

## CASE REPORT- A CASE OF INTERNUCLEAR OPHTHALMOPLÉGIA AFTER BACTERIAL DIARRHEA

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### ABSTRACT

Internuclear ophthalmoplegia is a manifestation of intrinsic brain stem disease which produces ischemia of demyelination of nerve. The most common cause is multiple sclerosis and cerebrovascular diseases. Rare causes account for about 11%. Incidences are equal in males and females. It is extremely rare in pediatric population. We report a case of internuclear ophthalmoplegia following acute diarrheal episode.

### KEYWORDS :

#### BRIEF HISTORY:

A 63 yrs old lady was brought in altered sensorium with complaints of diarrhea and vomiting of two days. Associated with complaints of giddiness, headache, abdomen pain and myalgia. Patient has no co morbid illness. Her blood pressure was 90/60 mm of Hg, pulse rate is 65 beats per min. Her hematological, biochemical, microbiological investigations were normal and patient was treated with fluids and antibiotics as an acute gastroenteritis case and resolved. On 3<sup>rd</sup> day of admission, patient complaints of sudden onset of blurring of vision. On examination, it was identified as weak adduction on one side and abduction nystagmus on the contralateral eye. MRI brain was done and identified as lesion in the medial longitudinal fasciculus.

#### DISCUSSION:

The medial longitudinal fasciculus exists as a pair of tracts near the midline just under the fourth ventricle and cerebral aqueduct. It extends through the dorsomedial pontine and midbrain tegmentum. It is a heavily myelinated tract that allows conjugate eye movement by connecting the paramedian pontine reticular formation and abducens nucleus complex of the contralateral side to the oculomotor nucleus of the ipsilateral side. As it is proximal to the midline, more chances of bilateral injury. It primarily involves in coordinating synchronous horizontal moment and also regulates vertical pursuit, vertical vestibular signals and vertical alignment of two eyes.

The major causes of internuclear ophthalmoplegia are multiple sclerosis and cerebrovascular diseases. One third of the cases are caused by infection , trauma , tumour .

#### ASSOCIATED SYNDROMES:

**WEBINO:** Wall-Eyed Bilateral Internuclear Ophthalmoplegia exists when there is bilateral damage to the MLF. This damage causes a primary position exotropia (eyes are looking at the opposite "wall.", thus the possibly outdated term "wall eyed"). The most common etiology is infarction of the midbrain in older patients and demyelinating disease in young patients.[3] The exotropia is likely decompensation of fusional mechanisms and the XT is not present in every case of bilateral INO.

#### WEMINO:

This is a less common variant of INO, similar to the WEBINO above. As in WEBINO, patients with a unilateral MLF lesion (monocular INO) have a primary position XT.

**One and one half syndrome:** This syndrome occurs when there is a lesion to the MLF and the PPRF or CN VI nucleus on the same side resulting in an INO in one eye and an ipsilateral horizontal gaze palsy

#### EIGHT AND A HALF SYNDROME:

This syndrome is characterized by having one-and-a-half syndrome and a facial fascicular nerve (CN VII) palsy. The fascicle of CN VII wraps around the nucleus of CN VI in the dorsal pons. There is conjugate horizontal gaze palsy on looking to one side followed by INO on looking to the opposite side, along with unilateral facial weakness. The close proximity of the PPRF, facial nerve nucleus and MLF located in the dorsal pons makes this syndrome much more likely. The lesion is most often vascular or demyelinating in the dorsal tegmentum of the caudal pons

**Half and Half Syndrome:** A syndrome that consists of an INO



in one eye combined with an ipsilateral CN VI fascicular involvement with sparing of the sixth nerve nucleus. Thus, there is "half" of a horizontal gaze palsy (INO) plus an additional "half" (abduction deficit from CN VI fascicular palsy).

#### **POSTERIORINO:**

This syndrome is a rare ophthalmoplegia, either bilateral or unilateral that exhibits contralateral adducting eye (rather than abducting eye) nystagmus with abduction restriction on physical exam. It is the reverse of the typical INO, and although the lesion localization is not consistent, it likely is due to CN VI pre-nuclear input asymmetry

Partial third nerve palsy, other supranuclear gaze disturbances, peripheral neuromuscular involvement are the differential diagnosis for this which can be elicited by a thorough clinical examination.

The physical examination helps to arrive to the diagnosis. An MRI brain is the key diagnostic factor for evaluation.

Most patient will recover in days or months but in some, it still persists.

#### **CONCLUSION :**

Internuclear ophthalmoplegia is a disease with most common cause as multiple sclerosis but the frequency of other causes has also been increasing with similar prognosis.

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