

## Medial thalamic infarction presenting with vertical gaze palsy: A Case Report

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### Introduction

Although the supranuclear pathways for vertical gaze control are not well defined, vertical gaze palsy has been known to be associated with midbrain lesions. Associated midbrain structures are mesencephalic rostral interstitial nucleus of the medial longitudinal fasciculus, the interstitial nucleus of Cajal, and the posterior commissure. Rarely, vertical gaze palsies can be a manifestation of paramedian thalamic infarction. We report a rare complication case of a patient presenting with vertical gaze palsy secondary to isolated medial thalamic infarct.

### Case presentation

A 63-year-old man experienced an acute onset of dysarthria and left side weakness. He has a history of left p-com aneurysm clipping operation, diabetes, hypertension. At admission, the patient was alert and oriented to time, place, and person. A physical examination revealed a vertical gaze palsy involving with bilateral upward gaze palsy and moderate restriction of downward gaze (Fig. 1). Lesion at nuclear oculomotor can be excluded because there were no sign of ptosis, dilated pupil on light reflex test and adduction palsy in this patient. Horizontal gaze was intact. He had left hemianopsia. He had a left hemiparesis with motor power 4/5 and his gait was ataxic. The pain sensation of the left limb was reduced. A magnetic resonance imaging (MRI) scan showed an acute right median thalamic infarct and left occipital lobe. No abnormality was present in the midbrain (Fig. 2). Stenosis of the both PCA artery was seen on magnetic resonance angiography and confirmed by catheter angiography. The etiology of stroke was thought to be due to small vessel disease secondary to uncontrolled diabetes and hypertension. Intravenous tissue plasminogen activator was applied at hyperacute state. Atrial fibrillation was detected in 24hr holter monitoring. Patient was managed symptomatically and received rehabilitation. After 2 weeks of treatment, downward gaze slightly improved but upward gaze did not show any change (Fig. 3).

### Conclusions

A prominent clinical finding in our patient was an acute isolated vertical gaze palsy. An acute onset vertical gaze palsy is most often due to midbrain infarction. However, MRI showed right thalamic infarct. Previous studies revealed that the frontal eye fields traverse the medial thalamus. Also, the internal medullary lamina has reciprocal connections with the frontal and supplementary eye fields. So, interruption of these fibers could induce in vertical gaze impairments. We report very rare case of vertical gaze palsy with thalamic infarct.



Fig. 1. Limitation of eye movement to upward and downward position.

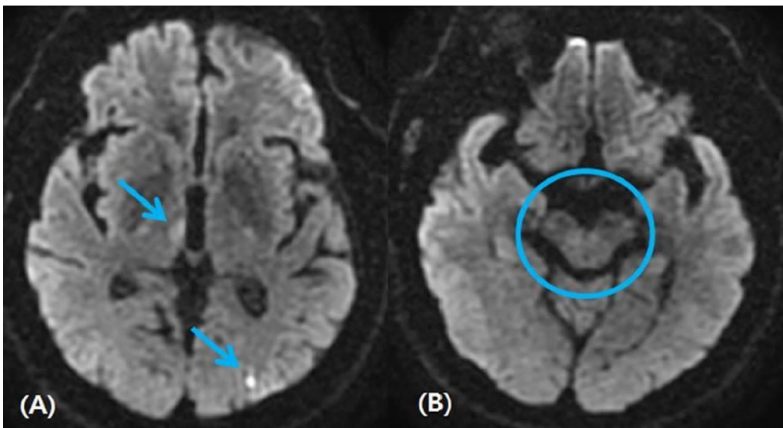


Fig. 2: (A) Brain diffusion MRI revealing right thalamic and left occipital lobe infarcts. (B) Brain diffusion MRI did not reveal evidence of ischemia of the midbrain.

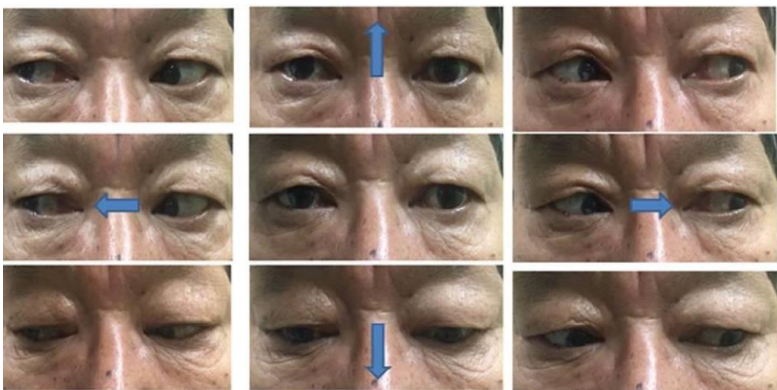


Fig. 3. Limitation of eye movement to up and down position on 2 weeks follow up.