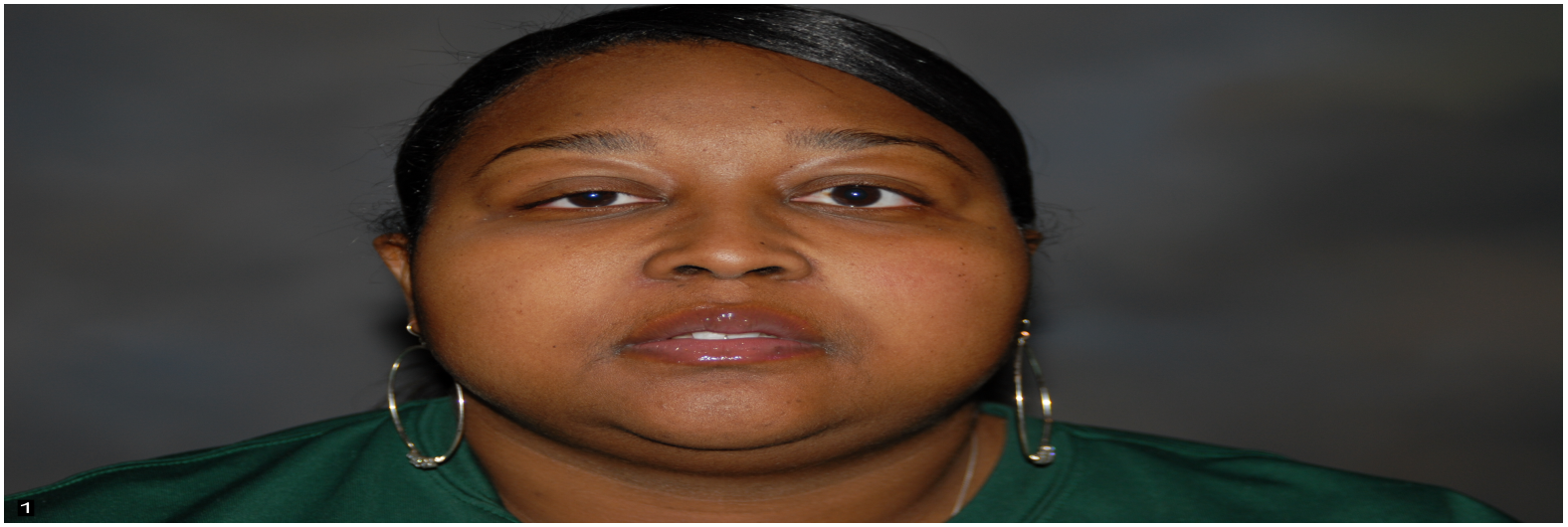
Behavior change(s)

If the chief complaint is diplopia or ptosis , let me check the pupil before dilation

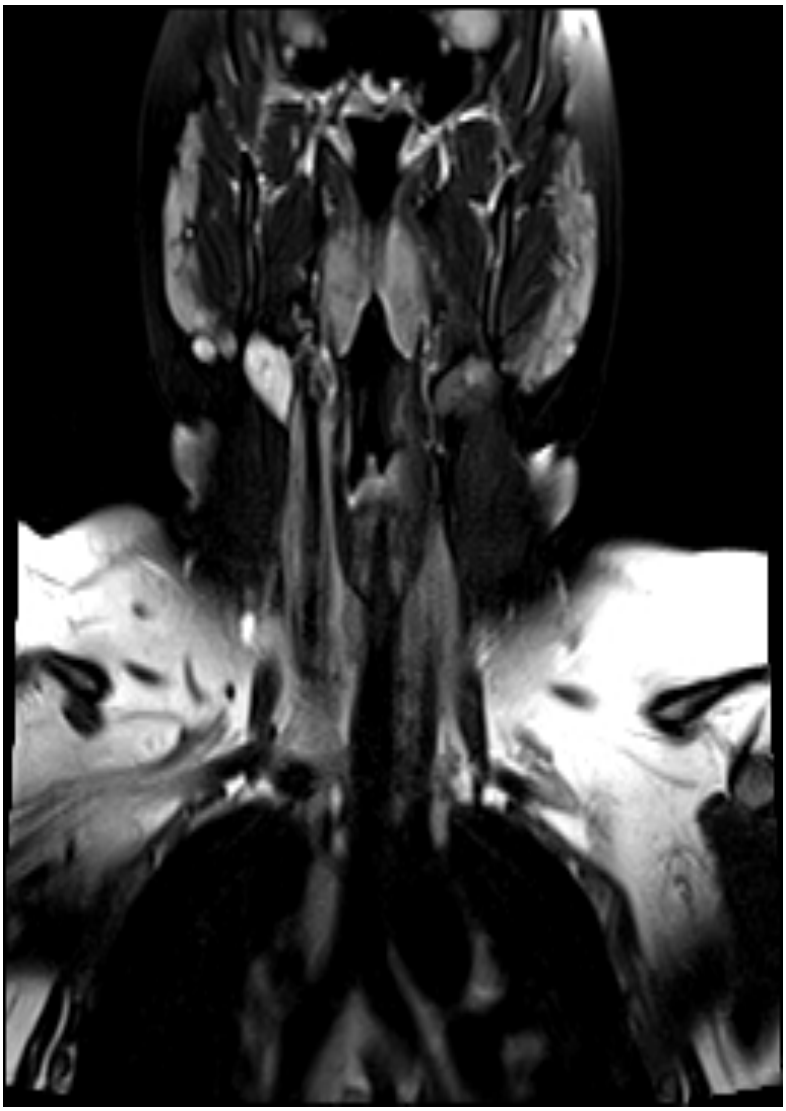
If you have to lift a droopy eyelid before putting in the drops come & get me

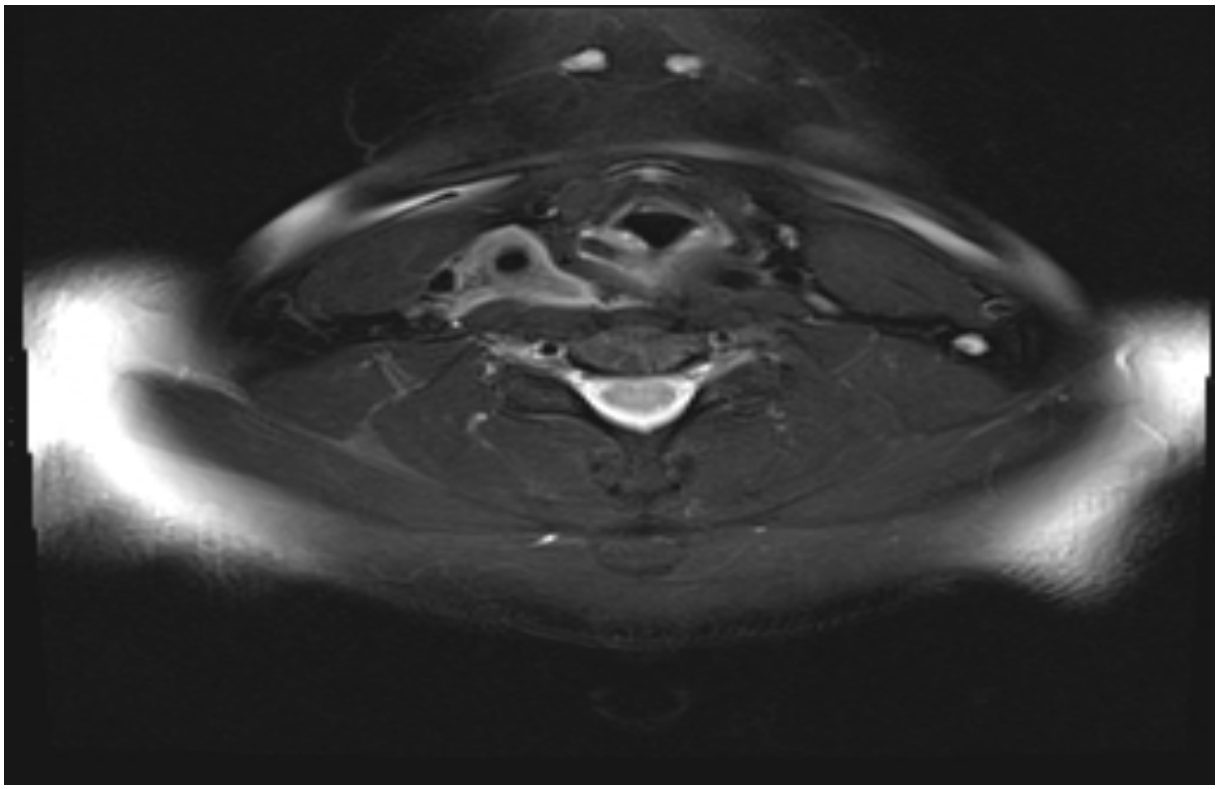
If you have a question about an afferent pupillary defect (??RAPD) come & let me check it too

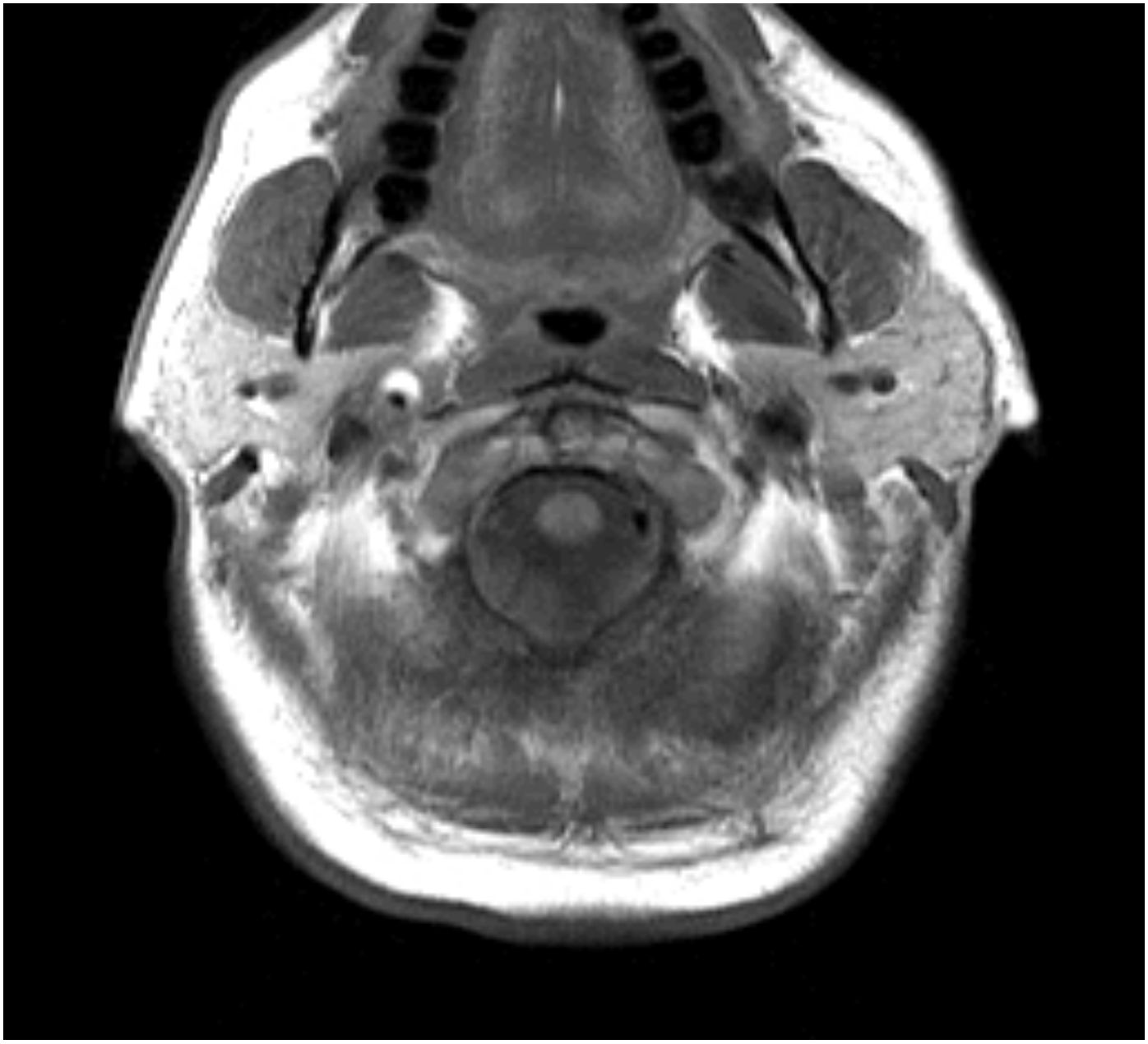
Horner syndrome RE “Normal MRI head”



# Imaging head alone is false sense of security: Pericarotid biopsy proven sarcoid







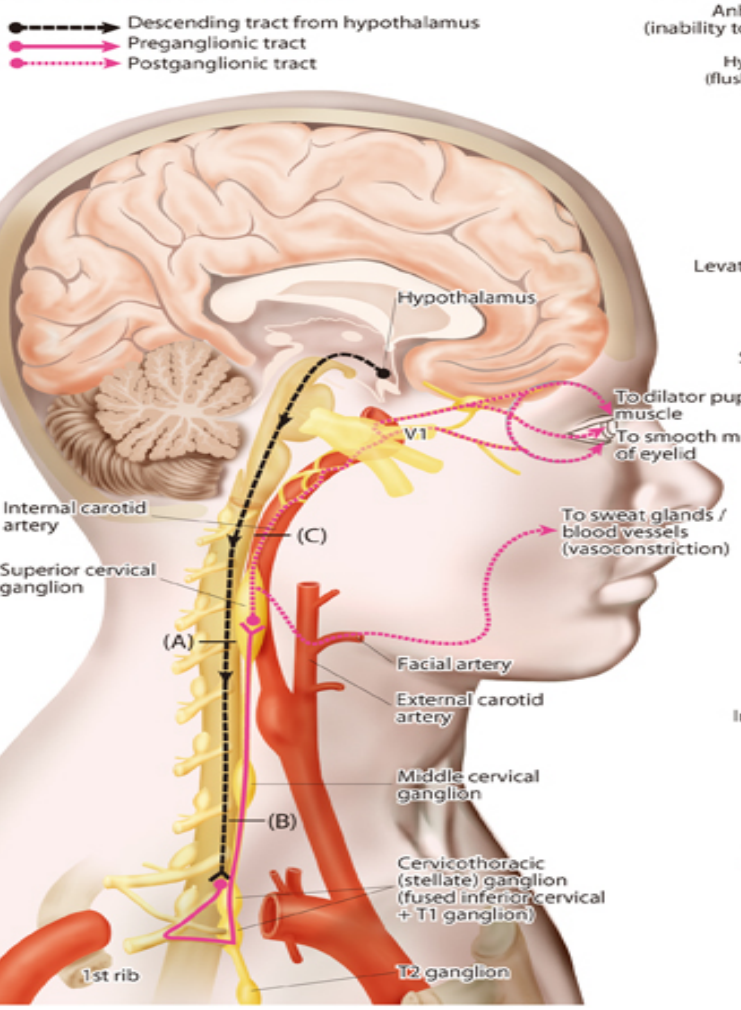
Life threatening cause of Horner syndrome

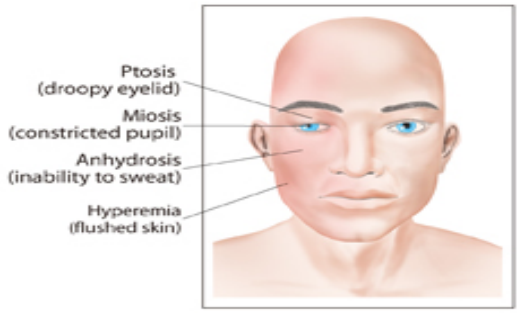
= Carotid dissection is extracranial in NECK

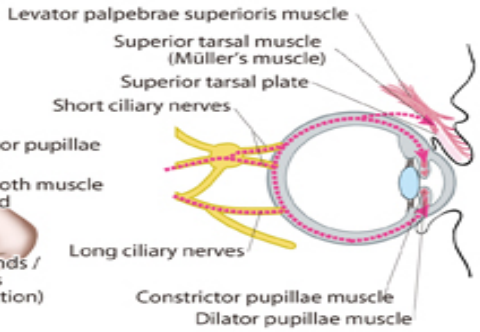
Crescent sign

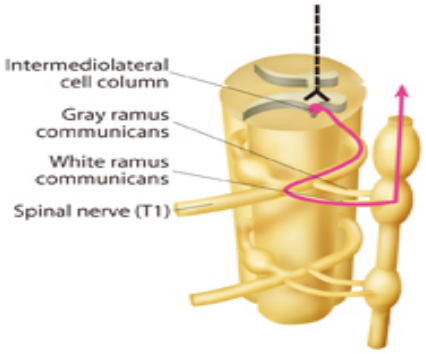
## Horner's Syndrome

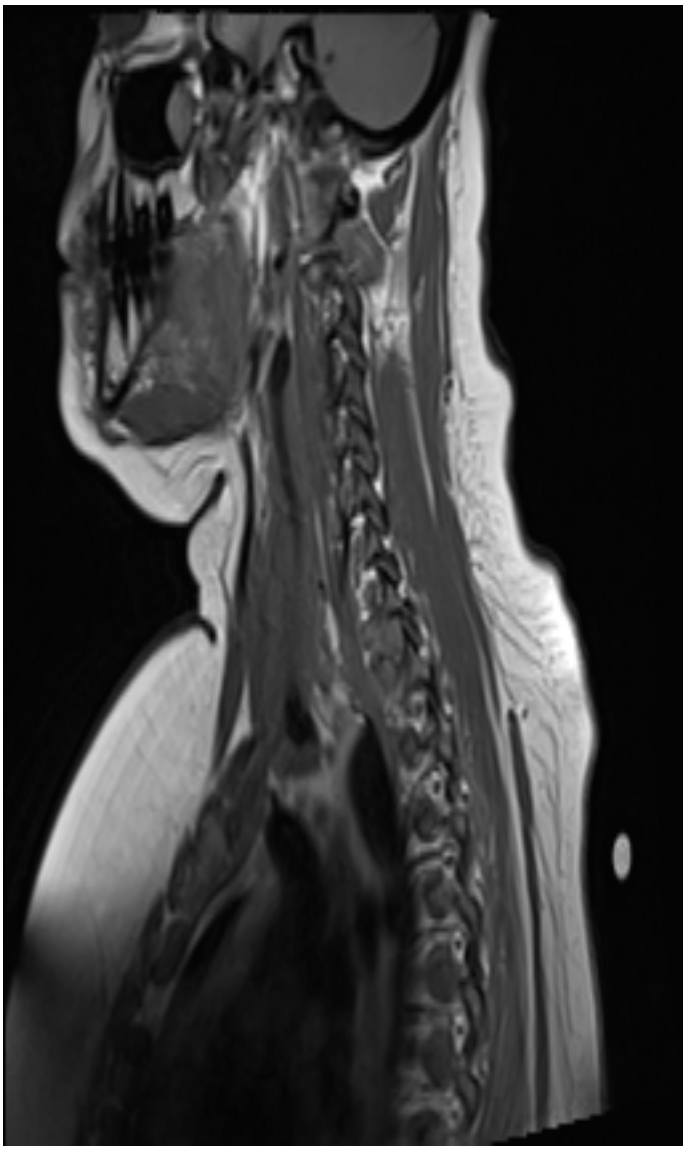
Horner's syndrome results when the cervical sympathetic pathway from the hypothalamus is interrupted. The lesion may be central (A), preganglionic (B), or postganglionic (C) in origin; it may be primary or secondary to another disorder. Symptoms may include ptosis, miosis, anhydrosis (lack of sweating) and/or hyperemia.





MRI head to neck T2 level

# You can image the entire pathway with one MRI scan

You could do many overlapping expensive studies

MRI head

MRI neck

CT neck

CXR with apical views

CT chest

Or….you could do one scan (MR head to apex of lung (T2 level in chest)

Sagittal & parasagittal imaging on the SIDE of the lesion

A Horner protocol MRI

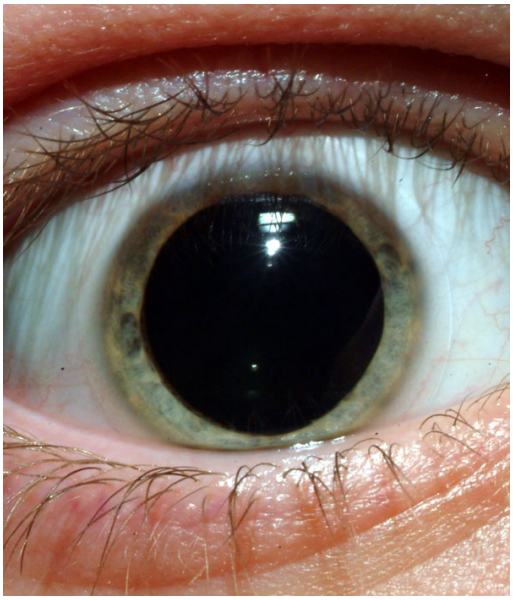
“PERRLA” failure #2

There is no assessment of the relative afferent pupillary defect (RAPD) in PERRLA

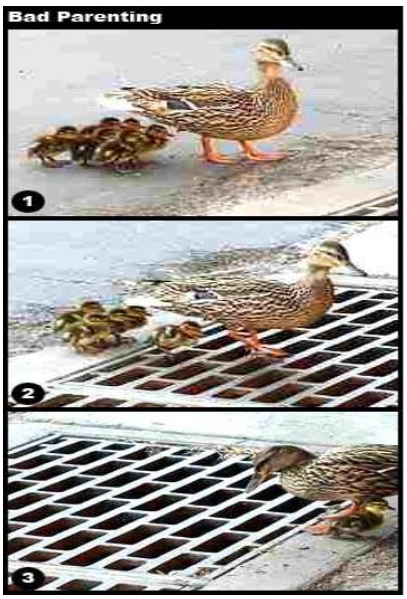
Proper format

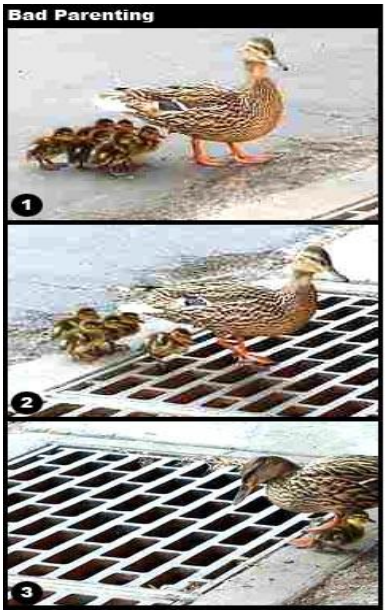
OD: Dark 5 mm→ Light 3 mm No RAPD

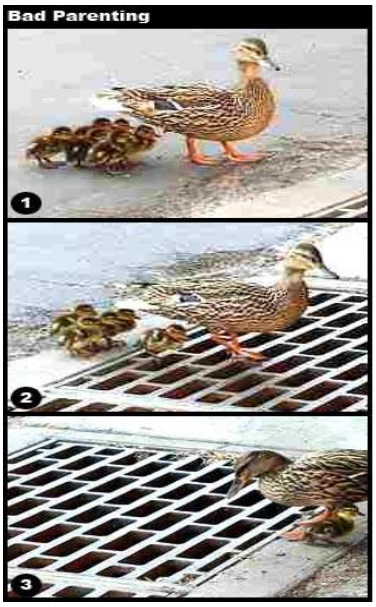
OS: Dark 6 mm→ Light 3 mm



Who’s fault is it if the resident/fellow/technician doesn’t check the pupil properly?






Uh-Oh

The behavior change

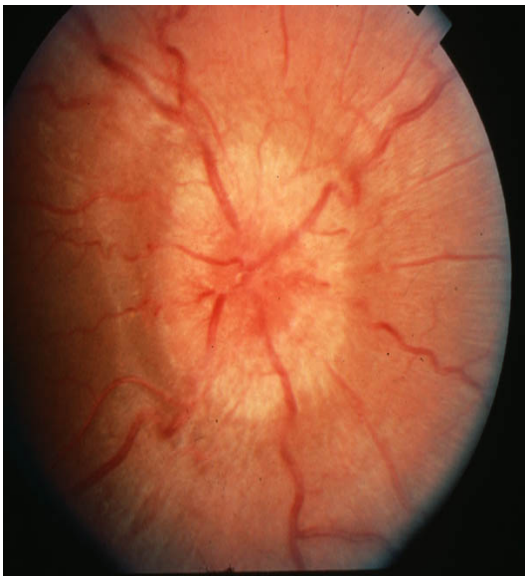
You: Strike PERRLA from your lexicon & your encounter forms, check tough ones personally

Your tech: Don’t use PERRLA, call the doctor for the tough ones

# “Blurred disc margin” is a worthless description of what you already know

Does NOT differentiate pseudopapilledema from true papilledema (Both have “blurred disc margins”)

Is disc margin blurred because of something above (peripapillary nerve layer) or below (deeper like drusen?)



LOOK HERE

Obscuration of peripapillary

NFL (blurred VESSELS)

# Never underestimate optic disc edema: When to call neuro-op!

## “Next available” optic disc edema

Unilateral nonarteritic AION

Unilateral optic neuritis

Unilateral “neuroretinitis”

## Not “next available” (pick up the phone)

Arteritic AION

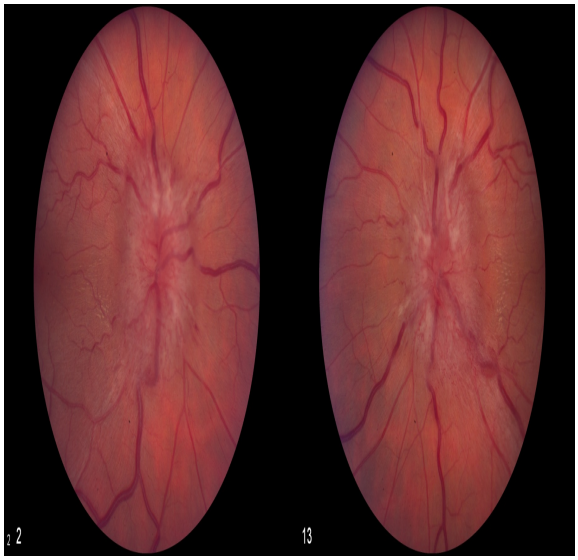
Bilateral optic disc edema (including “neuroretinitis”)

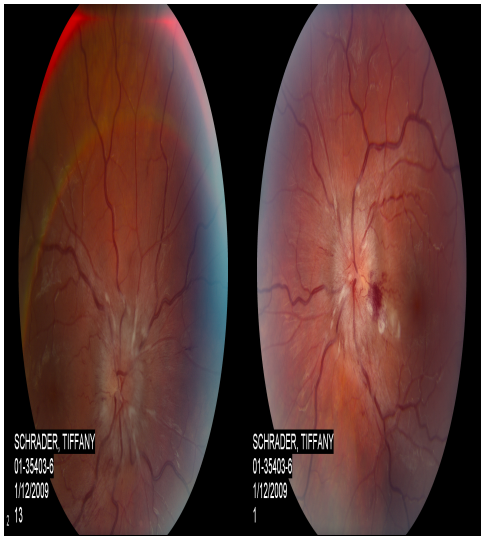
Severe visual loss with disc edema

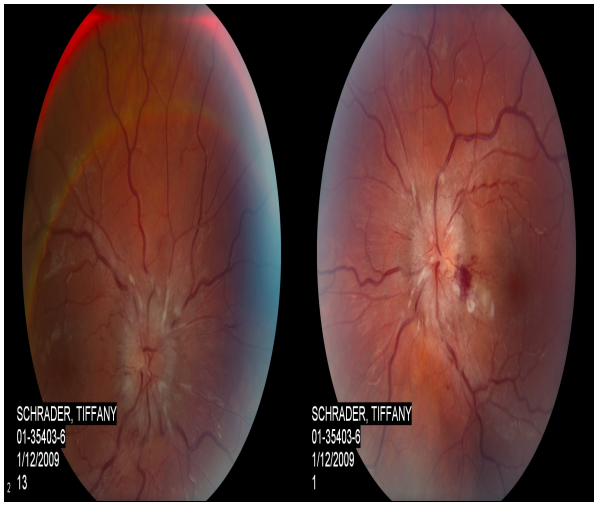
Chronic atrophic papilledema

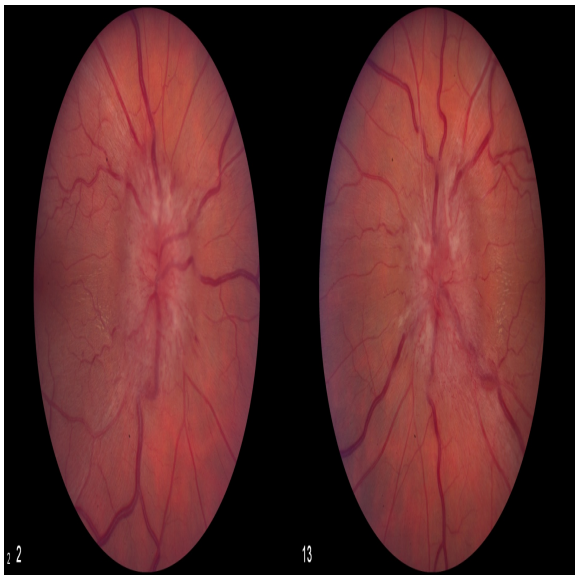
Optic disc edema in elderly (rule out giant cell)

# Which is tumor & which is pseudotumor cerebri?

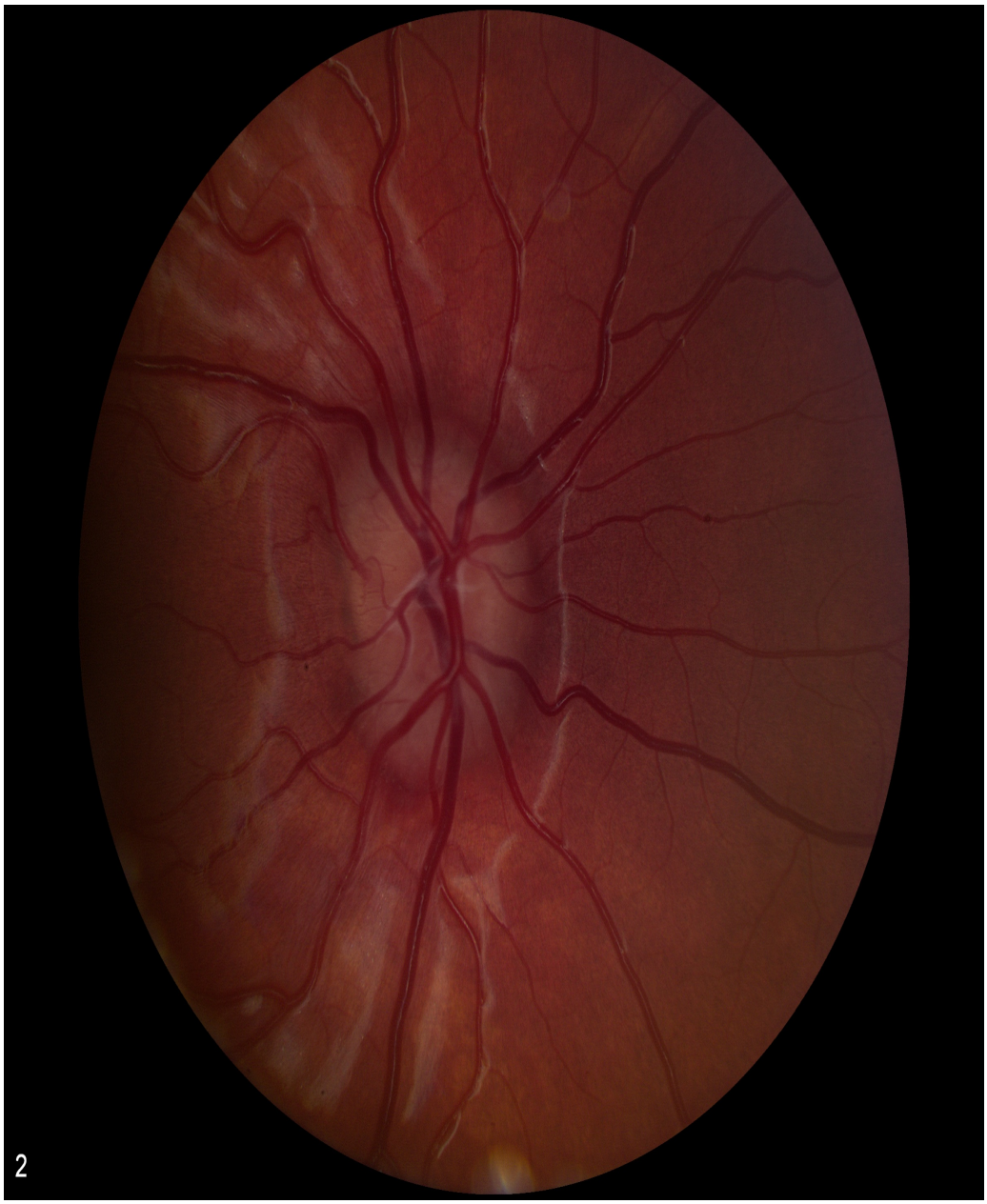


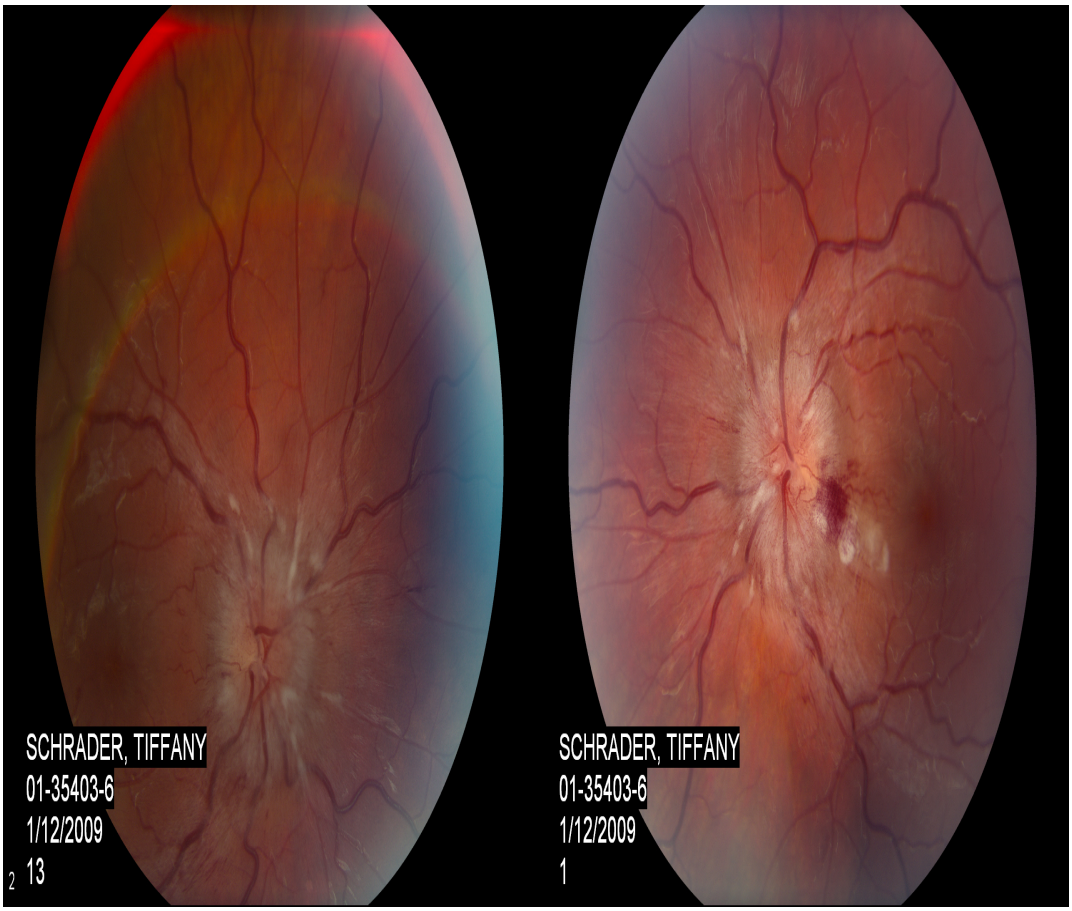




SCHRADER, TIFFANY
01-35403-6
1/12/2009
2 13
SCHRADER, TIFFANY
01-35403-6
1/12/2009
1


2 2
13

Don’t use “blurred disc margin”

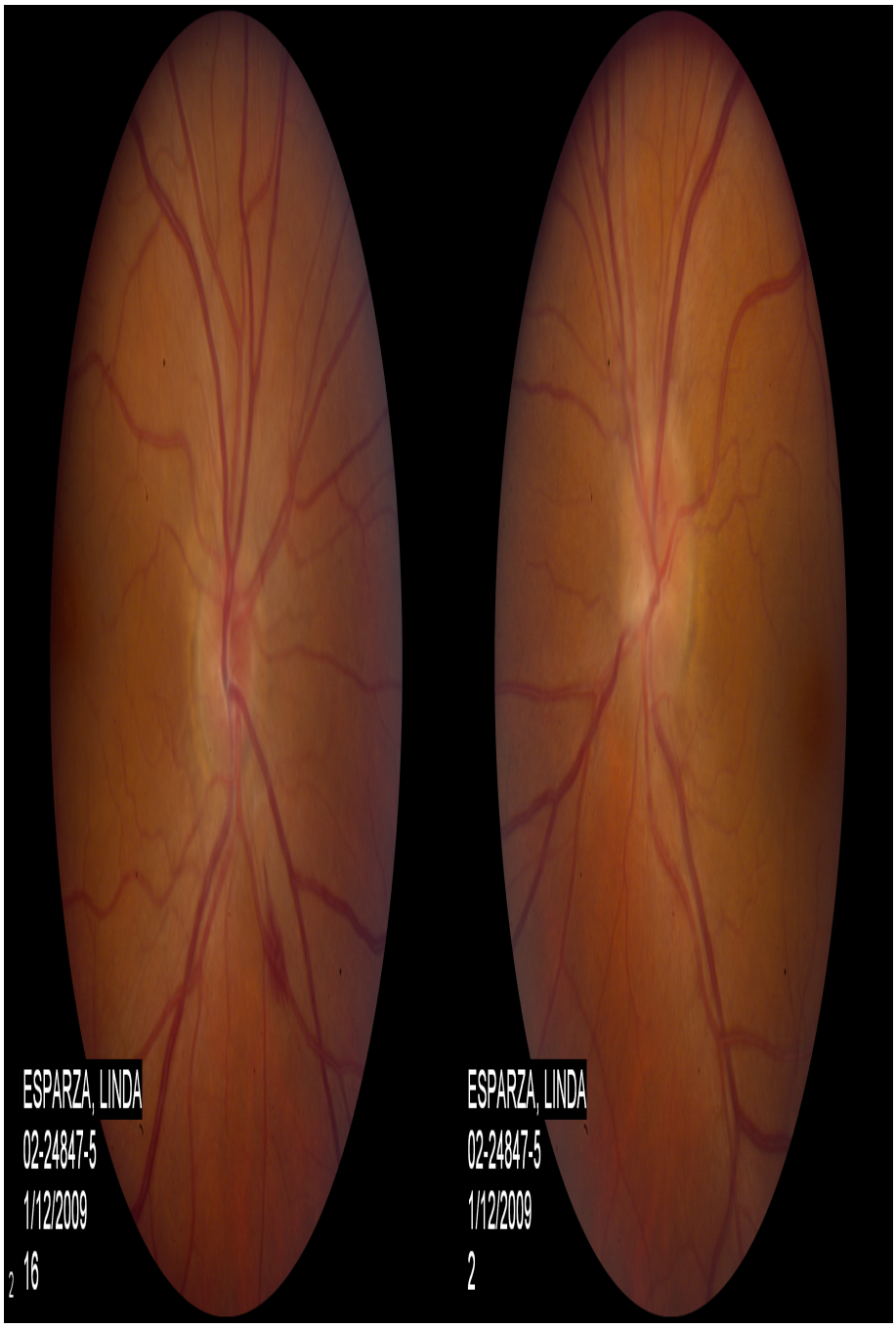


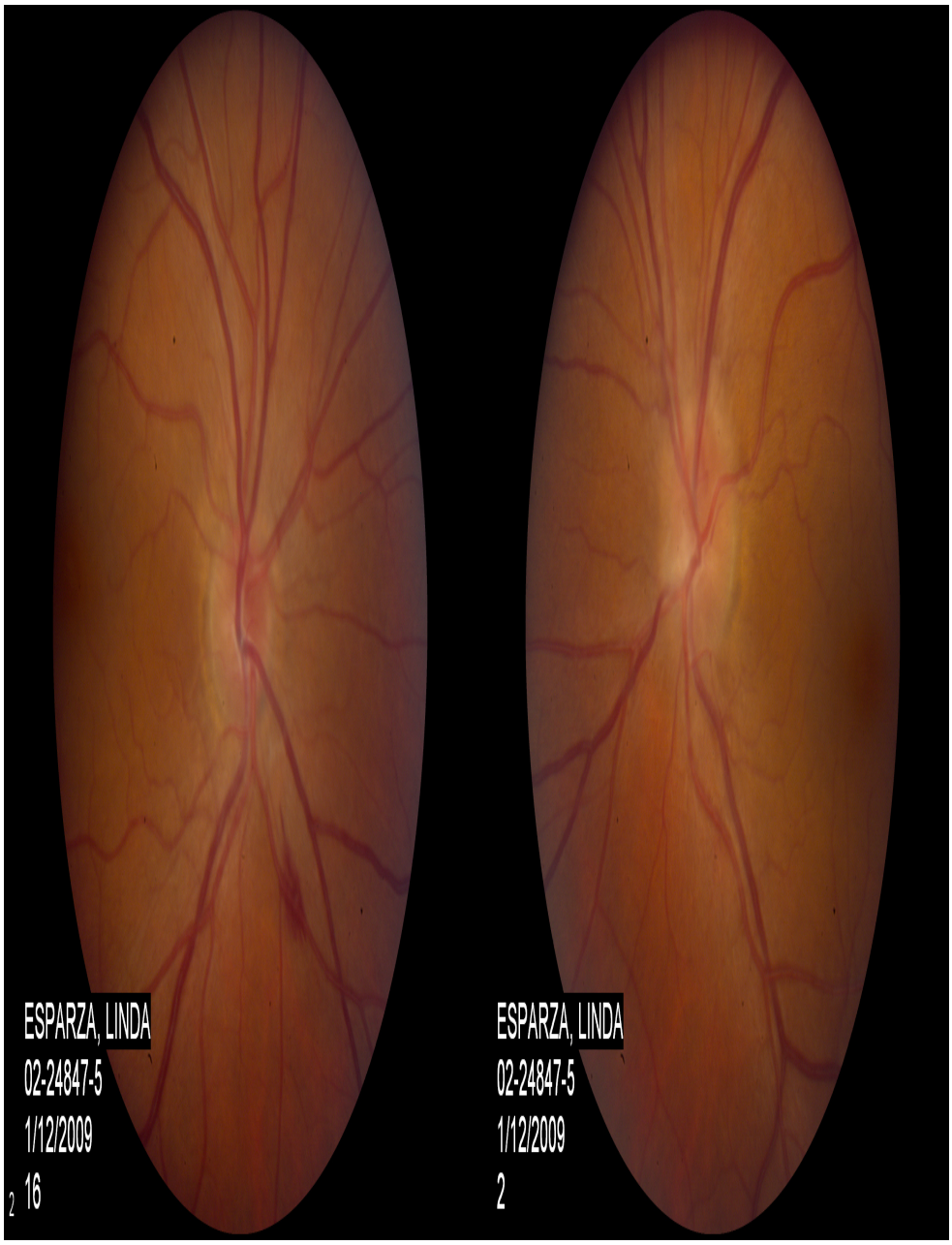



NOT Disc drusen

# Disc drusen

Little edema




ESPARZA, LINDA
02-24847-5
1/12/2009
16
ESPARZA, LINDA
02-24847-5
1/12/2009
2

The behavior change

MD: Don’t write “? papilledema ” or use word “ papilledema ” (increased ICP) when you mean optic disc edema

There are no Little signs in Neuro -ophthalmology (little RAPD, little papilledema have same significance as big!!)

Tech: Don’t let your doctor write “ papilledema ” for optic neuritis, NAION, pseudopapilledema , funny discs, etc.

# Don’t use “EOMI” as your sole documentation of motility exam

“EOMI”= Extraocular muscles intact

Primary position deviation will be missed if no cover-uncover testing performed

Small incomitant deviation will be missed if cover-uncover test not performed in diagnostic positions of gaze

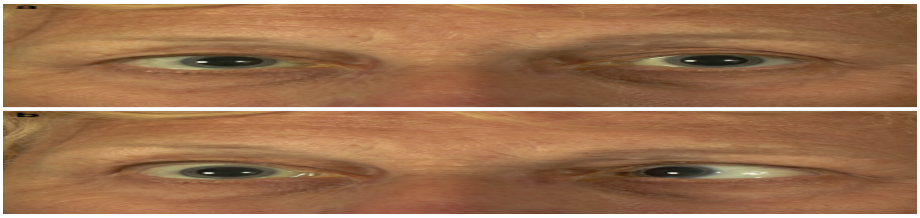
Sixth nerve palsy can be “EOMI”

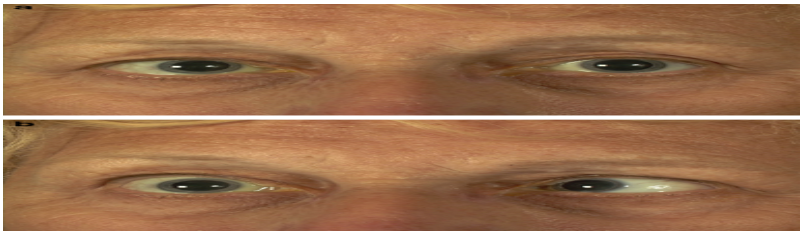
Need cover-uncover test in diagnostic positions of gaze to find small esotropia

Ductions-versions can be normal in patients with ocular motor cranial neuropathies

Book sixth=complete abduction deficit: 50 ET!

Real world 6 th = small incomitant ET in right gaze only





Behavior change

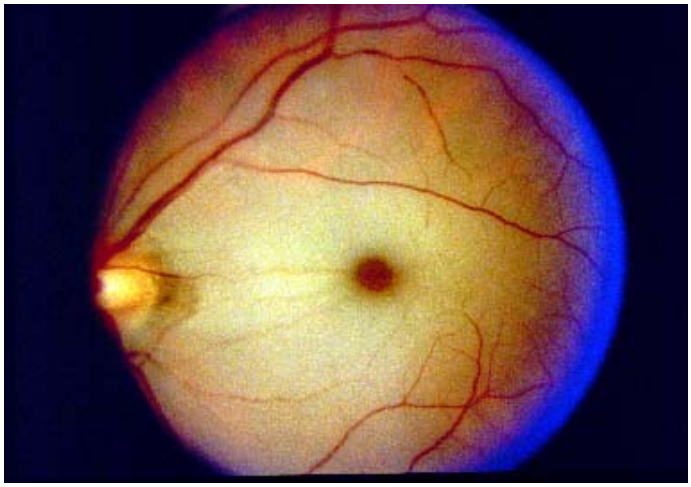
You: Do cover/uncover test for patients with diplopia & test in diagnostic positions of gaze

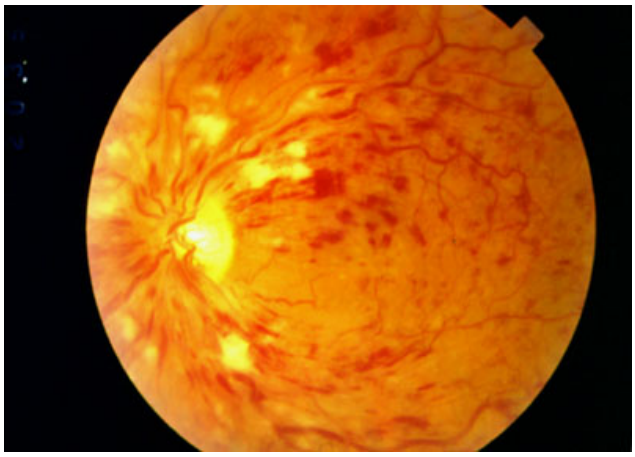
Don’t use symptom (i.e., “ diplopia ”) or sign (i.e., hypertropia ) as diagnosis or impression

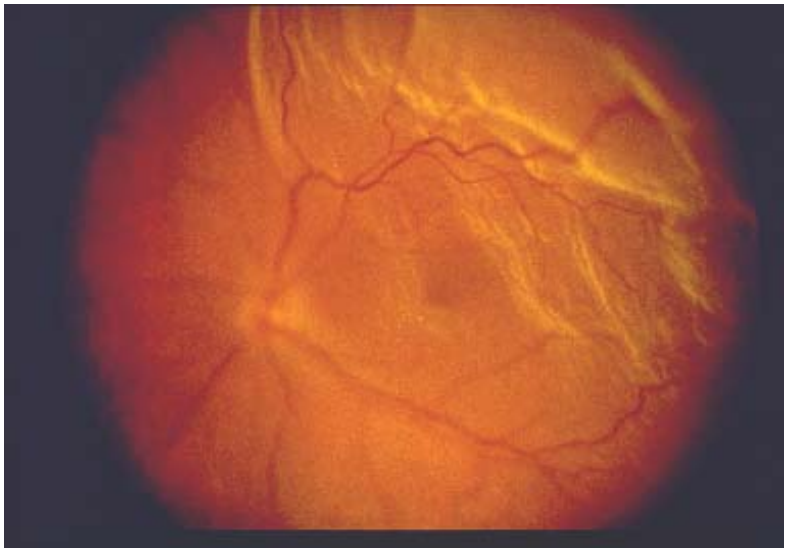
Your tech: Tell eyeMD if diplopia is problem, don’t let people leave clinic without a diagnosis

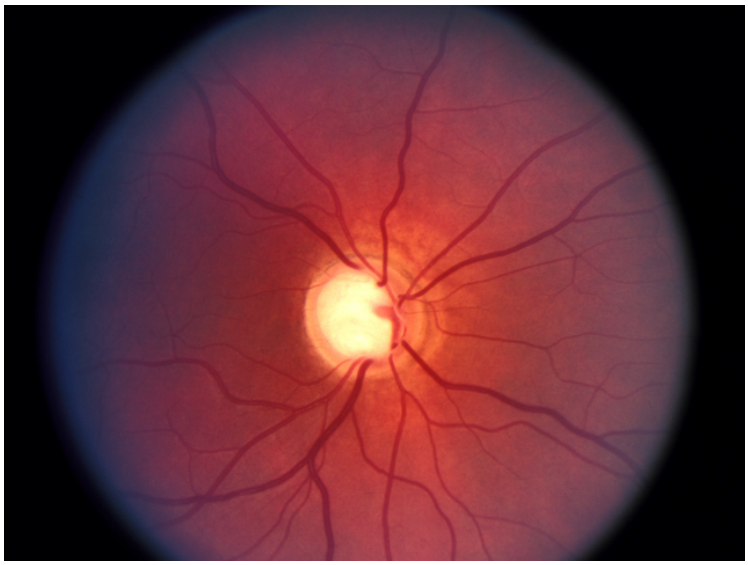
Diplopia is NOT a diagnosis

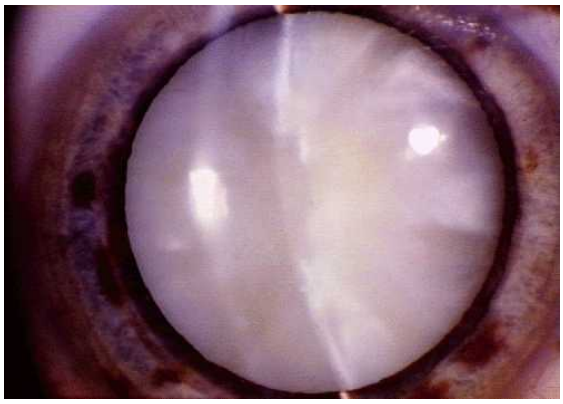
Most of your diagnoses are obvious! (Augenblick)



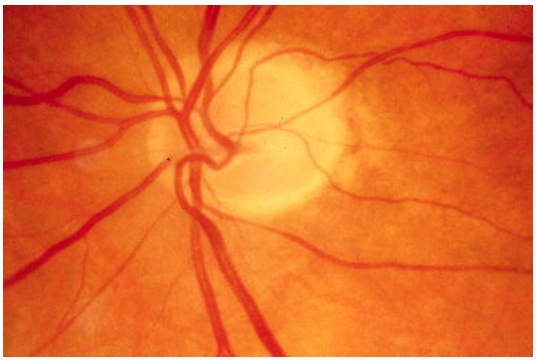


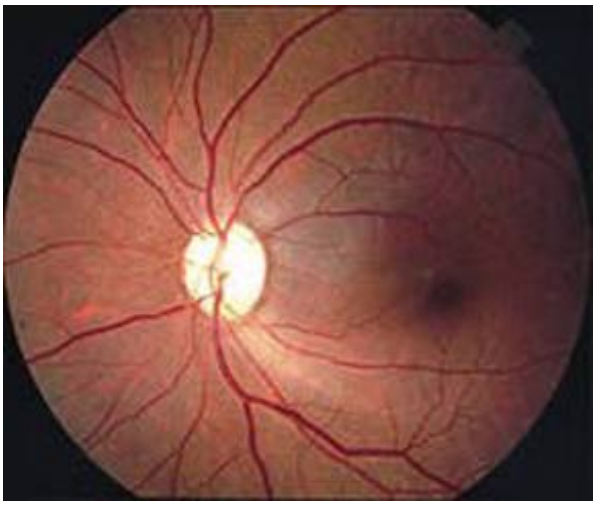


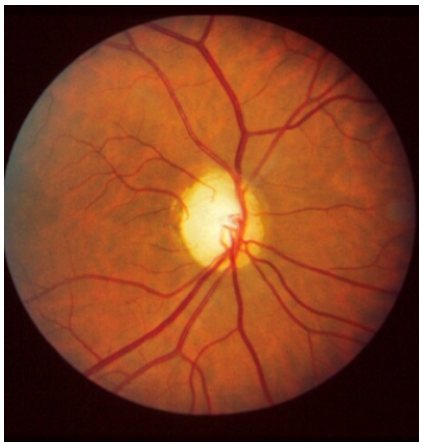


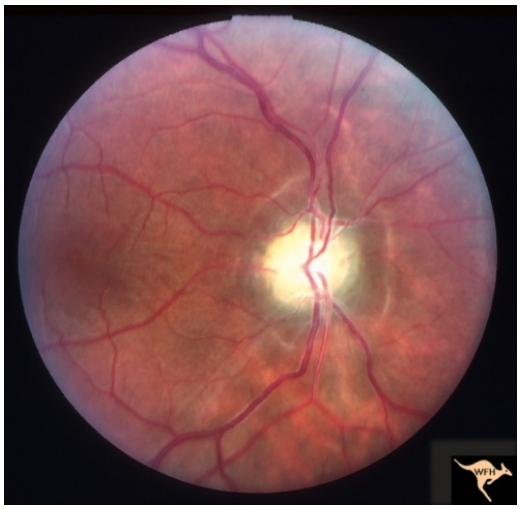


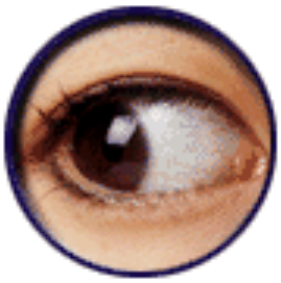
Optic atrophy is NOT a diagnosis!
Not Augenblick!



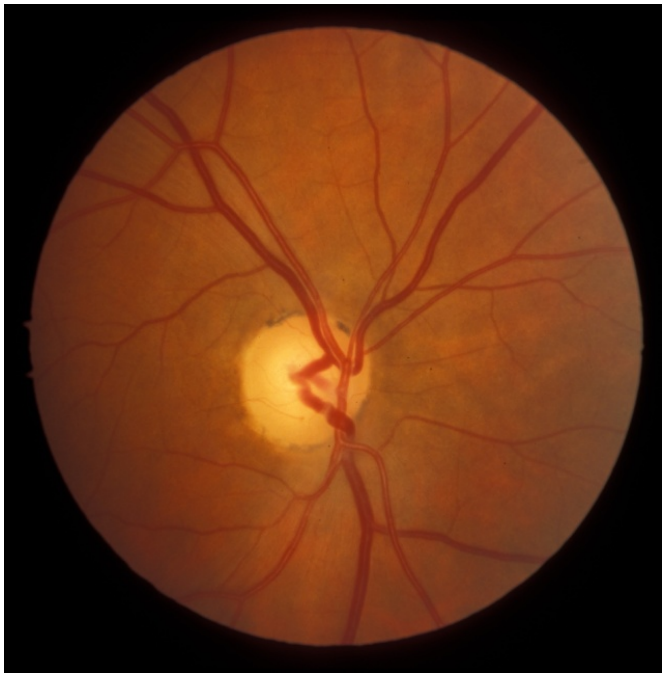






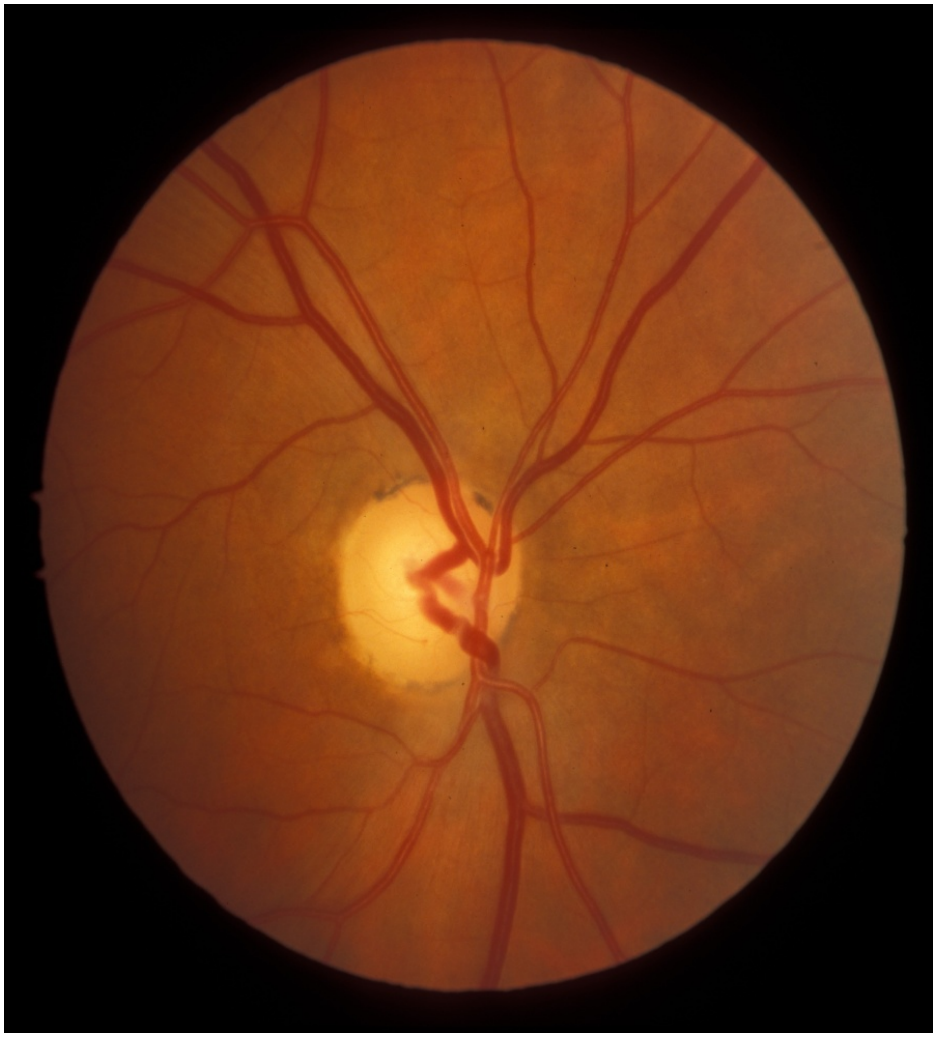


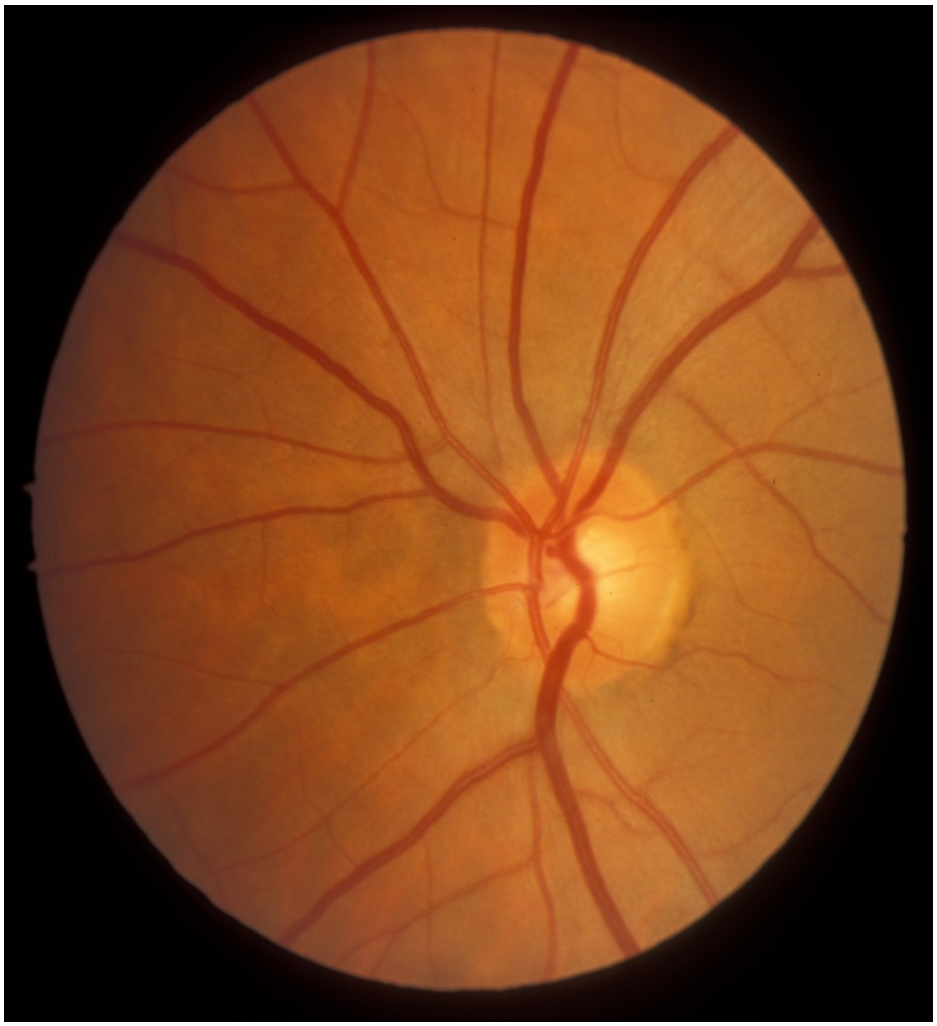
# Is this nerve pale? Mild pallor? Temporal pallor? Optic atrophy?



Look for clinical signs of optic neuropathy

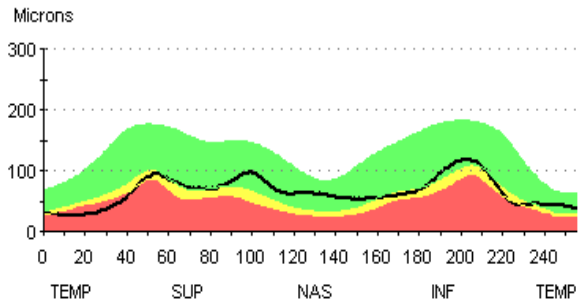
(RAPD, visual field, fellow eye, OCT)

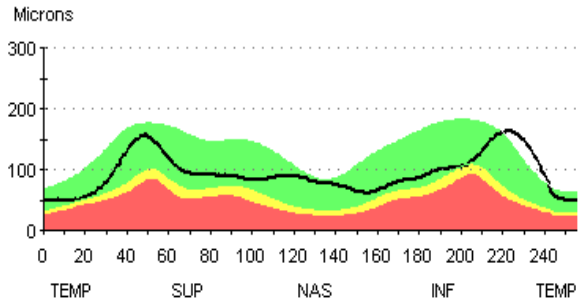


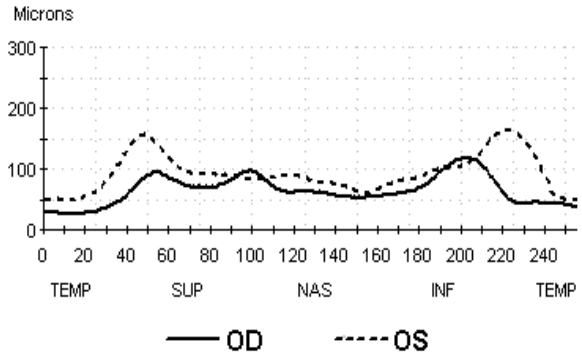


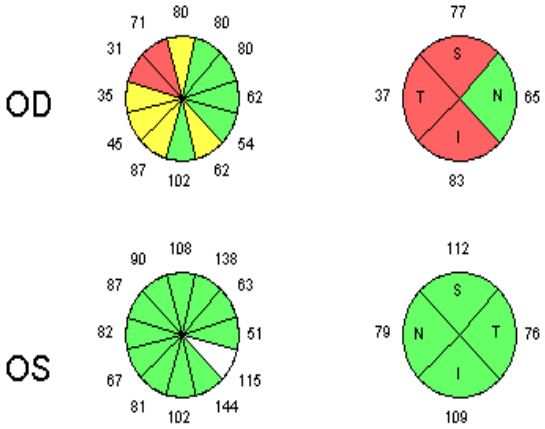
# Determination of Pallor vs No Pallor

# RNFL THICKNESS AVERAGE ANALYSIS



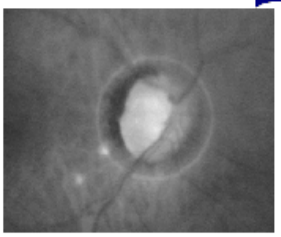



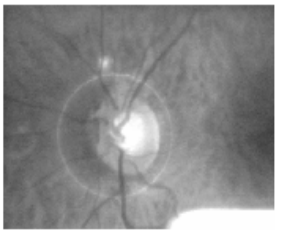





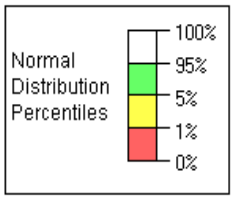




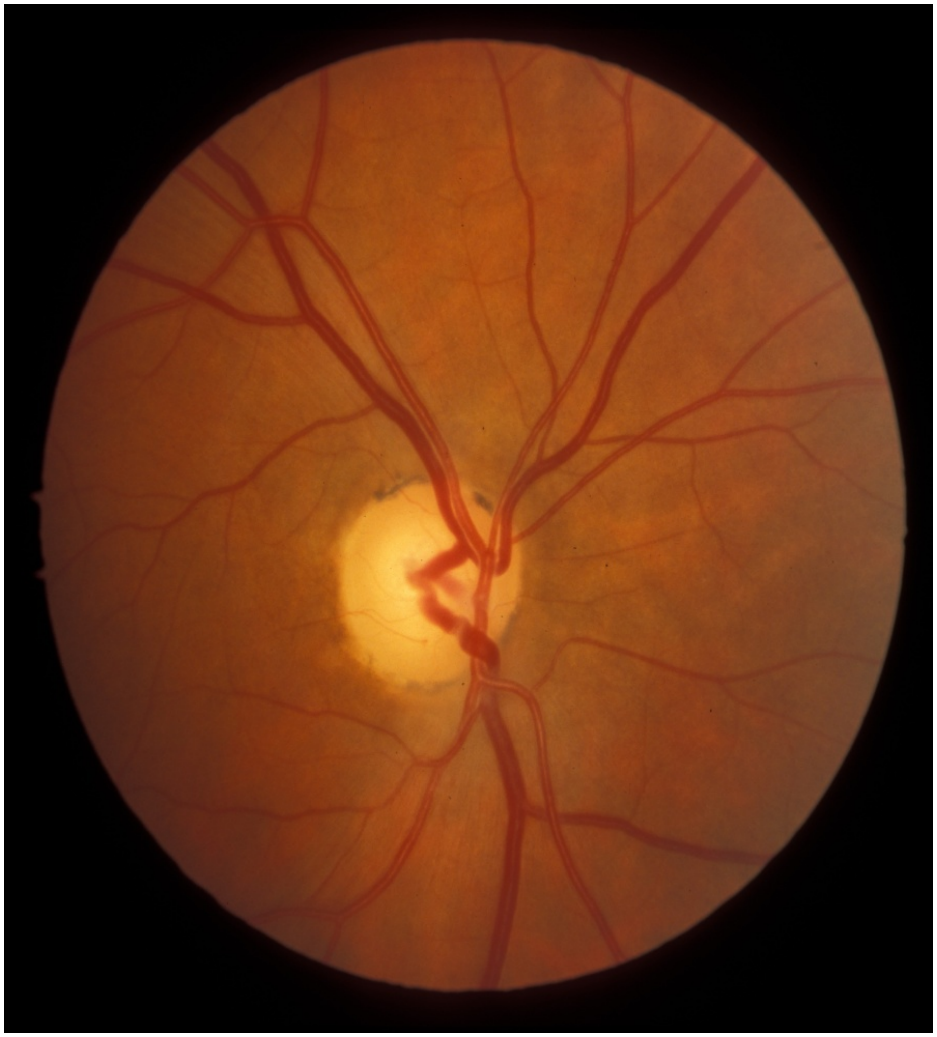


| Patient/Scan Information | |
|---|---|
| TEVIS<br>DENNIS<br><br>DOB: 02/09/1947, ID: 98-44624-2, Male | |
| **ScanType** | Fast RNFL Thickness (3.4) |
| **ScanDate** | 11/13/2003 |
| **ScanLength** | 10.87 |

| | OD (N=3) | OS (N=3) | OD-OS |
|---|---|---|---|
| Imax/Smax | 1.23 | 1.05 | 0.18 |
| Smax/Imax | 0.81 | 0.95 | -0.14 |
| Smax/Tavg | 2.59 | 2.04 | 0.55 |
| Imax/Tavg | 3.20 | 2.15 | 1.05 |
| Smax/Navg | 1.47 | 1.98 | -0.51 |
| Max-Min | 91.00 | 114.00 | -23.00 |
| Smax | 96.00 | 156.00 | -60.00 |
| Imax | 118.00 | 164.00 | -46.00 |
| Savg | 77.00 | 112.00 | -35.00 |
| Iavg | 83.00 | 109.00 | -26.00 |
| Avg.Thickness | 65.61 | 94.00 | -28.38 |




OCT can see better than me



Am I pale?

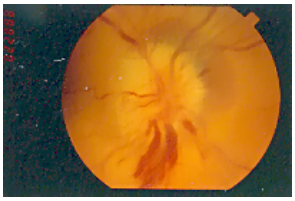

Michael
Jackson
Thriller

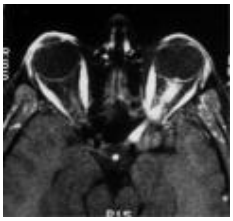
Am I pale?

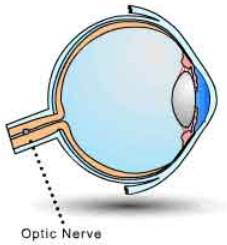
# Common things are common

Is it old AION

Is it old optic neuritis?









BEWARE
UNFENCED ROAD
FOR NEXT 150km


DEER
CROSSING


WOMBATS
NEXT
5 km

Dad’s rules of DDx

# If it sounds like a duck, looks like a duck, & acts like a duck then it’s a &#@! Duck

# Is it old AION?

Disc edema

Vasculopath

Older patient

Static course

# Is it old ON?

Younger

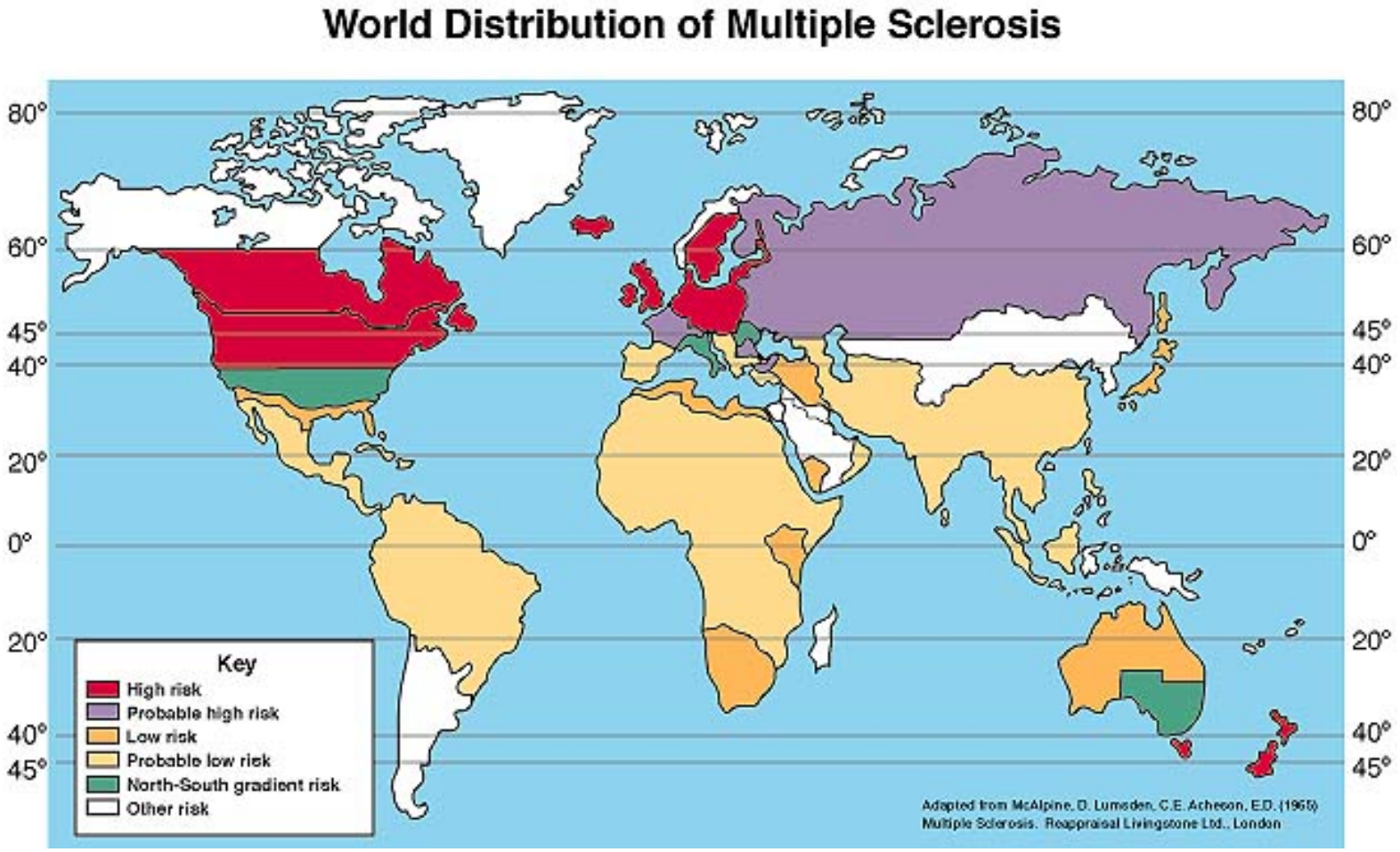
Recovered

MS history


BP 4266
FunnyPart.com

Uncommon presentations of common diseases are COMMON

# MS: Old optic neuritis?



If not AION or ON then more history & exam

Bilateral progressive central-cecocentral scotoma => B12/folate/Leber's hereditary optic neuropathy/ethambutol toxicity

Chronic progressive optic neuropathy => compressive lesion (get formal fields)

Bitemporal hemianopsia: Chiasmal

Homonymous hemianopsia: Optic tract

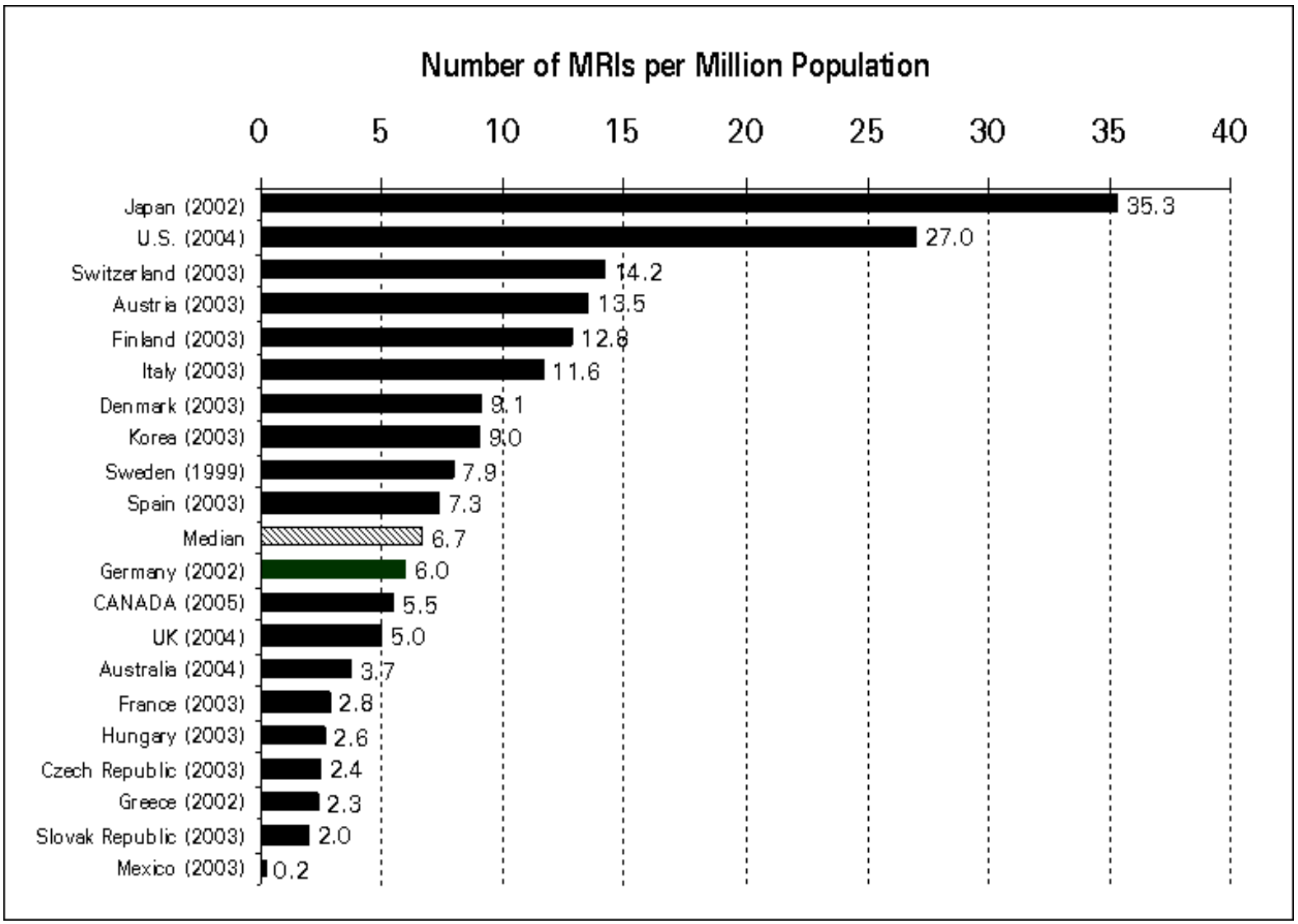
Uveitis (old or new) Sarcoid, syphilis

# If history & exam come up short then image unexplained optic atrophy

MRI head/orbit fat suppression and gadolinium (optic nerve protocol)

If suspicion low for compression or cost is an issue in your part of the world you might choose observation (if static , old NAION then no imaging) or CT scan with contrast

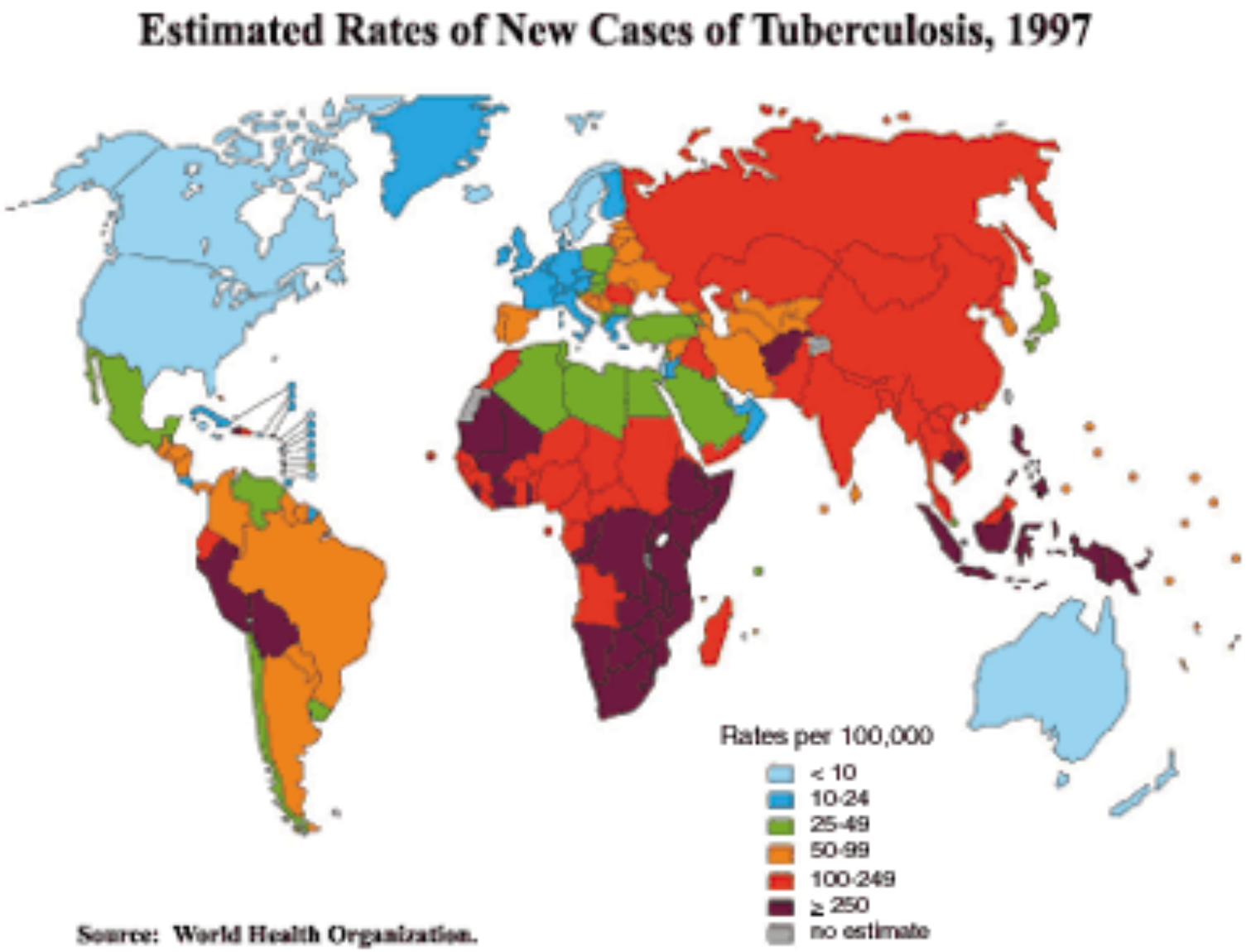
Optic atrophy can always be a tumor!



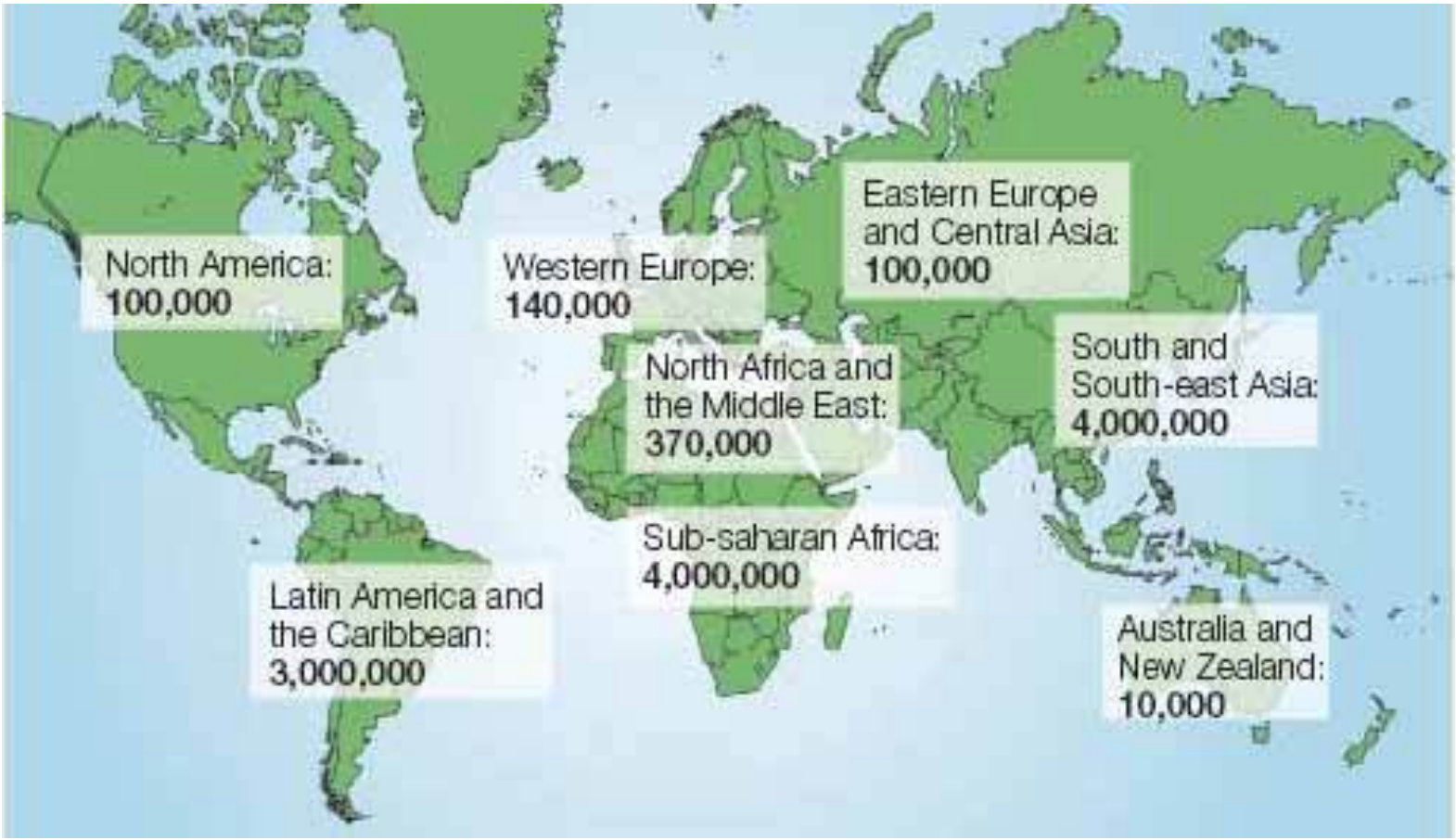

China and India - 1 MRI per 1 million population

Directed evaluation vs. shotgun


Tuberculosis in India



Syphilis worldwide



Round up the usual suspects


Compressive

Ischemic

Demyelinating

Infectious

Inflammatory

Toxic-nutritional

# Optic atrophy is NOT a diagnosis

Impression equals diagnosis = most of your clinic day!

Cataract

CRVO

CRAO

RD

Optic atrophy is NOT a diagnosis

Could be a compressive lesion

Image if unexplained optic atrophy (don’t write “? Mild”)

If not imaging document WHY (e.g., “I believe that this is old NAION and I am following this patient”)

Document RATIONALE for decision making

Behavior change

You: Don’t use “optic atrophy” as a diagnosis

Your techs: Don’t let people leave clinic with a photo or OCT or chart that says “optic atrophy” and has NO etiologic diagnosis

The ways that an ophthalmic technician can save a life….

Avoid sole use of PERRLA for the pupil exam

Savino's rule - if there is a problem with the lid, motility, or pupil all three areas must be evaluated and documented

Don't use EOMI as the only assessment of motility

Don't order the same scan on all patients; and

Signs or symptoms are not diagnoses.

Five behavior changes TODAY

Check pupil in light & dark (not “PERRLA”)

Don’t let technician be only pupil exam for tough ones

Avoid “Blurred disc margins” & take the finding seriously (i.e., “? papilledema ”)

Don’t use vague motility terms like “ dysconjugate gaze” or “ extraocular muscles intact (“EOMI”)

Remember: “optic atrophy”, “ diplopia ”, “ esotropia ” are not diagnoses (PS: Neither are “ ptosis ” or “blurred vision” or “unexplained visual loss”)

There is a difference between data and information

DATA

28 17 26 80 81

INFORMATION

(281) 726-8081

If you have questions call me or email me

AGLee@tmhs.org


End with a philosophical question & two really quick cases. Why are you here… because you believe as we all do that you can….?

Chief complaint: NONE

73-year-old WF

Chief complaint: NONE now (2010)

PMH: Paraneoplastic optic neuropathy, recovered

CXR: Small cell carcinoma of lung

Resected, chemotherapy, radiation in 1997

Published: Luiz JE , Lee AG , Keltner JL, Thirkill CE, Lai EC. Paraneoplastic optic neuropathy and autoantibody production in small-cell carcinoma of the lung. J Neuroophthalmol. 1998;18:178–181.

Follow up 2010

Pt: “You don’t remember me do you Dr. Lee?”

Me: “Well,…I um….sure…maybe”

Pt: “I had lung cancer & you found it thru my eye”

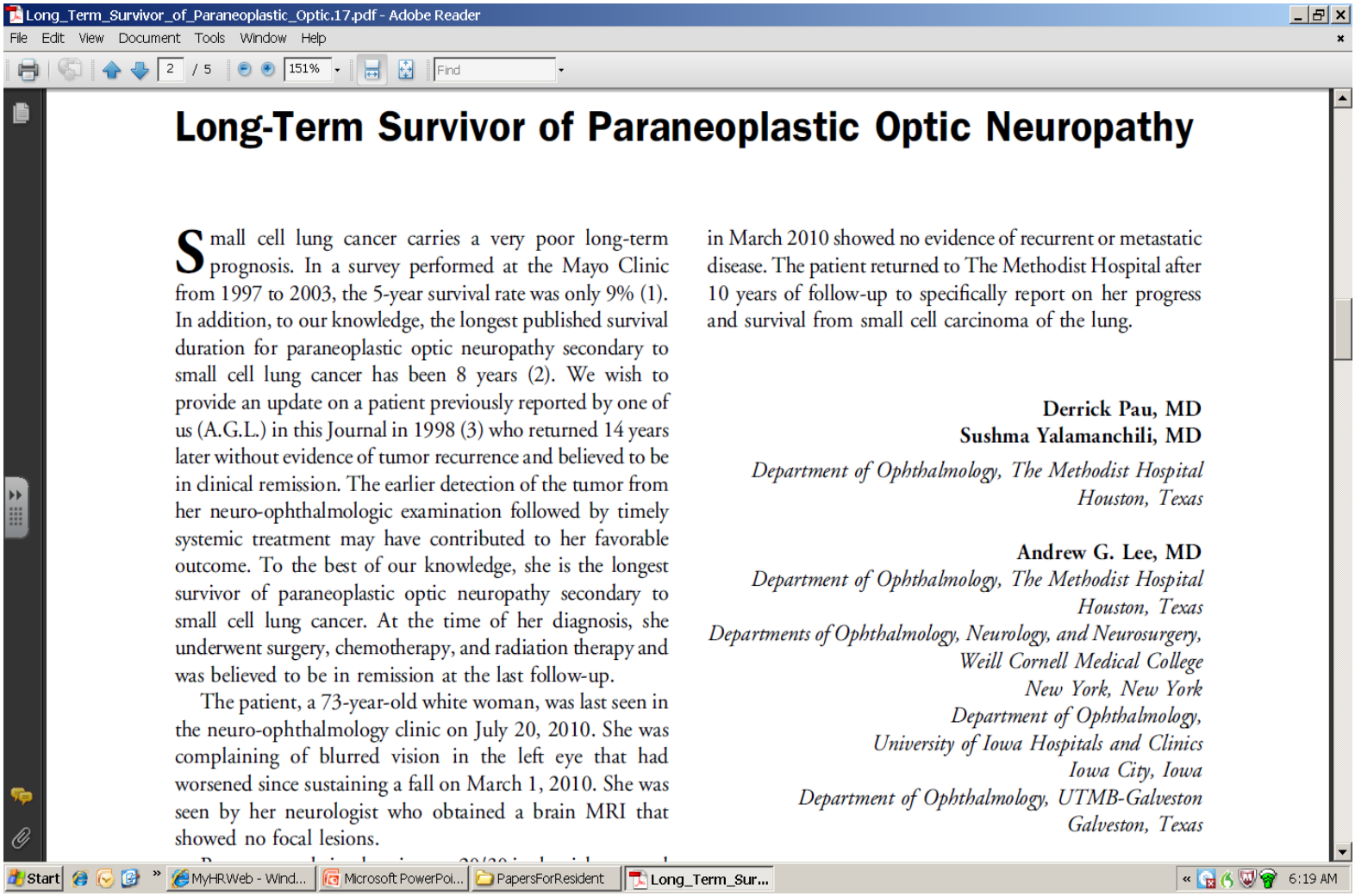
Me: “Really”

Pt: “Yeah, you wrote it up in a journal”

Me: “Oh, yeah, sure, now I remember. How are you, why are you coming today?”

Pt: “I just wanted to tell you that I was still alive and it is been 14 years, so thanks.”

Longest known survivor




# Long-Term Survivor of Paraneoplastic Optic Neuropathy

Small cell lung cancer carries a very poor long-term prognosis. In a survey performed at the Mayo Clinic from 1997 to 2003, the 5-year survival rate was only 9% (1). In addition, to our knowledge, the longest published survival duration for paraneoplastic optic neuropathy secondary to small cell lung cancer has been 8 years (2). We wish to provide an update on a patient previously reported by one of us (A.G.L.) in this Journal in 1998 (3) who returned 14 years later without evidence of tumor recurrence and believed to be in clinical remission. The earlier detection of the tumor from her neuro-ophthalmologic examination followed by timely systemic treatment may have contributed to her favorable outcome. To the best of our knowledge, she is the longest survivor of paraneoplastic optic neuropathy secondary to small cell lung cancer. At the time of her diagnosis, she underwent surgery, chemotherapy, and radiation therapy and was believed to be in remission at the last follow-up.

The patient, a 73-year-old white woman, was last seen in the neuro-ophthalmology clinic on July 20, 2010. She was complaining of blurred vision in the left eye that had worsened since sustaining a fall on March 1, 2010. She was seen by her neurologist who obtained a brain MRI that showed no focal lesions.

in March 2010 showed no evidence of recurrent or metastatic disease. The patient returned to The Methodist Hospital after 10 years of follow-up to specifically report on her progress and survival from small cell carcinoma of the lung.

**Derrick Pau, MD**
**Sushma Yalamanchili, MD**
*Department of Ophthalmology, The Methodist Hospital*
*Houston, Texas*

**Andrew G. Lee, MD**
*Department of Ophthalmology, The Methodist Hospital*
*Houston, Texas*
*Departments of Ophthalmology, Neurology, and Neurosurgery,*
*Weill Cornell Medical College*
*New York, New York*
*Department of Ophthalmology,*
*University of Iowa Hospitals and Clinics*
*Iowa City, Iowa*
*Department of Ophthalmology, UTMB-Galveston*
*Galveston, Texas*

His name is Andrew….

33-year-old WM

Transient dizziness, blurry vision, followed by loss of consciousness after watching bungee jumpers at Iowa St. Fair

On regaining consciousness, bilateral ptosis, exotropia: Noncontrast cranial CT in ER was "normal" MRI with contrast : "normal"

About to be discharged

MRI head negative

Course

Top of the basilar syndrome

Intravascular tPA

Locked in syndrome

Recovered slowly

Rehab, walked out of hospital

Writing a book about his experience called “One Fine Day”….

Make a difference

'Just happy to be here': Win

www.uihealthcare.com/news/pacemaker/2006/winter/stroke.html

University of Iowa Hospitals & Clinics
University of Iowa Health Care

News and Publications

UI Health Care Home | Health Care Services | Search

PACEMAKER Home

Sign up for Health at Iowa

Contact PACEMAKER

PACEMAKER Archives

PACEMAKER: Winter 2006-07

## 'Just happy to be here'

***34-year-old stroke patient achieves a remarkable recovery with help from the experts at UI***

Like many people, Bill Pitzen used to associate strokes with age.

Today, Pitzen knows better. Having experienced two strokes of his own at age 33, he realizes that age has little to do with one's risk for stroke.

The first event occurred last year during a seemingly routine day at his former place of employment, McLeod USA in Cedar Rapids, Iowa.

The initial symptoms—dizziness, hot flashes, slurred speech, and double vision—rendered him unresponsive as paramedics rushed him to a nearby hospital for evaluation.

Fortunately, he woke up and was able to return home after MRI and CT scans failed to detect the cause of his symptoms. Still, doctors were concerned and referred him to University of Iowa Hospitals and Clinics for further evaluation by UI neuroscientists.

Two days later, during a clinic visit, UI neuro-ophthalmologist Andrew Lee, MD, diagnosed Pitzen with a significant stroke. A repeat MRI scan also showed a developing blockage in his brain, putting him at high risk for a second stroke.

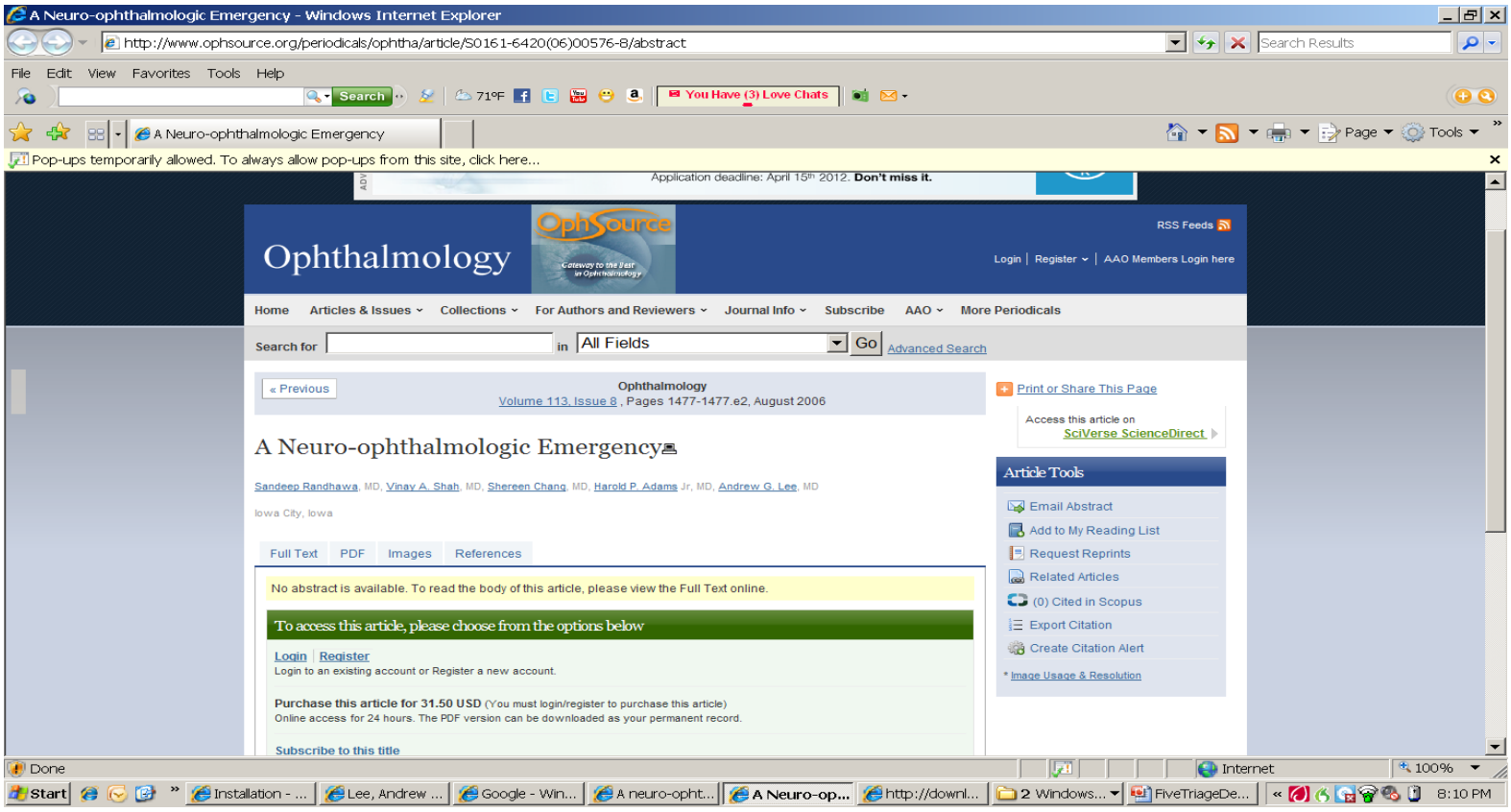
Unfortunately, Pitzen suffered the second stroke and collapsed just as he was being admitted for treatment.

Pitzen now faced the distinct possibility of losing movement on his left side and the ability to feed himself. To counter these risks, UI neuroscientists quickly formulated a plan that they hoped would lead to a better outcome.

Time was the enemy. The sooner doctors could intervene, the better. A highly specialized endovascular procedure to free the

**Grand Slam**
Stroke survivor Bill Pitzen celebrates by running the bases at a "Homerun for Life" event sponsored by the Cedar Rapids Kernels baseball club.

Start | Intel® PROSet/Wireless ... | Inbox - Outlook Web Acc... | 'Just happy to be her... | Internet Explorer cannot... | UtahJCAHPO2013 | Microsoft PowerPoint - [... | 9:38 AM


A Neuro-ophthalmologic Emergency - Windows Internet Explorer
http://www.ophsource.org/periodicals/ophtha/article/S0161-6420(06)00576-8/abstract
Search Results
File Edit View Favorites Tools Help
Search
71°F
You Have (3) Love Chats
A Neuro-ophthalmologic Emergency
Page Tools
Pop-ups temporarily allowed. To always allow pop-ups from this site, click here...
Application deadline: April 15th 2012. Don't miss it.
Ophthalmology
OphSource
Gateway to the Best in Ophthalmology
RSS Feeds
Login | Register | AAO Members Login here
Home Articles & Issues Collections For Authors and Reviewers Journal Info Subscribe AAO More Periodicals
Search for in All Fields Go Advanced Search
« Previous
Ophthalmology
Volume 113, Issue 8 , Pages 1477-1477.e2, August 2006
Print or Share This Page
Access this article on SciVerse ScienceDirect
A Neuro-ophthalmologic Emergency
Sandeep Randhawa, MD, Vinay A. Shah, MD, Shereen Chang, MD, Harold P. Adams Jr, MD, Andrew G. Lee, MD
Iowa City, Iowa
Article Tools
Email Abstract
Add to My Reading List
Request Reprints
Related Articles
(0) Cited in Scopus
Export Citation
Create Citation Alert
* Image Usage & Resolution
Full Text PDF Images References
No abstract is available. To read the body of this article, please view the Full Text online.
To access this article, please choose from the options below
Login | Register
Login to an existing account or Register a new account.
Purchase this article for 31.50 USD (You must login/register to purchase this article)
Online access for 24 hours. The PDF version can be downloaded as your permanent record.
Subscribe to this title
Done
Internet
100%
Start
Installation - ...
Lee, Andrew ...
Google - Win...
A neuro-opht...
A Neuro-op...
http://downl...
2 Windows...
FiveTriageDe...
8:10 PM

Years later…

Receive a phone call from this patient

“ Hey, Dr. Lee…you don’t remember me probably but I had a stroke at age 33 and you helped me at Iowa ”

Me: “Sure, I remember you ”

“ I was just calling to let you know that I went back to college, I got married, and now I have a new baby, his name is Andrew ”

Me: “ That is so great, congratulations ”

“ No, Dr. Lee you don’t understand…his name is ANDREW!”


ONE PERSON
CAN MAKE A
DIFFERENCE,
AND EVERYONE
SHOULD TRY
-JOHN F. KENNEDY-

Thank you for your time & attention




UTMB
The University of Texas Medical Branch

Thanks for your attention

Methodist