Gaze palsy

A gaze palsy is the paresis of conjugate eye movements.

Horizontal gaze palsy may be caused by lesions in the cerebral hemispheres, which cause paresis of gaze away from the side of the lesion, or from brain stem lesions, which, if they occur below the crossing of the fibers from the frontal eye fields in the caudal midbrain, will cause weakness of gaze toward the side of the lesion. Another way to remember this is that patients with hemisphere lesions look toward their lesion, while patients with pontine gaze palsies look away from their lesions. Note that patients with gaze palsy still have conjugate eye movements and therefore do not complain of diplopia.

Additional symptoms of a tectal glioma may include gaze palsy.

The human Robo gene acts as a receptor for a midline repulsive cue. When Robo is mutated, the longitudinal tract formation is disrupted and therefore normal neuronal connections cannot form. This leads to the reduced hindbrain volume and scoliosis, which are common symptoms of horizontal gaze palsy.

Horizontal gaze palsy with progressive scoliosis (HGPPS) is an autosomal recessive disorder caused by mutations in the ROBO3 gene, resulting in a critical absence of crossing fibers in the brainstem.

A patient with ipsilateral hemiparesis caused by putaminal hemorrhage who had a history of horizontal gaze paralysis and scoliosis since childhood. Diffusion tensor imaging (DTI) tractography confirmed the presence of uncrossed corticospinal tracts. Sequence analysis of the entire ROBO3 coding regions revealed a novel nonsense mutation.

Yamada et al. report the first known HGPPS case with intracranial hemorrhage and ROBO3 mutation showing an absence of major crossing pathways by DTI. [1)]

1)
Yamada S, Okita Y, Shofuda T, Yoshioka E, Nonaka M, Mori K, Nakajima S, Kanemura Y. Ipsilateral hemiparesis caused by putaminal hemorrhage in a patient with horizontal gaze palsy with progressive scoliosis: a case report. BMC Neurol. 2015 Dec;15(1):286. doi: 10.1186/s12883-015-0286-4. Epub 2015 Mar 10. PubMed PMID: 25783551; PubMed Central PMCID: PMC4356136.