INTERNAL MEDICINE JOURNAL

Internal Medicine Journal **40** (2010) 310–311

IMAGES IN MEDICINE

Homonymous hemianopia captured on automated perimetry during a migraine episode

A 39-year-old man with known history of migraine experienced an episode of right-sided headache and visual disturbances. Visual field testing using automated perimetry was carried out during the episode and showed an incongruous homonymous hemianopia (Fig. 1a). The migraine episode lasted for about 30 min and upon resolution, repeat perimetry showed normal visual fields (Fig. 1b).

Homonymous hemianopia during a migraine attack has been described, but this is the first illustrative image in medicine showing the effect and its resolution.

Much debate still exists regarding the pathophysiology of migraines. The transient nature of the field defect in this case supports the role of vasospasm with neurological defect reflecting an area of vascular compromise that is fleeting and resolves with resolution of the vascular flow.[1]

The Humphrey visual field analyser is one of the most common automated, computerized, static perimetry devices used to measure visual field defects. The grey scale (the four outer images in Fig. 1) represents an overview of the visual loss, but is not sensitive enough to provide information on the extent of visual field loss. The pattern deviation (the four middle images in Fig. 1) corrects for generalized depression of the field, for example, due to cataracts, to show focal areas of relatively greater

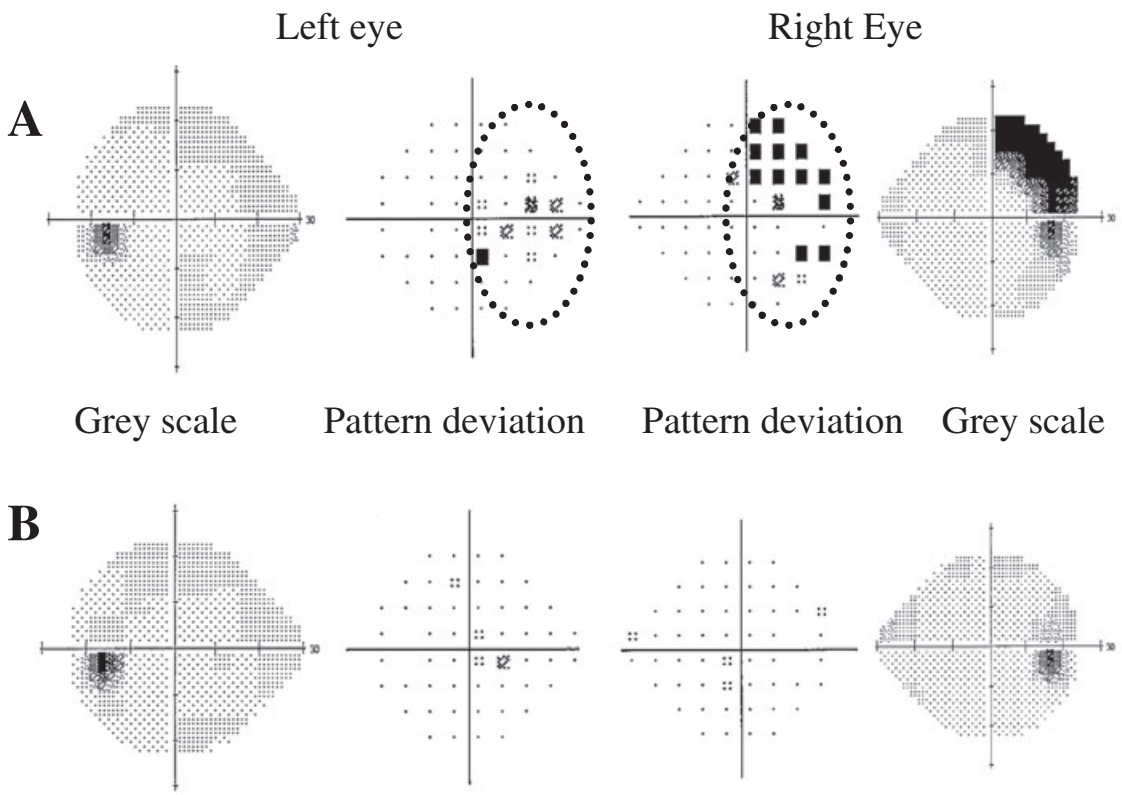

Figure 1 Automated perimetry using Humphrey 24-2 threshold program (A) during the migraine episode showing an incongruous right homonymous hemianopia best appreciated on pattern deviation plot (dashed circles). (B) Repeat perimetry shortly after resolution of the migraine shows resolution of the hemianopia.

visual field loss.[2] In this case, the pattern deviation suggests the incomplete homonymous nature of the defect, which cannot be appreciated by looking at the grey scale alone, and therefore implies a retrochiasmatic lesion.

A homonymous hemianopia can be congruous when the areas of visual defects of the two eyes match exactly. Generally, the more posterior the lesion in the optic pathway, the more congruous the visual field defect. Conversely, in incongruous hemianopias the degree of visual fields defect differs between the two eyes, as seen in this case (Fig. 1a, dashed circles) where the right pattern deviation showed more extensive and severe involvement. The incongruous nature in this case suggests pathology affecting the optic tract supplied by the left anterior or lateral choroidal artery.[3]

Received 15 June 2009; accepted 21 July 2009.

doi:10.1111/j.1445-5994.2010.02194.x

S. T. Luu,[1] K. Pesudovs,[2,3] A. W. Lee[4] and C. S. Chen[2]
[1]South Australian Institute of Ophthalmology, Royal Adelaide Hospital and University of Adelaide, [2]Department of Ophthalmology, [3]NHMRC Centre for Clinical Eye Research and [4]Flinders Comprehensive Stroke Centre, Flinders Medical Centre and Flinders University, Adelaide, South Australia, Australia

References

1 Maxner C, Moeller J. Visual disturbances and migraine. *Curr Neurol Neurosci Rep* 2005; **5**: 376–81.
2 Dersu I, Wiggins M. Understanding visual fields, Part II; Humphrey visual fields. *J Ophthalmic Med Technol (Serial on the Internet)* 2006; **2**: Available from URL: http://www.jomtonline.com/jomt/articles/volumes/2/3/VFPartII_Dersu_Wiggins.pdf.
3 Foroozan R, Buono L. Foggy visual field defect. *Surv Ophthalmol* 2003; **48**: 447–51.