

References

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Sir,

David Boase's excellent editorial is most welcome.¹ One question posed is whether it is better for a peribulbar block (with bupivacaine) using a 'short' 25 mm needle possibly performed by an anaesthetist, or for topical anaesthesia with an anaesthetist in attendance for intravenous sedation. Having had the experience of a junior doctor perforate an eyeball with this so-called 'short' needle, may I offer a compromise that will give both patient and surgeon considerable satisfaction as well as improved safety.

We now recommend 2% prilocaine, 3.0 ml of which is given inferotemporally and 3.0 ml superonasally through a 16 mm (orange) needle to ensure peribulbar location followed by standard oculocompression. The effect lasts 2½ hours. Advantages over bupivacaine (with or without lignocaine) are that it is less toxic, is much more comfortable, has better diffusion properties so obviating the need for hyaluronidase, is more readily metabolised so safer, provides faster return of vision, does not require a post-operative pad and is cheaper. Advantages over topical anaesthesia are akinesia, that it is more reassuring for the patient 'to have the eye frozen', that it is more relaxing for the surgeon should complications occur or the operation be unexpectedly prolonged, and there are no problems should bridle sutures, iris or scleral surgery be necessary. Above all, there is no need for an attendant anaesthetist!

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Reference

1. Boase DL. Local anaesthesia revisited. *Eye* 1996;10:531-2.

Sir,

I read with interest Mr David Boase's editorial entitled 'Local anaesthesia revisited' (*Eye* 1996;10:531-2). May I make the following remarks:

1. The surgeon is responsible for his or her surgery, which means that the surgeon should be involved in the anaesthetic administered in the case. One should never allow a college doctor, ophthalmologist or anaesthetist to administer the anaesthetic – it is the surgeon's direct responsibility!

2. No mention was made of intraocular anaesthesia, which is an excellent method for cataract surgery, either by itself or whenever the patient feels the intraocular manoeuvre during surgery. I have performed 428 cases already this way.

3. Subconjunctival mercaine 0.5% 0.2-0.3 ml at the upper limbal area between 10 and 14 o'clock is sufficient to start and end cataract surgery.

4. Local anaesthesia is a misnomer. It should be called regional anaesthesia, as it is anaesthetising a major nerve to a whole organ! Peribulbar anaesthesia is local anaesthetic. One should always remember that switching from retrobulbar anaesthesia to peribulbar, topical, intraocular or subconjunctival anaesthesia involves a whole different approach to the surgical manoeuvres as the eye moves freely and a sudden move is critical in different operations.

All the above remarks are related to manual small-incision, sutureless, sclero-corneal pocket tunnel surgery. If it is good for manual extracapsular cataract extraction (ECCE), it should be enough for phaco ECCE too.

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Sir,

We read with interest the article by J. T. Gillow *et al* entitled 'Ocular perforation during peribulbar anaesthesia'.¹ In the vitreo-retinal unit in this hospital we have recently had similar experience which supports their findings.

Seven patients have been seen in this hospital over a 20 month period following ocular perforation during peribulbar anaesthesia prior to cataract surgery. Axial lengths ranged between 22.06 mm and 23.58 mm. All the local anaesthetic procedures were performed by anaesthetists of the following

grades: one by a consultant, three by associate specialists, one by a registrar and two by senior house officers. Details relating to the method of peribulbar injection have been obtained for six cases. A sharp 25 mm 25G needle was employed in four cases and a 38 mm 25G retrobulbar needle for two. All the anaesthetists used two injection sites, namely the infero-temporal or inferior approach followed by a second injection via the medial, supero-nasal or superior approach. Four of the perforations occurred in either the superior or supero-nasal aspect of the globe, one occurred nasally and in one case the site of the perforation was not clear.

The possibility of a perforation was entertained before or during surgery for three cases: one was noted to have a hyphaema before surgery, one a very soft eye before surgery and in one no red reflex was present after expression of the lens. The diagnosis of a perforation was made within the first week for six of the seven patients, all of whom had a vitreous haemorrhage. Four had either cryotherapy or laser to close a retinal break without sub-retinal fluid, two required pars plana vitrectomy with fluid-gas exchange and endolaser, while one patient refused further surgery. The final acuity has been reduced to perception of light for two patients.

Our experience supports the belief that the incidence of ocular perforation during peribulbar anaesthesia is rising and the figure is certainly higher than the 0.006% incidence quoted by Davis and Mandel.² Although most peribulbar injections are performed by consultant anaesthetists in this area, most of the perforations were caused by other grades. This implies that the training and supervision of those performing peribulbar blocks could be improved, and a case could be made for avoiding the superior or supero-nasal routes. Fresh vitreous haemorrhage on the first post-operative day is a hallmark of ocular perforation. With early recognition that a perforation has occurred the visual prognosis is better, although the final visual outcome is mixed.

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2. Davis DB, Mandel MR. Efficacy and complication rate of 16 224 consecutive peribulbar blocks: a prospective multicentre study. *J Cataract Refract Surg* 1994; 20:327-37.

Sir,

The papers by Gillow *et al.* again emphasise globe perforation as a complication of ocular local anaesthesia administered by means of injection.^{1,2} Their report of six cases from the vitreo-retinal unit at Birmingham is very similar to that made concerning 20 cases over a 2 year period referred to Moorfields Eye Hospital,^{3,4} although in one of these latter cases sympathetic ophthalmitis occurred in the fellow eye to the ocular perforation. The principal difference between the reports from these two centres is in the number and distribution of the perforation sites: the retinæ of patients who had received peribulbar injections are characterised by the presence of multiple perforations (one patient demonstrated a row of eight puncture holes extending from the retinal periphery to the infero-temporal arcade) where those with retrobulbar injections have only one or two puncture sites. Like Gillow *et al.*, we also found that eyes presenting with a retinal detachment tended to require multiple vitreo-retinal procedures and also had a worse visual prognosis.

The reported cases of inadvertent ocular perforations have been reviewed.³ For both types of injection there is a bimodal distribution of visual outcome (Fig. 1), and an analogy with ocular perforations complicating strabismus surgery, where careful ophthalmoscopic examination reveals occult ocular perforations in up to 9.2% of surgical cases⁵ although in a retrospective study only 0.13% of patients were recognised to have a perforation at the time of surgery and an even smaller proportion (0.0025%) developed complications (retinal detachment and endophthalmitis) as a consequence of a perforation.⁶ There is probably a spectrum of such perforations, ranging from the occult and those presenting with a transient vitreous haemorrhage with an underlying chorioretinal scar⁷ which will carry a relatively good prognosis, to those who present with significant vitreo-retinal pathology with a correspondingly worse visual prognosis.

With all vitreo-retinal pathology, early diagnosis is associated with a better prognosis and accordingly ophthalmologists should exercise a high index of suspicion in all suspected globe perforations, especially in patients who experience atypical pain or visual symptoms such as floaters or visual blurring during the administration of the injection and those with dense post-injection vitreous haemorrhages. A prompt and early referral of such cases should be made to a vitreo-retinal centre for further assessment. Indeed vitrectomy should be considered in those patients with dense vitreous haemorrhages in order to facilitate fundal examination and the treatment of any puncture sites which cannot be detected ultrasonically.⁴