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SMAS-flap transposition in Lower Face-lift

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ABSTRACT

The superficial musculoaponeurotic system is of fundamental importance in facial anatomy. One of its primary functions is to harmoniously integrate the facial mimic muscles by coordinating their movements with each other. The continuity of the superficial musculoaponeurotic system with the platysma also creates an effective unitary connection with the mandibular and cervical areas. For these areas, where the signs of aging are first shown with soft tissue ptosis and cervical bands, we propose our lower face-lift technique with SMAS-flap transposition. This technique is not characterized by the section of the aponeurosis at the earlobe or lower level and by its rotation, but it is characterized by an higher SMAS section at tragus level with transposition of the mobilized pre-parotid and platysma aponeurosis to the high mastoid area. This manoeuvrer allows us for an effective platysma extension-lift and for his secure fixation to the upper mastoid area, resulting in greater stability and duration of the treatment.

Keywords: SMAS-face lif, Lower face lift, Platisma bands, SMAS-flap, SMAS-flap transposition

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Introduction

The superficial musculoaponeurotic system (SMAS) is of fundamental importance in facial anatomy [1,2,3,4,5,6,7,8,9,10,31]. Inferiorly to the zygomatic arch, the preparotid superficial aponeurosis, is in continuity with the platysma, creating an effective unitary connection with the mandibular and cervical areas, involved in the aging process, One of its primary functions is to harmoniously integrate the facial mimic muscles by coordinating their movements with each other. Other tan the skin, the aging process also involves these underlying structures, which lose their strenght and tension over time. Ptosis, more or less accentuated, is first evident at the mandibular and cervical levels, altering the relationships between the bone structure and the soft tissues. Therefore, it is important to restore the relationship once again, suspending the parotid-platysma superficial aponeurosis. We propose the SMAS-flap transposition in lower face-lift. This technique is not characterized by the section of the aponeurosis at the earlobe or at lower level and by its rotation, but it is characterized by an higher SMAS section at tragus level with transposition of the mobilized pre-parotid and platysma aponeurosis to the high mastoid area. This manoeuvrer allows for a higher and more effective fixation of the platysma on the mastoid area, obtaining a greater definition of the affected area and a longer duration of the result over the years.

Methods

Over two years 29 patients (4 males, 25 females, aged from 43 to 65 years) with lower face ptosis were selected for SMAS-flap transposition, under tumescent anaesthesia with sedation (12 patients) or general anaesthesia (17 patients), according to their preference. For all patients, the mandibular and sub-mental cervical areas were involved.

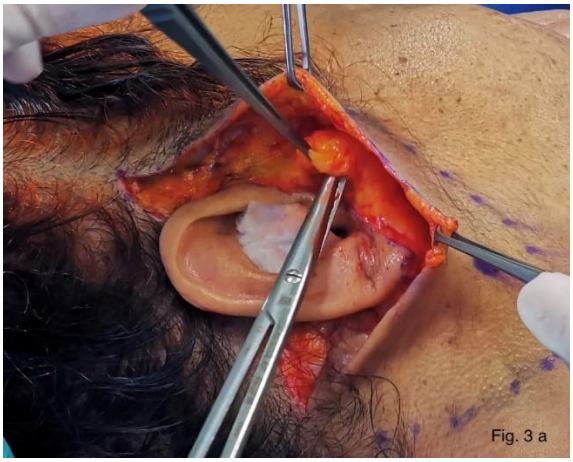
Technique

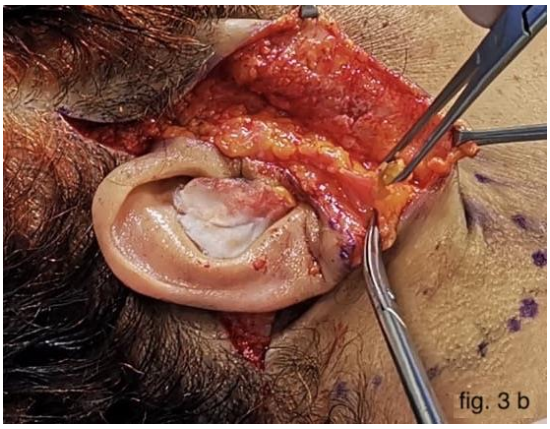
We marked the pre- and post- auricular incision lines, with short temporal and mastoidea extensions. Then, we marked the anterior and posterior skin undermining limits, approximately 4/5 cm from the incision line (fig.1). A small quantity of tumescent anaesthetic was injected under the skin of the outlined area, and the incision was performed. After the skin undermining (fig. 2) we performed the mobilization of the superficial preparotid and platysma aponeurosis (fig. 3a, b), with an anterior and inferior undermining of approximately 4/5 cm. When the aponeurosis mobilization was well acccomplished, the sub-zygomatic aponeurosis was lifted to the temporal area, where was anchored with PDS 2-0 (fig. 3 c). The aponeurosis section (4/5 cm) was then made at the tragus level (fig. 4 a-c), and the SMAS-flap B was further mobilized and transposed to the retroauricular area (fig. 5 a, b, c) where it easily reached the upper mastoid area (fig.6 a, b) where was anchored with PDS 2-0. Two or three PDS 3-0 sutures secured the continuity and stability of the pre-auricular SMAS. The skin excess could then be excised (fig.7) and the final suture by 5-0 vicryl rapid was made.

fig. 1

fig. 1 Skin marking

fig. 2. Skin undermining





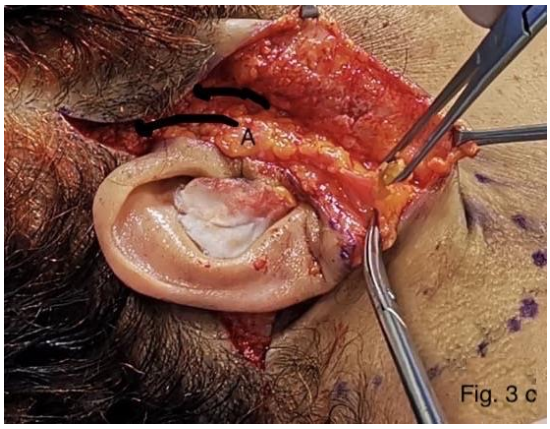
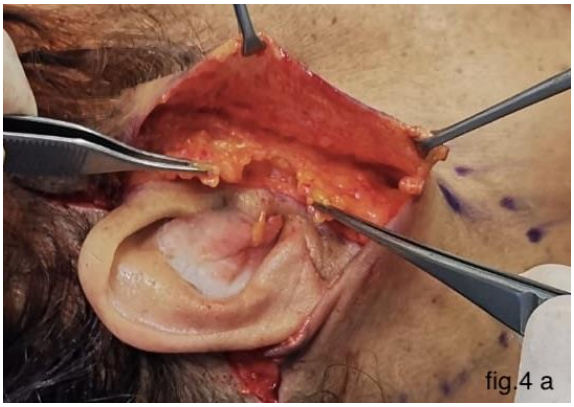
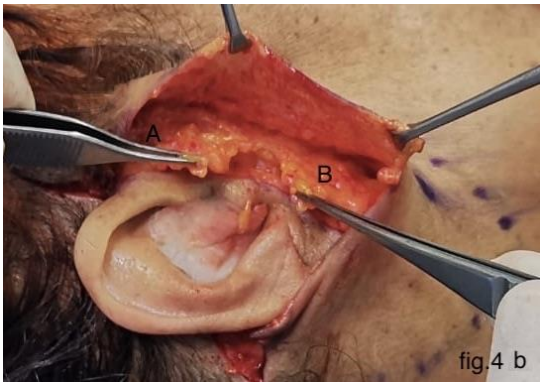


fig. 3 a, b. c Superficial aponeurosis mobilization and its vertical suspension to the temporal fascia





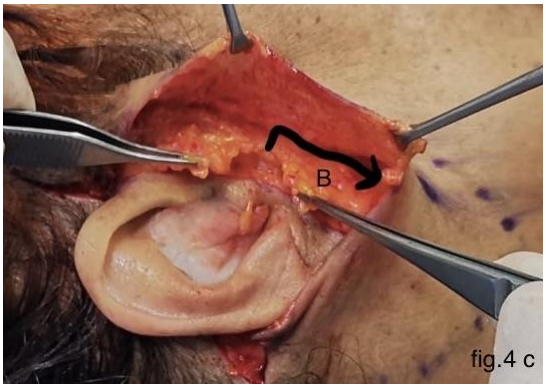


fig. 4 a, b, c Superficial aponeurosis section at tragus level and further mobilization

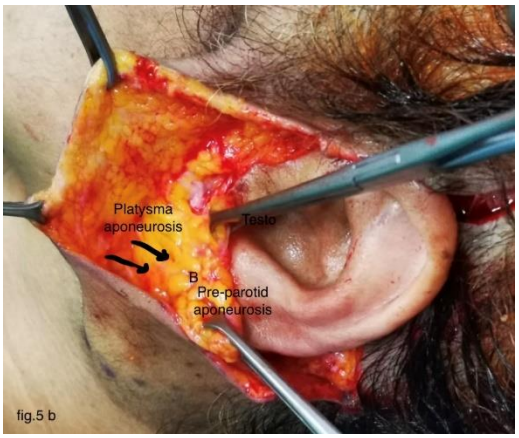


fig. 5 a, b, c Flap mobilization inferiorly into platysma area and its transposition

fig. 6 a, b. Flap fixation to the mastoid area

fig. 7 Skin excess evaluation and excision

Result

The immediate result (fig.7) consisted of a good definition of the jaw and the cervical area, due to the tensioning and lifting of the aponeurosis. Its transposition also allowed greater grip on the fixing points, both pre and post auricular, with effectiveness and stability. After surgery, there was no hematoma [40], or swelling and bruising, because of the SMAS and skin limited undermining (approximately 4/5 cm) with good final tissue adhesion and no empty spaces (fig. 8 a, b, c).

fig. 8 a, b, c Before and after 5 days

Discussion

The face aging process is often evident first in the mandibular and cervical areas. In particular, the platysma loses its elastic tension, is more subjected to the force of gravity, and together with the other soft tissues, it gives rise to the ptosis and to the submental bands, more or less accentuated to varying degrees [13], with extension to the upper neck. In these areas, the tissues lose their optimal location which must therefore be re-established. The surgical techniques for treating these conditions are numerous [12-40]: some are limited to the skin undermining [15], others reach deeply into the periosteum, but most of the tecniques involve in various ways the superficial aponeurotic system [13,14,15], which is put back in tension, plicated or detached [14,15]. The procedures have undergone a considerable evolution following a more precise and detailed knowledge of the compartments of the facial anatomy [12,13,14,16]. The superficial muscular aponeurotic system is greatly involved in the changes associated with aging [12]. The relationships of the SMAS with the ligaments, vessels and nerves are very important, particularly at the parotid level with the facial nerve [9,19] and with its more superficial branches. Particular attention must be paid to the auricular nerve and to the marginal branch of the mandibular nerve, which can have a variation of its path either, up or down, even by one centimetre, and which becomes superficial at a very specific point, close to the aponeurosis [19,32]. Therefore, the SMAS must be detached very carefully. In our technique we extend the preauricular-platysmal aponeurosis detachment and mobilization to a maximum of 4/5 cm in front of the tragus and inferiorly, leaving intact the soft tissues adhesion beyond this distance. This allows us to maintain the skin connections and the anatomical unity of the area intact, for greater tissue compactness and a more natural results. Anterior to the tragus, the sperficial aponeurosis is sectioned, to establish a transposition flap that easily reaches the upper mastoid area, placing tension on the platysma.

Conclusion

This technique allows an immediate reduction of mandibular and cervical ptosis with a surgical procedure of limited extension, without excessive detachment. No bruises, hematomas or swelling were observed in the immediate post-operative period or after a few days. There was no tension on the sutures, with a good healing process and excellent aesthetic result (fig. 8-14).

fig. 9 a, b, c Before, after 5 days, after 8 months

fig. 10 a, b Before and after six months

fig. 11 a, b, c, d Before and after one year

fig. 12 a, b, c, d Before and after one year

fig. 13 a, b. Before and after one year

fig. 14 a, b. Before and after one year

Level of evidence: IV

Compliance with Ethical Standards

Conflicts of interest The author declares that he has no conflicts of interest.

Human and Animal Rights This article does not contain any studies with human participants or animals performed by the author.

Informed Consent The patients provided their consent for publication of their photograph.

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