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TECHNICAL NOTE

Face lift with U threads

Le lifting du visage avec l'aide de fils crantés passés en U



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Stability of the effect

MOTS CLÉS

Lifting visage ;
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Section du muscle
platysma ;
Effet stable

Summary The main and more frequent problem in face lift is recurrence of platysma bands, and of skin excess at the bitterness and naso-jugal folds. To improve face lift stability, a new aging analysis is proposed. The visible sign of face aging is skin excess. SMAS retraction is a much less visible sign. Nevertheless, botulinum toxin injections elongate muscles of the SMAS and rejuvenate the face. In the Face Recurve Concept, MRI studies prove the mimic muscles retraction that comes with aging. Face lift techniques that are used today include SMAS plication, traction or excision, which increases discrepancy between the envelop, the skin and the core, the SMAS. As skin excision is poorly efficient because performed posteriorly, far from the anterior skin excess located at the medial neck or at the bitterness fold, the association to SMAS retraction exacerbates the gradient difference between envelop and core. This analysis shows first of all that it is paramount to preserve the SMAS. Secondly, that the sub-skin dissection has to be executed moving beyond the paramedian folds. Then permanent tensor threads anchored in the malar, parotid and mastoid aponeurosis with a U pass flatten the folds and reposition sub cutaneous tissue excess backward to the SMAS. No action is performed on the SMAS, only an horizontal section of the platysma at the hyoid level will avoid platysma band recurrence. Botulinum toxin injections performed just after block muscle regeneration. 35 patients have been operated on a one year period. Results are a lot more stable and swelling is lowered down to the minimum.

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Résumé Le problème le plus fréquent et classique du lifting du visage est la récurrence des cordes platysmales, du pli d'amertume et encore plus du pli nasogénien. Pour améliorer la stabilité du lifting une nouvelle analyse du vieillissement du visage est proposée. Le signe le plus visible est l'excès de peau. La rétraction du SMAS l'est beaucoup moins. La toxine botulique allonge les muscles du SMAS et rajeunit le visage. Dans le concept du Face Recurve, des études IRM montrent que la rétraction des muscles de la mimique survient avec l'âge. Les techniques de lifting du visage inclues toutes une plicature, traction ou résection du SMAS. Ceci augmente la différence entre l'enveloppe, la peau et le noyau, le SMAS. En effet, l'excision cutanée réalisée

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en arrière pour un excès de peau antérieure est peu efficace, d'autant que la rétraction du noyau, le SMAS, augmente le gradient de différence enveloppe/noyau. Cette analyse montre qu'il faut préserver le SMAS. Et que la dissection sous-cutanée s'étend en avant des plis paramédians à traiter. Puis des fils tenseurs permanents passés en U, ancrés dans l'aponévrose malaire, parotidienne et mastoïdienne aplatissent facilement les plis et repositionnent les tissus sous cutanés plus en en arrière par rapport au SMAS. Aucune action n'est effectuée sur le SMAS. Seule une section horizontale du platysma à la hauteur de l'os hyoïde, rapidement suivie par des injections de toxine botulique dans ce muscle, évitent la réapparition des cordes antérieures en bloquant la régénération musculaire. 35 patients ont été opérés en 1 an. Les résultats sont plus stables et le gonflement est minimum.

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The main and more frequent problem in face lift is recurrence of platysma bands and of skin laxity with bitterness and naso-jugal folds.

To improve face lift stability, a new aging analysis is proposed.

Traditionally, to increase efficiency of the skin lift, a SMAS (sub-cutaneous musculo-aponeurotic system) plicature or excision or sub SMAS dissection is realized. The sub-skin dissection is limited. Thanks to SMAS traction, anterior folds are minimized.

Mario Pelle Ceravolo [1] recognized that in 45% of cases, he had recurrence of the platysma bands and of the bitterness fold, even using most advanced SMAS techniques. The main reason is the non-stability of the SMAS traction.

This proves that the standard analysis of the aging process needs some correction.

Face aging is appearance of skin excess.

Face aging is muscle shortening. As explained in the Face recurve concept [2] and picked up by Mauricio de Mayo [3], mimic muscles progressively retract and lose their original convexity.

Botulinum toxin injections rejuvenate the face, inducing muscle elongation.

To make it simple, the envelope, the skin, enlarges with time and the core, the SMAS, retracts.

Traditionally, to surgically rejuvenate the face, the SMAS is shortened, resected and the anterior excess skin is removed far posteriorly through the pre and retro-auricular scars.

Face lift results at 6 months and at one-year post-op demonstrate frequently an insufficiency of anterior folds improvement.

A more precise analysis of the effect of surgery on the skin and SMAS is mandatory.

Smass is tensed to tighten the anterior skin, avoiding extensive sub-cutaneous dissection: the anterior skin is not detached from the SMAS (Figs. 1 and 2).

As SMAS tension, with time, progressively decreases, anterior skin excess progressively recurs (Fig. 1). Difference between a SMAS lift and a skin lift tend to decline. This is one explanation to the growing number of mini lifts and limited procedures.

Logically, a conclusion could be: SMAS tightening to induce facial rejuvenation is not a solution because SMAS is already shrunk and more tightening is not stable with time.

We could write that SMAS is dead, long life the SMAS!

Thanks to Tessier, Mitz and Lapeyronnie [4] the SMAS is a very important anatomical discovery.

But its interest for facial rejuvenation has to be reanalyzed.

And what else?

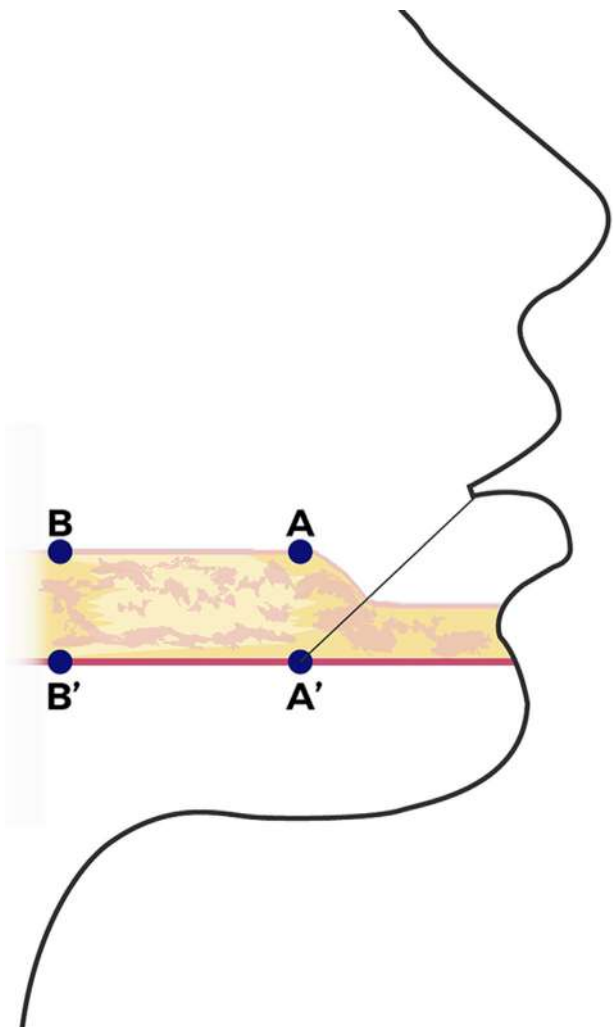


Figure 1 Drawing at the marionette fold level representing the SMAS as a red line with A' at the intersection between marionette fold and SMAS. Point B' is 3 cm backward. A and B are the projection on the skin of A' B'. A is located on the highest part of the fold.

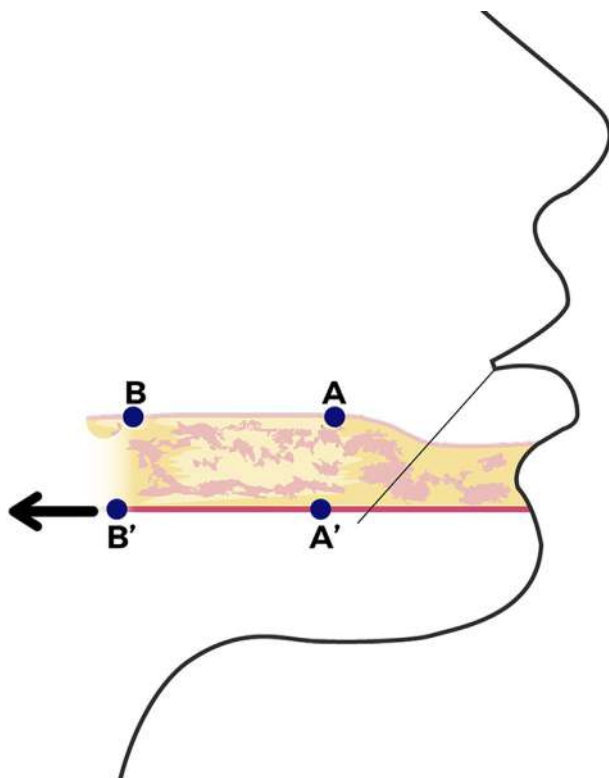


Figure 2 Traction on the SMAS flattens the fold and A goes backward but less than A': tension is on the SMAS and indirectly and less on the skin.

What's new about skin and platysma?

Concerning the platysma, an horizontal section at the hyoid level (Fig. 3) is performed to eliminate the anterior platysma bands. This level of section presents no risk of nerve damage because the mandibular branch of the facial nerve is always above. At that level, the access to the submandibular gland is easy and authorizes, in 30% of cases, reduction of this ptotic gland. Botulinum toxin injections have to be performed on the same day to block muscle regeneration which otherwise begins in the 15 following days. Five units of Vistabel (Allergan Pharma, Ireland Laboratories) or of the equivalence from others toxins are used in



Figure 3 On a specimen, after neck skin excision, an horizontal section of the platysma is performed at the hyoid level, reaching the midline.

each platysma section. As this platysma transection is located in the neck crease, it looks natural when contracting.

Concerning the skin excess, 3 options are possible to become more efficient:

First, the skin excess can be treated locally with a direct skin excision of the nasolabial fold or of the bitterness fold. The resulting scar, in a visible area, makes this hardly acceptable.

Second, SMAS traction fades skin excess temporarily, like explained previously and result is not stable.

Third, a sub-skin dissection extending beyond the fold to treat (Fig. 4), with a good skin tightening (Fig. 5), makes result efficient. A liposuction of the fat excess located in A below the skin preceding the fold level, associated with a precise superficial lipofilling in the depression of the fold, manages the fat distribution to make it more even.

In this third case, the skin being tensed posteriorly and not the SMAS, a posterior split skin/SMAS is created. A, on the skin, moves backward more than A' on the SMAS.

In the second case, the SMAS being tensed posteriorly and the skin indirectly, a posterior split SMAS/skin is created. A,' on the SMAS, moves backward more than A on the skin.

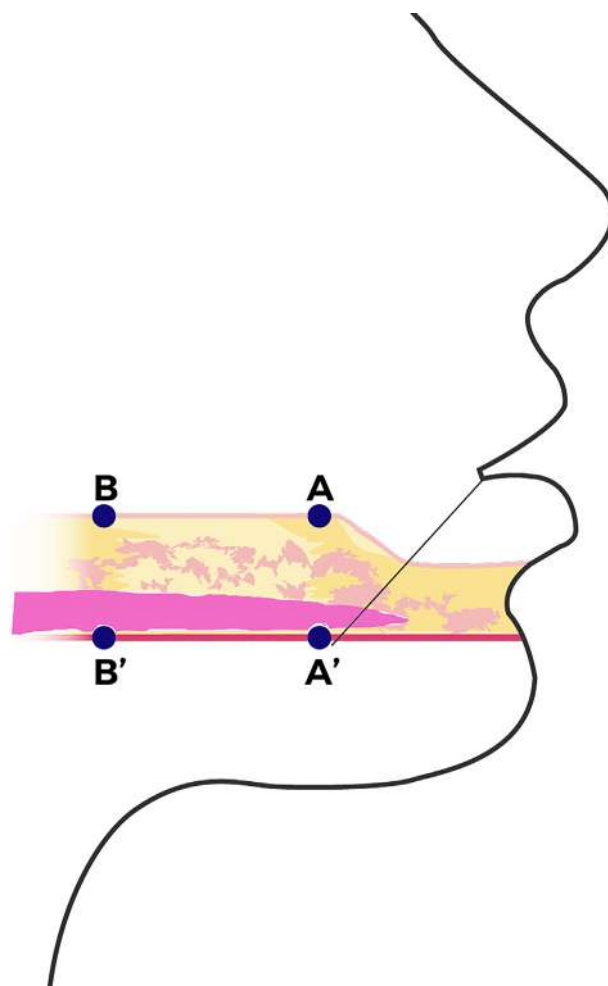


Figure 4 A subcutaneous dissection is performed beyond the fold, just above the SMAS. The skin and the SMAS are disconnected.

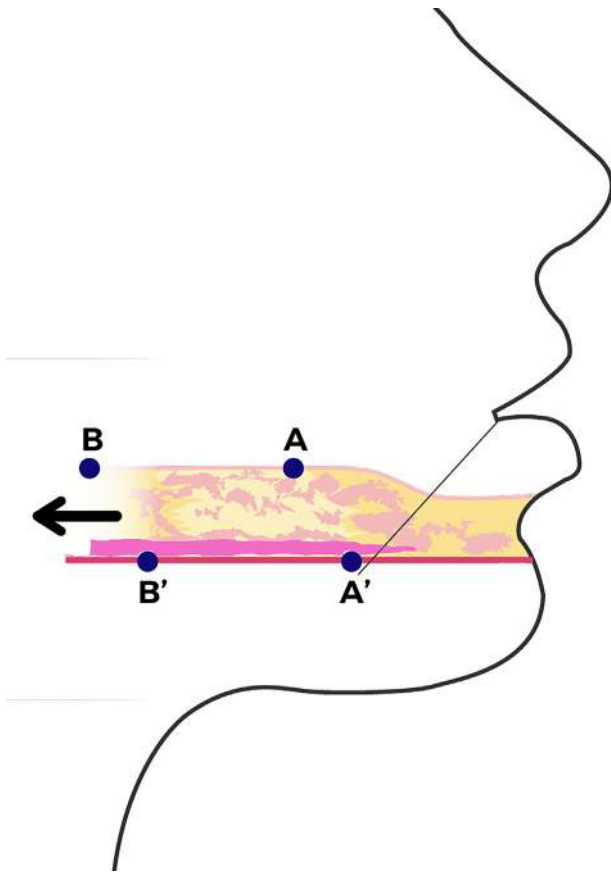


Figure 5 A backward traction applied on the skin tightens the skin backward without any mobilization of the SMAS. The fold is flattened and point A is going back with no effect on A' position.

In the third case, barbed sutures inserted in the subdermal plane beyond the fold, after a subdermal dissection (Fig. 6), can create this efficient and permanent gradient skin/SMAS. To be noted, the posterior transposition of point A is much more important with barbed suture than with SMAS.

Depending on surgeon preference and on patient specificity, a resorbable or a permanent thread can be used.

The aponeurosis anchoring is performed (Fig. 7) for the nasolabial fold through the malar area, for the marionette fold through the parotid aponeurosis, for the submental area and the cervico-mandibular angle, through the anterior part of the mastoid aponeurosis, to avoid damaging branch of the great auricular nerve, which is more posterior. As the bite is deep, near periosteum, anchoring is strong.

Instead using a one line pass as usual with the thread lift (Fig. 8), a U pass is performed with the middle of the thread blocked in the aponeurosis. The 2 branches of the thread are directed anteriorly and parallel toward the skin excess of the fold to fade. Most of the case the first pass concerns the neck, from the deep mastoid aponeurosis toward the cervico-mandibular angle.

The thread does not enter directly through the sub-dermal tissue when it emerges from the aponeurosis. The needle enters the sub dermal tissue, parallel and below to the mandibular line, where the skin excess begins. This area, from the beginning of the skin excess to the midline for the neck, is the effect zone. The pass of the barb thread through

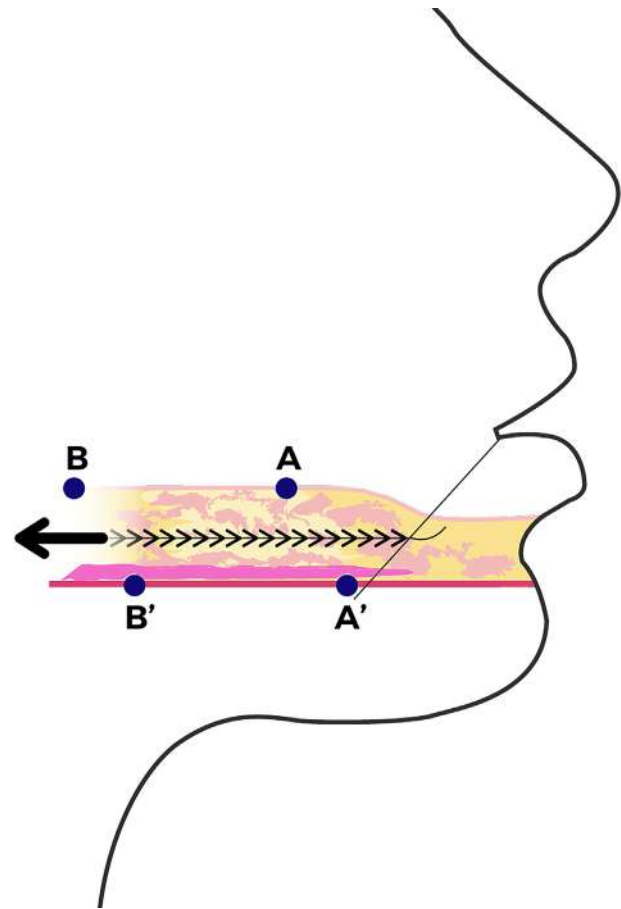


Figure 6 Barbed suture in the subdermal area is the solution to make a gap between SMAS and skin, if a subcutaneous dissection disconnects skin from SMAS. The back pull of point A is much more important with barbed suture on the skin than with the SMAS traction.

this effect zone induces a complete flattening when thread is tensed. If the thread was sub-dermal before the effect zone, visibility would be more obvious and traction less efficient.

For the cervico-mandibular angle, the needle goes in the subdermal part of the flap toward the midline and exits 1 cm before midline.

The same type of maneuver is performed higher, at the sub-mental area. The subdermal pass of the thread through the effect zone permits a good flattening when tensed.

Threads are tensed through the skin and cut after the good tension has been found.

2 to 4 U threads can be used by side, depending on the skin excess and the intended effect.

Permanent threads have to be considered as implants. Consequently, contact with hairs has to be avoided and surgical draping is realized to protect from any contamination. Before closing, antiseptic rinsing is mandatory.

35 patients have been operated on a one-year period. One thread had to be removed at the beginning of this procedure for septic reasons. Since a strict observation of the antiseptic rules, no one new case occurs.

In comparison with the usual thread lift (Fig. 8), threads are shorter, from 40 cm to 4 cm for the marionette fold. This

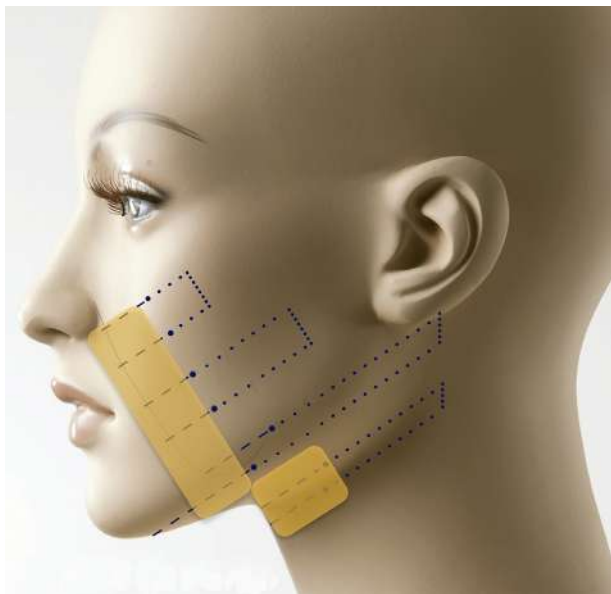


Figure 7 With the Lift with threads, efficacy is achieved through 3 to 8 cm long barbed sutures. The effect zone, in yellow, is the area of skin excess, where the barbed thread is passed subdermal. The base of the U, nearly vertical on the drawing, is the aponeurosis anchoring. The two branches of each U with thin dotted lines are the segments of the thread between the aponeurosis anchoring and the subdermal pass.

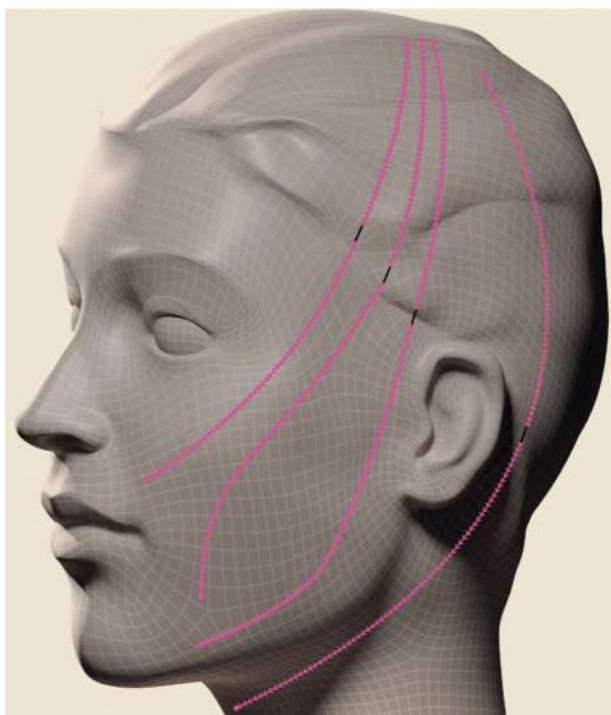


Figure 8 With the Thread lift, efficacy is achieved through 40 cm long barbed sutures.

means that the area of anchoring is very near, inducing a more precise and stable effect.

Results

There were no major complications (e.g., damage to nerves, large hematoma, skin necrosis) in this series. Minor complications included three small hematomas (< 10cc) at the bitterness fold, which were aspirated at the office. Seven patients showed some minor contour depressions, treated with hyaluronic acid injections. These minor depressions along the thread prove the good anchoring in the subdermal tissues and fade secondarily.

To minimize these minor depressions, the thread has to be passed sub-dermally only through the effect zone, that is to say where the skin excess is located.

This patient of 62-year-old presents an important skin excess on eyelids, midface and neck. (Fig. 9A and B). She desires to keep her fit body and thin face and do not agree for lipofilling on her face.

A face and neck lift with U threads, for the neck and bitterness fold, was associated with upper eyelid surgery, corrugator weakening, concentric malar lift, rhinoplasty, lip lift, chin implant. Aspect at 6 months post op shows a good neck definition.

The second patient (Fig. 10A and B), 57-year-old, is a heavy smoker with a submandibular gland ptosis and skin excess at the neck and midface. A face and neck lift with U threads was performed with a submandibular gland excision, chin implant, concentric malar lift, upper eyelid surgery with corrugator weakening, tip of the nose thinning, lip lift with elevation of the corners of the mouth. At 6 months post op, the cervico-mandibular angle is well defined.

Discussion

The aging neck represents a difficult challenge for plastic surgeons, especially when accompanied by deformities such as obvious platysma bands and skin excess over the anterior neck. A multitude of techniques have been published on this subject that vary from conservative approaches such as lateral platysma pull and anchoring without any undermining to more invasive approaches such as complete platysma section or corset-platysmaplasty.

Regarding patient satisfaction, the length of the post-operative recovery with the need to avoid social activity represents a real issue. This is mainly due to the extensive subcutaneous dissection for the neck and jaw line. Nevertheless, the high patient satisfaction rate at six months helps them to forget this downtime. As the technique is in permanent development, the post-operative downtime is progressively decreasing. In this way, the length of thread located in the subdermal is minimized to the most efficient segment.

In his outstanding work on complete platysma transection, Mario Pelle-Ceravolo [1] describes why do bands recur after complete platysma section. The main reason for recurrence, which is the absence of botulinum toxin injection at 3 days post-op, is not cited. He also explains that platysma muscle is transected from medial to lateral at a level 3 cm lower than the hyoid bone. To avoid any dynamic visibility of



Figure 9 A. Before operation, front, $\frac{3}{4}$ and profile images of a 63-year-old patient with jaw line and neck skin excess. B. 6 months after operation of face and neck lift with U threads, for the neck and bitteriness fold. This was associated with upper eyelid surgery, corrugator weakening, concentric malar lift, rhinoplasty, lip lift, chin implant. This shows a good neck definition.



Figure 10 A. Before operation, front, $\frac{3}{4}$ and profile images of a 57-year-old patient with jaw line, neck skin excess and sub-mandibular gland ptosis. B. 6 months after operation of face and neck lift with U threads, for neck and bitteriness fold. This was associated with upper eyelid surgery, corrugator weakening, concentric malar lift, lip lift, lift of the corners of the mouth, chin implant. This shows a good neck definition

this transection in our technique, the level is precisely at the hyoid.

Conclusion

In our opinion, recurring platysma bands and anterior skin laxity represent the two major causes of frustration for surgeons who strive for perfection, even when using invasive and complex approaches to obtain optimal results in facial rejuvenation.

In our technique, a complete transection of the platysma muscle at the hyoid level followed with botulinum toxin injections eliminate platysma bands recurrence.

A U thread suspension deeply anchored at the mastoid aponeurosis stabilizes the skin at the submental and cervico-mandibular angle.

This new procedure is proposed for a better correction of the anterior neck, marionette fold and naso-labial fold.

Disclosure of interest

The authors declare that they have no competing interest.

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