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CASE REPORT Open Access

A rare case of unilateral Cogan's anterior internuclear ophthalmoplegia, upgaze palsy and ataxia caused by dorsal tegmentum lesion at pontomesencephalic junction

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Abstract

Background: Cogan's anterior internuclear ophthalmoplegia (INO) is characterized by INO with inability to converge and commonly thought to be due to rostral midbrain lesion. A lesion outside midbrain that causes unilateral Cogan's anterior INO combined with upgaze palsy and ataxia are rarely described.

Case presentation: A 67-year old male presented with left Cogan's anterior internuclear ophthalmoplegia (INO), left appendicular ataxia and bilateral upgaze palsy. A Magnetic Resonance Imaging (MRI) and Magnetic Resonance Angiography (MRA) brain showed a left dorsal tegmental infarct at the level of pontomesencephalic junction.

Conclusions: This case highlights the clinical importance of Cogan's anterior INO in combination with upgaze palsy and ataxia, and report possible site of lesion in patients with such constellation. Clinicians should consider looking for cerebellar signs in cases of Cogan's anterior INO, apart from just considering localizing the lesion at the midbrain.

Keywords: Cogan's anterior internuclear ophthalmoplegia, Pontomesencephalic junction

Background

Internuclear ophthalmoplegia (INO) is a discrete localizing sign which narrows down the lesion involving medial longitudinal fasciculus (MLF) anywhere at the paramedian tegmentum from caudal pons to midbrain [1]. The MLF relays the contralateral abducens nucleus to ipsilateral medial rectus subnucleus of the oculomotor nuclear complex [2]. Cogan further classified INO into anterior and posterior variety. In which anterior INO shows convergence impairment, whereas posterior INO exhibits intact convergence [3]. He proposed that the presence of anterior INO helps to further localize the lesion over the most rostral portion of MLF conducting the impulses from the pretectal region to the 3rd nerve nucleus in midbrain, whereas posterior INO indicates lesions at the level of the 4th ventricles in pons [4].

INO combined with ataxia has rarely been described. Most literature reported that the lesions were located in the midbrain [1, 5, 6]. There is a paucity of cases in literatures reporting on Cogan's anterior INO with ataxia. To the authors' best knowledge, there are only two case reports on Cogan's anterior INO, both of which do not have ataxia [7, 8].

This case demonstrates unilateral Cogan's anterior INO with ipsilateral limb ataxia in which the lesion falls outside the midbrain, located in the pontomesencephalic junction. This case highlights the importance of considering pontomesencephalic junction as one of the possibilities in a case with such constellation.

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