# THE SUBCONJUNCTIVAL *AB EXTERNO* APPROACH IN GLAUCOMA*

BY

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THE *ab externo* approach was described by Gayet in 1884. Since then it has been extensively employed by Czermak, Salzmann, Elschnig, Weekers and others.

I have used the method for the last nine years, at first occasionally, now almost exclusively. The actual procedure was developed in friendly rivalry with Sir Richard Cruise. In the final form of his sclerotomy as described in the British Journal of Ophthalmology for 1947 he used the *ab externo* approach, which I believe he got from me, while I learnt from him the invaluable use of his scleral hook, so that, though there is nothing essentially new in what I am going to say, certain details have been evolved which make the method relatively easy and virtually free from danger of wounding the lens. The operation consists in dissecting down a flap of conjunctiva as for a trephine operation, making an incision with a *scalpel* at the upper limbus, and then doing an iris-inclusion for chronic glaucoma and an iridectomy for acute.

*Preparation.* The pupil must be small, and well under the influence of a miotic. The usual 4 per cent. cocaine drops at intervals of five minutes are instilled, starting 15 minutes before operation. A small quantity of novocaine, 2 per cent., and adrenalin is injected into the region of the superior rectus and then massaged away through the upper eyelid. If much novocaine is injected, the flap tends later to fall down and makes a stitch necessary. A slightly curved incision is made through the conjunctiva 10 mm. from the limbus, but the operator must take care that the ends are well above the upper limbus. The flap is dissected down to the limbus, but there is no need to split to the cornea. If there is much bleeding a superior rectus suture is put in, and traction made on this: I have found it very effective. A heated probe is only rarely necessary. The next point is the all-important fixation of the eye, for on it depends the ease and safety of the incision. I have tried a great many methods, but have found the following far and away the best. For the right eye I stand behind the patient's head, for the left eye below and to the left side. The patient is asked to look outwards, and a 3 in 4 (or any other favourite) conjunctival forceps placed perpendicularly fixes the internal rectus just to the outer side of the plica.

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The flap is held down with non-toothed forceps by an assistant. With the eye held by the forceps as described above by the left hand, a Cruise's scleral hook is placed on the sclera about 5 mm. from the limbus, the shaft being horizontal. It is pressed backwards very firmly and drawn outwards. A firm hold of the

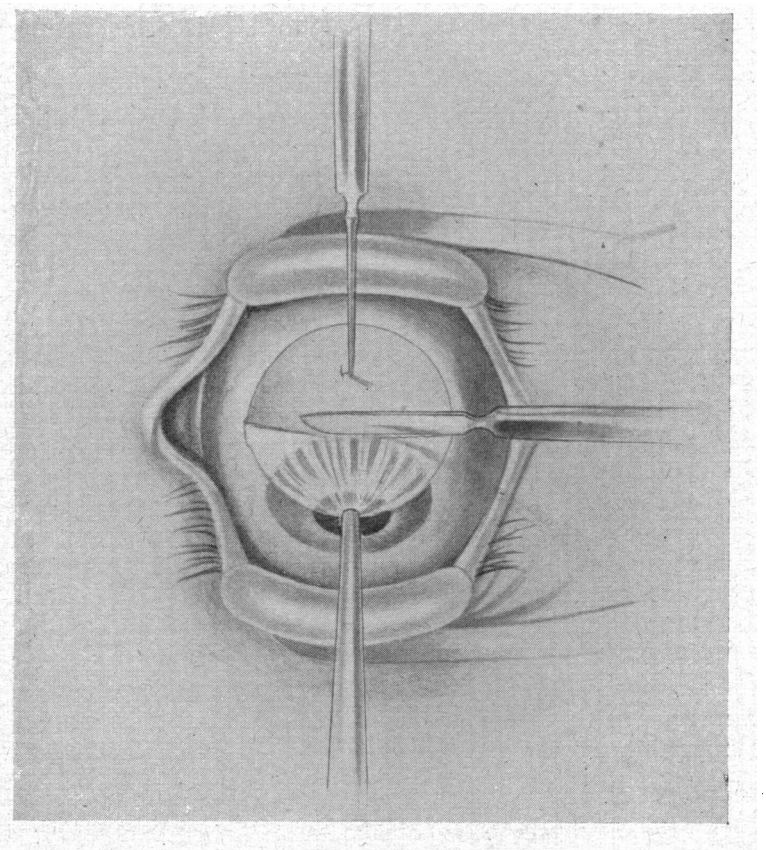

FIG. 1.

sclera will thus be obtained. The eye is now fixed by the hook held in the left hand. With the flap still held down by the assistant a small and exceedingly sharp scalpel is taken in the right hand. With shaft horizontal the blade is placed at right-angles to the upper limbus, and an incision made into the anterior chamber. At first it took me a long time to get through, but with practice it goes much more easily, and often in only a few cuts.

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It will be noted that, with the globe fixed in this way, no pressure is made on the ocular contents while the incision is made. As soon as the chamber is entered the iris prolapses. The incision should be about 5 mm. long, and complete through its length. Enlargement of the incision can be done with the scalpel or with fine blunt-pointed scissors.

The actual iris inclusion may be done in many ways, as described by Holth and others. The following is a modification of the Holth Number 2:

The right-hand edge of the prolapse is seized with straight iris forceps, and an incision made into the tent to produce an iridotomy —this goes about half way across the prolapse. The remainder of the iris is pulled into the left-hand edge of the incision and allowed to remain there. The conjunctival flap is now stroked back into position, and usually needs no stitch. In ideal cases there should now be a central pupil with a small peripheral iridectomy, as in a trephine; but the pupil may be drawn up a little, and this is not so good cosmetically, though it does not affect the final result. Atropine is put in, and both eyes tied up. The first dressing is done 24 to 36 hours after the operation. There is usually very little reaction, and the anterior chamber is usually found reformed. A very important point is to start gentle massage straight away. This is done with the thumb pressing through the upper eyelid on the upper edge of the incision. Since I have done this fewer cases have closed up. There is usually very little reaction, and the patients usually leave hospital in from 8 to 10 days. In most cases, after a fortnight or so, a diffuse area of drainage was produced, but sometimes the eye does not drain properly at first, and might even require a miotic for some weeks before it does so.

*Comments.* I cannot give any statistics, but perhaps it will be more useful if I sum up the advantages and disadvantages of the operation, so far as I see them.

*Advantages:*

(1) The operation is relatively easy if performed as I have described it.

(2) It is above all a safe operation because,
   (*a*) there is practically no danger of wounding the lens.
   (*b*) the anterior chamber is usually re-formed the day after the operation.
   (*c*) post-operative iritis is rare.

(3) No instrument enters the eye.

(4) A diffuse area of drainage is produced, so that infection is much less likely to occur than with a localised bleb.

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*Disadvantages.*

The great bugbear is the common one of all fistulising operations—namely, that some cases still close up. In the younger group of patients, that is to say below 55 years, there is usually no difficulty in producing drainage, and it is sometimes perhaps too free. But I think that the difficulty increases with age. As I have said before, the number closing up is less, now that one starts massage at the first dressing. It may be suggested that there would be even fewer if the incision were made a little away from the limbus. This is true, but in advanced cases, if this is done the iris does not present, and that makes the operation much more difficult.

My feeling at the moment is that it might be wise to convert the incision into a flap, as Cruise insisted, by a cut upwards at either end.

To sum up: this is a relatively easy, safe method of doing an iris inclusion, with the possibility of enlarging the incision to any desired extent.

*The operation for acute glaucoma.*

I think it is generally agreed the operation of choice in acute glaucoma is a broad iridectomy, and that the operation with either a Graefe knife or a keratome may be, even in the most expert hands, difficult and dangerous.

The operation *ab externo* for acute glaucoma starts much like that for chronic type except that a retrobulbar injection, 2 cc. of 3 or 4 per cent. novocaine and adrenalin, is given half an hour before. The dissection of the conjunctiva is made as before; the incision may be placed 1 mm. above the upper limbus, and the iris prolapses. The right-hand edge of the prolapse is seized with iris forceps and drawn over to the left, and a radial incision made with de Wecker's scissors so as to include the pupil. The iris is pulled further over to the left, as in the classical operation, to tear it from its attachment to the ciliary body, and then over to the right, and cut off.

The great advantage of doing the iridectomy by this method is its safety, for obviously it does not matter how shallow the anterior chamber is. The simplicity of the method may be judged from the fact that house surgeons do it quite well at the first attempt.

The only disadvantage, if so it may be called, is that not infrequently a draining area is produced, as after the iris-inclusion operation. This is probably due to the fact that it is difficult to replace the iris at the edges of the incision.

There is one last thing, and that is a consideration of the simplicity of the instruments used. The perfect Graefe knife and

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really sharp keratome are only found among the instruments of the ophthalmic surgeon or eye hospital. The operations described above can be done with instruments in everyday use—scalpel and scissors are easy to come by. The hook, although exceedingly useful, can be replaced by a stitch, or the incision can be done with fixation on the internal rectus. Also the work of the de Weckers can be done with ordinary scissors.

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# ON THE USE OF AMNIOTIC MEMBRANE

BY

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CAPTAIN C., aged 30 years. The benign melanoma conjunctivae situated at the external canthus of the left eye, had recently shown signs of extension. Fig. 1, August 19, 1948. The growth was


FIG. 1.

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