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CASE STUDY

Ocular tilt reaction in thalamic infarct

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KEYWORDS
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Abstract
Ocular tilt reaction (OTR) includes skew deviation, eye torsion, and head tilt. It is usually accompanied by a tilt in the subjective visual vertical. OTR seems to reflect an otolithic dysfunction. This case report shows an OTR of central origin as a result of simultaneous paramedial thalamic and mesencephalon rostral infarcts.

PALABRAS CLAVE
Reacción ocular de inclinación;
Infarto talámico

Reacción ocular de inclinación en infarto talámico

Resumen
La reacción ocular de inclinación, constituida por desviación ocular oblicua, torsión ocular e inclinación cefálica, parece que refleja una disfunción de la vía otolítica. También suele asociar alteración de la percepción subjetiva de la vertical. Este caso clínico muestra una reacción ocular de inclinación central por infarto talámico paramediano y mesecefálico rostral simultáneos.

A 78-year-old female who consulted for 5 episodes of 5-15 min duration and 3 days of evolution, with oscillopsia, diplopia, sensation of lateral displacement, instability, sleeplessness, and bilateral hearing loss of 2 years of evolution. Personal history: hypercholesterolemia and arterial hypertension.

The neuro-otological examination revealed right nystagmus of cephalic movement and right positional nystagmus.

During physical examination, the patient reported an episode of vertigo, diplopia, and ocular tilt reaction towards the left (oblique ocular deviation with hypotropia of the left eye, ocular torsion, and left head tilt). Left hemicorporal hemiparesis was observed, with increased base of support and left lateropulsion in walking.

Magnetic resonance imaging (MRI) of the brain showed 2 right thalamic infarcts of acute evolution (Figure, A-B). The vestibular tests included videonystagmography, rotary tests, and computerized dynamic posturography (CDP). Horizontal and vertical movement triggered monophase irritant nystagmus with vertical coupling. The results of caloric

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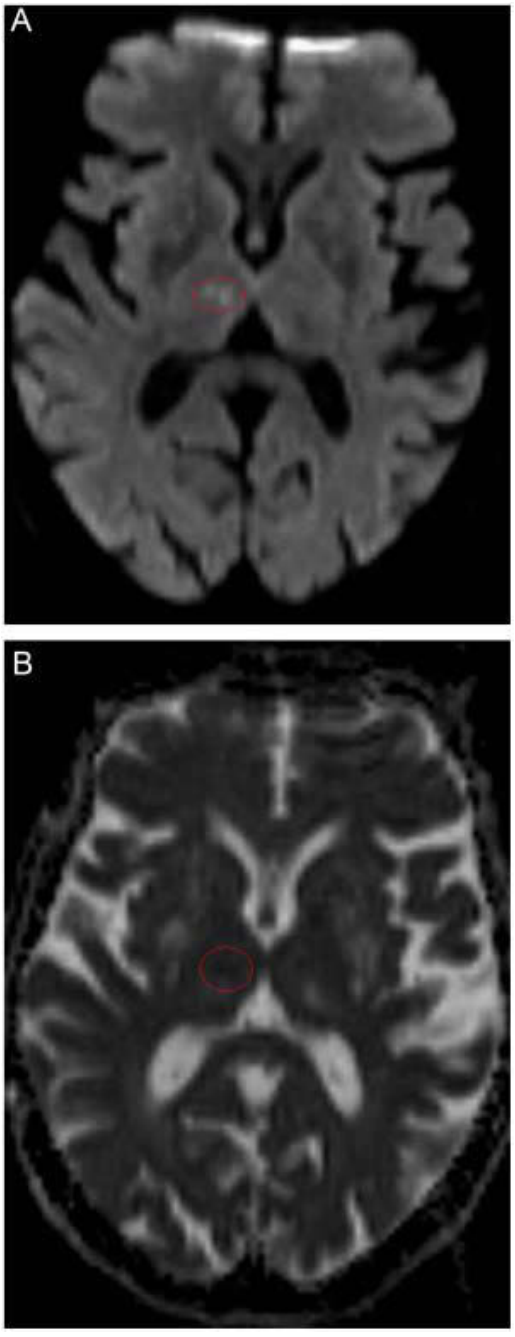

Figure 1 A) Diffusion-enhanced (b 1000) magnetic resonance imaging in the axial plane, along with its corresponding ADC map. B) In the right thalamus, there are 2 point foci of signal hyperintensity on the diffusion-enhanced image and hypointensity on the ADC image for acute-subacute infarcts (a lesion with inverse behaviour in relation to chronic infarction is identified in the left thalamus). These foci were not visible on conventional T2-enhanced sequences or fluid-attenuated T2 (FLAIR).

and rotary tests were normal. There was correct visual suppression of perrotatory nystagmus. The CDP Sensory Organization Test (SOT) was pathological (combined visual and vestibular deficit). Tonal audiometry reflected moderate bilateral sensorineural hearing loss for high frequencies.

Cerebral infarctions in right thalamic region, with recurrent transient ischemic accidents in the vertebrobasilar territory were diagnosed from the above.

Discussion

The ocular tilt reaction (OTR) is constituted by the triad of: oblique eye deviation (vertical ocular misalignment), ocular torsion (superior poles rotated towards lower eye, ie, lower excyclotorsion of the lower eye and incyclotorsion of the other), and head tilt, all in the same direction.

Its presence indicates a malfunction in some part of the graviceptive route (from peripheral receptors to the cerebral cortex). OTR is often accompanied by pressure-support ventilation (PSV) alteration in the same side as the OTR.[1,2]

OTR is isoversive or contraversive depending on the location of the lesion. It is isoversive in peripheral and pontobulbar lesions caudal to the decussation of the graviceptive route and contraversive in lesions rostral to the decussation.[2,3] Curiously, lesions located above the interstitial nucleus of Cajal (in thalamus or cortex) cause only isoversive or contraversive PSV alteration but without OTR, ie, no oblique deviation, ocular torsion or head tilt.[2,4] This happens in unilateral thalamic infarcts involving the posterolateral thalamus. However, the existence of a contraversive OTR has been described in paramedian thalamic infarcts, which is actually the result of an associated rostral paramedian midbrain infarct. This is explained because the occlusion of the basilar artery (frequent source of paramedian thalamic and paramedian superior midbrain arteries) can cause both paramedian thalamic infarction and rostral midbrain infarction, and this is the cause of OTR.[4] Therefore, in this case the OTR refines the radiological diagnosis, so it is not exclusively a thalamic infarction, but also a simultaneous paramedian thalamic infarction and a rostral midbrain infarction.

Finally, the other symptoms of the patient were in accordance with the topographic diagnosis.[5]

Conflict of interests

The authors declare no conflict of interests.

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