Teaching NeuroImages: Traumatic blown pupil without herniation

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Figure 1 Pupillary examination

Left pupil 8 mm and nonreactive to light. Right pupil constricts 4–3 mm.

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.¹ 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.²

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

1. Ropper AH, Miller DC. Acute traumatic midbrain hemorrhage. *Ann Neurol* 1985;18:80–86.
2. Castro O, Johnson LN, Mamourian AC. Isolated inferior oblique paresis from brain-stem infarction: perspective on oculomotor fascicular organization in the ventral midbrain tegmentum. *Arch Neurol* 1990;47:235–237.

(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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