

Left sixth cranial (abducens nerve) and right seventh nerve (facial nerve) palsy in the setting of an extracranial mass and vascular disease

Category: Medicine & Medical Specialties; Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

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Introduction: The 6th and 7th cranial nerves originate in the same area of brainstem known as the pons. Their integrity can be altered due to a multitude of factors, which is encompassed in this care report

Case Description: I present a case of a 59-year-old female patient who presented to a primary care clinic in August 2021 after she woke up with sudden onset horizontal binocular diplopia. Physical exam revealed significant right eye esotropia and left eye CN 6 palsy which did not cross the midline on lateral gaze. Signs of right cranial nerve 7 palsy were seen with right side facial drop and ptosis. Her medical history is significant for hypertension, dyslipidemia, diabetes mellitus, and hypothyroidism. She has a 60-pack year smoking history. CTA in August 2021 was negative for any large vessel occlusion or hemorrhage, but an MRI revealed an extra-cranial, which measured 1cm and impacting the trigeminal nerve.

Working Diagnosis: In adults, vascular disease constitutes a majority of abducens nerve palsy as shown by a retrospective chart review in 2014 (1). Major risk factors for cranial atherosclerosis include diabetes mellitus, hypertension, metabolic syndrome, smoking, and a sedentary lifestyle (2).

Her tumor was considered highly unlikely to be involved in either cranial nerve neuropathy. The patient's right cranial nerve 7 palsy improved making the compression from a growing mass an unrealistic etiology. In relation to the left abducens nerve palsy, its contralateral location and closer proximity to the trigeminal nerve stressed the need to examine vascular causes.

Concurrent abducens and facial nerve palsies are a very uncommon finding. A 51-patient prospective study on bell's palsy found that the most common concurrent cranial nerve palsies involved the trigeminal, glossopharyngeal, and hypoglossal nerves (3)

A 213-patient review found that 78.5% of patients experience spontaneous recovery of Cranial nerve 6 palsy, with 36.6% by 8 weeks (4).

Management: Given the multi-factorial nature of vascular disease, the treatment approach for this patient focused on smoking cessation and improved glycemic control. Her extra-cranial mass did not necessitate surgical intervention but a repeat MRI in 6 months is scheduled to monitor tumor progression.

Learning Objectives

1. Describe the common findings of abducens and facial nerve palsy
2. Identify risk factors for cranial neuropathies.
3. Discuss treatment and diagnostic options for vascular conditions

References and Resources

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