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NEURO-IMAGES

Internuclear ophthalmoplegia, skew deviation and nystagmus from facial colliculus infarction: small lesion big trouble

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Isolated internuclear ophthalmoplegia (INO) is an extremely rare presentation of stroke [1–3]. INO is defined by the presence of ipsilateral adduction paresis with contralateral dissociated nystagmus on horizontal gaze and is caused by strategic brainstem lesions involving the medial longitudinal fasciculus (MLF) [2, 3]. An 77-year-old female, with past medical history of hypertension, dyslipidemia presented at the hospital emergency after night sleep onset binocular diplopia that was subjectively worse in left gaze. The vascular investigation was unremarkable and small vessel etiology was assumed as the etiology. On neurological examination, she presented spontaneous tortional upbeat nystagmus, skew deviation and left eye exotropia (Video 1). On right horizontal gaze, she had impaired adduction of the left eye and right eye abducting nystagmus (Video 2). The remain neurological examination was unremarkable. The magnetic resonance showed the presence of acute left-sided facial colliculus lacunar infarction (Fig. 1). She progressively improved with resolution of skew deviation and spontaneous nystagmus after 5 days. She was discharged with INO. Synchronized adduction and abduction on lateral gaze depend on the integrity of the internuclear communication (MLF) between the abducens nucleus in the pontine paramedian reticular formation, which initiates lateral gaze, with the oculomotor nucleus in the midbrain [3]. The MLF interneurons are intermixed with the abducens neurons within the nucleus, which lies dorsally near the genu of the facial cranial nerve [3]. Hence, in our patient, INO is explained by occurrence of strategically located lesion in the genu of facial colliculus close to the abducens nucleus causing interruption of normal horizontal eye conjugation. The presence of additional neurological signs such as skew deviation, contralesional exotropia and torsional nystagmus is seldom reported and transient [4]. These signs are possible associated with coexistent asymmetric tonus causing horizontal or vertical eye deviation and interruption of prenuclear vestibular input to the oculomotor nuclei causing nystagmus [4, 5].

Teaching points

Very discrete facial colliculus infarction can cause internuclear ophthalmoplegia (INO).

Transient skew deviation can occur after INO associated with facial colliculus infarction.

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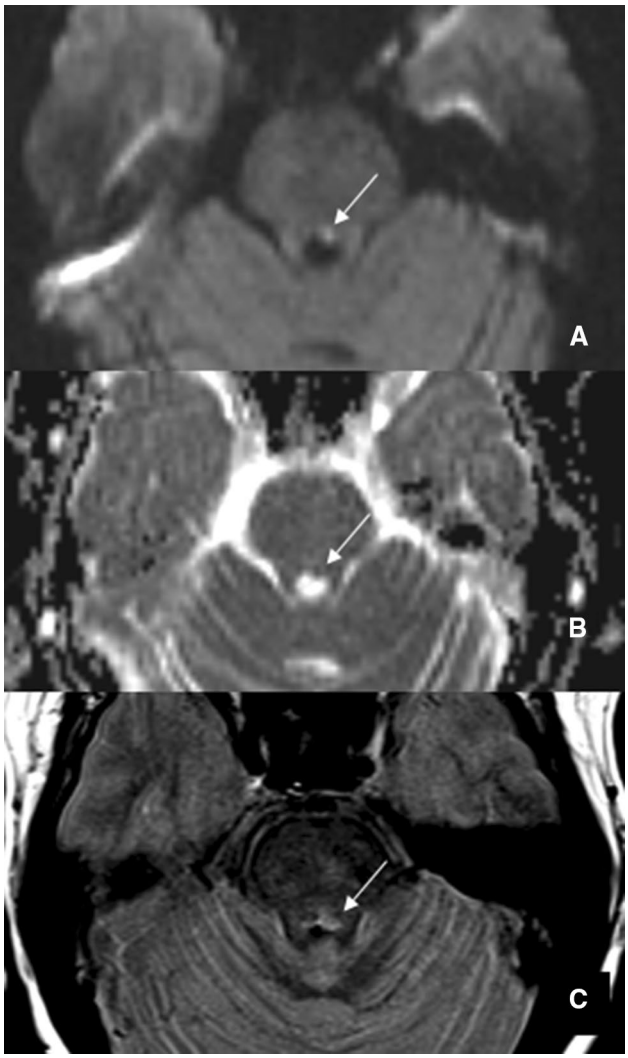

Fig. 1 Brain MRI showing on diffusion weighted (**A**), ADC map (**B**) and PD weighted (**C**) the presence of left-sided acute facial colliculus infarction

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Declarations

Conflict of interest None declared.

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