Is it a Tonic Pupil?

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Disclosures

- No relevant disclosures
- Consultant for GenSight Biologics
Anisocoria

Big Pupil Problem

vs.

Small Pupil Problem
Physiologic Anisocoria

- 10-20% of population has 0.4mm of anisocoria
- Normal light, near and dark reactions
Anisocoria. Ocular causes
- Uveitis
- Iris nevus
- ICE syndrome
- Angle closure glaucoma
- Iris tear
- Ocular siderosis (L)
- Traumatic mydriasis
- IOL
The small pupil is abnormal

- The anisocoria is greater in the dark than in the light
  - Poor pupillary dilation on the abnormal side
  - Abnormality of the sympathetic system.
Horner Syndrome

- Abnormality of the sympathetic system

Dark

Light
Congenital Horner Syndrome
Horner’s Syndrome: Localization

1: 1st order neuron: brainstem/ spine

2: 2nd order neuron: brachial plexus/ lung apex

3: 3rd order neuron: carotid dissection
Horner + VIth = Cavernous Sinus
The big pupil is abnormal

- The anisocoria is greater in the light than in the dark
  - Poor pupillary constriction on the abnormal side
  - Abnormality of the parasympathetic system.
Pharmacologic Mydriasis

- Very large pupil
- Does not react to light or near
- Poor constriction with Pilocarpine 1%
Pharmacologic Mydriasis

Sphincter blockers

- Belladonna alkaloids
- Atropine
- Scopolamine
- Tropicamide
- Cyclopentolate
- Anticholinergic inhalants
- Gentamycin
- Lidocaine
Pharmacologic Mydriasis

Dilator Stimulators

- Epinephrine
- Phenylephrine
- Ephedrine
- Hydroxyamphetamine
- Cocaine
- Ocular decongestants
- Adrenergic inhalants
- Initially large, irregular, tonic redilation
- Good near response
- Sensitivity to dilute pilocarpine (0.125%)
Tonic Pupil

- Light response
- Near response
Tonic Pupil

- Light response
- Dilute pilo
Tonic Pupil

- Sectoral paralysis, segmental contraction
- Loss of pupillary ruff
- Vermiform movements of iris
Tonic Pupil

- Usually no cause
  - Diabetes
  - Viral infection (zoster, HIV)
  - Syphilis
  - Local orbital process

- If isolated, no workup
Third Nerve Palsy

- Dilated pupil
- Poorly reactive to light
- Always with ptosis/diplopia
PCOM Aneurysm / Pituitary Apoplexy
Anisocoria: Remember

- No anisocoria w/ afferent defect
- Carotid dissection (Horner)
- Posterior communicating artery aneurysm and pituitary apoplexy (IIIrd n. palsy)