

# Recurrence of Elevated Intracranial Pressure Following Tetracycline Antibiotic Use

Ashwini T. Kini, MD; Niloufar Rohani, BBA; Bayan Al Othman, MD; Andrew G. Lee, MD

To the Editor:

In 1995, one of the authors (A.G.L.) reported the case of a 14-year-old boy who was diagnosed with pseudotumor cerebri following treatment with isotretinoin and tetracycline, both of which were implicated in the development of elevated intracranial pressure (ICP). The patient subsequently underwent optic nerve sheath fenestration for decompression due to progressive deterioration of the visual field despite discontinuation of both drugs.<sup>1</sup>

This patient recently returned to our office 28 years after his initial presentation with a recurrence of similar symptoms. He was subsequently diagnosed with elevated ICP after a single dose of doxycycline. His vision was 20/20 with correction for distance. Pupil size and extraocular motility were within normal limits. Physical examination was normal, and a dilated fundus examination showed a Frisen stage 1 disc edema in the right eye and a Frisen stage 3 disc edema in the left eye at presentation. The visual field showed enlarged blind spots in both eyes consistent with papilledema. Optical coherence tomography for optic nerve was 93  $\mu\text{m}$  in the right eye and 124  $\mu\text{m}$  in the left eye compared to earlier measures of 66 and 68  $\mu\text{m}$  in the right and left eyes, respectively, indicating pseudo-normalization of the parameters (disc edema in the setting of prior optic atrophy). In the setting of optic atrophy, when the nerve develops any swelling the thickness measured on optical coherence tomography may reach normal values, which are in fact abnormal and elevated in this case. Magnetic resonance imaging and magnetic resonance venography were within normal limits. Cerebrospinal fluid opening pressure was 26 cm of water, and analysis revealed high levels of West Nile virus antibodies (IgM and IgG), suggesting a recent viral infection. In addition to an established predisposition to develop elevated ICP on tetracycline antibiotics, this patient also had the precipitating factor of recent viral infection contributing to his raised ICP.

Prior to his most recent presentation, his condition was stable with evidence of mild optic atrophy in both eyes and stable visual fields.

Various case reports have linked the use of tetracycline antibiotics to increased ICP. Gardner et al<sup>2</sup> reported a case of fraternal twins who developed elevated ICP while on tetracycline for acne, suggesting a possible genetic susceptibility. In one nested case-control study, it was found that the relative risk (RR) of developing elevated ICP with tetracycline antibiotics was increased (RR=2.68 [95% CI, 0.89-8.11] for 15 days of current use; RR=3.64 [95% CI, 1.67-7.91] for 30 days of current use).<sup>3</sup> Retrospective studies have demonstrated that 9% of the population (N=207) had prior treatment with tetracyclines in a cohort of patients diagnosed with elevated ICP.<sup>4</sup>

In this group of drugs, minocycline has been closely associated with development of elevated ICP. One retrospective study showed that 75% of patients (9/12) with minocycline-associated ICP developed symptoms of elevated ICP within 8 weeks of starting therapy; however, half of the patients included in the study were obese. The inclusion of obese patients in this study is a confounding variable because idiopathic intracranial hypertension (IIH) is a disease that predominantly affects obese young females. The diagnosis of IIH, however, should be considered a diagnosis of exclusion, and it is uncommon in thin elderly or male patients.<sup>5</sup>

Tetracyclines have a half-life of 6 to 11 hours, and usually the elevated ICP decreases once the offending agent is discontinued, though papilledema could take months to resolve.

We describe an inadvertent rechallenge with a tetracycline antibiotic 28 years after presumed minocycline-induced IIH of childhood. Clinicians should be aware that any agent in the tetracycline family of antibiotics may cause increased ICP and that the predisposition to medication-induced IIH may be a lifelong risk.

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Drs. Kini, Othman, and Lee are from the Blanton Eye Institute, Department of Ophthalmology, Houston Methodist Hospital, Texas. Ms. Rohani is from Baylor College of Medicine, Houston.

The authors report no conflict of interest.

Correspondence: Andrew G. Lee, MD, Blanton Eye Institute, Department of Ophthalmology, Houston Methodist Hospital, 6560 Fannin St, Ste 450, Houston, TX 77030 (AGLee@houstonmethodist.org).

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