Aesthetic Plastic Surgery 1:355–362, 1978

Cervical Lift: Surgical Correction of Fat Contour Problems Combined with Full-Width Platysma Muscle Flaps

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ABSTRACT / Correction of neck deformities due to fat, platysma muscle bands, or a combination of these deformities along with sagging of all neck tissue can be satisfactorily corrected by surgery. A knowledge of the anatomy of the face and neck is necessary in order to make an accurate diagnosis of the anatomical causes and to execute appropriate and safe surgical correction. A combination of thorough fat removal and full-width platysma muscle flaps converted into deep-layer sling support can eliminate the objectionable neck features, prevent recurring vertical muscle bands, produce pleasing neck contours along with a definition of the mandibular border, and avoid the problems which frequently occur when techniques which rely on skin tension or skin traction alone are used.

KEY WORDS / Lipectomy, cervical; Face lift; Cervical lift; Platysma muscle; Fat, submental

The key to a pleasing postoperative neck contour is accurate diagnosis of the problems producing the objectionable features. The most frequent causes of objectionable neck contour include submandibular fat bulges and vertical platysma muscle bands (Fig. 1). Adequate removal of fat followed by transection of all objectionable platysma muscle bands along with transformation of the platysma muscles into a deep-layer sling neck suppport can produce long-lasting neck contour improvements for patients who previously were not considered to be surgical candidates (Fig. 2). The new neck contour is formed by deep-layer support and does not rely on skin tension alone. The skin is draped over the newly formed deep-layer neck contour and wound closure is accomplished without excessive skin tension.

Cervical lift results relying only on skin traction have frequently the following deficiencies:

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0364-216X/78/0001-0355 $01.60

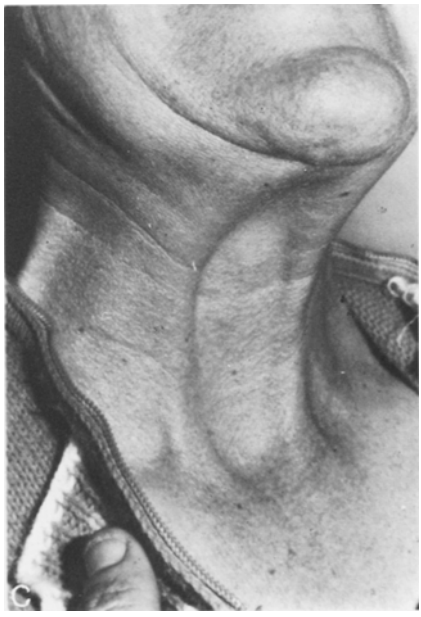

Fig. 1. (A): Preoperative photograph showing lack of definition of the mandibular border, lack of pleasing contours to the neck due to subcutaneous fat, and platysma muscle bands. **(B):** Postoperative photograph of same patient 1 year later following adequate cervical lipectomy and full-width platysma muscle flaps for deep tissue support to the neck. **(C):** Same patient preoperatively contracting the platysma muscle bands to show the location and the bulk of the bands themselves.

Fig. 2. (A): Preoperative patient with lack of definition of the mandibular contour, sagging skin, subcutaneous fat, and sagging platysma muscle. **(B):** Same patient I year after face and neck lift including submandibular lipectomy and full-width platysma muscle flaps for deep tissue support. **(C):** Patient with fat laid just below the area where fat was removed. The fat on the right side of the neck was removed as a continuous area of fat starting anterior to the tragus of the ear.

1. failure to eliminate the objectionable features;
2. early recurrent bulges and prominent bands;
3. lack of pleasing neck contours,
4. lack of definition of the mandibular border, and
5. continuation of the neck bulges onto the face in the preparotid areas.

These objectionable postoperative results can be avoided by the following procedures.

1. adequate removal of adipose tissue from the neck and from the preparotid area;

2. transection of all objectionable platysma muscle bands or excision as reported by Millard et al. (3);
3. transformation of the platysma muscles into a deep-layer sling support;
4. selective removal of fat below the lower border of the mandible.
5. accentuation of tension just below the mandible to accentuate the mandibular line, and
6. formation of deep-layer muscle sling support for neck contour changes instead of relying on skin traction alone.

Technique of cervical lipectomy

Prior to the cervical lipectomy, the skin with a thin layer of underlying subdermal fat is elevated across the postauricular and anterior neck. In the postauricular area of the neck the fascia is left intact on the sternocleidomastoid muscle and care is taken not to penetrate this fascia. It is important to leave this dense fascia on the muscle in order to have firm tissue for suturing when the platysma muscle flaps are formed. The lipectomy is started in a safe location anterior to the crossing of the sternocleidomastoid muscle by the external jugular vein. This location is several centimeters lower than the mandible and therefore is not near the marginal mandibular branch of the facial nerve. All skin undermining and all fat removal is accomplished under the direct vision of the points of the scissors at all times. Small portions of fat are elevated with a long hemostat and cautiously dissected free from the platysma muscle without penetrating the platysma muscle. After the fat has been removed in the lateral submandibular area, the patient's face is turned upward and the neck slightly flexed to choose the location for the anterior neck incision. A 3 cm long transverse incision is made at the midline of the neck close to the level of the hyoid bone. A narrow malleable retractor is used to elevate the skin during removal of fat near the crossing of the mandible by the external maxillary artery (facial artery) where the marginal mandibular branch of the facial nerve may be closer. The fat in this area adjacent to the crossing of the facial artery is removed cautiously in very small portions. Any remaining fat bulges lateral to the platysma muscle can be palpated through the skin, exposed by skin elevation, and eliminated.

For almost all face lift patients, removal of fat anterior to the ear and lateral to the parotid gland is worthwhile. If this fat lateral to the parotid gland is not removed, the shifting of the deep tissue in a posterior and superior direction will produce a subcutaneous bulge anterior to the ear. Even for persons without major fat problems, the removal of this fat down to the level of the parotid fascia permits the shifting of deep tissue to both ears. Removal of fat anterior to the protection of the facial nerve provided by the parotid gland is usually not necessary. Fat removal in areas anterior to the parotid gland or below the protection of the platysma muscle or the deep fascia should be undertaken only with great caution and with techniques similar to that required when removing the lateral lobe of the parotid gland. In the extremely rare persons for which this fat removal might be indicated, a nerve stimulator may be worthwhile. Fortunately, as long as the platysma muscle is not

penetrated during this fat removal in the cervical area, any branch of the facial nerve which might descend below the mandible is protected by the platysma muscle as reported by Dingman and Grabb. (1).

Transformation of platysma muscles into full-width flaps

Skin markings are made at the beginning of the operation to outline the anterior border of the underlying sternocleidomastoid muscle, the borders of the external jugular vein, and the location for the boomerang-shaped incision to be made through the underlying platysma muscles (Fig. 3). After the lipectomy has been completed the methylene blue skin markings are repeated on the platysma muscles (Fig. 4I). The methylene blue line for the platysma muscle incision extends from anterior to the ear overlying the superficial investing fascia and continues downward parallel and approximately 5 mm anterior to the anterior border of the sternocleidomastoid muscle. This line curves away from the border of the sternocleidomastoid muscle at the level of the thyroid cartilage and continues across the midline. The marking of the location of the external jugular vein assists in avoiding this vein during the platysma muscle incision.

The platysma muscle is incised along the methylene blue line with scissors, and the patient, who is under local anesthesia, is asked to tighten the platysma muscle to see if the platysma muscles on each side have been completely divided. The preoperative photographs of the patient which demonstrate the objectionable platysma muscle bands are reviewed and attention is given to make sure that all of the bands have been incised (Fig. 1C).

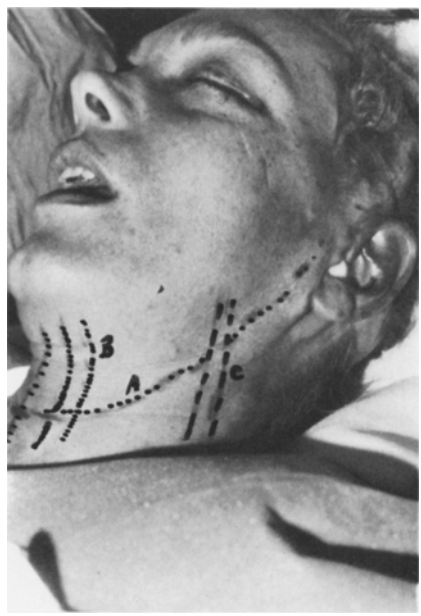

Fig. 3. At the beginning of surgery methylene blue is used to mark the location of underlying structures on the skin. **(A):** The approximate location of the boomerang-shaped incision through the full width of the platysma muscle. **(B):** Margins of anterior platysma muscle bands. **(C):** Margins of the external jugular vein.

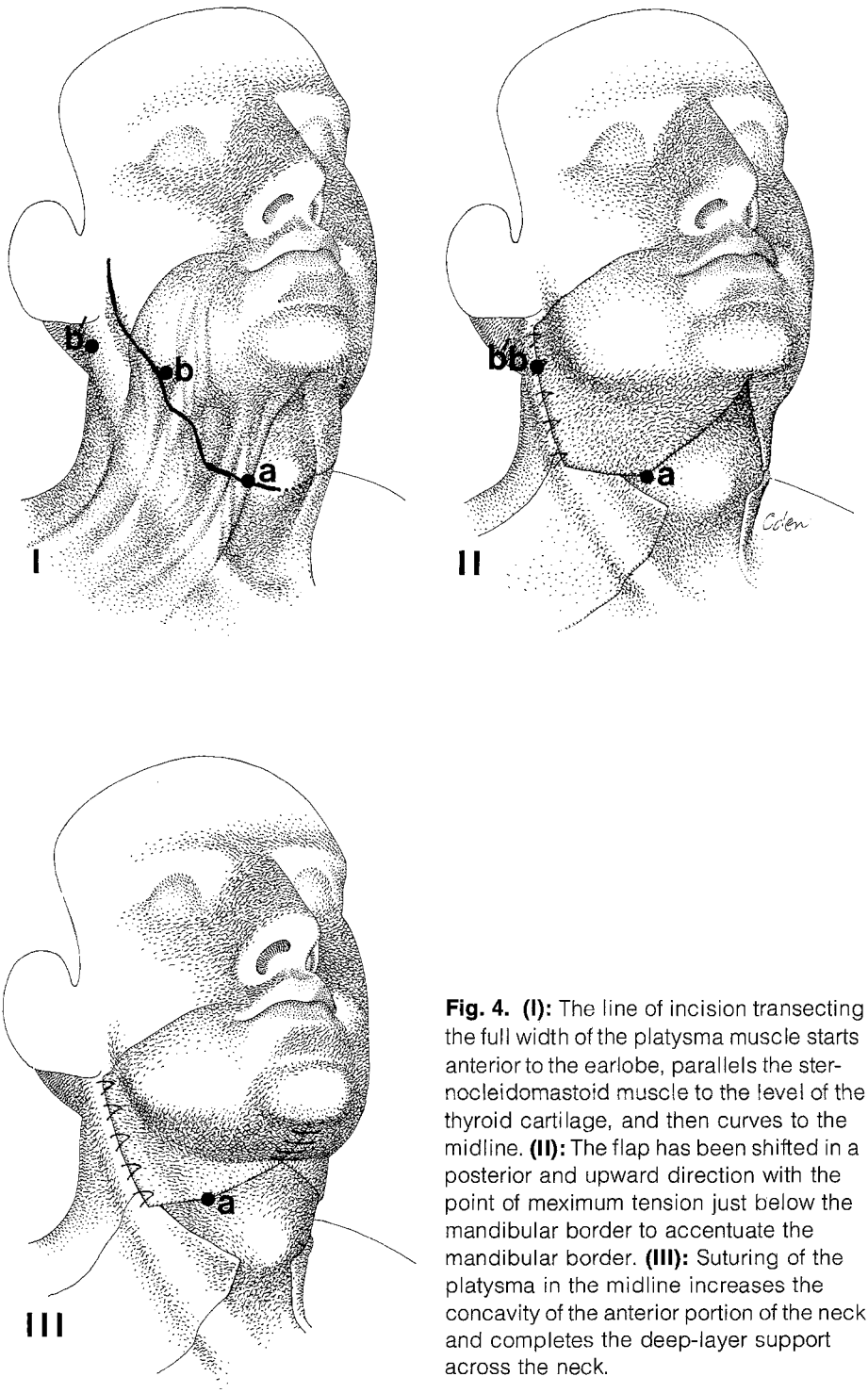

Fig. 4. (I): The line of incision transecting the full width of the platysma muscle starts anterior to the earlobe, parallels the sternocleidomastoid muscle to the level of the thyroid cartilage, and then curves to the midline. **(II):** The flap has been shifted in a posterior and upward direction with the point of meximum tension just below the mandibular border to accentuate the mandibular border. **(III):** Suturing of the platysma in the midline increases the concavity of the anterior portion of the neck and completes the deep-layer support across the neck.

The platysma muscle is incised along the methylene blue line with scissors while the platysma muscle is held under tension with Allis clamps, and the patient, who is under local anesthesia, is asked to tighten the platysma muscle to see if the transection is complete. If the patient is too sleepy to contract the platysma muscles the lower edge of the platysma muscle can be electrostimulated, and if there is no contracture of the upper platysma muscle the transection of the muscle is complete. After the platysma muscle incision is completed across the midline, the platysma muscle slides easily on the deep tissue. Consequently, undermining of the platysma muscle is not necessary except for approximately 2 cm undermining at the transition of the muscle to the superficial investing fascia over the parotid gland.

The point usually selected for the first flap suture is the portion of platysma muscle which when pulled in a posterior and superior direction accentuates the lower border of the mandible (Fig. 41.b). The five 4–0 nylon sutures on each side are carefully placed vertically in order to avoid branches of the greater auricular nerve while suturing the muscle to the dense fascia overlying the upper sternocleidomastoid muscle. These sutures are carefully placed so that the advanced border of the platysma muscle covers the knots and the sutures are cut flush with the knot (Fig. 4II). For persons with much deep tissue sagging, the superficial investing fascia anterior to the earlobe can frequently be moved backward as much as 2cm or more posterior to the earlobe.

The neck deep-layer supportive muscle sling is completed by suturing of the platysma muscle in the anterior midline (Fig. 4III). Three frequent variations of the midline platysma muscle structures are found. A thick continuation of platysma muscle across the midline may preoperatively be diagnosed in error as a fat bulge in the submandibular area. During the preoperative examination this thickness can be grasped with the fingers while the patient is asked to contract the platysma muscles to determine the difference between a fat deposit in this area and a thickening of the platysma muscles in the midline. Other findings are either a thin continuation of muscle or a thin layer of fascia between two diverging anterior prominent vertical bands which produce a "turkey gobbler deformity." Midline approximation of the medial borders of the platysma muscle increases the sling deep-layer tension and results in increasing the concavity of the anterior neck. Thick midline platysma muscle may require excision of a midline vertical ellipse and sometimes fat may need to be removed from beneath this thick midline platysma muscle in order to produce a flat submental contour for males and slightly rounded submental contour for females. Other surgeons who have used the platysma muscle to form a neck deep-layer support to produce a new improved neck contour include Dr. T. Skoog (4), Dr. Rex Peterson *(personal communication)*, and Dr. Jose Guerrero-Santos (2).

Summary

Accurate diagnosis of the causes of the objectionable neck contours followed by precise surgical technique to adequately remove cervical and preparotid fat combined with transection of the full width of the platysma muscles and transformation of these muscles into a supportive sling for the deep tissues of the neck has been

found to produce results which could not be achieved by techniques that rely on skin tension alone for contour improvement.

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