Teaching NeuroImages: Pupil-sparing compression of oculomotor nerve by posterior cerebral artery vessel

Anfei Li, Anika Tandon, MD, Apostolos J. Tsiouris, MD, Marc J. Dinkin, MD, and Cristiano Oliveira, MD

Neurology® 2020;94:e1450-e1451. doi:10.1212/WNL.0000000000009181

Correspondence

Dr. Oliveira
cro9004@med.cornell.edu

Figure 1 Compression of the left CNIII nerve by left posterior cerebral artery

(A, B) Isolated asymmetric atrophy of the left superior rectus muscle (arrows). (C) Left posterior cerebral artery in cross-section (arrow) impinges upon the left CNIII (arrowhead). (D, E) Asymmetric flattening of the left CNIII (arrowheads) by the left posterior cerebral artery (arrows).

A 54-year-old woman presented with a 30-year history of worsening left blepharoptosis. Neuro-ophthalmic examination was significant for blepharoptosis, limited levator function, and supraduction in the left eye with left hypotropia, and normal pupils without diplopia. MRI brain/orbits revealed subtle atrophy of the left superior rectus (figure 1, A and B), without any orbital pathology. Superior compression of the left oculomotor nerve by the posterior cerebral artery (PCA) was observed (figure 1, C–E). Given the microanatomy of oculomotor nerve in the cistern space,^{1,2} this is a rare selective compression of the superolateral oculomotor nerve by the PCA vessel (figure 2), sparing the superomedial parasympathetic limb.

MORE ONLINE

→Teaching slides

links.lww.com/WNL/B67

Figure 2 Illustration of the CNIII microanatomy (not to scale)

Image is constructed based on similar images in Brazis.³

Study funding

No targeted funding reported.

Disclosure

The authors report no disclosures relevant to the manuscript. Go to Neurology.org/N for full disclosures.

Appendix Authors

Name	Location	Contribution
Anfei Li	Weill Cornell Medicine, New York, NY	Interpretation of data and drafting of the manuscript
Anika Tandon, MD	Weill Cornell Medicine, New York, NY	Interpretation of the data and revision of the manuscript
Apostolos J. Tsiouris, MD	Weill Cornell Medicine, New York, NY	Generation of imaging data
Marc J. Dinkin, MD	Weill Cornell Medicine, New York, NY	Design of the study, interpretation of the data, and revision of the manuscript
Cristiano Oliveira, MD	Weill Cornell Medicine, New York, NY	Design of the study, interpretation of the data, and revision of the manuscript

References

1. Miyazaki S. Location of motoneurons in the oculomotor nucleus and the course of their axons in the oculomotor nerve. *Brain Res* 1985;348:57–63.
2. Atasever A, Durgun B, Celik HH, Yilmaz E. Somatotopic organization of the axons innervating the superior rectus muscle in the oculomotor nerve of the rat. *Cells Tissues Organs* 1993;146:251–254.
3. Brazis PW. Localization of lesions of the oculomotor nerve: recent concepts. *Mayo Clin Proc* 1991;66:1029–1035. Review.

Neurology®

Teaching NeuroImages: Pupil-sparing compression of oculomotor nerve by posterior cerebral artery vessel

Anfei Li, Anika Tandon, Apostolos J. Tsiouris, et al.

Neurology 2020;94:e1450-e1451 Published Online before print March 9, 2020

DOI 10.1212/WNL.00000000000009181

This information is current as of March 9, 2020

Updated Information & Services	including high resolution figures, can be found at: http://n.neurology.org/content/94/13/e1450.full
References	This article cites 3 articles, 0 of which you can access for free at: http://n.neurology.org/content/94/13/e1450.full#ref-list-1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Eyelids http://n.neurology.org/cgi/collection/eyelids MRI http://n.neurology.org/cgi/collection/mri Ocular motility http://n.neurology.org/cgi/collection/ocular_motility
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.neurology.org/about/about_the_journal#permissions
Reprints	Information about ordering reprints can be found online: http://n.neurology.org/subscribers/advertise

Neurology® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2020 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.