The fourth suture in MACS facelifting – addressing the neck

Die vierte Naht zur Halsstraffung im MACS-Lift

Abstract

Objective: The MACS facelift alone shows poor results on the medial neck in cases of pronounced, rigid platysmabands (McKinney III–IV°). The original MACS ("Minimal Access Cranial Suspension") facelift delivers excellent results on the midface and leads to sustainably improved outcome on the neck by adding a fourth suture on the platysma. McKinney type I–II platysmabands can be treated only by lateral approach of the ‘fourth suture’, type III–IV should be treated with closed platysma myotomy before.

Methods: Between October 2007 and November 2013 a number of 219 patients were treated with the MACS facelift technique accomplished by a fourth suture on the platysma and liposuction or optional lipectomy on the neck. On 47 patients closed transcutaneous platysma myotomy was performed.

Results: Surgery time lasted on average 2.5 hours and was performed under sedation with local anesthesia in 85%. Recovery time ranged between 14 to 16 days until the patients were back to work. Due to their health status 54% of our patients had an inpatient arrangement for one night and 46% an outpatient arrangement.

Conclusion: The modification of the MACS lift with the ‘fourth suture’ on the platysma keeps the benefits of the original technique but improves the aesthetic outcome on the neck.

Keywords: MACS lift, face lift, neck lift, fourth suture, platysma myotomy

Zusammenfassung


Ergebnisse: Die durchschnittliche Operationszeit betrug 2,5 h und 85% der Fälle wurden unter Sedation/Lokalanästhesie operiert. Die mittlere Regenerationszeit bis zur Rückkehr in den Beruf betrug 14–16 Tage. In Abhängigkeit der Grunderkrankungen wurden 54% der Patienten stationär, 46% ambulant geführt.

Schlussfolgerung: Die Modifizierung des MACS-Facelifts durch die vierte Naht erhält die Vorteile eines „short scar“-Faceliftes, verbessert aber nachhaltig die ästhetische Kontur des Halses.
Introduction

Facelifting is a crucial tool in the daily practice of a plastic surgeon. Ten to 15 years ago the facelifting procedures were requested by a small patient population in Europe [1]. Today it is widely requested and standard repertoire of every aesthetic surgeon. The request for a face lift procedure is claimed by much younger and better informed patients (Figure 1, Figure 2, Figure 3) [2]. This change of attitude among patients implies a challenge for the treating surgeon as these patients usually expect minimal scarring, short down time and natural results. We introduce modifications on the MACS (“Minimal Access Cranial Suspension”) lift that accomplish these expectations and provide an excellent treatment option for a large patient group.

Material and methods

Between October 2007 and January 2013 a number of 219 patients were treated with the MACS lift technique accomplished by a fourth suture on the platysma and liposuction or optional lipectomy on the neck. We found a mean age 58 years and operated on 168 female, 51 male patients. Follow-up was scheduled 1, 3, 6, 12, 24 months after surgery (Table 1). On 89 patients closed transcutaneous platysma myotomy was performed. On six patients the platysma myotomy was performed secondary under local anesthesia, because they complained remaining platysmaband appearance after the primary classic MACS lift.

Surgery time lasted on average 2.5 hours and was performed under sedation with local anesthesia in 85%. We prefer the optional intraoperative patient mobility of the head and neck and appreciate the higher muscle tone under sedation compared to general anesthesia. Recovery time ranged between 14 to 16 days until the patients were back to work. Due to their health status 54% of our patients had an inpatient arrangement for one night and 46% an the outpatient arrangement.

In 91% the modified MACS lift was combined with other rejuvenation procedures of the face: fat grafting 1%, canthopexy 10%, perioral peeling 18%, injectables 21%, eyebrow lift 24%, platysma myotomy 35%, malar sling lift 37%, blepharoplasty superior/inferior 51%/56%, liposuction neck 97%.

Modification

For cases of severe cervical excess skin and distinct platysmabands we describe a modification of the original MACS lift which maximizes the rejuvenation effect on the neck but keeps the proven benefits of short and barely visible scars. The modification consists of a fourth SMAS (“Subcutaneous Musculo Aponeurotic System”) plication suture on the lateral aspect of the platysma and a 3–4 cm advanced dissection below the mandible to accentuate the submandibular angle.
Figure 2: Young patient requesting a facelift, pre- (a, c, e) and 24 months postoperative view (b, d, f)

Figure 3: Young patient requesting a facelift, pre- (a, c, e) and 6 months postoperative view (b, d, f)

Table 1: Follow up compliance of male and female patients

<table>
<thead>
<tr>
<th>Follow up</th>
<th>1 month</th>
<th>3 months</th>
<th>6 months</th>
<th>12 months</th>
<th>24 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female N168</td>
<td>167 (99%)</td>
<td>102 (61%)</td>
<td>73 (43%)</td>
<td>154 (91%)</td>
<td>98 (58%)</td>
</tr>
<tr>
<td>Male N51</td>
<td>48 (94%)</td>
<td>27 (52%)</td>
<td>15 (29%)</td>
<td>42 (82%)</td>
<td>37 (72%)</td>
</tr>
</tbody>
</table>
‘Fourth suture’

A fourth plication suture on the lateral platysma was called ‘fourth suture’ in addition to the publication on the ‘third suture’ by Verpaele et al. [3]. The medial anchorage point is located on the platysma in an imaginary vertical line below the first premolar (Figure 4). The lateral anchorage point is located on the fascia of the sternocleidomastoid muscle. Dissection is done under cold light control and extended beyond the mandibular angle. No further incisions are needed. The fourth suture is done with non-resorbable 3-0 monofilament and it is crucial to position the knot inverted deep to the fascia so that it does not become palpable time after the surgery. The vector pulls bilateral and addresses the medial platysma with an adequate lifting effect (Figure 5). Several authors support that aging leads to a certain medialisation of facial skin which is counteracted by the fourth suture on the platysma (Figure 6) [4]. The bilateral approach to correct the platysma appears more physiologically compared to a medial corset plastty which is prone to subcutaneous visible scar formation. Hughe amounts of cervical skin can be redistributed without any tenting phenomenon on the neck (Figure 7).

**Platysma myotomy**

Platysmabands can be either soft as result of a relaxed muscle filament due to aging or hard when it forms palpable fibrotic muscle cords. Careful preoperative examination distinguishes both types and indicates the adequate surgical technique. Soft platysmabands (McKinney I–II°) can be treated with good results by the fourth suture (Figure 7). Hard platysmabands (McKinney III–IV°) need to be treated by myotomy before applying the fourth suture [5]. We use a closed myotomy by placing serveral stab incisions (2–3 mm) along the palpable platysmaband (distance 2–3 cm). Hollow canulas are pierced through the incisions dorsal and ventral to the platysmaband. A polifilament thread (2-0) or wire is flossed in a U-shape around the platysmaband and the canulas are removed. By moving it laterally back and forth with decent pressure, it is used like a saw to dissect the platysmaband on 4 to 5 locations (Figure 8). The technique was described by different authors such as Daher et al. [6], [7]. Only after platysmaband myotomy the fourth suture can evolve its full impact on medial platysma lifting.

**Complications**

The modification of the MACS lift through the fourth suture on the platysma and liposuction or optional lipectomy on the neck did not alter the complication rate compared to Verpaele et al. [3]. We analysed a complication rate of 6% which is analog to the classic MACS lift. One patient...
needed revision of a postoperative bleeding due to a poorly controlled hypertension. Two patients suffered from a self-limiting preauricular bleeding (<2 cm), which did not need to be revised. One patient suffered from a superficial preauricular skin necrosis (<1.5 cm) that healed by secondary intention without sequelae. One patient showed postoperative neurapraxia of the marginal mandibular branch of the facial nerve that recovered without sequelae within 2 months. There were no injuries of the zygomatic or buccal branches of the facial nerve.

**Discussion**

The MACS facelift technique was described by Tonnard and Verpaele and evolved to an established and popular technique for facial rejuvenation [3, 8, 9, 10]. The main advantages of the method are highlighted: Short, barely visible scars, which make the procedure attractive for many patients especially for male patients or female patients with short hair. Limited undermining decreases the risk of blood circulation disorders and skin necrosis particularly in patients at risk, such as smokers. The technique is less invasive than most SMAS (“Subcutaneous Musculo Aponeurotic System”) elevation or SMAS dissection techniques. It is a safe procedure in relation...
Figure 8: Outcome of a modified MACS lift and the ‘fourth suture’, pre- (a, c, e) and 6 months postoperative view (b, d, f)

to potential nerve injuries and has a shorter postoperative down time [11].
Due to the short scar and the purely vertical lifting vector the option to redistribute larger amounts of excess skin of the medial neck and submandibular area is limited [10]. Redistribution of skin is prone to leave pleats the preauricular area resulting in uneven perilobular scars. The MACS lift alone shows poor results on the medial neck in cases of pronounced, rigid platysmabands (McKinney III–IV°) [10], [12].

The strictly vertical lifting vector as described in the original publication does not sufficiently adress the platysma and fails to correct medial platysmabands. Since the vertical traction on the platysma originates cephalad of the ramus mandibulae a tenting phenomenon results (Figure 9). The platysma spans and raises the underlying submandibular fat in a convex instead concave way. As a result the cervicomandibular angle is blurred instead of defined.

Verpaeles et al. original publication recognizes the first two disadvantages and recommends a combination of their technique with an anterior cervicoplasty to correct medial platysmabands and a posterior cervicoplasty to prevent lateral skin pleats in the preauricular area [9]. The presumption of Verpaele et al. that extended dissection along the platysma would lead to a higher rate of postoperative bleedings could not be seen in our patients. All surgeries were done under perioperative epinephrine application. Since the duration of action is shorter than surgery time we found no altered risk of delayed reactive hyperemia and consecutive postoperative bleeding. The use of perioperative epinephrine administration facilitates the identification of functional structures, allows safer dissection and shortens surgery time [13]. Analgosedation provides physiologic blood pressure throughout the surgery without reactive alterations especially during extubation [14]. After facial liposuction the dissection of the very delicate facial flaps should be avoided. On smokers limited undermining can be indicated to prevent necrosis [15], [16]. Plication techniques of the SMAS are less prone to nerve injuries compared to smasectomy methods [17].

Conclusion

The modification of the MACS lift with the ‘fourth suture’ on the platysma keeps the benefits of the original technique but improves the aesthetic outcome on the neck (Figure 10). Short scars, short surgery time and a high safety of the procedure make it convenient to both patient and surgeon. Platysmabands should be examined and classified prior to surgery. McKinney type I–II can be treated only by lateral approach of the ‘fourth suture’, type III-IV should be treated with closed platysma myotomy before. Liposuction of the cheeks and neck is an important tool to prepare and ease dissection. Optional retroplatysma lipectomy can be indicated to reconstruct the cervico-mandibular angle if retroplatysma fat deposits are responsible for a hanging neck. The original technique of the MACS lift delivers excellent results on the midface and leads to sustainably improved outcome by adding the fourth suture as key procedure to accentuate the mandibular angle of the neck.
Figure 9: Closed myotomy of hard platysma bands (McKinney III–IV°)

Figure 10: Disappearance of hard platysma bands (McKinney III–IV°) after closed myotomy, modified MACS lift and the ‘fourth suture’
Notes

Competing interests

The authors declare that they have no competing interests.

Level of evidence

Level IV, therapeutic study

References


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