Surgical restoration of flat anterior chamber

Air injection and posterior sclerotomy through the same incision

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A new surgical procedure is recommended for the correction of "flat anterior chamber" after intraocular surgery. This procedure was designed to avoid the danger of lens damage inherent in the old method. The posterior sclerotomy advocated by Chandler (1949, 1954) employs a Wheeler or small von Graefe's knife to create a bevelled corneal incision for air injection. This is useful in aphakic patients. However, in the glaucomatous phakic eye which has had a filtering procedure performed, which is hypotonic, and which has a flat chamber, any attempt to form a corneal channel for air injection is hazardous, since the lens is in contact with the cornea.

Indications for use

I usually wait 5 to 7 days for spontaneous correction of the flat anterior chamber before resorting to surgery. If the pupil is active, dilating in response to mydriatics and constricting rapidly under miotics, the waiting period may be extended to 8 or 9 days. It goes without saying that the conservative measures, such as pressure dressing, miotics and mydriatics on alternate days, Diamox or glycerol, with or without rest in bed in the supine position, should be tried first; when these measures fail to restore the anterior chamber, surgery is indicated.

In my opinion, however, one or more of the following signs is an indication for immediate surgical intervention: iritis, absence of a filtering bleb, or the presence of posterior synechiae.

A flat anterior chamber after intraocular surgery is always a serious complication. It may be seen after cataract extraction, but is particularly apt to occur after filtering operations for glaucoma. As stated above, the operation to be described is especially useful for the glaucomatous phakic eye, but I consider it to be the operation of choice for all prolonged cases of phakic as well as aphakic flat chamber. The procedure has been successful in seven of my own cases, and has been used in at least two others by my colleagues with similar good results.

Technique

A sclerotomy is performed 5 mm. behind the limbus, preferably in the lower temporal quadrant unless there is some contraindication to this such as conjunctival scarring. A 3-mm. *ab externo* incision parallel to the limbus is made with a No. 15 Bard-Parker blade. A preplaced 6-0 chromic catgut suture is inserted into the lips of the scleral incision.

The incision is extended in depth while using the suture for traction. As soon as all the scleral fibres have been severed, the fluid from the supraciliary space is released. In all my cases, a varied quantity of straw-coloured fluid was evacuated.

A thin cyclodialysis spatula is now passed into the anterior chamber through the incision and along the supraciliary space, in order to create a narrow channel between the anterior chamber and the supraciliary space (Fig. 1). (The cyclodialysis cleft is not an aetiological factor in the production of the flat anterior chamber). The spatula is withdrawn and a cyclodialysis air injection needle attached to a small air-filled syringe is passed along the channel. Through this syringe the anterior chamber is then filled with air (Figs 2 and 3). The cyclodialysis air needle is withdrawn and the pre-placed suture is tied. The conjunctival opening is closed with a running suture of 6-0 plain catgut.

Homatropine (2 per cent.) and chloromycetin ophthalmic solution drops are instilled and the eye is patched.

FIG. 1 Cyclodialysis spatula creating a tunnel as scleral lips are held apart

FIG. 2 Cyclodialysis air injection needle has replaced spatula; air is being injected into the anterior chamber

FIG. 3 Cross-section of air injection into anterior chamber via cyclodialysis air needle. The ciliary body is pressed back against the sclera

Summary

A new procedure is described for the surgical restoration of the anterior chamber by air-injection through a posterior sclerotomy incision. This is equally safe for the phakic and the aphakic eye. It serves several functions. It drains the light straw-coloured fluid always present in the supraciliary space of the hypotonic eye. It reforms the anterior chamber with air *via* a thin cyclodialysis channel made with a cyclodialysis spatula which is replaced by a cyclodialysis air injection needle. This air in turn pushes the ciliary body back against the sclera into its normal functioning position.

References

- CHANDLER, P. A. (1949) *Trans. Amer. Acad. Ophthal. Otolaryng.*, **53**, 224
 — (1954) *Ibid.*, **58**, 382