LETTERS TO THE EDITOR

Ultrasound biomicroscopic imaging of a surgically reattached cyclodialysis cleft

EDITOR,—Traumatic cyclodialysis is a severe complication of ocular contusions. Hypotension caused by this detachment of the ciliary body has been regarded as intractable. Medical treatment is usually not effective, and the outcome of most of the surgical techniques has been considered unsatisfactory.[1 2] We show the postoperative result of a new surgical technique by ultrasound biomicroscopic imaging.

CASE REPORT

In July 1992, a 38-year-old man suffered a blunt ocular trauma in his right eye and developed a cyclodialysis cleft and an iridodialysis. On slit-lamp examination there was a 4 mm hyphaema, some degree of iridodonesis and phacodonesis, and the intraocular pressure (IOP) was 32 mm Hg. On gonioscopy, the extension of the cyclodialysis was from the 9 to the 2 o'clock position. The iridodialysis was at the 11 o'clock position.

The patient was treated medically, but in 8 days a progressive hypotony was established, and the visual acuity decreased to hand movements owing to oedema of the macula. No conservative procedure increased the IOP over 0 mm Hg. The lens developed a posterior subcapsular cataract and a progressive macular pucker evolved.

After 7 months of ineffective medical treatment we decided to close the cleft surgically. We performed an extracapsular extraction of the cataract (not a phacoemulsification because of the phacodonesis). A capsulorrhexis was performed and an intraocular lens was placed in the capsular bag. A silicone tube with a diameter of 0·6 mm was sutured to the ciliary sulcus with loose stitches of 10/0 nylon to prevent the outflow of the aqueous humour (Fig 1A and B). At the third postoperative day the IOP rose to 7·5 mm Hg. The visual acuity improved up to 20/400. The macular oedema in response to the ocular hypotony decreased significantly, but the glial component of the macular pucker did not improve. During a 1 year follow up the IOP fluctuated between 7 and 9 mm Hg. On gonioscopy, the silicone tube was observed through the iridodialysis, and the cyclodialysis cleft seemed to be closed (Fig 2).

Recently, we analysed the eye using ultrasound biomicroscopy (UBM 840 – Humphrey Instruments) to confirm the postoperative results (Fig 3). The silicone tube was clearly seen at the ciliary sulcus closing the cleft and, like the intraocular lens, it induced an echogenic artefact.

COMMENT

The main cause of hypotension after cyclodialysis is severe outflow of the aqueous humour from the eye. It escapes through the cleft formed between the sclera and the ciliary body, and is massively reabsorbed at the suprachoroidal space.[1 2] Another important factor is decreased production of aqueous humour owing to diminished blood supply to the ciliary body.[2] Medical treatment is ineffective in most cases. Reattachment of the ciliary body by suturing it back onto the sclera has been the treatment of choice,[3 4] but it may cause severe intraocular bleeding, or the operation may fail if a small part is left unsutured.

We used a technique with lesser risk of intraocular haemorrhage because it does not require full thickness scleral openings and does not suture the ciliary body directly. Using a sutured silicone tube the cleft is completely and uniformly closed. Thus, this new technique is a simple method that prevents the aqueous humour from escaping through the cleft into the superciliary space. The fact that there was no pressure peak upon closure of the cleft could suggest that the closure was primarily not complete, or that the ciliary body was partially detached and the production of aqueous humour was markedly decreased. Unfortunately, we acquired the ultrasound biomicroscope 1 year after the surgery. By that time, no residual cleft was identified.

More cases should be treated to confirm the effectiveness of this procedure. The ultrasound biomicroscope is a very useful diagnostic tool in evaluating ciliary body damage after a blunt ocular trauma and in assessing postoperative results.[5 6]

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The authors have no commercial or proprietary interest in the UBM 840 ultrasound biomicroscope (Humphrey Instruments Inc.) used for the patient's postoperative follow up.

IGNASI JÜRGENS
OCTAVI PUJOL
Department of Ophthalmology, Hospital 'Princeps d'Espanya', Ciutat Sanitària i Universitària de Bellvitge, Feixa Llarga s/n, L'Hospitalet de Llobregat, Barcelona, Spain

Correspondence to: Dr Ignasi Jürgens, Secretari Coloma 55, E-1, 7-3, 08024 Barcelona, Spain.

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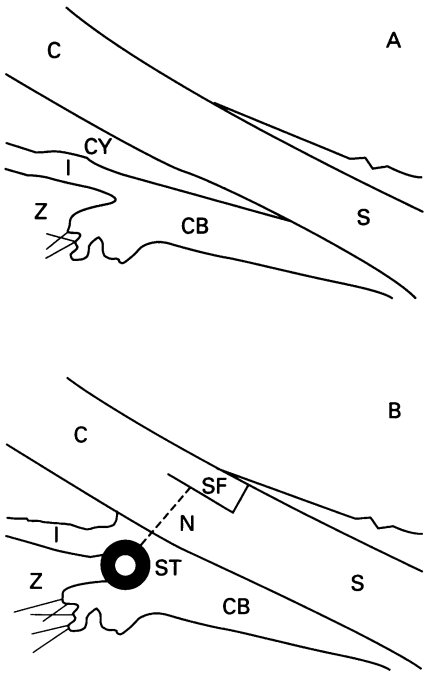

Figure 1 (A) Preoperative cross sectional view of the cyclodialysis. (B) Postoperative view. At first, one end of each double armed 10/0 nylon suture is fixed to the silicone tube. The other end is passed from the inside of the eye through the ciliary sulcus and exits at the bed of each limbal based scleral flap. The tube is introduced in the posterior chamber and placed at the sulcus by pulling the sutures and fixing them on the sclera under each flap. (C=cornea, S=sclera, I=iris, CB=ciliary body, Z=zonule, CY=cyclodialysis, ST=silicone tube, SF=scleral flap, N=nylon.)

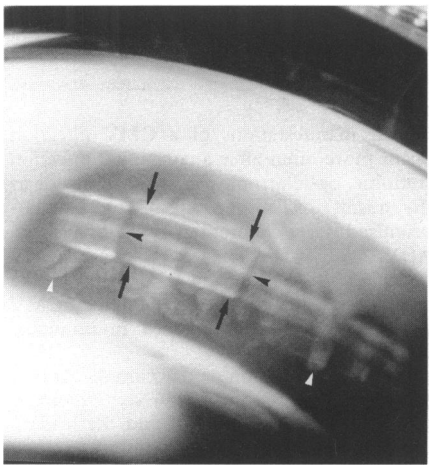

Figure 2 Gonioscopic view of the sutured silicone tube (black arrows), the 10/0 nylon stitches (black arrowheads), and the ciliary processes (white arrowheads) through the iridodialysis.

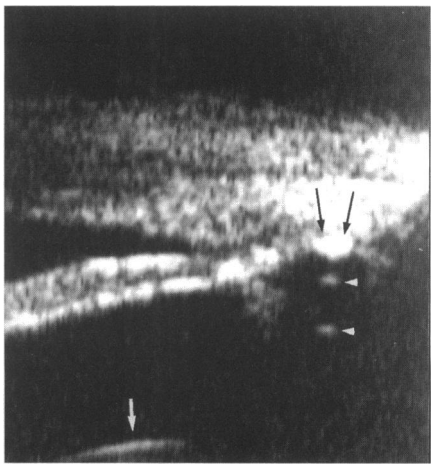

Figure 3 Postoperative ultrasound biomicroscopic image of the iridocorneal angle. The silicone tube (black arrows) sutured at the sulcus closes the cyclodialysis cleft. Notice the artefacts (white arrowheads) caused by the tube and the location of the intraocular lens (white arrow).