

What if?... This was the pupil exam

• **Andrew G. Lee, MD**

- Professor of Ophthalmology, Neurology and Neurosurgery, Weill Cornell Medical College
- Chair, Department of Ophthalmology, Houston Methodist Hospital, Houston, TX
- Adjunct Professor, University of Iowa Hospitals & Clinics, Iowa City, Iowa, Baylor COM, UTMB, UTMDACC



---

---

---

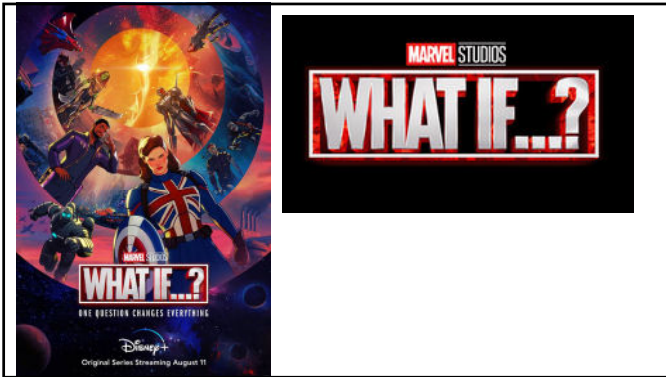
---

---

---

---

---



---

---

---

---

---

---

---

---

Pupil (pupae) is a small reflection of a small person in the eye



---

---

---

---

---

---

---

---

**Pupils of the pupil**

Some things you don't know about things you know well: RAPD (afferent pathway) and Anisocoria (efferent pathway)

Relative afferent pupillary defect and light near dissociation of pupils

Anisocoria

- Small pupil
- Big pupil

Third nerve palsy, Horner syndrome, Adie tonic pupil, pharmacologic dilation

---

---

---

---


---


---


---

---

Relative afferent pupillary defect (RAPD) OD:  
Which side is the lesion?

No Light 

Normal Response to Light 

Positive RAPD of Right Eye 

Stanford Medicine 23

---

---

---

---

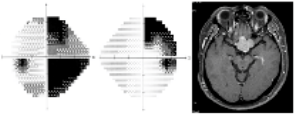
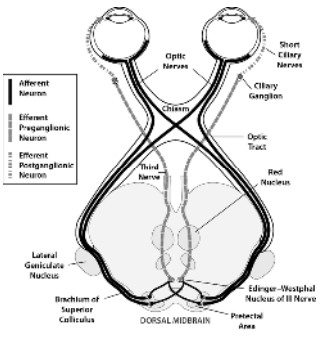
---

---

---

---

Which eye has the RAPD?

Legend:  
 - Afferent Neuron (black)  
 - Efferent Postganglionic Neuron (grey)  
 - Efferent Pre-ganglionic Neuron (white)

Labels in diagram:  
 Optic Nerve, Short Ciliary Nerve, Ciliary Ganglion, Optic Tract, Red Nucleus, Edinger-Westphal Nucleus of III Nerve, Pretectal Area, DORSAL MIDBRAIN, Brachium of Superior Colliculus, Lateral Geniculate Nucleus, Third Nerve, Chiasm.

---

---

---

---

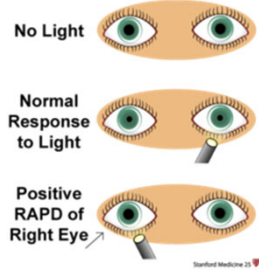
---

---

---

---

Relative afferent pupillary defect (RAPD) OD:  
Which pupil dilates with an RAPD OD?




---

---

---

---

---

---

---

---

How would we check RAPD OD if the pupil is fixed and dilated OD from third n. palsy?




---

---

---

---

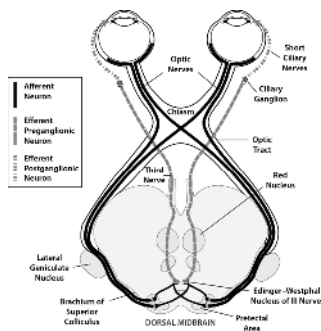
---

---

---

---

Both pupils




---

---

---

---

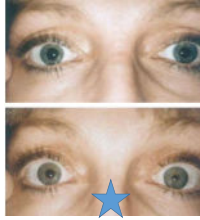
---

---

---

---

Bilateral light near dissociation



---

---

---

---

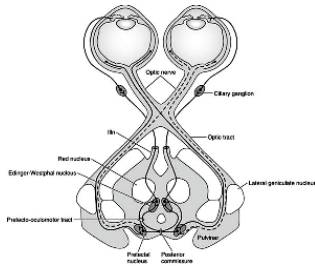
---

---

---

---

Bilateral light near dissociation



---

---

---

---

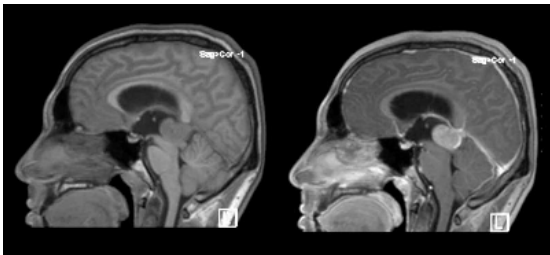
---

---

---

---

Parinaud dorsal midbrain syndrome (light-near dissociation)



---

---

---

---

---

---

---

---

“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.

---

---

---

---

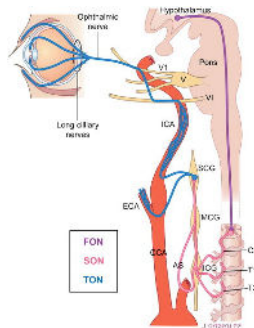
---

---

---

---

Oculosympathetic (Horner pathway)



---

---

---

---

---

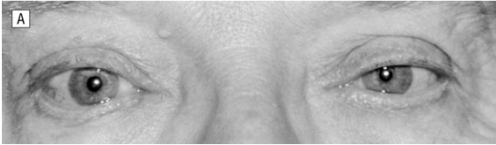
---

---

---

The JAMA Network

Sent for levator dehiscence OS



A

---

---

---

---

---

---

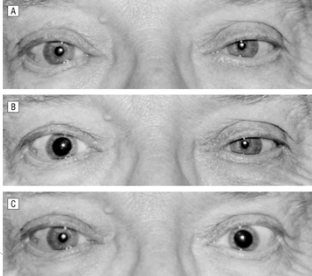
---

---

The JAMA Network

From: Ocular Effects of Apraclonidine in Horner Syndrome

Arch Ophthalmol. 2000;118(7):951-954. doi:10.1001/ops.ophthol.118.7.ecs90240



A. Baseline

B. Cocaine

C. Apraclonidine

---

---

---

---

---

---

---

---

Anisocoria



---

---

---

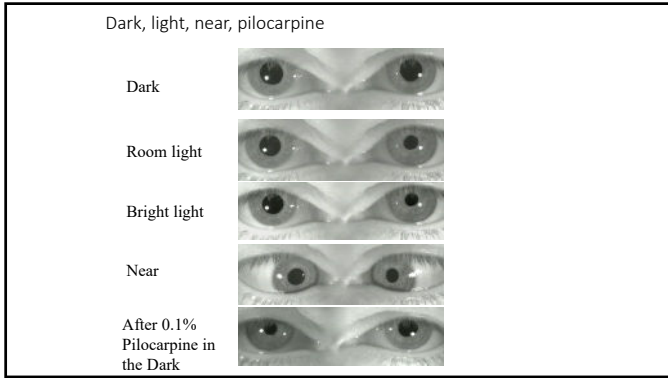
---

---

---

---

---



---

---

---

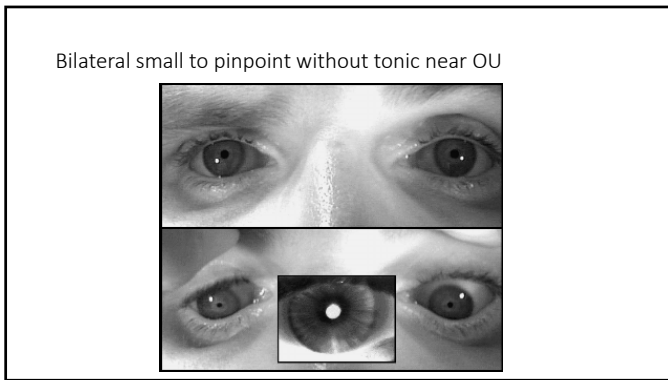
---

---

---

---

---



---

---

---

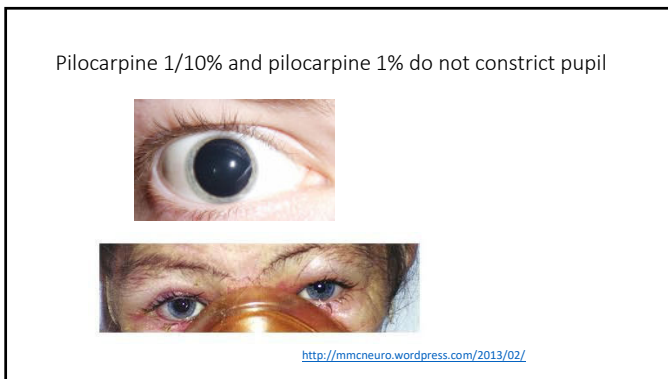
---

---

---

---

---



---

---

---

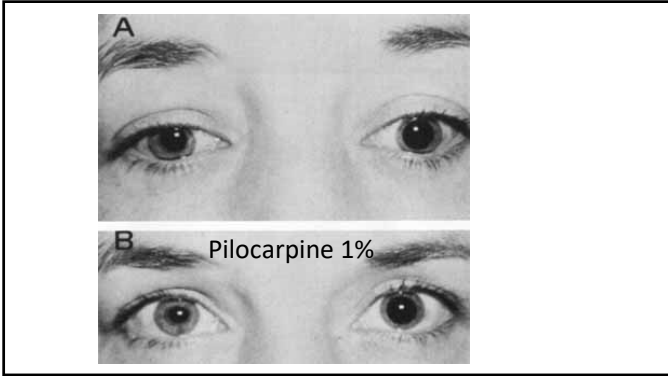
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

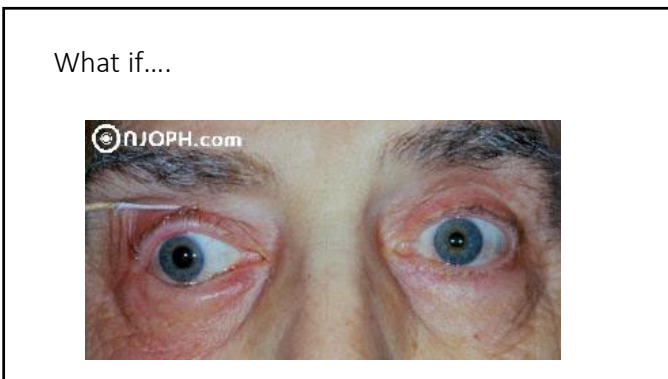
---

---

---

---

---



---

---

---

---

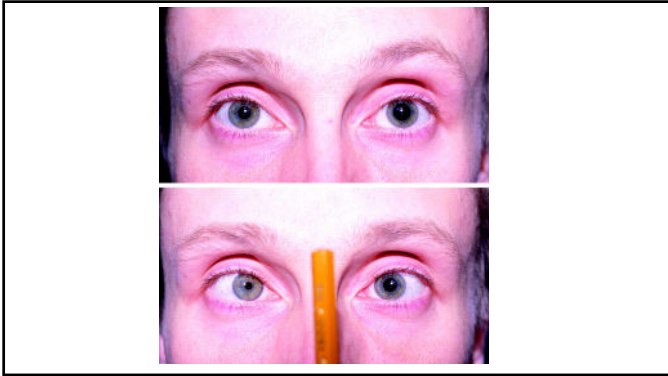
---

---

---

---





---

---

---

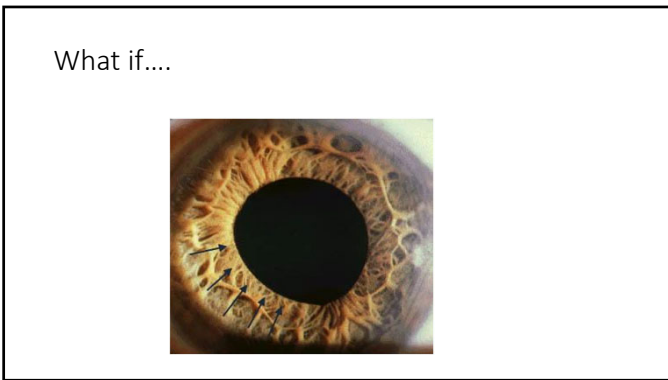
---

---

---

---

---



---

---

---

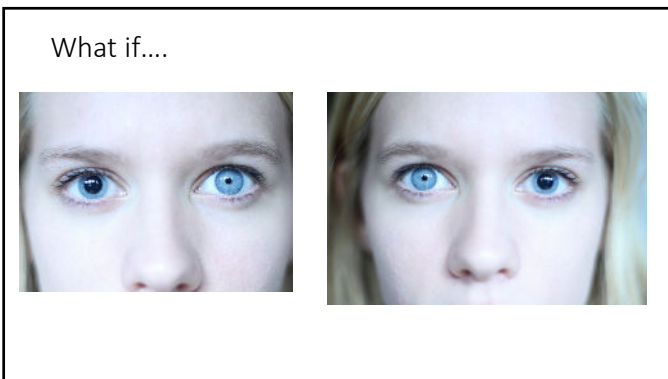
---

---

---

---

---



---

---

---

---

---

---

---

---

Different days



---

---

---

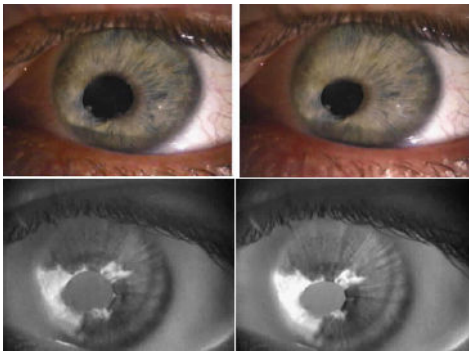
---

---

---

---

---



---

---

---

---

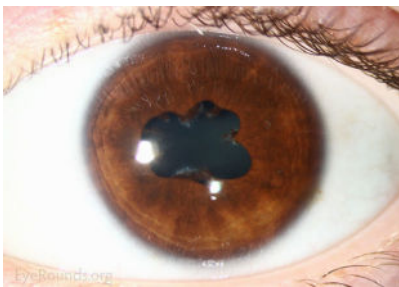
---

---

---

---

What if...



---

---

---

---

---

---

---

---

What if...




---

---

---

---

---

---

---

---

**Summary:  
Pupil cases  
with Prem  
and Andy**

Some things you don't know about things you know well: RAPD (afferent pathway) and Anisocoria (efferent pathway)	Relative afferent pupillary defect and light near dissociation of pupils
<b>Anisocoria</b> <ul style="list-style-type: none"> <li>• Small pupil</li> <li>• Big pupil</li> </ul>	Third nerve palsy, Horner syndrome, Adie tonic pupil, pharmacologic dilation

---

---

---

---

---

---

---

---

**Pupils of the pupil**

Some things you don't know about things you know well: RAPD (afferent pathway) and Anisocoria (efferent pathway)
Relative afferent pupillary defect and light near dissociation of pupils
<b>Anisocoria</b> <ul style="list-style-type: none"> <li>• Small pupil</li> <li>• Big pupil</li> </ul>
Third nerve palsy, Horner syndrome, Adie tonic pupil, pharmacologic dilation

---

---

---

---

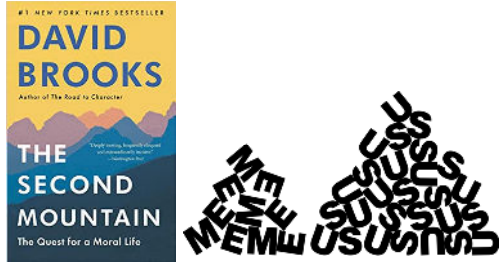
---

---

---

---

Defeating burnout by climbing my "second mountain"



---

---

---

---

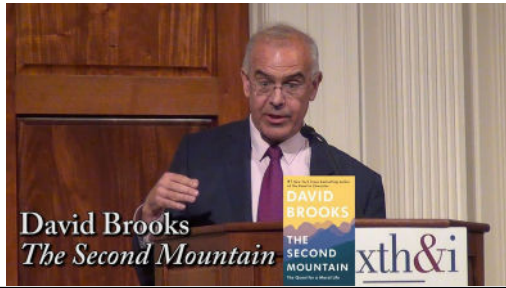
---

---

---

---

I am done climbing my first mountain...I am on my second mountain....



---

---

---

---

---

---

---

---

My second PubMed mountain is higher



---

---

---

---

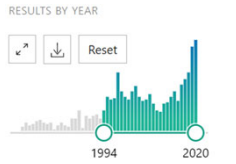
---

---

---

---

Let's climb!



---

---

---

---

---

---

---

---

There is only one thing to say to the Devil of Physician burnout...You are my second mountain



---

---

---

---

---

---

---

---

Help us keep neuro-ophthalmology on the Hawaiian Eye program next year by voting this year



---

---

---

---

---

---

---

---

Thanks for your time & attention



Weill Cornell Medical College



---

---

---

---

---

---

---

---