

## EXTRA-CONJUNCTIVAL IMPLANT\*

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It is the unfortunate experience of many who have used Cutler's implants that extrusion occurs in most cases within a period of 2 years, and that the few that do remain in position are a source of chronic discharge and infection.

On dissecting out several of these implants, I found that the cause of the extrusion was the almost complete epithelialization of the bed of the implant with subsequent contraction. This led to the idea of an implant placed *outside* the conjunctiva, with as little as possible buried *beneath* the conjunctiva. Such an implant could not possibly be extruded.

The design eventually decided upon (Fig. 1*a, b*) consists of a main body of acrylic resin, with

four brackets of tantalum wire projecting backwards from it. It is solid and therefore does not collect and retain any secretion. The body, which has a diameter of 13 mm. and a thickness of 6 mm. at the centre, is shaped like the segment of a sphere, with its convexity directed back-

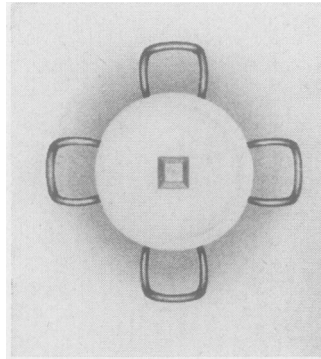


FIG. 1 (*a*).—Anterior view of implant.  $\times 2$ .

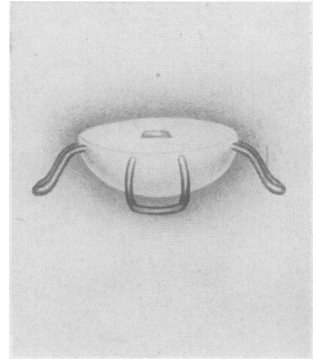


FIG. 1 (*b*).—Lateral view of implant.  $\times 2$ .

wards, and has a hole in front, similar to the one in Cutler's implant, for receiving the peg of the artificial eye. The brackets, made of tantalum wire 1 mm. thick, are embedded in the acrylic body, and project backwards and laterally for 7 mm.

### Operation

During the process of enucleation of the globe, each rectus muscle is secured near its insertion with a stitch before being detached from the globe, and is dissected as far back as possible. The globe is then removed in the usual way. Four stab incisions are now made through the conjunctiva and subconjunctival tissues, about 8 mm. from the cut margin of the conjunctiva, in the positions of the rectus muscles (Fig. 2). Each muscle is threaded through the corresponding incision (Fig. 3), and the central conjunctival hole through which the globe was removed is stitched very carefully (Fig. 3).

Each muscle is then threaded through the corresponding bracket of the implant,

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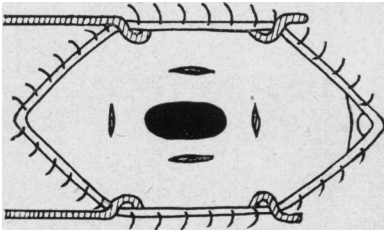


FIG. 2.—Diagram of incisions.

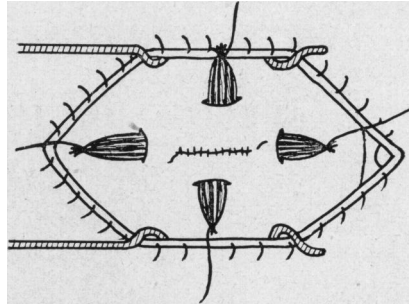


FIG. 3.—Diagram of four rectus muscles drawn through incisions and held by sutures.

folded back round it, and stitched very securely to itself. Care must be taken that the two surfaces are in good apposition to ensure firm union (Fig. 4). This manoeuvre is difficult, but may be greatly assisted by using Trelat's enucleation spatula to depress the conjunctiva, while the muscle is drawn through the slit in the spatula.

When the four muscles have been dealt with in this manner, each bracket (with its muscle attached) is pushed back through the corresponding incision in the conjunctiva, and the edges of the incisions are stitched together over the now buried bracket and muscle.

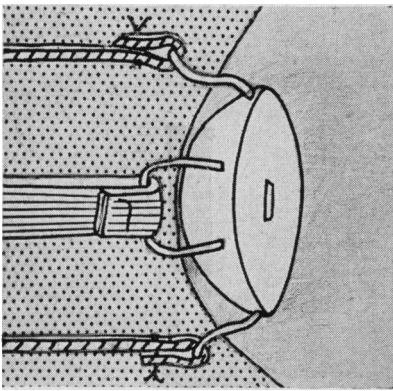


FIG. 4.—Diagram showing muscles fastened to lugs.

A point to note is that if all four muscles are treated identically, the implant tends to "diverge". It is essential therefore to fold back a longer piece of *internal rectus* in order to counteract this tendency.

Healing is relatively quick, and the artificial eye can usually be fitted after 4 or 5 weeks. It is extremely important that all conjunctival wounds be properly stitched, with good apposition of all edges, otherwise granulation tissue will form and delay healing considerably.

Time alone will show if these implants will remain in position, but from results so far obtained the prognosis seems good. *Extrusion* as such is impossible. The only eventual mishap would be the cutting out of a muscle. This, however, seems improbable; the only case of a muscle cutting out which I have had occurred a few days after operation through faulty suturing.

The movement obtained is not as full as with Cutler's implant, but is quite adequate to give a fairly life-like appearance to the prosthesis. The last case we did has a nystagmus, and it is most gratifying to see nystagmoid movements in the prosthesis.

I should like to thank Messrs. T. Hamblin Ltd. for making this implant, for the drawing of Fig. 1, and for their advice on the best material to use.