Eye (2008) 22, 165–167

www.nature.com/eye

Sir,

Anaesthesia in retinopathy of prematurity treatment

We read with interest the editorial on anaesthesia in retinopathy of prematurity (ROP).[1]

Hartrey suggests that laser treatment is stressful to the baby and thus requires more than minimal sedation. However, PRP, cataract surgery, and LASIK are all performed on adults with nothing more than topical anaesthesia without pain. Consequently, the neonate receiving treatment under appropriate sedation and analgesia is not being subjected to treatment that could not be tolerated by a conscious adult.

We agree that agents such as morphine and midazolam are associated with respiratory depression. We report our experience with incremental ketamine for ROP treatment.[2] Ketamine increases airway tone,[3] preserving airway patency and avoiding the need for intubation. It also provides analgesia and bronchodilatation. We feel that this technique may be particularly suited to babies at the highest risk of difficulty weaning from ventilation. We would therefore disagree with Hartrey that all neonates should be electively intubated and ventilated before laser treatment. Nevertheless, the ketamine technique is provided by an experienced paediatric anaesthetist, with resource implications.

We agree that safety of the neonates should remain paramount. While in some units, general anaesthetic may remain the preferred choice of anaesthetic we do not feel that the potential benefits of sedation with ketamine for both clinician and patient should be disregarded.

References

1 Hartrey R. Anaesthesia for the laser treatment of neonates with retinopathy of prematurity. *Eye* 2007; **21**(8): 1025–1027.

2 Lyon F, Dabbs T, O'Meara M. Ketamine sedation during the treatment of retinopathy of prematurity. *Eye* 2007; April 6 [e-pub ahead of print].

3 Murat I, Constant I, Maud'huy H. Perioperative anaesthetic morbidity in children: a database of 24,165 anaesthetics over a 30-month period. *Paediatr Anesth* 2004; **14**(2): 158–166.

F Lyon, T Dabbs and M O'Meara

Department of Ophthalmology, St James's University Hospital, Leeds, North Yorkshire, UK
E-mail: fionalyon@dsl.pipex.com

Eye (2008) **22,** 165; doi:10.1038/sj.eye.6703048; published online 23 November 2007

Sir,

Myelinated nerve fibres: a rare cause of recurrent vitreous haemorrhage

Myelinated nerve fibres (MNF) can be a rare cause of recurrent vitreous haemorrhage.

Case report

A 26-year-old lady with no previous medical problems presented with a 6-year history of left recurrent vitreous haemorrhages that resolved spontaneously. The left eye was amblyopic due to myopic anisometropia with vision of 1/60. Anterior segment examination showed a posterior subcapsular cataract and no rubeosis. Fundoscopy showed extensive MNF associated with telangiectasia (Figure 1a). The right eye examination was normal with visual acuity of 6/6.

Fluorescein angiography revealed large areas of retinal capillary closure, collateral circulation, disc

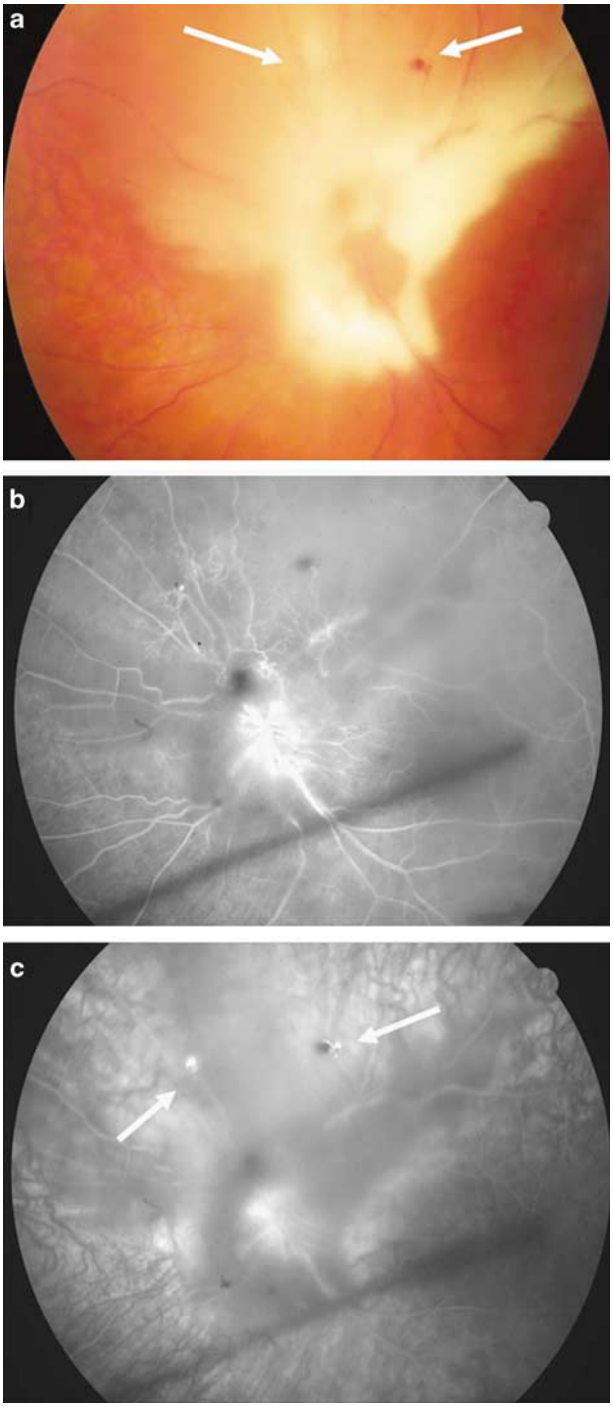

Figure 1 Myelinated nerve fibres and retinal vascular abnormalities. (a) Colour fundus photograph showing the telangiectasia and abnormal retinal vasculature (arrows) in association with the myelinated nerve fibres. (b) Fluorescein angiography (FFA) revealed large areas of retinal capillary closure and collateral circulation. (c) FFA (late films)—the disc neovascularisation (NVD) and telangiectasia (arrows) were more evident.

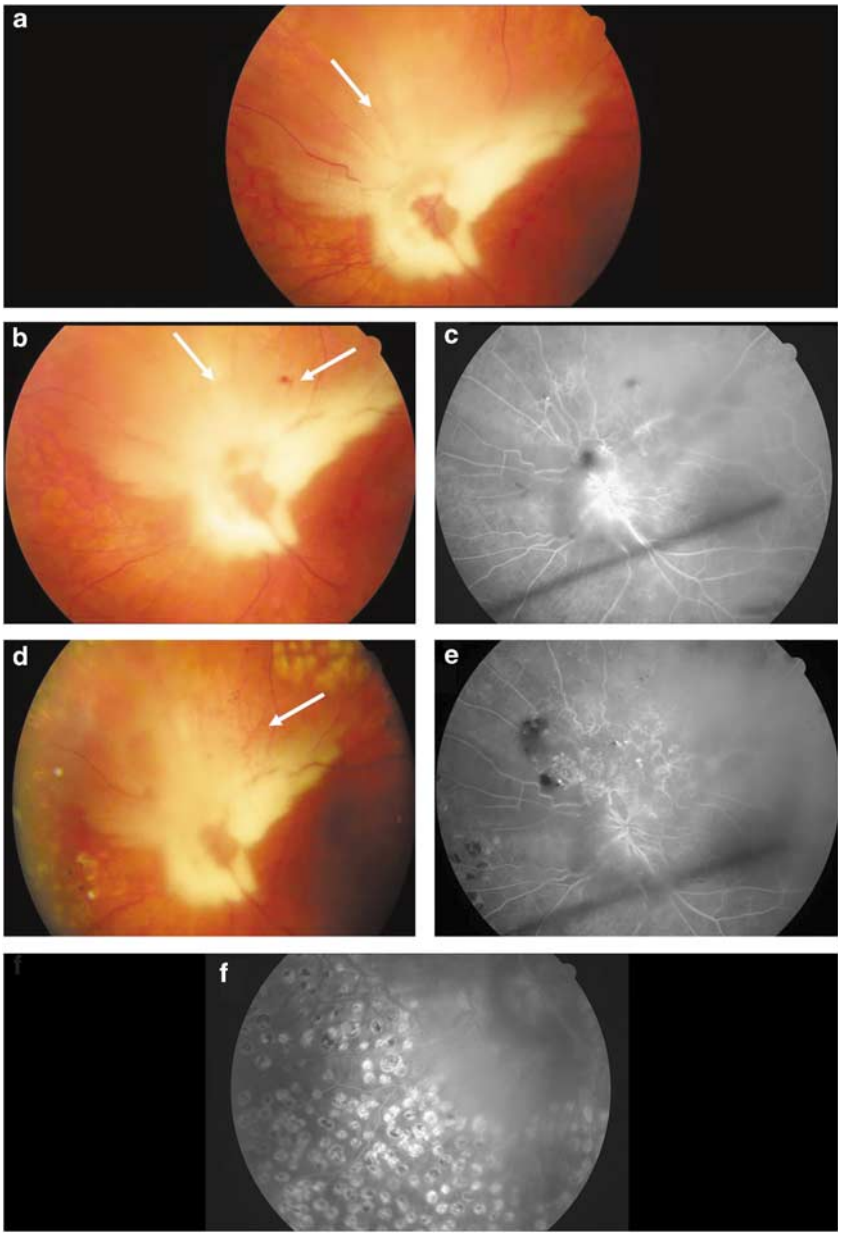

Figure 2 Serial yearly colour fundus photographs and FFA of the left eye. (a) Initial fundus photo showed a small telangiectasia adjacent to the myelinated nerve fibres (MNF) (arrows). (b) Progressive vascular changes (arrows) are evident but more striking on FFA (c), even after several laser sessions (d, e). (f) Peripheral fundus photograph shows the extent of panretinal photocoagulation. No laser marks are seen in the peripapillary region due to poor uptake of laser by the retinal pigment epithelium underneath the feathery partially translucent MNF.

neovascularisation (NVD), and telangiectasia, which appeared as bulb-like/saccular dilatations in the region affected by the MNF (Figure 1b and c). Argon laser panretinal photocoagulation was performed due to the repeated vitreous haemorrhages and presence of NVD angiographically. Serial yearly fundus photos showed the appearance of new telangiectasia and progressive changes in the vasculature, regardless of ongoing laser treatment (Figure 2). Despite several PRPs, the NVD have minimally regressed and the recurrent haemorrhages persist. The patient remains under review.

Comment

MNF are generally considered benign lesions[1–3] and are reported in 0.98% of the population.[1,2] However, occasionally they have been reported with other ocular problems including strabismus, nystagmus, coloboma, macular aplasia, amblyopia, keratoconus,[1,2] and epiretinal membranes.[4] Other associations are neurofibromatosis, Down's and Gorlin's syndromes, Marcus Gunn pupil,[1,2] and autosomal dominant vitreoretinopathy with skeletal malformations.[3,5]

MNF can rarely be associated with retinal vascular abnormalities.[1–5] The mechanism why MNF lead to

retinal ischaemia and secondary vascular changes is not known.[1,2] Theories of mechanical disruption of the retinal vasculature by the surrounding myelin[2] or a localised ischaemic process as a result of the excess cells in the area of myelination[1] have been suggested. Myelination of the retinal nerve fibres, on account of their increased diameter and enhanced metabolic activity, compete for available oxygen in the tissue producing relative ischaemia. Once the inner retinal ischaemia occurs, the mechanism of neovascular activity behaves the same as in proliferative diabetic retinopathy, other vaso-occlusive disorders (eg, branch retinal vein occlusion, sickle cell disease) and other telangiectactic conditions (eg, Coat's disease), possibly due to the local release of angiogenic factors like vascular endothelial growth factor (VEGF). A review of the literature[1–5] highlights the following common characteristics in patients presenting with vitreous haemorrhage in association with MNF:

(a) age less than 50 years
(b) *invariable* presence of NVD angiographically
(c) widespread MNF extending over several disc areas
(d) no retinal vascular abnormality in the fellow eye and
(e) unremarkable medical history.

Generally, the vitreous haemorrhages were self-limiting and cleared spontaneously on most occasions. Rubeosis was not a reported complication.

As this condition is rare, experience with laser photocoagulation is limited. Only few of the reported symptomatic patients had laser treatment.[1–3] In some patients, this seemed to control the vitreous haemorrhage with[2] or without[1] regression of the NVD, while in others recurrent vitreous haemorrhages persisted despite multiple laser treatments.[3] Only one patient required vitrectomy to clear the dense haemorrhage.[3] The role of anti-VEGF treatment in this condition has not been explored yet.

Our patient was examined regularly as a child as she was undergoing occlusion therapy. Although the MNF were noted, the microvascular abnormalities were absent then. This case illustrates that the vascular abnormalities are not necessarily present at birth or childhood but can gradually evolve at a later stage. It is important to be familiar with the rare association of MNF and vitreous haemorrhage to lessen the risk of misdiagnosis[1,2] and to avoid unnecessary investigations especially since symptomatic patients tend to present at a young age.

References

1 Silvestri G, Sehmi K, Hamilton P. Retinal vascular abnormalities. A rare complication of myelinated nerve fibers? *Retina* 1996; **16**: 214–218.
2 Minning CA, Davidorf FH. Neovascularization associated with myelinated nerve fibers: a case report. *Ann Ophthalmol* 1983; **15**: 1142–1144.
3 Leys AM, Leys MJ, Hooymans JM, Craandijk A, Malenfant M, van Germeersch D *et al*. Myelinated nerve fibers and retinal vascular abnormalities. *Retina* 1996; **16**: 89–96.
4 Karadimas P, Kapetanios A, Panayotidhou E, Bouzas EA. Epiretinal membrane occurring with myelinated retinal nerve fibers and vascular abnormalities. *Retina* 2003; **23**: 880–881.
5 Mehta JS, Raman J, Gupta N, Sinha A. Retinal vascular anomalies in acquired myelinated nerve fibres. *Acta Ophthalmol Scand* 2003; **81**: 311–312.

A Berry-Brincat and S Shafquat

Department of Ophthalmology, Dudley Guest Hospital, Dudley, UK
E-mail: aberrybrincat@hotmail.com

Proprietary interest: None
Competing interest: None
Funding: None

Eye (2008) **22,** 165–167; doi:10.1038/sj.eye.6703002; published online 9 November 2007