

## BLEPHAROPLASTY

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### What is blepharoplasty?

Removal of excess sagging skin and of fat bulges around the eyes is termed as “blepharoplasty”.

### Aging changes around the eyes

Like all developing countries, Singapore is experiencing an increase in aging population.

To understand aging, some knowledge of facial anatomy is necessary. The superficial muscles of the face starting from frontalis to the platysma are incorporated in one continuous fascial system known as superficial muscular aponeurotic system or SMAS. There are fat pads over the cheek and over the orbital margin (called the suborbicularis ocular fat or SOOF), giving a full and youthful appearance in the young (Figure 1).

With age, the SMAS sags and brings the eyebrows, the cheek fat and the SOOF down with it. The descent of SOOF causes exposure of the orbital bony rim giving a haggard look to the patient (Figures 2 and 3). As the eyebrows descend they overhang the eye, which is made worse by the stretching of upper lid skin due to loss of collagen and elasticity. In the orbit, the suspensory ligament that supports the eye weakens, so the eyeball descends down in the orbit, pushing the fat forward. The orbital septum, which usually holds the fat in the orbit, becomes lax with age, allowing the fat to prolapse.

### What are eye bags?

This refers to the prolapse of the orbital fat into the eyelids forming bulges. It can occur in both

upper and lower eyelids. The weak suspensory ligaments and the orbital septum are responsible for the fat prolapse (Figure 4).

### Can Medisave payment be used for blepharoplasty?

Blepharoplasty is becoming a necessity, because the elderly feel fatigued constantly trying to raise their eyebrows to keep the visual axis clear of the sagging upper lid skin.

For upper lid blepharoplasty, most hospitals will allow payment by Medisave as in most patients, the sagging skin obstructs the superior visual field and can hence be certified as medically necessary. The lower eyelid blepharoplasty is usually considered cosmetic, so Medisave cannot be used.

### What are the pre-requisites for a successful blepharoplasty?

Good dialogue between the doctor and the patient is necessary to understand the patient's concerns and expectations. A thorough knowledge of any underlying systemic condition of the patient is essential. If the patient is on aspirin, it should be stopped at least one or two weeks before surgery.

It is very important to preserve the function of



**Figure 1:** Superficial muscular aponeurotic system (SMAS) of the face.

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Figures 2 and 3: Descent of SOOF with aging, exposing orbital margin.



Figure 4: Patient with orbital fat prolapse in the lower lids.

the eyelids while trying to achieve the best aesthetic result. As such, blepharoplasty has to be done by trained surgeons only.

On clinical examination, it is important to note the eyebrow position (the normal position of the lateral eyebrow is usually a centimetre above the superior orbital margin, slightly higher in females and lower in males), excess skin, presence of fat bulges and the tendency to keloid formation. The presence or absence of involutional ptosis must be noted before an upper lid blepharoplasty. For a lower lid blepharoplasty, it is important to note the presence or absence of lower lid laxity, condition of the SOOF and the Fitzpatrick skin type if one is planning a laser resurfacing.

#### Upper lid blepharoplasty

It is usually done under local anaesthesia. The excess skin is marked in a lazy 'S' incision (Figure 5). The skin and the orbicularis are excised en-bloc. The orbital septum is now exposed (Figure 6) and it can be opened and fat clamped and excised. It is important to achieve complete hemostasis. The skin is closed with a fine nylon or prolene suture for a better cosmetic result. Figure 7 shows the post-operative result of a laser blepharoplasty.

#### Scalpel incision versus CO2 laser incision

For the incision, a scalpel or CO2 laser in a cutting mode can be used. Studies have shown that there



Figure 5: Excess skin marked in a lazy S incision.



Figure 6: Excess skin and muscle removed with CO2 laser exposing orbital septum.



Figure 7: Post-operative picture of a patient who underwent CO2 laser blepharoplasty.

is no statistical difference in the end result between a scalpel incision and a laser incision.

The advantage of CO<sub>2</sub> laser is bloodless field. However, the wound healing is slightly delayed.

If CO<sub>2</sub> laser is used for skin incision, the suture removal is done after one week, compared to a scalpel wound where the sutures can be removed by the 4<sup>th</sup> or 5<sup>th</sup> post-operative day. A defocused CO<sub>2</sub> laser beam can be effectively used to sculpt the fat where the prolapse is not very severe. The immediate post-operative bruising may be a little less when CO<sub>2</sub> laser is used.

#### Adjunct procedures for upper lid blepharoplasty

##### *Brow lift*

When the eyebrow droops, it is important to stabilise the eyebrow in its place before performing a blepharoplasty. If the brow descent is not very severe, it can be fixed through the blepharoplasty incision. The procedure is called a brow-pexy. Figures 8 and 9 show pre- and a post-operative pictures of a patient who underwent a brow lift and a blepharoplasty.

##### *Complications of upper lid blepharoplasty*

In the immediate post-operative period, there may be a mild lid lag, so the patient may not be able to close the eye completely. The patient must be

advised to use lubricants to prevent corneal drying. However, this improves rapidly and the lid closure returns to normal within a week. If excess skin is excised, the lid closure is defective and can cause exposure keratopathy and corneal ulcer (Figure 10). It is the usual practice to preserve the excised patient's skin for 5-7 days at 4° centigrade and reuse if the lag is very severe.

If the descent of the eyebrow is not recognised, removing the skin of the eyelid may bring the eyebrow further down, causing an unsatisfactory result.

#### Lower lid blepharoplasty

Unlike the upper lid where the excess skin excision is the mainstay, in lower lid blepharoplasty, the skin excision needs to be carried out with extreme caution as some amount of excess skin is necessary when the mouth opens as in yawning or when we look up. The main objective of lower lid blepharoplasty is to remove the eye bags or prolapsed orbital fat. It can be done by two ways:

1. through a trans-cutaneous approach (Figure 11), where an incision is made below the eyelashes (sub-ciliary)

OR

2. through a trans-conjunctival approach (Figure 12), where the incision is placed in the conjunctiva.



**Figure 8:** Pre-operative picture of a patient with brow droop and excessive upper lid skin.



**Figure 9:** Post-operative picture of the same patient in Figure 8 after brow lift and blepharoplasty.



**Figure 10:** Blepharoplasty done by a beautician showing corneal exposure in both eyes.

### *Trans-cutaneous approach*

The advantage of the trans-cutaneous incision is that one can excise the excess skin at the same time. Provision must be made for the extra skin needed while opening the mouth wide and at the same time looking up. The orbital septum is opened and the prolapsed fat pads are clamped and excised. There are three fat pads, medial, middle and lateral fat pads. Hemostasis is achieved and skin closed with a fine suture. CO2 laser can be used for cutting.

The disadvantage of this approach is a visible scar in the skin and occasionally, scarring of the septum causing unsightly scleral show or an ectropion.

### *Trans-conjunctival approach*

The fat pads are approached directly through the fornix and removed. (Figure 13 and Figure 14).

The advantage of this approach is that there will be no visible scar (Figure 15). The fat pads are directly approached from the posterior aspect and excised. The scar does not cause any lower lid retraction or ectropion. CO2 laser can be used to this advantage.

The disadvantage of this procedure is that if there is excess skin, it needs to be addressed by a separate skin incision at the same sitting. This approach still has the advantage of a lower risk of ectropion and lid retraction, so is preferred to trans-cutaneous approach by many oculoplastic surgeons.

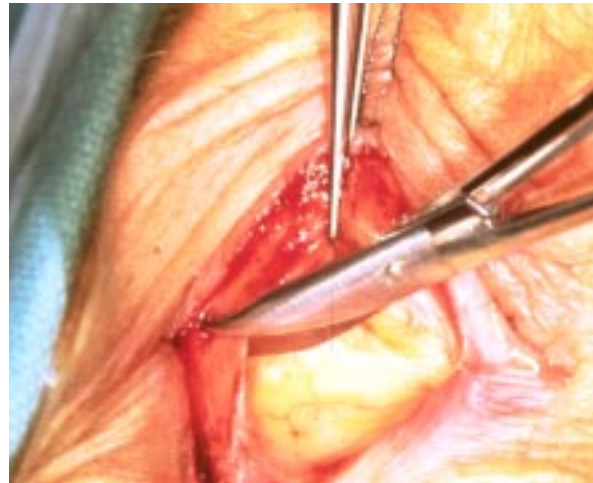


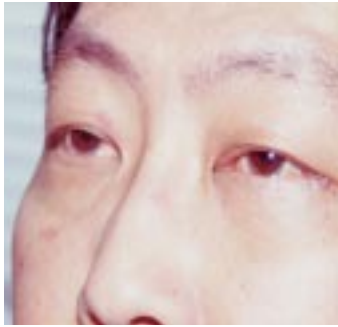
Figure 11: Fat removal through transcutaneous approach.



Figure 12: Transconjunctival incision using CO2 laser.



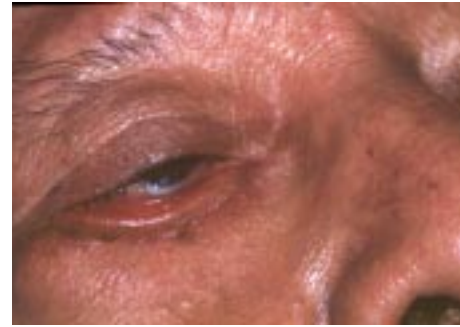
Figure 13 and 14: Fat removal through conjunctival approach using CO2 laser.



**Figure 15:** Post-operative result of a patient after transconjunctival lower lid blepharoplasty, showing a smooth contour.



**Figure 16:** Appearance of a patient 5 days after CO2 laser resurfacing.



**Figure 17:** Ectropion after a transcutaneous lower lid blepharoplasty. Laxity of eyelid overlooked.

#### *Adjunct procedures for a lower lid blepharoplasty*

1. Lower lid laxity needs to be addressed, so a lid tightening procedure is done at the same sitting.
2. SOOF lift can be done at the same time by dissecting the fat pad and stitching it to the periosteum of the inferior orbital margin. If the SOOF has descended, removal of the prolapsed fat will expose the orbital rim giving an unsatisfactory result.
3. CO2 Laser re-surfacing: If the skin laxity is not much and if the patient has Fitzpatrick skin type 1-4, CO2 laser can be used for re-surfacing the skin. The aim of CO2 laser re-surfacing is to remove the epithelium and the papillary dermis, allowing the skin to renew the collagen. This helps to remove superficial wrinkles (Fig 16).

Resurfacing in Asians has to be done with caution as the skin has a tendency to develop pigmentation during the healing process. It is important to prepare the skin with bleaching agents and Retin A before the surgery and post-operatively and the patient is advised to avoid sun radiation for at least 6 weeks. The other disadvantage of laser re-surfacing is that the Herpes viruses may be re-activated, so prophylactic anti-viral and oral antibiotics are advised in the peri-operative period.

#### *Complications of lower lid blepharoplasty*

Blindness due to haemorrhage has been reported after lower lid blepharoplasty, though very rare. Ectropion (Figure 17), lower lid retraction with scleral show are the two most common complications. By recognising the presence of lid laxity and by judicious excision of skin, the above complications can be prevented.