

ÇEKİMSİZ VAKALARDA LİNGUAL ORTODONTİK TEDAVİ LINGUAL ORTHODONTICS:TREATMENT OF NONEXTRACTION CASES*

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ÖZET: ÇEKİMSİZ VAKALARDA LİNGUAL ORTODONTİK TEDAVİ Bu çalışmada dişsel ve iskeletsel 1. sınıf bozukluk gösteren ve lingual teknik uygulanarak çekimsiz olarak tedavi edilen 2 olgu sunulmuştur. Vakalarda Ormco 7. jenerasyon lingual braketleri kullanılmış ve bu braketler TARG+TR sistem kullanılarak hastalardan elde edilen maloklüzyonlu modeller üzerine dizilmek suretiyle indirekt olarak uygulanmıştır. Tedavi süresi 1. vaka için 20 ay, 2. vaka için ise 18 ay olup tedavi sonunda her iki olguda da iyi bir profil sağlanmış, ideal bir oklüzyon ilişkisi elde edilmiştir.

Anahtar Kelimeler: Lingual tedavi, TARG+TR sistem

SUMMARY: LINGUAL ORTHODONTICS:TREATMENT OF NONEXTRACTION CASES In this paper two cases treated with lingual orthodontics will be presented. Both cases had Class I skeletal and dental malocclusion. The treatment objectives were; alignment in both arches, reduction of the excessive overjet and overbite, improvement of lip relation. Both cases were treated without extraction and bracket (7th generation, Ormco) positioning was performed directly on the malocclusion models. Total treatment period was 20 months in Case 1 and 18 months in Case 2. In both cases treatment objectives were achieved, favorable occlusal relationship and profile improvement were obtained by using lingual orthodontic appliances.

Key Words: Lingual treatment, Targ+TR system

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LINGUAL ORTHODONTICS:TREATMENT OF NONEXTRACTION CASES

Patients requiring orthodontic treatment vary considerably according to age, oral growth, degree of malocclusion and psychological disposition. Some patients, particularly adults, display a negative reaction towards the non-esthetics appearance of conventional fixed orthodontic appliances. There are therefore, some patients who refuse orthodontic treatment and other patients already receiving treatment who, for the reason stated above, complain of psychological stress and lose interest in orthodontic treatment. In such cases the patient becomes uncooperative towards treatment and there is a breakdown in relationship between patient and specialist (1,2,4).

As a mean of solving the problems cited above, direct bonding of brackets to the lingual or palatal surface of the teeth was began to develop in the mid-1970s and the most popular appliance in use today was developed by Kurz, Gorman and Smith in 1986 (7th generation, Ormco Corp.Glendora Calif.) (3).

In this study two nonextraction cases treated with lingual orthodontics will be presented.

CASE REPORTS

Case 1:

Patient S.S. a 14 year old girl, had Class I skeletal and dental malocclusion with crowded anterior teeth in both arches, an overjet of 3.5 mm. and an overbite of 5.5 mm. The arch length discrepancy in the upper jaw was 2mm. and that for the lower jaw was 6mm. Facial and intraoral photographs, orthodontic study models, cephalometric, intraoral and panoramic radiographs were taken The

cephalometric evaluation showed slightly increased upper incisor inclination and decreased lower incisor inclination. Upper (-2.5mm.) and lower lip (-3mm.) were placed behind the Steiner esthetic line (Fig 1a-c, Fig 2a-f)

The overall treatment objective was to reduce the overbite, level the upper and lower arches, relieve the crowding by incisor protrusion and eliminate the height and rotation discrepancies. It was determined that non extraction treatment was indicated and any increase in the vertical dimension that could be accomplished would benefit the patient's facial appearance.

Lingual brackets (7th generation, Ormco Corp.Glendora Calif.) 0.018" slot on the anterior and 0.022" slot on the posterior) were bonded indirectly using TARG+TR© (Fig 3) from first molar to first molar in the upper and lower jaws, except 23 and 32 and 43, due to crowding. Bracket on 15 which was debonded during ligation was not rebonded In the upper arch levelling and alignment was started using 0.017x0.017" cooper NiTi (35°C). At the second appointment it was noted that the bracket on 13 was debonded even though the metal base was still on the tooth, a 0.016 NiTi was then placed. When enough space was obtained for 23, bracket on this tooth along with 13 and 15 was bonded and a 0.017x0.017" cooper NiTi (35°C) was again placed to complete the levelling and alignment. In the lower arch 0.016 NiTi was first used to relieve the crowding. When enough space was created for 43, bracket was bonded on this tooth and 0.016 SS archwire with an open coil on 32 was inserted (Fig4 a-b). After enough space was created for this tooth 0.016 NiTi archwire was again engaged and a lasso elastics was used to correct the rotation.

When levelling and alignment procedures were fully accomplished stripping from cuspid to cuspid in the upper and lower jaws was performed on 0.016" SS. Detailing was performed using 0.016" TMA archwire before debonding, and upper and lower lingual bonded retainers were used for retention

Evaluation of the pre and posttreatment records revealed the following results (Table 1) (Fig 5a-c, Fig 6a-f , Fig 12):

- autorotation of the mandible
- incerase in total and lower facial height
- intrusion and protrusion of upper and lower incisors
- upper and lower molar extrusion
- reduction in overjet and overbite

Table 1: Cephalometric analysis of Case 1 before and after treatment

CASE 1	PRETREATMENT	POSTTREATMENT
SNA(°)	79	79
SNB(°)	76	75
ANB(°)	3	4
SN-GoGn(°)	30	33
ANS-PNS/GoGn(°)	19	21
N-S-Gn(°)	68	70
NaMe (mm.)	116	120
ANS-Me(mm.)	61	65
S-Go(mm.)	78	80
U1-PP(°)	109	118
L1-MP(°)	90	104
U1-PP(mm.)	28	27
L1-MP(mm.)	38	36
U6-PP(mm.)	15.5	19
L6-MP(mm.)	25.5	29
Overbite(mm.)	7	1
Overjet(mm.)	3	2
Upper Lip-S line(mm.)	-3.5	-2
Lower Lip-S line(mm.)	-3.5	-1



Fig 1a



Fig 1b



Fig 1c



Fig 2a

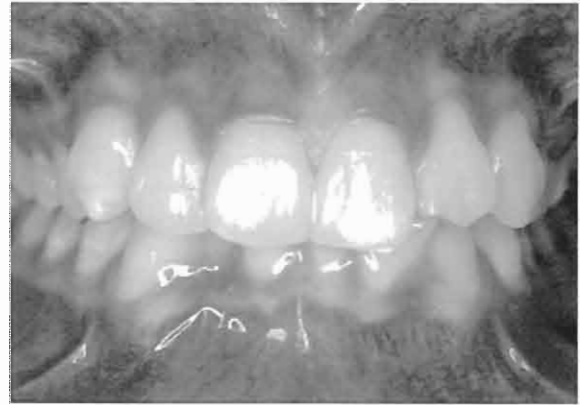


Fig 2b



Fig 2c

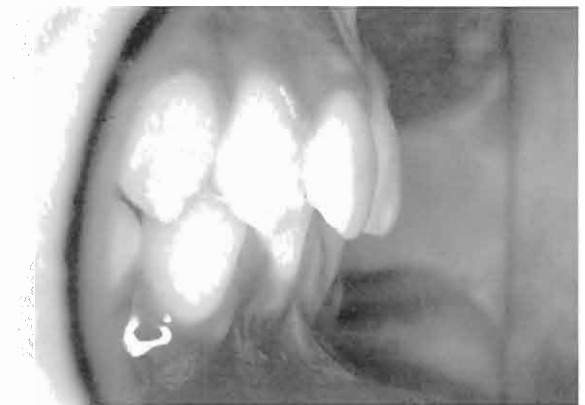


Fig 2d



Fig 2e



Fig 2f



Fig 3



Fig 4a

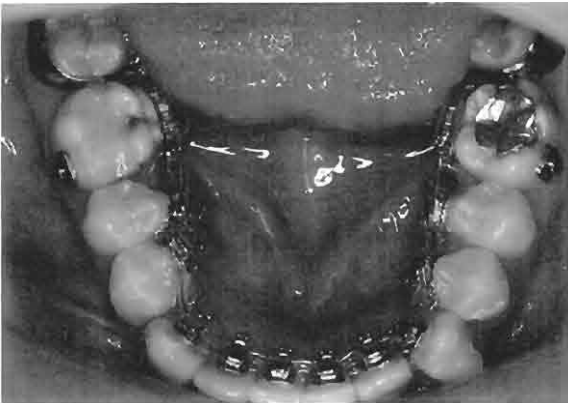


Fig 4b



Fig 5a



Fig 5b



Fig 5c



Fig 6a



Fig 6b



Fig 6c



Fig 6d



Fig 6e



Fig 6f

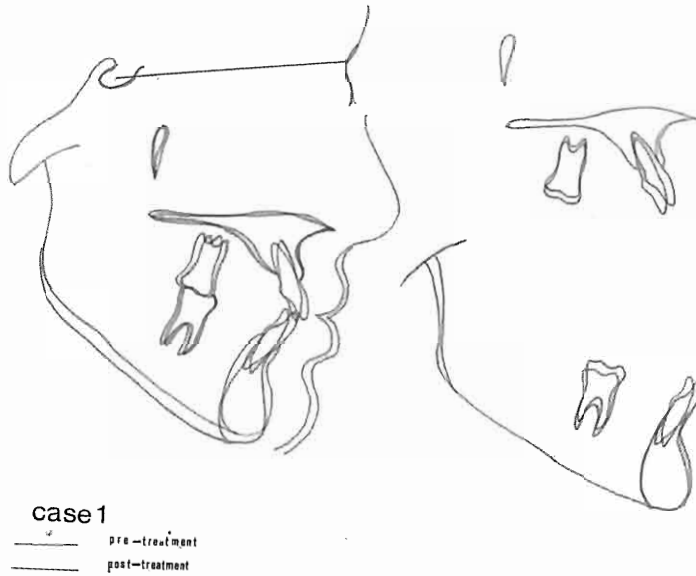


Fig 1a-c: Pretreatment facial photographs of case 1

Fig 2a-f: Pretreatment intraoral photographs of case 1

Fig 3: TARG+TR (Torque Angulation Reference Guide+Thickness&Rotation)

1: torque and angulation part 2: model surveyor swivel base 3: bracket placement blades 4: rotation part 5: digital screen for height and thickness measurement

Fig 4a-b: Upper/lower lingual archwires in place

Fig 5 a-c: Posttreatment facial photographs of case 1

Fig 6a-f: Posttreatment intraoral photographs of case 1

Fig 7a-c: Pretreatment facial photographs of case 2

Fig 8a-f: Pretreatment intraoral photographs of case 2

Fig 9a-b: Upper/lower lingual archwires in place

Fig 10a-c: Posttreatment facial photographs of case 2

Fig 11a-f: Posttreatment intraoral photographs of case 2

Fig 12: Pretreatment and posttreatment cephalometric tracing superimposition of Case 1

Fig 13: Pretreatment and posttreatment cephalometric tracing superimposition of Case 2

Case 2:

Patient N.C. a 13 year old girl, had Class I skeletal and dental malocclusion with crowding in lower arch, an overjet of 7mm. and an overbite of 4mm. There was -4.2 mm. of crowding in the lower arch and no arch length discrepancy was found in the upper arch. 3.9mm of Bolton discrepancy was measured in mandibular anterior segment. Facial and intraoral photographs, orthodontic study models, cephalometric, intraoral and panoramic radiographs were taken. The cephalometric evaluation showed increased upper and lower incisor inclinations. Upper lip was -1.5mm. behind the Steiner esthetic line (Fig 7a-c, Fig 8a-f).

The overall treatment objective was to reduce the overbite and overjet, close the anterior spacing level the upper and lower arch. It was decided that non extraction treatment was indicated and crowding in the lower arch was planned to be solved by incisor protrusion.

Lingual brackets brackets (7th generation, Ormco Corp.Glendora Calif.) 0.018" slot on the anterior and 0.022" slot on the posterior were bonded indirectly using TARG+TR from second molar to second molar in the upper, and from first molar to first molar in the lower jaws.

Initial 0.0155" respond protrusion archwires were placed in both upper and lower jaw to start levelling and alignment. These archwires were followed by 0.012" SS, 0.014" SS and 0.016" SS respectively in upper jaw and by 0.017x0.017" cooper NiTi (35°C) in lower jaw. Space closure in upper jaw was performed on 0.016x0.022"SS using elastomers. In lower arch 0.016" SS was used to close the small spaces due to stripping. 0.017x0.022" TMA was used for torque control, detailing was performed using 0.016" TMA archwire before debonding (Fig 9 a-b). Upper and lower lingual bonded retainers were used for retention

Evaluation of the pre and posttreatment records revealed the following results (Table 2) (Fig 10 a-c, Fig 11a-f, Fig 13):

- autorotation of the mandible
- increase in total and lower facial height
- retrusion and elongation of upper incisors
- intrusion and protrusion of lower incisors
- upper and lower molar extrusion
- reduction in overjet and overbite

Table 2: Cephalometric analysis of Case 2 before and after treatment

CASE 2	PRETREATMENT	POSTTREATMENT
SNA(°)	86	86
SNB(°)	83	80
ANB(°)	3	6
SN-GoGn(°)	30.5	33
ANS-PNS/GoGn(°)	23	25
N-S-Gn(°)	64	65
NaMe (mm.)	115	119
ANS-Me(mm.)	63	67
S-Go(mm.)	74.5	75
U1-PP(°)	128	115
L1-MP(°)	99.5	105
U1-PP(mm.)	26.5	28.5
L1-MP(mm.)	37.5	35
U6-PP(mm.)	15.5	16.5
L6-MP(mm.)	22	24
Overbite(mm.)	4	1
Overjet(mm.)	7.5	1
Upper Lip-S line(mm.)	1	1.5
Lower Lip-S line(mm.)	0	2



Fig 7a



Fig 7b



Fig 7c



Fig 8a



Fig 8b



Fig 8c



Fig 8d



Fig 8e



Fig 8f

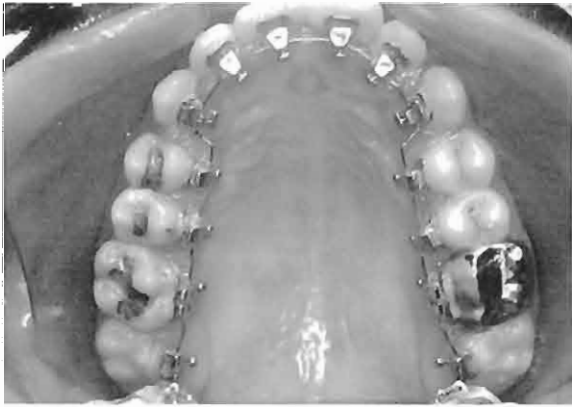


Fig 9a



Fig 9b



Fig 10a



Fig 10b



Fig 10c



Fig 11a



Fig 11b



Fig 11c



Fig 11d



Fig 11e



Fig 11f

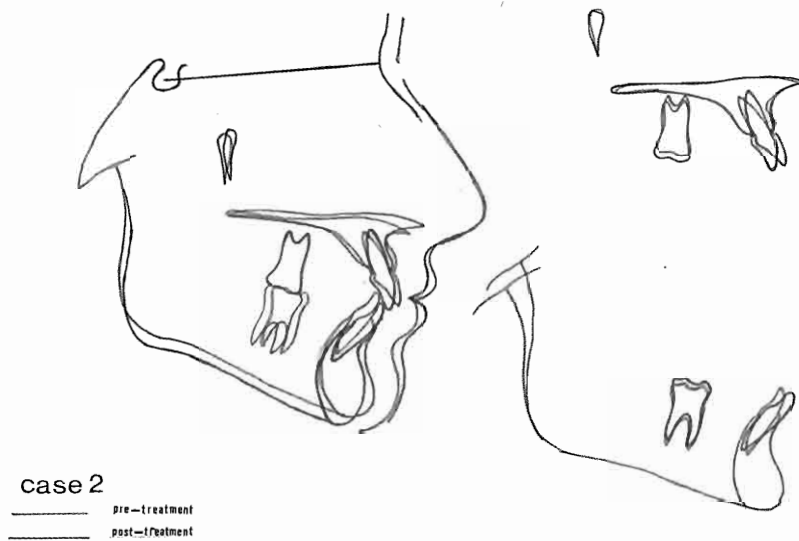


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Fig 8a-f: Pretreatment intraoral photographs of case 2

Fig 9a-b: Upper/lower lingual archwires in place

Fig 10a-c: Posttreatment facial photographs of case 2

Fig 11a-f: Posttreatment intraoral photographs of case 2

Fig 12: Pretreatment and posttreatment cephalometric tracing superimposition of Case 1

Fig 13: Pretreatment and posttreatment cephalometric tracing superimposition of Case 2

FINAL EVALUATION

Total treatment period was 20 months in Case 1 and 18 months in Case 2. In both cases treatment objectives were achieved, favorable occlusal relationship and profile improvement were obtained by using lingual orthodontic appliances bonded indirectly with TARG+TR system.

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