



Esthetic and functional evolution of the face over 15 years: an interdisciplinary approach

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ABSTRACT

Introduction: Orthodontic treatment in adult patients allows for the correction of occlusal discrepancies and significantly improves smile aesthetics. However, dental reorganization can alter perioral soft tissue support and highlight age-related facial changes, such as an increased nasolabial angle, volume loss, skin laxity, and alterations in the mandibular contour. These changes can become more noticeable after dental correction, especially in middle-aged patients. In these cases, orofacial harmonization can play an important complementary role, restoring volume, improving soft tissue support, and promoting a more harmonious facial balance. In scenarios of advanced skin aging with excess skin, combination with surgical procedures may be necessary to achieve more durable and predictable outcomes. The integration of orthodontics, minimally invasive OFH procedures, and aesthetic surgery has been gaining relevance in the comprehensive approach to facial aesthetics in adult patients.

Objective: To present the longitudinal follow-up of an adult female patient initially treated with corrective orthodontics, followed by orofacial harmonization interventions, and subsequently facial aesthetic surgery, evaluating the impact of these approaches on the aesthetic and functional evolution of the face over a 15-year period.

Methods: Clinical case report with longitudinal follow-up based on sequential clinical and photographic documentation. The patient initially underwent corrective orthodontic treatment to resolve occlusal discrepancies, followed by minimally invasive orofacial harmonization procedures. With the progression of facial aging over the years and to maintain facial naturalness, it became necessary to remove excess skin from the lower third of the face by performing a surgical mini-lift. Clinical and aesthetic evolution was analyzed using photographic documentation obtained throughout the 15-year follow-up period.

Case Description: A 50-year-old female patient at the beginning of treatment presented with a dental Class II malocclusion, maxillary and mandibular dental crowding, and a midline deviation. The absence of tooth #16 was also noted. The orthodontic treatment plan included the extraction of tooth #25, followed by dental alignment, leveling, and midline correction. After the completion of orthodontic treatment, a significant improvement in occlusion and smile aesthetics was observed. Despite the dental improvement achieved, the patient reported a perception of increased facial flaccidity and loss of soft tissue support, particularly in the lower third of the face. As a complementary approach, orofacial harmonization treatment was performed with botulinum toxin

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application in the upper third of the face and cross-linked hyaluronic acid filler in the lower third to restore facial balance and harmony. Over the subsequent years, periodic aesthetic maintenance treatments were performed, including collagen biostimulators, placement of lifting and biostimulating polydioxanone threads, superficial peelings, mesotherapy, hyaluronic acid fillers, microfocused ultrasound, and, more recently, non-ablative laser resurfacing. With the natural progression of facial aging, there was a need to perform a blepharoplasty to remove excess skin from the eyelids. Due to worsening skin laxity in the lower third of the face, the patient subsequently underwent mini-lift surgery to remove excess skin and improve mandibular contour definition. Clinical and photographic monitoring documented the patient's aesthetic and functional evolution over 15 years after the start of treatment.

Conclusions: The sequential integration of orthodontics, orofacial harmonization, and aesthetic surgery can contribute to optimizing aesthetic and functional outcomes in adult patients. Longitudinal follow-up allows for the adaptation of therapeutic strategies to the changes associated with facial aging, promoting the maintenance of facial harmony over time.
