



A patient with left 4th cranial nerve palsy

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Introduction

Isolated 4th cranial nerve palsy is uncommon. A patient presented with diplopia when looking downward is presented here.

The Case

An 85-year old woman with hypertension, hyperlipidaemia attended a GOPC in April 2021 complained of a 1-week history of diplopia worsened when looking in the right downward direction. There had been no head nor eyes injury. Physical exam showed diplopia maximal when looking in the right downward direction and relieved when tilting the head towards the right. There was no other focal neurological sign. The patient was suspected to have left 4th cranial nerve palsy and was referred to the hospital for workup.

Result

She was admitted through the emergency department. CT brain showed no intracranial lesion nor signs of stroke. Subsequent MRA craniocervical arteries showed a small (5x4mm) saccular aneurysm arising from the medial wall of the ophthalmic segment of the left internal carotid artery, projecting posteromedially. However, the patient's diplopia resolved spontaneously 4 weeks after its onset. The conclusion was that the aneurysm was unlikely to be the cause of the previous 4th nerve palsy.

Discussion

The trochlear (4th) nerve arises from a nucleus in the caudal midbrain. It has the longest intracranial course amongst all the cranial nerves. It is the only cranial nerve that has a dorsal exit from the brainstem. It is a pure motor nerve and it innervates a single muscle, the superior oblique. The primary action of this muscle is intorsion of the eye in the primary position. The secondary action is depression of the eye in the adducted position. A tertiary action of the muscle is abduction (especially in the abducted position). The most common causes of 4th cranial nerve palsies are congenital, traumatic and microvascular (eg. ischaemic mononeuropathy due to diabetes or hypertension). A minority of patients with trochlear nerve palsy are idiopathic (ie. have no etiological diagnosis after evaluation). These cases may resolve in a few weeks by themselves. The symptom of trochlear nerve palsy is usually diplopia, particularly when looking down and reading. The patient will often adopt a compensatory head tilt. Treatment depends on the underlying etiology and aims at maximizing the visual function.

Conclusion

Family physicians should be alerted to the possibility of 4th cranial nerve palsy when patients complain of diplopia, particularly when looking downwards.

Reference

Andrew G Lee. Fourth cranial nerve (trochlear nerve) palsy [Internet]. UpToDate Topic 6268 Version 16.0; Last update: 1 October 2019 [cited 2021 June 21]. Available from: <https://www.uptodate.com/contents/fourth-cranial-nerve-trochlear-nerve-palsy>