

## RE: Diffusion MR Imaging of Postoperative Bilateral Acute Ischemic Optic Neuropathy

Anusha Kannan, MBBS, MD<sup>1</sup>,  
Sivasubramanian Srinivasan, MD, FRCR<sup>2</sup>

Departments of <sup>1</sup>Anaesthesia and <sup>2</sup>Diagnostic Radiology, Khoo Teck Puat Hospital, Singapore 768228, Singapore

Dear Editor:

We read with great interest, the case report on ischemic optic neuropathy (1). We would like to add a few points concerning the blood supply of the optic nerve and the correlation with the development of post-operative ischemic neuropathy. Actually, the perioperative or post-operative vision loss (postoperative ischemic neuropathy) is most likely due to ischemic optic neuropathy. Ischemic optic neuropathy (2) is classified as an anterior ischemic optic neuropathy (AION) and posterior ischemic optic neuropathy (PION). This classification is based on the fact that blood supply (2) to the anterior segment of the optic nerve (part of the optic nerve in the scleral canal and the optic disc) is supplied by short posterior ciliary vessels or anastamotic

ring branches around the optic nerve. The posterior part of the optic canal is relatively less perfused, and is supplied by ophthalmic artery and central fibres are perfused by a central retinal artery.

So, in the post-operative period, the posterior part of the optic nerve is more vulnerable for ischemia, especially, after major surgeries (3), one of the theories being hypotension or anaemia (2) and resultant decreased perfusion. The onset of PION is slower than the anterior ischemic optic neuropathy. AION on the other hand, is usually spontaneous (idiopathic) or due to arteritis, and is usually sudden in its onset. The reported case is most likely a case of PION.

The role of imaging, especially the diffusion weighted magnetic resonance imaging, is very important because the ophthalmoscopic findings in early stages of PION is normal, and it may delay the diagnosis. On the other hand, edema of the disc is usually seen in the early stages of AION.

### REFERENCES

1. Park JY, Lee IH, Song CJ, Hwang HY. Diffusion MR imaging of postoperative bilateral acute ischemic optic neuropathy. *Korean J Radiol* 2012;13:237-239
2. Williams EL, Hart WM Jr, Tempelhoff R. Postoperative ischemic optic neuropathy. *Anesth Analg* 1995;80:1018-1029
3. Murphy MA. Bilateral posterior ischemic optic neuropathy after lumbar spine surgery. *Ophthalmology* 2003;110:1454-1457

Received April 22, 2012; accepted after revision June 1, 2012.

**Corresponding author:** Sivasubramanian Srinivasan, MD, FRCR, Department of Diagnostic Radiology, Khoo Teck Puat Hospital, 90 Yishun Central, Singapore 768228, Singapore.

• Tel: (65) 66022711 • Fax: (65) 66023796

• E-mail: sivasu2@gmail.com

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.