




Single-Step Full-Face Surgical Treatment of the Facial Profile

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Abstract

The present study was performed to describe how much affordable, feasible, and straightforward is the approach the authors called “single-stage full-face surgical profileplasty,” tailored to greatly improve the surgery of the facial profiling setting and achieve complete profile correction at the same time. From January 2010 to May 2019, 113 patients (95 females and 18 males; aged 19 – 63 years) were surgically treated for full-face profile amelioration. Profile correction was performed by using a combination of five procedures out of other various previously experienced: forehead fat grafting, rhinoplasty, lip fat grafting, genioplasty, and submental liposuction. All patients were assessed at 1, 3, 6, and 12 months following surgery for assessing the surgical profile treatment (SPT) outcome and any possible side effects of the combined treatment. Facial profile stability at 1 year was taken as the completion point of this treatment. Arnett et al’s “Soft Tissue Cephalometric Analysis” (1999) was used to clinically evaluate the soft tissues before and after the SPT. Patients’ satisfaction was measured with the Client Satisfaction Questionnaire-8” at 3 and 12 months after surgery. Statistics were used for Arnett et al’s evaluation. Almost all the values were consistent and reached the normal ranges indicated by Arnett et al ($p < 0.001$), confirming that the desired results of the surgical profileplasty have been achieved. Single-stage full-face surgical profile treatment helps in correcting faults of the global facial deformity, in every single treated area, providing an overall improvement in facial aesthetics and harmony. Obtaining the simultaneous correction in the whole face has also the advantage of avoiding multiple surgical procedures, reducing postoperative discomfort, and the overall risks for the patient due to multiple surgical and anesthetic procedures.

Keywords

- beauty
- profileplasty
- Arnett et al’s cephalometric analysis
- aesthetic surgery
- facial harmony

Introduction

Facial profile aesthetics depends entirely on the harmonic relationship between various parts of the face, in particular,

forehead, nose, lips, chin, and submental space. In aesthetic surgery, a common practice used to date is evaluating the full face in the profile position and achieving a simultaneous improvement in all the subunits of the face. This should be

considered the key to achieving successful outcomes after aesthetic facial procedures. In this context, the facial profile is not a static entity and, according to different ages and cultures, it keeps on changing. Many researchers have given parameters to achieve “a beautiful and balanced” profile line.^{1–9}

However, the results may not always be as expected due to the commonly used practice of multistage procedures which forces the physician and the patient to reconsider the harmony of the facial profile several times. A weak chin, an inadequate lower facial height, or a submental fullness can lead to less than satisfactory outcomes when longer time intervals between single corrective procedures occur.

A significant number of patients may think they only have defects in the upper, middle, and lower thirds of the face, but thorough facial analysis and counseling may lead to requiring a primary or secondary profile improvement. Therefore, several surgical and nonsurgical techniques are described to approach a face surgical profileplasty and the authors chose five major items for their purpose: forehead correction,^{10–12} rhinoplasty,^{13–15} lips lipofilling,^{16–18} osseous genioplasty,^{19,20} and submental liposuction.^{21,22}

The aesthetic improvement of the forehead can be obtained through a standard surgical maneuver in which the skin is lifted by predetermined landmarks according to an expected outcome²³ or by inserting fat grafts^{24,25} or through nonsurgical maneuvers, for example by injecting neuromodulators and fillers.²⁶ Rhinoplasty is one of the most commonly used techniques, alone or in association with other procedures, to improve the aesthetic impact and balance of a patient's face.^{27,28} The same can be said for lips correction through lipofilling^{16,18} and for genioplasty, an ancillary procedure which, however, contributes to the achievement of a proportionate profile also in the lower third of the face.^{19,20} Regarding submental liposuction, it is a minimally invasive surgical technique and usually requires just tiny incisions in the patient's chin area.²¹ Using these incisions, the surgeon is then able to refine and carve patient's chin and neck.

Despite the good outcome of any of these surgical techniques and approaches, by alone or associated, the overall quality of the facial profile usually depends on a global view of the effects related to specific facial areas; therefore, a surgical methodology considering this issue is particularly concerning. The aim of this paper is to propose a comprehensive surgical profile treatment (SPT) which includes forehead, nose, chin, lips, and submental fullness correction in 113 patients. Arnett et al's “Soft Tissue Cephalometric Analysis (STCA)” (1999)²⁹ was used to evaluate the correspondence of different cephalometric parameters between hard and soft tissues before and after treatment with the agreed equilibrium standards of the face he identified. To do this, lateral teleradiography of the face was performed for each patient which was then superimposed with the photograph of the facial profile before and after the surgical treatment. In this way, it was possible to measure the change in the profile of the facial soft tissues on the skeletal bone bases. Lastly, “Client Satisfaction Questionnaire-8” (CSQ-8)

was submitted to patients at 3 and 12 months after surgery to understand how this treatment could modify their way of seeing themselves.^{30–32}

Material and Methods

Patients

A total of 113 patients, 95 Caucasian females and 18 Caucasian males aged between 19 and 63 years (mean: 44.6 ± 2.34 standard deviation [SD]), underwent the SPT at the Maxillo-Facial Unit at the University Hospital in Verona, Italy, from January 2010 to May 2019. Each patient was submitted to an interview for specific personal consent to join the present study, according to the Declaration of Helsinki. None of the patients showed dental malocclusion or functional pathologies. Exclusion criteria were represented by the presence of previous or current metabolic, hematological or immunological diseases, previous facial surgeries or history of facial trauma, facial scars, and abnormal skin thickness and texture.

Patients' Pretreatment

All patients underwent a preoperative session in which they have taken photos of the face from frontal, lateral, 45 degrees bilateral, superior, and basal views. To avoid muscle contraction of soft tissues, which could lead to an inaccurate definition of the landmarks during the profile diagnosis, patients were asked to relax their lips, close their mouth, and relax their facial muscles after swallowing.³³ Since the head tilting backward or forward may result in inadequate chin posture, all the profile pictures were taken in a natural head position, which should provide a relaxed head looking straight into the horizon.^{15,34,35}

Orthopantomography and lateral teleradiography were chosen to perform the analysis.

Analyzing photos and radiological outputs, each of the following points were examined in each patient.

- Conformation of forehead^{36–38}: flat, sloped, convex.
- Type of nose deformity^{34,39,40}: asymmetry, nasal hump, defective nasal projection or columella, acute nasolabial angle, saddle nose, crooked nose.
- Lips proportions in terms of the concept of “golden ratio” for the proportion between upper and lower lip, of the ideal dimensions of the philtrum and of the nasolabial angle^{41,42}.
- Type of chin deformity^{34,43}: vertical, sagittal, or mixed defect.
- Submental region (submental-cervical angle)^{44–46} over 120 degrees.

To obtain a complete treatment plan and therefore the best result for the patient, a comprehensive clinical profile analysis was considered. In this perspective, Arnett et al's STCA was used,²⁹ and the reference tabs of Carrhuters papers have been taken into consideration.⁴⁷ Teleradiography of the head compared with advanced imaging techniques is an easy-to-perform and noninvasive modality with reduced radiation exposure to study the craniofacial anatomical

parameters in normal subjects. It can be performed from three angles (latero-lateral, postero-anterior, and axial), but the most used for cephalometric analysis is the lateral-lateral projection, as was done in this study. The X-ray emission device is positioned 180 to 200 cm from the patient in an upright position with the head properly fixed using an instrument called a craniostat.

Arnett et al's cephalometric analysis takes into account both hard and soft tissues in the definition of harmonic aesthetic parameters of the face. In this sense, in this study, the teleradiography of the skull was taken into consideration for the former and the photographs of the patient for the latter. The two images of the same patient were then superimposed and analyzed each other before and 1 year after the treatment.

The STCA is used for cephalometric treatment planning in different areas including the study of soft-tissue components and harmony of parts. According to what was reported by Arnett et al, harmony is the balance of the position of each facial landmark in relation to the others and it is intended as the horizontal distance between two reference points perpendicular to the true vertical line (TVL). To analyze facial harmony and proportions, soft-tissue profile analysis measurements on the forehead (F), soft-tissue glabella (G'), soft-tissue orbital rim (OR'), nasion (Na), nasal dorsum (Nd), nasal tip (Nt), subnasal (Sn), upper lip anterior (ULA), lower lip anterior (LLA), soft-tissue A point (A'), soft-tissue B point (B'), mandibular central incisor tip (Md1), soft-tissue pogonion (Pog'), neck throat point (NTP), and Gnation (Gn) (►Fig. 1) were taken into account.

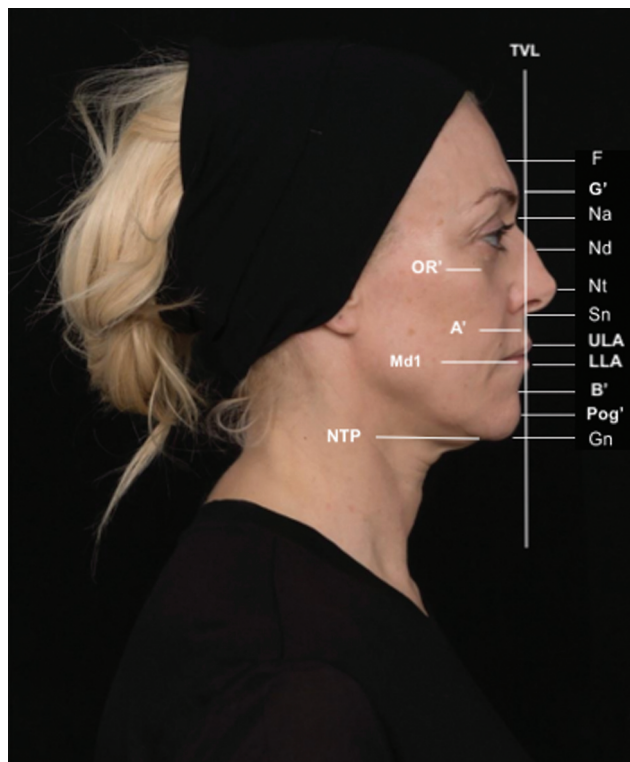


Fig. 1 Anthropometric reference points (the apostrophe sign is used on the soft-tissue landmarks to distinguish them from the corresponding ones on the facial skeleton).

Four areas of balance were examined to express harmony: intramandibular parts, interjaw, orbits to the jaw, and the total face. The first one points out the chin position in relation to other mandibular structures (lower lip, B' point). The second area is used to underline the lower one-third balance of the face. Orbit-to-jaw harmony identifies the position of the soft-tissue inferior orbital rim compared with the jaws. Lastly, total facial harmony has been underlined via the facial angle (G'–Sn–Pog') and the forehead has been related to the upper jaw (G'–A') and chin (G'–Pog').

The prominence or retrusion of either forehead and the relative position of the nose and chin was assessed in relation to the TVL, ideally running from the subnasal point and perpendicular to the horizontal plane in NHP^{35,48} (►Fig. 1).

All patients were assessed before surgery and after 12 months with complete facial analysis, photos, and X-rays. The postoperative checks were the day after, at 10 days, 1 month, 3, 6, and 12 months.

All the parameters, measured before and after 1 year, were compared with those found by Arnett et al in his "STCA" paper edited in 1999.²⁹

To evaluate patient satisfaction, the CSQ-8 was performed.^{31,49} This 8-items test is easy to accomplish and easily scored, with a time requested of 3 to 4 minutes. Each item of the CSQ-8 is scored from 1 to 4, with an overall result ranging from 8 to 32, with higher scores representing greater satisfaction. The survey was submitted to the patients after 3 and 12 months, postoperative (This survey uses items and item responses from the CSQ-8 [Italian, TMS.280], by permission of the copyright holder. Copyright 2020. Clifford Attkisson, Ph.D. Use, transfer, copying, reproduction, merger, translation, modification, or enhancement (in any version, format, and/or media including electronic), in whole or in part, is forbidden without written permission by Dr. Attkisson. Contact: InfoCSQscales.com.).

All the procedures were made under general anesthesia during a single session. All treatments were performed by the same surgeon following a top-down method, from the forehead to the submental area.

Patient's Treatment, Forehead

After harvesting of 10 cc of fat, the authors injected with 1 cc Luer-lock syringe and 3 mm Byron cannula the deep temporal fossa over the periosteum and the subgaleal plane with the fat tissue distributing an average of 2 to 3 cc per side in the temple and the remaining 4 cc on the central forehead. The decision on the site of adipose tissue sampling was made on the patient's own basis and on the areas of greatest deposit between the inner thigh and the abdominal area.

Patient's Treatment, Nose

All the nose corrections were made using an open approach. To reduce the tip bulbosity a cephalic trim was performed; the majority of patients (88.6%) were treated with a cephalic resection of the lateral crura generally leaving at least 8 mm residual strip. The nasal tips were treated and remodeled with one intradomal suture done with PDS 5-0. In all the patients, medial oblique and lateral curved basal osteotomies were

performed. None of the patients had intranasal packing but had transseptal suture with PDS 4-0. Finally, a dressing with sterile strips with Mastisol for 7 days with thermoplastic packing and then sterile strips alone for further 7 days were given to the patient.

The nasolabial angle was corrected through caudal-septal resection, strut grafts, septal-extension grafts, and/or tip sutures.

Patient’s Treatment, Lips

To treat lips, lipofilling was the technique used. The lip areas have been identified as: upper and lower vermillion, philtrum columns, upper and lower lip body, right, and left oral commissure. Without performing local anesthesia and using 21G cannula, 5 cm long (TSK Laboratory Europe B.V. The Netherlands), 0.4 mL per side of autologous fat was injected. The decision on the site of adipose tissue sampling was made on the patient’s own basis and on the areas of greatest deposit between the inner thigh and the abdominal area.

Patient’s Treatment, Chin

The authors injected the oral vestibule with 2% xylocaine 1:100,000 mixed with 1:1 ratio of physiologic solution waiting for 15 minutes for vasoconstriction. After that, an incision line was followed running between the two inferior canines using the 15-blade scalpel 6 mm below the mucogingival line and then proceeded with the electric scalpel to reach the bone surface. Blunt dissection was performed. It proceeded exposing the periosteum and doing bone markings with a pencil and then holes with a drill. Marking the midline is particularly useful when, after the osteotomy, you have to fix the osteotomized segment in a symmetrical and established position. Skin marks were made to have an immediate comparison with bone marks. Osteotomies in the case of a patient with a prominent chin or only osteotomies in the case of a patient with microgenia were performed with piezoelectric surgery. The isolated mandibular

segment was then translated into a more posterior position in the first case, more anteriorly in the second case. Bone segment fixation was performed thanks to titanium mini-plates and screws. After fixation, before mucosal closure, the mentalis muscle was reattached to avoid chin pad and cervical layer ptosis. Lastly, a 4-0 Vicryl suture for muscle and 5-0 Vicryl suture for the mucosa were used. Elastic tissue adhesive band was applied to the chin for 2 days to reduce edema and to prevent hematoma formation, preventing soft-tissue ptosis and residual asymmetries. The day after surgery, the inferior alveolar nerve (IAN) function was evaluated with a clinical neurosensorial test.

Patient’s Treatment, Submental Liposuction

Submental liposuction was performed through a 3 mm incision under the jaw. The authors infiltrated 5 cc of saline solution and Naropine (1:1). Through 4 mm liposuction cannulas, the excess preplatysmatic fat was removed improving the contour of chin and the jaw line. Younger patients with mostly fat under the neck are the best candidates for this procedure.

Statistics

Qualitative data from score ranking were analyzed using a Kruskal–Wallis test for $p < 0.05$. To process all the data obtained, the authors decided to use Mood’s test, a nonparametric method for two independent study samples. Quantitative data, as mean \pm SD, were evaluated with a Kolmogorov–Smirnov test and as nonparametric analyzed with a Wilcoxon test for $p < 0.05$. An SPSS v 24.0 was used for calculations.

Results

Overall Outcome Description

►Fig. 1 shows those anatomical points used to evaluate the described the single-step full-face surgical technique. Two exemplificative cases of outcomes are represented in ►Fig. 2



Fig. 2 First exemplificative case of a patient before (left) and after (right) the procedure described in the text with Arnett’s values in pre- and postoperative conditions.

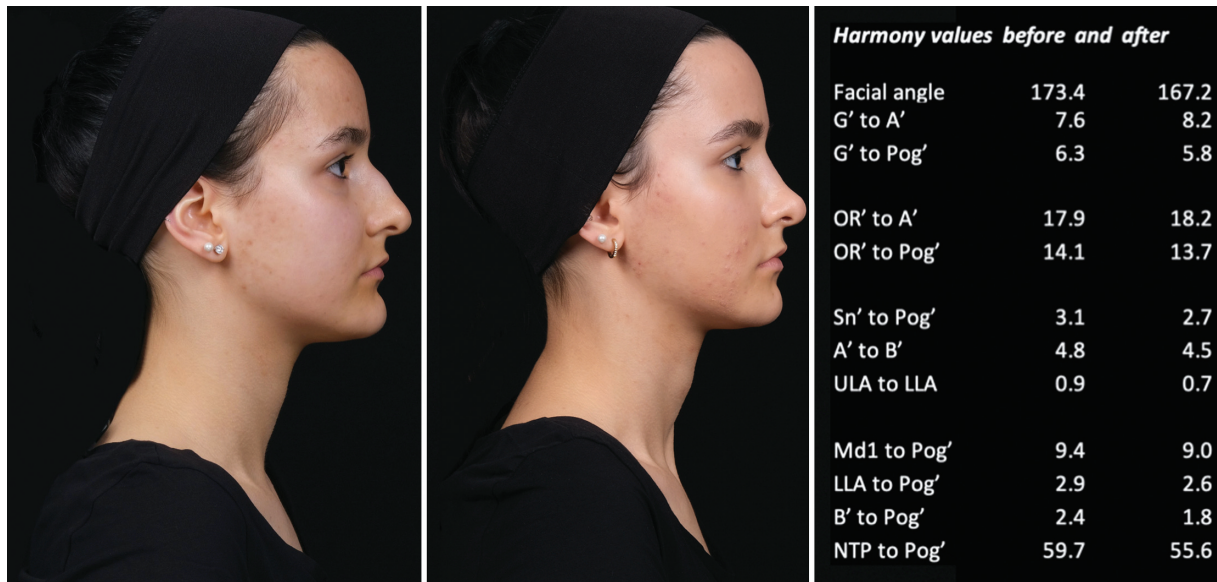


Fig. 3 Second exemplificative case of a patient before (left) and after (right) the procedure described in the text with Arnett's values in pre- and postoperative conditions.

(patient 1) and **Fig. 3** (patient 2), with indicated harmony values (according to Arnett et al's references) pre- and post-intervention. The entire procedure lasted approximately 180 minutes on average.

Given this study on the evaluation and improvement of the harmony and aesthetics of the facial profile with regard to the profile of the face only, the authors did not proceed to obtain photographs of patients with their heads tilted back, as they believe that this type of projection is therefore not functional to this study.

A complete subject's recovery needed an average of 3 to 4 days, and patients can generally return to work in about 1 week, properly informed that the optimal and stable result usually comes on following 4 to 6 months after surgery. An ice pack was applied for approximately 24 hours all around the face as soon as the patient returned from the operating

room. After 24 hours, all the dressing was removed, and patient could wash him/herself. Patients were strictly followed up during the 24 hours postoperative and, then on 10th postoperative day, all skin sutures were removed. Six months after surgery, most of the swelling was gone and the final appearance became visible.

The Arnett et al's analysis method was used to clinically evaluate the soft-tissue response and the entire facial harmony. In **Fig. 4** Arnett et al's values of facial harmony were compared with pre- and postoperation values, distinct into males and females.

Among all the parameters analyzed, the majority was congruent with those found by Arnett et al. As reported in **Fig. 4**, while the differences with Arnett et al's parameters in the preoperative conditions were significantly different in both female and male patients, following

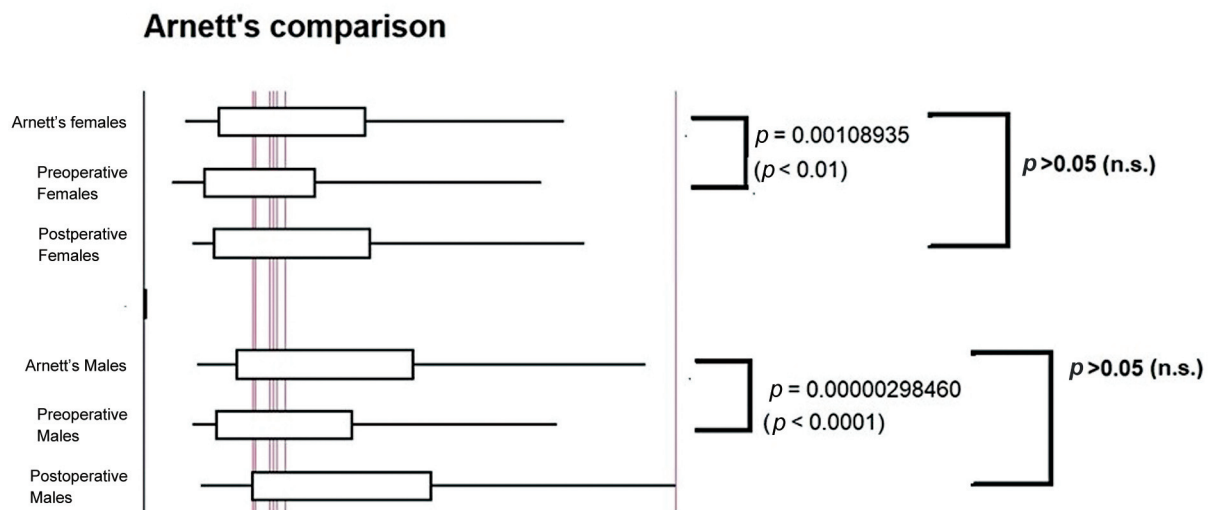


Fig. 4 Comparison between Arnett's facial harmony values and pre- and postvalues of the patients evaluated with Mood's analysis.

interventions the parameters were closer with Arnett et al's values and differences were only by chance. A significant difference in the medians, by a Mood's test, between Arnett et al's values and preoperative conditions were observed for females ($p < 0.01$) and males ($p < 0.0001$), respectively. This difference disappeared at postoperative ($p < 0.05$), for both sexes.

Therefore, the SPT in a single surgical step could reach values of facial harmony and balance.

Perisurgical and Postoperative Considerations

After surgical forehead lifting, parahypoesthesia of the parietal region is quite common due to a temporary lesion or inflammation of the supraorbital nerve. Additionally, some patients may experience temporary partial paralysis of one of the facial nerve branches, especially the frontal branch, or a scar with alopecia, among others.^{23,50} Given these considerations and to reduce patient discomfort, the fat grafting technique was preferred over the brow lift. Considering the correction of the profile in the area, fat grafting complications were temporary pain and swelling of injection's site, but nobody presented nerve damage or other major complications. Fat sampling sites can be different, from the abdominal area to the inner thigh area, including the outer thigh area. In the design of lipofilling on the lips or at the forehead, it is necessary to foresee that most of the grafted tissue undergoes spontaneous reabsorption, usually 60% of the total grafted fat. For this purpose, more fat than planned was injected according to the patient's needs. Furthermore, according to the literature, some have also identified differences in the quality of the adipose tissue taken from the different areas. In this study, the authors preferred the inner thigh as a sampling site as it was considered less invasive from an aesthetic point of view. In fact, no major complications were found such as residual tissue laxity and the entry site was less evident. If the patient did not have the availability of enough fat from the inner thigh, the adipose tissue was considered from the abdominal area.

Nose aesthetics were good in all patients after surgery. Most of the patients were free of major complications such as septal hematoma, residual asymmetries, or functional impairments (open roof deformity, Rocker deformity, nasal tip bossae, or pinched tip). Common postoperative features like pain, periorbital hematoma, nasal fullness, and light bleeding were reported.

The main complication for lips lipofilling was edema and swelling around the treated area. No hematomas, seromas, or infections were pointed out.

Considering all patients who underwent treatment, 86 patients were characterized by microgenia and 27 by the prominent chin. Concerning early postoperative genioplasty complications, 28 (24.77%) patients complained of chin hematoma and 46 patients (40.70%) had perioral paresthesia/hypoesthesia as a result of the IAN distress during the surgical procedure after clinical neurosensory testing (detection of a static light touch, brush directional discrimination, and two-point discrimination). This hypoesthesia affected approximately 30% of the global sensitivity

the day after surgery; in those patients, it had gradually diminished to approximately 90% of the total sensitivity at T2 (three months after surgery). No evidence of hypoesthesia was noted at T3 check (12 months after surgery). All patients had slight intraoral scarring but this did not cause retraction of the adhesive gingiva on the central incisors. None of the patients developed a chin pad or cervical soft-tissue ptosis. No other late postoperative complications were observed, except from two cases (1.76%) of superinfection of the miniplates: one patient recovered completely after antibiotic therapy and one patient required plaques removal.

The authors noticed no major complication after submental liposuction. Nine patients (7.96%), four females between 31 and 40 years old, two between 41 and 50 years old, and three between 51 and 60 years old referred pain, and two patients (1.76%) suffered from temporary minimal marginal nerve damage for approximately 3 and 5 months, respectively. This is the reason why this technique was preferred over the neck lift technique, also considering that the surgical incisions are minimal and therefore also the scarring results.

None of the patients complained about being treated simultaneously in different areas of their faces.

Health Recovery and Patient's Quality of Life

Aesthetic results were assessed after 3 and 12 months using the CSQ-8 questionnaire with the most satisfactory outcome among the other facial areas treated.

The CSQ-8 questionnaire (maximum score = 32) was given to the patients asking them to rate their satisfaction level. It was assessed during the control visit after 3 and 12 months postop, and it was drawn up both for the individual procedures and for the complete treatment by the patients. Due to organizational problems, the results were returned by 98 patients (86.72%). The questionnaire results displayed the following overall data for the complete treatment.

- At 3 months postoperative the median CSQ-8 score was 27.7 ($p > 0.05$).
- At 12 months postoperative the median CSQ-8 score was 30.2 ($p > 0.05$).

Indeed, the results showed a very high degree of satisfaction, regardless of any complications. Although all the procedures seemed to have a high level of patients' satisfaction, the procedure with the best response was rhinoplasty, with a median CSQ-8 score 31.3. Otherwise, the single procedure with the worst degree of satisfaction was the forehead fat grafting, with a median CSQ-8 score 25.8. Only seven of patients (6.19%) would not have done the same surgery.

Discussion

The improvement of the face profile and effective treatment planning are still a debated topic in the literature and a challenging aspect for the surgeon preparing for this type of treatment. Many authors studied and focused mostly on a single surgical area and on the right relationship between different structures. Actually, it is possible to retrieve in the literature, among others, many papers focusing on the

relationship between nose and lips or between nose and chin.^{2–4,6,8,16,17} Instead, the authors believe that the beauty of the face, and its harmony can only be considered in its entirety as a set of individual areas, albeit as a precise part of the individual parts. The comprehensive evaluation of facial profiles is becoming more and more effective and together with the evolving medical and surgical treatments should be considered to achieve a visible and successful result. Otherwise, while a person's ability to recognize a beautiful face may be innate, translating such feeling into defined treatment goals is more complex. Artists and health professionals have attempted to define and recreate an ideal profile over the time but, beyond the recognition of beauty, it is difficult to formulate a shared treatment to obtain an aesthetic improvement of the full face. It seems that an accurate and reproducible method to perform surgical aesthetic treatment of the facial profile has not yet been well codified, probably also because age and aesthetic standards in different cultures are always evolving parameters. The present study proposed the Arnett et al's soft facial tissues analysis for diagnosis and treatment planning, a simple and systematic method to objectively detect the facial defects that need to be treated.

Forehead fat grafting treatment was performed first in each patient. As shown in the results, the facial analysis was within the reference values. Many of them experienced just a minimal volumetric increase of the fronto-nasal region. Probably this is because in younger patients, there is a lower sagittal defect of the forehead, related to unaffected support and tension of the soft tissues.

The forehead lift is a procedure that permits to obtain a huge movement of forehead's soft tissues, but despite this, it is expensive and quite invasive and complications could last a long time.²³ Fat grafting is a technique that has been used for several years. It is a mini-invasive surgical procedure, and it grants a stable and many times better result if compared with HA filler in terms of duration, regenerative capacity, and aesthetic results.^{51,52} These aspects, in association with the lower grade of complications, make this technique one of the best choices in forehead's treatment.²⁴

In the last years, the increase in requests of rhinoplasty brought to light new surgical and medical procedures to satisfy the patient's request.¹⁴ For example, the injection with HA fillers may be a very good choice of treatment in terms of results, but it does not last long and it is not free from severe complications like necrosis of the nasal tip or, in worst cases, loss of vision, even if rare.¹⁵ Open rhinoplasty is required when major aesthetic and functional treatments are needed. Indeed, open rhinoplasty is a technique that grants a long-term and stable result.^{13,17}

Lips surgery with the fat grafting technique is one of the oldest procedures in aesthetic surgery. Like the lipofilling of the forehead region, it allows stable results and noninvasive treatment.¹⁶

In the search for an aesthetic improvement of the facial profile, one of the parameters that is generally taken into consideration is the nasolabial angle, meaning the angle between the columella and a line intersecting the subnasale

and labral superius. Usually, it is reported between 93.4 and 98.5 degrees in men and 95.5 and 100.1 degrees in women. This parameter can be modified through surgery both from the nose and from the lips and has been taken into consideration before and during the treatment.

Today, the correction of the shape and position of the chin is an easy surgical procedure and it can be performed by means of an osteotomy or by positioning alloplastic materials, but some controversies have yet to be addressed. The authors preferred the intraoral approach just inferior to the mucogingival line between the two lower canines and believed that this approach could be the most suitable for this type of osteotomy and guaranteed the lowest risk of complications for the patient. Zide and McCarthy⁵³ postulated the importance of mentalis muscle in chin surgery, and Chaushu et al⁵⁴ showed that when mentalis muscle insertion is not precisely repositioned, this leads to the chin and submental-cervical soft-tissue ptosis. For this reason, a wide muscular detachment was carefully avoided. In detail, no bone resorption or fixation instability was observed in patients on control radiography 1 year after surgery, and only two cases (1.76%) of superinfection were found. Segner and Hölzje⁵⁵ published a paper on the stability that shows higher variability of the results in terms of soft-tissue profile predictability after surgical genioplasty but, on the other hand, can confirm, according to Guyuron and Raszewski⁵⁶ work that chin osteotomy is a well-established technique and can be applied individually or in combination with other procedures for each patient, achieving good results and avoiding the cost of an alloplastic material.

Especially in patients with but not limited to microgenia, a global correction (horizontal and vertical increase) of the chin profile is often necessary and, for this reason, the anatomical proximity and the facial harmony as a whole suggest the treatment of the submental area at the same time. Indeed, when the submental liposuction was performed at the same time of chin osteotomy, the result was more evident. In this context, the assessment of the cervicomentale angle is often mentioned. This is identified by drawing an ideal line tangent to the subchin (from the chin to the subcervical) and a line tangent to the neck that intersects the subcervical. Submental liposuction is a technique frequently used if you want to intervene on the cervicomentale angle and is often associated with other techniques. Usually, a cervicomentale angle of 90 to 105 degrees is deemed acceptable. It could be used in many kinds of situations and in case of submental fullness. ATX 101, for example, works well when preplatysmatic fat is thick and when there is a good skin tone grade.^{57,58} In any case, liposuction obtained a great level of satisfaction in every patient treated, regardless of skin tone and anatomical fat compartment.

Very few cases of early or late complications have been recorded after the SPT, confirming it as a valid alternative to the treatment of individual areas of the face.

In the treatment of the frontal area, only minor complications were reported attributable to swelling and bruising. These findings appear to agree with those presented by other

authors.²⁴ The same results in terms of severity of the complications were found in the treatment of the other areas of the patients' face in the postoperative period, from the nose to lipofilling of the lips. Some patients experienced bruising, pain at the surgical site or fat removal area, and a lumpy feeling in the lips, but these quickly regressed spontaneously or after some manual massage. These complications regarding these particular surgical techniques were reported by 92 of the patients (81,41%) undergoing treatment. Of these, 73 were females (23 between 19 and 30 years old, 22 between 31 and 40 years old, 16 between 41 and 50 years old, and 12 between 51 and 60 years old) and 19 were males (10 between 31 and 40 years old, 4 between 41 and 50 years old, 4 between 51 and 60 years old, and 1 of 62 years old). This could be due to the different degree of tolerance to this type of intervention by females compared with males, not only from the point of view of postoperative pain and physical discomfort but also of the tolerance to show signs of the surgery for a few days (i.e., swelling and/or bruising). There was no mention of hypertrophic or keloid scars or asymmetry. These were some of the aspects that largely contributed to the high degree of satisfaction expressed by patients.

Among all the procedures performed, the major complications were found with respect to genioplasty. In total, 46 patients (40.70%), 28 females (7 between 19 and 30 years old, 15 between 31 and 40 years old, 4 between 41 and 50 years old, and 2 between 51 and 60 years old), and 18 males (7 between 21 and 30 years old, 8 between 31 and 40 years old, and 3 between 51 and 60 years old) reported feeling of paresthesia in the immediate postoperative period, which however gradually disappeared at the 12-month follow-up. This can be attributed not to the complete injury of the IAN but to an intraoperative stretching of its fibers. There were also two cases (1.76%), both males (53 and 57 years old), of superinfection of the miniplates, which led to their removal in one patient. This appears to be slightly higher than the average presented in the literature (approximately 1%),²⁰ probably due to imperfect compliance by patients in performing correct postoperative oral hygiene; notably, both patients were smokers.

The risks of submental liposuction may be different, although they are reported in a very small percentage of cases.⁵⁹ In this study, two cases (1.76%), one 32 years old female and one 43 years old male, of temporary marginal nerve distress were found, in line with the literature.

To evaluate patient satisfaction, the CSQ-8 was used. This questionnaire is easy to perform, to understand and to interpret, although it still underlies most aspects of patient satisfaction. The results showed that patients were largely satisfied with the treatment they received and rhinoplasty had the greatest degree of satisfaction. Only six patients (6,12%) reported not recognizing the new nose shape as harmonious with their face. Of these, five were women between 31 and 45 years old, the man was 27 years old. More specifically, most of these patients reported that they did not match their expectations with the surgical results with regard to the width of the nasal dorsum. According to

the authors, this is likely due to the fact that the healing, although months later, was not yet completed.

The nose, intended as the central structure of the face, can greatly affect the aesthetic feedback that each patient has of his/her face and profile. This may be why even the smallest detail for the better can mean a lot to the patient, as has already been shown in the literature.^{39,40,60}

Another aspect to consider is that the degree of satisfaction of patients increases with the passage of time, which is to be understood as correlated with the progressive healing of the tissues and the reduction of postoperative edema and inflammation. On the contrary, this can also be explained by the fact that the patients' progressive acceptance of his/her new facial profile can be a more or less long process, regardless of the complexity of the change made.

As expected, a limitation of this study is characterized by not being able to make a comparison with the degree of satisfaction expressed in the literature by similar treatment.

Conclusions

During a period of 10 years, 113 patients were treated simultaneously with forehead, nose, lips, chin correction, and submental fullness treatment. Comparing the patients' profile photos and teleradiography taken before and after the procedure, satisfying results were obtained from a surgical and aesthetic point of view. Two main objectives of the procedure, the correction of the single deformity in every single region treated, and an overall improvement of the aesthetics and harmony of the face, were obtained in a single surgical session. Obtaining the simultaneous correction in the whole face means sparing the patient multiple surgical sessions, thus reducing postoperative discomfort and reducing the overall cost. Last, but not least, the full-face surgical profileplasty does not report any increase in complications compared with single surgical treatments, except for some temporary neurological dysfunction.

Indeed, the degree of patient satisfaction was shown to be very high in CSQ-8 questionnaire, reporting a subjective improvement in facial aesthetics and harmony. On the contrary, from an objective point of view, the harmony and facial proportions were respected by this treatment, as demonstrated by comparisons with the values reported by Arnett et al.

To obtain a predictable good result, the following points should be kept in mind.

1. Accurate case selection that implies recognizing the coexistence of defects in high, middle, and lower face.
2. Accurate preoperative evaluation with photos and X-rays to know how and how much should be the correction and to identify structures to be preserved.
3. To carefully program the correct and the best surgical procedure for patients.
4. The surgical impact on the patient.

Considering all these aspects, the single session profileplasty should be proposed to patients every time the aesthetic surgeon sees the coexistence of facial anesthetic.

Conflict of Interest
None declared.

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