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NEURO-IMAGES

Neuro-image: bilateral acute infarction of the middle cerebellar peduncles

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Clinical history and imaging findings

This 92-year-old male patient, with a history of arterial hypertension and diabetes type 2, presented with complaints of headache and visual hallucinations most pronounced in the left visual field since about six days. He also mentions instability of gait.

Clinical neurological examination reveals a discrete dysarthria, a left central facial paresis, ptosis of the left eyelid without miosis and cerebellar ataxia. This clinical picture raises a suspicion of a cerebrovascular accident in the posterior fossa.

CT scan of the brain (not illustrated) shows a hypodense lesion in the left cerebellar hemisphere.

MRI (Fig. 1a, b) shows lesions with T2/FLAIR hyperintensity and restricted diffusion with drop of the ADC (533 and 575 10^{-6} s/mm^2 within diseased areas vs 740 10^{-6} s/mm^2 within healthy cerebellar parenchyma) in both middle cerebellar peduncles and in the posterior and inferior aspect of the left cerebellar hemisphere. The distribution of these lesions suggests an infarction in the territory of both anterior inferior cerebellar arteries (AICA). MR-angiography (not illustrated) showed severe vertebrobasilar atheromatosis.

Patient was treated with anticoagulation. He recovered well but with persistence of some visual hallucinations. He follows kinesiotherapy for his disequilibrium.

Discussion

The differential diagnosis of bilateral middle cerebral peduncle MR-hyperintensities includes a broad spectrum of cerebrovascular, neurodegenerative, demyelinating, inflammatory, metabolic and tumoral lesions [1, 2]. In our patient both the clinical and MR-features with diffusion restriction and drop in ADC are typical for an acute cerebrovascular accident. Decreased ADC in the middle cerebellar peduncles can also be seen in other pathological states including bilateral Wallerian degeneration in its acute subacute phase [3]. The middle cerebellar peduncle is supplied mainly by the anterior inferior cerebellar artery (AICA) and partly by the superior cerebellar artery. The underlying cause is mostly severe underlying vertebrobasilar disease [3, 4]. The main clinical presentation is acute prolonged vertigo usually associated with other neurological symptoms such as hearing loss, facial weakness, Horner syndrome and gait and limb ataxia [4, 5].

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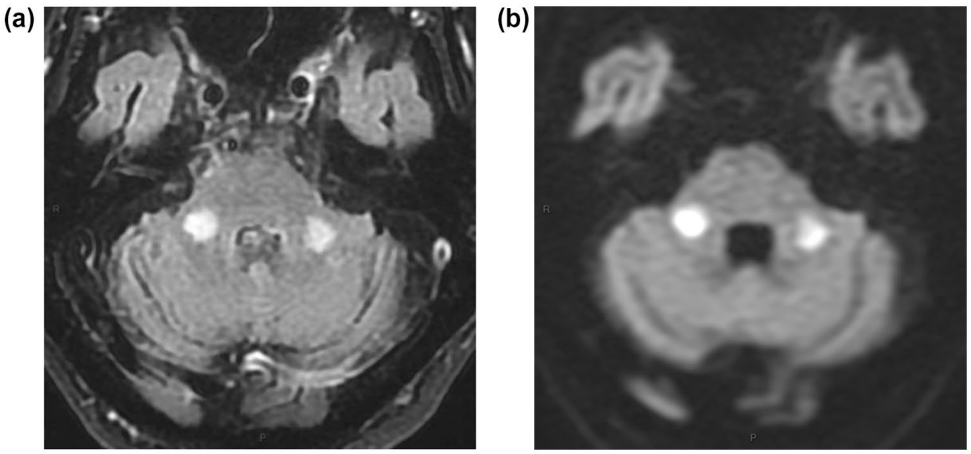

Fig. 1 MR-images: **a** Transverse FLAIR image: symmetrical round-shaped areas of hypersignal intensity in both middle cerebellar peduncles, **b** Transverse diffusion-weighted (DW) image: striking hyperintensity of the lesions in the middle cerebellar peduncles

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

References

1. Okamoto K, Tokiguchi S, Furusawa T et al (2003) MR features of diseases involving bilateral middle cerebellar peduncles. AJNR Am J Neuroradiol 24(10):1946–1954
2. Jiang J, Wang J, Lin M et al (2020) Bilateral middle cerebellar peduncle lesions: Neuroimaging features and differential diagnoses. Brain Behav. https://doi.org/10.1002/brb3.1778
3. Morales H, Tomsick T (2015) Middle cerebellar peduncles: Magnetic resonance imaging and pathophysiologic correlate. World J Radiol 28;7(12):438. https://doi.org/10.4329/wjr.v7.i12.438
4. John S, Hegazy M, Cheng Ching E, Katzan I (2013) Isolated bilateral middle cerebellar peduncle infarcts. J Stroke Cerebrovasc Dis 22:e645e646. https://doi.org/10.1016/j.jstrokecerebrovasdis.2013.03.035
5. Lee H, Kim JS, Chung EJ et al (2009) Infarction in the territory of anterior inferior cerebellar artery:spectrum of audiovestibular loss. Stroke 40:3745–3751. https://doi.org/10.1161/STROKEAHA.109.564682