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Visual Diagnosis

A Rare Presentation of Myelin Oligodendrocyte Glycoprotein IgG-Associated Optic Neuritis

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Patient Description

This 16-year-old boy presented with painless loss of vision in the right eye of one-week duration. His visual acuity was 20/60 (right eye) and 20/20 (left eye). Fundus examination was unremarkable. His magnetic resonance imaging showed T2 and STIR (short tau inversion recovery) hyperintensity and enlargement of the pre-chiasmatic segment of the right optic nerve, optic chiasm, right hypothalamus, and optic tract with central nerve enhancement (Fig). The left optic nerve and brain were normal. Serum examination revealed positive anti–myelin oligodendrocyte glycoprotein (MOG) IgG antibody and negative serum aquaporin4 (AQP4) IgG antibody in cell-based assays. He was treated with pulse methylprednisolone (30 mg/kg/day for 5 days) and his visual acuity improved (20/20). The report highlights the rare presentation of optic chiasmal involvement in anti–MOG optic neuritis (MOG-ON).

Discussion

MOG IgG-associated optic neuritis is a new subset of optic neuropathy. Anti-MOG and anti-aquaporin 4 optic neuritis (AQP4-ON) often present clinically with bilateral longitudinally extensive lesions.[1] Optic nerve head swelling is more common in MOG-ON (53% versus 9%), and chiasmal involvement is rare in MOG-ON compared with anti-AQP4-ON (5% versus 64%).[1] Retrobulbar involvement is more common with MOG-ON, whereas intracranial involvement is more common in AQP4-ON.[1] Both MOG-ON and AQP4-ON have longer lesion length than optic neuritis seen in multiple sclerosis.[1,2]

Optic chiasmal and optic tract involvement is relatively rare and reported in approximately 5% of MOG-ON when compared with classic AQP4-positive neuromyelitis optica.[1,2] Although patients with MOG-ON respond well to steroid therapy, they have higher rates of recurrence.[3] The visual acuity outcomes are generally favorable with MOG-ON compared with AQP4-ON.[3]

References

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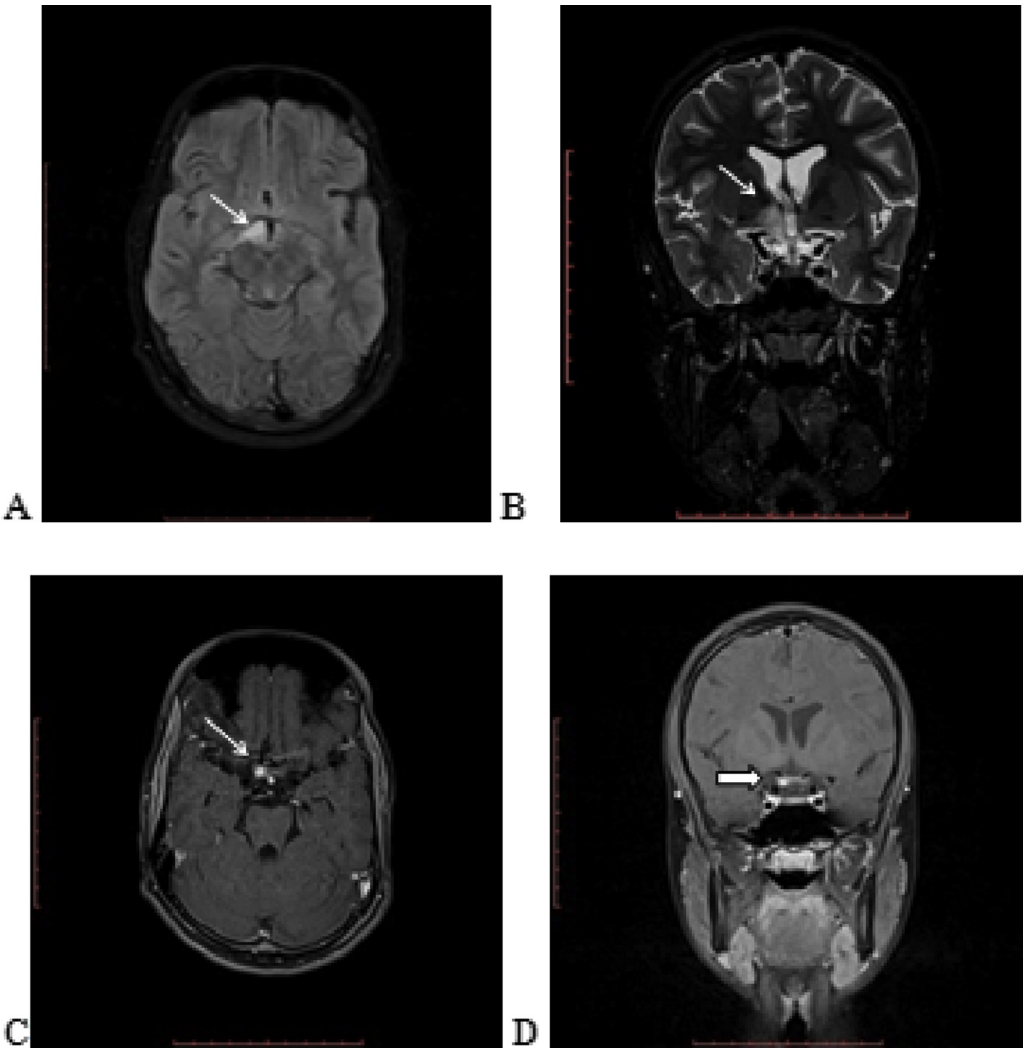

FIGURE. Axial fluid-attenuated inversion recovery (A) and coronal short tau inversion recovery (B) images showing prechiasmatic segment of the right optic nerve, optic chiasm, right hypothalamus, and right optic tract enlargement and hyperintensity (*white arrow*). Postcontrast T1 fat-suppressed axial (C) and coronal (D) images showing enhancement of the right optic nerve and right half of the optic chiasm (*white arrow*) consistent with optic neuritis. The color version of this figure is available in the online edition.