

### Case report

A 73-year-old lady was referred complaining of a 2-month history of reduced central vision in the right eye. Her left vision had been poor since childhood and she had not noticed a change. She was hypermetropic with spherical equivalents of +7.00 OD and +6.50 OS, and had blue sclera secondary to osteogenesis imperfecta type 1.

Examination revealed LogMAR acuities of 0.46 OD and 0.90 OS. Blue sclera was noted in both the eyes (Figures 1a and b) together with nuclear sclerotic cataract and bilateral FTMH (Figures 1c and d).

The amblyopic left eye had initial surgery in order to assess possible technical difficulties associated with the blue sclera and high hypermetropia. The left eye underwent 20 g combined phaco-vitreotomy, inner limiting membrane peel, 20% C<sub>2</sub>F<sub>6</sub> gas tamponade and she postured face down for 5 days. Following successful closure of the left macular hole (Figure 1f) she underwent a similar procedure to the right eye but with 23 g instrumentation leading to successful closure of the right macula hole (Figure 1e). Postoperative corrected LogMAR acuities were 0.16 OD and 0.94 OS.

The patient's 46 year-old son, who had been registered blind since childhood was also examined. He did not have blue sclera but had a circular foveal abnormality bilaterally with punched-out retinal defects on OCT that have been described in cone dystrophy and Stargardt disease (Figures 1g and h).

### Comment

Osteogenesis imperfecta is an inherited connective tissue disorder resulting from deficiency of type 1 collagen. The main ocular manifestation is blue sclera that has been shown to be associated with reduced scleral rigidity<sup>1</sup> and it has been proposed that this may lead to increased susceptibility to retinal detachment<sup>2</sup> and retinal haemorrhage.<sup>3</sup> Our literature search did not reveal any reported association with FTMH.

Vitreotomy surgery in patients with blue sclera secondary to osteogenesis imperfecta has been described in the treatment of retinal detachment<sup>4</sup> and vitreous opacities,<sup>5</sup> the latter employing 25 g sutureless vitrectomy. We describe the treatment of FTMHs in such a patient, employing both 20 and 23 g vitrectomy. Ports were sutured in both the 20 and 23 g procedures as the surgeon (PRS) felt that the lack of scleral rigidity and thinness did not allow self-sealing of scleral tunnels. No operative complications were encountered.

### Conflict of interest

The authors declare no conflict of interest.

### References

1 Kaiser-Kupfer MI, Podgor MJ, McCain L, Kupfer C, Shapiro JR. Correlation of ocular rigidity and blue sclerae in osteogenesis imperfecta. *Trans Ophthalmol Soc UK* 1985; **104**: 191–195.

- 2 Madigan WP, Wertz D, Cockerham GC, Thach AB. Retinal detachment in osteogenesis imperfecta. *J Pediatr Ophthalmol Strabismus* 1994; **31**: 268–269.
- 3 Ganesh A, Jenny C, Geyer J, Shouldice M, Levin AV. Retinal hemorrhages in type 1 osteogenesis imperfecta after minor trauma. *Ophthalmol* 2004; **111**: 1428–1431.
- 4 Elliott D, Rezai KA, Bawa Dass A, Lewis J. Management of retinal detachment in osteogenesis imperfecta. *Arch Ophthalmol* 2003; **121**: 1062–1064.
- 5 Unver YB, Acar N, Altan T, Kapran Z, Ozturk G. 25-Gauge sutureless vitrectomy in osteogenesis imperfecta type 1. *Retin Cases Brief Rep* 2009; **3**: 286–287.

JD Benzmira, B Kapoor, N Edmeades, A Burger and PR Simcock

West of England Eye Unit, Royal Devon and Exeter Hospital, Exeter, UK  
E-mail: james\_benzmira@hotmail.com

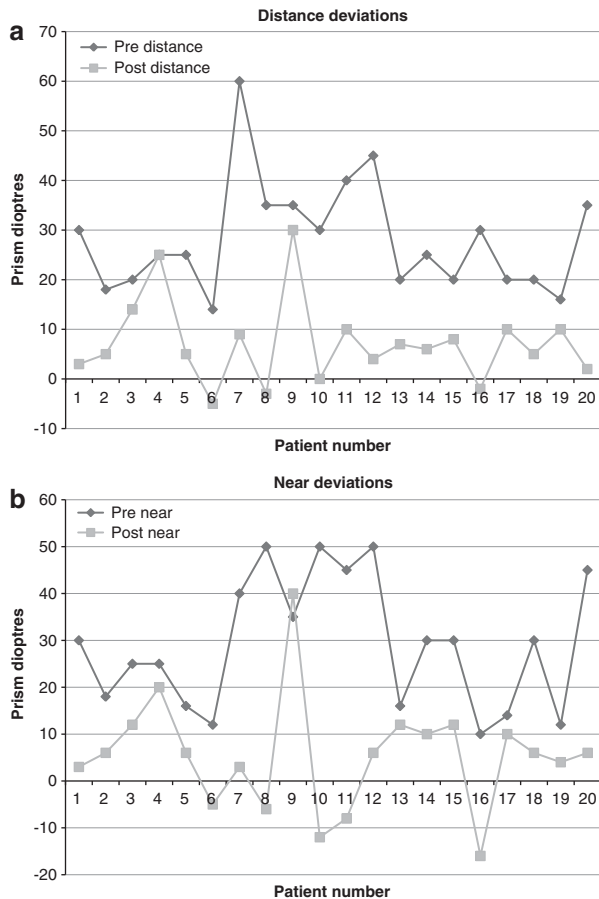
*Eye* (2012) **26**, 1023–1024; doi:10.1038/eye.2012.63;  
published online 13 April 2012

### Sir, Paediatric adjustable strabismus surgery

We commend Nihalani and Hunter<sup>1</sup> on an excellent review of the adjustable suture strabismus surgery literature, especially with regard to paediatric squints. As the authors mention, the benefits of adjustable sutures have been demonstrated in both adults and children, although there is a general reluctance in attempting this technique in children owing to the perception that it would not be tolerated by the patient.

Between 2007 and 2010, our experience of adjustable suture use in a paediatric population aged between 8–15 years (mean 12.3 years old) reflects the benefits of this technique. Our current practice involves a hangback technique with a 6/0 vicryl adjustable, slip-knot tie, followed by sub-Tenon's levobupivacaine (5 mg/ml). Within 2–3 h of recovery from general anaesthesia, topical tetracaine hydrochloride 1% is instilled and a prism cover test is performed. The suture is adjusted as required and the conjunctiva closed with 8-0 vicryl in the treatment room. Ninety-five percent (20/21) of our paediatric patients were able to tolerate this technique, with only one requiring a second general anaesthetic. The vast majority (90%) had a resultant angle < 10 prism dioptres (Figure 1).

While we agree that a certain amount of experience is required with adjustable sutures for this population, we feel the most important factor is suitable patient selection and thorough preoperative counselling of both the patient and the parents. We find that with suitable scrutiny it is possible to identify those who will tolerate the adjustment, such that the surgeon should not feel intimidated by the prospect of adjustment in this group of patients.



**Figure 1** Preoperative and postoperative angle of deviation for (a) distance and (b) near.

### Conflict of interest

The authors declare no conflict of interest.

### Reference

- 1 Nihalani BR, Hunter DG. Adjustable suture strabismus surgery. *Eye* 2011; **25**: 1262–1276.

A Mokashi<sup>1</sup>, RE Stead<sup>1</sup> and J Stokes<sup>2</sup>

<sup>1</sup>Department of Ophthalmology, Nottingham University NHS Trust, Queens Medical Centre, Nottingham, UK

<sup>2</sup>Department of Ophthalmology, Waterford Regional Hospital, Waterford, Ireland  
E-mail: aamokashi@googlemail.com

The material was presented in the rapid fire presentations section of the Irish College of Ophthalmologists Annual Meeting, Dublin 2010.

*Eye* (2012) **26**, 1024–1025; doi:10.1038/eye.2012.64; published online 13 April 2012

Sir,  
**Reply to Mokashi *et al***

We thank Mokashi *et al*<sup>1</sup> for their interest in our review article<sup>2</sup> and for sharing their outcomes of awake suture adjustment in older children aged 8–15 years. Their outcomes seem comparable to ours,<sup>3</sup> though they do not specify whether any of their procedures were performed on vertical muscles. We agree that suitable patient selection and preoperative counselling help determine the success of awake adjustment in older children. We informally identify children who will not cooperate in suture adjustment using the ‘teddy bear sign’: older children who arrive at the preoperative holding area clinging to a teddy bear (or other soft toy) are probably going to require a sedated adjustment. It is important to reassure children (and adults) beforehand that if adjustment is required, they may feel some pulling but will not feel sharp pain. It is also helpful to communicate continuously during the adjustment procedure to reassure them that all is well and to inform them in advance what is going to happen next.

While patient selection may be important for awake suture adjustment in children, in our practice we offer adjustable sutures to patients of any age, regardless of whether they might be able to cooperate in adjustment. All paediatric adjustable suture patients are kept NPO until the postoperative assessment. A significant advantage of the short tag noose technique is that patients who have satisfactory alignment may be discharged home without need for any postoperative suture manipulation. If adjustment is required and sedation is needed, our anaesthesia and nursing staff in the post-anaesthesia care unit are capable of sedating the child at the bedside to allow for suture adjustment without the need for return to the operating room, which enormously simplifies the logistics. In this manner we are able to use the adjustable suture technique in appropriate candidates of any age, understanding that the youngest children (and older children with a positive teddy bear sign) will need a second stage of anaesthesia at the bedside, but only if postoperative adjustment is required.

### Conflict of interest

The authors declare no conflict of interest.

### References

- 1 Mokashi A, Stead RE, Stokes J. Paediatric adjustable strabismus surgery. *Eye* 2012; **26**(7): 1024–1025.
- 2 Nihalani BR, Hunter DG. Adjustable suture strabismus surgery. *Eye* 2011; **25**: 1262–1276.
- 3 Nihalani BR, Whitman MC, Salgado CM, Loudon SJ, Hunter DG. Short tag noose for optional, late suture adjustment in strabismus surgery. *Arch Ophthalmol* 2009; **127**: 1584–1590.