

identified using a headlight and nasal speculum and the tampon, smeared with a lubricant ointment, is directed along the floor of the nasal cavity beneath the inferior turbinate. The tampon can easily be cut and reduced in size for use in infants. We also routinely insert a nasal tampon after harvesting nasal septal cartilage for lid reconstruction.

Once the tampon is in position, a blunt-tipped lacrimal cannula on a 2 ml syringe containing 4% cocaine solution is inserted into the nose along the superior border of the tampon to its tip (Fig. 2). The cocaine solution is then slowly injected as the cannula is gradually withdrawn from the nose. The tampon rapidly softens and expands, filling the nasal cavity. Normal saline is used instead of cocaine following harvesting of septal cartilage. The nasal tampon can easily be removed, after being moistened, by gentle traction on the attached suture.

We leave the tampon (expanded with cocaine) in the nasal cavity for a minimum of 10 minutes before removal for the purpose of dacryocystorhinostomy, insertion of stents or before harvesting nasal cartilage. In the case of a tampon (expanded with normal saline) used for the purpose of controlling epistaxis following harvesting of nasal septal cartilage we leave it in place for 24 hours. If there is significant epistaxis following removal, a fresh tampon can easily be reinserted and left in place for a further 24 hours.

### Results

We have used this technique in a total of 52 patients and have not encountered any difficulties or complications from the use of the device to date. Vasoconstrictors are efficiently delivered to the correct anatomical location resulting in very good decongestion and vasoconstriction pre-operatively, and good control of epistaxis by effective tamponade intra-operatively and post-operatively.

### Discussion

The Merocel nasal tampon is widely used for the management of epistaxis by ENT surgeons. The tampon has been reported to be very useful in pre-operative nasal mucosal decongestion and vasoconstriction and in the control of epistaxis (post-operative or spontaneous). It has been found to fulfil the criteria of ease of insertion and removal, ability to fill the nasal cavity, and production of enough pressure to control and prevent bleeding without macerating the nasal mucosa.<sup>1</sup>

The nasal tampon can also be used in patients developing significant epistaxis following dacryocystorhinostomy, though we have not encountered such a situation.

Our experience with the nasal tampon has been very favourable and we have been very impressed by the ease of insertion and removal. Gauze strips are most readily available and widely used, but they are difficult to insert into the nose, too porous, and traumatic to the nasal mucosa when being removed. For the control of post-operative epistaxis several types of nasal balloons have been described. They are cumbersome and difficult to use.<sup>2</sup>

Toxic shock syndrome, though rare, is a recognised complication of any form of nasal packing. It has been found that the Merocel nasal tampon is the least likely form of nasal packing to produce this complication.<sup>3</sup>

We would advise the use of this form of nasal tamponade, for its significant advantages, in place of the traditional gauze strips.

Merocel is a registered trademark of Merocel Corp., Mystic, CT, USA.

R. Sampath, FRCS, FRCOphth  
J. L. Noble, FRCS, FRCOphth  
B. Leatherbarrow, FRCS, FRCOphth

Manchester Royal Eye Hospital  
Oxford Road  
Manchester M13 9WH  
UK

### References

1. Doyle DE. Anterior epistaxis: a new nasal tampon for fast effective control. *Laryngoscope* 1986;96:279–81.
2. Doyle DE, Stoller KP. Intranasal airway/pack: description of a new device. *Laryngoscope* 1983;93:808–9.
3. Breda SD, Jacobs JB, Lebowitz AS, Tierno PM Jr. Toxic shock syndrome in nasal surgery: a physiochemical and microbiologic evaluation of Merocel and Nugauze nasal packing. *Laryngoscope* 1987;97:1388–91.

Sir,

### Vitreous Haemorrhage after Hyperbaric Oxygen Therapy

We report a case of vitreous haemorrhage noticed immediately after treatment with hyperbaric oxygen therapy.

### Case Report

A 37-year-old man with type 1 diabetes mellitus, treated with insulin for 17 years, suffered from diabetic foot ulcers and proliferative retinopathy. At presentation he had a vitreous haemorrhage in the right eye and neovascularisation in the left. He underwent right-sided vitrectomy and extensive panretinal photocoagulation to the left eye. Over the same period he had several exposures to hyperbaric oxygen to assist resolution of his foot ulcers.<sup>1</sup>

Neovascular fronds in the left eye did not resolve completely and further laser treatment was planned when he was readmitted with a breakdown of his foot ulcers. Hyperbaric treatment (one 20 minute and two 15 minute periods of 100% O<sub>2</sub> at 2.4 ATA with 3 minute air breaks) was undertaken in conjunction with surgical treatment of his recurrent foot ulcers. Within a few minutes of completing the eighth treatment in this course the patient noticed clouding of vision in his left eye. Examination showed a fresh vitreous haemorrhage obscuring the visual axis. This vitreous haemorrhage cleared spontaneously and further laser treatment was applied. To date the patient retains a visual acuity of 6/9 in this eye. A follow-up fluorescein angiogram now shows no leak with a few mature loops of neovascularisation.

### Discussion

Was this vitreous haemorrhage a coincidence or had the hyperbaric oxygen exposure affected the patient's retinal vasculature in some way? Elevated arteriolar oxygen tensions are known to cause retinal vasoconstriction in this autoregulated circulation, but this reactivity has been shown to be markedly decreased in hypertension and in diabetes. Arteriolar vasoconstriction on breathing 100% oxygen was decreased from 11.5% in normal subjects to approximately 3% in both hypertensive and diabetic subjects using fundus photography for measurement.<sup>2</sup> Laser Doppler techniques have shown that in normal subjects 5 minutes of 100% oxygen breathing produces a 63% decrease in retinal blood flow, while in diabetic patients blood flow decreases by only 36%.<sup>3</sup> It has also been shown that this lack of reactivity to oxygenation is partially dependent on the blood sugar concentration at the time and that restoration of blood sugar level to normal values will improve retinal reactivity.<sup>4</sup>

If vasoconstriction in the presence of hyperoxia is a protective response, either against oxygen-driven free radical damage or against the shear and circumferential stresses of increased blood flow,<sup>4</sup> then as diabetics are deficient in this response, the fragile neovascular fronds of proliferative retinopathy may be being placed at risk of haemorrhage when treated with hyperbaric oxygen. As a precaution we have adopted the procedure in our chamber whereby all patients with proliferative or pre-proliferative diabetic changes have their blood sugar levels normalised at the time of treatment and any hypertension controlled.

P. J. McCartney, FRACO, FRACS, FRCOphth  
P. W. McCartney, M.Med (Anaes), DDM

Royal Hobart Hospital  
GPO Box 1317  
GPO  
Hobart TAS 7001  
Australia

### References

1. Baroni G, Porro T, Faglia E, *et al.* Hyperbaric oxygen in diabetic gangrene treatment. *Diabetes Care* 1987;10:81-6.
2. Sieker HO, Hickam JB. Normal and impaired retinal vascular reactivity. *Circulation* 1953;7:79-83.
3. Grunwald JE, Riva CE, Petrig BO, *et al.* Effect of pure O<sub>2</sub> breathing on retinal blood flow in normals and in patients with background diabetic retinopathy. *Curr Eye Res* 1984;3:239-41.
4. Kohner EM. The effect of diabetic control on diabetic retinopathy. *Eye* 1993;7:309-11.

Sir,

**Epi-retinal Membranes Presenting in Two Young Adults with Evidence of Persistent Primary Vitreous**  
Two males of 19 and 24 years presented with unocular epi-retinal membranes and evidence of persistent primary vitreous with a 'Mittendorf's dot' and 'Bergmeister's papilla' in the involved eye. There was no history of previous eye disease. There was little subjective or objective

disturbance of visual function. Results of fundal examination and fluorescein angiography were otherwise normal. Such idiopathic epi-retinal membranes are uncommon in young persons and are believed to be of a different aetiology from those occurring in older people, being thought to represent persistence of embryonic material. The occurrence of persistent primary vitreous remnants in the involved eyes of these cases supports this view.

### Case Reports

*Case 1.* A 19-year-old male was referred by his general practitioner to the Eye Department complaining of mild headaches and intermittent blurring of the vision in the right eye since falling through a plate-glass window. He had sustained a small laceration to the right zygoma region but there had been no other trauma to the face or eyes. He was generally fit and well.

Examination showed unaided acuities of 6/6 right and 6/5 left. There was no perceived abnormality on observing an Amsler chart. Colour vision was normal using Ishihara plates and visual fields were full to confrontation. The right eye showed a mild opacity on the central posterior surface on the posterior capsule (Mittendorf's dot). The posterior hyaloid membranes remained attached in both eyes. There was a striking membrane overlying the supero-temporal retina and glial tissue on the right disc. There was no underlying macular pucker or distortion of the retinal vasculature, although there was some fine surface wrinkling of the highly reflective inner limiting membrane of the retina (Figs. 1, 2). There were no abnormalities of the left globe. Fluorescein angiography showed no underlying retinal abnormalities (Fig. 3). The membrane was not visible during angiography and therefore transparent to blue/green light.

*Case 2.* A 24-year-old male was referred to the Eye Clinic by his general practitioner complaining of gradual deterioration of the vision in the right eye. There was no past ocular history, no relevant family history and he was generally well.

Examination showed unaided acuities of 6/12 right (improving to 6/6 part with refraction) and 6/6 left. There was no perceived abnormality on viewing an Amsler chart. Colour vision was normal using Ishihara plates and there was no visual field defect on confrontation testing. There was a marked Mittendorf's dot in the right eye. The posterior hyaloid membranes remained attached in both eyes. There was some tissue overlying the right disc extending anteriorly (Bergmeister's papilla) and a membrane overlying the right macula (Figs. 4, 5). There were no underlying retinal abnormalities evident on funduscopy or fluorescein angiography (Fig. 6) and the membrane did not appear to block background choroidal fluorescence.

### Discussion

These two cases show unilateral idiopathic epi-retinal membranes. The absence of retinal exudates and peripheral avascular changes characteristic of 'familial exuda-