SURGICAL CURE OF SENILE ENTROPION*

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THE large number of surgical procedures which has been devised for the treatment of senile entropion suggests that none is universally successful. In this paper a new operation which has been successfully employed for over 3 years in the treatment of entropion is described. Not only has this procedure resulted in a cure of the condition in every case in which it has been used, but in addition the cosmetic appearance of the eyelid post-operatively has been excellent. It is thought that the operation offers advantages over other procedures currently used in the correction of this deformity.

History

Entropion of the lower lid was recognized, and surgical treatment of the condition described nearly 2,000 years ago by Celsus (Arruga, 1956). For many years the condition was believed to be due to spasm of the orbicularis muscle, but more recently it has been attributed to laxity of one or more of the lid structures together with a loss of lid support due to enophthalmos resulting from atrophy of orbital fat. Fox (1959) has shown that the condition is not relieved by local anaesthesia of the eye nor by facial nerve block, and many writers (Butler, 1948; Fox, 1951; Kirby, 1953) have stressed that it occurs where the tissues of the lid are atonic and there is no evidence of orbicularis spasm. Fuchs (1917) noted that senile entropion was found only where the skin of the lower lid was lax and redundant, while Duke-Elder (1952) has suggested that entropion occurs where the lid structures are atrophic while the orbicularis muscle retains its normal tone. He postulates that, where the tone of this muscle is lost in addition, ectropion results. Fox (1959) thought that, when the tissues of the lid were lax, the tarsal plate was free to rotate around the palpebral ligaments, and Jones (1960), in an extensive investigation into the anatomy of the lower lid, has suggested that the primary defect is an atrophy of the structures attached to the lower border of the tarsal plate, combined with a riding up of the preseptal part of the orbicularis muscle during eye closure.

Operations which have been used in the treatment of entropion fall into the following categories:

(1) *Excision of Skin and Orbicularis Muscle*.—Under this heading is included the classical "skin and muscle" operation (Hotz, 1880) and the procedures described by Duverger (Arruga, 1956), Panas (1899), Blaskovics

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(1922), and others. As has been pointed out by Stallard (1948), the "skin and muscle" operation is unsatisfactory and recurrences are liable to follow. Not infrequently the operation merely distorts and pulls down the lower lid without relieving the trichiasis.

(2) *Production of Fibrosis of the Lower Lid.*—The various methods used to produce subcutaneous fibrosis of the lid for the correction of entropion have included buried sutures (Gaillard, 1844; Arlt, 1858; Snellen, 1863), the injection of alcohol (Elschnig, 1922; Hughes, 1931), the use of cautery (Ziegler, 1909), and Michele clips (MacDonald, 1945). None of these procedures would seem to affect the underlying laxity of the lid structures, although each may be followed by cure of the condition on occasions.

(3) *Strengthening of the Lower Portion of the Orbicularis Muscle.*—Operations aimed at correcting a postulated increase in tone of the pre-tarsal portion of the orbicularis relative to the rest of that muscle, have been described by Wheeler (1939) and Meek (1940). Wheeler's operation is favoured by many surgeons and is followed by a high rate of cure.

(4) *Tightening of the Deep Fascia attached to the Inferior Border of the Tarsus.*—An operation of this type based on his own research into the anatomy of the lid has recently been described by Jones (1960).

(5) *Excision of Part of the Tarsal Plate.*—While partial excision of the tarsal plate had been used as a standard procedure in the treatment of entropion of the upper lid for many years (Streatfeild, 1858; Ewing, 1900; Weeks, 1900; Kuhnt (Meek, 1940); Smith and Siniscal, 1943; Amat, 1947), it was not used in the treatment of senile entropion of the lower lid until the excision of a triangular piece of tarsus and conjunctiva was proposed by Butler (1948) for the treatment of this condition. Fox (1951) described a more elaborate procedure in which the lid was split and a wedge (apex upwards) of tarsus was excised from the centre of the tarsal plate. This was combined with the tightening of the skin and muscle of the lower lid through a skin incision below the lateral canthus. Two subsequent modifications of this operation have been published Fox (1952, 1959). Kirby (1953) tightened the tarsal plate and orbital septum by dividing the lateral palpebral ligament and reattaching it over the outer orbital margin.

Most authors are now agreed that senile entropion is due to a combination of enophthalmos secondary to absorption of orbital fat, and loss of elasticity and subsequent stretching of the lid, especially of the skin and of the tarsal plate and its fascial connexions. It would seem reasonable that treatment of the condition should aim at shortening the tarsal plate, so that the lid is brought into closer apposition with the globe, and that at the same time the laxity of the skin and muscle of the lid should be dealt with. Wedge excisions of the tarsal plate presuppose a lengthening of the lower border of the tarsus relative to the upper and it is doubtful if this does, in fact, occur. Such

excision may result in the angulation of the tarsal plate and produce a peak in the lid margin which is cosmetically unsatisfactory. Tarsectomy in the centre of the lower lid may leave an irregular scar and lead to corneal irritation, while splitting of the lid may cause subsequent trichiasis due to distortion of lash follicles.

The operation to be described aims at increasing the tension in the tarsal plate by the excision of a rectangular area of the tarsus, maintaining the original line of the tarsal plate. The excised area is situated towards the outer canthus so that neither sutures nor an irregular scar will produce corneal irritation, and the tarsectomy is accompanied by the excision of redundant skin from the lower lid and a repositioning of the remaining skin of the lid.

Method.—The lower lid and the area around and below the lateral canthus are

infiltrated with lignocaine 2 per cent. with 1:80,000 adrenaline. An incision is made through the skin of the lower lid parallel with the lid margin and about 2 mm. below it from about the junction of the inner and middle thirds of the lid and extending laterally as shown in the diagram (Fig. 1) in a curve, convex upwards, for about one cm. beyond the lateral canthus. A second incision below the first is made as indicated in the diagram and the area of skin bounded by the two incisions is excised. The skin of the lid and the orbicularis below the second incision is mobilized and turned downwards and a vertical incision is made with scissors through the lid margin, conjunctiva, and tarsal plate at the junction of the middle and outer thirds of the lid. A second incision parallel to the first is then made nearer the outer canthus and the excision of the portion of tarsal plate thus delineated is completed by

FIG. 1.—Stages in the operation for entropion. (A) The skin incisions are shown and the shaded area between them indicates the skin to be excised. (B) The size and position of the excised rectangle of tarsal plate is indicated. (C) Appearance after skin closure.

joining the two incisions along the lower border of the tarsus. The cut ends of the tarsal plate are sutured together with two buried sutures of chromic gut, while the skin edges are closed by black silk sutures which are removed after 6 days. As long-standing entropion leads to chronic conjunctivitis, the patients are given Achromycin 250 mg. to take 6-hourly for 3 days to combat post-operative infection.

In spite of the fact that part of the lower lid margin has been sacrificed, in none of the patients treated has there been any noticeable narrowing of the palpebral aperture. The pre-operative and post-operative appearance of a typical case is illustrated in Fig. 2. While it is too much to hope that this procedure should never be followed by a recurrence of entropion, there has been no tendency for this to occur in any of the 32 cases so far treated.

FIG. 2.—A typical case of entropion. (A) Pre-operative entropion of right lower lid. (B) Post-operative appearance showing final position of lid.

Summary

An operation which is thought to have advantages over other procedures used in the treatment of senile entropion is described.

It consists of the resection of a rectangle of tarsal plate near the outer canthus together with a partial excision and repositioning of the skin of the lower lid.

The operation has been successful in all of the cases in which it has so far been used.

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