Dear friends and colleagues,

It is indeed a pleasure to bring to you yet another issue of iPlastics which focuses on eyelids and aesthetics. As we all know, eyelids are complex anatomic structures and a sound knowledge of both the form and function of it is essential to achieve good surgical outcome in ophthalmic plastic and reconstructive surgery. The eyelids not only act to protect the anterior surface of the globe from local injury but also aid in tear film production, maintenance, distribution and drainage. Other vital aspect of eyelids is the aesthetics. Eyelids have important role in beauty associated with facial appearance. First sign of aging is seen around the eyes and the mouth.

This issue presents our readers with an interesting blend of topics from eyelids and aesthetics. This issue will begin with various APSOPRS activities covered by President Dr Raoul with tittle of President Corner. Dr Saiju has contributed with a review on management of ptosis associated with the Marcus Gunn Jaw winking phenomenon where he will discuss the challenges and solutions for the notorious cases of lids which droops and winks. Dr Naik will present an overview on periocular aesthetics an overview of problem with novel way to approach to the problem. Dr Masashi will deal with sub brow incision blepharoplasty giving us insights about the current perspectives on management. Dr Kasturi will present us the tearful tear trough anatomy and its management. Finally, at last we have a small cover story of Cambodia trip as APSOPRS members by Dr Akshay.

We hope that the contents bestowed upon to our valued readers will be well taken up, however, any criticisms and comments are always welcome.

I would also like to take this opportunity to call our esteemed readers of iPlastics to contribute to the upcoming issue which will focus on Orbital disorders. The guidelines have been included at the end of the newsletter.

Finally, I would like to thank Mr. Binesh K Maharjan for the layout of the newsletter.

Happy new year 2020.

Best Regards,
Ben Limbu M.D.
Editor – In – Chief
APSOPRS 2019 -2020
### Editorial

“The eyes are the window to your soul” – William Shakespeare  
*Ben Limbu MD*

### President’s Corner

President’s Corner  
*Raoul Paolo D. Henson, MD*

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President's Corner

Happy New Year to all our members! 2019 was a fruitful year for me as the incumbent president of the APSOPRS. I was able to visit many countries in just one calendar year. The goal was to visit our fellow members and also organize oculoplastic societies in Asia-pacific countries with no organizations yet. Two countries that I have visited with no societies were Vietnam and Cambodia. I was able to talk to the key oculoplastic leaders in both countries and they were committed in organizing their own oculoplastic interest groups. A couple of highlights during the year were the keynote speakership during the ESOPRS in Hamburg and the APSOPRS history lecture during the ASOPRS meeting in San Francisco. I was able to impart our society's achievements in the past 20 years and also created more collaboration with both mother societies in the future. These are the following countries I visited:

1. Singapore (ITEDs)
2. Bangkok, Thailand (APA0)
3. Nice, France (European Society of Ophthalmology)
4. Hamburg, Germany (ESOPRS)
5. San Francisco, USA (ASOPRS and AAO)
6. Vinh, Vietnam (Vietnamese Ophthalmological Society)
7. Siam Reap, Cambodia (ASEAN Ophthalmological Society)
8. Xian, China (100th anniversary of Xian Fourth (Eye) Hospital
9. Bangkok, Thailand (Chulalongkorn Soft Eye Dissection course)

Members are the backbone of any society, therefore we encourage our members to invite their local colleagues to join APSOPRS. Becoming an APSOPRS member is very easy. Just go to our official website apsoprs.org and click “membership application” marked in red. Follow the instructions, fill up the form, upload the essential certificates and submit. It can be a first-time application, renewal or upgrade to life member. Once the admissions committee approves the applicant, all they have to do is pay the membership dues via Paypal. Once it goes thru, the new member will get a confirmation email and then receive his official members certificate via snail mail. It’s that fast and easy - thanks to the hard work
of our admissions committee namely VP Rohit Saiju and secretary Mary Rose Pe-Yan and our treasurer, Stephanie Young, for coordinating the payments. We are planning to announce the new members during the APSOPRS meeting in Manila so keep inviting your colleagues to join.

I want to also announce the major meetings that APSOPRS will participate this year. One is the APAO which will be held in Xiamen, China, the second is our participation in the WOC meeting in Cape Town, South Africa and then the AAO meeting in Las Vegas. I expect some of our notable members to attend and speak in these prestigious meetings.

Lastly, I would like to remind all of you regarding the ASPOPRS meeting in Manila. It will be held on November 25-27, 2020 at the Marriott Hotel, Pasay City. For more information kindly go to our congress website is apsorps2020.ph.

See you all soon.

Raoul Paolo D. Henson, M.D.
President
APSOPRS 2019-2020
The Marcus Gunn jaw-winking phenomenon is a rare problem varying in severity from a mild disorder to a significant cosmetic disability. It is a congenital clinical entity characterized by involuntary elevation of a ptotic upper eyelid concomitant with various movements of the mandible. Robert Marcus Gunn first described a “congenital ptosis with peculiar associated movement of the affected lid” in a 15-year-old girl in 1883[1], which was then called Marcus-Gunn syndrome or jaw-winking phenomenon and is also called Marcus Gunn phenomenon (MGP). This unilateral synkinetic reflex retraction of the upper eyelid occurs during mouth opening or lateral excursions of the mandible to the contralateral side. Also called Pterygoid-levator synkinesis, which is well-documented in medical literature.

Various theories have been proposed regarding the etiology of this disorder. Dual innervation of the levator palpebrae superior is muscle from both the oculomotor nucleus and external pterygoid portion of the trigeminal nucleus is one such theory. The second theory on innervation states that there is a reflex arc arising from the motor division of the trigeminal nerve to the gasserian ganglion, propagated along intraneuronal connections to the oculomotor nucleus and finally to levator muscle.[2] Jaw-winking phenomenon is reported in 2%-13% of congenital blepharoptosis patients[3]. Patients often have associated ophthalmological abnormalities including amblyopia, strabismus, anisometropia or superior rectus palsy. Patients with Marcus Gunn jaw-winking phenomenon (MGJWP) have a variable degree of blepharoptosis in the resting and primary position. Although MGJW syndrome is usually unilateral, it can present bilaterally in rare cases. The jaw winking phenomenon does not objectively improve with age, although patients are able to mask it after learning to control both their lid position and excursion [4].

The quest for the ideal technique for the correction of ptosis as well as jaw-winking phenomenon continues. Various techniques have been proposed from times immemorial. Although many surgical techniques to disable the levator complex have been described their results in terms of both jaw-winking, ptosis have reported. The aim of surgical treatment is to eliminate synkinetic eyelid movement and correct the ptosis. For moderate-to-severe jaw-winking, obliteration of the levator function followed by frontalis suspension using facia has been considered a good choice [5]. Anastomosis of levator and frontal muscles has described as alternative to above mentioned surgical technique.[6]. Many authors advocate bilateral surgery even with unilateral disease [7]. They reported a better outcome with bilateral repairs because the surgeon can regulate the lid movement better with bilateral manipulation rather than trying to match the natural ability of the unaffected levator muscle, ensuring a symmetrical result in primary gaze and with eye movements, particularly down gaze, with blinking and eyelid closure.

Mild MGJWP usually require no surgical intervention. Therefore, for mild MGJW with ptosis, ptosis alone may need to be corrected using a technique which is appropriate for the degree of ptosis. For moderate-severe MGJWP with fair-poor LPS one of the below
given techniques is entertained. Surgical intervention is considered for cases of ptosis and jaw-winking, which are cosmetically significant or causing amblyopia. Depending on the degree of ptosis and severity of jaw-winking, several surgical techniques have been proposed, which include:

1. The levator muscle resection or transposition.
2. Bilateral frontalis suspension after bilateral levator muscle resection.
3. Bilateral frontalis suspension after unilateral disabling of the involved levator muscle.
4. Unilateral levator resection with unilateral Frontalis sling would be required [8].

Bilateral levator muscle disabling with bilateral frontalis suspension or unilateral disabling of the involved levator muscle with bilateral frontalis suspension have been used widely for the treatment of moderate to severe jaw-winking. However, there is no consensus of a single best procedure.

In my practice, I prefer to do unilateral surgery under local or general anesthesia depending on patients age. Local anesthesia allows the surgeon to check symmetry during the operation. Even so, asymmetry did exist after surgery, especially with down gazing, blinking and eyelid closing, but these phenomena gradually improved over time. At six months after the operation, most patients showed symmetrical results even when down gaze. So for adults and older children, unilateral surgery under local anesthesia is a good choice.

Pre-operative parameters evaluated included amount of ptosis, severity of MGJWP, lid lag, position of the upper eye lid skin crease, lagophthalmos, levator palpebrae superior’s function, Bell’s phenomenon, and corneal sensation. Ptosis amount is measured using margin reflex distance (MRD). Doucet’s grading of jaw-winking phenomenon is followed where Mild is a case of < 2 mm; Moderate 2–5 mm; Severe >6 mm of lid movement [9]. The excursion of the upper eyelid with synkinetic jaw movement was measured with a millimeter ruler. Lagophthalmos was measured, in millimeters, during gentle eyelid closure.

**My surgical technique**

The surgery is performed under general anesthesia. A local anesthetic infiltration of equal parts 2% lignocaine with 1:100,000 adrenaline and 0.5% Bupivicaine is given to the affected lid after the marking. The eyelid and forehead incisions for brow suspension are marked by using a Fox pentagon technique. The first step is levator transection. After a lid crease incision, the orbicularis muscle is dissected to identify the orbital septum. The orbital septum is opened horizontally, then a Desmarre retractor is used to retract the preaponeurotic fat and allow for blunt dissection of levator muscle after disinsertion over the tarsal plate. The patient is instructed to open the mouth so that we can see the movement of levator muscle. The medial and lateral horns are incised. The patient is asked to open the mouth again to confirm that there is no residual synkinesis, levator falp is dissected bluntly from underlyling Muller and Conjunctiva then the levator aponeurosis is extirpated with giving incision at the Whitnall’s ligament. Three horizontal forehead incisions are given above the brow, medially above the medial canthal angle, laterally above the lateral canthal angle level and central in between these two about 5 mm above the brow line. A silicon rod is then secured over the tarsal plate with 6-0 vicryl suture. Then a Wright’s fascia needle is inserted from lower forehead incision to skin crease incision, hooked the silicon rod to it and is pulled back from the forehead incision. Similar procedure is done for the opposite end of the rod. Finally both ends of the silicon rod are brought out from the upper forehead incision thus forming a triangle. The silicon rod is then adjusted to bring the lid to the desired level and is

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**Figure 3. Dissection pf Fatpad upto Whitnall’s ligament**

**Figure 4. Levator Aponeurosis dissection before resect from Whitnall’s ligament**

**Figure 5. Retriving silicon rod from lid crease incision to brow incision**

**Figure 6. Final check for contour,crease and height of the lid**
tied together with a Watzke sleeve and is supplemented with 6/0 vicryl suture for reinforcement. The ends are then buried inside the skin. The skin incisions are closed with 6/0 vicryl. The skin crease incision is closed with an extra bite of orbicularis to superior border of tarsus to prevent lash ptosis. The eye is closed for 48 hours using Frost sutures and eye pad with ciprofloxacin eye ointment is applied.

Postoperatively, topical lubricants and antibiotics are given. Systemic antibiotics and analgesics are given in the early post-operative period for a week.

The most common postoperative problems in patients with ptosis include an asymmetrical lid level, undercorrection, overcorrection, loss of lid crease with eyelash ptosis, overhanging skin fold and entropion of the upper eyelid, lagophthalmos and so on[10]. To assess surgical outcomes, we measure the palpebral fissure height of two eyes in all patients pre- and post-surgery. Outcomes will be assessed looking at the following criteria:
1. Existence of jaw-winking phenomenon
2. Correction of Ptosis
3. Asymmetry of palpebral fissure sizes.
4. Crease and ocular asymmetry.

In summary, for moderate to-severe MGS, complete levator resection and frontalis sling surgery in affected eye generally provides satisfied correction of both jaw-winking synkinesis and ptosis, careful observation and adjustment during the operation will ensure symmetry and obliterating of synkinesis.

REFERENCES
INTRODUCTION

In today’s age, aesthetic appeal has become a desirable trait for both men and women. The face receives maximum attention when it comes to identity and as a sign of youth. In fact, the periocular region is often a candid indicator of someone’s age. Ophthalmologists are often consulted for lower eyelid concerns such as eyelid bags, dark circles under the eye, wrinkles around the eye, and under-eye hollows. The oculoplastic surgeon, and the astute ophthalmologist must therefore be a part of this service provider team. There is an increasing trend to seek non-surgical cosmetic corrections for aging changes as well as to enhance looks.1

With the inclusion of aesthetic facial plastic surgery as a part of the Ophthalmology curriculum by the International Council of Ophthalmology it is important to stay abreast with these modalities of treatment. Moreover, many of the complications that arise out of these therapies lie in the purview of Ophthalmology. To address this ‘clientele’, the ophthalmologist must have a thorough knowledge of periocular aesthetic procedures, such as Hyaluronic acid fillers, and Botulinum toxin.

Periocular wrinkles

Periorbital wrinkles are simply caused by contractions of the underlying muscles. The commonest muscles implicated in periocular wrinkles are shown in Figure 1. Relaxing the muscle underneath by injecting appropriate amount of Botulinum toxin can reduce the overlying wrinkle, thereby providing a younger look.2

Crow’s feet

Crow’s feet are fine or coarse rhytids (wrinkles) originating from the lateral canthus and project outward, often in a partial or full fan-like distribution (Figure 2). They are most prominent during the ‘dynamic’ state of smiling or squinting. With age, they may become visible even in the ‘static’ state, in certain patients. Several factors accelerate to the development of crow’s feet, including sun exposure, smoking, lack of subcutaneous fat, and redundant skin.

An assessment of crow’s feet should be performed at rest and while the patient is smiling. Four types of Crow’s feet rhytids were identified by Kane et al.3 A dose of 5-15 units of Botulinum toxin type A (Xeomin) can be injected per side, subcutaneously, about 1 cm lateral to the lateral canthus (Figure 3). Dose can be altered based on muscle function,
Milind Naik : Periorbital Aesthetics: Wrinkles, Hills, Valleys and Dark Circles

Horizontal forehead lines

The frontalis is the large forehead muscle responsible for raising the eye-brows and upper eyelids. This action, over time, results in the development of horizontal forehead lines due to contraction. Initially dynamic in nature, these lines with age can become static. The forehead is thus a major target area for botulinum toxin treatment owing to the vertical movement of the underlying frontalis muscle to lift the eyebrows during animation. The inferior frontalis fibers insert into the orbicularis oculi, the procerus, corrugator supercili, and depressor supercilii. Superiorly, the fibers insert into the galea of the scalp. A dose of 10-20 units of Botulinum toxin for women, and 20-30 units for men is recommended for forehead wrinkles (Figure 4). The injections are placed in two rows, starting at least 2 cm above the orbital rim (to avoid brow ptosis). Side-effects include brow ptosis and blepharoptosis.

Glabellar frown lines

The glabellar frown lines are caused by the two corrugator supercilli muscles placed horizontally, and the procerus muscle placed vertically. They collectively pull the brow medially and downward (Figure 5). The corrugator supercilli are two sets of horizontally oriented muscle that lie beneath the medial eyebrow, extending outward to about the mid-pupillary line. The procerus is a vertically oriented muscle that lies in between the eye-brows. In the glabella, there are typically five injection sites: one at each medial corrugator, one at each lateral corrugator (1 cm above orbital rim at the mid-pupillary line), and a single injection into the procerus. A dose of 20-30 units for women, and 30-40 units for men is recommended for glabellar frown lines (Figure 6). The dose can be considerably reduced if the patient wants only a reduction in action rather than complete akinesia. Side-effects include brow ptosis and blepharoptosis.

Brow contouring

While relaxing the muscles can treat the wrinkles over the skin above it, facial contouring can be done by altering the balance between two facial muscles. For example, the lateral half of the eyebrow can be raised by relaxing the frontalis medially, and relaxing the orbicularis oculi laterally (Figure 7).
Periocular Hills and Valleys

Botulinum toxin merely treats the wrinkles within the skin. The soft tissue contour changes around the eye (hollows and elevations) require Fillers or fat where there is a loss of volume, or surgical excision where there is an apparent excess. These can be best understood as either valleys or hills, and are applicable to the lower lid aging changes.

The Valleys

The hollows or Valleys in the lower eyelid region starting from eyelid margin downwards include the eyelid crease hollow, tear trough, and the zygomatic hollow (Table I).

Table 1: A simplified classification of the Hills and Valleys of the lower eyelid

<table>
<thead>
<tr>
<th>VALLEYS</th>
<th>HILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tear trough (Orbital rim hollow)</td>
<td>Orbicularis roll</td>
</tr>
<tr>
<td>Eyelid Crease Hollow</td>
<td>Orbital fat prolapsed (Fat bag)</td>
</tr>
<tr>
<td>Zygomatic hollow</td>
<td>Fluid bag</td>
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</table>

The Eyelid crease hollow

The eyelid crease hollow is formed by the cutaneous attachment of the lower eyelid retractors, and represents the surface marking of the lower border of the tarsus (Figure 8). This lower eyelid crease hollow is much less pronounced as compared to the upper eyelid crease, and is not linked to any bony attachment. It is bounded superiorly by the orbicularis roll, and inferiorly by the orbital fat prolapse.

Tear Trough or the Orbital Rim Hollow

The tear trough depression is an important feature of eyelid and midface aging. It is defined as the depression of the medial lower eyelid just lateral to the anterior lacrimal crest and limited in its inferior aspect by the inferior orbital rim. This region corresponds anatomically with the location of the lacrimal sac, hence the term “tear trough” (Figure 8).

It appears as a result of several factors, including loss of subcutaneous fat, thinning of the skin over the orbital rim ligaments, and descent of the cheek. Partly, the formation of the tear trough is also contributed by partial resorption of the underlying bony structure, the orbital rim. While the term ‘tear trough’ would be more appropriate for the younger age group (where it is not an aging change), in the older age group it is aptly termed as orbital rim hollow.

The Orbital rim hollow corresponds with the location of the orbital rim or orbitomalar ligament. Medially, it is synonymous with the ‘tear trough’. Laterally, it follows the circular contour of the inferior orbital rim. In the mid-pupillary line, overlying the infra-orbital foramen, the orbital rim hollow widens into a triangular pit.

The Zygomatic hollow

It corresponds to the location of the orbitozygomatic ligament (Figure 9). It lies along the origin of the levator labii superioris and zygomatic muscles. The zygomatic hollow is bound by the triangular malar fullness above and by the lateral cheek fat below.

Figure 8. The right eye demonstrating the Hills and Valleys around the eye (a). Note the orbicularis roll (o) and the tear trough (t) in relation to the interomedial orbital rim (r). The lacrimal sac (s) lies medially (bottom left and right), continuing below the orbital rim as the nasolacrimal duct. The ‘tear trough’ therefore does not lie over the orbital rim, but often lateral or superior to it.

Figure 9. The left eye demonstrating the three periorbital hollows. The red line marks the eyelid crease hollow that divides the orbicularis roll (above) and fat bag (below). The green line marks the orbital rim hollow. Medially it represents the tear trough. Note the widened triangular pit along the mid-pupillary line. The orbital rim hollow marks the lower limit of fat bag. Orbital rim hollow can sometimes be visible along the superior orbital rim. The violet line represents the zygomatic hollow, which extends inferolaterally from the mid-point of orbital rim hollow. The triangular area between the lateral half of the orbital rim hollow and the zygomatic hollow is termed as the triangular malar mound (asterix).
The Significance of the Valleys

The Eyelid crease hollow is an important landmark of diagnostic significance. It helps differentiate the two hills that are later described in this article: orbicularis roll (which lies above it), and fat bag (which lies below it). From a treatment perspective, it is not required to address it.

Amongst all the valleys, the tear trough (orbital rim hollow) receives the maximum attention with respect to treatment modalities. Hyaluronic acid fillers, and autologous fat transfer are the two commonly employed techniques to fill this valley (Figure 10). Several commercial preparations of Hyaluronic acid fillers are available, along with recommendations for use. In majority of cases, filling is required in the medial half (medial to the mid-pupillary line). One of the widely discussed and grave complications of filler injection is ‘blindness’ caused by retrograde migration of the filler particles, thereby causing central retinal artery occlusion. It is important for ophthalmologists to be aware of this complication.

The Zygomatic hollow receives attention with respect to the filling of the malar volume loss. Filling the zygomatic hollow along with the tear trough restores the malar volume and thereby the malar prominence.

Brow deflation

An important area of ‘volume loss’ (can be considered as a valley) in the upper eyelid is the loss of brow fat pad. This is most apparent in the central and lateral region, and often leads to an appearance of ‘pseudo-dermatochalasis’ (Figure 11).

The Hills

The elevations or ‘hills’ that occur in the lower eyelid and malar region starting from eyelid margin downwards include the prominent orbicularis roll, orbital fat/fluid bag, and triangular malar mound (Table 1).

Prominent Orbicularis Roll (Orbicularis Hypertrophy)

The pre-tarsal lower eyelid orbicularis roll can be excessively prominent in few, causing a cosmetic concern. It becomes more prominent when the orbicularis contracts during facial expressions such as smiling, leading to near complete closure of the palpebral aperture of the eye.

Orbital Fat prolapse

This could be considered as the commonest lower lid ‘hill’ that presents to the ophthalmologist or cosmetician. Orbital fat prolapse is bound superiorly by the septal confluence hollow, and inferiorly by the orbital rim hollow. The fat mound is often compartmentalized by the inferior oblique and the arcuate expansion into a central, medial, and lateral fat pad (Figure 12). The fat actually lies in a deeper plane, behind the orbital septum. The orbital fat seems more prominent with advancing age, and also with upgaze. It appears to reduce on downgaze.

Figure 11: Pseudodermatochalasis caused by mild loss of brow fat pad. The apparent skin fold disappears after filler injection into the brow fat pad, and does not require a blepharoplasty.

Figure 12: Differentiating lower eyelid fat bags (top) from fluid bags (bottom). Note the compartmentalization of the fat bags (top left), increase in upgaze (top centre), and decrease in downgaze (top right). Fat bags are bound inferiorly by orbital rim hollow. In comparison, a fluid bag is not compartmentalized, and does not change much with gaze (bottom left, centre and right images). Its borders are indistinct, and may not always be restricted by orbital rim hollow.
Fluid Bag

Eyelid fluid bag can mimic fat prolapse, and it requires experience to differentiate the two (Table II). It would be bound superiorly by the eyelid crease hollow. Inferiorly, it need not be bound by the orbital rim, and may extend beyond it. It also does not show the typical compartmentalization like fat bags, and appears more or less the same in upgaze and downgaze (Figure 12). Fluid bags can have a bluish hue, and may be worse in morning hours, during the menstrual period, facial allergy, or even after a salty meal. Rarely, orbital fat and fluid may coexist.

The Triangular malar mound

The triangular malar mound or malar festoon is a fluid bag located inferolateral to the orbital rim. It is bound above by the orbital rim hollow, and below by the zygomatic hollow (Figure 2). Prominent triangular malar mounds often run in families and can be variable. It is often more prominent in patients with thyroid disorder due to the increased fluid retention in this region. It may also have an allergic component. With loss of skin elasticity, the malar mound can become an actual festoon.

The Dark Circles (Periocular hyperpigmentation)

Periorbital hyperpigmentation or ‘dark circles’, is another common cause of an aged or tired appearance. Under eye hyperpigmentation has both anatomical, internal and environmental causes. Often more than one reasons are at play.

Eyelid skin is the thinnest in the body and does not have fat under it. This allows fine blood vessels (capillaries) and eyelid muscle fibers to be almost ‘seen through’, thereby giving a reddish-blue color to the skin due to underlying vessels and muscle. Compare it to the lighter color of the cheek skin for example, which is much thicker, and has fat underneath it. Reduced sleep can lead to dilatation of these vessels, thereby increasing the ‘shade’ of under-eye darkening.

There can be excessive pigment (Melanin) in the skin under the eyes, which may increase due to eye allergy, a hormonal influence on pigment cells, or a reaction to a topical cream or medication. Moreover, Indian skin is overall more pigmented, making these contrasts even more striking. Lifestyle-related causes include sun exposure, inadequate sleep, overuse of alcohol and smoking.

Sometimes, the lower-eyelid contour can make it appear ‘darker’. For example, lower-eyelid fat bags or a hollow, the dark shadows will be more obvious.

Customized approach

The volumetric changes in the lower eyelid require a customized approach. It is useful to first establish an anatomic definition for the patient’s ‘tired look’. Is it the fat bag? Or is it the orbital rim hollow? Going through the previous photographs of the patient often helps determine which finding has appeared recently. It is always helpful to ‘rewind’ the years by addressing that recent change, rather than give a new look to your patient.

Table 2 : Differentiating features between lower eyelid fat bag and fluid bag.

<table>
<thead>
<tr>
<th>Features</th>
<th>Fat Bag</th>
<th>Fluid bag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variability</td>
<td>Constant (increases slowly over years)</td>
<td>Variable from day to day</td>
</tr>
<tr>
<td>Upper limit</td>
<td>Septal confluence hollow</td>
<td>Septal confluence hollow</td>
</tr>
<tr>
<td>Lower limit</td>
<td>Orbital rim hollow</td>
<td>May extend beyond orbital rim hollow</td>
</tr>
<tr>
<td>Contour</td>
<td>Compartmentalized into central, medial and lateral fat pads</td>
<td>Single, smooth contour</td>
</tr>
<tr>
<td>Changes with gaze</td>
<td>Increases in upgaze; decreases in downgaze</td>
<td>Similar in all gazes</td>
</tr>
<tr>
<td>Anatomic location</td>
<td>Orbital (behind orbital septum)</td>
<td>Sub-cutaneous (anterior to the septum)</td>
</tr>
<tr>
<td>Treatment</td>
<td>Fat excision or repositioning</td>
<td>No effective treatment available</td>
</tr>
</tbody>
</table>
Fluid accumulation within the thin lower eyelid skin is another cause of under-eye hyperpigmentation. Systemic causes include heart, kidney and liver disease, Addison’s disease; and circulatory disturbances that lead to fluid retention in the body. Post-inflammatory hyperpigmentation may also occur in patients with eczema or atopy.

The natural reasons why eyelid skin looks darker cannot be eliminated, but some remedies can be suggested. Sun protection with the use of physical and chemical sunscreens is important in the prevention of dark circles. Good hydration thickens the eyelid skin, thereby making it less ‘transparent’, and cold compresses help reduce the caliber of the blood vessels that are seen through the thin skin. A minimum of 8 hours of sleep would ensure that the under-eye skin looks healthy.

Next, we need to target excessive pigment in the skin. The first step is to address any obvious precipitating cause if it can be identified, for example eye allergy, or an uncorrected/changed spectacle correction. Certain under-eye creams can reduce the pigment production within the skin cells and can effectively reduce these dark areas. Hydroquinone is the best when it comes to skin lightening creams. It is recommended to use them only under the direct supervision of a dermatologist or oculoplastic surgeon. Non-invasive methods such as the use of Intense Pulsed Light (IPL) and Q-switched lasers work by targeting the excess pigment and vascularity, reducing hyperpigmentation.

Lastly, the dark circles caused by the hollows and fat bags under your eyes. These contour changes increase the dark circles by creating a shadowing effect. It requires removal of the eyelid bags, or filling of the hollow with fillers (Figure 9).

In summary, good hydration (plenty of water), treatment of any eye allergy, skin lightening creams, and effective treatment of under-eye contour changes (bags and hollows) can reduce the dark circles significantly. Improvement is the key, not perfection.

**CONCLUSION**

The periorcular region is the first to reveal aging changes on the face. Optimal use of botulinum toxin and fillers to enhance the periorbital and facial aesthetics is an art and science. With the advent of so many effective and quick non-surgical treatment options, patient requirements also continue to evolve and become more demanding. Keeping the techniques and knowledge that goes hand-in-hand with them, both in terms of scope of treatment and limitations of these agents, in an ophthalmic surgeon’s armamentarium is necessary for an expanding and exciting practice.

**REFERENCES**

SUMMARY

Blepharoplasty by the trans-crease approach is the most common procedure for dermatochalasis repair; however, recently, sub-brow incision blepharoplasty (SBBP) has come out as another choice for the blepharoplasty especially in east Asian countries such as Japan or Korea. The Pros of SBBP are to achieve an adequate amount of skin removal and to prevent puffy crease after surgery even for patients with severe dermatochalasis, and the Cons is possibly unfavorable scar formation after surgery. This report introduces the basics, tips, and tricks of SBBP to share our experiences and to give a surgeon the new option for dermatochalasis surgery.

INTRODUCTION

Dermatochalasis is one of the most prevalent diseases in the oculoplastic and reconstructive surgery field. Upper blepharoplasty for the dermatochalasis may be the first operation for an oculoplastic and a plastic surgeon who is a specialist in the face for both functional and cosmetic purposes. For the functional purpose, we perform the surgery mostly to elderly patients who perceive bothering of the upper visual field because of dermatochalasis. For cosmetic purposes, to repair puffy eyelid or irregular crease and/or to create new crease will be the target of the surgery.

The concept of excess upper eyelid skin removal is said to be developed in the 10-11th century by Arabian surgeons, and Karl Ferdinand Von Graefe officially reported the term “blepharoplasty” when he describe about eyelid reconstruction surgery in 1818. [1,2] In Japan, blepharoplasty was first reported by several ophthalmologist in the late 19th century, i.e., Kohmoto introduced trans-crease approach functional blepharoplasty in his textbook in 1891.[3] Since then, numerous variation of procedures are introduced in all over the world and blepharoplasty via upper crease incision has been the most commonly selected procedure; however, sub-brow incision blepharoplasty (SBBP) was first introduced by Parke in 1954 for Caucasian [4] and has been slowly accepted since Sugimoto introduced it for Asian in 1991.[5] and several authors follow to evaluate and customize the procedure.[6–11]

Among the rest, I had been selected upper crease incision blepharoplasty (UCBP) as my first choice for my dermatochalasis patients since I started my practice in 2002 and rarely selected SBBP to be afraid of the unfavorable scar after surgery. However, occasionally, puffiness and fullness of upper crease after UCBP has been cosmetically unacceptable. (Figure 1 and 2) Thus, I have customized my procedure to reduce scar formation after SBBP, and now, my choice of surgery for dermatochalasis has been reversed that more than...
95% of cases would be applied SBBP rather than UEBP. Herein, I’d like to introduce my preference of SBBP with somewhat of tip and trick for hint to obtain a successful outcome.

**Candidate**

Any dermatochalasis patient except who has a history of keloid diathesis. A relatively young patient who has mild dermatochalasis and wants re-form or create new crease could be preferred UCBP with or without SBBP. Patients with brow ptosis could be done SBBP combined with or after brow ptosis repair.

**Design**

1. In sitting position, mark a line just below the brow following the natural curve of the brow line. (Figure 3-a)

2. Manually move the brow from the accurate position, upper orbital rim (Figure 3-b), to the position achieving desired eyelid skin volume and make a dot mark at the point (Figure 3-c).

3. This mark will be made medially, centrally, and laterally, then connect the three marks in natural shape following the striae. (Figure 3-d)

4. Pinch the designed skin to demonstrate the result and make sure not to raise lagophthalmos. (Figure 3-e)

---

**Surgical Technique and Postoperative Care:**

1. Local anesthesia using 1% lidocaine with 100,000 epinephrine

2. Try one sharp cut of the full thickness of skin using blade, not cautery (Figure 4-a)

3. Remove residual skin in one layer (Figure 4-b)

4. Dissect approximately 2mm in the layer between orbicularis and orbital septum in the caudal side of the wound (Figure 4-c)

5. Subcutis level closure using 6-0 non-absorbable suture from the lateral side to avoid dog ear formation (Figure 4-d and 4-e)

6. Close superficial skin using 7-0 non-absorbable suture in continuous mattress fashion (Figure 4-f)

7. Surgical taping over the wound and cover with enough eye ointment not wound to get dried until suture removal at 1 week post-surgery. Dressing using gauze and elastic tape will be removed post-surgery day 1. (Figure 5)

8. Avoid direct sun exposure until 3-6 months post-surgery
DISCUSSION

The condition of the upper eyelid is one of the most influencers of the face. Thus, dermatochalasis may have a significant impact on the disfigurement of the face. However, the pattern of dermatochalasis may differ in different ethnic populations, such as East Asian vs. Caucasian.[12] From my limited experience, flatter face who has a longer distance between eyebrow and eyelash represented by East Asian population may tend more likely to complicate severe dermatochalasis. Patients in such condition lift brow upward to compensate and to keep their visual field, which results in forming unfavorable forehead wrinkles, headache, and/or even shoulder stiffness. (Figure 6) On the other hand, the population who has prominent foreheads such as the Caucasian may have brow ptosis rather than lifting the brow. Besides, the population with a flatter midface has thicker skin.[12] These anatomical differences not only in soft tissue, but the bony structure may affect the phenotype of dermatochalasis.

The essentials of successful dermatochalasis repair for functional and for cosmetic purposes is to remove an adequate amount of skin and to form a beautiful crease, respectively. In Japan, cosmetic surgeries are basically not performed by an ophthalmologist in the academic institutions. Our institution is not exceptional that our dermatochalasis patients are undergone surgery for functional purpose, that those are mostly elder and with advanced dermatochalasis. Thus, their request is to resolve those medical symptoms and to back to midface they used to without anyone’s remark, if possible. From all the above, I now prefer SBBP for my patients to achieve a natural finish of upper eyelid condition in terms of original, spontaneous contour, and plain crease fold.

The skin between brow and eyelash is known that more supra is thicker, reported in a literature that is more than three times.[13] Thus, if UCBP has done with the large volume of skin removal, the new crease fold may be formed with thick skin, which results in puffiness and fullness. (Figure 1 and 2) To avoid this, I prefer UCBP only for the patient with mild dermatochalasis who need less than 5mm skin removal, who want new artificial prominent crease, and/or single crease patients who need additional skin removal after SBBP. Certainly, UCBP can be done combined with SBBP. Besides, blepharoptosis may often complicated to dermatochalasis. For those, I prefer small incision ptosis repair without UCBP first and then perform SBBP 1-2 months after. (Figure 7) The reason I don’t combine UCBP with ptosis repair is to avoid puffy crease and to maximize the effect of ptosis repair, avoiding post-surgical inflammation. In addition, brow usually will be relaxed to drop after ptosis repair that residual skin may increase after the ptosis surgery. SBBP after ptosis repair may be reasonable in terms of all the above.
Figure 8: A series of clinical photographs of moderate dermatochalasis patient who has no crease originally underwent sub-brow incision blepharoplasty. a) Pre-surgery. He requested not to make crease after surgery, b) One-week post-surgery. Note redness and swelling of the wound because this patient removed surgical tape at next day of surgery and did not apply ointment at all. c) Two-months post-surgery. Note that inflammation at the wound is settled, but a thin line, especially in the wound of the right eyelid, is remained.

Figure 9: A series of clinical photographs of a patient who is a farmer with moderate dermatochalasis of thick skin underwent sub-brow incision blepharoplasty. a) Pre-surgery, b) One-month post-surgery. He got sunburned after surgery because of his work and noted that the wound has prolonged inflammation.

Although SBBP has advantages as such, sub-brow scar formation after SBBP is not negligible. I have been trying to obscure the incision line and reached that intra- and post-surgical tips described above are essential. Meticulous surgical techniques are to say nothing of, but I think post-surgical care is also very important. In terms of the wound healing process, stimulation of wound by traction, dryness, and radiation by the sun should be avoided for successful wound healing. (Figure 8,9) There is no major complications for SBBP, but surgeons should strive for meticulous hemostasis to prevent post-surgical bleeding.

CONCLUSION

SBBP is one of the pleasing surgeries both for patients and surgeons. I now apply approximately 300 of SBBP for my dermatochalasis patient per year and achieve a successful outcome without any serious complications. I believe that there are more techniques to achieve a better outcome, but these my preference may give a hint to APSOPRS surgeons to perform successful dermatochalasis repair.

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INTRODUCTION

The term ‘tear trough deformity’ was conceived by Flower. He postulated that volume loss, descent of ageing tissues and poor development of the infraorbital malar complex resulted in the tear trough deformity formation. Treatment options for the tear trough deformities include filler injection, fat grafting, and lower eyelid blepharoplasty with fat repositioning or combination of all of the above.1

AIM

This article highlights the anatomical nuances of the tear trough, and its management options. The authors feel there have been ongoing drifts favoring the non-surgical approach for management of the tear trough deformity with the help of dermal fillers which can be performed more accurately and safely as compared to surgery. Proper planning details of the injection approach along with preoperative and postoperative photographic documentation is the key to a successful procedure, and a happy patient.

Keywords

Tear trough anatomy, deformity, dermal fillers, tyndall effect

BACKGROUND

The eye is an important window for facial expression, and dermal fillers can give a large impact on the science of ageing and its psychological cognition. Fillers are a few of the most prevalent non-surgical interventions for facial cosmesis. Symptoms such as excess sagging of skin, droopy eyelids, dark circles, prominent tear trough as well as weared looking can be rectified with dermal fillers.2

MATERIAL AND METHODS

For proper understanding of tear trough management, the surgical anatomy of the lower lid is of prime importance. (Figure 1) The skin of the eyelids comprising the epidermis and the dermis is the thinnest skin in the body, thereby allowing it for ample stretch during blinking and retraction. It is loosely attached to the underlying muscles rendering it to be a potential site for relatively large quantities of fluid accumulation subcutaneously. Deep to the skin lies the orbicularis oculi muscle (OOM) which is divided into orbital and palpebral portions. The palpebral portion can again be divided into the pretarsal portion (the muscle superficial to the tarsal plates) and the preseptal portion (the muscle superficial to the orbital septum).

The bones of the medial orbital rim and the medial canthal tendon give origin to the orbital portion of the orbicularis oculi. Thereafter, the peripheral fibers sweep across the eyelid over the orbital margin in a series of concentric loops. In the lower eyelid, the orbital portion merges into the cheek, after covering the origins of the elevator muscle of the upper lid and nasal ala. The preseptal portion of the orbicularis oculi muscle takes its origin from the medial canthal tendon and lacrimal diaphragm and inserts at the lateral canthus after passing along the lid. The upper and lower pretarsal muscles insert to the common lateral canthal tendon. Medially, the fibers form the medial canthal tendon, inserting on the medial orbital margin, the anterior lacrimal crest, and nasal bones. The lower eyelid skin is supplied principally by the infraorbital branch of the maxillary nerve and few branches of the lacrimal and infratrochlear nerves.3,4

The orbicularis oculi attach to the inferior orbital rim directly starting from its point of origin up to the level of the medial carneoscleral limbus. Thereafter, laterally the orbital retaining ligament forms the indirect attachment between the muscle and the bone. The ligament extends from the orbital rim to the undersurface of the orbicularis. The expanded lateral end of the orbital retaining ligament merges with the lateral orbital thickening.5 This ligamentous expansion has been variously identified as the orbito-malar ligament by Kikkawa et al6 and as the malar septum by Pessa et al.7,8

The tear trough ligament has been considered as a true osteo-cutaneous ligament by Wong et al.9 Goldberg had conceived the idea of the tree hollows: the orbital rim hollow, the zygomatic hollow, and the septal confluence.
hollow. Of this, the medial portion of the orbital rim hollow is often deepened and corresponds to the tear trough deformity with attachment of skin to the bone resulting in localized hollowing in those regions. Aging on the facial region is a function of volume loss. Loss of volume in areas of skin adherent to the bone can cause alteration in facial contours which look like gravitational descent. Identification of these hollows help in the prototype framework amenable to dermal fillers for rejuvenation.

Loeb Hypothesized that the “nasojugal fold” was due to the anatomical variations wherein the orbital septum is attached to the inferomedial portion of the arcus marginalis with a triangle-shaped deficient area bounded by the angular muscle on one side and the orbicularis oculi muscle on the other.

The term, “tear trough deformity” is appropriate for the medial oblique peri-orbital depression spanning from the medial canthus to the midpupillary line. Lateral to this, the hollowness is the “palpebromalar groove,” “nasojugal groove,” or the “lid-cheek junction.”

Sidick et al. developed the TTRS (Tear Trough Rating Scale) by objectively and subjectively evaluating the clinical appearance of the tear trough with regard to depth of the trough, hyperpigmentation, volume of prolapsed fat, negative vector and skin rhytidosis.

| Grade 0 | Absence of medial or lateral lines demarcating the arcus marginalis or the orbital rim, and a smooth, youthful contour without a tradition zone at the orbit-cheek junction |
| Grade I | The mild, subtle presence of a medial line or shadow; the smooth lateral transition of the lid-cheek junction |
| Grade II | Moderate prominence of an evident demarcation of the lid-cheek junction, extending from medial to lateral |
|          | Severe demarcation of the orbit-cheek junction, with a lucid step between the orbit and therefore the cheek |

**Figure 1: Tear Trough**

**FIGURE 2 BARTON’S GRADING SYSTEM BASED ON ANATOMIC ANALYSIS**

<table>
<thead>
<tr>
<th>Atrophy</th>
<th>Bulging</th>
<th>Laxity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0: No Atrophy</td>
<td>B0: No Bulging</td>
<td>L0: No Laxity</td>
</tr>
<tr>
<td>A1: Tear Trough</td>
<td>B1: Eye Bags</td>
<td>L1: Cheek Laxity</td>
</tr>
<tr>
<td>A2: A1+Pmg</td>
<td>B2: Malar Festoon</td>
<td>L2: Lower Eyelid Laxity</td>
</tr>
</tbody>
</table>

**FIGURE 3: ABL CATEGORISATION-PENG ET AL.**

**FIGURE 4: HIRMAND’S CLASSIFICATION SYSTEM OF THE TEAR TROUGH DEFORMITY BASED ON CLINICAL EVALUATION.**

- **Class I:** Patient has a volume loss of limited medially to the tear trough. These patients can also have mild flattening extending to the central check.
- **Class II:** Patient exhibit volume loss in the lateral orbital area in addition to the medial orbit, and they may have moderate volume deficiency in the medial check and flattening of the central upper.
- **Class III:** Patient presents with a full depression circumferentially along the orbit rim, medial to lateral.
The New Classification System

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hill</td>
</tr>
<tr>
<td>2</td>
<td>Valley</td>
</tr>
<tr>
<td>3</td>
<td>Hill-Valley</td>
</tr>
<tr>
<td>4</td>
<td>Hill-Valley-Hill-Valley</td>
</tr>
<tr>
<td>5</td>
<td>Mixed</td>
</tr>
</tbody>
</table>

Evaluation should include a thorough:

- Medical history
- Ophthalmic history including any surgical interventions
- Ocular examination
- Examination of the periorbital skin
- The preexisting dry eye status.

Physical examination should take into account:

- Lower eyelid position (inferior sclera show, and horizontal lid laxity)
- Cheek projection (tear trough deformity, and negative vector calculation)

Assessment of the lower eyelid

Lower eyelid should be assessed for:

- Excess skin tissue
- Fat herniation, which may be medial, central, and lateral fat pads. Lower eyelid fat becomes more prominent in upgaze and less prominent in downgaze distinguishing it from periorbital edema
- The slackening of the lateral canthus (due to disinsertion or laxity of the lateral canthal tendon. Snap test or snap back test can assess the degree of laxity, and the amount of canthal repositioning required.)
- The orbital rim hypoplasia in relation to the anterior cornea and lower lid margin, a negative vector, should be examined preoperatively.
- Exophthalmos or Enophthalmos must be documented with exophthalmometry.

Photographic documentation of preoperative and post-procedure conditions after proper written informed consent is advisable. Even navigation guided assessment of the tear trough deformity may be undertaken which helps in better correction and producing symmetrical results on the two sides. The expectations and concerns of the patients undergoing a cosmetic procedure must be accounted for, and the pros, and cons are well explained while counseling the patients. The use of a hand mirror to demonstrate the desired changes is always a welcome step and goes a long way in relieving patient concerns.

Blepharoplasty has been the traditional approach to tear trough deformity for obtaining a smooth lid cheek junction. Vascularized fat pedicle to fill up to the tear trough was propagated by Hamra by modifying Loeb’s fat sliding technique.

Microfat grafting is a great alternative for augmentation of the patient with the post blepharoplasty hollowing specially after classical fat sculpting techniques.

Aspiration and re-injection (liposculpture) of autogenous fat though small incisions often provides excellent results.

The recent use of autologous fat injection or hyaluronic fillers to replace periorbital volume has saved the day for cases not amenable to traditional blepharoplasty due to soft tissue atrophy.

Dermal Fillers

Fillers are substances used for the augmentation of soft tissues to fill up the volume attrition due to subcutaneous fat loss associated with ageing. With the increasing age; the body’s natural potential to produce hyaluronic acid as well as its inherent hygroscopy decreases, thereby playing an important role in facial soft tissue atrophy. Fillers are primarily indicated for volume augmentation and correction of static rhytides. They restore symmetry and the volume loss on the face. Soft tissue fillers help in the re-augmentation of the depleting collagen. The main modality of its action is to impregnate the soft tissue and or peritoneum to support and lift the fat pads and ligaments. The role of dermal fillers for facial aesthetics has revolutionized with the introduction of Hyaluronic acid (HA) fillers. The newer Hyaluronic Acid (HA) based agents have restored the interest in dermal fillers as...
they promise better outcomes with a lesser side effect. The first HA filler approved by the FDA was Restylane in 2003. Since then, HA fillers have been the crux for volume augmentation and facial rejuvenation.

**Classification**

Fillers can be classified depending on the duration of the effect, material of origin, and reversibility.

Depending on duration of effect they may be classified as:

<table>
<thead>
<tr>
<th>Duration</th>
<th>Effect Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>Less than 3 months</td>
</tr>
<tr>
<td>Medium</td>
<td>3-12 months</td>
</tr>
<tr>
<td>Long</td>
<td>12-24 months</td>
</tr>
<tr>
<td>Very long</td>
<td>More than 24 month</td>
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</table>

HA soft tissue fillers are manufactured using two different technologies:

Earlier fillers based on Hylacross, which utilizes cross-linked high-molecular-weight HA were in use. Recently VYCVROSS technology utilizes an innovative combination of a low and high molecular weight HA which enhances the cross-linking efficiency of HA chains.

Benefits of VycrossTM Technology:

- The filler is much smoother with a natural look
- Easier to inject, therefore less pain when injecting
- Difficult to perceive any filler in skin
- The result usually persist up to 18 months.

**Hyaluronic Acid Derivatives (HA)**

Hyaluronic acid is a non-animal, non-cadaver polysaccharide biomolecule, naturally occurring compound, which forms a part of the normal extracellular matrix of the dermis and connective tissue. Thus they are biocompatible with no immunogenicity. It has a set of properties, which makes it a desirable agent for injection. It’s hydrophilic property and the ability to imbibe water makes it natural filler.

It is rapidly degraded is its natural form and needs to be cross-linked for stabilization. Various commercial preparations of HA differ on the basis of the following aspects: the source, concentration, particular size, cross-linking, type of crosslinking agents being used, and whether the HA is monophasic (more cohesive & do not migrate) or biphasic (customized for particular anatomic area), and whether an anesthetic has been added. The injection technique, as well as the filler type, should be customized to which area is to be treated. It is always better to undertreat, as HA fillers will expand as they imbibe water overnight.

The adverse effect includes pain, bruising, edema, nodule formation, accidental intravascular injection, Tyndall effect (if the injection is given too superficially and the skin is very thin), granuloma, scarring, even blindness resulting from central retinal artery occlusion.

**Technique**

Preoperative consent is a necessary, and like any cosmetic procedure, the patient is given a mirror and asked to point out the areas where he/she feels require treatment. 1% Lignocaine topical cream (Prilox, Elma, etc) is applied 30-40 minutes prior to the filler injection. A cold compress and inferior alveolar nerve block have also been used for anesthesia. The desired areas are then cleaned with Isopropyl alcohol or Chlorhexidine. Rich subdermal vascular plexus, predispose the tear trough area to significant bruising. Basically there are three points of injection, the first point of insertion of the needle is about 1.5 cm below the orbital rim in the midpupillary line in the subperiosteal plane. Thereafter, the direction of the needle is directed towards the lateral and then, towards the medial canthus and subperiosteal injection of 0.2 ml per site is advocated. (Figure 4).

Superficial injection tends to give a Tyndall effect in this area. Gentle massage enables product distribution and to rule out lumps and bumps. Ice packs help to reduce edema, bruising, and discomfort.

**FIGURE 4: MARKING OF TEAR TRough FILLER**

(INJECTION POINTS AND DIRECTION OF A NEEDLE)
FIGURE 5: SHOWING INJECTION DERMAL FILLERS OF TEAR TROUGH WITH 25 G CANNULA

FIGURE 6: DERMAL FILLERS OF TEAR TROUGH WITH 25 G CANNULAS BEFORE AND AFTER INJECTION.

FIGURE 7: SHOWING INJECTION DERMAL FILLERS OF TEAR TROUGH WITH 25 G CANNULA BEFORE AND AFTER.

FIGURE 8: SHOWING INJECTION DERMAL FILLERS OF TEAR TROUGH BEFORE AND AFTER.

FIGURE 9: SHOWING INJECTION DERMAL FILLERS OF TEAR TROUGH WITH 25 G CANNULA BEFORE AND AFTER.
Post-treatment Management:

1. The patients should avoid strong or extended pressure within the treated area.
2. The patients should be informed about after-care such as avoiding massage, strenuous physical activity and exposure to freezing or heat for up to six hours post-treatment.
3. It is important to schedule followup sessions to assess the clinical result. Touch-ups may be performed in the followup sessions if required.

CONCLUSION

Soft tissue fillers offer an excellent non-surgical method of managing the Tear trough defect with effacement of Lid Cheek Junction. A thorough knowledge about facial anatomy is important because before attempting to inject them. The authors have shifted to the use of blunt tipped cannula and have found better results immediately post procedures as well as long-term outcomes were way much satisfactory.

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The ASEAN Ophthalmology Society (AOS) had recently conducted the 4th Annual Congress of AOS in Siem Reap, Cambodia in November 2019. Spread across two days, the 7th and 8th of November 2019, it was the perfect blend of academics, networking and cultural exchange. The Asia Pacific Society of Ophthalmic Plastic Surgery was invited to conduct a session on lacrimal surgery at the meeting. Representing APSOPRS at the meeting were Dr. Raoul Henson, President APSOPRS (Philippines), Dr. Ben Limbu (Nepal), Dr. Masashi Mimura (Japan), Dr. Nattawut Wanumkarng (Thailand), Dr. Zurina Abidin (Malaysia), Dr. Norialia Talib and Dr. Akshay G. Nair (India).

The session was well attended and interactive. With high quality photographs, surgical videos and clinical pearls, the presenters ensured that the audience was treated to an academic feast. One of the highlights of the session was the video on the Gold standard of treating Nasolacrimal duct obstruction - External DCR, shown by Dr Ben Limbu. Endoscopic Endonasal DCR was spoken on by Dr Nattawut Wanumkarng and Dr Raoul Henson showed his technique of performing endocanalicual laser DCR. Dr Mimura showed his unique and innovative technique of performing Microendoscopic Lacrimal Duct Recanalisation and Dr. Akshay Nair from India discussed strategies for tackling a previously failed DCR surgery.

The conference was held at the scenic Sokha Siem Resort in the heart of Siam Reap. The APSOPRS team also had the good fortune of meeting Dr. Tamara Fountain, Past-President of the American Society of Ophthalmic Plastic & Reconstructive Surgery (ASOPRS) and the Incoming President of the American Academy of Ophthalmology (AAO). Oculoplastics in Cambodia is still a fledgling speciality; the ASOPRS team also spoke to oculoplastic surgeons in Cambodia and encouraged them to become members of APSOPRS.

However, the meeting at Cambodia was not all academics – Siam Reap is a unique and fascinating city indeed and before leaving for their respective home countries, the APSOPRS team ensured that they took in the sights, sounds and smell of Cambodia back with them. Siem Reap is home to Angkor Wat - a Hindu temple complex which is the largest religious monument in the world. Originally constructed as a Hindu temple dedicated to the god Vishnu for the Khmer Empire, it was gradually transformed into a Buddhist temple towards the end of the 12th century. The APSOPRS team members had the opportunity to visit the prominent temples within the Angkor Wat complex and were also treated to a delectable selection of local cuisine by the AOS President and the host committee members.

All in all, it was a remarkable trip to a fascinating location which helped APSOPRS expand its footprint and make it an enjoyable learning experience for all involved!
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