

Non-pupil-sparing oculomotor palsy

The rule of the [pupil](#) in [third nerve palsy](#):

Elucidated in [1958](#) by Rucker. In effect, the rule states, “[Third nerve palsy](#) due to extrinsic compression of the [nerve](#) will be associated with impaired [pupillary constriction](#).” However, it is often overlooked that in 3% the pupil is spared ¹⁾.

Etiology

Most cases are due to extrinsic compression of the [3rd nerve](#). Etiologies include:

1. tumor: the most common tumors affecting the 3rd nerve:

- a) [chordomas](#)
- b) [clival meningiomas](#)

2. vascular: the most common vascular lesions:

a) [Posterior communicating artery aneurysm](#)-(pupil sparing with aneurysmal oculomotor palsy occurs in < 1%).

★ Development of a new 3rd nerve palsy ipsilateral to a p-comm aneurysm may be a sign of expansion with the possibility of imminent rupture and is traditionally considered an indication for urgent treatment

b) [Basilar bifurcation aneurysm](#) or aneurysms of the [distal basilar artery](#) ([basilar tip](#))

c) carotid-cavernous fistula: look for pulsatile proptosis

3. uncal herniation

4. cavernous sinus lesions: usually cause additional cranial nerve findings (V1, V2, IV, VI); see [Cavernous sinus syndrome](#). Classically the third nerve palsy, e.g. from enlarging cavernous aneurysm, will not produce a dilated pupil because the sympathetic which dilate the pupil are also paralyzed

¹⁾

Trobe JD. Third nerve palsy and the pupil. Footnotes to the rule. Arch Ophthalmol. 1988; 106:601-602

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