

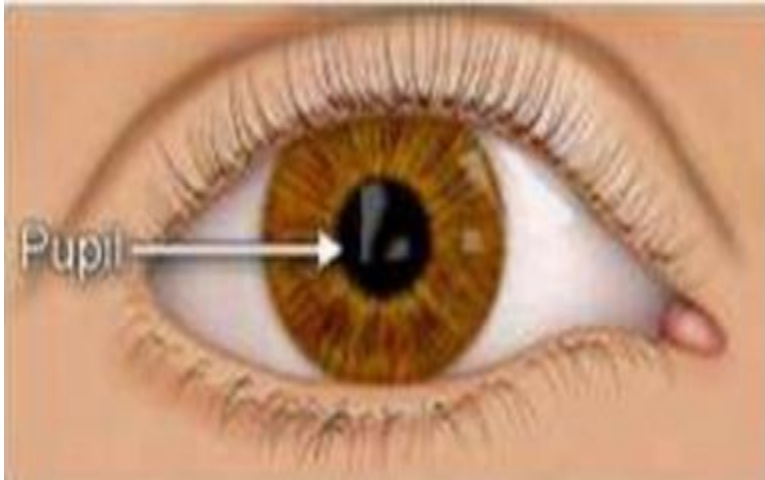
Neuro-ophthalmology- nội trú thần kinh

# Khám đồng tử

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2017

# Đồng tử



Trung tâm mống mắt(iris) cho phép ánh sáng đi vào võng mạc

- ❑ hình tròn và kích thước bằng nhau
- ❑ thay đổi từ 3-5mm liên hệ ánh sáng xung quanh
- ❑ co đồng tử (miotic pupils) khi nhỏ hơn 3mm
- ❑ giãn đồng tử (mydriatic pupils) khi lớn hơn 7mm

# Pupil disorders



- **Microcoria**

(Đồng tử nhỏ, không dẫn)

- **Megalocoria**

(Đường kính giác mạc lớn, ít gập, không tiến triển)

- **Anisocoria**

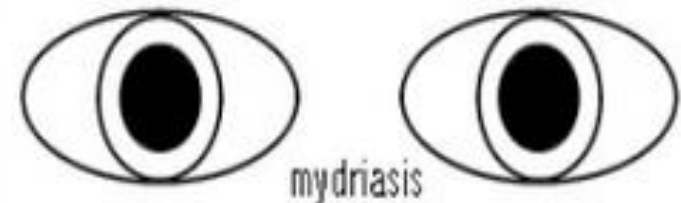
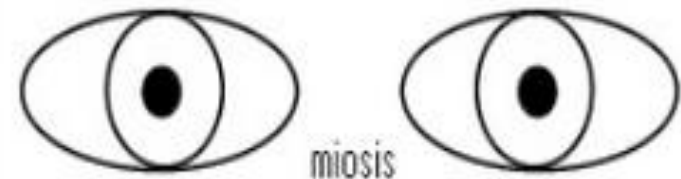
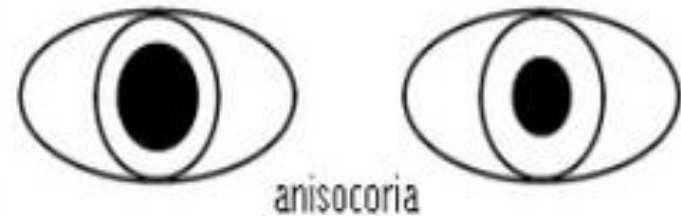
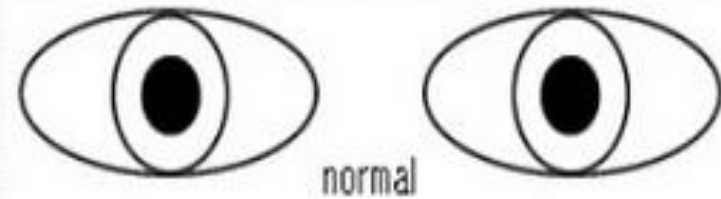
(Đồng tử không đều)

- **Polycoria**

(nhiều lỗ móng mắt)

- **Correctopia**

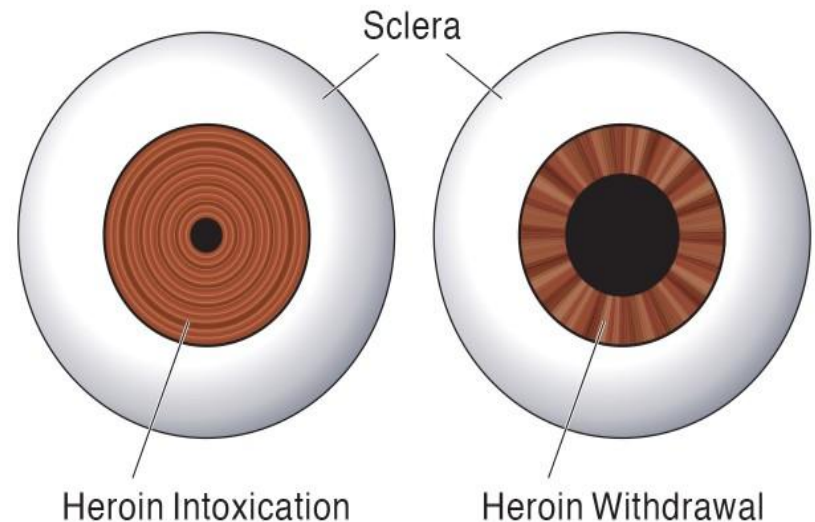
(Đồng tử bị dời chỗ)



**Polycoria** is a pathological condition of the [eye](#) characterized by more than one [pupillary opening](#) in the [iris](#). It may be congenital or result from a disease affecting the iris. Polycoria is extremely rare, and other conditions are frequently mistaken for it



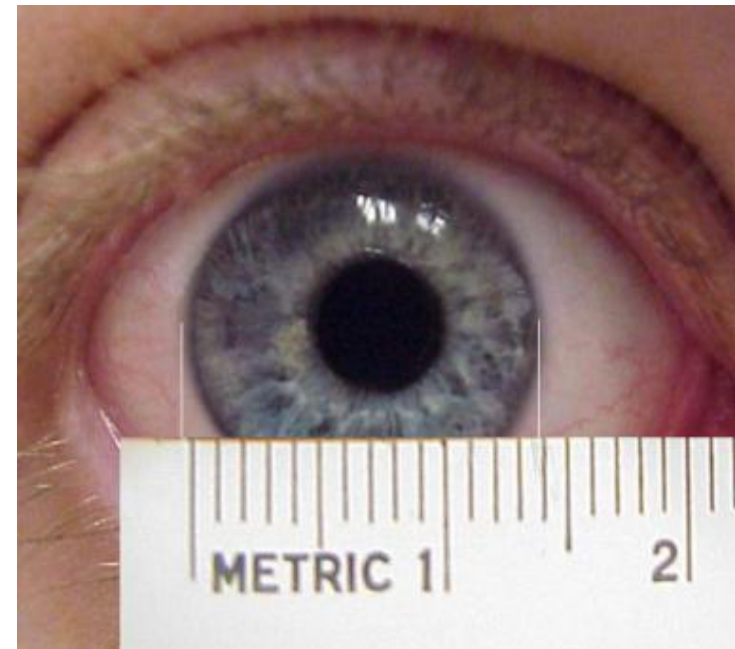
**Microcoria:** A congenitally small pupil with an inability to dilate





**Corectopia** is the displacement of the [eye's pupil](#) from its normal, central position. It may be associated with high [myopia](#) or [ectopia lentis](#), among other conditions. Medical or surgical intervention may be indicated for the treatment of corectopia in some cases

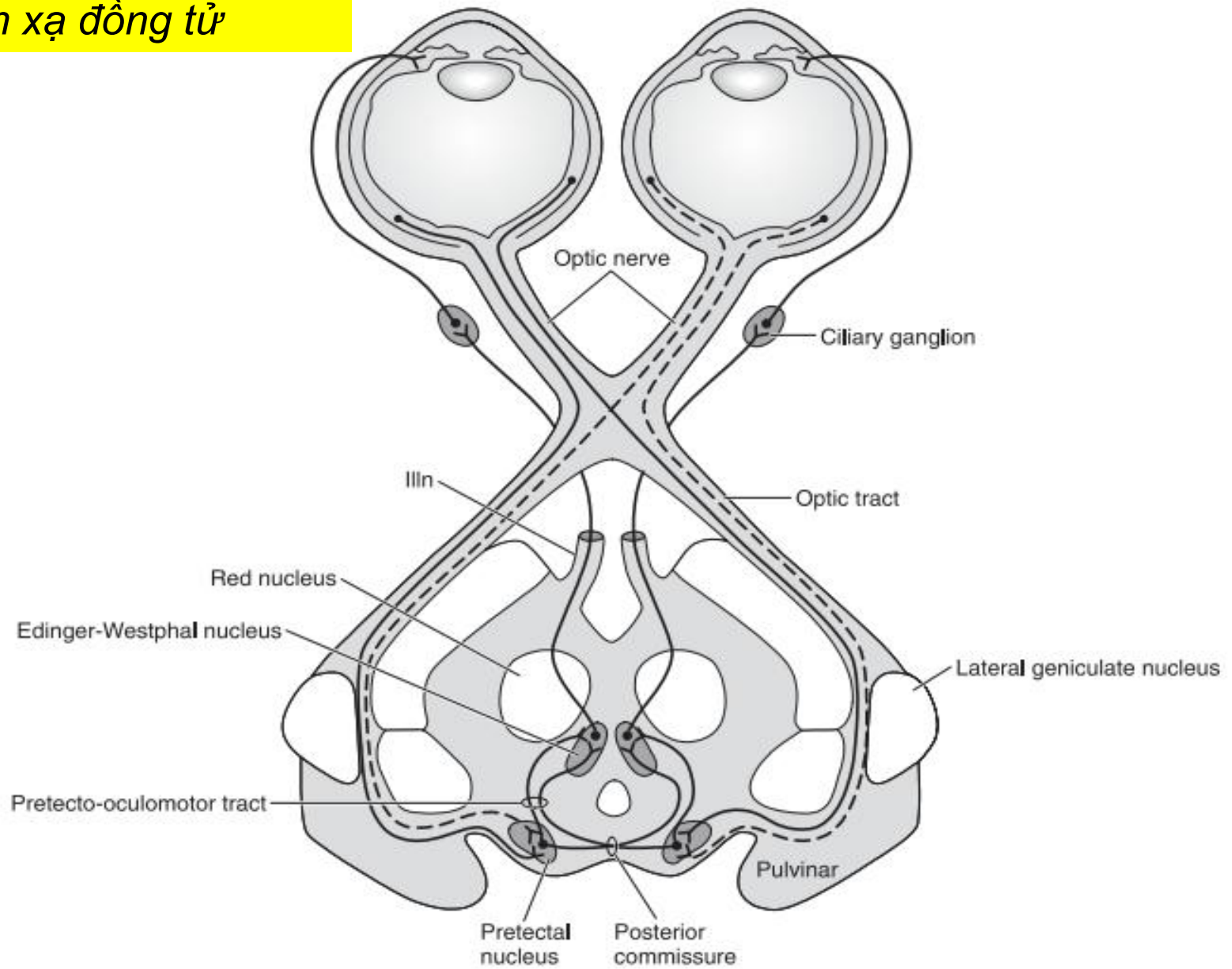
**Megalocornea** (MGCN, MGCN1) is an extremely rare nonprogressive condition in which the [cornea](#) has an enlarged [diameter](#), reaching and exceeding 13 mm. It is noted in some patients with [Marfan syndrome](#). It is thought to have two subforms, one with autosomal inheritance and the other X-linked (Xq21.3-q22)



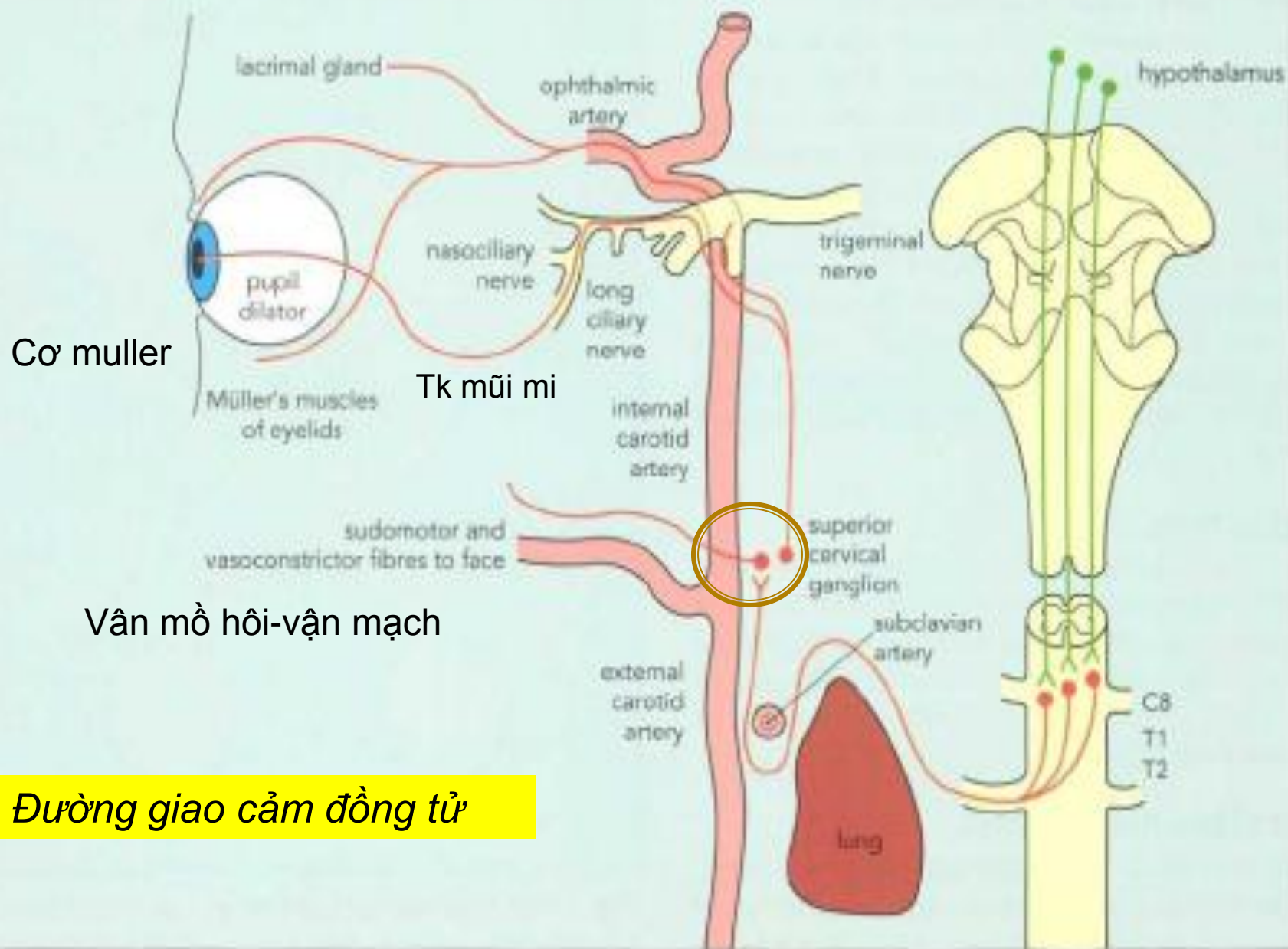
# Phản xạ đồng tử và rối loạn

- First Order – Retina to Pretectal Nucleus in B/S  
(at level of Superior colliculus)
- Second Order – Pretectal nucleus to E/W nucleus  
(bilateral innervation!)
- Third Order – E/W nucleus to Ciliary Ganglion
- Fourth Order – Ciliary Ganglion to Sphincter  
pupillae (via short ciliary nerves)

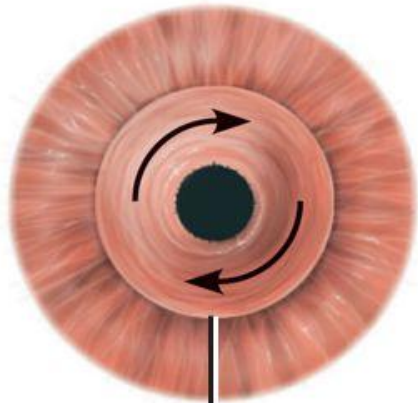
## Phản xạ đồng tử



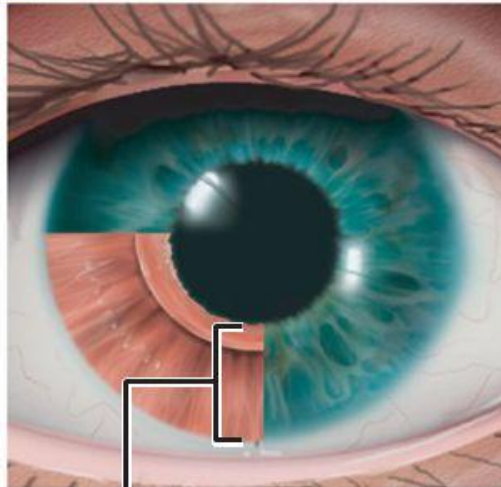
## Ocular sympathetic pathway



## Parasympathetic +



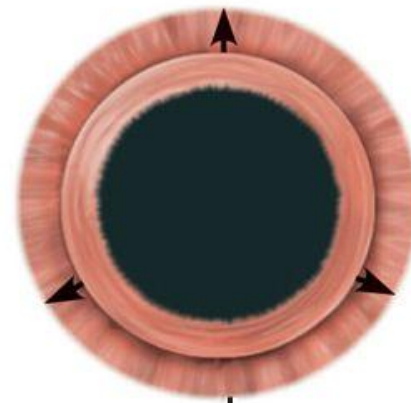
**Sphincter pupillae**  
muscle contraction  
decreases pupil size.



**Iris (two muscles)**

- Sphincter pupillae
- Dilator pupillae

## Sympathetic +

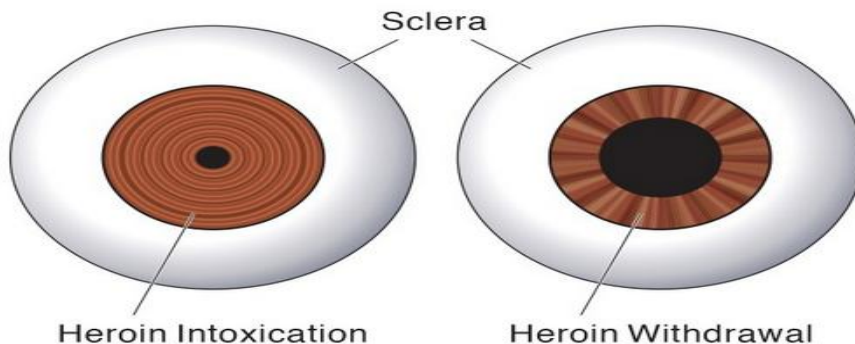


**Dilator pupillae**  
muscle contraction  
increases pupil size.

# Pupil

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- Constricted (*miosis*)
  - Sympathetic (*pupillodilator*) denervation
  - Drugs (co đồng tử)
    - Pilocarpine
    - Morphine
- Dilated (*mydriasis*)
  - Parasympathetic (*pupilloconstrictor*) denervation
  - Lesion of the third CN
  - Drugs (dãn đồng tử)
    - Atropine
    - Cocaine



# Ca lâm sàng

- ◆ Bn nam 49 tuổi
- ◆ Nhập viện vì đồng tử không đều 2 bên
- ◆ Không có than phiền về thị lực và thần kinh



## *Tiền sử*

- ◆ Không có bất thường về mắt trước đó
- ◆ Tăng huyết áp
- ◆ Tăng lipid máu
- ◆ Chấn thương nhẹ vùng cổ trước đó

# Khám thần kinh

- ◆ Dấu sinh tồn: BP= 122/64, P=69, T=97.0
- ◆ Dáng đi và CNTKCC bình thường
- ◆ Các dây sọ bình thường
- ◆ Đồng tử không đều nhẹ trong phòng sáng
- ◆ Phòng tối (Dim light)
  - Mắt trái: giãn chậm, giãn trì hoãn ở kích thước 4-5 mm, giảm kích thước sau 15 giây.
  - Mắt phải: không giãn – kích thước 2mm
- ◆ Cả 2 co với ánh sáng chói
- ◆ Không ghi nhận dấu thần kinh khu trú khác (đặc biệt: no ptosis, anhydrosis)

# Chẩn đoán: Đồng tử không đều

- Tiếp cận chẩn đoán ?

# Khám hệ thống đồng tử

- First step: xác định đồng tử có đáp ứng ánh sáng
- Second step: so sánh kích thước đồng tử
- Third step: thực hiện “**swinging flashlight test**”  
(*when there is an interocular difference of 0.5 mm or more in pupillary diameter*), (khi có sự khác biệt đường kính giữa 2 mắt là 0,5mm hay hơn)

- Fourth step: thăm khám tìm bệnh lý. Sau khi hoàn thành 3 bước đầu:

1. A relative afferent pupillary defect (RAPD)

*(thiếu hụt liên hệ đường hướng tâm)*

2. An anisocoria with normal responses to light in both eyes

*(đồng tử không đều, đáp ứng bình thường ánh sáng cả 2 mắt)*

3. A monocular or bilateral deficit in light responses

*(thiếu sót 1 mắt hay 2 bên với đáp ứng ánh sáng)*

# Relative Afferent Pupillary Defect (RAPD, Marcus Gunn Pupil)

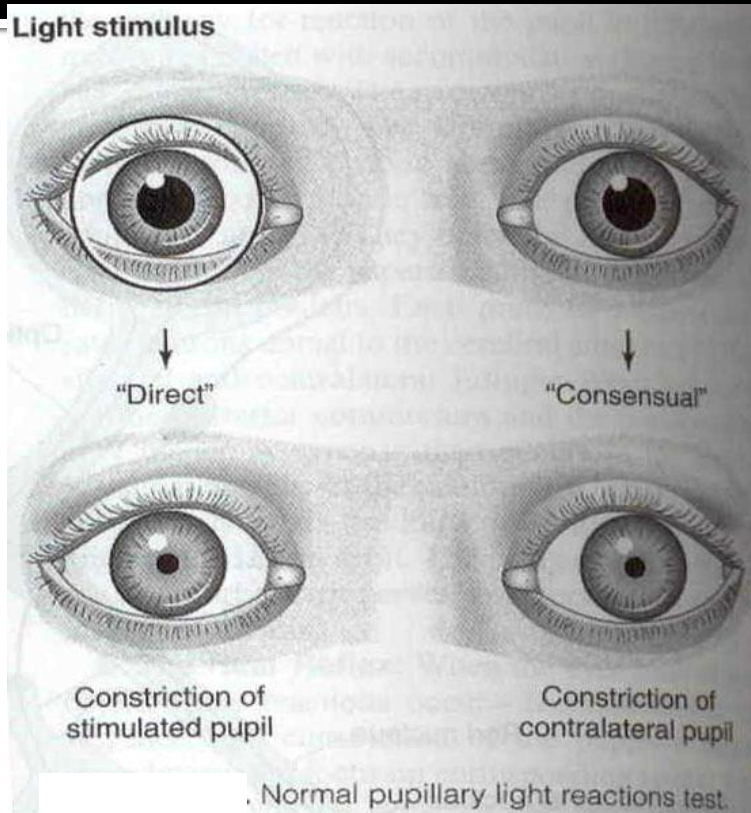
*"swinging flashlight test".*

*An RAPD is usually due to a defect anterior to the optic chiasm, but a small RAPD can occur in optic tract lesions.*

*Type of visual field defect distinguishes prechiasmatic RAPD (monocular defect) and post chiasmatic optic tract RAPDs (binocular defect).*

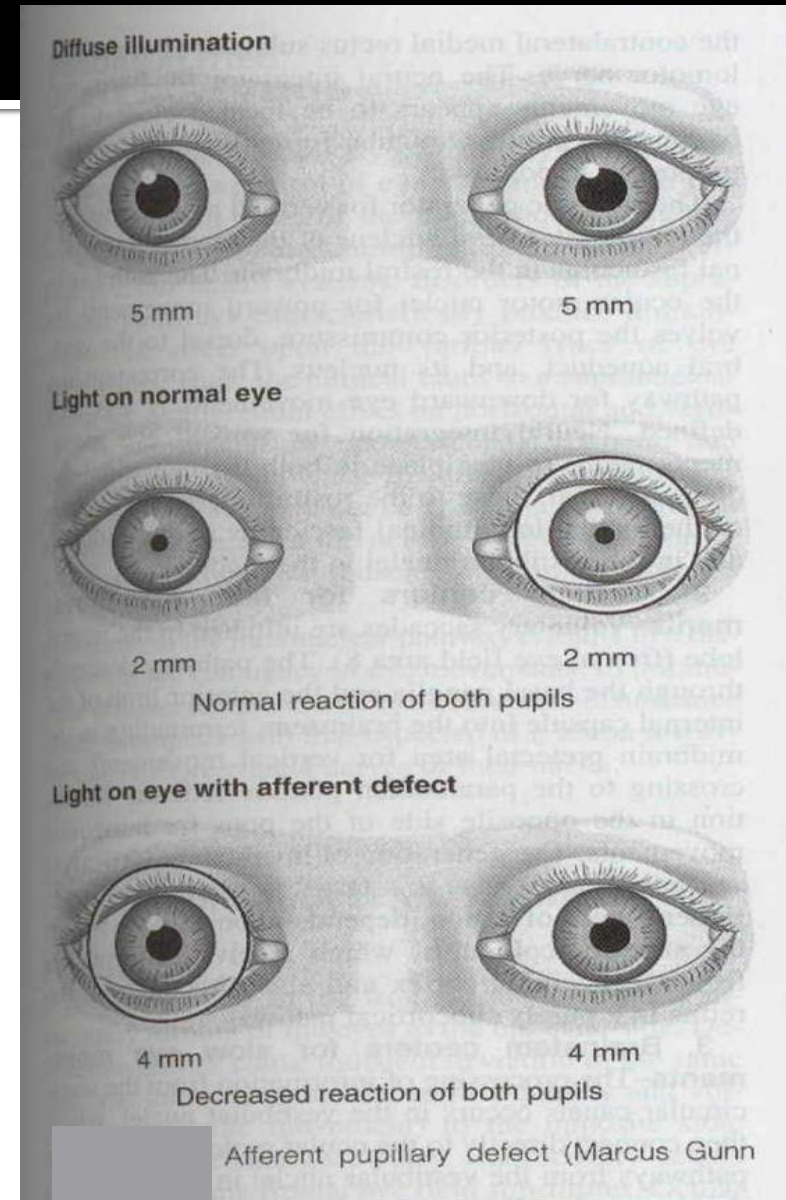
*(Phân biệt trước và sau giao thoa thị giác dựa vào thiếu hụt thị trường)*

# Light reflex



normal

abnormal



## Sau giao thoa

RIGHT

LEFT

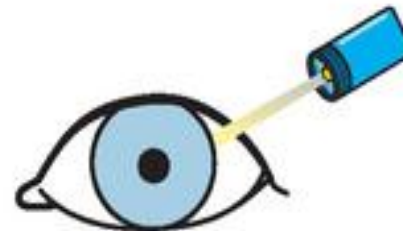


AMBIENT LIGHT: Equal pupils



RT. EYE ILLUMINATION: Modest bilateral constriction

*(Co 2 bên vừa phải)*



LT. EYE ILLUMINATION: Brisk, more extensive bilateral constriction

*(Nhanh, co nhiều hơn 2 bên)*

## Trước giao thoa



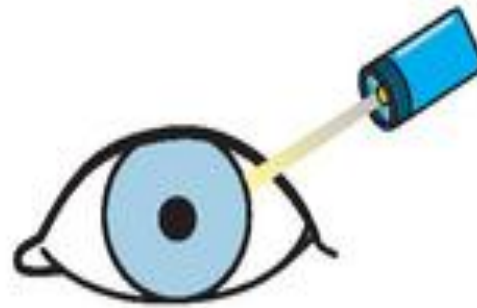
RT. EYE ILLUMINATION: Bilateral dilatation



(Không co, dẫn 2 bên)



LT. EYE ILLUMINATION: Brisk, more extensive constriction  
(consensual in the right eye)



(Nhanh, co nhiều hơn, Liên ứng mắt phải)

# Sự phân ly đáp ứng ánh sáng và gần (*Light-Near Dissociation*)

Co yếu với ánh sáng, còn đáp ứng co với kích thích gần.

*(90% sợi đáp ứng co đồng tử phục vụ cho phản xạ gần làm cho px ánh sáng đồng tử dễ bị tổn thương hơn phản xạ gần)*

*(Occurs because 90% of the fibers responsible for pupillary constriction are devoted to the near reflex, making it easier to damage the pupillary light reflex than the near reflex)*

# Argyll Robertson pupils

1. Small, irregular,
2. Poorly light-reactive pupils with light-near dissociation.
3. A classic type of pupil with light-near dissociation due to neurosyphilis, but more common in diabetic neuropathy and chronic Adie's pupils.

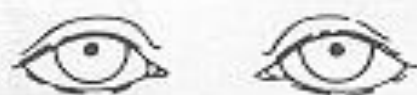
*+ Đồng tử nhỏ, không đều, mất px ánh sáng nhưng còn đáp ứng gần*

*+ Căn nguyên: giang mai thần kinh, biến chứng tk do đái tháo đường và đồng tử Adie mãn*

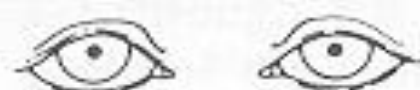
# Pupils trong hôn mê

LOCALIZATION	PUPILS	TIPS
Encephalic/diencephalic	Small, reactive.	Large pupils require sympathetic activity; $\therefore$ lethargy or encephalopathy $\rightarrow$ small pupils.
Early uncal herniation (third nerve palsy)	One (unilateral) or both (bilateral or severe unilateral) pupils fixed and dilated.	The uncus pressing the midbrain portion of the third nerve against contralateral tentorium can be falsely localizing.
Midbrain	Midposition, fixed.	Two M's.
Pons	Pinpoint.	Two P's.

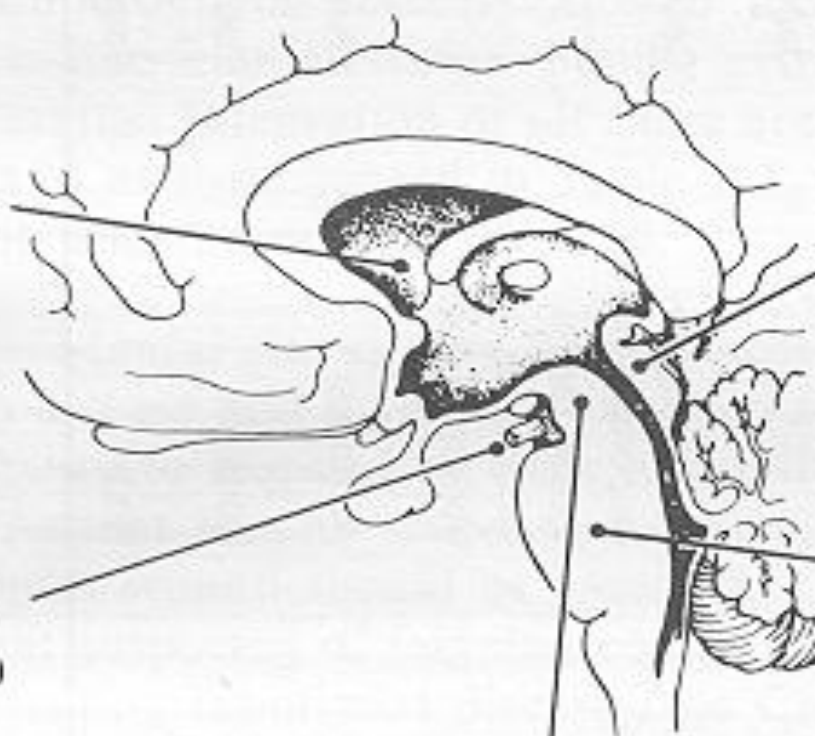
**METABOLIC**



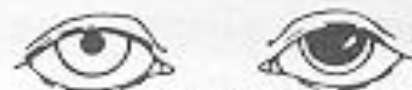
small reactive



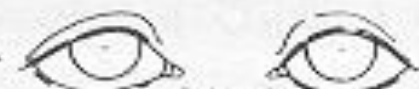
**DIENCEPHALIC**  
small reactive



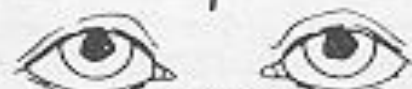
**TECTAL**  
large "fixed", hippus



**III NERVE (UNCAL)**  
dilated, fixed



**PONS**  
pinpoint



**MIDBRAIN**  
midposition, fixed

# Đồng tử không đều, phản xạ ánh sáng còn 2 bên

*(Anisocoria with Bilaterally Normal Pupillary Reactions to Light)*

## ■ Dilation Test

*(When the pupils dilate well and with no speed difference between them, the anisocoria is likely to be physiologic. Physiologic anisocoria of greater than 1 mm is very uncommon, so when the difference is greater than 1 mm, use of the cocaine test is necessary)*

Không đều sinh lý:

- ☐ giãn đều 2 bên, không khác biệt tốc độ, ít khi chênh lệch trên 1mm
- ☐ test cocaine khi  $>1\text{mm}$  là cần thiết

# Cocaine and Hydroxyamphetamine Tests

The cocaine test is indicated in three situations:

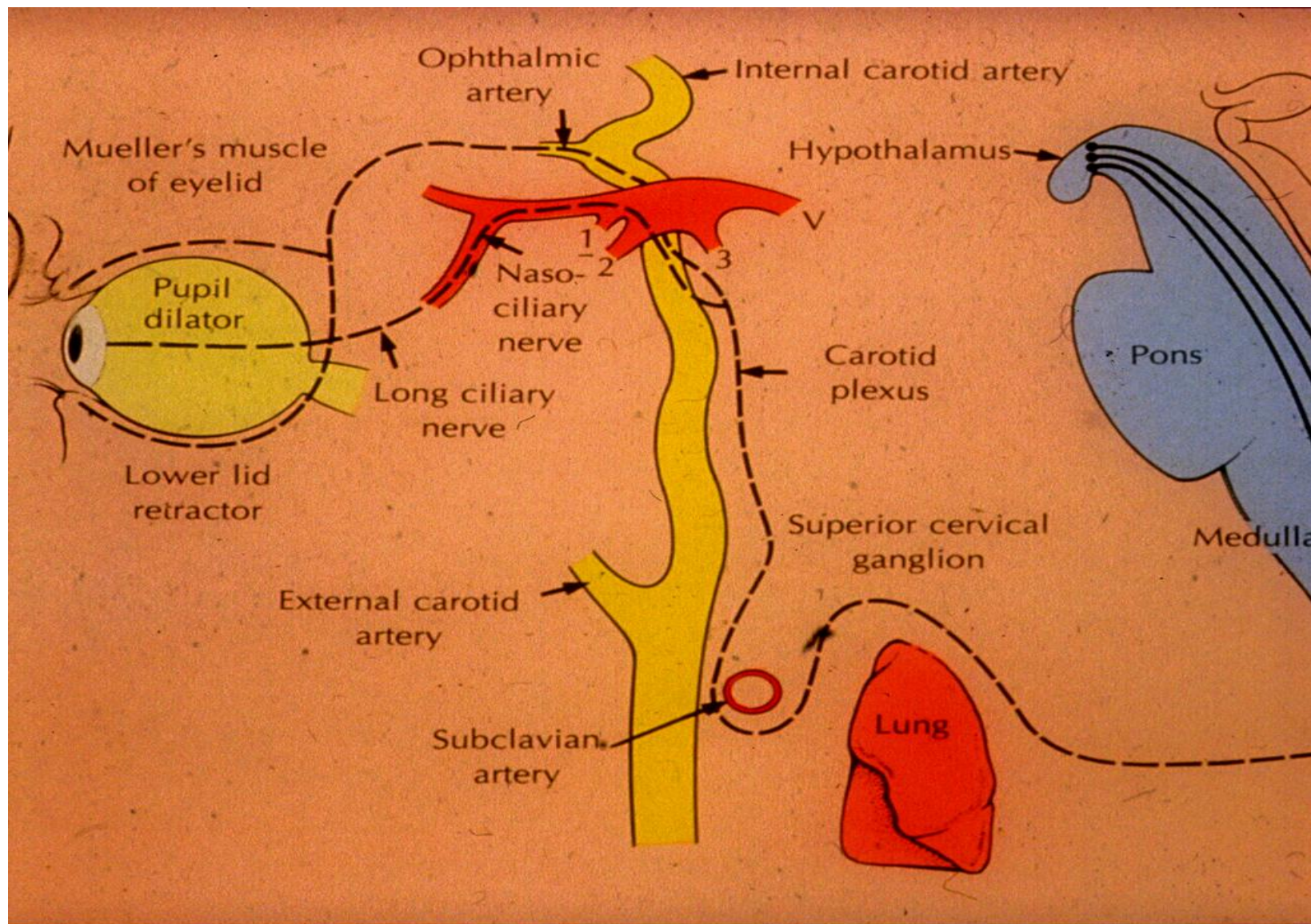
1. For anisocoria greater than 1 mm and normal pupillary light reactions
2. For slower dilation of the smaller pupil
3. For ptosis ipsilateral to the smaller pupil (suspected Horner's syndrome)

# Test cocaine 5% & 2.5%

- Cocaine retards the reuptake and inactivation of noradrenalin within the synaptic cleft. Thus, it is an indirect sympathomimetic. (*chậm sự tái hấp thu và bất hoạt noradrenalin*)
- When testing infants and small children, use of a 2.5% solution of cocaine is recommended
- The diameters of both pupils are measured before and 1 h after instillation of the drops (*đo kích thước đồng tử trước và 1 giờ sau nhỏ thuốc*)  
(*pupils' diameters with a pocket card , photography*)

# Sympathetic Pathway

- First Order – Posterior Hypothalamus to Cilio-spinal centre of Budge (C8-T2) (Uncrossed in Brainstem)
- Second Order – Cilio-spinal centre of Budge to Superior Cervical Ganglion
- Third Order – Superior Cervical Ganglion to dilator pupillae muscle. (Close to ICA and joins  $V_1$  intracranially)



# Horner's

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- Oculosympathetic paresis
  - Ptosis
  - Miosis
  - Ipsilateral anhidrosis
  - Does not dilate with cocaine 4%



	Anisocoria 1 h after topical instillation of 5% cocaine solution	The effect of 5% cocaine eye drops on the smaller pupil
Horner's syndrome	$\geq 1$ mm	$< 0.5$ mm
No Horner's syndrome	$\leq 0.3$ mm	$\geq 1.5$ mm
Horner's syndrome suspected	0.4–0.9 mm	Borderline values with no persuasive evidence of Horner's syndrome

Cocaine testing for Horner's syndrome

# Test 1% hydroxyamphetamine hay 2.5% tyramine

- Stimulating the release of noradrenalin into the synaptic clef at the terminus of the end neuron of the sympathetic chain  
*(kích thích phóng thích noradrenalin vào khe si-nap ở nơ-ron tận cùng)*

# Nguyên nhân Horner's pupil

- Central – B/S lesions (tumours, vascular and MS)  
Syringomyelia, Lat. Med. Syn., S.C. ca.
- Preganglionic – Pancoast tumour, Carotid & Aortic aneurysms, Neck lesions/trauma.
- Postganglionic – Cluster headaches, Nasopharyngeal tumours, Otitis media, Cavernous sinus mass and ICA disease.
- Miscellaneous – Congenital (brachial plexus injury)  
Idiopathic.

# Mất px ánh sáng một hay 2 bên

*(Unilateral or Bilateral Disturbances  
of Pupillary Light Reactions)*

## ■ Test đáp ứng gần (Testing the Near Reaction)

*1. when there is a unilateral or bilateral abnormality of the pupillary light reaction)*

*2. pupils of children and younger adolescents frequently do not react until the distance between eye and object of regard is very short (about 10 cm))*

*3. In some cases, the near response will be found better preserved than the reaction to light. The latter state is called light-near dissociation. (phân ly giữa pxas và đáp ứng gần)*

# Mắt px ánh sáng một hay 2 bên

*(Unilateral or Bilateral Disturbances  
of Pupillary Light Reactions)*

## ■ **Oculomotor Testing**

*A monocular defect in the light response of the pupil raises the question of a third nerve paresis, while bilateral deficits can be associated with vertical gaze palsies, such as in Parinaud's syndrome*

*(mắt pxas 1 mắt: dây III, trong khi 2 bên + liệt nhìn dọc: hc Parinaud)*

## ■ **Slit-Lamp Examination**

- anatomy of the pupil and iris
- sphincter atrophy or traumatic disruption
- spontaneous movements

# Test Pilocarpine 1% và 0.1%

## ■ **Pilocarpine 0,1%**

- 1. when the diagnosis of a tonic pupil is suspected but not clearly confirmed at the slit lamp*
- 2. the tonic pupil has a characteristic denervation hypersensitivity to a cholinergic stimulus*

## ■ **Pilocarpine 1%**

- 1. when light, maximal accommodative effort, or weak pilocarpine will not cause the pupil to constrict*
- 2. If the higher concentration of pilocarpine fails to constrict the pupil, there is a problem within the iris/pupil itself*
- 3. If an anticholinergic drug (such as atropine or scopolamine) has produced a pharmacologic dilation, the test with 1% pilocarpine is the one reliable way of proving a drug-induced mydriasis*

# Tổn thương đường hướng và ly tâm

*(Afferent & efferent defects)*

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## ■ ***Argyll-Robertson pupil***

- Small, irreg
- Does not react to light
- Reacts to accommodation
- Causes
  - syphilis
  - diabetes

## ■ ***Miotonic pupil (Adie's syndrome)***

- Dilated
- Poor response to light and convergence.
- Constricts with weak Pilocarpine
- *Holmes-Adie syndrome*
  - Reduced tendon reflexes (Knee, ankle)
  - Orthostatic hypotension

# Chẩn đoán các Pupillary Syndromes thường gặp

## ■ ***Horner's Syndrome***

- The pupil is smaller, light reaction remains normal.
- In 90% of cases, a ptosis of the upper lid  
*(paresis of Müller's smooth muscle within the palpebral levator muscle complex).*

## ■ ***Horner's Syndrome***

- The pupil is smaller, light reaction remains normal.
- In 90% of cases, a ptosis of the upper lid  
(*paresis of Müller's smooth muscle within the palpebral levator muscle complex*).

# Khuyến cáo

- Khi test thuốc tiền hạch (*preganglionic pharmacologic testing*) dương tính:  
BS Thần kinh đánh giá các triệu chứng
- Khi test thuốc hậu hạch (*postganglionic pharmacologic testing*) dương tính:  
Nếu vẫn đề đơn độc và không cấp, hỏi bệnh sử: cluster headaches hay migraine

- Khi có tổn thương dây sọ, xảy ra cấp: MRI, CT
- Xảy ra bẩm sinh hay trẻ em: loại trừ neuroblastoma

## ■ Hội chứng giãn đồng tử(Tonic Pupil Syndrome)

1. usually monocular loss parasympathetic innervation of the eye. The site of damage is at the ciliary ganglion or in the short posterior ciliary nerves.

*(tổn thương phó giao cảm một bên, từ hạch mi hay dây tk ngắn mi sau)*

2. idiopathic (has no identifiable cause). It is frequently associated with a loss of deep tendon reflexes (Adie-Holmes' syndrome), or less commonly with sudomotor disturbances (Ross syndrome) or with vascular disease.

*(vô căn, hay kết hợp mất px gối, ít gặp rối loạn tiết mồ hôi hay bệnh mạch máu)*

3. Acutely, the tonic pupil is enlarged, but shrinks gradually over a period of a year or more. It can become so small that the diagnosis is not suspected until the slit-lamp examination, where the typical segmental sphincter movements can be seen.

*(cấp tính, giãn đồng tử, co lại từ từ thời gian trên 1 năm hay hơn, thăm khám slit-lamp segmental sphinter movement)*

4. The near response is demonstrable in all but the most acute cases

*(đáp ứng gần trong hầu hết ca cấp tính)*

# Nguyên nhân

- Most commonly, the affected patients are women between 30 and 40 years of age
- In a few cases, the cause can be established, or at least confidently suspected:
  - after orbital trauma, (*sau chấn thương hốc mắt*)
  - extensive panretinal photocoagulation (*quang đông*),
  - outbreaks of varicella zoster, (*siêu vi*)
  - orbital ischemia with active giant cell arteritis, (*viêm đm đại bào*)
  - and only rarely associated with a malignancy and a suspected paraneoplastic syndrome. (*cận ung thư*)

- testing of the erythrocyte sedimentation rate(VS) or of C-reactive protein(CRP) levels, since giant cell arteritis can present in this way

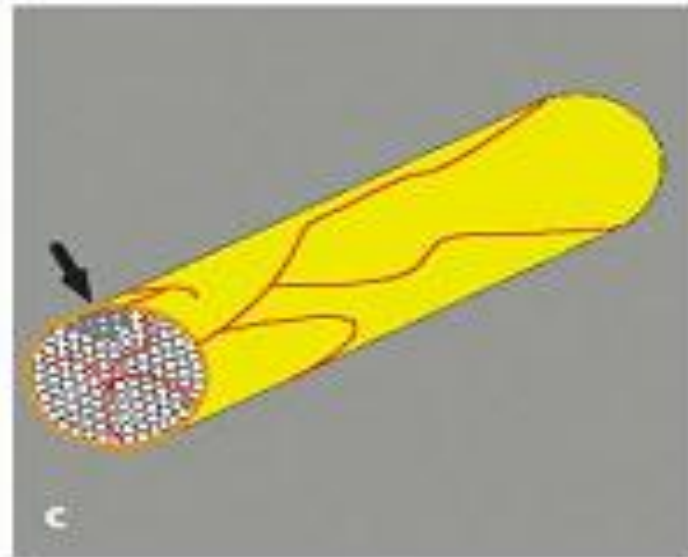
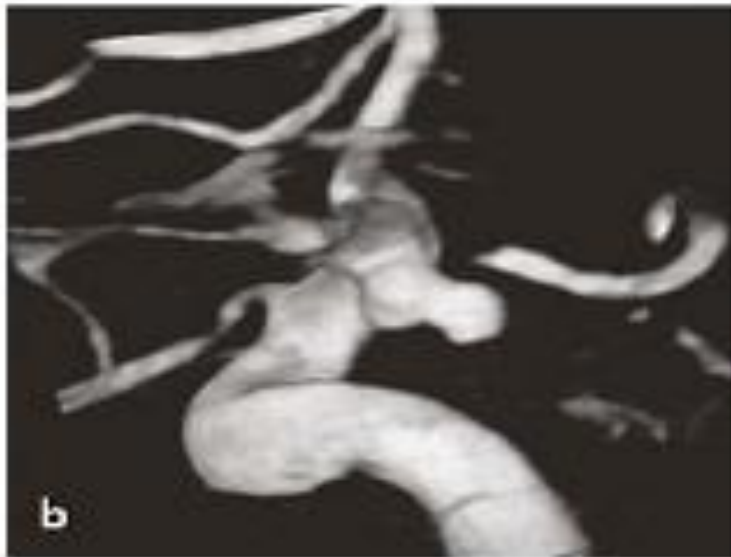


Behavior of the pupil in pupillotonia. The light reaction is nearly gone (above), while the near reaction is easily detectable, though slow to respond (below)

## ■ ***Liên hệ đồng tử trong liệt dây III***

1. damage to the third cranial nerve at locations between the oculomotor nucleus and the ciliary ganglion. *(tổn thương từ nhân dây III và hạch mi)*

2. pupillary mydriasis caused by internal ophthalmoplegia as part of a third nerve palsy indicates a high probability of a compressive mechanism, such as by a tumor or an aneurysm *(giãn đồng tử trong liệt dây III: chèn ép, u hay phình mạch....)*



The parasympathetic fibers lie on the exterior surface of the nerve exposing them to damage when the oculomotor nerve is compromised by an external mass effect

## ■ ***Tổn thương vùng lưng não giữa- hc Parinaud*** ***(Lesions of the Dorsal Midbrain: Parinaud's Syndrome)***

1. deficit in the light reactions of the pupil
2. retained accommodative miosis, and loss of connection to the Edinger-Westphal nucleus and the final common pathway of third nerve function
3. the clinical presentation of this syndrome includes loss of upward saccadic movements, and convergence retraction nystagmus.



- ☐ mất pxas
- ☐ phân ly đáp ứng ánh sáng-gần
- ☐ mất saccade nhìn lên
- ☐ convergence retraction nystagmus

## ■ ***Tổn thương mỏng mắt (Iris)***

1. identified at the slit lamp, can find even subtle tears in the iris sphincter
2. An attack of angle closure glaucoma typically causes a mid-dilated pupil that is unresponsive to a light stimulus
3. pharmacologic pupil can be confirmed by instillation of **1% pilocarpine**, which will have no effect on the size of the pupil.

# Uncommon Pupillary Disturbances

*(bất thường đồng tử ít gặp)*

## ■ Argyll-Robertson Pupils

1. bilateral miosis, no responses to light stimuli
2. preserved near response
3. little or no response to mydriatics
4. tertiary neurosyphilis.

*Cần chẩn đoán phân biệt: long-standing cases of tonic pupillary syndrome (segmental pupil sphincter activity).*

## ■ Giãn đồng tử từng cơn (Intermittent Mydriasis)

appears as an abrupt enlargement of the pupil, lasting 5 to 60 min, and it is unassociated with signs of visual loss.

***Intermittent mydriasis: sympathetic or parasympathetic ?***

*Đồng tử xuất hiện giãn đột ngột, kéo dài từ 5-60 phút, không có mất thị lực*

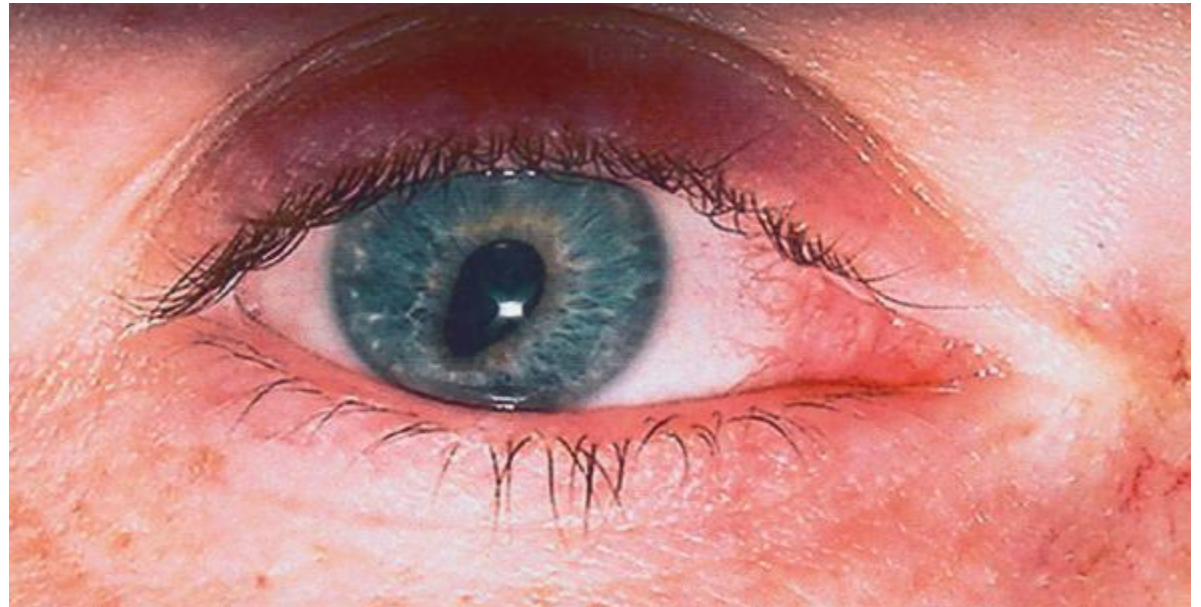
	Sympathetic hyperactivity	Parasympathetic paresis
Pupillary light response	Present or weak	Absent or strongly suppressed
Interpalpebral fissure	Larger than in the contralateral eye	Smaller than in the contralateral eye
Amplitude of accommodation	Normal or minimally reduced	Markedly reduced

The probability of an aneurysm being the cause is very low, as long as the mydriasis is not associated with signs of oculomotor paralysis

## ■ ***Tadpole-Shaped Pupil***

- 1. hypersympathetic activity affects only a portion of the pupillary dilators.*
- 2. the result is an irregular oval shape*
- 3. If the ophthalmic examination is normal between episodes, it is not necessary to do any additional workup*

*Cường giao cảm,  
ảnh hưởng 1 phần  
cơ giãn đồng tử*



## ■ ***Paradoxical Pupils(đồng tử nghịch lý)***

1. response to a light (constriction in the dark) has been associated with heredofamilial retinal dystrophies.

■ ***Co đồng tử bẩm sinh và giãn đồng tử dai dẳng***  
***(Congenital Miosis and Persistent Mydriasis)***

1. two anomalies of pupillary size are of clinical importance, one is congenital miosis, and the other is a persistent mydriasis
2. develops during the second or third decade of age

# Đồng tử dao động(Oscillations of the Pupil)

1. illumination has continuous oscillatory movement
2. pupillary unrest
3. physiologic phenomenon.
4. In the past, and still used in current publications, this has been called hippus (from the Greek word for “horse”)

- ☐ Còn dùng từ hippus (tiếng Hy Lạp: ngựa)
- ☐ Chiếu sáng vào đồng tử dao động liên tục, không nghỉ
- ☐ Hiện tượng sinh lý

# Đồng tử dao động(Oscillations of the Pupil)

## ■ *Light-Induced Pupillary Oscillations*

- At low levels of light, the light-induced oscillations are most apparent
- Large amplitude oscillations can be seen in life-threatening circumstances, such as in Cheyne-Stokes breathing
- Anxious patients are sometimes bothered by oscillations of the pupil (*bn lo âu đôi khi khó chịu do đồng tử dao động*)

# Đồng tử không đều (Anisocoria)

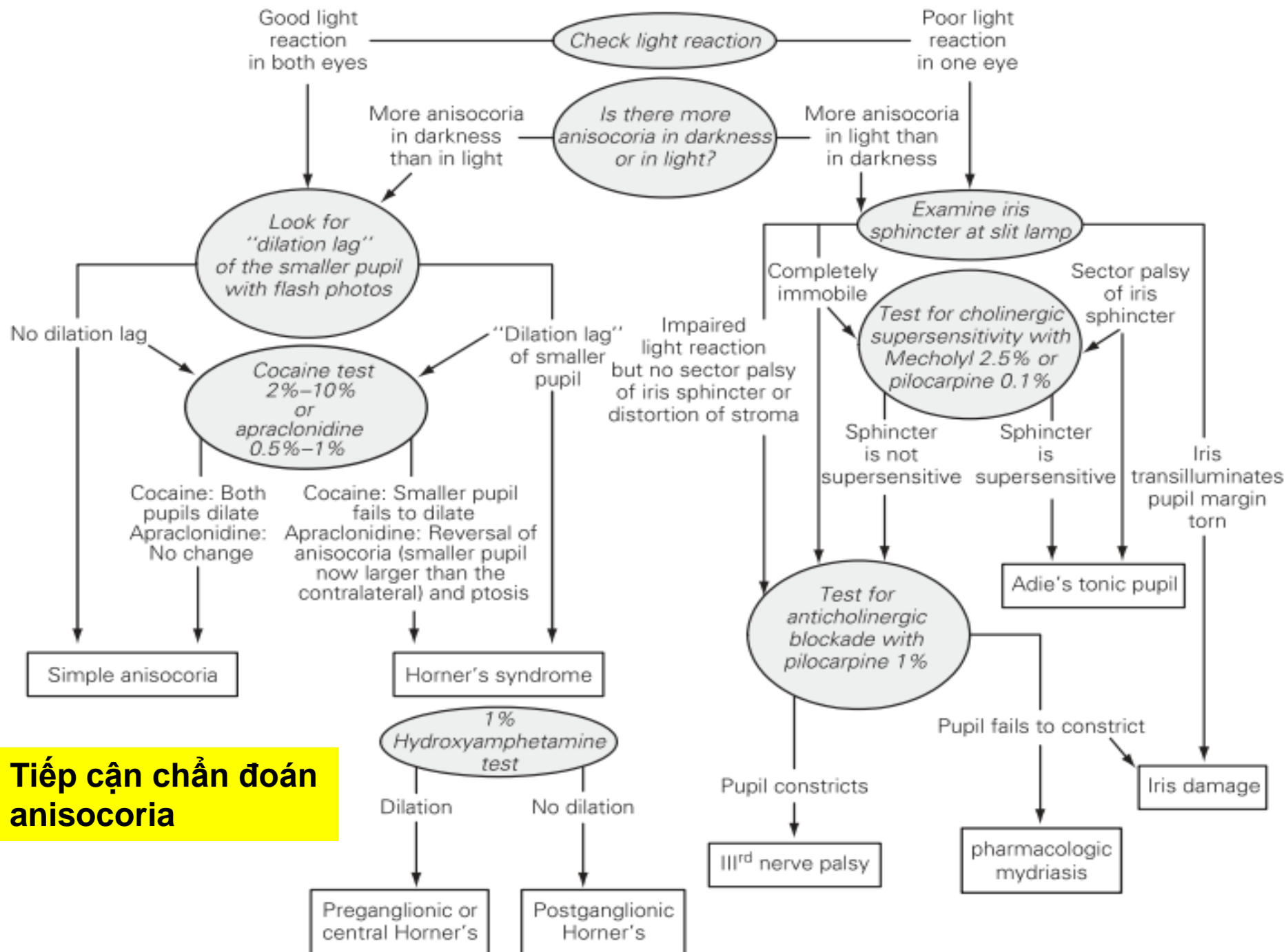


Bn nam 45 tuổi, khám bệnh vì có một đồng tử nhỏ hơn( đặc biệt trong tối chênh lệch nhiều hơn), bn sụp mí nhẹ bên trái. BN khai bệnh xảy ra 2 ngày trước đó sau khi bn thấy đau nhiều vùng cổ

Chẩn đoán nghĩ nhiều nhất? Bóc tách đm cảnh(carotid dissection )

# Anisocoria : *Which pupil is abnormal?*

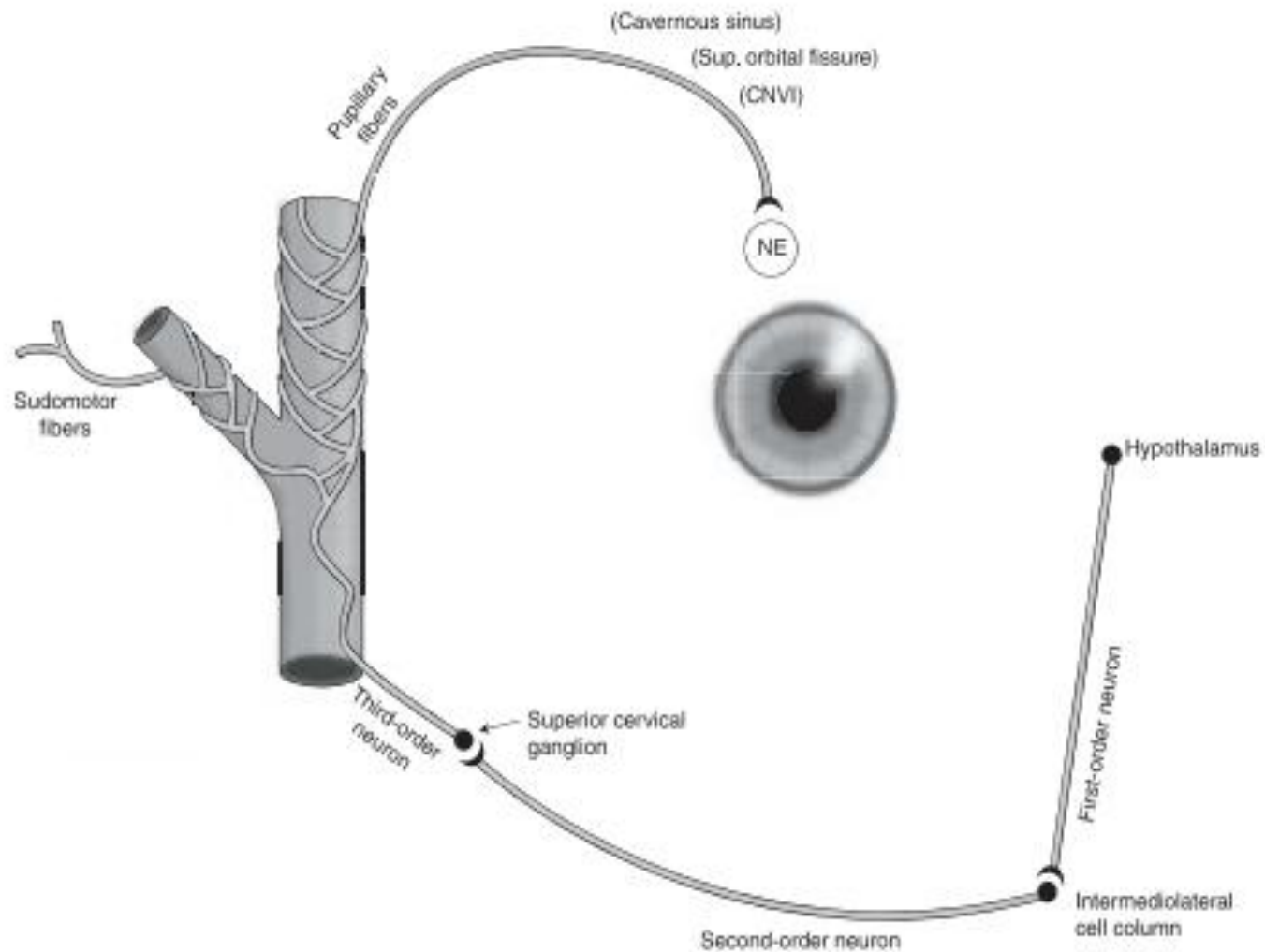
- ☐ If the asymmetry is worse in dim light, the small pupil is abnormal (failure to dilate).
- ☐ if the asymmetry is worse in bright light, the large pupil is abnormal (failure to constrict) .



- ❑ A Horner's pupil dilates slowly and incompletely after several seconds in dim light (*"dilation lag"*).
- ❑ Ptosis of the upper lid is usually mild because sympathetic pathways only contribute to lid elevation via Muller's muscle (*CN III and levator palpebrae do the rest*).
- ❑ Sometimes small "upward" ptosis of the lower lid occurs (*there is a sympathetically innervated muscle in both upper and lower lids*).

## ***Physiologic ("simple") anisocoria:***

- ❑ Approximately 20% of normal people have a small anisocoria (  $< 1$  mm), and it often fluctuates.
- ❑ Differentiated from Horner's by dilation to cocaine 4%, and by lack of ptosis or anhidrosis.



**The oculosympathetic pathway: Critical to the localizing of a Horner's syndrome.**

# Câu hỏi khi khu trú Horner's pupil.

## 1. Is there oculosympathetic palsy (a Horner's pupil)?

Answer: Cocaine 4% (inhibits NE reuptake) dilates a sympathetically innervated pupil, but dilates any Horner's pupil poorly or not at all. More recently, apraclonidine 1% has been used in the place of cocaine. In the normal setting, its stronger  $\alpha_2$ - than  $\alpha_1$ -adrenergic effect causes constriction of the pupil. However, when there is disruption of the sympathetic pathway,  $\alpha_1$  receptors are upregulated (denervation hypersensitivity) on the pupil dilator muscles and then apraclonidine will instead cause dilation of the Horner's pupil.

2. Is the lesion preganglionic (1st or 2nd order neurons) or postganglionic (3rd order neurons)?

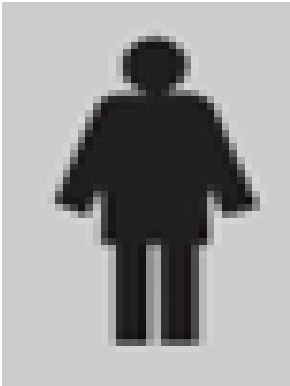
Answer: Hydroxyamphetamine 1% stimulates NE release from a healthy 3rd order neuron, but in a Horner's pupil due to an injury to 3rd order neurons (as in carotid dissection) the pupil will not dilate. First-order neuron lesions are almost always associated with other neurologic signs (as in the lateral medullary syndrome). A major concern in second-order neuron lesions is a apical lung mass.

3. If the lesion is postganglionic, is it proximal or distal to the internal carotid artery?

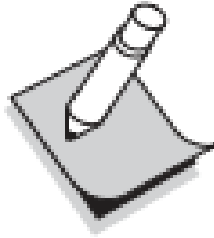
Answer: Sudomotor fibers to the face travel via the external carotid artery. Facial anhidrosis suggests a proximal lesion. The most worrisome third-order neuron Horner syndrome is carotid dissection.

*Sợi vận mồ hôi đến mặt thông qua động mạch cảnh ngoài. Không tiết mồ hôi mặt đề nghị tổn thương gốc. Hc Horner nơ-ron thứ 3 chủ yếu là bóc tách đm cảnh*

# Đồng tử giãn bất thường



Bn nữ 32 tuổi than phiền đồng tử giãn bên phải, bn ghi nhận sau khi soi gương. BN không có triệu chứng gì khác. Khám không có sụp mi, vận động mắt bình thường, đồng tử mắt đáp ứng với ánh sáng bên(p). Các test tại chỗ tiếp theo? Chẩn đoán nếu đồng tử co lại khi nhìn hội tụ.



***Isolated mydriosis*** without ptosis or EOM weakness is rarely due to CN III palsy.

Abnormally large pupils typically have abnormal light reflexes.

***Third nerve palsy:***

- Isolated mydriasis without ptosis or extraocular muscle weakness is rarely .
- CN III palsy complete: Prominent ptosis (levator weakness), eye "down and out" (weak-ness of superior rectus, inferior oblique, medial rectus). Consider:
  - + *Aneurysm (posterior communicating artery is classic).*
  - + *Pituitary apoplexy.*
  - + *Giant cell arteritis.*
  - + *Meningeal syndromes (e.g., tuberculosis, sarcoid, carcinomatous, and lymphomatous).*

*Pupil-sparing: Ptosis and CN III weakness,*

- Classically due to diabetic infarction.
- Spares the peripherally located pupillary fibers

## *Adie's tonic pupil:*

- Isolated, large, sluggish ("tonic") pupil.
- Light-near dissociation.
- Probably viral/postviral autoimmune damage to ciliary ganglion (parasympathetic) neurons.
- Constricts to dilute (0.1 %) pilocarpine- which doesn't constrict normal pupils -because of postsynaptic receptor hypersensitivity .
- A longstanding Adie's pupil can become small and irregular (*"Argyll Robertson appearance"*)

## *Adie's syndrome:*

Adie's pupil plus absent/reduced deep tendon reflexes.

## *Pharmacologic pupil (atropinic mydriasis):*

Large, sluggish pupil due to scopolamine, albuterol, atropine, plants such as belladonna...Does not constrict to undiluted pilocarpine (1%) due to pharmacologic blockade.

## *Traumatic pupil:*

Blunt eye trauma(chấn thương mắt cùn) can disrupt the pupillary musculature or the parasympathetic fibers leading to a dilated pupil. This can also be seen following similar injuries from intraocular surgery

# Sụp mí và các rối loạn mí mắt khác (*Ptosis and other Lid Disorders*)

Distinguishing ptosis of Horner's syndrome from third nerve palsy (*phân biệt sụp mí trong hc Horner so liệt dây III*)

1. *CN III: Weakness of levator: severe ptosis, upper lid only. CN III never causes isolated ptosis.*
2. *Horner's: Weakness of Muller's muscle: mild upper and sometimes small "upward" lower lid ptosis with a small pupil.*

### *Mechanical ptosis:*

Due to dehiscence of levator aponeurosis. Associated with age, long-standing contact lens wear. Asymmetric lid creases are seen. (*do nứt ra gân màng cơ nâng mi*)

### *Lagophthalmos:*

Incomplete eye closure during gentle eyelid closure, as when sleeping. Can occur in Bell's palsy. Requires treatment with corneal lubrication. (*chứng mi mắt không khép kín, như khi ngủ, liệt Bell*)

### *Blepharospasm:*

Brief bilateral involuntary eye closure. Can be triggered/worsened by bright light. Seen in some dystonias and other movement disorders. Can be helped with botulinum toxin

## *Eyelid apraxia (thất điều mi mắt):*

Most associated with blepharospasm, seen in other conditions (Parkinson's, progressive supranuclear palsy). Difficulty opening the eyelids, which appear only gently closed. Patients elevate eyebrows and forehead in an attempt to open the eyes.

## *Lid lag(chậm trễ mi mắt):*

While pursuing a visual target moving slowly from superior to inferior, the lid will lag slightly behind its normal position (in normal patients the lid is always at the limbus (đường biên) ready to protect the cornea). Associated with thyroid eye disease

## *Lid twitch(giật mi mắt):*

"Cogan's lid twitch" can be seen in myasthenia gravis. After looking downward, when gaze returns to midposition the lid "jumps" higher before settling into position. (Resting the levator allows brief return of nonnal function in a myasthenic.)

# Liệt chức năng nhìn dọc

## ❑ Upgaze paralysis(liệt nhìn lên):

occurs with lesions of the posterior commissure or pretectal area and is part of Parinaud's dorsal midbrain syndrome (upgaze palsy),

- + *Lid retraction,*
- + *Light-near dissociation,*
- + *Convergence-retraction nystagmus.*

## ❑ Downgaze paralysis(liệt nhìn xuống):

occurs with bilateral lesions in the rostral interstitial nucleus of the MLF

## *Căn nguyên:*

1. Vascular supply: Posterior thalamosubthalamic paramedian branch of the PCA.  
*(nhánh sau cận đường giữa đồi hạ đồi)*
2. Can occur in association with thalamic infarcts.
3. Up-and downgaze palsies seen in Whipple's disease, progressive supranuclear palsy, diffuse upper brain stem disorders.

## ***Skew deviation (lệch nghiêng):***

Vertical deviation of the eyes not caused by infranuclear lesions (*e.g., CN III or IV palsy*).

- ❑ Caused by lesions in the cerebellum, brain stem, and vestibulo-ocular pathways.

- ❑ Most common in lateral medullary syndromes in which vestibular pathways are affected.

## ***Ocular tilt reaction (OTR) (phản ứng nghiêng nhãn cầu):***

Normally when tilting the head, both eyes counter-roll in the opposite direction (contralateral eye falls, ipsilateral eye rises). (*Bình thường khi nghiêng đầu, cả 2 mắt quay(lăn)cyclotorsion ngược lại hướng đối bên, mắt đối bên rơi xuống, cùng bên nâng lên*)

***The OTR (abnormal) is a triad of spontaneous***

- (1) skew deviation,
- (2) cyclotorsion of both eyes,
- (3) paradoxical head tilt toward the lower eye.

***Caused by damage anywhere along the vestibular pathways/connections.***

**Cảm ơn sự theo dõi**

