Cosmetic

The Role of the Septal Reset in Creating a Youthful Eyelid-Cheek Complex in Facial Rejuvenation

Sam T. Hamra, M.D.

Dallas, Texas

Resetting of the septum orbitale over the orbital rim, or “septal reset,” is the latest step in achieving periorbital rejuvenation in composite rhytidectomy. The first significant step was the addition of orbicularis repositioning to conventional lateral vector deep plane rhytidectomy, followed by orbital fat preservation using the arcus marginalis release and fat transposition over the orbital rim. Those early procedures have been further refined to include the zygomaticus muscles with the orbicularis oculi in the composite flap, or zygorbicular cheek flap, and a septal reset. The septum orbitale reset has distinct advantages over transposition of orbital fat alone, as it creates a firmer undersurface for the lower eyelid. This maneuver will create a truly youthful lower eyelid-cheek complex, as the normal concave aging skeletonization of the periorbit is transformed to a convex contour of youth. The effectiveness of this operation can be demonstrated in most variations of human anatomy, whether congenital or iatrogenic, allowing the plastic surgeon to utilize the septal reset in virtually every patient undergoing and desiring a harmonious facial rejuvenation. (Plast. Reconstr. Surg. 113: 2124, 2004.)

Periorbital rejuvenation has become an integral part of a harmonious facial rejuvenation and has been developed in composite rhytidectomy by gradually adding the surgical repositioning of many of the anatomical structures of the midface to this comprehensive face lift operation. The composite face lift had evolved out of the Skoog rhytidectomy, the first procedure that included a deep structure, the facial platysma, instead of only the skin and subcutaneous tissue, as had been the approach for almost 50 years. The Skoog procedure preceded the publication of the superficial musculoaponeurotic system by 8 years, but the results were essentially identical. In 1985, after having developed a Skoog modification called the triplane face lift, I began including the cheek fat, later called malar fat, in the face lift flap, and I called it the deep plane face lift. Although obvious improvement of the nasolabial folds over the conventional superficial musculoaponeurotic system procedures is observed immediately in malar fat or deep plane procedures, later studies confirmed that there is no appreciable change in the vertical height of the lower eyelid; thus no true periorbital rejuvenation is achieved with these lateral vector face lift techniques.

In 1990 I discovered that I could include the orbicularis oculi in the face lift flap, and for the first time I saw a change in the periorbital contour that appeared both youthful and, in fact, more harmonious with the other parts of the face that had been rejuvenated. The lower border of the periorbital area in the aging face seemed to have a crescentic shape, so I called this the “malar crescent.” It was the elevation or even disappearance of this topographical structure that could be easily documented after surgery when the orbicularis was repositioned in a superior direction in the face lift flap. The deep plane face lift with the addition of the orbicularis oculi muscle then became the composite face lift, as the orbicularis, malar fat, and platysma were repositioned in one flap, maintaining their intimate relationship with each other. Composite is defined as “formed of many parts,” and the term has been used by plastic surgeons as in “composite” ear grafts. Because the face lift flap was in fact a compos-
ite flap, it seemed logical to name this procedure a composite face lift.

Several months after beginning the composite concept, I studied Loeb’s work where he used the medial lower lid fat pad to improve the deep nasojugal groove. Just as he had done, I continued to remove the middle and lateral fat pads when excessive, but unlike his procedure, I was repositioning the whole orbicularis oculi muscle, thereby shortening the ver-

Fig. 1. This patient with normal aging (left) demonstrates the obliteration of the eyelid-cheek junction (right) following an arcus marginalis release with orbital fat transposition and orbicularis repositioning. The malar fat was advanced superiorly and the orbital fat was advanced inferiorly. Reprinted from Hamra, S. T. Arcus marginalis release and orbital fat preservation in midface rejuvenation. Plast. Reconstr. Surg. 96: 54, 1995.

Fig. 2. This 52-year-old man (left) underwent an arcus marginalis release and orbital fat transposition in 1992. The 1-year (center) and 10-year (right) follow-up photographs show little change over the 10-year period. Reprinted from Hamra, S. T. Arcus marginalis release and orbital fat preservation in midface rejuvenation. Plast. Reconstr. Surg. 96: 54, 1995.
tical height of the lower eyelid. Although there was clearly a more youthful appearance of the periorbital area, it still seemed suboptimal. At that time, my goal of a youthful endpoint was measured by photographs of the patients with their look-alike daughters, and I published these examples in my book and in articles. As I studied these photographs, and also began noting paintings by great artists in great museums, it became more obvious to me that the contour of a youthful lower eyelid is convex and the contour of the aging eyelid gradually becomes concave. Because removal of lower eyelid fat, a rejuvenation procedure practiced by plastic surgeons since 1924, only made the lower eyelid deeper, and as the nasojugal area had been improved by transposing the medial fat across the orbital rim, I then decided to preserve and utilize all of the orbital fat. By incising the arcus marginalis, I released it from its subseptal location and then advanced and sutured it across the orbital rim. In this way, what I observed as the skeletonization of the periorbit by normal aging could be camouflaged by covering the orbital rim with orbital fat.

The arcus marginalis release then became incorporated as a routine part of the composite face lift, and when combined with the repositioned orbicularis, the entire cheek contour was changed from a contour of age to a contour of youth as the downward movement of orbital fat coupled with the upward movement of orbicularis muscle as a cheek lift totally obliterated the eyelid-cheek junction. Figure 1 shows a patient photograph published in the
1995 article demonstrating the contour changes obtained. Long-term results, as seen in this 10-year follow-up patient from the original 1995 article (Fig. 2), would confirm that this appears to be a permanent rejuvenated anatomical change. I continued to use this procedure until 1995, and although results continued to be satisfactory, there were three problems that I occasionally encountered.

The first problem was a rarely occurring hypotonia of the orbicularis muscle when I separated it from the adjoining zygomaticus musculature to leave it in the composite face lift flap. Although the muscle tone always did re-
turn, the muscle laxity created a temporary appearance, often for several months, that I mistakenly thought was edema.

The second problem was the inability of using only the isolated orbicularis as a strong structure to adequately elevate and suspend the cheek tissues in a vertical direction. I then discovered that I could continue the suborbicularis dissection and create a plane both medial to and lateral to the origin of the zygomaticus muscles. This allows the complex of the orbicularis muscle and zygomaticus muscles to be moved as one strong unit that can be secured with extraordinary tension to the periosteum of the lateral orbital rim. I prefer this level to the subperiosteal level for two reasons. There is no lateral displacement of the origin of the zygomatic muscles that can widen the intermalar distance, as is seen with some subperiosteal face lifts approached laterally. More importantly, the zygorbicular flap is thinner and stretches the aging upper levels of the cheek tissues because there is no confining periosteal base, allowing the skin and subcutaneous tissues to drape better. With this flap elevation, the orbicularis muscle never loses its tone and denervation never occurs. I called this dissection a zygomaticus-orbicularis or as an easy to use contraction, a zygorbicular flap. It is used in every composite face lift but can also be used as an isolated cheek-lift procedure in patients with limited facial aging.

The third problem was the difficulty encountered when suturing the orbital fat to the pre-
periosteal fat because it was difficult to get a secure purchase on the orbital fat even with small sutures. When I published the article on the arcus marginals release, I stressed the importance of removing a strip of septum orbitale, as I was concerned with a potential middle lamella contracture and ectropion. Deciding to risk this danger, I began keeping the septum orbitale intact with the orbital fat, and I used it, as I used the skin as a vehicle to move the cheek fat, as the vehicle to move the fat downward. To prevent an inferior displacement of the lower eyelid, I devised a transcanthal canthopexy (Fig. 3) to stabilize the lower eyelid in yet a higher position because I was unhappy with the standard canthopexies I had tried. This would ensure stability of the eyelid when suturing the septum with adequate tension over the orbital rim. Thus this maneuver became the septum orbitale reset or simply the septal reset. I observed a marked improvement in my results, as the repositioned orbicularis was now resting on a firm undersurface of septum, rather than on the concavity created by fat removal, or the soft fullness of fat only. The septal reset was briefly described in the 1998 article on the zygorbicular midface dissection, but its significance has grown with continued use. As with any new technique, the surgeon’s appreciation of the extended application and limitation of a technique expands only after years of experience.

**TECHNIQUE**

The arcus release simply is the maneuver of incising the junction of the septum orbitale and the periostium of the inferior orbital rim (Fig. 4, *left*), which is the arcus marginalis. I do this with cutting cautery after a zygorbicular dissection has been accomplished. After the arcus release (Fig. 4, *center*) followed by the transcanthal canthopexy, the septal reset is accomplished. I use 5-0 Vicryl sutures for the reset, which usually requires eight to 12 sutures to create a smooth transition (Fig. 4, *right*). This tension must be enough to create a firm undersurface for the orbicularis to rest upon.

Before surgery, the surgeon must decide whether fat must be resected or not, and if so, how much. This is a judgment made before surgery, as the anatomy of each individual patient dictates what must be done. Once the patient is anesthetized accurate assessment of the orbital anatomy is impossible. In the case of a positive vector eye with no excess fat, the septal reset takes a small amount of fat with the reset (Fig. 5, *above, left*). An excess of fat with the similar anatomy will necessitate some fat

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**Fig. 8.** *(Left)* One must create the three mesenteries of the composite face lift to allow safe movement of the composite flap. Each contains facial nerves. *(Right)* The superior medial advancement of the midface must overcome and counter the tension of the lateral attachments of the composite flap at the helix and at the lobule. Reprinted from Hamra, S. Surgical anatomy of the midface and malar mounds (Discussion). *Plast. Reconstr. Surg.* 110: 95, 2002.
resesection (Fig. 5, above, right). In the case of a negative vector eye, most of the fat is necessary to adequately fill in the depression between the subciliary line and the cheek mound to create the contour of youth (Fig. 5, below, left). Obviously in the hollow lower eyelid, whether iatrogenic or natural, all possible fat is recruited from the subseptal space to effectively achieve a correction (Fig. 5, below, right).

In my original 1998 article, I used 4-0 nylon for the transcanthal canthopexy, but afterward used the varied nonpermanent suture materials, such as Vicryl, Monocryl, and then chromic catgut. These variations were undertaken to try to lessen the time of recovery, but I found in time that the recovery time was not shortened. Coupled with this was the stronger tension that I was exerting on the superior-medial vector suspension of the cheek flap, because the more effective the repositioning of the zygorbicular flap, the better the result. I feel that the permanent suture ensures a more stable canthal support during the period of scar hypertrophy of the septal reset and the muscle-to-periosteal attachment. The overdone appearance of the lateral canthus takes 5 to 6 weeks to vanish. There is no permanent change of the eyelid shape unless a canthoplasty is performed, including disarticulation of the lateral canthal tendon and reattachment at a higher level.

![Fig. 9](image_url)

Fig. 9. (Above, left) This 27-year-old patient with a positive vector eyelid has aged normally over a 20-year period, demonstrating an increase in the vertical height of the lower eyelid (above, center). (Above, right) Patient’s appearance 1 year after a composite procedure with a septal reset. Compare the convex lower eyelid in the postoperative view (below) with the same eyelid in youth. The question mark (?) signifies no discernible underlying bony anatomy.
After the reset is completed, I continue completing the forehead lift dissection and neck contouring if a composite face lift is being done. Then the zygorbicular midface flap that had been developed is advanced and secured to the orbital rim before closure of the face lift and forehead dissections. The tension of this superior medial vector must be maximal to overcome and counter the lateral tension of the superficial musculoaponeurotic system fixation. The very last maneuver, however, is the trimming of skin, in the event that an adjustment needs to be made. In the event of performing an isolated cheek lift, which is done in younger patients with or without an upper blepharoplasty or a browlift, the suspension then follows the septal reset. Several 3-0 Vicryl sutures are placed between the zygorbicular flap and the preperiosteal tissue to reduce dead space and serum collection. Then a laterally based orbicularis pedicle is created from the lateral “dog leg” of the blepharoplasty incision. This pedicle is passed under the skin and muscle raphe to be secured with two sutures of 4-0 Monocryl to the periosteum of the lateral orbital rim. I have used this maneuver since 1994 because it is dependable and affords a strong purchase on the periosteum (Fig. 6). The unique feature of the composite face lift is a superior-medial vector of the repositioned cheek and eyelid complex, unlike a vertical or superior-lateral vector used in other techniques (Fig. 7). Although each of these three vectors will produce a different appearance, only the superior medial and vertical techniques will shorten the vertical height of the lower eyelid. I accomplish this by creating the three mesenteries of the composite face lift (Fig. 8, left). Each mesentery contains a facial nerve, so the creation of the three mesenteries allows the surgeon to move the skin, subcutaneous tissue, and muscular component safely in the appropriate directions (Fig. 8, right) when performing a face lift.

**VARIOUS ANATOMY PATIENT TYPES**

Since I began the pursuit of periorbital rejuvenation and gradually added components to the composite face lift, the ultimate goal has been to create as youthful lower eyelid as possible. Having been in practice for 30 years, I have frequently seen patients over a long period of time for various requests. Although the return of each patient has been gratifying, by far the most interesting and valuable patients in terms of studying aging changes have been those who request facial rejuvenation 20 or more years after the nonfacial aesthetic surgery they underwent in their twenties. As with all body-contouring surgery, each patient had a frontal photograph of the face taken separately from the body view. This pool of patients who
have now undergone composite face lifts has allowed me to collect various patient anatomy types of the aging face to compare with the young face and to then compare the postoperative facial rejuvenation photographs to the photographs from youth. Whereas before I could only study and present mothers and daughters with similar anatomy, I now have the same patient’s “young” and “old” facial photographs that have confirmed both the hypothesis of normal “skeletonization” or, as Lambros describes it, “deflation” of the periorbit, as well as the effectiveness of a harmonious surgical rejuvenation. Though repositioning the orbicularis with adjacent cheek anatomy is obligatory and provides the foundation, I would submit that it is the arcus release and septal reset that best completes and refines the creation of the youthful eyelid-cheek junction characterized by a shortened vertical height of the lower eyelid, a smooth convex contour, and, when possible, the absence of discernible underlying bony anatomy.

**The Five Lower Eyelid Variable Types**

Although there may be innumerable variations in eyelid anatomy based on age, ethnicity, and genetic types, I would offer five basic types that may represent the majority of patients seen in a North American plastic surgery practice. Positive and negative vector eyelids refer to the axis dropped from the most anterior point of the globe to the cheek. The positive vector eyelid is usually the easiest for achieving
a good result when using conventional blepharoplasty, and the negative vector eyelid presents a challenge when using conventional blepharoplasty. All of the following patients underwent a composite face lift, which includes the neck, forehead, and eyelid rejuvenation.

Type One: Positive Vector

- Short vertical height, or narrow convex orbit.
- Normal amount of subseptal fat.

The patient shown in Figure 9 is an excellent example of the most youthful eyelid, stereotypical of the usual perception of youth with no discernible underlying bony anatomy at age 27 represented by a question mark (?), meaning that there is no perceptible orbital rim. After 20 years there is a normal widening of the orbit, yet no excess fat is present. This patient’s 1-year postoperative photograph demonstrates that after a composite face lift, she now has a more youthful periorbit than she ever had, as seen in the half-and-half photograph of the same eye 24 years apart. Although the years will reveal the longevity of these surgical results, the 10-year postoperative results of the patient shown in Figure 2 would lead one to believe that this patient will have a lifetime improvement compared with the aging anatomy that existed before surgery. The 52-year-old patient shown in Figure 12 is typical of this patient type because the congenital excess of orbital fat dictates the conservative removal of some of the fat to create an optimal rejuvenation.

Type Two: Negative Vector

- Elongated vertical height, or wide concave orbit.
- Congenital excessive subseptal fat.

The patient shown in Figure 11 has a classic negative vector, as even at age 27, a wide orbit with excess orbital fat is present. In this patient subgroup are those who consult plastic surgeons because of the appearance of fatigue, and who may undergo a transconjunctival fat removal. Fortunately I did not operate on this patient for eyelid complaints, but at the age of 50, the wide orbit and excess fat clearly add to the generalized facial aging. Her 1-year postoperative photograph demonstrates that after a composite face lift, she now has a more youthful periorbit than she ever had, as seen in the half-and-half photograph of the same eye 24 years apart. Although the years will reveal the longevity of these surgical results, the 10-year postoperative results of the patient shown in Figure 2 would lead one to believe that this patient will have a lifetime improvement compared with the aging anatomy that existed before surgery. The 52-year-old patient shown in Figure 12 is typical of this patient type because the congenital excess of orbital fat dictates the conservative removal of some of the fat to create an optimal rejuvenation.

Type Three: Negative Vector

- Wide orbit.
- Normal amount or orbital fat.
This group is similar to the previous class except that they have no excess of orbital fat and always have a deep and wide periorbit. The patient shown in Figure 13 is 30 years old at the time of youth and is then seen again at age 51. The width of the periorbit has remained the same, as has the depth of the lower eyelid. After the septal reset, the vertical height

Fig. 13. This patient at age 30 exhibits a class III negative vector with no excess orbital fat and a wide periorbit. The elongated vertical height of the lower eyelid persists throughout life, but after surgery the vertical height is narrowed.
is markedly narrowed and the bony anatomy is not apparent. The 65-year-old male patient shown in Figure 14 exhibits a very deep lower eyelid without excess fat. After a composite face lift and forehead lift, the eyelid-cheek complex is dramatically changed.

Type Four: Malar Crescent Deformity (Malar Mounds)

- Wide orbit.
- Elongated orbicularis.
- Excess fat.

One of the most difficult types of anatomy to achieve an appreciable improvement when doing a conventional blepharoplasty is the patient with a malar crescent deformity, also called malar bags, malar mounds, or even festoons. Because the conventional blepharoplasty does not reposition the orbicularis and removes orbital fat, the crescent that is the most inferior extent of the lateral orbicularis is not only unchanged but may even be more defined and obvious with the adjacent depression created by orbital fat removal. A very strong superior medial direction of repositioning will totally change the elongated muscle’s inferior border without the need to excise it. The patient shown in Figure 15 is shown at age 29, and close inspection confirms even at that age, an early contour is present outlining an elevated malar crescent. Coupled with excessive orbital fat, one can predict her anatomy with advanced aging as seen in Figure 15. The 1-year postoperative photography demonstrates the improvement, and the half-and-half photograph again shows that a better contour can be created than the patient had even in youth. The patient shown in Figure 16 with overt malar bags underwent a primary composite face lift, and is an example of this patient type.

Type Five: The Hollow Eyelid, Iatrogenic from Previous Fat Removal

- Wide orbit.
- Decrease of orbital fat.

This subclass of patients is growing because of the incidence and increasing frequency of conventional blepharoplasties performed today. Although patients with the inherited wide and deep lower eyelid can be observed from their teenage years, they seem to age well without surgery. The difficulty comes with rejuvenative surgery, as the results of skin redraping or laser resurfacing after orbital fat removal are disappointing because the concave appearance does not change. Of greater concern is the hollow eye created with orbital fat removal,
especially in the negative vector type patient. The patient shown in Figure 17 is shown in three periods of her life. At age 27 she has a wide orbit with excess orbital fat, or a typical negative vector eye. When she consulted me at age 40 with “baggy eyes,” I performed a con-
ventional blepharoplasty with orbital fat removal, the results of which are shown in Figure 17, above, right. If one examines the results of any conventional blepharoplasty, the vertical height of the lower eyelid never changes, and although the appearance of the eye is improved with removal of the excess fat, the results are unpredictable and a very hollow lower eyelid can occur, as seen in this patient (Fig. 17, below, left) when she is 52 years old. The postoperative results demonstrate that in the hollow eye patient type, a truly youthful eyelid can be created by recruiting the remaining fat from the subseptal space coupled with a zygomatic cheek lift. The half-and-half photograph again reaffirms the ability to deliver to this patient a harmonious rejuvenation with an eyelid cheek interface more youthful that she had in youth. Examples of this type include the patient shown in Figure 18, whose previous conventional blepharoplasty and rhytidectomy left a hollow lower eyelid and obvious malar crescent, and the patient shown in Figure 19, who had undergone a traditional face lift and blepharoplasty with the resulting unfortunate “hollow eyes and lateral sweep” appearance.

Both types can be significantly improved, removing the stigma of the “face lifted” patient. Whether iatrogenic or naturally occurring, any hollow lower eyelid can be markedly improved by a septal reset.

**DISCUSSION**

Surgeons have often been told that each patient type may necessitate a different type of face lift. Paradoxically, surgeons who make this point usually perform the same lateral vector conventional procedure for all of their patients, either because of choice or, more probably, because they are familiar or have experience with only their customary technique. Without question, the conventional lateral vector procedures, whether skin lifts, superficial musculoaponeurotic system procedures, or malar fat procedures, are unpredictable, and although very satisfactory results can be obtained, two factors must be considered. The first is that with time, early attractive results usually fade and unattractive appearances may result. The second and most important factor is that true periorbital rejuvenation is not optimal with conventional techniques. There must be repositioning of the orbicularis oculi muscle, either as an orbicularis muscle flap, a subperiosteal flap, or a zygomaticus-orbicularis flap as described here to shorten the vertical height of the lower eyelid. Of equal if not greater importance is the camouflage of the

![Fig. 16. (Left) This 62-year-old woman demonstrates a classic malar crescent deformity or malar mounds in a normal aging face. She underwent a primary composite face lift, blepharoplasty, and hairline forehead lift. (Right) The 1-year postoperative result is shown.](image-url)
orbital rim with orbital fat or a septal reset. A conventional lower blepharoplasty does neither.

After 13 years of trying multiple variations and after advocating fat as the key element following the arcus marginalis release, I am now convinced that it is the septal reset that best creates the youthful eyelid. De la Plaza and
Arroyo\textsuperscript{17} advocated treating the orbital fat as a herniation and suturing the septum orbitale to reconstruct its original anatomy. With this technique, the vertical height of the lower eyelid will remain unchanged. Many surgeons\textsuperscript{18–21} have shown excellent results using the arcus release with the fat transfer, with either a transcutaneous exposure or transconjunctivally. Despite long-term results when transposing fat only, that maneuver cannot compare with the

FIG. 18. This patient underwent a conventional face lift and blepharoplasty 3 years earlier (left) that resulted in a hollow lower eyelid and an obvious malar mound. (Right) Fat was recruited from the subseptal space to correct this typical postblepharoplasty appearance.

FIG. 19. The unfortunate appearance of hollow eyes and a lateral sweep resulting from a previous conventional face lift and blepharoplasty (left) can be reversed (right) by a composite face lift including the release of remaining subseptal fat and a septal reset.
predictability and the more optimal appearance of the septal reset. At the same time, the greater tension placed on the cheek-lift flap plays an even larger role that I experienced in my earlier cases when repositioning the orbicularis only. The overall concept of the orbital fat and or septum being moved inferiorly and the orbicularis and or adjacent cheek tissues being moved superiorly creates the most youthful eyelid cheek contour when compared with conventional techniques. Each surgeon must decide to what extent he wants to carry this surgical philosophy, if at all.

While all of these variations in moving the orbital fat down and the muscle up give impressive results, there is a gradient in the refinement and the degree of rejuvenation in my experience. From the least optimal to the most optimal of this approach, I would grade them as follows:

1. Orbital fat transposition done transconjunctively. Orbicularis not repositioned.
2. Orbital fat transposition done transcutaneously. Orbicularis not repositioned.

Fig. 20. Achieving optimal periorbital rejuvenation is accomplished by performing a steplike series of procedures. After a zygorbicular dissection, a superior medial cheek lift follows a septal reset that then dictates a medial vector forehead lift. All components are obligatory when a composite rhytidectomy is performed.

Fig. 21. The vectors for composite rhytidectomy are opposite those of conventional procedures. The medial movement of the midface necessitates a medial vector forehead lift. Lack of tension of the flap above the helix allows the hairline to be brought down easily.
4. Septal reset. Orbicularis only repositioned.
5. Septal reset with zygomaticus-orbicularis repositioning.

I perform a composite face lift in essentially every patient seeking facial rejuvenation except the patients approximately 40 years old that have periorbital aging without significant facial aging. The composite face lift is a procedure by definition that must include several and individual and unique maneuvers (Fig. 20). In addition to a septal reset and a zygorbicular cheek dissection, a medial vector open forehead lift is required, done also with extraordinary tension, either coronal or at the hairline. The medial vector forehead lift is obligatory because of the superior medial direction of the midface advancement. Otherwise, bunching will occur at the lateral canthal and temple areas. An endoscopic forehead lift is never done because multidirectional redraping is difficult with the thick, incisionless, endoscopic forehead flap. The vectors of the composite face lift are significantly different than conventional lateral vector face lifts, just as the results are significantly different.

The septal reset is safe, predictable, and reproducible, and at this point of time in the ever-evolving changes of the approaches to periorbital rejuvenation it has given me consistently optimal results. This technique allows the plastic surgeon the ability to deliver to essentially any patient true harmony in facial rejuvenation, regardless of individual anatomy variations.

Sam T. Hamra, M.D.
2731 Lemmon Avenue East, No. 306
Dallas, Texas 75204
drhamra@drhamra.com

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