

Surgical Treatment of the Epicanthal Fold

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The epicanthal fold is an apparent redundancy of skin, semilunar in shape, vertical, and partially covering the medial canthus. Actually, there is no redundancy of skin, but a faulty distribution forms a fold at the union of the eyelids with the nasal crest.

In 1828, Schon¹ was the first to describe this congenital deformity. In 1841, Von Ammon² classified the epicanthal fold as palpebral, tarsal, and ciliary, depending on its position. Nevertheless, its origin can be posttraumatic or it can occur after orbital mobilization in some cases of hypertelorism. The epicanthal fold may also be associated with telecanthus or it may exist as an isolated alteration, such as in Waardenburg's syndrome.³ This fold is also present in blepharophimosis, but it is inverted according to Braun.⁴

Many techniques have been described to eliminate the epicanthal fold: resection of the glabellar region,² resection of the medial canthus,⁵⁻⁷ the V-Y technique,⁸ a simple Z-plasty or modified Z-plasty^{7,9-12} (Fig. 1), and multiple Z-plasties.¹²⁻¹⁶

The goals of the surgical treatment of the epicanthal fold are elimination of the fold and establishment of normal relationships between the different anatomic structures with a minimum of scarring. The purpose of this study is to present a technique we use in treating this anomaly.

MATERIALS AND METHODS

We have treated a total of 49 patients:

32 Bilateral	21 Congenital	28 Plane epicanthal
17 Unilateral	20 Postoperative	fold
	8 Posttraumatic	5 Blepharophimosis
		12 Telecanthus
		4 Waardenburg
		syndrome
49 Total	49 Total	49 Total

The follow-up of these patients has been from 4 months up to 6 years, with an average of 2 years. Anthropometric measurements, lacrimal drainage tests, and photographs were included in the clinical evaluations.

TECHNIQUE

The surgical procedure consists of creating a transposition flap whose base, in the medial canthal region, is taken from the posterior surface of the epicanthal fold. The flap is designed by drawing a line along the edge of the epicanthal fold (Fig. 2, *above, left*).

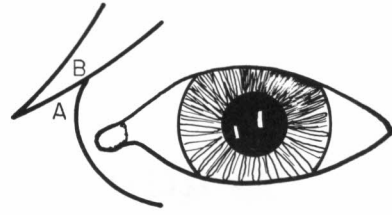
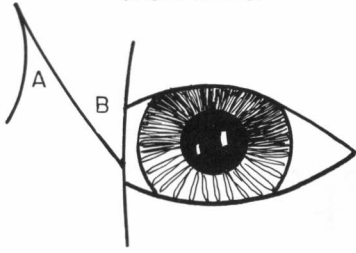
The skin of the nose is pulled medially to displace the epicanthal fold. A second curvilinear line is traced starting at the caudal end (point A) of the first line and is directed toward the inferior palpebral border and ends 2 mm below the punctum (Fig. 2, *above, right*). A third line is drawn toward the midline at the level of the medial canthus and is traced practically perpendicular to the first line. Its length should correspond to the dimension of the medial displacement plus one-half the length of the flap (Fig. 2, *above, right*). The direction of this line can be straight, horizontal, or oblique, thus allowing the surgeon to create a medial canthal area that fits within the ethnic characteristic of each patient.

The flap is raised with blunt dissection to avoid damage to the lacrimal canaliculus (Fig. 2, *below, left*). The base of the flap is made thicker to ensure a viable pedicle. Once the flap has been raised, one can see the medial canthal tendon and its insertion, if present. In most cases it is complete, but slightly longer than normal. It must be shortened by a plication stitch of non-absorbable 4-0 nylon. In cases of posttraumatic telecanthus it is necessary to fix the medial canthal tendon to the bony structures by means of a conventional canthopexy.^{10,17} This anchorage

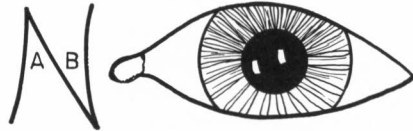
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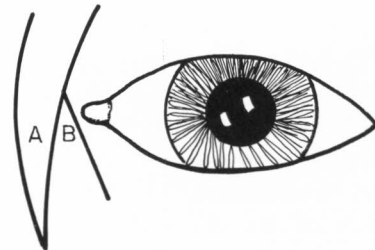
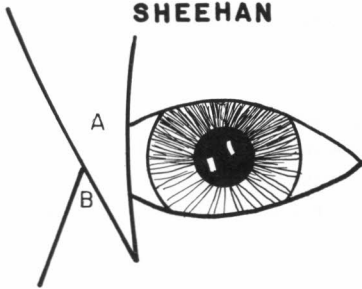


FIG. 1. Historical background of the treatment of the epicanthal fold with simple as well as modified Z-plasty.

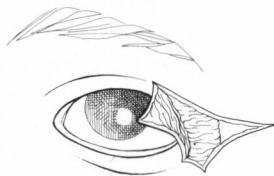
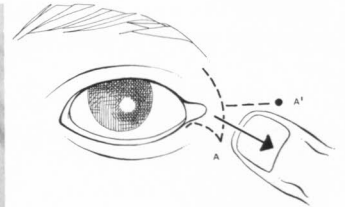
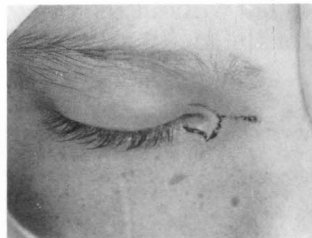
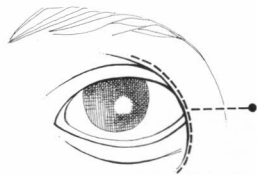


FIG. 2. Surgical correction of epicanthal fold. (Above, left) The first trace is at the edge of the epicanthal fold. (Above, right) The tracing of the procedure is completed, pulling the skin medially. (Below, left) The flap is raised. (Below, right) The flap is sutured in its final position.

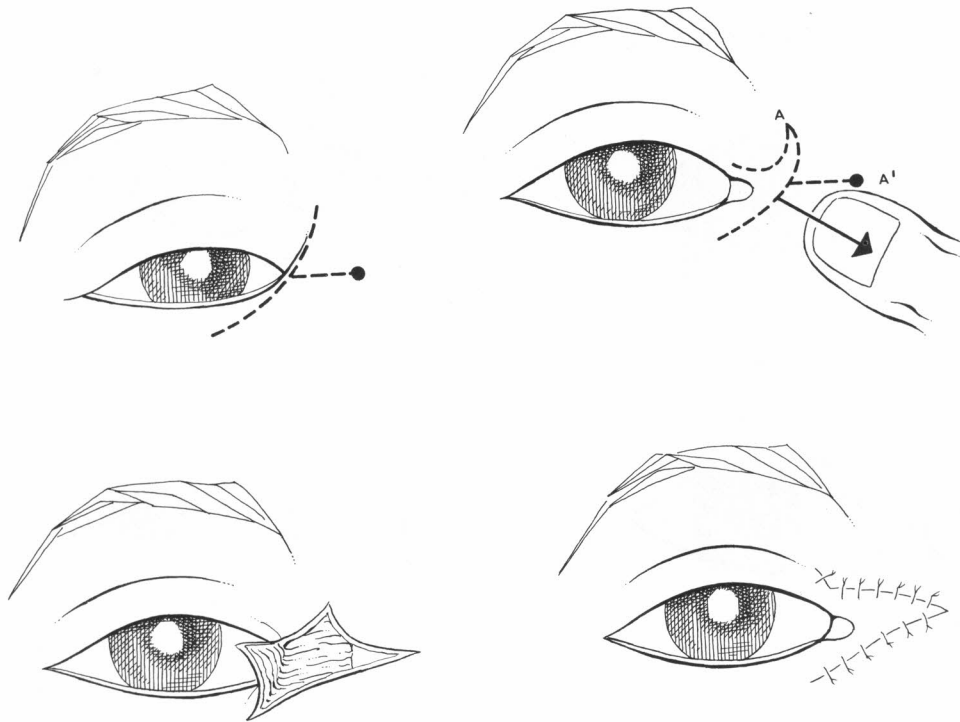


FIG. 3. Surgical procedure for the treatment of inverted epicanthal fold.

must be done by fixing the medial canthal tendon posteriorly as far as possible to obtain a more natural convexity of the eyelids. When the problem is unilateral, it is necessary to make a small incision on the contralateral nasal border to secure the tendon of the affected side. A second suture in the midportion of the internal aspect of the flap is fixed to the periosteum to secure its new position and prevent a bow-string effect. Finally, the flap is allowed to fall without tension over the natural concavity of the lacrimal crest,

bringing point *A* to point *A'*. Occasionally, a small dog-ear is created at point *A* that disappears with time (average 40 days). In blepharophimosis (inverted epicanthal fold), the same procedure is used, inverting the direction of the flap with its tip directed upward (Fig. 3).

RESULTS

In one case we observed mild hypertrophic scarring. There were no recurrences of the epicanthal fold nor disturbances of lacrimal func-

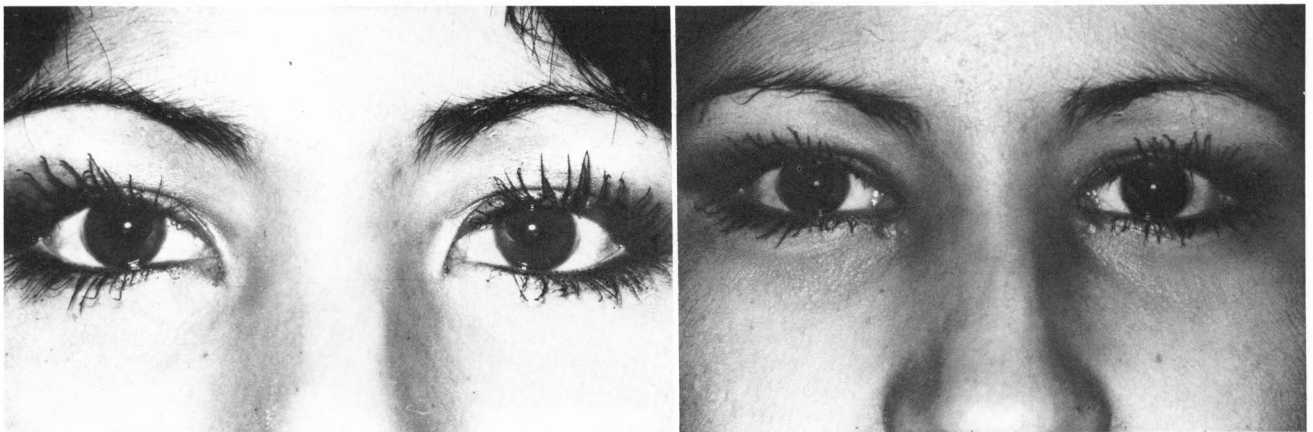


FIG. 4. Patient with congenital epicanthal fold. (Left) Preoperative view. (Right) Postoperative view 3 months later. Notice the light scarring and its position.



FIG. 5. Patients with blepharophimosis. (Above, left) Preoperative view. (Above, right) Same patient 1 year after correction of the inverted epicanthal fold. (Below, left) Preoperative view. (Below, right) Same patient 2 years later. The ptosis correction was done in a second stage.

tion. The procedure described is applicable for the correction of the simple (Fig. 4) or inverted (Fig. 5) epicanthal fold, as well as for telecanthus with or without an epicanthal fold. In the last

case, the relocation of the tendon to its original position frequently produces redundancy of skin in the medial canthal region, and this is handled as an ordinary epicanthal fold. The incision de-



FIG. 6. Patient with Waardenburg syndrome. (Left) Preoperative view. (Right) Postoperative view 5 years later.



FIG. 7. Patient with bilateral epicanthal fold secondary to surgical correction of hypertelorism treated with the described procedure. (Left) Preoperative view. (Right) Postoperative view 2 years later.

scribed is a good approach for the medial canthopexy, permitting simultaneous correction of the telecanthus and the epicanthal fold (Fig. 6). Through the same approach it is also easy to reconstruct the lacrimal ducts, when necessary.

The procedure described here produces minimal scarring that blends in with the normal anatomic structures (Fig. 7). In addition, it allows the surgeon the flexibility to create a medial canthus that has the form and direction compatible with the ethnic characteristics of the patient or to do a unilateral correction where one must match the unaffected side. There is no scarring across the medial canthus, which might produce cicatricial recurrence. It is a simple procedure that does not require geometric planning or great experience.

SUMMARY

A surgical technique is described for the correction of the epicanthal fold. Indications for its use are noted and emphasis is placed on its advantages. The procedure is simple to perform and uniformly gives good results.

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