Parinaud syndrome and mri findings

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Introduction: We examined if neurophthalmological findings in patients with Parinaud syndrome (PS) differ between patients with intrinsic (intraaxial) and extrinsic (caused by pineal gland tumors) brainstem lesions. Methods: Medical records of patients with PS were retrospectively reviewed. Results: Twenty six patients with PS were identified. Eight patients had extrinsic brainstem lesions with hydrocephalus. Two patients had hydrocephalus due to aqueduct stenosis and ependymoma of the fourth ventricle, respectively. Sixteen patients suffered from intrinsic brainstem damage (ten tumors, five vascular and one traumatic lesion), seven were associated with hydrocephalus. The most frequent finding was convergence – retraction nystagmus (85%), followed by light-near dissociation of pupil reaction (80%), upgaze limitation (46%) and eyelid retraction (27%). The ophthalmological findings did not differ between patients with extrinsic or intrinsic brainstem lesions. Patients with low or moderate brainstem lesions and hydrocephalus had more clinical findings than patients with the same degree of brainstem involvement without hydrocephalus ($p= 0.03$ and $p=0.04$). The resolution rate of the ophthalmological findings did not differ between individual subgroups. A complete resolution was achieved in 8% patients, partial in 25% and 67% of patients remained unchanged. Conclusions: The routine MRI techniques do not allow conclusions about the ophthalmological findings in patients with PS. The presence of hydrocephalus is an important factor influencing the clinical findings in intrinsic lesions. The prognosis of PS is less favorable than generally reported.