

Extreme facial rejuvenation, the combination of orthognathic surgery and cervico-facial rhytidectomy

Rejuvenecimiento facial extremo, la combinación de cirugía ortognática y ritidectomía cervicofacial

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ABSTRACT: Multiple adjunctive procedures are performed with orthognathic surgery to enhance aesthetic facial results, especially in those cases where skeletal movements alone do not satisfy the aesthetic demands of the patient. The objective of this study is demonstrate the benefits and outcomes of performing orthognathic surgery and cervicofacial rhytidectomy simultaneously to achieve extreme facial rejuvenation. Two clinical cases with a diagnosis of cervicofacial rhytidosis and dentoskeletal anomalies are shown, the first case with retrogeny and superior dermatocalasia and the second case with class III dentofacial anomaly and retrogeny, which were treated with the combination of orthognathic surgery and cervicofacial rhytidectomy in the same operative act. Facial aesthetic surgery has evolved by recognizing that changes in hard tissues affect soft tissues, however its isolated resolution does not meet the final aesthetic expectations of the patient in soft tissues. That is why there is a need to combine simultaneous procedures to meet the needs for which the patient comes and maintain the results over time. All patients who decide to undergo surgery for aesthetic reasons must also improve function. And due to the increase in operative time that carries out both surgeries simultaneously must be performed by a well-trained maxillofacial surgeon.

KEY WORDS: Aesthetic surgery, orthognathic surgery, rhytidectomy, rejuvenation protocol, dentoskeletal anomalies.

INTRODUCTION

One of the greatest skills of an oral and maxillofacial surgeon, is the ability to perform orthognathic surgery (OS). Corrective jaw surgery has made a significant impact over the last years, improving the quality of life of thousands of patients with multiple congenital and/or acquired dentoskeletal deformities. The OS treatment planning, may be limited to isolated or combined maxillary and mandibular osteotomies, selected according to the dentoskeletal deformity. Several investigators began to introduce a concept to establish the most favorable contours

of the soft tissue facial profile. Multiple adjunctive procedures are performed with OS, with the aim of enhance aesthetic facial results, especially in those cases where skeletal movements alone do not satisfy the aesthetic demands of the patient, among which rhytidectomy stands out (Sarver & Rousso, 2004; Mohamed & Perenack, 2014). Initial evaluation cervical and facial contour deficiencies should be categorized as skeletal discrepancy, soft tissue discrepancy or combined deficiencies (Mohamed & Perenack, 2014).

Hard Tissue Deformity

Certain orthognathic skeletal discrepancies are highly associated with predictable aesthetic soft tissue deformities, with no true soft tissue deficit; those are predictably corrected only with OS. The skeletal surgery often completely corrects the soft tissue deformity, eliminating a need for soft tissue surgery. In case of anteroposterior discrepancies of the mandible and chin and their repercussion on the cervical soft tissues, may be corrected with mandibular advancement in addition to genioplasty, where a cervical liposuction with or without cervicoplasty, would not be necessary (Ghali & Sinn, 1996; Friedman, 2005).

Soft Tissue Deformities

Contour deformities of the orbit, nasolabial fold, marionette line, and prejowl may be developmental or age related because the bony lateral orbit, pyriform rim, mandibular angle, and prejowl all undergo remodeling and resorption with age. Atrophy of the superficial fat pad is often seen in the aged patient and contributes to a deflated look to the face with loss of overlying skin resiliency, giving the ptotic appearance of the face with redundant tissue in the middle and lower third of the face and neck (Jense *et al.*, 1992).

Treatment Planning

Cosmetic surgical procedures such as rhytidectomy in conjunction with orthognathic surgery can be performed simultaneously, however, predictable soft tissue changes that occur with skeletal realignment should be considered (Mohamed & Perenack, 2014). Patients seeking facial rejuvenation surgery often report 3 primary concerns: the desire for a natural, more youthful appearance; the hope that they do not lose their identities; and the goal of avoiding the

appearance of a particular celebrity with a poor result from cosmetic surgery. They want their transformation to be safe and minimally invasive when possible (Mansour *et al.*, 1983).

CLINICAL CASE

Two clinical cases with a diagnosis of cervicofacial rhytidosis and dentoskeletal anomalies are shown, the first case with retrogeny and superior dermatocalasia and the second case with class III dentofacial anomaly and retrogeny, which were treated with the combination of OS and cervicofacial rhytidectomy in the same operative act.

Patient Selection and Evaluation

A thorough history of previous trauma and cosmetic or orthognathic surgery should be documented. Systematic accurate facial evaluation is necessary to focus on skeletal discrepancy, soft tissue discrepancy or combined deficiencies (table I). Traditionally, dental casts, panoramic and cephalometric radiographs, facial and intraoral pictures, model surgery, and cephalometric tracings play an integral role in our preoperative phase. We also add 3-dimensional standard analysis of the maxillofacial skeletal and facial soft tissue morphology.

CLINICAL CASES

Case 1

A 59-year-old female patient attended at our Maxillofacial Surgery Center with a chief complaint of unconformity with her facial appearance, with a history of facial infiltration with biopolymers 10 years ago in the region of both nasolabial sulci. A clinical evaluation and complementary studies showed an absence of support of the suspensory muscles of the face,

Table I. Evaluation of hard and soft tissues.

Evaluation of hard and soft tissues	
1. Cases of Malocclusion or Skeletal Disharmony	1. Soft tissue elasticity
2. Micrognathia cases	2. Presence of ptosis and pockets of fat
3. Bimaxillary retrusión	3. Deepening of the nasolabial fold
4. Low-Set Hyoid Bone	4. Prominent buccal fat pad
5. Patients who lack good definition of the mandibular lower	5. Evidence of malar soft tissue descent
6. Anteroposterior discrepancies of the mandible and chin	6. Presence of marionette lines
7. Trauma History	7. Presence of submental lipomatosis
8. History of Co smetic Surgery	8. Neck skin laxity



Fig 1. Case 1. Preoperative (A) and Postoperative (B) Photograph.

excess soft tissue in the upper eyelids, tissue redundancy and pronounced nasogenian groove, genial lipomatosis and retrogenesis with a decrease in the cervico-mandibular angle. Obtaining as definitive diagnosis: cervicofacial rhytidosis, retrogeny and superior dermatochalasia. Under the extreme facial rejuvenation protocol, it was decided to perform various procedures in the same surgical act: cervicofacial rhytidectomy, submentoplasty, Vaser®-assisted submental liposuction, advance genioplasty, bilateral lobuloplasty, and bilateral blepharoplasty. The clinical changes before and after the surgery are shown (Fig. 1).

Case 2

A 47-year-old male patient attended at our Maxillofacial Surgery Center with a chief complaint of unconformity with her facial appearance with a known medical history of gastric bypass two years ago with a total loss of 42 kg. Upon clinical evaluation and complementary studies, depression of both paranasal regions, absence of support of the suspensory musculature of the face, excess tissue in the middle and lower third of the face, increased mandibular projection, malocclusion, and genial retroposition were evident. The definitive diagnosis was obtained: dento-skeletal anomaly class III, cervicofacial rhytidosis and retrogenesis. After 3D virtual planning and under the same protocol for extreme rejuvenation, a retrograde sagittal osteotomy and advance genioplasty were performed with the philosophy of surgery first, rhytidectomy or cervicofacial lifting with muscle suspension and SMAS plasty, submentoplasty and lipotransference in the paranasal region at the same surgical time (Fig. 2).



Fig 2. Case 2. Preoperative (A) and Postoperative (B) Photograph.

DISCUSSION

Aging is a physiological process of the organism as a response to the passage of time that can be accelerated by the presence of various factors, but that cannot be stopped or reversed, however its effects can be mitigated through facial cosmetic surgery seeking a natural facial rejuvenation through the combination of different procedures (Niamtu, 2011).

In this study, in order to obtain satisfactory results for both the patient and for us as surgeons, we carry out an exhaustive evaluation in all our patients following a rigorous order. Ensuring the suitability of candidates for surgery and optimizing their medical status in preparation for surgery are important in planning facial rejuvenation.

Skeletal evaluation is essential, since the constant remodeling of the facial skeleton results in volume loss (Levin *et al.*, 2003). Then a nasal evaluation, as Fattahi (2007) establishes, the nasal region has a significant impact on the middle part of the face and it should be considered if its alteration is the product of maxillomanibular discrepancies that will improve or aggravate the nasal situation. As a last step we carry out the evaluation of soft tissues and tissue volumes that must be defined as alteration of the action of gravity on the soft tissue and volume loss due to lack of adipose tissue.

A detailed facial analysis was performed, noticing skin quality, actinic changes, evidence of malar soft tissue descent, presence of marionette lines, prominent buccal fat pad, and deepening of the nasolabial fold. Facial asymmetry is extremely common and its detection and discussion with the patient preoperatively can reduce the potential for dissatisfaction related to this pre-existing defect postoperatively.

The potential of orthognathic surgery (double jaw advancement surgery) to expand the skeletal base to increase facial support is now recognized and widely popularized by several authors (Rafaini *et al.*, 2021). Carmen Lorente *et al.* They explain it in their reverse lifting work where they obtain excellent results in maxillo-mandibular advances as a method of facial rejuvenation, but even so, there is evidence of slight flaccidity in the soft tissues as a final result. Likewise, when treating the soft tissues in isolation, the desired results are not obtained because the face lacks projection and/or sufficient support for these tissues (Lorente *et al.*, 2019).

That is why there is a need to combine simultaneous procedures such as orthognathic surgery (hard tissues) and rhytidectomy (soft tissues) to meet the needs for which the patient comes and maintain the results over time. These allowed us to guarantee in both patients an adequate projection in the hard tissues and in turn correct the vectors of the soft tissue to comply with facial harmony and their rejuvenation.

Performing a cervicofacial lifting must attend from the deepest layer to guarantee complete restoration; That is why all our facelifts are carried out under the "Deep plane" philosophy. This approach allows direct assessment and treatment of problems. The deep plane dissection limits tension to the platysma/SMAS fascia, allowing for tension-

free skin closure, minimizing complications, and resulting in natural rejuvenation (Mitz & Peyronie, 1976; Gordon & Adam, 2015).

The "reverse facelift" by bimaxillary advancement is a surgical procedure that is indicated for a selected group of middle-aged patients with a diagnosis of bimaxillary skeletal retrusion or posterior divergence highly motivated to extreme rejuvenation; This procedure, in conjunction with soft tissue management techniques, provides support to the facial mask resulting in complete facial rejuvenation (Hernández- Alfaro *et al.*, 2015).

CONCLUSION

It should be noted that the patient decides to undergo surgery for aesthetic reasons while the surgeon proposes a surgery that improves his function. Rhytidectomy is one of the surgical procedures that can be performed simultaneously with OC. We must always keep in mind the changes in the facial soft tissues that occur with skeletal movements and the intraoperative edema typical of the surgical act, considering the increase in operative time that carries out both surgeries simultaneously. However, when performed by a well-trained maxillofacial surgeon these techniques can be safely performed to help to maximize the aesthetic result that patients desire.

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Ethical statement: All the procedures carried out in the case report were in accordance with the ethical norms of the institution. This investigation followed the Helsinki Declaration's guidelines. Informed consent was obtained from the patient.

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RESUMEN: Se realizan múltiples procedimientos complementarios con la cirugía ortognática para mejorar los resultados estéticos faciales, especialmente en aquellos casos en los que los movimientos esqueléticos por sí solos no satisfacen las demandas estéticas del paciente. El objetivo de este estudio es demostrar los beneficios y resultados de realizar cirugía ortognática y ritidectomía cervicofacial simultáneamente para lograr un rejuvenecimiento facial extremo. Se muestran dos casos clínicos con diagnóstico de ritidosis cervicofacial y anomalías dento-esqueléticas, el primer caso con retrogenia y dermatocalasia superior y el segundo caso con anomalía dentofacial clase III y retrogenia, los cuales fueron tratados con la combinación de cirugía ortognática y ritidectomía cervicofacial en el mismo acto operativo. La cirugía estética facial ha evolucionado al reconocer que los cambios en los tejidos duros afectan a los tejidos blandos, sin embargo su resolución aislada no cumple con las expectativas estéticas finales del paciente en los tejidos blandos. Es por eso que existe la necesidad de combinar procedimientos simultáneos para satisfacer las necesidades por las que acude el paciente y mantener los resultados en el tiempo. Todo paciente que decida someterse a una cirugía por motivos estéticos también debe mejorar su función. Y debido al aumento del tiempo operatorio, realizar ambas cirugías simultáneamente debe ser realizada por un cirujano maxilofacial bien capacitado.

PALABRAS CLAVE: Cirugía estética, cirugía ortognática, ritidectomía, rejuvenecimiento facial, anomalías dento-esqueléticas.

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