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Sir,

Use of a Glass Rod in Argon Laser Suture Cutting after Trabeculectomy

Poor bleb formation and raised intraocular pressure in the early post-operative period after trabeculectomy are often due to tight closure of the scleral flap. The argon laser can be used to lyse the flap sutures through intact conjunctiva to improve the drainage of aqueous humour.[1] This is especially easy if 10/0 or 9/0 black nylon suture has been used to close the scleral flap.

The scleral flap can be more tightly sutured at the time of surgery reducing the risk of overdrainage and then sutures can be cut sequentially with the laser, titrating the degree of aqueous humour drainage.[2]

Various lenses have been used in this procedure,[1,3] with Hoskins and Migliazzo even designing a lens for the purpose.[4] Having heard of the idea whilst a Fellow in the Department of Ophthalmology in Madison, Wisconsin, I have found that a simple glass rod, as found in most ophthalmic departments, provides an effective and inexpensive 'lens' for argon laser suture cutting. I have used a glass rod in this way in many patients and have encountered no complications.

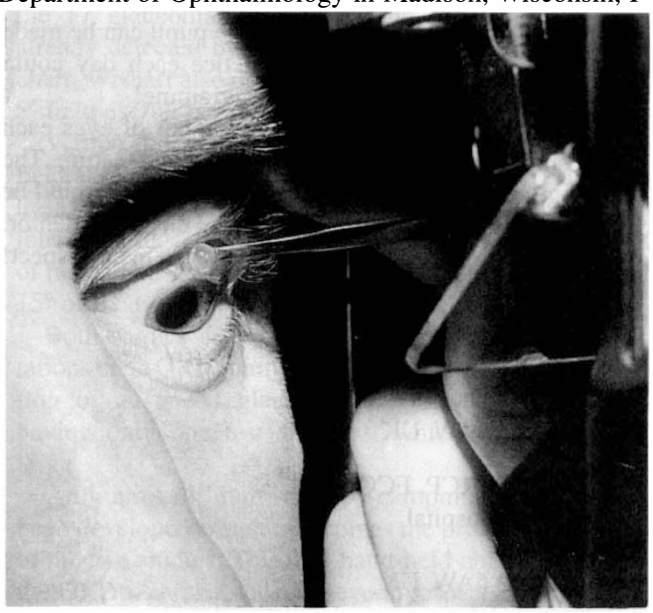

Fig. 1. *Use of the glass rod to flatten the conjunctiva and magnify the trabeculectomy suture for cutting with the argon laser.*

Topical anaesthesia is used and the bulbous tip of the glass rod pressed over the suture to flatten the tissues and blanch any blood vessels (Fig. 1). A magnified image of the suture is seen within the tip of the rod with the slit lamp. I have found one or two shots of 300–500 mW at 50 μm spot size for 100 ms will usually cut the suture. Light pressure on the globe will open the flap and encourage outflow.

Sutures can be cut with useful effect up to 2 weeks after surgery when healing of the scleral flap seems to be too advanced. If antimetabolites are used sutures can be cut with good effect for a much longer period.

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Sir,

A Model Eye To Practice Indentation During Indirect Ophthalmoscopy

Indirect ophthalmoscopy with indentation is an important skill to learn when examining the peripheral retina, and the dynamic aspects of indentation movement are particularly important when a retinal tear is being localised prior to scleral buckling. However, during the early learning stages excessive indentation pressure may be applied with resulting unnecessary discomfort on the part of the conscious patient.

We have developed a model eye which can be used to practice the technique of indentation. The eyes are sold as cheap toys and have a 'scleral' rigidity that closely simulates that of the human eye. Partial thickness cuts in the inner aspect of the model eye serve as retinal tears, and their behaviour during indentation is remarkably realistic. 'Dialyses' can be created in the same way.

Materials and Methods

The model eye is shown in Fig. 1. It is somewhat larger than the human eye, having a diameter of approximately

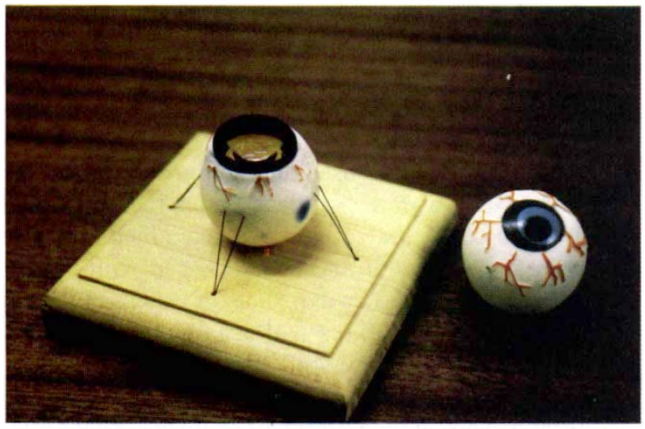

Fig. 1. *A toy eye (right) is easily modified into a useful aid for the practice of indirect ophthalmoscopy (see text).*

30 mm. We obtained this eye from Hamleys in London, but they should also be available in other large toy shops. They cost less than £1 each, and we advise buying several at the outset. The first step is to cut around the edge of the pupil, creating an aperture approximately 20 mm in diameter. Next, the eye is everted, and superficial tears are created using a sharp blade. A variety of tears can be created in different meridia and antero-posterior location. As an optional step, the fundus may be coloured and the retinal vasculature and ora serrata drawn in. The eye is then re-inverted (this may cause some smudging of the artistic work) and mounted on a wooden base in a manner similar to that shown in Fig. 1. A short spike in the base acts as a locating device for the eye in the region of the optic disc. Fig. 2 shows a retinal tear, which was photographed without the 90 dioptre lens for easier reproduction.

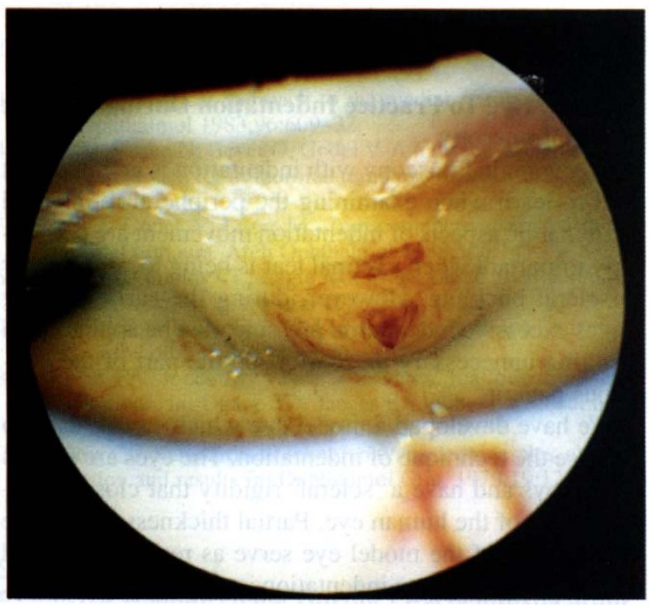

Fig. 2. *A 'retinal tear' has been created by a partial thickness cut on the inner aspect of the eye wall.*

The eye is ready for use when a 90 dioptre lens is mounted in the 'pupil', if necessary with adhesive tape. As a final touch of sophistication, black paper rings of various inner diameters can be made, and rested on the 90 dioptre lens to simulate pupils of varying sizes.

Optical Properties

The model eye is highly myopic, with an approximate refractive error of −30 dioptres. In practice the condensing lens is held at a comfortable distance of 5–10 cm from the eye, and the image obtained is somewhat larger and with a smaller angle of view as would be expected in high myopia.

Using the Model Eye

When the model eye is appropriately secured, indentation ophthalmoscopy can be carried out in the normal way. Pressure from the indentor which tends to move the base can be overcome either by fixing the base to a table or by using light counter-pressure with the thumb of the indenting hand.

Accuracy of scleral indentation can be checked by marking the external location of a retinal tear. (Pass a needle from inside out and then use indelible marker at the site of the needle puncture.) When the indentor is felt to be directly over the tear it is then easy to check one's accuracy.

If a large tear is created, it is useful to pass the indentor slowly across its full extent without losing visualisation with the IO. This practice will help particularly when a large retinal tear is being treated with cryotherapy since unnecessary and excessive cryo can be avoided.

Difficulties created by a small pupil can be simulated by suitable occlusive patches over the pupil. In general, the model eye as constructed here will allow excellent visibility, and as experience is gained the pupil can be made smaller. Perhaps 5 minutes of practice each day could become part of an SHO training programme!

Another possibility is to have a number of eyes each with a single retinal tear or other pathological feature. The challenge to someone not familiar with the eye would be to find the pathology and locate it with the indentor. College examiners might even be interested in this aspect!

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