

# Bilateral Simultaneous Optic Neuritis

Vedamurthy Adhiyaman

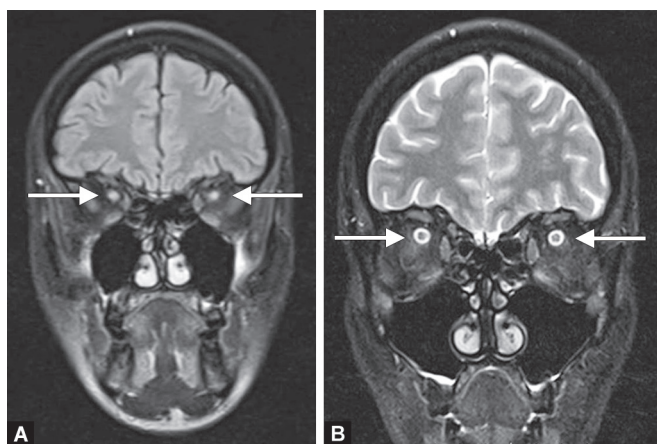
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A previously healthy 37-year-old man developed bilateral retro-orbital pain, blurred vision, and decreased visual acuity in his right eye. Examination revealed bilateral papilledema and a CT head with contrast was normal. Initially benign intracranial hypertension was suspected; however, he developed rapid visual loss and absent pupillary reflex in both eyes over the next 2 days.

Lumbar puncture revealed normal cerebrospinal fluid (CSF) pressure. Bilateral simultaneous optic neuritis (BSON) was suspected and he was treated with intravenous methylprednisolone. His pain improved rapidly and he was able to see shapes the following day.

Magnetic resonance imaging of the brain revealed high-intensity changes in both optic nerves on T2-weighted images (Fig. 1A) and enlarged optic nerves surrounded by CSF giving a "polo mint" appearance on fat-suppressed T2-weighted images (Fig. 1B) supporting the diagnosis of BSON. There was no evidence of any other white matter lesions. He was treated with methylprednisolone for 5 days followed by oral prednisolone and five courses of plasma exchange. His symptoms gradually improved and his vision was almost normal at 2 months. He is currently on a tapering dose of prednisolone. All investigations including antibody to aquaporin 4 protein were negative.

BSON is a very rare condition and in a retrospective study involving 235 patients with optic neuritis, 15 were found to have BSON.<sup>1</sup> However, up to 48% of patients with unilateral optic neuritis were found to have contralateral field defects on perimetry suggesting bilateral pathology.<sup>2</sup> Prognosis is good and the risk of developing multiple sclerosis in patients with isolated BSON is much lower than patients with acute unilateral optic neuritis.



**Figs 1A and B:** (A) Coronal T2-weighted FLAIR MRI showing high signal changes in both optic nerves; (B) Coronal T2-weighted MRI with fat suppression showing enlarged optic nerves surrounded by CSF giving a "polo mint" appearance

Department of Geriatric Medicine, Glan Clwyd Hospital, Rhyl, United Kingdom

**Corresponding Author:** Vedamurthy Adhiyaman, Department of Geriatric Medicine, Glan Clwyd Hospital, Rhyl, United Kingdom, Phone: +01745 448788/6303, e-mail: Vedamurthy.adhiyaman@wales.nhs.uk

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Fat-suppressed gadolinium-enhanced MRI is the most sensitive imaging modality that shows enhancement of optic nerve in 95% of cases compared to around 80% in T2-weighted inversion recovery images.<sup>3</sup>

Optic neuritis should always be considered in any patient with sudden loss of vision. Following baseline investigations, fat-suppressed gadolinium-enhanced MRI should be the choice of imaging in the diagnostic workup.

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