

LETTERS TO THE EDITOR

Peribulbar anaesthesia

SIR,—Joseph *et al*¹ report a case of globe penetration occurring as a complication of peribulbar anaesthesia. They highlight the potential risks of this procedure which have been previously reported.^{2,3} They also advocate the use of short blunt needles and the possible use of subconjunctival administration of the anaesthetic in order to minimise the risk of globe penetration. Although the case presented does indeed demonstrate the possible hazard of peribulbar anaesthesia the authors fail to provide any convincing evidence to support their proposals.

The length of the needle used in the presented case is irrelevant as the penetration occurring at the equator could still have been caused by a shorter needle. Although the use of a shorter needle has been described^{4,5} and should reduce the likelihood of posterior entry and exit wounds (as occurred in the series examined by Duker *et al*⁶) and optic nerve injury⁶; penetration at the equator and anterior to this region will not be prevented if the needle tip is misplaced. Even in the emmetropic patient it is usually possible to indent the equatorial retina, for the purpose of funduscopy, by pressure on the skin surface. It is then easy to imagine the length of needle required to traverse the distance between skin surface and equatorial retina being less than 2 cm.

The lack of sharpness of the Atkinson needle in the case presented did not prevent globe penetration. Indeed it is possible that the blunt tip actually compresses the tissues ahead of the tip thus giving a misleading impression of depth of injection.

The equator of the globe, with the eye in the primary position, is the greatest diameter in the coronal plane. Any needle entering the orbital region anteriorly must be directed in such a manner as to avoid encountering the sclera. Only by accurately judging the position of the equator can a needle be inserted in safety. A technique of indentation, via skin or conjunctiva, can be used to judge the limits of the globe and, if uncertain, examination of the retinal indentation just prior to the injection could confirm the identification of the equator.

The use of the subconjunctival route for local anaesthesia has been described^{7,8} as a satisfactory method, and could be expected to lead to a reduced risk. Unfortunately even this still carries some risk of penetration as illustrated by Yanoff,⁹ and the length of the needle is even less important in this technique as there is less tissue for an errant needle to traverse before reaching the globe.

In summary this case indeed confirms the findings of others^{2,3} that peribulbar injections may be dangerous, despite the advantages over the retrobulbar route.^{10,11,12} However it is doubtful that a shorter needle would have prevented penetration – in this case of globe penetration. The blunt needle has been shown here to have its limitations; in addition subconjunctival injection does not virtually eliminate risk of penetration as stated by Joseph *et al*. Surely one can only draw the conclusion that all needles in the orbit are potentially hazardous in the wrong hands, and that careful

supervision and training in technique have far more relevance than the type of needle used in the administration of local anaesthesia prior to ocular surgery.

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- 1 Joseph JP, McHugh JDA, Franks WA, Chignell AH. Perforation of the globe – a complication of peribulbar anaesthesia. *Br J Ophthalmol* 1991; 75: 504–5.
- 2 Duker JS, Belmont JB, Benson WE, *et al*. Inadvertent globe perforation during retrobulbar and peribulbar anaesthesia. *Ophthalmology* 1991; 98: 519–26.
- 3 Kimble JA, Morris RE, Witherspoon CD, Feist RM. *Arch Ophthalmol* 1987; 105: 749.
- 4 Kishore K, Agarwal HC, Sood NN, *et al*. Evaluation of peribulbar anaesthesia in eye camps. *Ophthalmic Surg* 1990; 21: 566–70.
- 5 Bloomberg LB. Anterior periocular anaesthesia: five years experience. *J Cataract Refract Surg* 1991; 17: 508–11.
- 6 Jindra LF. Blindness following retrobulbar anaesthesia for astigmatic keratotomy. *Ophthalmic Surg* 1989; 20: 433–5.
- 7 Redmond RM, Dallas NL. Extracapsular cataract extraction under local anaesthesia without retrobulbar injection. *Br J Ophthalmol* 1990; 74: 203–4.
- 8 Smith R. Cataract extraction without retrobulbar anaesthetic injection. *Br J Ophthalmol* 1990; 74: 205–7.
- 9 Yanoff M, Redovan EG. Anterior eyelid perforation during subconjunctival cataract block. *Ophthalmic Surg* 1990; 21: 362–3.
- 10 Murdoch IE. Peribulbar versus retrobulbar anaesthesia. *Eye* 1990; 4: 389–530.
- 11 Davis DB, Mandel MR. Posterior peribulbar anaesthesia: an alternative to retrobulbar anaesthesia. *J Cataract Refract Surg* 1986; 12: 182–4.
- 12 Weiss JL, Deichman CB. A comparison of retrobulbar and periocular anaesthesia for cataract surgery. *Arch Ophthalmol* 1989; 107: 96–8.

Reply

SIR,—Our purpose in reporting this case was to highlight the risks of peribulbar anaesthesia, a procedure which has been said to have a low risk of globe perforation. Since our report went to press additional cases have been described,^{1,2} suggesting that perforation of the globe due to peribulbar anaesthesia occurs more frequently than was previously supposed.

The length of a normal globe from anterior cornea to the macula is approximately 2.5 cm, the distance to the equator about half this, and it is of course possible to penetrate the globe posterior to the equator with very short needles indeed. A short needle is recommended for peribulbar injections for a number of reasons. Firstly, a 2 cm needle is more than long enough for the job. Secondly, a needle of this length should make injury to the optic nerve and injection of anaesthetic into the subarachnoid space impossible. In addition the risk of injury to the other nerves and vessels in the orbit should be reduced. Thirdly, a short needle should reduce the risks of posterior perforations of the globe as it is unlikely to penetrate sufficiently deeply for this to occur. Fourthly, a short needle affords greater sensitivity to the position of its tip than a long one as anyone who has used intravenous cannulas will attest. A greater awareness of the position of the needle tip should reduce the risk of globe penetration. A blunt needle is recommended as it is less likely to penetrate the globe than a sharp needle although in the myopic sclera described in our report this was clearly not the case. Blunt needles are also recommended as they afford greater sensitivity to the tissue planes, thereby providing the operator with further information about the position of the tip of the needle.

Mr Hawksworth rightly points out that all sharp needles should be used with care and

caution around the eye. We believe that this would have no role in making orbital anaesthetic injections safer.

While clearly the subconjunctival route for injection of anaesthetic is not without some risk it must be safer to introduce a needle under direct vision below the conjunctiva rather than to direct it 'blindly' into the orbit.

We would also like to point out that the peribulbar anaesthetic in our case was administered by an experienced, well trained ophthalmologist who subsequently performed the surgery. We believe the complication of globe perforation could happen to any surgeon and merely reflects the hazards of needles in the orbit. The use of a short blunt peribulbar needle would be expected to reduce the risk of globe penetration but not eliminate it altogether, even in the most skilled hands.

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- 1 Duker JS, Belmont JB, Benson WE, *et al*. Inadvertent globe perforation during retrobulbar and peribulbar anaesthesia. *Ophthalmology* 1991; 98: 519–26.
- 2 Grizzard WS, Kirk NM, Pavan PR, Antworth MV, Hammer ME, Roseman RL. Perforating ocular injuries caused by anaesthesia personnel. *Ophthalmology* 1991; 98: 1011–16.
- 3 Hay A, Flynn HW, Hoffman JI, Riviera AH. Needle penetration of the globe during retrobulbar and peribulbar injection. *Ophthalmology* 1991; 98: 1017–24.

The continuing challenge of ocular leprosy

SIR,—Always I read with great interest Mr T J ffytche's articles and comments on ocular leprosy and I appreciate his views. However, he writes in his mini review¹ 'Recent work by Hogeweg *et al*² on the relationship between the position of facial patches during erythema nodosum leprosum (ENL) reactions, and the subsequent development of lagophthalmos has considerably helped to identify those patients most at risk.' This quotation may cause confusion because this article deals with type I (reversal) reactions. ENL reactions have neither relationship with facial patches nor with lagophthalmos.

Secondly, corticosteroids are generally considered as the treatment of choice in reversal reactions. The use of clofazimine is controversial and thalidomide is considered to be ineffective in reversal reactions.^{3,4}

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- 1 ffytche TJ. The continuing challenge of ocular leprosy. *Br J Ophthalmol* 1991; 75: 123–4.
- 2 Hogeweg M, Kiran UK, Suneetha S. The significance of facial patches in type I reactions for the development of facial nerve damage in leprosy. *Lepr Rev* 1991; 62: 143–9.
- 3 Hastings C. *Leprosy. Medicine in the tropics*. Edinburgh: Churchill Livingstone, 1985: 213–4.
- 4 Kiran KU, Hogeweg M, Suneetha S. Treatment of recent facial nerve damage with lagophthalmos, using a semi-standardized steroid regimen. *Lepr Rev* 1991; 62: 150–4.

Reply

SIR,—I quite agree with Dr Hogeweg's comments concerning the relationship of facial patches with leprosy reactions and lagophthalmos. This occurs exclusively in the type I (reversal) reaction, and not in ENL. This was an error in the text for which I apologise. The