SENILE SPASTIC LID DEFORMITIES — THEIR SURGICAL CORRECTION

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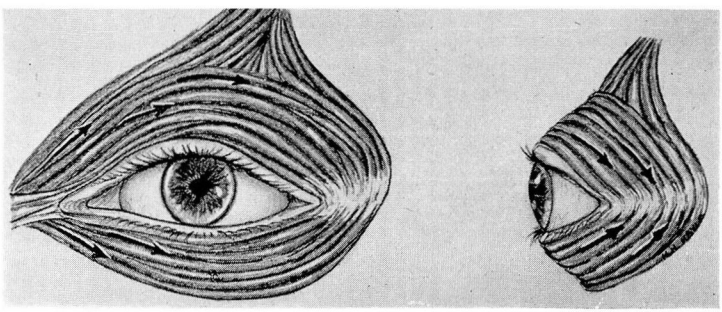
SENILE lid deformities usually involve the lower lid and result from spastic disorders. The correction of either entropion or ectropion must be aimed toward obtaining proper physiologic position of the lid border in order to avoid epiphora, trichiasis or deformity of the orbital fissure. The ideal operation is one which would produce permanent results so that the aged patient would not be subjected to subsequent operative procedures which entail added risks for the elderly patient.

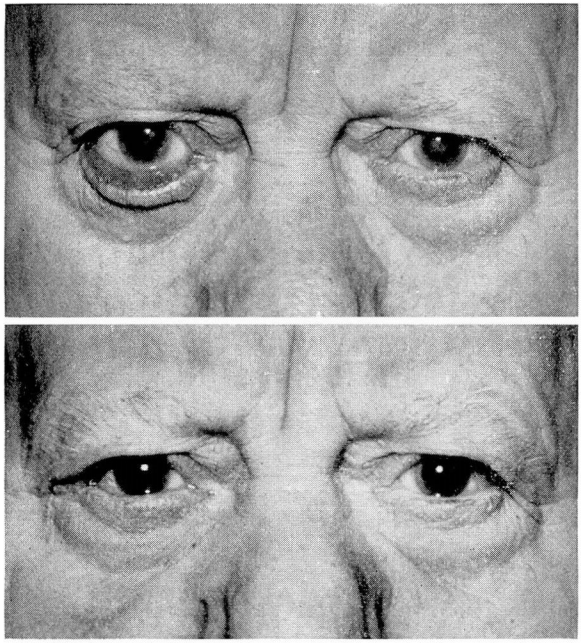
If the underlying cause is understood, a surgical means for correction is more easily chosen. The musculature of the lids and the tarsal plate are the bases of the deformity and must be used to correct the malposition. By examining the muscle fibers of the lid, it can be observed that the orbicularis muscle describes arcs having curvatures in two different directions.[1] One direction is the semi-encirclement of the palpebral fissure with the arc being directed downward in the lower lid and upward in the upper lid (fig. 1a). The second direction is an arc with its concavity toward the orbit formed by the muscles being molded to the shape of the eyeball (fig. 1b). These muscles have their attachments from the lateral and medial raphe; from this area comes their main support on contracture. The muscles pass over a tarsal plate which contributes to the maintenance of the lid's form.[2] With aging there is a loss of orbital fat, a loss of skin tone, and as a result when the muscles of the orbicularis contract they tend to form a cord rather than an arc. As a result the tarsal plate is forced to bend inward or outward as



(a) (b)

Fig. 1. (a) Curvature of muscles in upward and downward arc. (b) Curvature of muscles in anterior-posterior arc.

(a)



(b)

Fig. 2. (a) Preoperative ectropion right lower lid. (b) Postoperative result.

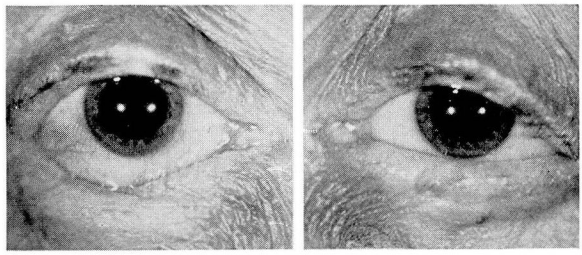
one of its borders receive insufficient support, which results in ectropion as shown in Figure 2a or entropion as shown in Figure 3a.

To correct this faulty position and fulfill our requirement the operation of Kuhnt-Szymanowski is the most permanent and satisfactory [3,4;5] for senile entropion. The Figure 2a shows a patient with ectropion before operation. The lower lid is everted, the conjunctiva red, thickened and spotted with a seondary infection. The patient suffers from epiphora and repeated attacks of acute conjunctivitis.

The operation of Kuhnt-Szymanowski is started at the intra-marginal line, the gray line, that runs the length of the lid. A knife blade inserted here splits the lid into leaves. The anterior consists of the skin, fibers of the orbicularis muscle and lash border; the posterior consists of the tarsal plate and conjunctiva. The incision should be carried to the outer canthus, starting slightly medial to the midline of the lid at A, (fig. 4a). The incision must not pass to the skin surface or through the tarsal plate to the conjunctiva, and care must be taken not to injure the roots of the lashes.

The second step is removal of a section of tarsal plate in order to shorten the plates' length so that it will regain its form to support the reconstructed lid; at the same time redundant conjunctiva can be removed. This is done by removing a triangular section of the inner leaf of the lid (fig. 4a), the base

of which should range from 5 to 10 mm. This must be of sufficient size to place the leaf of tarsus and conjunctiva snugly against the eyeball. Black silk number 4 sutures are then passed through the edges of the wound and then through the tarsal plate and conjunctiva. They must not pass too near the wound edge as they may pull out of the fragile tissues. They must neatly approximate the edges of the wound. The suture first tied is that at the apex of the wound and then progressively the sutures are tied toward the base. This should result in a snug fitting of the conjunctiva against the eyeball. Kuhnt contributed this part of the operation.[6] Szymanowski described the correction of the outer leaf of the lid.[7] The latter method consists of extending the splitting of the lid out into the skin at the outer canthus from D to B (fig. 4a), a distance slightly greater than the length of the base of the tarsal triangle which was removed. This part of the incision should slant up and outward. A second incision DC should begin at the outer canthus and extend down and outward and end at C directly below B. The distance



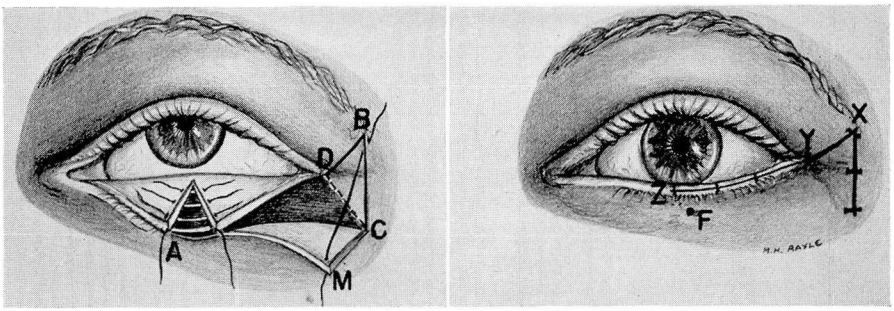
(a) (b)

Fig. 3. (a) Preoperative entropion right lower lid. (b) Postoperative result.

DC should be about two times as great as DB. A third incision should form CB and the outlined triangle of skin, DBC, be removed. The anterior leaf of the lid is then undermined so that its outer corner, M will reach B. The portion of lid margin that now lies beyond the outer canthus must have its edge bearing the cilia removed. Sutures of black silk number 4 are passed through the apex of the free lid border at M, and deeply through the muscle and skin at B so that the area denuded of skin is covered by the excess skin flap that formerly lay over the lid. Sutures are then placed at intervals, as in Figure 4b, to give a satisfactorily smooth union of the skin surface. I have modified the placing of sutures to include from 3 to 4 black silk number 6 sutures along the lid border uniting the tarsal leaf and skin leaf of the wound at their free border. Formerly only one suture was used at F that did not include the lid border, but passed through the two leaves and tied over the skin surface. I feel that by this means one can be more sure of the control of the outer leaf, having the hair follicles pointing outward, and prevent gapping of the wound. If the sutures in the lid border are not tied tightly but just firmly enough to control the free edges, and if fine sutures are used, no indentation of the lid border results and no complica-

tion of trichiasis arises. Suture X is placed first and then, starting with suture Z, the sutures are progressively arranged toward X. In this way the amount of skin covering the lid border can be controlled easily and any excessive skin can be removed between Y and X. After the operation is completed the shortened lower lid lies against the eyeball and its outer end is slightly elevated.

Firm dressings are used over the wound to prevent an accumulation of body fluids therein and to immobilize the lid. The sutures may be removed in from 4 to 7 days as the progress of healing indicates. The results of such an operation are illustrated in Figure 2b which shows the postoperative results of Figure 2a approximately 1 year after surgery. Lytton's[8] recently introduced subcutaneous splitting of the skin of the lid seems an unnecessary measure, and a study of this procedure indicates that some of the basic advantages of the Kuhnt-Syzmanowski operation may be lost.



(a) (b)

Fig. 4. (a) Kuhnt-Szymanowski operation showing lid split in two leaves; composite stages. (b) Kuhnt-Szymanowski operation showing closure of wound.

The correction of spastic entropion is best controlled by the technic of Wheeler. I have previously reported 7 cases[9] and 2 more have been added to the series, one of which is used here to illustrate the procedure. The patient (fig. 3a) suffered constantly from epiphora, recurrent conjunctivitis, and had a history of superficial keratitis. These symptoms resulted for the most part from the mechanical irritation of the eyelashes against the eyeball and cornea.

The Wheeler operation is performed with a primary skin incision 6 mm. below the normal lid margin. This incision should include only the skin structures. The incision starts nasally to the center of the midline of the lid and, following a course parallel to the lid edge, is carried out to 1 cm. beyond the orbital margin into the zygomatic region (fig. 5). This method is used to enter under the skin and dissect the skin from the underlying orbicularis muscle and in this way exposes the muscle in an area extending from the incision up to the lash border and from the incision about 6 to 10 mm. downward.

A strip of muscle 4 to 5 mm. wide is then dissected from the orbicularis muscle starting at the innermost edge of the skin incision and extending to an area directly below the outer canthus. This strip of muscle must lie immediately over the lower border of the tarsal plate. The muscle dissection sweeps out and upward following the natural arc of the muscle fibers. The dissected strip of muscle is then freed at its outer edge, A (fig. 5).

The muscle is then stretched, brought upward and outward and attached to the periosteum slightly superior to and lateral to the orbital tubercle. The muscle strip in position must pass up and firmly over the lower border of the tarsal plate.

Two chromic number 3 sutures are mattress-stitched through the muscle strip and passed firmly into the periosteum, B (fig. 5). The overlying skin is then closed with interrupted black silk number 4 sutures and a tight dressing applied. The skin sutures can be removed from the fourth to seventh day, again depending on the postoperative reaction of the area and healing of the skin.

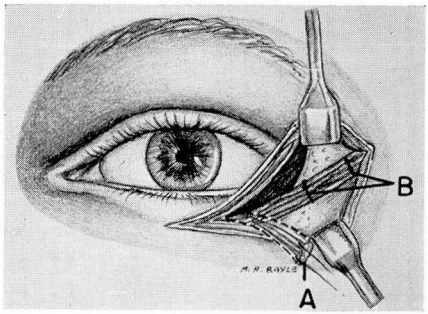


Fig. 5. Composite stages of Wheeler orbicularis muscle transplant operation.

The placement of the muscle fibers gives new pressure to the lower edge of the tarsal plate and restores a more nearly normal muscle arc. The under skin scarring of the operative site gives a firm skin area over the lower eyelid.

The postoperative result of such a case can be observed by comparing Figure 3a with Figure 3b.

Summary

Appropriate surgery for senile spastic lid deformities should be more frequently employed. I believe that the Kuhnt-Szymanowski technic modified with the placement of lash border suture for ectropion and the Wheeler procedure for entropion provide:

1. Physiologic lid border position
2. Good support for the lid
3. No disfigurement of the palpebral fissure
4. Low incidence of recurrence.

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