3 Schilling H, Sauerwein W, Lommatzsch A *et al*. Long-term results after low dose ocular irradiation for choroidal hemangiomas. *Br J Ophthalmol* 1997; **81**: 267–273.
4 Zografos L, Egger E, Bercher L, Chamot L, Munkel G. Proton beam irradiation of choroidal hemangiomas. *Am J Ophthalmol* 1998; **126**: 261–268.
5 Madreperla SA. Choroidal hemangioma treated with photodynamic therapy using verteporfin. *Arch Ophthalmol* 2000; **119**: 1606–1610.
6 Cohen VM, Rundle PA, Rennie IG. Choroidal hemangiomas with exudative retinal detachments during pregnancy. *Arch Ophthalmol* 2002; **120**: 862–864.
7 Gupta M, Singh AD, Rundle PA, Rennie IG. Efficacy of photodynamic therapy in circumscribed choroidal hemangioma. *Eye* 2004; **18**: 139–142.
8 Robertson DM. Photodynamic therapy for choroidal hemangioma associated with serous retinal detachment. *Arch Ophthalmol* 2002; **120**: 1155–1161.
9 Schmidt-Erfurth UM, Michels S, Kusserow C, Jurklies B, Augustin AJ. Photodynamic therapy for symptomatic choroidal hemangioma: visual and anatomic results. *Ophthalmology* 2002; **109**: 2284–2294.

AD Singh[1,2], PA Rundle[1], SJ Vardy[3] and IG Rennie[1,4]

[1]Department of Ophthalmic Oncology
Cole Eye Institute (i3-129)
Cleveland Clinic Foundation, Cleveland USA

[2]Department of Ophthalmology
Royal Hallamshire Hospital, UK

[3]Peterborough District Hospital, Peterborough, UK

[4]Department of Ophthalmology,
University of Sheffield, UK

Correspondence: AD Singh
Tel: +1 216 444 0430
Fax: +1 216 445 7654
E-mail: ArunSingh@Eyetumors.Com

Eye (2005) **19,** 365–367. doi:10.1038/sj.eye.6701474
Published online 30 July 2004

Sir,

Severe bilateral posterior ischemic optic neuropathy as a complication of spinal surgery

Posterior ischemic optic neuropathy (PION) is a rare but visually devastating complication of surgery. PION has been reported following many different procedures, including spinal surgery, liver transplantation, hip replacement, and peritoneal dialysis.[1–4] We report a case of severe bilateral PION following spinal surgery.

Case report

A 55-year-old white female underwent spinal fusion surgery for spondylosis at the level of L4–L5 and L5–S1 vertebrae for severe persistent back and leg pain. Her past medical history was significant for osteoarthritis and mitral valve prolapse with no significant ophthalmic problem. The procedure was performed in the prone position with her head supported by a rest designed to avoid direct pressure on the face. The operative course was complicated and longer than expected, lasting $11\frac{1}{2}$ hours. Intraoperatively her haematocrit fell from 42.1 to 27.3. The mean arterial pressure during the case was maintained between 60 and 100 mmHg, with the majority of time being between 65 and 75 mm of Hg.

Upon recovery from surgery, the patient reported an inability to see with either eye. Initial examination revealed no light perception (NLP) in both eyes. Pupils were symmetric at 6 mm with poor reaction bilaterally. There was a slight left afferent pupillary defect (APD). External exam was unremarkable except for mild bilateral periorbital oedema. Dilated examination revealed a normal fundus bilaterally. No disc swelling, haemorrhages, or pallor was detected. High-dose IV dexamethasone was administered, and immediate CT scan of her head and subsequent MRI/MRA of the head with and without contrast were unremarkable. The patient was started on IV Solumedrol.

She had recovered light perception (LP) in her right eye but remained NLP in her left eye 36 h after surgery. Serial examinations over the following months revealed progressive pallor to both optic nerves. At 2 months after the initial episode, the Goldmann visual field revealed only a small island of vision in the superotemporal quadrant of her right eye (Figure 1 inset).

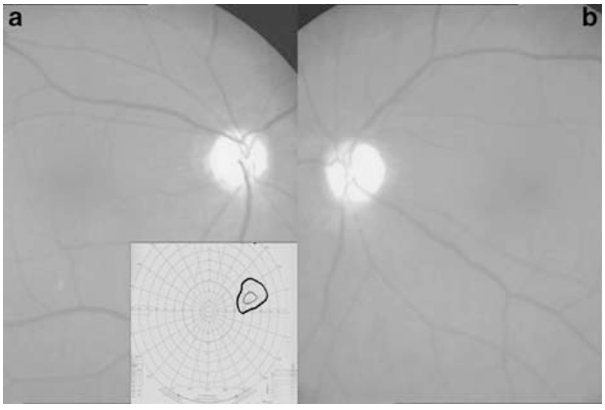

Figure 1 Fundus photograph after 12 months postoperative reveals marked optic nerve pallor in both eyes. (**inset**) Goldmann visual field chart after 2 months of the right eye showing a small island in the superotemporal quadrant.

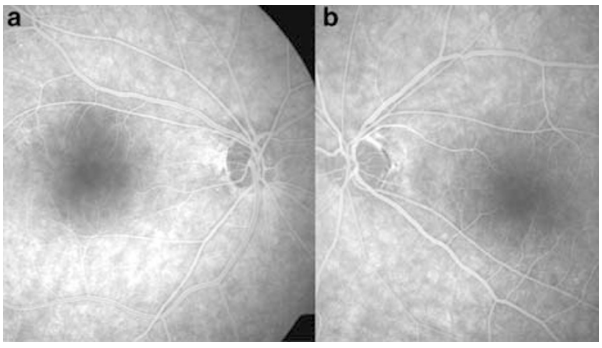

Figure 2 Fluorescein angiography at 1 year showing marked optic disc hypoperfusion with arterial attenuation.

Her visual acuity, 1 year after the original surgery, was hand motion (HM) in her right eye and NLP in her left eye with preservation of a slight left APD. Fundoscopic examination showed bilateral optic nerve head pallor and arteriolar attenuation (Figure 1). Fluorescein angiography revealed marked hypoperfusion of the disc in both eyes (Figure 2).

Discussion

This patient suffered intraoperative bilateral PION. This rare but devastating complication has been reported on a handful of occasions following spinal surgery. A significant reduction in haematocrit and prolonged intraoperative hypotension resulting in compromised systemic arterial perfusion pressure are significant risk factors.[5] The other theory of pathogenesis worth considering is local obstruction of venous flow resulting in raised orbital venous pressure.[6] Postoperatively, facial oedema has been present in a significant percentage of cases. Therefore, patient positioning with avoidance of pressure on the globe are important in preventing PION.

We report a case of severe bilateral PION as a result of a spinal surgery. We feel it is important to illustrate this case, as this rare but devastating complication could potentially be avoided. We recommend careful haematocrit and blood pressure monitoring during prolonged spinal cases. Also, proper patient positioning with avoidance of pressure on the globe may help reduce the incidence of PION.

References

1 Stevens WR, Glazer PA, Kelley SD, Lietman TM, Bradford DS. Ophthalmic complications after spinal surgery. *Spine* 1997; **22**: 1319–1324.
2 Janicki PK, Pai R, Kelly WJ, Chapman WC, Wright PC. Ischemic optic neuropathy after liver transplantation. *Anesthesiology* 2001; **94**: 361–363.
3 Jackson TL, Farmer CK, Kingswood C, Vickers S. Hypotensive ischemic optic neuropathy and peritoneal dialysis. *Am J Ophthalmol* 1999; **128**: 109–111.
4 Hollenhorst RW, Svien HJ, Benoit CF. Unilateral blindness occurring during anesthesia for neurosurgical operations. *Am Arch Opthalmol* 1954; **52**: 819–830.
5 Dunker S, Hsu HY, Sebag J, Sadun AA. Perioperative risk factors for posterior ischemic optic neuropathy. *J Am Coll Surg* 2002; **194**: 705–710.
6 Williams EL, Hart WM, Tempelfhoff R. Postoperative ischemic optic neuropathy. *Anesth Analg* 1995; **80**: 1018–1029.

KV Chalam and VA Shah

Department of Ophthalmology
University of Florida College of Medicine
Jacksonville, FL 32209, USA
Correspondence: VA Shah
Department of Ophthalmology, 580 W 8th Street
Jacksonville, FL 32209, USA
Tel: +1 904 244 9361
Fax: +1 904 244 9391
E-mail: drvinayshah@hotmail.com

Proprietary Interest: None.

Eye (2005) **19,** 367–368. doi:10.1038/sj.eye.6701482
Published online 23 July 2004