There are other methods of intraocular pressure measurement in children examined under anaesthesia. The Tono-pen and non-contact tonometry are probably the other techniques most commonly used. In our experience the Perkins tonometer is a more accurate technique. The Tono-pen has been reported to overestimate intraocular pressure in the low ranges and to underestimate it in the high ranges.^{6,7} The accuracy of the non-contact tonometry has been suggested to be diminished with higher pressures and in eyes with abnormal corneas or poor fixation.⁸⁻¹⁰

Report

During examination under anaesthesia by an experienced ophthalmologist (P.H.) the intraocular pressure of both eyes of 10 patients was measured using the Perkins tonometer. Fluorescein and proxymetacaine were instilled into the conjunctival fornix. For each patient the pressure measurement for one eye was carried out using light supplementation provided by a pen torch with a blue filter cap, held 5 cm from the eye pointing towards the tonometer prism. In order to avoid any bias from any difference in difficulty between measuring left and right eyes, or from a learning effect, it was randomly assigned for each patient which eye was measured first and which eye had external supplementary blue light. The time taken to achieve a confident measurement of intraocular pressure was recorded.

In one eye (without supplementary light) no reading was possible so 19 eyes of 10 patients were included in the analysis. There was a significant difference ($p < 0.01$) between the time taken to measure the intraocular pressure without light supplementation (mean 38.7 s, range 24–72 s) and with supplementary blue light (mean 8.9 s, range 3–15 s).

Comment

The use of supplementary blue light from a pen torch in theatre significantly reduced the time taken for a reliable reading of the intraocular pressure using the Perkins tonometer. This simple technique also has the advantage in reducing the amount of time that the anaesthetist has to monitor the child in conditions of dim illumination. Many paediatric anaesthetists use ketamine sedation for intraocular pressure measurement during examination under anaesthesia; however, if inhalational anaesthesia³ is used it is even more important to check intraocular pressure rapidly as many anaesthetic agents will alter it. Use of supplementary blue light should also reduce the artificially low readings associated with hypofluorescence of the tear film,¹ although our study was not designed to address this point.

In summary, we strongly recommend the routine use of supplementary blue light to improve the ease of intraocular pressure measurement with the Perkins tonometer in theatre.

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Sir,

The use of the phacoemulsification keratome in dacryocystorhinostomy

Dacryocystorhinostomy is an effective treatment for complete nasolacrimal duct obstruction. The operation creates an anastomosis between the lacrimal sac and the nasal cavity through a bony ostium. A large osteotomy facilitates the formation of the anterior and posterior mucosal flaps from the lacrimal sac and the nasal mucosa. Most techniques employ the use of a Bard-Parker blade in the creation of the mucosal flaps. We describe a technique where the phacoemulsification keratome is employed for this purpose. The technique is effective and easier to perform.

Technique

Dacryocystorhinostomy involves making an incision in the lacrimal sac and nasal mucosa to create the anterior and posterior flaps that will be sutured together to create an anastomosis between the lacrimal sac and the nasal cavity. Most techniques employ the no. 12 Bard-Parker

blade (Swann Morton, Sheffield, UK) to make the initial incision in the nasal mucosa and lacrimal sac. The stab incision is then enlarged with the Werb's scissors. The no. 12 blade is not ideally employed for this purpose due to its large size and long cutting edge. In an effort to improve technique other instruments have been used to incise the mucosa, for example the no. 11 Bard-Parker blade, crescent knife,¹ or a Graefe's knife. We have found the phacoemulsification keratome ideally designed for the purpose of incising the lacrimal sac and nasal mucosa. To our knowledge there are no previous reports of this technique in the literature.

Comment

We have employed the use of the disposable stainless steel Spectrum keratome (72-2561) to make the initial incision into the lacrimal sac and the extension of the incision. The keratome is ideally designed for creating the mucosal flaps in dacryocystorhinostomy. The 2.5 mm keratome is held so that the cutting edge is perpendicular to the surface of the lacrimal sac. A Bowman's 00 probe is inserted into the sac and the initial stab incision is made through the tented portion of the sac wall. Gentle rotation of the instrument allows extension of the initial incision in a controlled manner (Fig. 1). The 60° bevel-up angulation facilitates this manoeuvre. In the relatively confined space available the features of the keratome

Fig. 1. Phacoemulsification keratome used to make an incision in the lacrimal sac wall.

allow the creation of the mucosal flaps to be performed with ease. The keratome is then used to make the incision of the nasal mucosa in the same manner.

To date, we have employed the use of the keratome in 40 dacryocystorhinostomies and have achieved a success rate of 95%. We would therefore advocate the use of the keratome above the no. 12 blade when making the mucosal flaps in dacryocystorhinostomy.

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Sir,

An unusual case of cavernous sinus syndrome

Cranial nerve palsies are a documented complication of penetrating intracranial and orbital trauma¹⁻⁴ and Horner's syndrome may result from trauma anywhere along the efferent sympathetic pathway.⁵ Patients who are fortunate enough to survive such severe trauma commonly also have globe or extraocular muscle injury and vascular complications such as carotidocavernous fistula (CCF). We describe a patient with multiple cranial neuropathies, an intact globe and without a CCF or cavernous sinus thrombosis, following an orbital/intracranial gunshot injury.

Case report

A 25-year-old man was shot in the face from a range of 0.6 m with a handgun of uncertain calibre. The bullet passed posterolaterally from an entry wound below the right medial canthus lodging by the apex of the petrous bone. His Glasgow Coma Scale was normal and vital signs stable, so he was managed conservatively by the neurosurgical team for a basal skull fracture with cerebrospinal fluid leak. Two days after admission he reported diplopia and was seen by an ophthalmologist.

The visual acuity was 6/6 each eye. Both globes were intact and the fundi normal. The 3 × 4 mm entry wound was inferomedial to the inferior rim of the right orbit, and involved the lacrimal sac exposing the upper end of the nasolacrimal duct. There was a right inferior canaliculus laceration but the lids were otherwise intact. He had right Horner's syndrome, with 1 mm of ptosis