Figure 6 Coronal view. There is also meningeal spread dorsally along the uncus and along the clivus right to the median line in prepontine area.

adjacent tissue compression on an artery⁸ leading to amaurosis. The location of this compromise could be anywhere—and possibly in multiple locations—from the origin of the ophthalmic artery up to the feeding vessels of the optic nerve in the meninges around the intracanalicular part of the optic nerve or even in the orbital apex.

In summary, we demonstrate a case that illustrates that gaze-evoked amaurosis may be caused, as previously reported,⁸ by intracranial pathology that compromises blood perfusion.

Acknowledgements

We are grateful to the imaging departments of Delfzicht Ziekenhuis for providing CDI images, Electro physiological Ophthalmic Department, University Medical Center, Groningen for providing VEP images and Dr Mciners of Neuro radiology Department, University Medical Center, Groningen for the MRI images.

References

- 1 Orcutt JC, Tucker WM, Mills RP, Smith CH. Gazed evoked amaurosis. *Ophthalmology* 1987; **94**: 213–218.
- 2 Sarkies NJC. Optic nerve sheath meningioma: diagnostic features en therapeutic alternatives. *Eye* 1987; **1**: 597–602.
- 3 Danesh-Meyer HV, Savino PJ, Bilyk JR, Sergott RC, Kubis K. Gaze evoked amaurosis produced by intraorbital buckshot pellet. *Ophthalmology* 2001; **108**: 201–206.
- 4 Bremner FD, Sanders MD, Stanford MR. Gaze evoked amaurosis in dysthyroid orbitopathy (letter). *Br J Ophthalmol* 1999; **83**: 501.

- 5 Pascual J, Combarros O, Berchiano J. Gazed evoked amaurosis in pseudotumor cerebri. *Neurology* 1988; **38**: 1654–1655.
- 6 Otto CS, Coppit GL, Mazzoli RA, Eusterman VD, Nixon KL, Ainsbinder DJ *et al.* Gaze-evoked amaurosis: a report of 5 cases. *Ophthalmology* 2003; **110**: 322–326.
- 7 O'Duffy D, James B, Elston J. Idiopathic intracranial hypertension presenting with gaze-evoked amaurosis. *Acta Ophthalmol Scand* 1998; **76**: 119–120.
- 8 Sivak-Callcott J, Carpenter JS, Rosen CL, Ellis B, Hix C. Gazed evoked amaurosis associated with an intracranial aneurysm. *Arch Ophthalmol* 2004; **122**(9): 1404–1406.

MU Koch¹, AC Houtman² and RJW de Keizer³

¹Ophthalmology, Delfzicht District Hospital, Delfzijl, Netherlands

²Ophthalmology, Martini District Hospital, Groningen, Netherlands

³Ophthalmology, University Medical Center, Leiden, Netherlands

Correspondence: MU Koch,
Tel: 0031503141435;
Fax: 0031599659261.
E-mail: eyekoch@home.nl

Eye (2006) **20**, 840–843. doi:10.1038/sj.eye.6701977;
published online 17 June 2005

Sir, Optical coherence tomography of macular crystalline opacities associated with chronic retinal detachment

Macular 'crystals' associated with chronic retinal detachment or dialysis are a rarely documented finding of unknown aetiology. We report two cases and describe for the first time the optical coherence tomography appearance of these crystalline opacities.

Case reports

Case 1

A 30-year-old lady, seen routinely by her optician, was referred for urgent ophthalmological assessment following the discovery of a chronic retinal detachment in the temporal retina of her left eye.

Figure 1 Top left: colour fundus photograph of Case 1 showing multiple refractile deposits ('crystals') at the left macula. Top centre: colour fundus photograph of Case 2 showing multiple refractile deposits at the right macula. Top right: colour fundus photograph of Case 2 showing a normal left macula. Bottom: OCT image with red arrows indicating tiny deposits located in the superficial retina at the right macula of Case 2.

She had no history of systemic metabolic disorders and was not taking any medication. On examination, her best-corrected visual acuities were 6/5 right eye and 6/9 left eye. The retinal detachment was confirmed on the left side and she was also noted to have multiple highly refractile opacities at the macula of the same eye (Figure 1). These appeared to be located at the level of the superficial retina and, given the excellent visual acuity, did not appear to be causing any symptoms. The posterior pole of the right eye was normal.

Case 2

A 50-year-old lady presented to the eye casualty with symptoms of a posterior vitreous detachment in the right eye. She was systemically well and was not taking any regular medication apart from hormone replacement therapy. On examination, she was found to have an inferotemporal chronic retinal detachment with fine refractile opacities at the macula of the right eye and a normal left macula (Figure 1). Visual acuities measured 6/4 in both eyes. The detachment was prophylactically treated with argon laser. An OCT (Figure 1) confirmed the presence of tiny retinal crystals at the macula of the right eye and suggested that they were located in the superficial retina. There were no abnormalities seen at the left posterior pole.

Comment

Retinal crystals are known to occur in systemic conditions such as cystinosis and oxalosis. They can also represent drug toxicity with agents such as tamoxifen and canthaxanthine.¹ The association of crystals in the retina and chronic retinal detachment was first described in 1958² and subsequently a few further cases have been published.^{3,4} The early 1958 report is the only one with any histopathological data and indicated that the crystals were formed from calcium oxalate and calcium phosphate.

Both the cases described in this report were referred with chronic retinal detachments and were found to have these highly refractile deposits in an area of attached retina, the macula. This is in keeping with other descriptions in the literature and typically, although found in the macular area, they appear not to have any impact on vision.

The location of these crystalline opacities within the retina is debated. It has been suggested by some that they lie in the outer retina.² However, a case report³ and another case series of 11 eyes⁴ suggested that clinically the deposits appeared no deeper than the level of the internal limiting membrane (ILM).

Optical coherence tomography (OCT) is a relatively new technique that allows high resolution imaging of ocular tissues and is excellent for visualising the posterior pole. The OCT images shown in Figure 4 are

valuable as they confirm that these crystalline opacities associated with chronic retinal detachment are located in the superficial retina, correlating the findings by others.^{3,4}

The exact aetiology of the 'crystals' is unknown. Some have postulated that they are associated with degenerating photoreceptors² and others have suggested that they represent firm adhesion points of vitreous to the lamellae of the ILM when the vitreous separates from the retina;³ however, neither of the cases reported in this paper had a clinical PVD. In the absence of extensive histological study, it is only possible to speculate about the exact cause and pathogenesis of this unusual phenomenon. The availability of OCT in these cases has confirmed the location of these crystalline opacities to be in the superficial retina.

References

- 1 Nadim F, Walid H, Adib J. The differential diagnosis of crystals in the retina. *Int J Ophthalmol* 2001; **24**(3): 113–121.
- 2 Cogan GD, Kuwabara T, Silbert J, Kern H, McMurray V, Hurlbut C. Calcium oxalate and calcium phosphate crystals in detached retinas. *AMA Arch Ophthalmol* 1958; **60**(3): 366–371.
- 3 Ahmed I, McDonald HR, Schatz H, Johnson RN, Ai E, Cruess AF *et al.* Crystalline retinopathy associated with chronic retinal detachment. *Arch Ophthalmol* 1998; **116**(11): 1449–1453.
- 4 Ciardella AP, Yannuzzi LA, Borodoker N, Mendoza C. Crystalline retinopathy associated with retinal dialysis and chronic retinal detachment. *Retina* 2002; **22**(3): 360–362.

N Narendran, R Asaria and R Haynes

Bristol Eye Hospital, Lower Maudlin Street,
Bristol BS1 2LX, UK

Correspondence: R Haynes,
Tel: +44 117 928 3115;
Fax: +44 117 928 4686.
E-mail: niro_narendran@hotmail.com

The authors have no proprietary interests in the work presented

Eye (2006) **20**, 843–845. doi:10.1038/sj.eye.6702015;
published online 5 August 2005

Sir, Transpupillary thermotherapy for subfoveal choroidal neovascular membrane in choroidal osteoma

Choroidal osteoma is a benign tumor, predominantly affecting young women. More than 50% patients end up with visual acuity of 6/60 or worse, primarily because of choroidal neovascularization (CNV). Conventional photocoagulation is rarely useful.¹ We successfully treated a subfoveal CNV in choroidal osteoma with transpupillary thermotherapy (TTT).

Case report

A 22-year-old woman presented with blurred vision in left eye for 12 days. Best-corrected visual acuity was 6/6 in the right eye, and 6/36 in the left. Systemic, serological, and urinary evaluations were unremarkable. Fundus examination showed an orange–white peripapillary subretinal lesion in both eyes, and a subfoveal CNV in the left eye (Figure 1a). Ultrasonography showed a high-echogenic lesion with acoustic shadowing (Figure 1b). Computed tomography

Figure 1 (a) Fundus photograph of the left eye showing peripapillary choroidal osteoma, with subfoveal choroidal neovascular membrane (CNV). (b) Combined A and B scan ultrasonogram of the left eye demonstrates high reflectivity of the osteoma, persisting at a low gain.