# Total Neck Rejuvenation using a Modified Fogli Approach and Selective Resection of Anterior Platysmal Bands

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Over the past six years I have modified my approach to the ageing neck by directing my attention to resecting the redundant platysmal bands after strong superior traction of the body of the platysma muscle to the temporoparotid fascia (Loré's fascia)([1]) instead of suturing medial platysmal bands. This technique is a variation of Fogli's initial description([2]); the main difference being that the elevation of the platysma is achieved by a triple cable braided 2/0 suture to the cut edge of Loré's fascia in front of the tragus, affording a strong, permanent elevation of the middle and the lower third of the platysma as well as a horizontal vector. If the horizontal vector is inadequate to improve the jawline in the submental area, a separate submental incision is made to approach the muscles. When this occurs the redundant muscle bands are resected, not sutured together.

## Aesthetics and History

A tall, well toned and distinctly defined neck is synonymous with youth and beauty([3]). The majority of surgical procedures have focused solely on the upper neck and jaw, improving the definition of the cervicomental angle.

When I began to perform facelifting procedures in the late 1970s, I was profoundly influenced by Dr Bruce Connell's and others' work([4]) in the variety of platysmaplasties that aimed to achieve longer term results in neck rejuvenation. I utilized the principles of transsection and posterior traction of the platysma for many years. I also incorporated in my technique the work of many authors of the 1980s and 1990s who manipulated, sutured, transsected and plicated the anterior platysmal bands via the submental incision([5]). The unfortunate recurrence of platysmal bands and associated patient dissatisfaction with the result in the lower neck, especially around the suprasternal notch, was a persistent concern to me. I was influenced by Dr Alain Fogli's presentations in 2005 when he published the strong, vertical elevation of the platysma muscle affixing it to Loré's fascia. I then began to adopt this maneuver and continued to modify my technique over the subsequent six years. My concept has changed to include the rejuvenation of the entire neck from the clavicles to the mastoid region; defining the jawline and the sternomastoid muscle, reducing horizontal wrinkling in the neck, unfurling the neck and giving the neck the visual appearance of increased height and tone.

Initially Loré's fascia seemed to be an elusive anatomical structure. Once we understood, however, that it was really a thickening of the parotid fascia in the pretragal region and that fascia descended down in front of the facial nerve attaching to the styloid process and the tympanic fissure, we appreciated that this skull based stout ligament had adequate strength to support the traction of the tissues in a permanent way. ([6])(Fig

1).

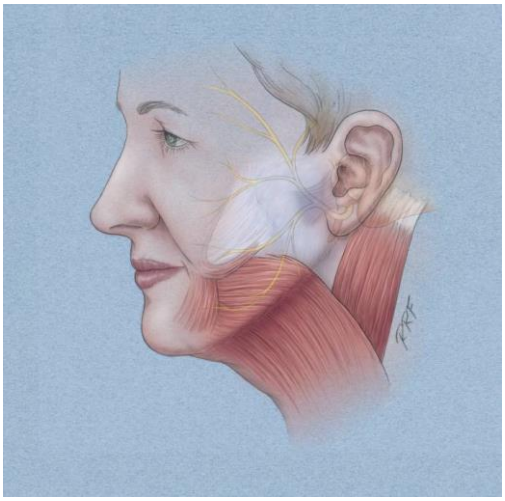


Figure 1: Loré's tempero parotid fascia in the pretragal area

**The Anatomical and Functional Platysma**

In 1865, Duchenne demonstrated isolated platysmal contraction by electrophysiological stimulation, which showed that the middle third of the platysma muscle was responsible for horizontal neck wrinkles, shortening and tightening of the skin across the clavicle as well as a drawing down of the lower lip and mandible.([7]).

The trapezoidal shaped platysma muscles pass obliquely from the mandible, crossing the sternomastoid to insert in the skin of the upper chest. The majority of the muscles' weight is therefore situated in the lower half of the neck. The two plastymal muscles both attach at the mentum, however with varying degrees of divarication and fascial attachment([8]). As the muscles pass over the mandible, there are fascial attachments of the platysmas to the ramus of the mandible which on contraction lead to an inferior movement of the lower jaw.

The platysmas may be quite lax with virtually no motor innervations, dynamic in nature or spasmodic. Prior to surgery, the tone in the platysmas must be ascertained in order to determine which bands need to be resected, which bands can be surgically ignored and which bands can be retracted significantly enough via the described muscle fixation to Loré's fascia.

**Clinical Evaluation of the Platysma**

The patient is asked to contract the platysma muscle by grimacing. (Fig 2).

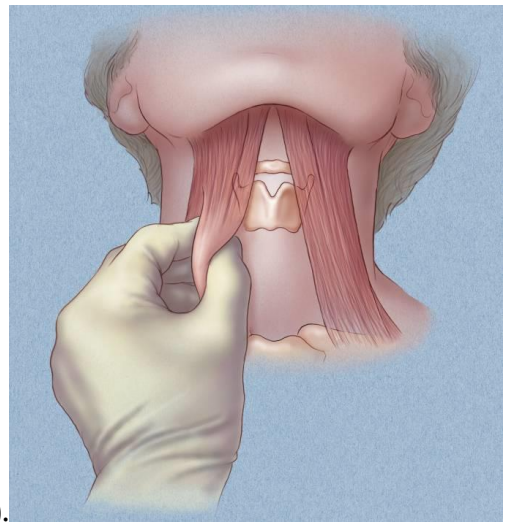
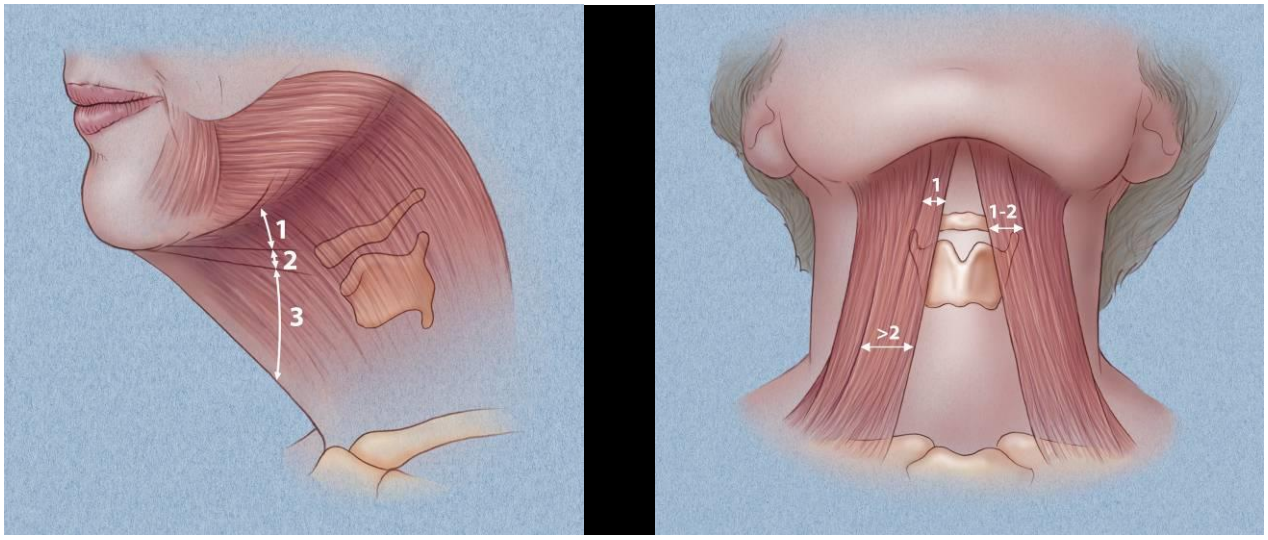


Figure 2: Pre-operative clinical assessment of platysma

The point where the platsyma crosses the anterior border of the sternomastoid is marked.
The anterior border of the platysma is evaluated for thickness and descent. (Fig 3a)(Fig 3b)




Figures 3a & 3b: Quantifying the descent and thickness of the platysma bands

If the platysmas descend past the thyroid cartilage and are thicker than 1 cm, their planned resection is by submental incision. In a fatty neck, the borders of the platysma are difficult to accurately delineate. A low lying hyoid and microgenia also impact on the clinical evaluation of an obtuse cervicomental angle. The fat distribution of the neck is either subcutaneous, subplatysmal or interplatysmal. These fatty deposits, along with the prominence of the submandibular gland and digastric muscles all impact on the appearance of the ageing neck and should be clinically evaluated pre-operatively.

**Planning the Submental Incision**

The submental incision continues to be the most commonly used incision for neck rejuvenation surgery in the over 50 year old aged patient. In my technique, I assess which anterior bands are unlikely to be sufficiently elevated by vertical platysmal plication and address these via a four centimeter submental incision positioned just anterior to the submental crease. (Video 376) The submental incision is also used to insert a chin implant for microgenia or to correct a "witch's chin" deformity.

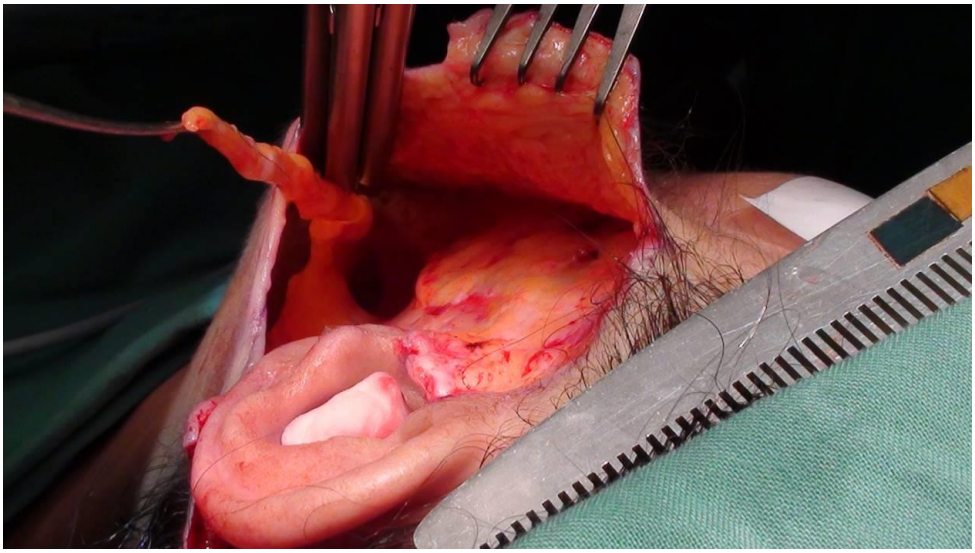
When the pathology of the submental area is difficult to define pre-operatively, a "look-see" submental incision is used to identify the subplastysmal and interplatysmal fat pockets as well as the anterior digastric muscle fullness. If thickened digastric muscles are encountered, then these muscles are trimmed to improve the countour of the patient's neck. These heavy muscles are more likely to be encountered in the male patient. I personally do not resect the submandibular glands, but rely on platysmal traction for elevation. The submental area is approached only after the platysma has been elevated and affixed to Loré's fascia on both sides of the neck.

Flaccid anterior plastymal bands, which extend below the apex of the thyroid cartilage and do not contract actively are ideal for resection. Bands which are more dynamic and extend below the thyroid are more difficult to eliminate with resection and their lateral contraction observed post-operatively can be disconcerting. Regardless, if these bands are prominent then resection is still required and Botox® intramuscular injection might be appropriate in these patients if they are still concerned by this lateral animation.

Having resected the bands, the subplatysmal space is entered. If excessive subplastymal or interplatysmal fat are present, they are sharply dissected and judiciously removed. Venous bleeding is regularly encountered during this maneuver. Over-resection of these fat pockets is to be avoided as it leads to unwanted "hollowing" in the post-operative appearance. Care must be taken not to thin the anterior skin flap too much as vertical subcutaneous fibrous scar bands can occur and are difficult to manage.

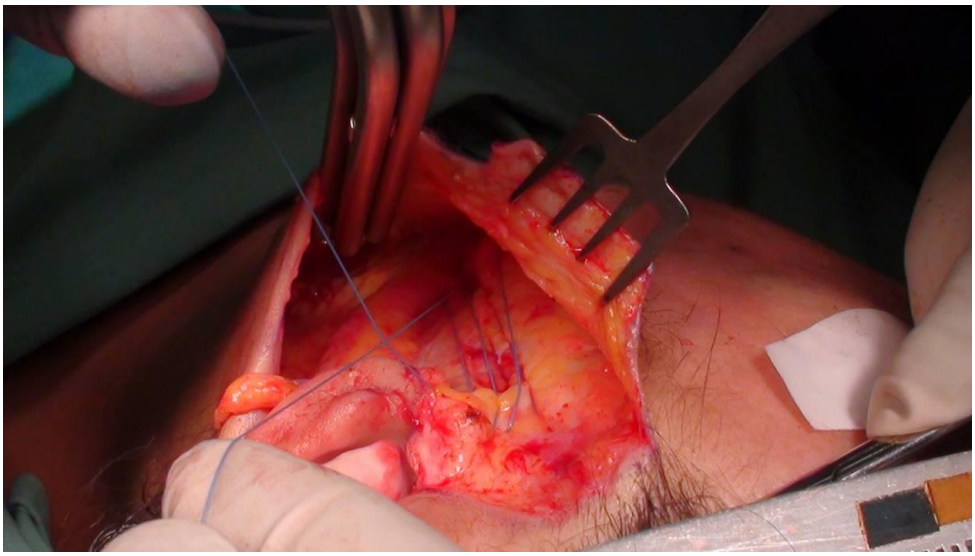
**Defining the Anterior Sternomastoid Muscle**

In total neck rejuvenation, the anterior border of the sternomastoid needs to be defined between the mastoid process and the suprasternal notch. A broad strip of the auricular platysmal ligament is incised from the pre-tragal area down to the platysma where it obliquely crosses the sternomastoid. (Picture 135)



(135): Platysma auricular ligament incised down to the platysma muscle as it crosses the sternomastoid

As the triple-cable suture extending from the body of the platysma to Lore's fascia is tied down, it accentuates the anterior border of the sternomastoid by deepening the groove between the angle of the mandible and the muscle. (Picture 138)



(138): Triple cable non-absorbable suture inserted between the cut edge of Loré's fascia and the bulk of the platysma.

In the inferior dissection, the greater auricular nerve must be avoided, branches of the superior thyroid vessel will be cauterized and care is taken as the platysma is identified and access is made underneath it to avoid the external jugular vein and its branches. (Fig 4)

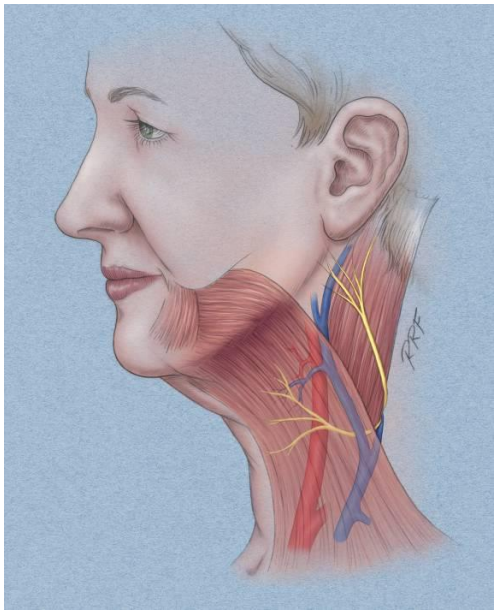


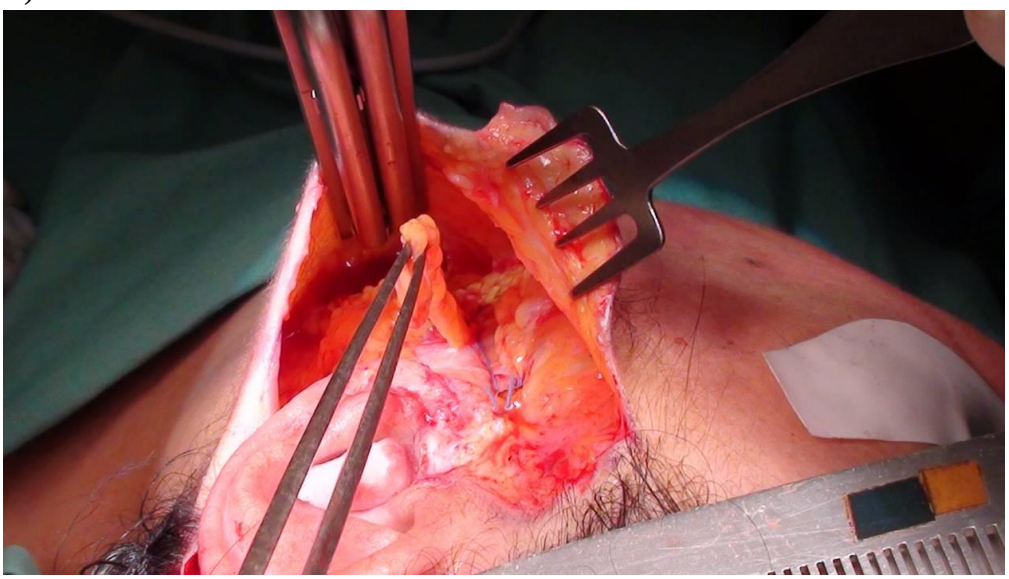
Figure 4: Anatomical structures to be anticipated in dissection in the taking down of the platysma auricular ligament and suturing of the platysma muscle.

The position of the suture is pre-defined at the point where the platysma crosses the anterior border of the sternomastoid. To access this point the plastyma muscle is lifted by forceps, then "scissor spread" underneath the muscle followed by penetration of the muscle and its fascial layers with the needle. To aid in placement of the needle a headlamp and a long bladed lighted retractor are used. The lighted retractor is "towed in" to aid in the elevation of the platysma from its loose underlying fascial attachments. Three passes of the needle between the muscle and the cut edge of Lore's fascia are made.

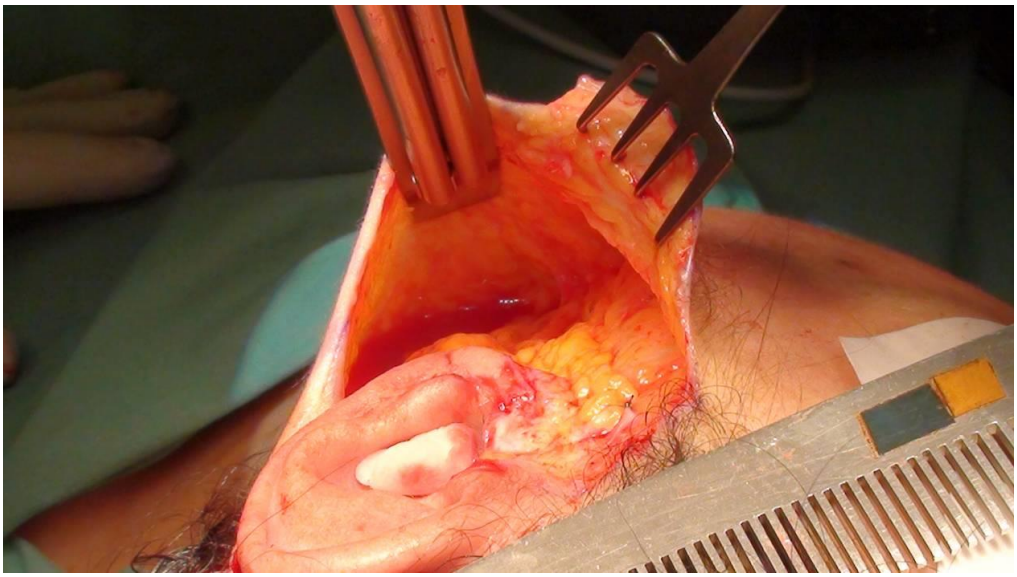
As the suture is tied down, the skin of the suprasternal notch and lower half of the neck can be observed to tighten. (Fig 5a, Fig 5b)(Clip 02)

Figures 5a & 5b: The platysma muscle prior to elevation & elevation of the body of the platysma and fixation with a triple cable suture to the cut edge of Loré's fascia.

The suture knot is covered by advancement of local S.M.A.S. at the angle of the mandible or by employing the incised flap of platysma auricular ligament, either of which is then sutured back over the knot. (Picture 139, Picture 140).



(139): Resected platysma auricular ligament elevated and sutured over triple cable suture.



(140): Resected auricular ligament re-attached to the cut edge of Loré's fascia over the triple cable non-absorbable suture.

As the platysma is cinched up, usually 3 or more centimetres, a significant bulge can occur at the angle of the mandible and the S.M.A.S. here can be excised as a S.M.A.S.ectomy and continued up similar to Baker's S.M.A.S.ectomy([9]). The pre-masseteric space ([10]) is entered and elevation of the jowl and mid-face precede with figure of eight 3/0 maxon sutures. Skin tethering is inevitable from the considerable elevation of the platysma and requires releasing. Skin re-draping and release of tethering is necessary. Drains are not used nor is fibrin glue but behind the ear, a 1½ centimetre gap is left which is not sutured, so that the flaps can be rolled and any seroma evacuated. Extra skin is excised in a conservative manner. The subcutaneous tissues are closed, staples are put in the hair if the hair incision is made and the skin is closed after subcutaneous 4/0 and 3/0 PDS sutures are inserted. The skin is then closed with 5/0 prolene sutures in the pre-auricular area. Two inch paper tape is applied over the areas of dissection. A soft dressing is applied with gauze behind the ears to soak up any seroma. All patients are cared for by our own nursing staff overnight until the next morning with continuous ice being applied and medications for hypertension, nausea, and anxiety are prescribed as necessary.

**Results**

This is not a limited incision or limited dissection procedure except in the younger, fatty necked patients where liposuction is the main component of neck sculpturing. The haematoma rate is low and not related to the submental approach. Specifically related to this technique have been two cases of infection around the suture, one of them needing to be removed by a General Surgeon in another state. The suture can be palpated in some patients and care must be taken not to allow it to be exposed but covered by local tissue advancement especially over the heavy, buried knot.

In following patients for up to one year when possible, some laxity under the chin is noted, especially when a patient has poor quality of the skin and sun exposure as is common in Australian women. Platysma bands once resected, do not recur but they can be observed laterally on animation if there is a hypertonic platysma muscle and this requires Botox® if it is disconcerting.

Cautery on the skin flap in the submental region, can lead to annoying subcutaneous vertical scar bands which need to be injected with Cortisone.

Most gratifying is the unfurling of the horizontal wrinkles and loose lower neck and the tallness which is achieved by defining the whole sternomastoid from the suprasternal region to up behind the angle of the mandible (52,53, 56,57,65,66,72,73).

**Summary**

This approach to neck rejuvenation utilized in the past six years applies the principles espoused by Dr Alain Fogli([11]) of vertical platysma fixation to Loré's fascia. My variation involves a transverse incision in Loré's fascia, a "take-down" of the auriculoplatysmal ligament by a resection and then an approach to the body of the platysma whereby it is elevated and affixed to the cut edge of Loré's fascia. Redundant platysma bands are pre-planned for resection by a submental incision. The strong fixation with the triple cable braided suture tightens the lower half of the platysma where most of the weight of the platysma is and defines the lower half of the sternomastoid muscle.

There is always a place for more extensive surgery if it can achieve a superior result and it is justified to achieve a tall, tight neck, the feature of which is synonymous with female youth and beauty.

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**Photographs**

(135): Platysma auricular ligament incised down to the platysma muscle as it crosses the sternomastoid.

(138): Triple cable non-absorbable suture inserted between the cut edge of Loré's fascia and the bulk of the platysma.

(139): Resected platysma auricular ligament elevated and sutured over triple cable suture.

(140): Resected auricular ligament re-attached to the cut edge of Loré's fascia over the triple cable non-absorbable suture.

**Videos** available in Clinics of Plastic Surgery 41 (2014) P73-80
Hodgkinson D.J (2014), Total Neck Rejuvenation Using a Modified Fogli Approach and Selective Resection of Anterior Platysma Bands.

(372): Triple cable suture elevating body of platysma.

(376): Platysma resection via submental incision.

**Figures**

Figure 1: Loré's tempero parotid fascia in the pretragal area.

Figure 2: Pre-operative clinical assessment of platysma.

Figure 3a: Quantifying descent of platysma below hyoid bone.

Figure 3b: Quantifying the thickness of the platysma bands.

Figure 4: Anatomical structures to be anticipated in dissection in the taking down of the platysma auricular ligament and suturing of the platysma muscle.

Figure 5a: The platysma muscle prior to elevation.

Figure 5b: Elevation of the body of the platysma and fixation with a triple cable suture to the cut edge of Loré's fascia.