Teaching NeuroImages: Traumatic blown pupil without herniation

A 29-year-old man was struck by a car and presented with coma and a fixed, dilated left pupil without oculomotor palsy (figure 1). A head CT revealed central midbrain hemorrhage in the absence of uncal herniation (figure 2). Intracranial pressure was normal. At 6 months, he had regained consciousness and reactivity of the left pupil, and was independent in activities of daily living. The syndrome of acute traumatic midbrain hemorrhage is a rare form of coma and abnormal pupils. The unreactive pupil and lack of oculomotor palsy in our patient reflect the somatotopic map within the midbrain, namely, that pupillo-motor axons from the Edinger-Westphal nucleus run rostral and medial to the oculomotor fibers that eventually comprise the oculomotor nerve.

AUTHOR CONTRIBUTIONS
David Y. Chung: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval, acquisition of data, study supervision. Brian L. Edlow: drafting/revising the manuscript, study concept or design, analysis or interpretation of data, accepts responsibility for conduct of research and final approval.

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

REFERENCES
(A) Axial, (B) coronal, and (C) sagittal images from the admission head CT. (D) MRI susceptibility-weighted imaging sequence 1 week later shows left-sided hemorrhage (arrowhead) at the level of the Edinger-Westphal nucleus.
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