Follow Up of Bilateral Optic Pathway Glioma using Goldmann Perimetry in a Child with Neurofibromatosis Type I

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This case addresses follow up care of a child with bilateral optic pathway glioma (OPG) and neurofibromatosis type 1 using Goldmann manual perimetry.

**Case History:** 8;6 male is followed for progression of bilateral OPG (optic nerves, optic chiasm, septum pellucidum), diagnosed at age 2 years. Goldmann perimetry began at age 4. Tumor increase led to surgical resection of the septal lesion and endoscopic fenestration of septum pellucidum at age 2;10. There was an increase in size of the tumor on MRI and superior temporal visual field (VF) constriction OS at age 6;9. Chemotherapy was initiated. Bitemporal VF constriction at age 7 years without concurrent progression on MRI led to a change in chemotherapy with continuing stable MRI and VF defects up to cessation of treatment at 8;3. Patient’s visual acuity (VA) didn’t vary with tumor changes or progressive field loss. Patient is on Gleevec for chronic myeloid leukemia.

**Pertinent findings:** The examination showed bilateral Lisch nodules, optic nerve pallor (OS>OD) and mild anisometropia. At age 8;6 corrected VA is: 20/20 OD, 20/30-40 OS, unchanged for 3 years. Bilateral VF defects persist: relative temporal field loss (I3e, I2e) and enlarged blind spot OD; contraction of the superior temporal VF and bared blind spot OS.

**Diagnosis and Discussion:** Retrospective studies show concordance of VF and VA with OPG progression in testable children. This case indicates significant VF loss can occur without concurrent VA loss. Chemotherapy was initiated and changed based on VF defects.

**Management:** VF and MRI are recommended for OPG follow up. VF should be an additional outcome. Other methods of OPG follow up will be discussed.

**Conclusion:** VF testing by Goldmann manual perimetry from age 4 years is sensitive to OPG progression and may contribute to treatment decisions.

Key: optic pathway glioma, bitemporal defect, neurofibromatosis