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AESTHETIC AND FUNCTIONAL REHABILITATION FOLLOWING BIMAXILLARY ORTHOGNATHIC SURGERY: A CASE REPORT

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Abstract

Orthognathic surgery is a key intervention for correcting dentofacial deformities, aiming to re-establish facial aesthetics, occlusal balance, and functional harmony. Case Presentation: This report presents a patient with mandibular retrognathism and Angle Class II malocclusion treated through bimaxillary surgery, resulting in significant improvements in facial profile, occlusal function, and psychosocial well-being. Discussion: This case illustrates the dual functional and psychological benefits of orthognathic surgery. Skeletal correction through mandibular advancement is known to enhance facial proportions, improving self-perception and emotional well-being, especially in young adults. Functional outcomes, including improved occlusion, airway dimensions, and masticatory efficiency, contribute to long-term stability. These results are dependent on precise diagnostic planning, interdisciplinary coordination, and structured postoperative monitoring. Conclusion: Bimaxillary orthognathic surgery effectively corrected the patient's mandibular retrognathism, achieving improved facial balance, stable occlusion, and enhanced masticatory and respiratory function. Beyond these clinical gains, the aesthetic improvements positively influenced the patient's self-confidence and social interactions. This case reinforces the value of orthognathic surgery as a comprehensive treatment capable of optimizing both functional outcomes and overall quality of life.
Keywords: Orthognathic surgery; Facial aesthetics; Psychosocial impact; Quality of life

Introduction

Facial harmony and occlusal stability are essential components of oral function and psychosocial well-being. Dentofacial deformities, including mandibular retrognathism and skeletal Class II malocclusions, may impair mastication, speech and airway patency while also exerting a negative influence on self-perception and social behavior. When combined with orthodontic therapy, orthognathic surgery provides a comprehensive approach to restoring facial symmetry, optimizing occlusal relationships and improving ovreul quality of life [1,2].

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Mandibular advancement and maxillary repositioning re-establish proportional facial contours and enhance functional efficiency. In addition to these objective clinical benefits, orthognathic surgery has a substantial impact on psychological and emotional health, with numerous studies reporting improved aesthetic self-awareness and increased social confidence following treatment [3,6].

This report describes the case of a young female patient who underwent bimaxillary orthognathic surgery for the correction of mandibular retrognathism, highlighting the functional, aesthetic, and psychosocial improvements achieved postoperatively.

Case Presentation

A 23-year-old female patient presented with mandibular retrognathism and an Angle Class II malocclusion. Clinical examination revealed a concave facial profile, decreased lower facial height, and dental compensations associated with the underlying skeletal discrepancy. Preoperative assessment, including standardized photographic records and lateral cephalometric radiography, confirmed significant mandibular deficiency.

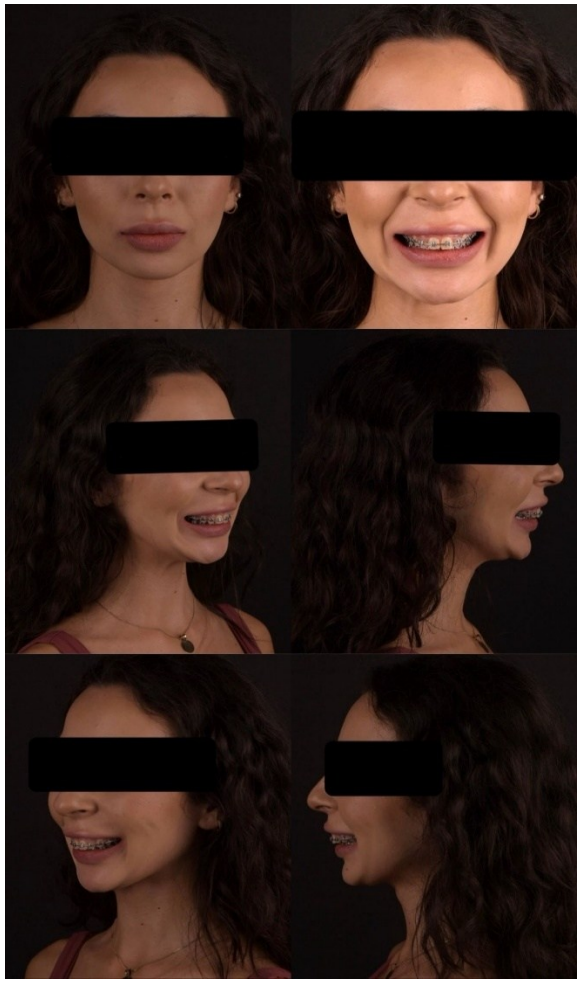

Figure 1. Preoperative extraoral frontal and profile photographs showing mandibular retrognathism, decreased lower facial height and concave facial profile.

Before surgery, the patient completed approximately 18-24 months of fixed orthodontic treatment to achieve dental decompensation and establish a stable pre-surgical occlusal relationship. Clinical evaluation indicated good oral hygiene, absence of systemic contraindications and strong motivation for both functional improvement and facial aesthetic enhancement.

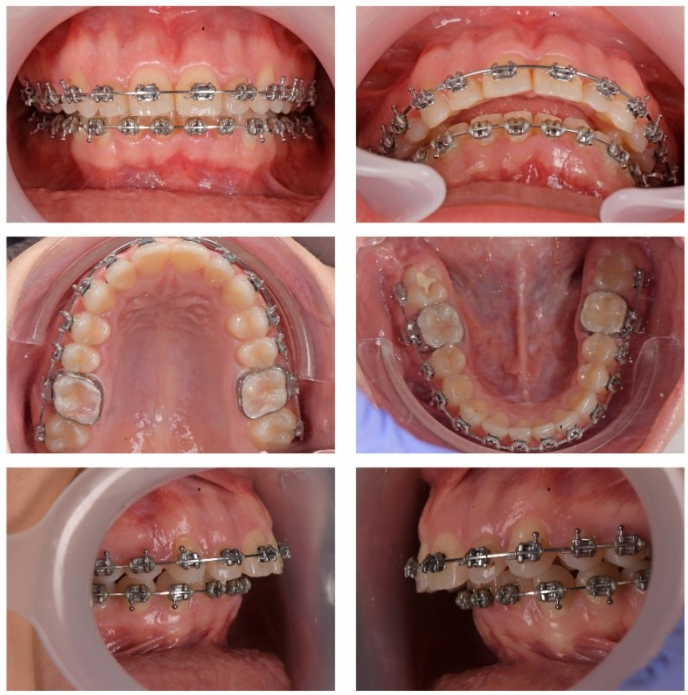

Figure 2. Preoperative intraoral photographs displaying a Class II molar relationship, a deep overbite, and dental compensations consistent with skeletal discrepancy.

Surgical Procedure

The treatment plan consisted of a conventional bimaxillary orthognathic procedure, involving Le Fort I maxillary advancement in conjunction with bilateral sagittal split osteotomy of the mandible. The operation was performed under general anesthesia, with rigid internal fixation achieved using titanium plates and screws. Genioplasty was deemed unnecessary, as mandibular advancement provided adequate chin projection.

Postoperative management included intermaxillary fixation with elastics for two weeks, followed by removal of the splint and elastics at one month. The patient was subsequently reviewed at 3, 6, and 12 months, at which point the osteosynthetic hardware was removed. Healing progressed without complications, and the occlusal relationship remained stable throughout follow-up.

Radiographic Evaluation

Preoperative cephalometric radiographs revealed an increased ANB angle and reduced SNB value, consistent with mandibular retrognathism. Postoperative radiographs demonstrated a balanced skeletal relationship, improved jaw projection, and harmonious facial proportions. The mandibular advancement achieved by BSSO was radiographically stable at the 12-month follow-up.

Although the radiographic images confirmed the structural success of the procedure and supported the aesthetic and functional improvements observed clinically.

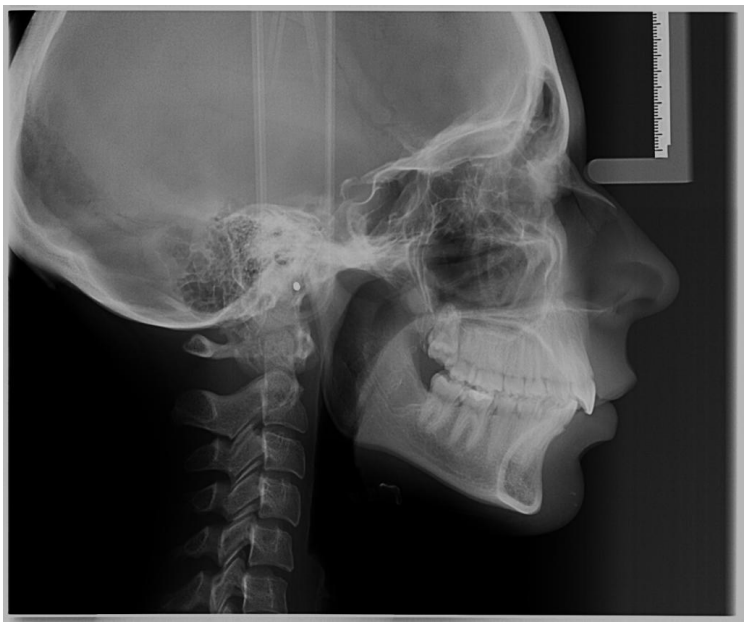

Figure 3. Preoperative lateral cephalometric radiograph showing mandibular deficiency and increased ANB angle consistent with skeletal Class II pattern.

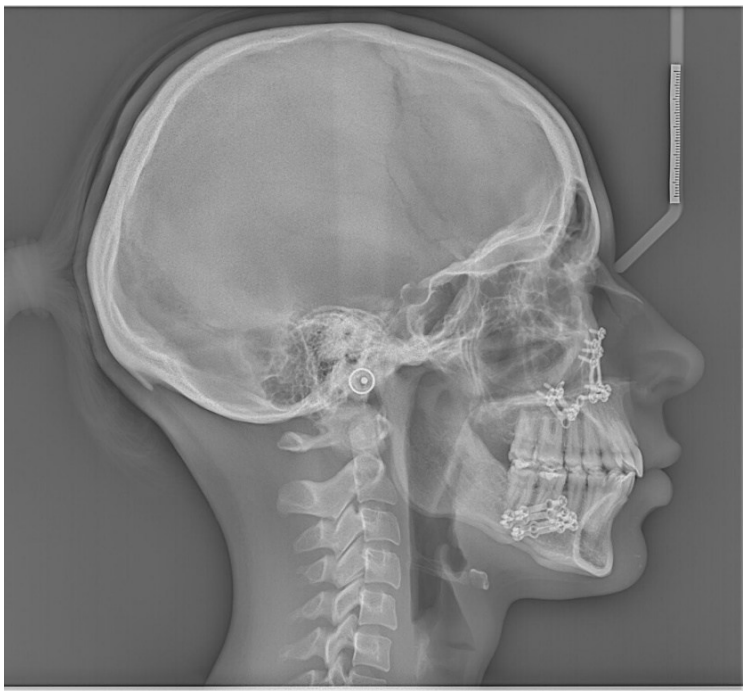

Figure 4. Postoperative lateral cephalometric radiograph at 12 months, indicating improved skeletal relationship, normalized jaw projection, and stable fixation.

Postoperative and Psychological Outcomes

At 6 and 12 months postoperatively, the patient exhibited a stable occlusion, improved facial symmetry, and a well-balanced facial profile. Masticatory efficiency and nocturnal breathing showed marked improvement, confirming restoration of functional parameters.

Psychologically, the change was substantial. Before surgery, the patient reported avoiding smiling and frequently concealing her profile with her hair. Following recovery, she described a significant increase in self-confidence and greater ease in social interactions. She noted that those around her perceived her more positively, reinforcing her improved self-image.

The patient stated, “Before the surgery, I never smiled in photos. Now I feel confident, I wear my hair up, and I’m not afraid to be seen. I feel like I can do more, and I no longer settle for less.”

These personal reflections are consistent with current literature, which indicates that individuals undergoing orthognathic surgery experience not only aesthetic improvement but also sustained psychosocial benefits, including enhanced self-esteem and overall life satisfaction[7,10].

Figure 5. Postoperative extraoral frontal and profile photographs illustrating improved facial balance, enhanced lower facial projection and a more harmonious smile.

Figure 6. Postoperative intraoral photographs demonstrating stable occlusion, corrected overjet, and proper intercuspation following bimaxillary surgery.

Discussion

The presented case illustrates the holistic benefits of orthognathic surgery, emphasizing the connection between skeletal correction, functional improvement and psychological well-being. While the surgical procedures primarily target anatomical correction, their secondary effects on self-perception and emotional health are equally significant.

Multiple studies support the association between improved facial aesthetics and increased self-confidence post-surgery [11,12]. Lee et al. [3] found that patients undergoing mandibular advancement experienced significant boosts in self-esteem and social participation. Similarly, Choi et al. [4] demonstrated that postoperative satisfaction is strongly linked to perceived attractiveness and self-image.

The psychological impact of facial harmony is particularly pronounced in young adults, where self-identity and social confidence are closely tied to appearance. Improved facial balance enhances interpersonal relationships, reduces social anxiety and promotes mental well-being [8,9].

From a functional perspective, mandibular advancement improves occlusion, airway volume, and masticatory efficiency, which are critical to long-term oral health [2,5].
Postoperative stability, as seen in this case, depends on careful preoperative planning, orthodontic coordination and postoperative monitoring.
While this case was performed using conventional techniques, the outcomes were comparable to those achieved with computer-aided surgical planning (CASP), which further validates the reliability of traditional methods when executed with precision [6,10].

Conclusion

Bimaxillary orthognathic surgery proved to be a highly effective treatment modality for this patient, providing significant improvements across functional, aesthetic, and psychosocial domains. The surgical correction of mandibular retrognathism restored a harmonious facial profile, achieved optimal occlusal relationships, and contributed to enhanced masticatory efficiency and respiratory function. Beyond these measurable clinical outcomes, the intervention also produced remarkable aesthetic changes that positively influenced the patient's self-perception and interpersonal interactions.

From a psychosocial perspective, the enhancement in facial symmetry and proportionality translated into increased self-confidence, improved social integration, and a greater overall satisfaction with appearance and daily functioning. These changes underscore the importance of orthognathic surgery not only as a corrective measure for skeletal discrepancies but also as a transformative procedure that can profoundly impact quality of life.

In summary, this case emphasizes that bimaxillary orthognathic surgery represents a comprehensive therapeutic approach, addressing both the functional impairments and the aesthetic concerns associated with dentofacial deformities. Its outcomes highlight the necessity of a multidisciplinary approach combining surgical precision, orthodontic planning, and psychological support to achieve stable, harmonious, and life-enhancing results for patients.

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