Orthodontic Treatment and Maxillary Segmental Osteotomy: A Case Report

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Objective:

Skeletal Class II malocclusion with anterior open bite is a complex dentofacial deformity often requiring combined orthodontic and surgical treatment.

This case report aims to present the orthodontic–surgical management of a skeletal Class II open bite treated with segmental maxillary osteotomy and bilateral sagittal split osteotomy



Figure 1. Pretreatment extraoral and intraoral photographs

Case: **A 15-year-old female patient presented with complaints related to facial appearance and smile esthetics. Clinical examination revealed a dental Class II relationship with anterior open bite. Initial measurements showed an overjet of 6 mm and an overbite of –4.5 mm. Tongue thrust and mouth breathing habits were observed. Cephalometric analysis demonstrated a skeletal Class II relationship (ANB = 6.7°) with increased vertical parameters. Hand–wrist radiographic evaluation indicated skeletal maturation stage 8.**



Figure 2. Extraoral and intraoral photographs after orthodontic and prosthetic treatment and before orthognathic surgery

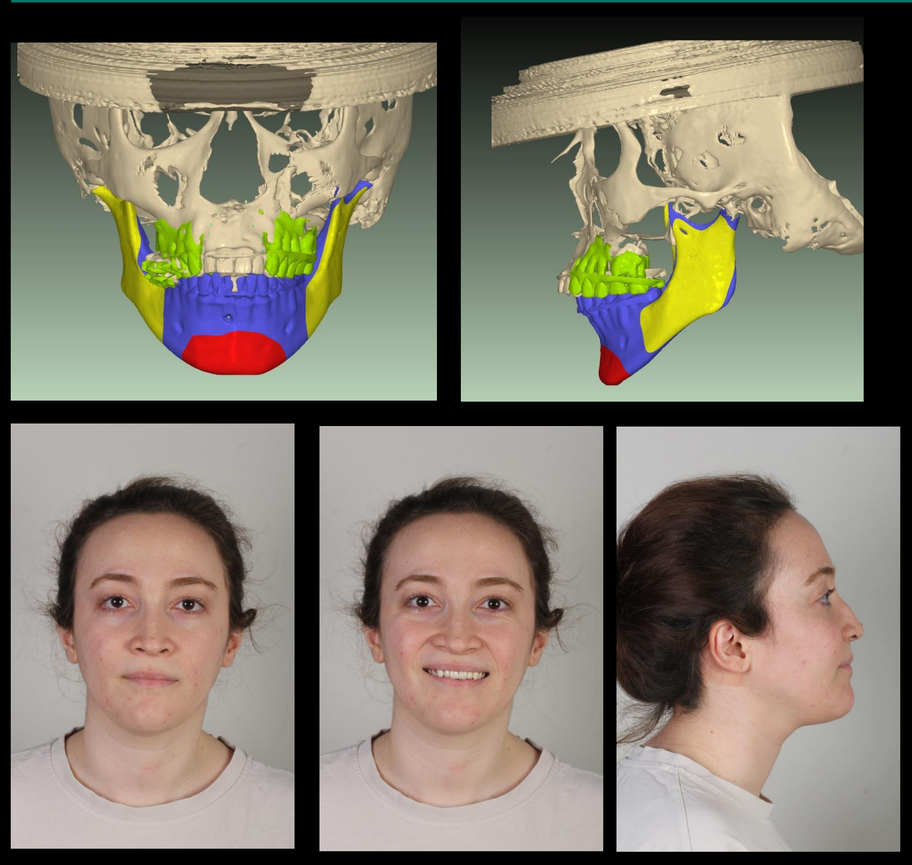


Figure 3. Post-surgical extraoral photographs and screenshots of the NemoFab software interface.

Results: **Treatment consisted of pre-surgical orthodontic preparation followed by orthognathic surgery and prosthetic rehabilitation. Orthopedic support was provided with occipital headgear during the early phase. After orthodontic treatment, orthognathic surgery was digitally planned using Nemotec software (Nemotec, France). Surgical treatment included segmental maxillary osteotomy to correct the anterior open bite and vertical discrepancy, combined with bilateral sagittal split osteotomy (BSSO) to address the sagittal skeletal discrepancy. Post-surgical orthodontic finishing was performed to optimize occlusion, and prosthetic restorations were completed to improve dental morphology and esthetics.**

Conclusion: **Treatment resulted in improved facial profile, smile esthetics, and occlusal function. The anterior open bite was corrected, and stable occlusion was achieved. A multidisciplinary approach enabled comprehensive correction of both skeletal and dental components of the malocclusion.**