

Optic neuropathy: Diagnosis, imaging, and visual fields.

Orion Whitaker*

Department of Ophthalmology, Metropolitan Clinical University, Ireland

Introduction

This article provides a comprehensive overview of neuro-ophthalmological conditions affecting the optic nerve, with a particular emphasis on how these pathologies manifest as visual field defects. It highlights the diagnostic challenges and management strategies for various optic neuropathies, emphasizing the crucial role of visual field testing in detecting and monitoring disease progression. The case report likely presents a specific instance illustrating these principles [1].

Furthermore, this study explores the utility of advanced imaging techniques, specifically optical coherence tomography (OCT), in evaluating the structural integrity of the optic nerve head in patients with suspected optic neuropathy. It correlates OCT findings with visual field results, underscoring its value in differentiating between various causes of optic nerve dysfunction and tracking subtle changes over time [2].

The review delves into non-arteritic anterior ischemic optic neuropathy (NAION), a common cause of sudden vision loss and optic neuropathy. It details its pathophysiology, clinical presentation, and current understanding of risk factors, also touching upon the importance of visual field assessment in confirming the diagnosis and characterizing the visual deficit [3].

Another focus is on hereditary optic neuropathies, particularly Leber hereditary optic neuropathy (LHON). It discusses the genetic basis, clinical manifestations, and the challenges in managing these conditions, recognizing that visual field deficits are a hallmark of LHON and emphasizing their significance in diagnosis and prognosis [4].

Understanding the interplay between the optic nerve and the visual pathway is presented as key. This review covers various etiologies of optic neuropathy, from inflammatory and toxic to compressive and hereditary causes, emphasizing how specific patterns of visual field loss can help localize the site of optic nerve damage [5].

A paper provides a comprehensive overview of different types of visual field defects and their neuroanatomical correlates, stressing that it is essential for neuro-ophthalmologists to recognize these pat-

terns as they offer critical clues to the underlying cause of optic neuropathy or other visual pathway lesions [6].

Additionally, inflammatory optic neuropathies, such as optic neuritis, are frequently encountered. This review discusses the pathogenesis, clinical presentation, and management of optic neuritis, often characterized by specific visual field deficits like central scotomas or altitudinal defects [7].

The role of imaging in the diagnosis and management of compressive optic neuropathies is examined. Lesions that compress the optic nerve, such as pituitary adenomas or meningiomas, often lead to characteristic visual field defects, typically bitemporal hemianopsia. The review covers MRI techniques for visualizing these lesions [8].

This research investigates the impact of nutritional deficiencies on optic nerve health. Deficiencies in certain vitamins, like B12 or folate, can lead to optic neuropathy with specific visual field impairments, and the study discusses diagnostic approaches and treatment outcomes [9].

Finally, a review focuses on toxic optic neuropathies, often caused by medications or environmental exposures. It outlines the mechanisms of toxicity, clinical presentations including characteristic visual field defects, and strategies for diagnosis and management, which typically involve discontinuing the offending agent [10].

Conclusion

This collection of research highlights the multifaceted nature of optic neuropathy, a condition impacting the optic nerve and often leading to visual field defects. Key areas explored include diagnostic challenges, the crucial role of visual field testing, and advanced imaging techniques like OCT. Specific types of optic neuropathy are discussed, such as non-arteritic anterior ischemic optic neuropathy (NAION), hereditary forms like Leber hereditary optic neuropathy (LHON), inflammatory conditions like optic neuritis, compressive lesions, nutritional deficiencies, and toxic exposures. The interrelationship between optic nerve damage and patterns of visual field loss is emphasized, underscoring the importance of recognizing these patterns for accurate diagnosis and effective management. The compilation provides a comprehensive overview of current un-

*Correspondence to: Orion Whitaker, Department of Ophthalmology, Metropolitan Clinical University, Ireland. E-mail: orion.whitaker@example.com

Received: 15-Jan-2026, Manuscript No. OCR-1-109; Editor assigned: 19-Jan-2026, Pre QC No. OCR-1-109 (PQ); Reviewed: 06-Feb-2026, QC No. OCR-1-109; Revised: 17-Feb-2026, Manuscript No. OCR-1-109 (R); Published: 26-Feb-2026,

Citation: Whitaker O. Optic neuropathy: Diagnosis, imaging, and visual fields. OCR. 2026;10(01):109.

derstanding and approaches in neuro-ophthalmology regarding optic nerve disorders.

References

1. Peter JS, Michael LS, James JA. et al. Optic neuropathy: a clinical review. *Ophthalmology*. 2021;128(9):1341-1355.
2. Valerie AP, Andrew GL, Thomas JW. et al. Optical coherence tomography in neuro-ophthalmology. *Current Opinion in Ophthalmology*. 2019;30(5):403-409.
3. Nicholas JV, Laura JMB, R NT. et al. Nonarteritic anterior ischemic optic neuropathy. *Survey of Ophthalmology*. 2020;65(2):201-212.
4. Nancy JN, Valerie AP, Peter JS. et al. Leber hereditary optic neuropathy. *Seminars in Neurology*. 2022;42(4):447-455.
5. Debora BW, B JB, W LK. et al. Optic neuropathies: a diagnostic challenge. *Journal of Neuro-Ophthalmology*. 2023;43(1):100-110.
6. Laura JMB, Valerie AP, Andrew GL. et al. Visual field defects: a review for neurologists. *Neurology: Clinical Practice*. 2021;11(4):257-268.
7. Deanne KN, Valerie AP, Andrew GL. et al. Optic neuritis: a clinical and neuroimaging update. *JAMA Ophthalmology*. 2020;138(10):1199-1208.
8. Richard TK, Valerie AP, Andrew GL. et al. Compressive optic neuropathies: diagnosis and management. *Neuro-Ophthalmology*. 2022;46(5):337-347.
9. Jonathan LS, Christopher JR, Richard JH. et al. Nutritional optic neuropathies. *Eye*. 2021;35(7):1778-1786.
10. Thomas JW, Andrew GL, Valerie AP. et al. Toxic optic neuropathies. *Current Opinion in Ophthalmology*. 2023;34(5):398-405.