Case Report

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One and Half Syndrome in Acute Pontine Infarct: A Rare Entity

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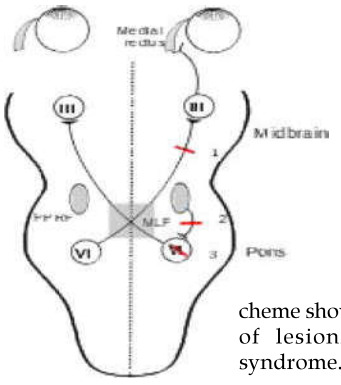
Abstract

One-and-a-half syndrome is a clinical disorder characterized by an ipsilateral conjugate horizontal gaze palsy and an ipsilateral internuclear ophthalmoplegia. The main causes of this rare syndrome are stroke and multiple sclerosis. Other causes include tumors, AV malformations, basilar artery aneurysms and rarely, vasculitis, brainstem tuberculoma and neurocysticercosis. Here we present a case of 69 year old male patient who presented to emergency with only blurring of vision and was diagnosed to have acute left sided/ paramedian acute dorsal pontine infarct,one and a half syndrome.

Keywords: One and Half Syndrome; Infarct; Pons.

Introduction

One-and-a-half syndrome is a clinical disorder characterized by an ipsilateral conjugate horizontal gaze palsy (the "one") and an ipsilateral internuclear ophthalmoplegia (the "half"). The most common manifestation of this unusual syndrome is limitation of horizontal eye movement to abduction (moving away from the midline) of one eye (e.g. right eye in the diagram) with no horizontal movement of the other eye (e.g. left eye in the diagram). Nystagmus is also present when the eye on the opposite side of the lesion is abducted. Convergence is classically spared as cranial nerve III (oculomotor nerve) and its nucleus is spared bilaterally.



cheme showing anatomical location of lesions in one and a half syndrome.

The syndrome usually results from single unilateral lesion of the paramedian pontine reticular formation and the ipsilateral medial longitudinal fasciculus. An alternative anatomical cause is a lesion of the abducens nucleus (VI) on one side (resulting in a failure of abduction of the ipsilateral eye and adduction of the contralateral eye = conjugate gaze palsy towards affected side), with interruption of the ipsilateral medial longitudinal fasciculus after it has crossed the midline from its site of origin in the contralateral abducens (VI) nucleus (resulting in a failure of adduction of the ipsilateral eye). The main causes of this rare syndrome are stroke and multiple sclerosis. Other causes include tumors, AV malformations, basilar artery aneurysms and rarely, vasculitis, brainstem tuberculoma and neurocysticercosis.

Case Report

Sixty nine year old male brought to emergency department with history of blurring of vision from one day. There was no loss of consciousness, headache, trauma, fever, cough, vomiting, weakness of any part of the body, paresthesias or numbness of limbs or face, urinary incontinence, deafness, tinnitus or any slurring of speech.

On presentation:

Primary Survey

Airway: Patent

Breathing: Respiratory rate- 20/min

SpO2 – 99% on room air

Circulation: Heart rate- 100 bpm

Blood Pressure: 130/70 mm of Hg

Peripheral Pulses: palpable, good volume , rhythmic.

Disability: GCS- E4V5M6

Pupils:

Right Eye: NSNRL, lateral gaze along with ptosis present

Left Eye: NSNRL.

Exposure: T-98 F

GRBS: 125mg/dl

ECG : *1st ECG*: NSR

Secondary Survey

HEENT:	No external head/neck/face injury. No Cervical tenderness present.
EYE:	Rt- abducted, vision - 6/6 Lt - fixed at the midline, vision - 6/6.
RS:	Trachea midline, No distended neck veins. B/L air entry equal, no added sounds.
CVS:	S1,S2 heart sounds normally heard.
P/A:	No visible bruise, abdomen soft, Non tender, bowel sounds normallyheard. No external genitalia injury.
CNS:	Conscious, oriented. Power- B/L UL/ LL-5/5, sensations-intact, tone-normal, DTR-normal.

Ample

Allergies: No known allergies

Medication: on OHA, regular medications

Past medical history: K/C/O DM from 20 Yrs , On OHA

Events leading to incident: As described above.

Investigations

MRI brain shows focal acute infarct in left dorsal pons.

Care Plan- patient was admitted under neurology department in ICU and treatment started accordingly.

Discussion

Pontine lesion boundaries there were five main clinical patterns that depended on the constant territories of intrinsic pontine arteries: (1) Anteromedial pontine syndrome who present with motor deficit with dysarthria, ataxia, and mild tegmental signs in one third of patients; (2) Anterolateral pontine syndrome developed with motor and sensory deficits in half of the patients, and were associated with tegmental signs more frequently than the anteromedial infarct syndrome; (3)Tegmental pontine syndrome presented with mild motor deficits and associated with sensory syndromes, eye movement disorders and vestibular system symptoms including vertigo, dizziness and ataxia; (4) Bilateral pontine syndrome consisted with transient consciousness loss, tetraparesis and acute pseudobulbar palsy; (5)Unilateral multiple pontine infarcts were rarely observed, and were always associated with severe sensory-motor deficits and tegmental signs. The clinical pattern is according to the area and subsequent nucleus involvement. There can be some variation in the clinical patterns and these can be overlapping as well.

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