

MOLTENO[®]

Glaucoma Drainage Devices

Adding extra drainage some time after insertion of a
Molteno[®] Glaucoma Drainage Device.
The Molteno[®] ‘Piggy-Back’ procedure.

When additional drainage is required after implantation of a Molteno[®] implant, one option is to add extra drainage area to the existing bleb by placing an additional implant in an adjacent quadrant of the eye. This can be done without actually entering the eye itself again.

The new implant is positioned in a suitable adjacent quadrant, rotated so that its tube faces the original implant and the plate attached to the eye through the (now) anterior suture holes. After tying a 5.0 Vicryl ligature around the tube, the tube of the new implant is inserted into the centre

of the existing (original) bleb cavity through the side of the existing thick bleb wall. In this instance when the tube is trimmed to the right length, the tip of the tube is bevelled so that the bevel faces downwards.

We call this a ‘piggy-back’ procedure. It is a very safe and effective way of increasing the drainage area. A Molteno3[®]-175mm implant or a single plate Molteno[®] would be suitable.

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0310-SG/GDD/PB

CE 0120

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Anthony C. B. Molteno, FRCS, FRACO
US Patent Application No. 10/594,381



Step 1.

Select a quadrant of the eye adjacent to the existing implant. Raise a large fornix based flap of conjunctiva and Tenon's tissue to expose the full width of the rectus muscles and about half of the surface of the existing bleb capsule.

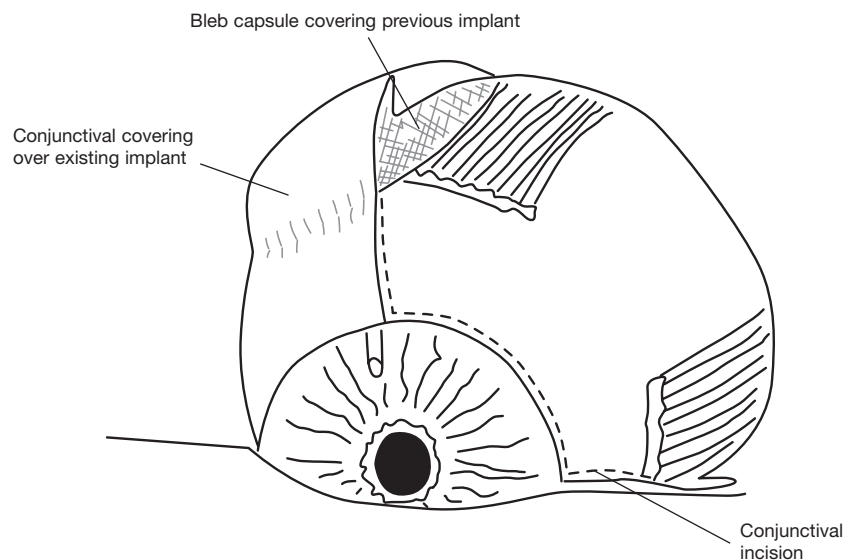


Fig. 1 The incision.

Step 2.

Slide the new implant into position (rotated so that its tube faces the bleb of the existing implant) between, and slightly under, the adjacent rectus muscles. Suture the plate of the new implant to the sclera using only the two, now anterior, suture holes.

Tie a 5.0 Vicryl ligature around the tube of the implant where it joins the plate. Check that the tube is properly occluded by attempting to inject balanced salt solution into the free end of the tube. Drape, don't stretch, the tube over the existing bleb and cut it long, extending 2/3 of the distance across the bleb. When cutting the tube, bevel the end at 35-40° with the bevel facing down towards the surface of the plate.

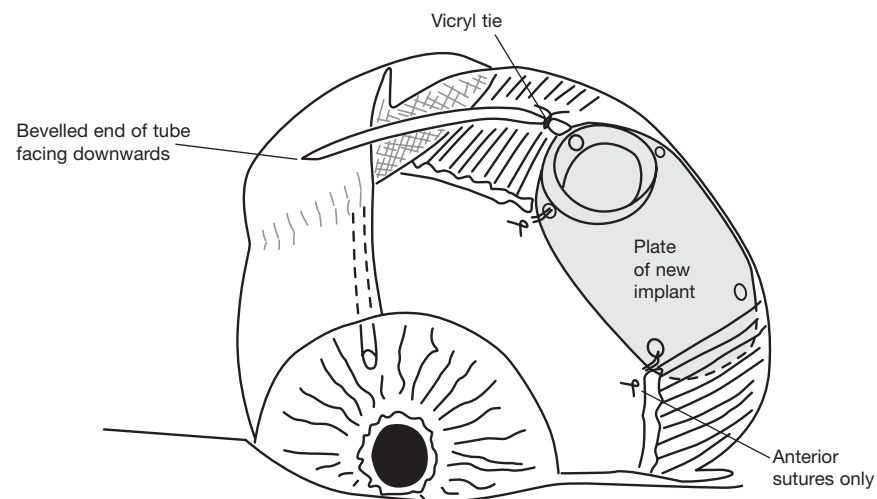


Fig. 2 Positioning the new implant in an adjacent quadrant (Molteno3®-175 as an example)

Step 3.

Take a 22 gauge needle and bend the tip by 30° to make a micro-keratome (see surgical guide). Your aim is to make a tapered opening through the bleb capsule into the bleb cavity.

Find the edge of the earlier episcleral plate through the capsule using a blunt instrument. Then insert the bent tip of the micro-keratome at a steep angle through the side of the capsule wall into the bleb cavity and insert the bevelled end of the tube into the bleb cavity.

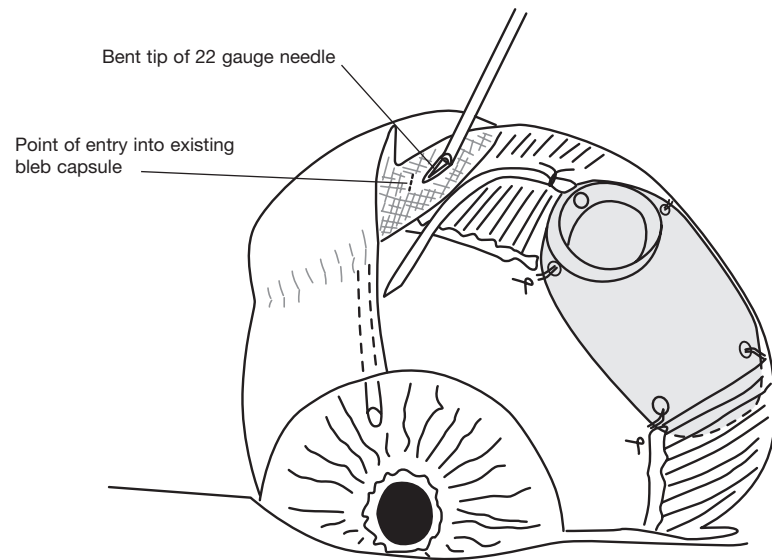


Fig. 3.1 Making a tapered opening through the existing bleb capsule into the bleb cavity.

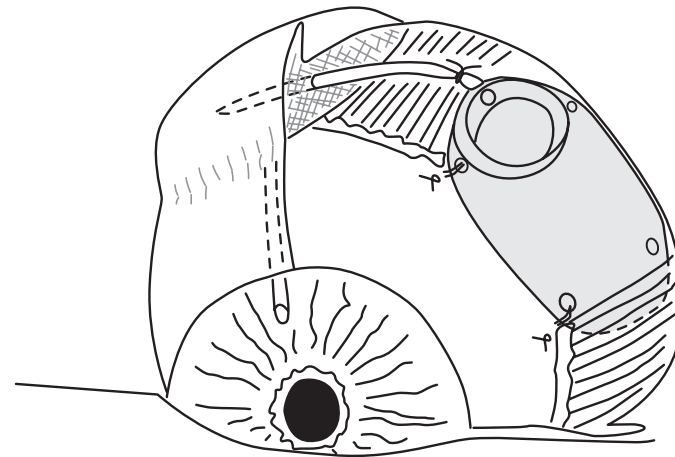


Fig. 3.2 Showing the tube of the new implant inserted into the existing bleb cavity.

Step 4.

Close the conjunctival flap.

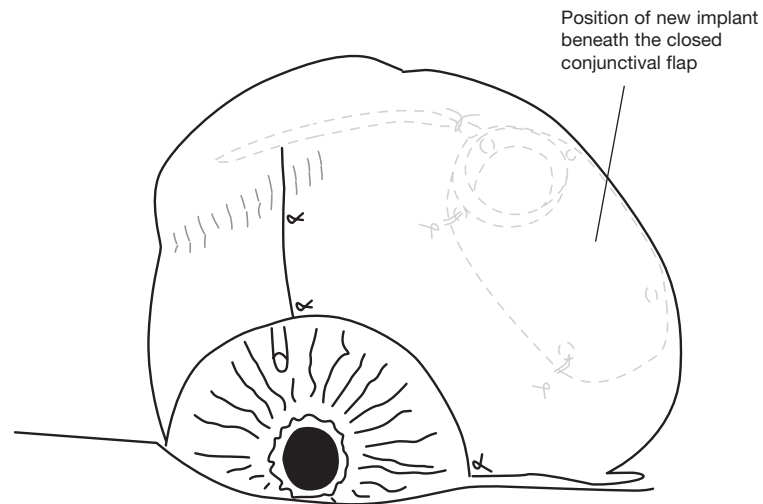


Fig. 4 Closure of the conjunctival flap.

Hypotensive medication after drainage surgery.

Continue hypotensive medication as needed until the Vicryl dissolves at around 4-6 weeks and the new bleb becomes extended with aqueous.

With the onset of drainage, when the Vicryl-tie dissolves and the tube opens, adjust hypotensive medications to keep the IOP between 10 and 20 mm Hg. Use timolol and diamox. Prostaglandin analogues and meiotics should be avoided after the onset of drainage as they are vasodilators and increase bleb fibrosis after drainage surgery.

Topical steroids may elevate IOP and should not be continued beyond 4-6 weeks after drainage surgery.