

Neuro-ophthalmology: Strokes and Tumors

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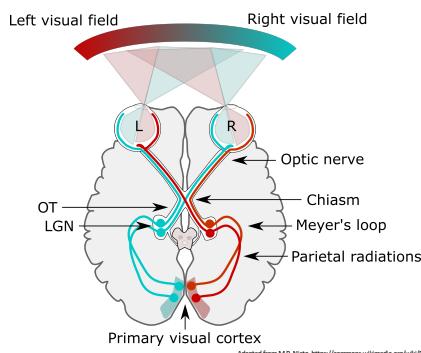
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Outline

- Abnormalities in visual fields
- Binocular diplopia
- Facial spasms

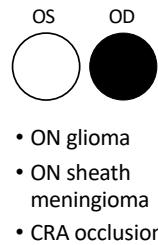
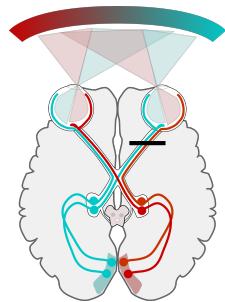
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Visual pathway



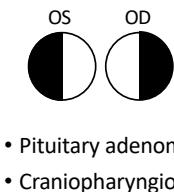
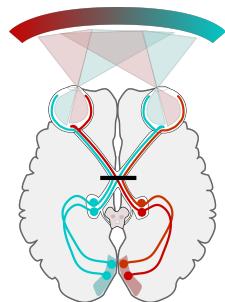
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Lesion of the optic nerve



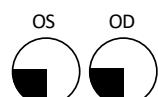
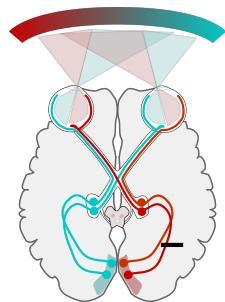
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Lesion of the optic chiasm



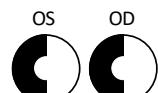
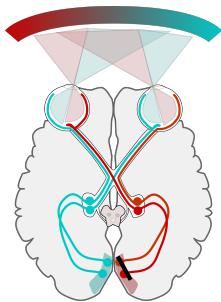
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Lesion of the parietal radiations



6

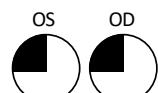
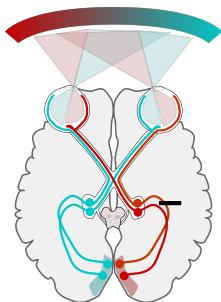
Lesion of the primary visual cortex



Right PCA stroke

7

Lesion of Meyer's loop



Right MCA stroke

8

Diplopia

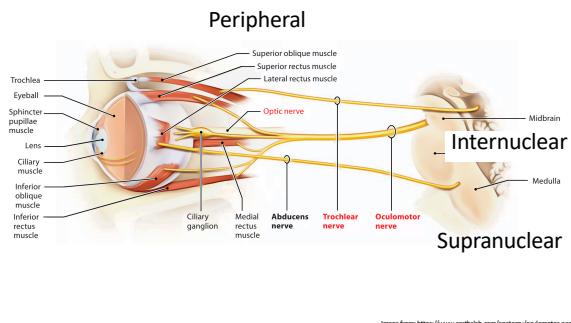
- Monocular or binocular?



Image from: <http://www.allaboutvision.com/conditions/esophoria/>

9

Causes of binocular diplopia



10

Supranuclear diplopia

- Prenuclear inputs, including vestibular input
- Usually cause bilateral palsies (no diplopia)

11

Supranuclear diplopia: Skew deviation

- From damage to otolith pathway
- Gaze palsy does not localize to any one cranial nerve



Image from: <https://www.aao.org/eye-health/diseases/what-is-nystagmus/>

12

Wallenberg Syndrome (lateral medullary syndrome)

- Stroke involving vestibular artery >> PICA

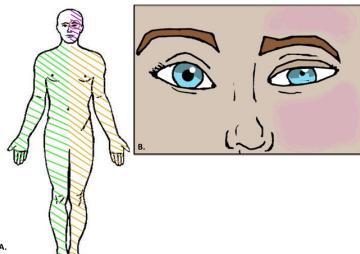


Image from: <http://www.edn.unjournalofneurology.com/archive/2016-archive/1003BN06/2016-cu02/figure3ef>

13

Internuclear diplopia

- Damage to MLF → INO
- Slow/absent adduction IPSI + abducting nystagmus of CONTRA eye

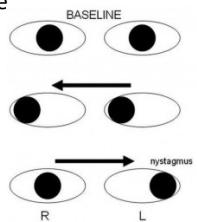


Image from: [https://eyewiki.aao.org/Internuclear_Ophthalmoplegia_of_Abduction_\(Lutz_Posterior_INO\)](https://eyewiki.aao.org/Internuclear_Ophthalmoplegia_of_Abduction_(Lutz_Posterior_INO))

14

Cranial nerve palsies: CN III

- Pupil involving
- Posterior communicating artery aneurysm
- Pupil-sparing: Usually microvascular disease

15

Cranial nerve palsies: CN IV & VI

- Usually microvascular disease
- But if combined CN III, IV, V, VI and sympathetics: lesion in cavernous sinus
 - Meningioma, hemangioma, thrombosis
 - Ophthalmoplegia, Horner's syndrome, facial numbness

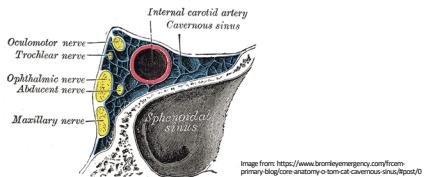


Image from: <http://www.boneemergencies.com/> from primary blog/cran-anatomy-o-to-m-cavernous-sinus/#post/0

16

CN VII overactivity: facial spasms

- Benign essential blepharospasm
 - Unknown etiology of dystonia
 - Goes away with sleep
 - Treat with botox



Image from: Fabbri et al. (2009).

17

CN VII overactivity: facial spasms

- Hemifacial spasm
 - Usually 2/2 nerve root compression by blood vessel
 - Persists during sleep
 - Treat with botox or neurosurgical decompression



Image from: <https://neurosurgery.ufl.edu/patient-care/diseases-conditions/hemifacial-spasm/>

18

CN VII overactivity: facial spasms

- Facial myokymia
 - “Rippling” of facial muscles on one half of face
 - Brain stem glioma (kids), MS (adults)
 - Treat the underlying cause
- Eyelid myokymia
 - Benign
 - Reduce stress, decrease caffeine, sleep more

19

Questions?



20