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Teaching Video NeuroImage: Bilateral Eyelid Opening Apraxia in a Patient With Top of the Basilar Syndrome

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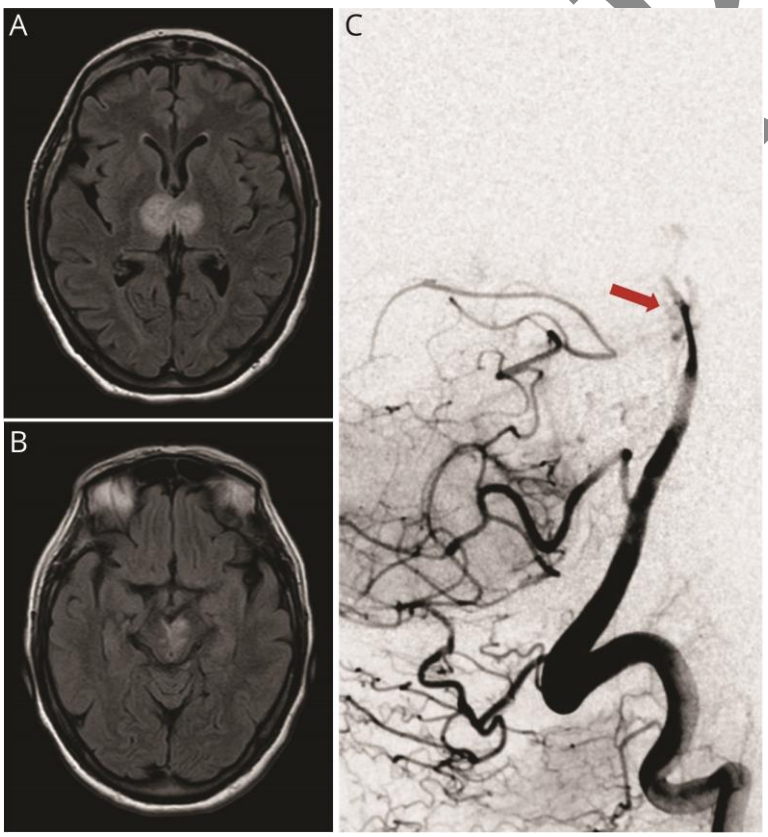
A 76-year-old woman was admitted to our emergency room for acute development of vertigo followed by loss of consciousness. Brain MRI revealed a bilateral paramedian thalamo-mesencephalic infarction due to basilar artery occlusion (Figure). The patient underwent systemic thrombolysis and mechanical thrombectomy, with complete reperfusion of the basilar artery. After the procedure, the patient was alert and oriented, and her exam demonstrated apraxia of eyelid opening (ALO) and vertical-gaze palsy (Video 1). ALO is considered a form of eyelid dystonia. Previous electromyographic studies on affected patients demonstrated either *involuntary levator-palpebrae* inhibition or pretarsal *orbicularis-oculi* muscle motor persistence[1]. Its neuroanatomic bases are still unknown, but

there is evidence that this condition is linked to disorders of basal ganglia, rostral midbrain and frontal lobes[1]. Myint et al. reported a case of ALO in isolated bilateral thalamic infarction[2], suggesting that the paramedian thalamic nuclei may have a role in the voluntary eyelid movements network.

Figure. Patient's neuroimaging. Brain magnetic resonance imaging showing a bilateral paramedian thalamic (A) and mesencephalic (B) infarction in fluid-attenuated inversion recovery (FLAIR) sequences. Digital subtraction angiography showing an occlusion of the top of the basilar artery (arrow, C).



Video. Patient's neurological examination.

[00:02]: the patient can't open her eyes when required by the operator. Note the bilateral contraction of the frontalis muscle on attempted eye opening;

[00:05]: the patient is able to perform other voluntary movements (i.e. mouth opening and closure, tongue protrusion and lateral movements) on request;

[00:32]: the ability to keep the eyes open after forced opening exclude the presence of bilateral ptosis;

[00:42]: the absence of spasms of the orbicularis oculi muscle and triggers prompting eye closure differentiate apraxia of eyelid opening from blepharospasm;

[00:52]: the operator asks to follow his finger. Note the presence of mild ptosis and rectus medialis muscle deficit in the left eye, consistent with lesion localized in the left paramedian midbrain;

[01:08]: note the presence of vertical gaze palsy, consistent with midbrain lesion.

WNL-2022-201591_slides ---http://links.lww.com/WNL/C582
WNL-2022-201591_vid1 --- http://links.lww.com/WNL/C583

References

1. Boghen D. Apraxia of lid opening: a review. *Neurology*. 1997;48(6):1491-1494.
2. Myint PK, Anderson KN, Antoun NM, Warburton EA. Eyelid apraxia associated with bilateral paramedian thalamic infarct. *Age Ageing*. 2008;37(3):343-344.

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