# Teaching NeuroImages: Evolving trans-synaptic degeneration of retinal ganglion cells after occipital lobe stroke

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A 59-year-old woman presented with acute left-sided visual field loss. A left homonymous hemianopia without a relative afferent pupillary defect and corresponding right occipital stroke on MRI were noted (figure). Optical coherence tomography of the macular retinal ganglion cell complex (GCC) showed GCC loss corresponding to the area of visual field loss in the left eye first, 100 days later (figure). The left eye was affected earlier and to a greater degree, which is consistent with previous animal studies,[1] and may be due to the larger temporal visual field and larger number of crossing fibers.[2]

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## Author contributions

Jonathan Micieli: study conception and design, manuscript preparation. Richard Blanch: study conception and design, manuscript preparation. Kannan Narayana: study conception and design, acquisition of data, final approval of manuscript.

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## Disclosure

The authors report no disclosures relevant to the manuscript. Go to Neurology.org/N for full disclosures.

## References

1. Théoret H, Herbin M, Boire D, Ptito M. Transneuronal retrograde degeneration of retinal ganglion cells following cerebral hemispherectomy in cats. Brain Res 1997;775:203–208.
2. Dinkin M. Trans-synaptic retrograde degeneration in the human visual system: slow, silent and real. Curr Neurol Neurosci Rep 2017;17:16.

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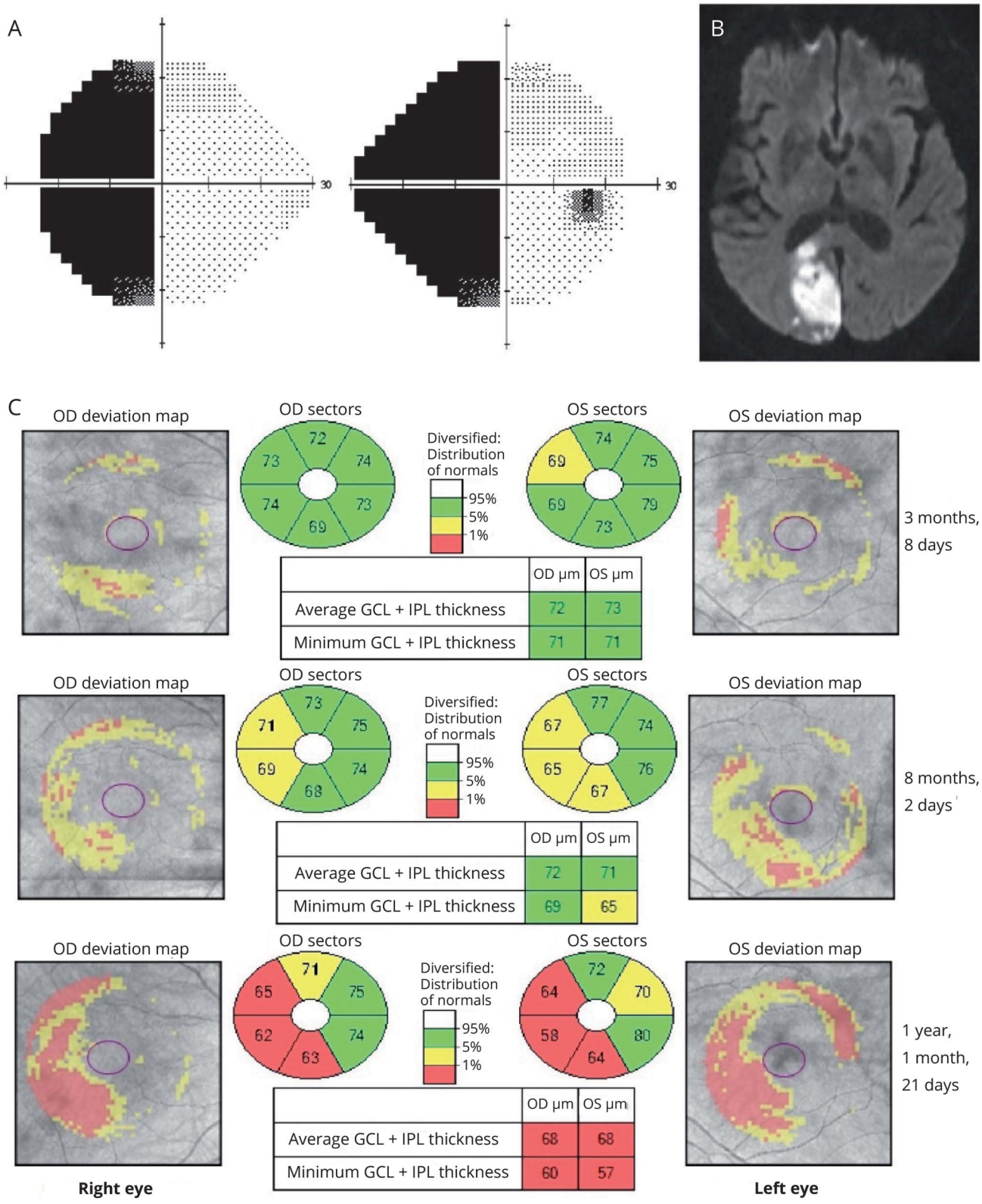
**Figure** Evolving retrograde trans-synaptic degeneration of retinal ganglion cells




Humphrey visual field test demonstrates a left homonymous hemianopia (A) with corresponding restricted diffusion in the right occipital lobe (B). Optical coherence tomography of the macular ganglion cell complex (C) starts to show thinning in the nasal retina of the left eye about 100 days after vision loss that increased with time in both eyes. GCL = ganglion cell layer; IPL = inner plexiform layer.

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