Clinical and Experimental Health Sciences

Case Report / *Olgu Sunumu*

Single Lower Incisor Extraction for Dental Camouflage

Dişsel Kamuflaj Amaçlı Mandibuler Keser Dişi Çekimi

Kadir Beycan[1], Mustafa Burhan Ateş[2]

[1]Department of Orthodontics, Marmara University School of Dentistry, İstanbul, Turkey
[2]Private Practice Orthodontist, İstanbul, Turkey

Abstract

This is a report of the camouflage treatment of a patient with skeletal Class II malocclusion and lower crowding for whom one mandibular incisor extraction was selected as the treatment of choice to improve the dental occlusion. The chief complaint of the 18-year-old male patient was crooked lower premolars. He had a convex profile with protrusive upper and retrusive lower lips. The upper dental midline was coincident with the facial midline, and lower dental midline was 3 mm to the right. The patient had Class I molar and Class II canine relationships on the left and Class II molar and canine relationships on the right. He had a Class II skeletal relationship because of mandibular retrognathy with normal upper and proclined lower incisors. The treatment plan included the extraction of the lower right lateral incisor for camouflage treatment. Class I molar and canine relationships as well as aligned and coordinated dental arches were achieved at the end of 20 months of active fixed treatment. Lower dental crowding was resolved. If carefully planned, mandibular incisor extraction can be an effective treatment option for camouflage treatment that produces functional and esthetic results with minimal orthodontic involvement.
Keywords: Camouflage treatment, class II malocclusion, mandibular incisor extraction

Öz

Bu vaka raporunda iskeletsel Sınıf II maloklüzyonu ve alt diş kavsinde çapraşıklığı olan bir hastada, dental oklüzyonun mandibuler keser dişi çekimi yapılarak tedavi edilme süreci anlatılmaktadır. Alt küçük azı dişlerinin çapraşıklığından şikayetçi olan 18 yaşındaki erkek hasta artmış üst dudak ve azalmış alt dudak projeksiyonu ile birlikte konveks bir profile sahipti. Üst dişsel orta hat, yüz orta hattı üzerinde, alt dişsel orta hat ise yüz orta hattının 3 mm sağında konumlanmıştı. Ağız içi muayenesinde sol tarafta dişsel Sınıf I kanin ve Sınıf II molar ilişkisi olduğu, sağ tarafta ise Sınıf II kanin ve molar ilişkisinin mevcut olduğu tespit edildi. Hastada mandibuler retrognatiye bağlı isketsel Sınıf II ilişki, normal dikey boyut, normal üst ve prokline alt dişlerin bulunduğu belirlendi. Tedavi planı alt sağ lateral keser diş çekiminden oluşan kamuflaj tedavisi olarak belirlenmiştir. 20 aylık aktif tedavi sonunda koordine dental arklarla beraber dişsel Sınıf I kanin ve molar ilişkisi elde edildi, çapraşıklık giderildi. Dikkatle planlanan olgularda mandibuler keser diş çekimi minimal ortodontik müdahale ile fonksiyonel ve estetik sonuçlar sağlayan etkin bir tedavi seçeneğidir.
Anahtar kelimeler: Kamuflaj tedavisi, sınıf II maloklüzyon, mandibuler keser dişi çekimi

INTRODUCTION

The extraction of one mandibular incisor is not prevalent in orthodontics, although it has apparent benefits in the crowding area (1, 2). The possible indications for incisor extraction may be abnormalities in the number of anterior teeth, tooth size discrepancies, ectopic eruption of incisors, and moderate Class III malocclusions (3, 4). In certain cases, cautious extraction of single lower incisor enables orthodontists to correct the occlusion and dental esthetics with minimal orthodontic intervention (5). In any such case, in order to foresee the exact occlusal changes, a full diagnostic set-up is recommended (5, 6).

The aim of this report was to present the camouflage treatment of a patient with skeletal Class II malocclusion and lower crowding for whom one mandibular incisor extraction was selected as the treatment of choice to improve the dental occlusion.

CASE PRESENTATION

Diagnosis and Treatment Objectives

The chief complaint of the 18-year-old male patient was crooked lower premolars. He had a symmetric face, competent lips, average smile, a flat smile arc, and a convex profile with protrusive upper and retrusive lower lips (Figure 1a). The upper dental midline was coincident with the facial midline, and the lower dental midline deviated 3 mm to the right. The patient had Class I molar and Class II canine relationships on the left side, and Class II molar and canine relationships on the right side (Figure 1b). The lower right second premolar was in non-occlusion, and it was tilted lingually. The initial lateral cephalometric tracing showed that the patient had a Class II skeletal

This study was presented as a poster presentation at the 15th International Congress of the Turkish Orthodontic Society, 25-29 October 2014, Ankara, Turkey.
Bu çalışma 15. Uluslararası Türk Ortodonti Derneği Kongresi'nde poster bildiri olarak sunulmuştur, 25-29 Ekim 2014, Ankara, Türkiye.

Correspondence Author/Sorumlu Yazar: Kadir Beycan **E-mail/E-posta:** orthodonty@hotmail.com
Received/Geliş Tarihi: 18.02.2016 **Accepted/Kabul Tarihi:** 18.04.2016 **Available Online Date/Çevrimiçi Yayın Tarihi:** 13.10.2016 **DOI:** 10.5152/clinexphealthsci.2016.015

Figure 1. a, b. (a) Pretreatment extraoral photographs, (b) pretreatment intraoral photographs

Tablo 1. Cephalometric summary

Measurement	Standard	Pretreatment	Posttreatment
Σ	396±3	397	398
GoMe-SN (º)	32±7	36	37
Maxillary height (º)	60	59	59
FMA (º)	25	27	28
SNA (º)	82±2	80	80
SNB (º)	80±2	76	76
ANB (º)	2	4	4
NperA (mm)	−1	1.4	1.5
I-SN (º)	103	102	103
IMPA (º)	90	94	95

Σ: sum of inner angles; GoMe-SN: Gonion, Menton-Sella, Nasion; FMA: Frankfort-mandibular plane angle; SNA: Sella–Nasion-point A; SNB: Sella-Nasion-point B; ANB: point A-Nasion-point B; NperA: Nasion perpendicular point A; I-SN: Incisor-Sella, Nasion; IMPA: Incisor-mandibular plane angle

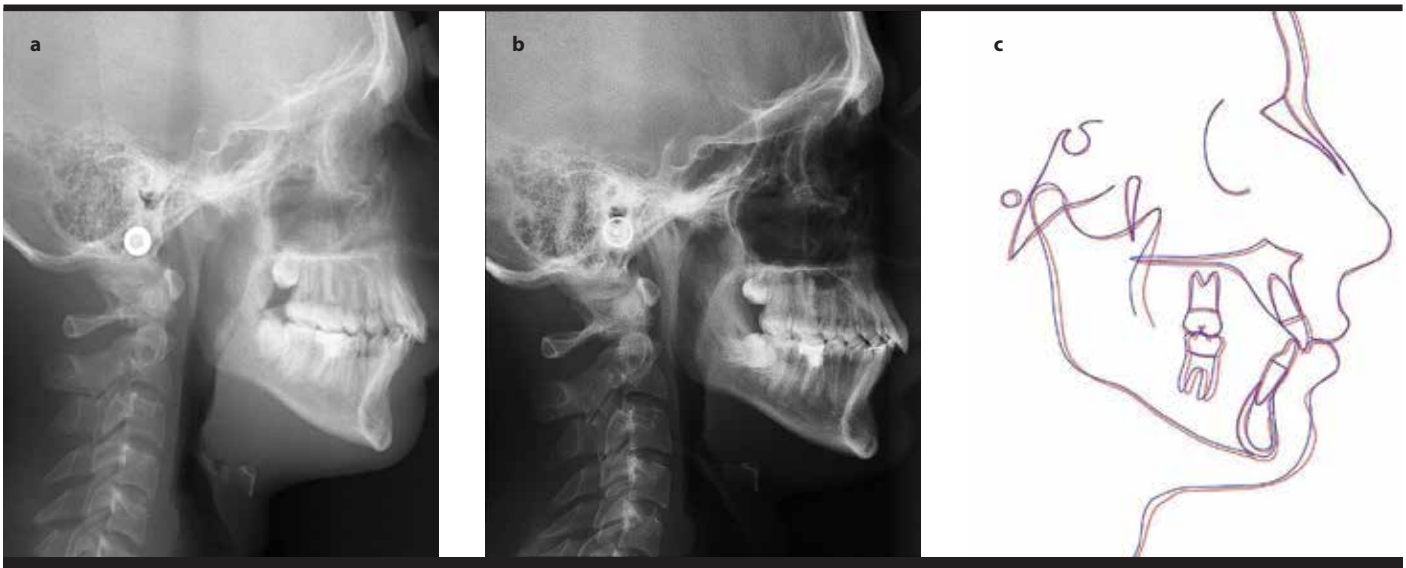

Figure 2. a-c. (a) Pretreatment lateral cephalometric radiograph, (b) posttreatment lateral cephalometric radiograph, (c) cephalometric superimposition. Blue, pretreatment; red, posttreatment

relationship due to mandibular retrognathy, a normal vertical pattern, and normal upper and proclined lower incisors (Figure 2a; Table 1). Bolton tooth size analysis showed 1.5 mm lower anterior excess. Treatment objectives were to achieve Class I canine and molar relationships, resolve crowding, level and align the arches, and correct the dental relationship without any profile change.

Three treatment options were considered: extraction of upper first bicuspids and lower left first and right second bicuspids, extraction of the lower first bicuspid with mandibular advancement surgery, and extraction of one lower incisor. Extraction of four bicuspids could result in excessive retraction of the maxillary incisors, compromising the facial profile. Orthognathic surgery was recommended, but the patient refused to undergo the surgery. Therefore, it was decided to perform camouflage treatment, which consisted of the extraction of one lower incisor and mesialization of the lower right canine and premolar to the extraction space. Bolton excess was also in favor of lower anterior teeth. This alternative could resolve lower arch crowding and correct the occlusion without affecting the facial profile. The treatment plan included the extraction of the lower right lateral incisor.

Treatment Progress

We started with the alignment of the upper arch with a 0.014-in nickel–titanium arch wire, and the patient was referred for the extraction of the lower right lateral tooth. One week after the extraction, alignment of the lower arch was initiated with a 0.014-in nickel–titanium wire, an open coil spring was placed between the lower right first molar and first premolar, alignment and space opening for the tilted lower right second premolar were performed at the same time (Figure 3a). After space opening, the lower right second premolar was bonded and alignment was continued with a 0.014-in nickel–titanium wire; for leveling, 0.016×0.016-in nickel–titanium wires were used

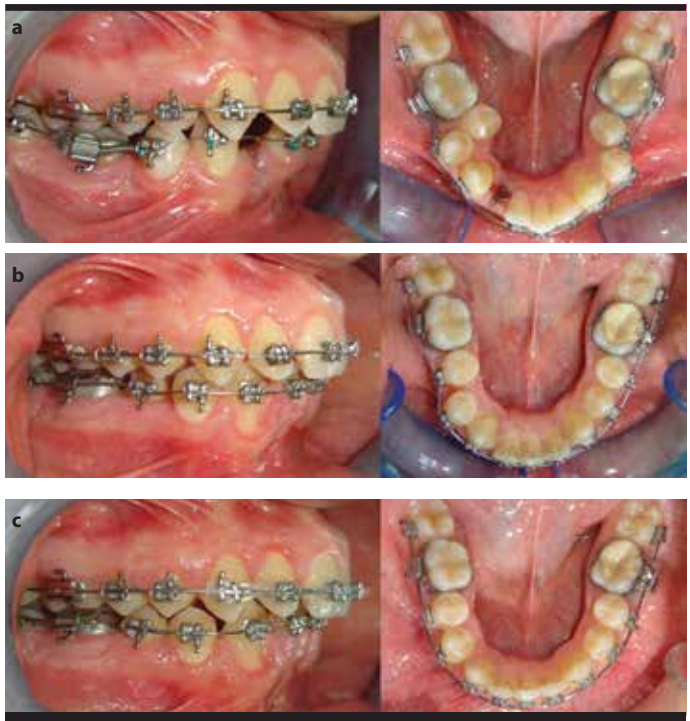

Figure 3. a-c. (a) Lower arch alignment and opening space for lower right second premolar, (b) 9-month progress, (c) 15-month progress

Figure 4. a, b. (a) Posttreatment extraoral photographs, (b) posttreatment intraoral photographs

for the upper and lower arches (Figures 3b, 3c), and the treatment was completed with 0.016×0.022-in stainless-steel wires.

Results

Class I molar and canine relationships as well as aligned and coordinated dental arches were achieved at the end of 20 months of active fixed treatment (Figures 4a, 4b). Lower dental crowding was resolved. The patient was satisfied with the treatment results. Cephalometrically, the patient had a similar dental and facial pattern to that in the beginning of the treatment, as observed in the posttreatment

Figure 5. a, b. (a) Retention facial photographs at 12 months, (b) retention intraoral photographs at 12 months

cephalogram and the superimposition (Figures 2b, 2c; Table 1). At the 12-month follow-up, the patient had a stable occlusion, with the results of the orthodontic treatment were maintained (Figures 5a, b).

DISCUSSION

This case showed the clinical effectiveness of one mandibular incisor extraction in selected cases. Advantages of mandibular incisor extraction treatment are decreased treatment time (5), long-term stability in the mandibular anterior area (3, 7) and preservation of the soft tissue profile (8).

The possible disadvantages of this method are that an unpleasant open extraction space is created, the coincidence of the mandibular and maxillary dental midline is lost (8) a black triangle may form because of loss of the interdental papilla (9) and the extraction of mandibular incisors may compromise the ideal overjet, overbite, and proper intercanine width in cases that do not have a Bolton (10) discrepancy, except for cases with small maxillary and large mandibular incisors. These factors should be kept in mind before contemplating on incisor extraction as a treatment option.

CONCLUSION

If planned carefully, mandibular incisor extraction can be an effective treatment option for camouflage treatment that produces functional and esthetic results with minimal orthodontic involvement.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author contributions: Concept - K.B.; Design - K.B.; Supervision - K.B., M.B.A.; Resource - K.B.; Materials - K.B.; Data Collection &/or Processing - K.B.; Analysis &/or Interpretation - K.B.; Literature Search - K.B.; Writing - K.B.; Critical Reviews - K.B.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

Hasta Onamı: Yazılı hasta onamı bu çalışmaya katılan hastadan alınmıştır.

Hakem Değerlendirmesi: Dış Bağımsız.

Yazar Katkıları: Fikir - K.B.; Tasarım - K.B.; Denetleme - K.B., M.B.A; Kaynaklar - K.B.; Malzemeler - K.B.; Veri Toplanması ve/veya işlemesi - K.B.; Analiz ve/veya Yorum - K.B.; Literatür taraması - K.B.; Yazıyı Yazan - K.B.; Eleştirel İnceleme - K.B.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

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