

References

- 1 Johnson M, Jones A, Tickner J. Response to 'An economic comparison of hospital-based and community-based glaucoma clinics'. *Eye* 2012; **26**(11): 1493.
- 2 Sharma A, Jofre-Bonet M, Panca M, Lawrenson JG, Murdoch I. An economic comparison of hospital-based and community-based glaucoma clinics. *Eye* 2012; **26**: 967–971.
- 3 What community-based optical practices can offer healthcare commissioners and patients. http://www.aop.org.uk/uploads/uploaded_files/napc_joint_proposal_april_2008.pdf (accessed 2 June 2012).

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Sir,

An unexpected complication of behavioural vision therapy

Behavioural vision therapy is a branch of optometry that attempts to improve visual efficiency through the prescription of treatments such as hand-eye co-ordination activities. Here we report an unfortunate adverse event associated with such therapy.

Case report

A 43-year-old female, presented to the Gold Coast Hospital, Queensland suffering a large, vertical, ragged, and shelved corneal laceration, which occurred while assisting her son to perform a behavioural vision therapy exercise. The vision therapy task belonged to a group of vision therapies known as 'visual-motor integration' activities, promoted for the treatment of reading dysfunction. To perform the exercise, the patient is instructed to attach a tennis ball to a string (via a hook previously screwed into the tennis ball) and hang the string from the ceiling. The task for the patient's son was to gently strike the ball with a wooden rolling pin, which is ringed by coloured bands. Using different sequences of colours, the ball is hit towards a target held by his mother. During the activity, the tennis ball came free of the screw, and the screw (still attached to the string) recoiled against the patient's right eye.

Surgical repair was undertaken and at the most recent review, 1 month following the initial injury, pinhole visual acuity was R 6/18.

Comment

Behavioural optometry is concerned with visual dysfunction that proponents believe can exist despite the presence of good visual acuity, no refractive error or ocular disease, normal accommodation, normal binocular vision, and normal ocular motility.¹ Examples of behavioural vision therapy tasks include hand-eye co-ordination activities, coloured overlay lenses, trampolines, or balance boards. A recent critical appraisal of vision therapy by Barrett² found no significant evidence to support the vast majority of behavioural management approaches advocated by behavioural optometrists, a similar finding to an earlier review by Jennings, 2000.³

Our patient was unfortunate to suffer a severe penetrating eye injury while helping her son perform a task of uncertain benefit to his visual development. Any equipment used for such exercises should be as safe as possible to minimise the potential harms of therapy. The use of exercises in which balls are propelled at against a flat surface should be certainly be appraised in this light.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Scheiman M. *Understanding & Managing Vision Deficits: A guide for Occupational Therapists*. 2nd edn. Slack Inc: Philadelphia, 2002.
- 2 Barrett B. A critical evaluation of the evidence supporting the practice of behavioural vision therapy. *Ophthalmic Physiol Opt* 2009; **29**: 4–25.
- 3 Jennings J. Behavioural optometry - a critical review. *Optom Pract* 2000; **1**: 67–78.

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Sir,

Snailtrack corneal changes following subconjunctival injection of 5-fluorouracil

We report snailtrack-like corneal changes occurring after subconjunctival injection of 5-fluorouracil (5-FU) around a trabeculectomy bleb.

Case report

A 50-year-old male with advanced glaucoma underwent an uncomplicated right-sided trabeculectomy,

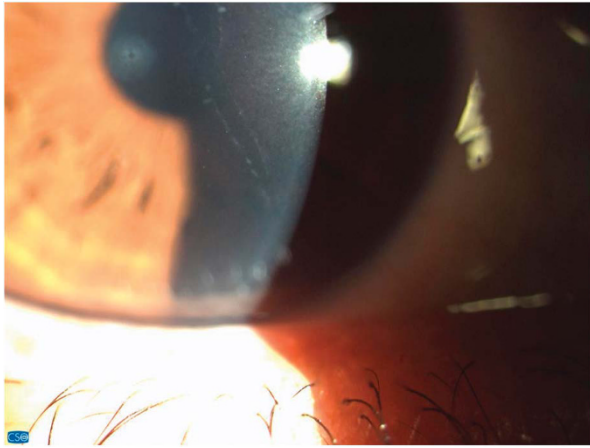


Figure 1 Anterior segment photograph of the right eye, showing snailtrack-like corneal changes.

with mitomycin C augmentation. Two months postoperatively, the right visual acuity (RVA) was 6/6, but the intraocular pressure (IOP) had risen to preoperative levels. Bleb needling was performed, with subconjunctival injection of 5-FU at 2 o'clock and 10 o'clock to the bleb. One week later, RVA was 6/7.5. New snailtrack-like corneal changes were noted in this eye (Figure 1), whereas the left cornea remained entirely normal. Six months after bleb modulation, the patient's IOP has improved but the unilateral corneal changes persist.

Comment

Corneal 'snailtracks' (white-grey streaks at the level of the corneal endothelium), may act as markers of endothelial cell damage.¹ Subconjunctival injection of 5-FU in proximity to the bleb following glaucoma filtration surgery is commonly employed to sustain good IOP control postoperatively. However, 5-FU has toxic effects on the corneal endothelium in animal studies.² Uncomplicated subconjunctival injections of 5-FU are unlikely to harm the endothelium, as drug concentrations in the anterior chamber after injection remain low.³ However, case reports describe potential endothelial damage following inadvertent passage of 5-FU into the anterior chamber.⁴ Although corneal oedema is a recognised manifestation of such toxicity, the appearance of snailtrack-like corneal changes has not previously been reported. We hypothesise that snailtracks seen clinically would appear as dark, excavated lines on the corneal endothelium on specular microscopy, corresponding to linear ruptures of endothelial cells as seen in certain corneal dystrophies. Compromised endothelial cell function may lead to increased propensity to develop corneal oedema on exposure to provoking factors. Our finding leads us to support the view of Khaw *et al*,⁵ who in a letter to *Eye* some years ago, advised caution when injecting 5-FU directly into the bleb. The authors raised concerns about the potential for 5-FU to enter the anterior chamber via a patent sclerostomy. We would also caution against

injecting directly above the bleb, where the effects of gravity may encourage downward flow of 5-FU directly into the anterior chamber, and would advise injecting lateral to the bleb instead. Our patient provides a good example of the potential consequences of unintentional intraocular exposure to 5-FU, and reminds clinicians of the possible complications of this technique of bleb revision.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Alfonso E, Tucker GS, Battle JF, Mandelbaum S, Gelender H, Forster RK. Snailtracks of the corneal endothelium. *Ophthalmology* 1986; **93**(3): 344–349.
- 2 Nuyts RM, Pels E, Greve EL. The effects of 5-fluorouracil and mitomycin C on the corneal endothelium. *Curr Eye Res* 1992; **11**: 565–570.
- 3 Bhermi G, Holak S, Murdoch I. Inadvertent exposure of corneal endothelium to 5-fluorouracil. *Br J Ophthalmol* 1999; **83**(3): 373.
- 4 Mazey BJ, Siegel MJ, Siegel LI, Dunn SP. Corneal endothelial toxic effect secondary to fluorouracil needle bleb revision. *Arch Ophthalmol* 1994; **112**: 1411.
- 5 Khaw PT, Baez KA, Sherwood MB, Hitchings RA, Miller MH, Rice NS. Dangers of direct injection of antimetabolites into filtration blebs. *Eye* 1993; **7**(Pt 3): 481–482.

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Sir,
Intraocular lens opacification mimicking the appearance of a congenital lamellar cataract

Cataract surgery has advanced owing to increasing biocompatibility of newer materials. Complications involving the clarity of intraocular lenses (IOLs) exist in literature and include most of the IOL types.^{1–3} We present a unique case of IOL opacification reminiscent of a congenital lamellar cataract.

Case report

An 81-year-old woman presented with 6-month history of cloudy vision in her left eye (LE). Her best-corrected visual acuity (BCVA) was 6/9 (RE) and 6/18 (LE). She underwent uneventful bilateral phacoemulsification 8 years previously with a foldable hydrophilic acrylic IOL (HA60-OUV, Suncoast Ophthalmics, Clearwater, FL, USA) in the LE. No information was available regarding the right IOL.