

HR-MRI Demonstrates Abnormalities of Motor Nerves and Extraocular Muscles in Patients with Congenital Complex Strabismus

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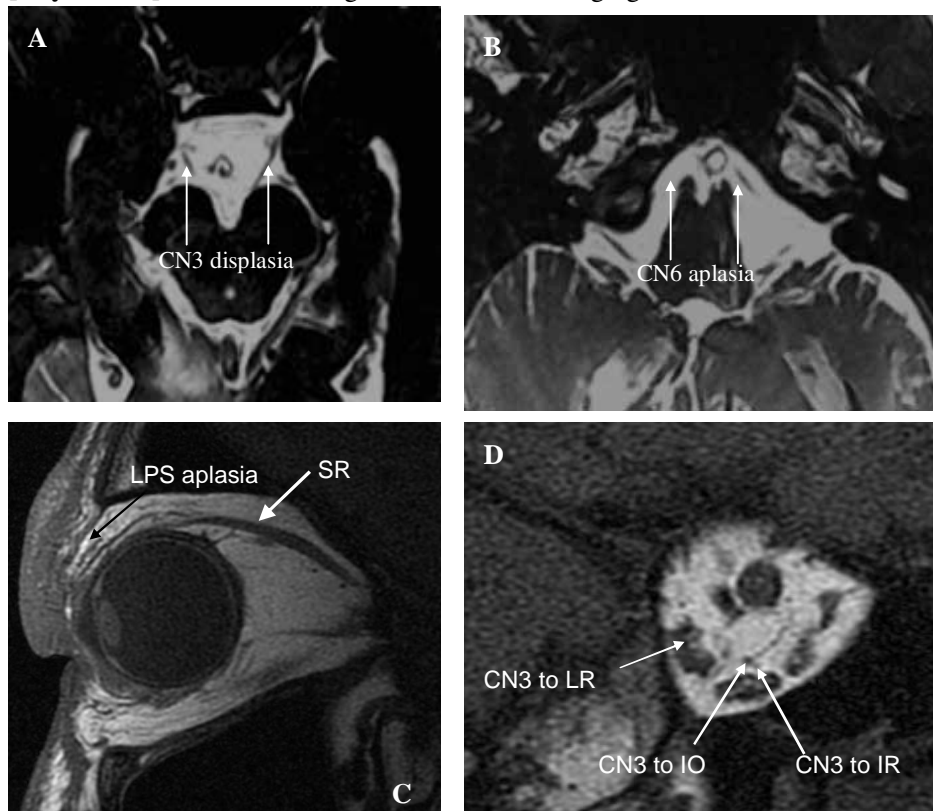
Objective Although the ocular motility examination has been traditionally in the diagnosis of complex strabismus that is a result of cranial nerve (CN) and extraocular muscles (EOM) abnormalities, magnetic resonance imaging (MRI) now permits the direct imaging of lesions in CNs and EOMs.

Methods 27 complex strabismus patients were performed HR-MRI examination on 1.5T MR unit (Twinspeed, GE). Prospectively, nerves to EOMs were imaged with T1 weighted in orbits of all patients in quasicoronal planes using dual-phased surface coils.

Results Patients with Duane syndrome all exhibited absence or hypoplasia of abducens nerve (CN6), always with mild hypoplasia and apparent misdirection of CN3 to the lateral rectus muscle in the orbit, and there were no EOM hypoplasia. Patients with congenital fibrosis of extraocular muscles exhibited severe hypoplasia of CN3 and CN6, and EOMs were appeared hypoplasia differently, particularly severe for the superior rectus and levator muscles. Multiple nerves were displayed aplasia in the patients with Mobius syndrome and there was abnormal branch from CN3 to the LR. The SOs were thin in the patients with Brown syndrome. And there were no MR abnormalities in the Marcus Gunn syndrome.

Conclusion HR-MRI can directly demonstrate absence or hypoplasia of CNs and corresponding EOM abnormalities in congenital complex strabismus. Direct imaging of CNs and EOMs by MRI is feasible and useful in differential diagnosis of complex strabismus.

[Key Words] Strabismus; Magnetic Resonance Imaging



The fig is of a patient with CFEOM I. figA-B were reformatted of 3D-FIESTA to display bilateral CN3 displasia and bilateral CN6 aplasia, figC disappeared that the LPS aplasia, and figD explored there was a fine ramfy from the inferior branch to the lateral rectus.