Canthopexy and transconjunctival blepharoplasty are preferable to lower blepharoplasty

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A Camirand. Canthopexy and transconjunctival blepharoplasty are preferable to lower blepharoplasty in the aged. Can J Plast Surg 1994;1(4):184-187. The lateral canthus stretches with age, lowering the lateral corner of the eye from 2 to 3 mm above the medial canthus in youth to the level of or below the medial corner in old age. The lower lid drops from 2 mm above the lower limbus to below it. This creates pseudodermachalasis or tired, sad and aged eyes, which cannot be improved by lower blepharoplasty. Fat pads should be removed via a transconjunctival approach to avoid the risk of scleral show in the elderly.

Key Words: *Almond-shaped eye, canthopexy, Eyelid rejuvenation, Scleral show, Transconjunctival blepharoplasty*

La canthopexie et la blépharoplastie conjonctivale sont préférable à la blépharoplastie inférieure pour les gens âgés

RÉSUMÉ : En vieillissant, le canthus latéral s'étire abaissant le coin externe de l'oeil qui, en bas âge, est 2-3 mm au-dessus du canthus medial et qui se retrouve au même niveau ou encore plus bas à la vieillesse. Egalement, le rebord palbébral, originellement 2 mm au-dessus du limbe inférieur, descend à son niveau ou plus bas. Il en résulte un pseudodermachalasis et un oeil fatigué, triste et âgé. Ceci ne peut être amélioré par une blépharoplastie ordinaire. Quant aux poches de gras, elles doivent être extraites par une blépharoplastie trans-conjonctivale pour éviter les risques d'une exposition sclérale.

Unlike the medial canthus, the lateral canthus lengthens with age. This explains why the lateral canthus of children is 3 mm above the medial canthus, whereas with age it descends below its medial counterpart (Table 1). The lateral canthus stretches more than the medial canthus because it is weaker and thinner, and because of the relatively heavy mobile skin of the cheek (unlike the immobile skin of the nose).The unopposed downward pull of the vertical fibres of the orbicularis oculi also causes the lateral canthus to stretch more. Due to this natural lengthening process, the lower lids fall from their original height 2 mm above the lower limbus of the eye in youth to the level of or below the lower limbus with age. This results in a negative, undesirable appearance of the eye, ie, pseudodermachalasis. In addition, the orbital septum weakens, producing herniated fat pads and rings created by their own shadows. Removal of these fat pads results in a concavity. Since it takes the same amount of skin to line a convexity as it does to line a concavity, skin removal from the lower lid carries the risk of ectropion and scleral show. Hence, it is preferable not to remove any skin from the lower eyelid.

TABLE 1: Location of the lateral canthus and lower lid

Early age
Lateral canthus 3 mm above the medial canthus
Lower lid 2 to 3 mm above the lower limbus
= almond-shaped eye
With age
Lateral canthus at the same level or below the medial canthus
Lower lid at the level of or below lower limbus
= round eye (concave margin)

TABLE 2: Causes of scleral show

Mostly from scarification at the junction of the orbicularis and orbital septum
Pretarsal orbicularis paresis
Excessive skin resection
Excessive fat pad resection (going from mild convexity to moderate concavity requires more skin)

Ectropion and scleral show may occur even when a minimal amount of skin is removed (Table 2). Sometimes, even when no skin is removed, as when the orbital floor is explored

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TABLE 3: Effect of canthopexy

Canthopexy pulls:	
Upward	Lid covers the lower limbus
	Pseudodermachalasis improved
	Horizontal wrinkles improved
	Scleral show eliminated
	Ectropion improved
Laterally	Reduced concavity in the aged lower lid margin giving an almond-shaped eye (youth and beauty)
Backward	Eliminates ectropion

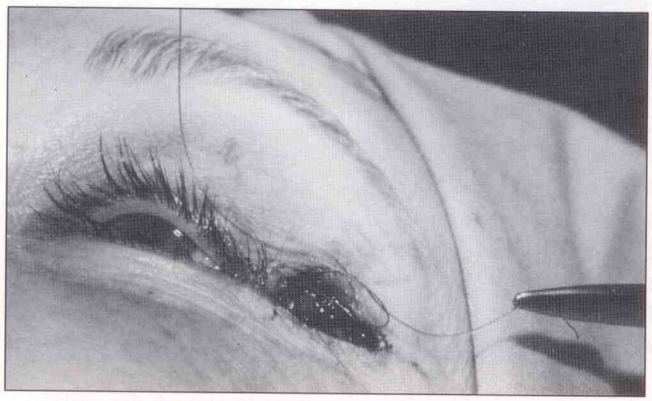

Figure 1) Top *Before canthopexy stitch is attached. Observe the presence of a pseudodermachalasis.* **Bottom** *As the knot is tied, the pseudodermachalasis disappears*

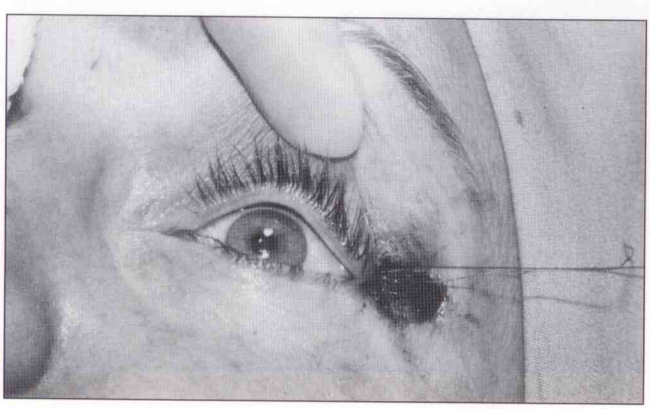

Figure 2) *When the canthopexy is done, the lower lid margin covers the lower limbus by 2 to 3 mm, resulting in an almond shaped eye*

Figure 3) *Direction of pull of the canthopexy*

Figure 4) *Freer inside the orbital rim where the canthopexy stitch will be anchored*

following injury weakening the orbicularis, its innervation or simply disturbing the orbital septum-orbicularis oculi relationship can create some scar contracture and scleral show. If skin is to be excised, no more than 2 or 3 mm should be removed.

When canthopexy is performed (Table 3), the lateral canthus is raised by 5 to 7 mm. As the canthus is sutured in its new position, we witness a redraping of the skin of the lid, which eliminates the pseudodermachalasis (Figure 1) and horizontal wrinkles, giving an almond-shaped eye (Figure 2). Fat pads should be removed via a transconjunctival approach.

Figure 5) *Pre- and postoperative views of scleral show treated by canthopexy*

TABLE 4: Measures to obtain symmetry in bilateral canthopexies

Reattach 5 to 7 mm above the original attachment
Reattach 5 mm above the frontozygomatic suture
Reattach opposite the upper pupil
Reattach at 10 o'clock on the right, 2 o'clock on the left
Reattach when the lower lid covers 2 mm of the lower iris

TABLE 5: Canthopexy complications in the last 60 cases

	Number of cases
Asymmetry (self-correcting)	0
Over-correction (none persistent)	60
Infection (mild)	1
Depression (scar)	0
Recurrence	1
Lower blepharoplasty required	1

SURGICAL TECHNIQUE

A line is drawn from the middle of cupid's bow to the lateral ala of the nose, then towards the tail of the brow (Figure 3). This serves as the traction line on the canthus. The same line can be used to map the direction and localization of the skin incision. Sometimes, the line is drawn slightly lower. Because of the mobility and elasticity of the skin of the eyelid, the incision can be made anywhere between this line and the level of the lateral canthus. After the skin incision, the vertical fibres of the orbicularis muscle are identified and freed from the skin and underlying tissues. This is done with a pair of small, blunt dissecting scissors. The vertical fibres are then cut with electrocautery, using the hockey stick and current on coagulation. The edges are cauterized to make them more inefficient. This will prevent the downward pull of the lateral brow and dramatically reduce dynamic crow's feet.

Although the lateral canthus is not visible, it can be easily felt. It is detached from the orbital rim by gripping it with forceps and cutting it with a small pair of scissors. The canthus is attached to the orbital septum which is freed from the orbital ridge, all the way down to the level of the iris. This is done with scissors or freer (Figure 4). The canthus is part of an inelastic structure comprising the tarsus and orbital septum through which it is fixed to the orbital rim.

The canthus must also be freed from the orbicularis and skin attachments until it can be easily and freely mobilized. As it is pulled, the attaching bands can easily be felt with a finger or instrument. They must be severed with scissors.

Once the canthus is freely mobile, it is pulled in the previously-marked direction. The lower limbus must be covered by 2 mm of the lid margin as the patient looks forward. This restores it to the position that it is in children. Reattachment must be 5 to 7 mm above the original insertion, which is 5 mm above the frontozygomatic fissure, or opposite the upper level of the pupil. By using these landmarks, asymmetries are avoided (Table 4).

We use 4-0 Polydeck with an ME2 needle to suture the canthus to the periosteum inside the orbit (Figure 4). This is very important. As the suture is tied, a beautiful redraping of the lower eyelid is observed, which covers the lower limbus and creates an almond-shaped youthful lid (Figure 2). We do not suture the orbicularis. The skin is closed with 7-0 vicryl or 6-0 plain catgut. We frequently peel the lower lid with 35% trichloroacetic acid or phenol. Except for Steri-Strips on the incision, no dressing is necessary.

Several cases of scleral show treated by canthopexy are illustrated in Figure 5, showing preoperative and postoperative views. Complications from the author's past 60 cases are listed in Table 5.

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