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A CASE REPORT: INTERNUCLEAR OPHTHALMOPLEGIA

T.Anila Reddy[1], G.Vineeth Reddy[1], A.Kottai Muthu[2], B.S Sharvana Bhava[1*]
[1] *Department of Clinical Pharmacy & Pharm.D., MGM Hospital, Vaagdevi College of Pharmacy, Hanamkonda, Warangal, Telangana, India.*
[2]*Associate Professor, Department of Pharmacy, FEAT, Annamalai University, Annamalai Nagar-608002, Chidambaram, Tamil Nadu, India.*

ABSTRACT
Internuclear ophthalmoplegia (INO) is a disorder of conjugate lateral gaze in which affected eye shows impairment of adduction. This is a pathgnomonic of Multiple sclerosis (MS).This is mostly seen in elderly population and rare in paediatrics. The clinical presentations are usually related to vision abnormalities like blurred vision, diplopia (horizontal or vertical may vary). This condition usually effects the movement of eye ball.

Keywords: Internuclear Ophthalmoplegia, Abduction, Adduction, Nystagmus, Medial Longitudinal Fasiculus.

INTRODUCTION

Internuclear ophthalmoplegia (INO) is a distinct clinical and pathologic entity in which a triad of symptoms is associated with lesions of the medial longitudinal fasciculi. The symptoms are deficient adduction of one or both eyes on horizontal gaze, jerk nystagmus of the abducting eye, and vertical nystagmus (usually evoked by upward gaze). Adduction on attempted convergence may or may not be preserved[1]. INO is mostly caused due to lesion in the medial longitudinal fasciculus. That might be due to trauma, tentorial herniation, infections (like HIV, syphilis, cysticercosis, herpes zoster, tuberculoma), tumors (medulloblastoma, glioma, lymphoma, metastases), vasculitis (systemic lupus erythematosus (SLE), Sjogren syndrome), iatrogenic injury, and brainstem hemorrhage[2].Tumors like medulloblastoma and pontinegliomas are important causes besides trauma, vasculitis, infarction, and hemorrhage[3].About a third of the cases of internuclear ophthalmoplegia is caused by infarctions and are commonly unilateral and seen in older individuals. Demyelinating disorders like multiple sclerosis (MS) account for another third of cases and are mostly bilateral and seen in young adults and adolescents. Some studies have shown that internuclear ophthalmoplegia is seen in about 23% of MS patients. The incidence of internuclear ophthalmoplegia in males and females are almost equal. Nearly half of all cases of internuclear ophthalmoplegia resolve within one year.

Address for correspondence:
Anila Reddy
Department of Clinical Pharmacy& Pharm.D
Vaagdevi College of Pharmacy
Warangal, Telangana-506007

Internuclear ophthalmoplegia is extremely rare in the pediatric population [3]. The hallmark of internuclear ophthalmoplegia is impaired adduction in the eye ipsilateral to the affected medial longitudinal fasciculus, which can range from mild limitation to severe restriction of adduction. There is nystagmus in the abducting eye associated with this, which usually lasts for a few beats [4].The types of INO are lesion involving the paramedian pontine reticular formation (horizontal gaze center) and the medial longitudinal fasciculus produces "*one and half syndr*ome**.**"This syndrome is characterized by the loss of all horizontal movements except abduction in the contralateral eye. "***Unilateral ino"***may be accompanied by vertical strabismus due to skew deviation or associated trochlear nerve palsy."*wall-eyed bilateral ino*" (WEBINO***)*** which is a rare disorder in which bilateral internuclear ophthalmoplegia is associated with bilateral exotropia. Exotropia is thought to occur due to the disruption of the input from otolithicorgans [5,6]. This condition occurs due to loss of communication and connection between III and VI cranial nerves which are responsible for adduction and abduction of eye balls. The connection between these two cranial nerves is the medial longitudinal fasciculus on the either sides. It can be diagnosed through radio imaging studies like MRI and CT scans and blood and cerebrospinal fluid(CSF) studies for the underlying infection cause[7]. There is no exact treatment for this condition it only involves treating the underlying factor or cause.

MATERIAL AND METHODS

The patient visited MGM hospital with dysphagia, headache, dizziness, diplopia and he was unable to walk properly. His and his attendants consent was seek and explained about this case report publication. The protocol and written acceptance was collected from them and submitted. This got approval from Institutional Human Ethics Commission (IHEC).

CASE REPORT

A 70 years old male patient was admitted in male medical ward of MGM hospital, his clinical information was collected from the case sheet. His complaints were blurred vision, headache, dizziness, diplopia, left eye unable toadduct, nystagmus of right eye since 5 days. K/C/O-Type II Diabetes Mellitus since 10 years and on regular medication. He had no history of similar complaints in the past.

Laboratory findings were GRBS-174mg/dl, FBS-89mg/dl MRI scanning Axial T-1 weighted MRI showing multiple foci of altered signal intensity in the right aspect of the pons and middle cerebellar peduncle. Cornal T-1 weighted MRI image a focus of altered signal intensity in the right aspect of the pons at the level of middle cerebellar peduncle. sodium- 42 mmol/l Potassium : 4.0 mmol/l, Chlorides : 110mmol/l. The patient was assessed to have INO. The treatment prescribed was Mannitol inj., Glimepiride, Metformin, Enalapril maleate, Atorvastatin.

Figure 1: Left eye unable to adduct, nystagmus of right eye

DISCUSSION

Investigations like neuroimaging assist in finding the underlying cause. MRI can be a valuable tool in this regard, and up to 75% of patients may have a visible lesion. For demyelinating lesions, proton density imaging is considered to be ideal [7].Based on both subjective and objectives evidences the diagnosis becomes clearer. It should be differentially diagnosed from VI nerve palsy, Lateral gaze palsy; One-and-half syndrome.The prognosis depends on the etiological agent causing the ophthalmoplegia. Brainstem demyelination and trauma do not have a good prognosis.The complications that can develop due to the ophthalmoplegia are directly related to vision. But the major causes of morbidity and mortality are those that arise due to brainstem dysfunction, like aspiration pneumonia, deep vein thrombosis, respiratory arrest, bed sore, and infections [8].

CONCLUSION

The treatment given to this patient is as per standard guidelines and is advised to follow the treatment regularly and accordingly till there is improvement from the symptoms. Early diagnosis, prompt therapy and identifying the underlying cause aid in getting rid of the symptoms. Older patients are to be closely and carefully monitored as the severity and complications increase with increase in age.

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COMPETING INTRESTS

The Authors declare that they have no competing interests.

AUTHORS CONTRIBUTION

T.Anila Reddy worked in the Hospital in collection of data, Counseling the patient and their family, etc., G.Vineeth Reddy and designed the documents required for the work,B.S.Sharavanabhava discussed and conceived the idea of doing this work and prepared the Protocol.

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