TITLE: UNCOMMON UNYOKED STROKE PRESENTED AS ISOLATED BILATERAL INO-Dr CHAITRA C S,ID-582

Background:

Horizontal gaze coordination is achived by the yoking of ipsilateral lateral rectus and contralateral medial rectus via the abducens-MLF-oculomotor pathway. The medial longitudinal fasciculus (MLF) is a highly myelinated tract that connects the ipsilateral third nerve nucleus in the midbrain to the contralateral sixth nerve nucleus in the pons. Internuclear ophthalmoplegia (INO) can result from lesions along this pathway.

Bilateral INO (BINO) is rare, and the most common cause of BINO is Multiple Sclerosis. This case report highlights Isolated BINO due to ischemic stroke - an uncommon clinical stroke syndrome.

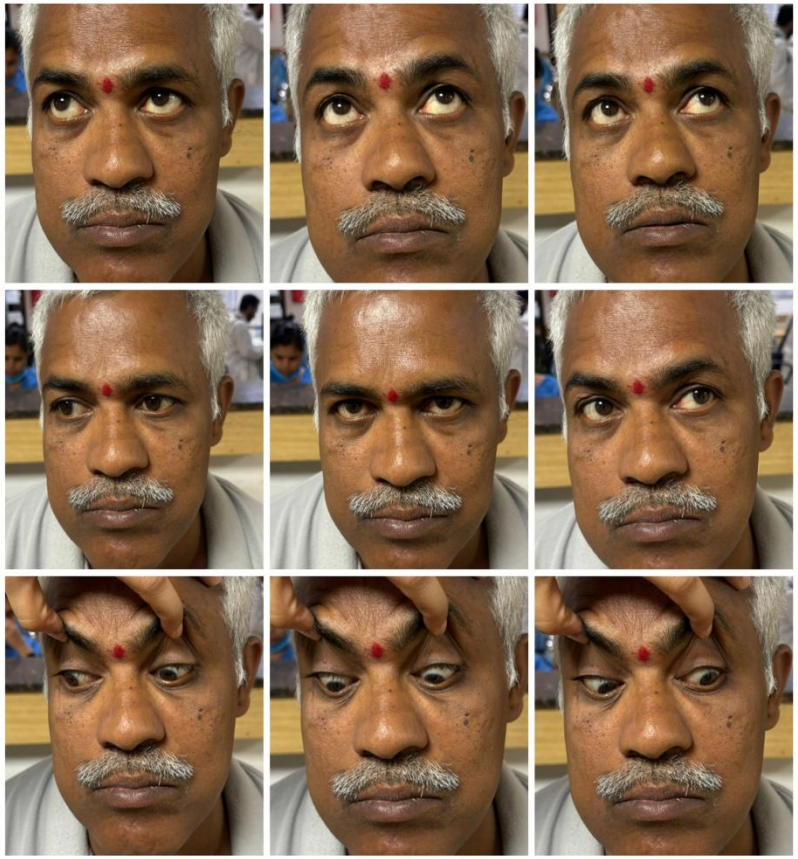
Case details:

A 49-year-old male with no comorbidities or risk factors presented with sudden-onset diplopia.At presentation his blood pressure was160/80mmHg, with pulse rate of 98 beats per minute.

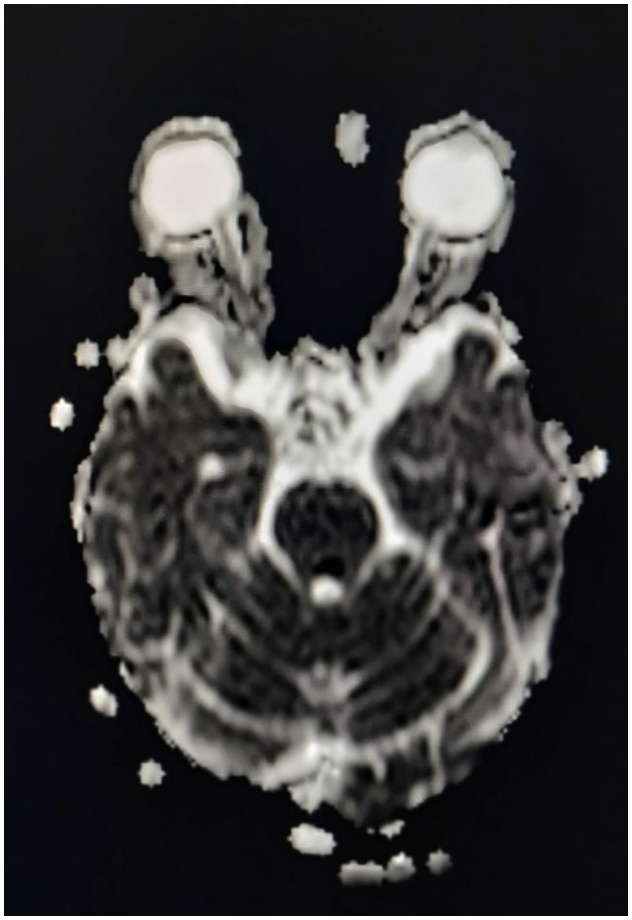
- Neurologic examination revealed exodeviation of right eye in primary gaze position. He had bilateral adduction
- weakness associated with abduction nystagmus on side gaze . On upward gaze upbeating nystagmus was
- observed. Convergence was unimpaired. Pupillary reflex and palpebral elevation were normal. Other cranial
- nerves were intact. Rest of the neurological examination was normal.
- Routine laboratory investigations were normal,except for random blood sugar which was elevated. MRI brain
- showed T2/FLAIR hyperintense lesion with diffusion restriction on DWI sequence in the dorsal median pons
- suggestive of acute infarct.

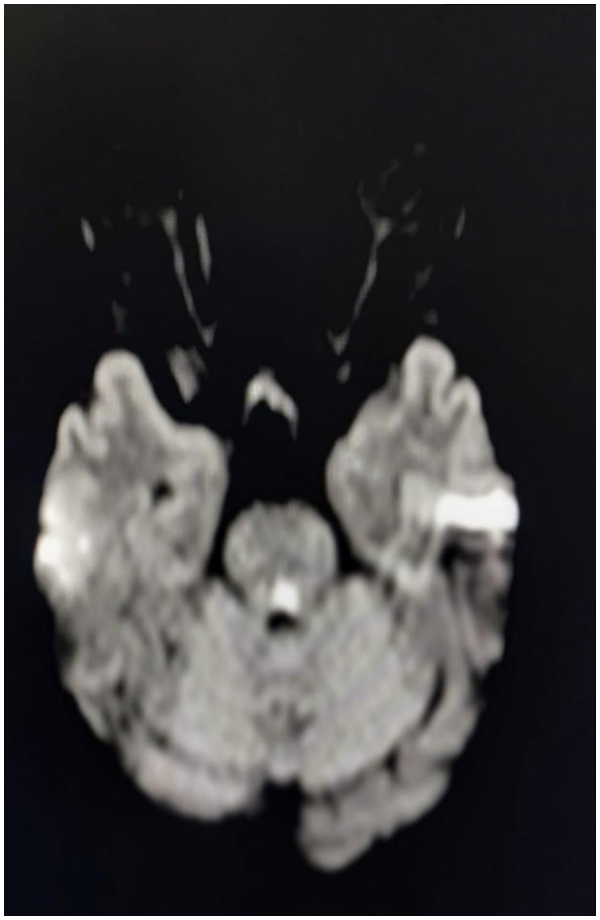
At presentation

Day 24 post stroke



MRI FINDINGS





- The possibility of demyelination was still considered. However, CSF biochemistry showed no abormailty and was negative for oligoclonal bands. Serum anti-MOG and anti-AQP4 antibodies were negative. The patient was incidentally diagnosed with diabetes mellitus, with HbA1C- 11%. ECG revealed sinus rhythm. 2D echocardiography showed global LV hypokinesia with EF of 30%, with no evidence of thrombus.
- A diagnosis of Isolated bilateral INO secondary to infarct of dorsal median pons was made. Patient was initiated on appropriate treatment. He reported improvement in diplopia by the fifth day. The patient on follow up after 24 days after presentation, reported significant resolution of diplopia, and on examination was found to have improvement in ocular motility.

Discussion

- Isolated BINO is a unique clinical stroke syndrome caused by dorsal brainstem infarction involving the MLF bilaterally. In a study of 33 patients with INO it was found that the most common cause of unilateral INO was infarction, and bilateral INO was Multiple sclerosis. One study noted that the cause for BINO was more likely to be infarct in a patients above 45years of age, and more likely demyelinating disease in the category of patients less than 45 years of age.
- In a study with 33 patients with INO due to acute stroke,it was shown that patients become asymptomatic in primary
- position over 2 to 3 months. The presence of other associated neurological defecits correlated with persistent diplopia.

Conclusion

- This case underscores the importance of recognizing BINO as a potential isolated manifestation of brainstem infarct, one of the myriad of other presentations of stroke.
- However the statistically more common cause- demyelination- must be kept in mind, particularly at first presentation.
- MRI, MRA, cardiovascular investigation, and cerebrospinal fluid analysis with evaluation of oligoclonal bands should aid
- clinical judgment in the evaluation of a case of BINO.
- Stroke as compared to demyelination as a cause of BINO has an excellent prognosis, particularly in isolation, when not associated with other neurological deficits.

References

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