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CLINICAL ARTICLE

THE IMPORTANCE AND NECESSITY OF EARLY ORTHODONTIC TREATMENT: CASE REPORT

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Abstract

Objectives: A clinical case is presented, the treatment of which was carried out by the method of functional orthodontics, a growth modification was made during the mixed dentition of patient. The purpose of presenting this clinical case is to emphasize the importance and necessity of functional treatment once again.

Methods and materials: Diagnostic models, photographs and X-ray studies of the patient and cephalometric data analysis were used.

Results: As a result of the functional treatment of this clinical case, we received a precise improvement of the patient ṡ profile, improvement of the relationship of jaws, reduced overjet, reposition of tongue, complete rehabilitation of swallowing, biting and speech functions, improvement of molar relationship, normal touch of lips, increased volume of upper airway, broad and beautiful smile of patient, increase of self-esteem.

Conclusions: Summing up the above and the results of the treatment of numerous patients, we can definitely come to a conclusion about the importance of the need of functional treatment. Since the fact on adequate and timely accomplished functional treatment obviously prevents a complicated process of further orthodontic treatment, the necessity of teeth extraction, increases the volume of upper airway, the use of additional appliances during the treatment with fixed - appliances is reduced, moreover the necessity of further orthognathic surgery is decreased.

Keywords: *Class II malocclusion, Distal occlusion, Growth modification, Functional appliances*

Introduction

Distal occlusion or Class II malocclusion is characterized by such a relationship of jaws where there is a saggital discrepancy between the upper and lower jaws. There are two types of Class II malocclusion: dentoalveolar and skeletal.[1] The skeletal abnormality can be caused either by prognathia and macrognathia of maxilla or by retrognathia and micrognathia of mandible (mandibular retrognathism), as well as by the combination of both.[2] However, according to McNamara most often class II malocclusion is caused by mandible.[3] A comprehensive study is necessary for the diagnosis and further proper planning of treatment of all dentofacial anomalies, including dentoalveolar or skeletal forms of Class II malocclusion, which includes a thorough analysis of anthropometric, photometric, biometric and radiological methods. While planning any treatment the form of abnormality skeletal or dentoalveolar, severity of anomalies, age of patient, etiological factors of malocclusion are taken into account. The main methods of treatment of Class II malocclusion are the growth modification with various orthodontic appliances, orthodontic camouflage and complex treatment a combination of orthodontics and orthognathic surgery.[4] The growth modification can be carried out in patients being in a period of active growth. The main purpose of growth modification is to get more skeletal and less dental changes as a result of treatment.[5]

A number of studies have been carried out to clarify the necessity and importance of early orthodontic treatment. In particular, as a result of a study carried out at the university of Florida it was found out that skeletal changes received during treatment were stable throughout the control period, but dental changes were relapsed. However, it should also be noted that for more reliable results the control period should be longer. The advantage of early orthodontic treatment is the reduction of those clinical cases, where permanent teeth extraction or orthognathic surgery is required. Theoretically, if growth modification was effective, in rare cases it will be necessary to extract premolars to camouflage skeletal form of class II malocclusion or orthognathic surgery to improve the relationship of the jaws in the future. However, according to the studies conducted at the University of North Carolina, the number of patients was almost the same both in control group and in group of patients treated with headgear during the first phase, who needed teeth extraction or orthognathic surgery at the second phase to correct anomalie. And as a result of treatment with functional appliances there was a tendency to increase the number of clinical cases requiring tooth extraction in the future. Having collected the data from these studies, the researchers came to the sequent conclusion. The skeletal changes usually occur during early treatment, while decrease or disappear during further growth , occlusion and position of teeth in untreated and previously treated children are almost the same, the possibility of injury of the upper incisorsdecreases in early treated children , symptoms of TMJ dysfunction decrease in patients who had early orthodontic treatment.[6]

However, based on our clinical experience , we can definitely conclude that the effectiveness of early orthodontic treatment is very high. In addition, the procces of further orthodontic treatment (late mixed dentition or early permanent dentition) releases, duration of treatment is reduced and the probability of the need for teeth extraction decreases. In addition, according to several studies, as a result of stimulation of growth and advancement of the mandible with various orthodontic appliances, an increase in the lumen of upper airway clearly occurs, respectively the tendency to develop obstructive sleep apnea is prevented or the level of severity decreases.[7,8,9] Attempts to stimulate the growth of the mandible led to the creation of functional appliances in Europe. These appliances held the mandible in a more anterior position which is a characteristic of a normal occlusion. The main idea was that as a result of forced anterior movement of the mandible, stimulation of the growth of the lower jaw should occur, therefore the correction of Class II malocclusion. As a result of the growth modification by functional appliances, it is possible to obtain both a true growth stimulation (when the use of functional appliances leads to faster growth than expected and then the same growth speed is maintained, as a result we have a larger size of lower jaw) as well as temporary stimulation or, in other words, acceleration of growth (when rapid growth occurs at the beginning, then the process slows down and eventually we return to the expected growth that would have been without treatment).[10] We would like to present a clinical case, as a result of a

comprehensive study of which it could be concluded , that in addition to orthodontic treatment , orthognathic surgery would also be needed in the future, since the abnormality was very pronounced and it would be better if the patient applied at an earlier age, at the age of 5 or 6.

Methods and materials

Diagnostic models, photographs and X-ray studies of the patient and cephalometric data analysis were used.

Case report - The parents of an 8, 9 year-old girl attended to the N2 clinic at the Yerevan State Medical University with the following complaints: incorrect jaw relationship, impaired of biting function, the locatin of tongue between the upper and lower incisors and lips, speech contravention. During an external clinical examination a convex profile, absence of lip contact at rest, contact of the lower lip with the palatal surface of the upper incisors, localization of the tongue between the upper and lower incisors, speech impairment were noticeable. Intraoral examination showed class II molar relationships by Angle, proportionally narrowed maxilla and there was severe increased overjet. The cephalometric examination showed severe micrognathia and retrusion of mandible, ANB angle was 8˚, the Wits was 6,7 mm, neutral dentofacial growth pattern, palatal-Mand angle was 25,5˚ and there was increased protrusion of the upper incisors (figures 1, 2, 3, 4, 5, 6).

Figure 1. *Pretreatment facial photographs*

Figure 2. *Pretreatment intraoral photographs*

Figure 3. *Pretreatment dental casts*

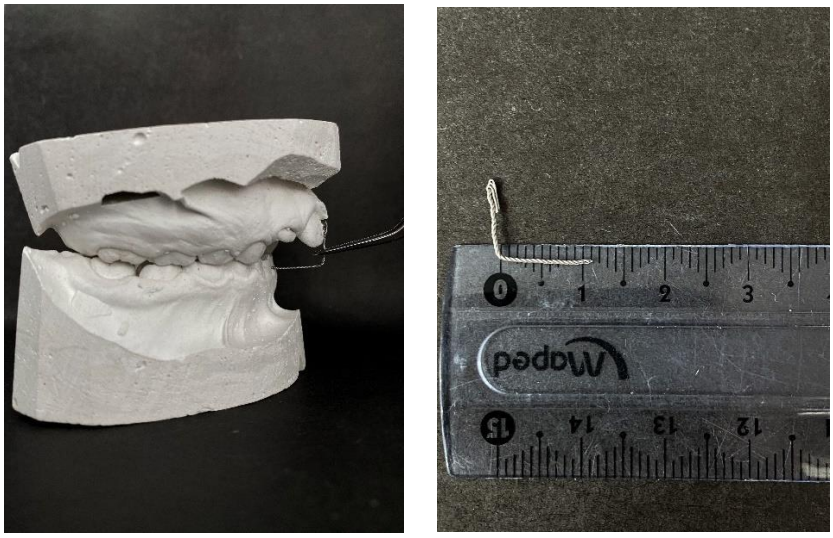


Figure 4. *Pretreatment measurement of overjet*

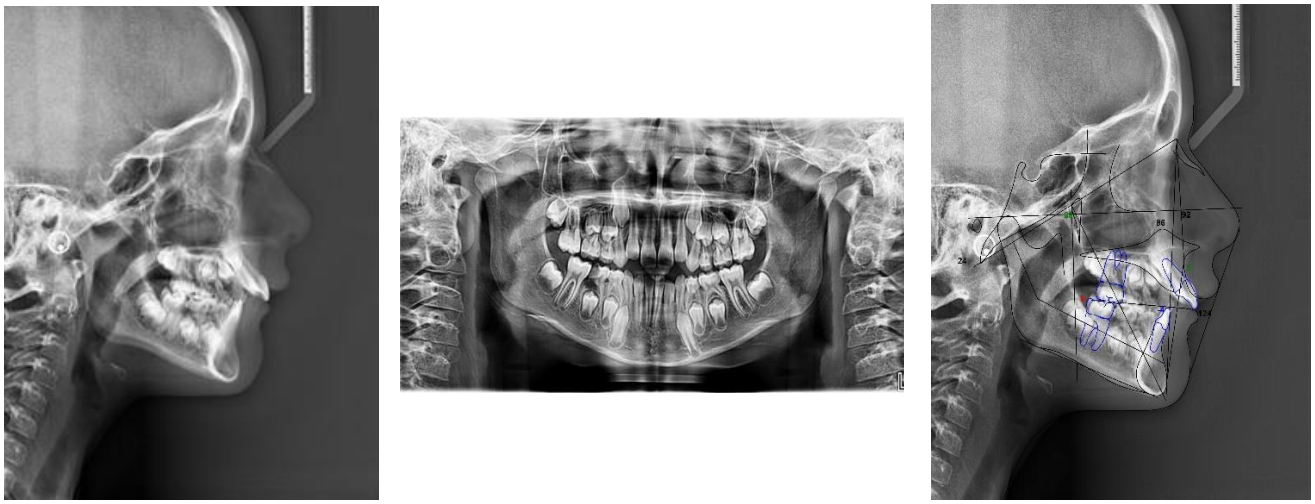
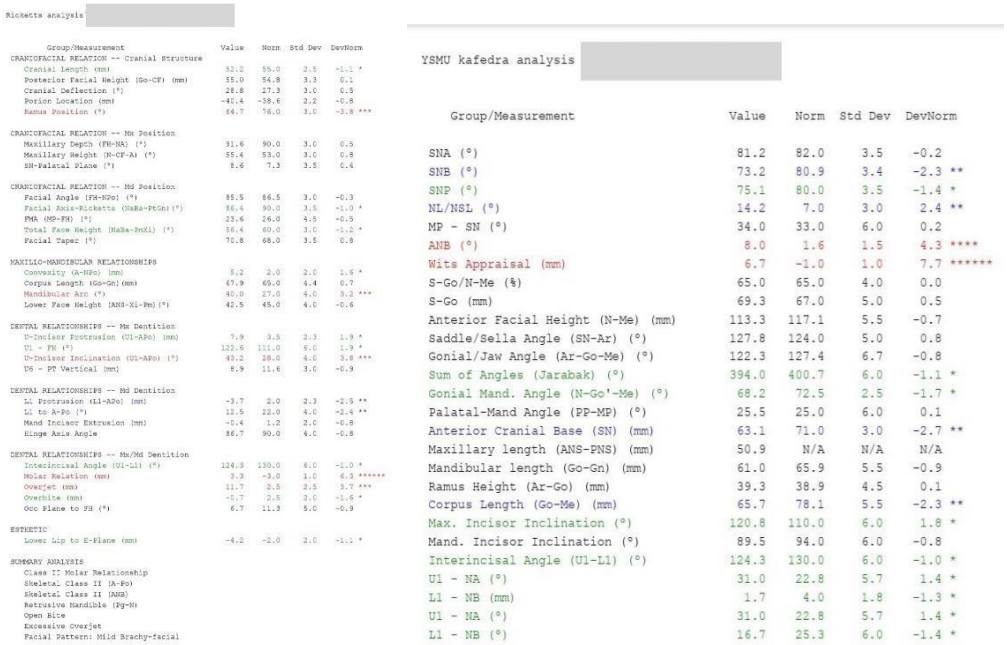


Figure 5. *Pretreatment radiographs and lateral cephalometric tracing*



Ricketts analysis

Group/Measurement	Value	Norm	Std Dev	DevNorm
CRANIOFACIAL RELATION -- Cranial Structure				
Cranial Length (mm)	52.2	55.0	2.5	-1.1 *
Posterior Facial Height (Go-CF) (mm)	55.0	54.8	3.3	0.1
Cranial Deflection (°)	28.8	27.3	3.0	0.5
Porion Location (mm)	-40.4	-38.6	2.2	-0.8
Ramus Position (°)	68.7	76.0	3.0	-3.8 ***
CRANIOFACIAL RELATION -- Mx Position				
Maxillary Depth (FH-NA) (°)	91.6	90.0	3.0	0.5
Maxillary Height (N-CF-A) (°)	55.4	53.0	3.0	0.8
SN-Palatal Plane (°)	8.6	7.3	3.5	0.4
CRANIOFACIAL RELATION -- Md Position				
Facial Angle (FH-NPo) (°)	85.5	86.5	3.0	-0.3
Facial Axis-Ricketts (BaNa-PtGn) (°)	86.4	90.0	3.5	-1.0 *
FMA (MP-FH) (°)	23.6	16.0	4.5	+0.5
Total Face Height (NaBa-SnMi) (°)	56.4	60.0	3.0	-1.2 *
Facial Taper (°)	70.8	68.0	3.5	0.8
MAXILLO-MANDIBULAR RELATIONSHIPS				
Convexity (A-NPo) (mm)	5.2	2.0	2.0	1.6 *
Corpus Length (Go-Gn)(mm)	67.9	65.0	4.4	0.7
Mandibular Arc (°)	40.0	27.0	4.0	3.2 ***
Lower Face Height (ANS-Xi-Pm)(°)	42.5	45.0	4.0	-0.6
DENTAL RELATIONSHIPS -- Mx Dentition				
U-Incisor Protrusion (U1-APo) (mm)	7.9	3.5	2.3	1.9 *
U1 - PP (°)	122.6	111.0	6.0	1.9 *
U-Incisor Inclination (U1-APo) (°)	43.2	28.0	4.0	3.8 ***
U6 - PT Vertical (mm)	8.9	11.6	3.0	-0.9
DENTAL RELATIONSHIPS -- Md Dentition				
L1 Protrusion (L1-APo) (mm)	-3.7	2.0	2.3	-2.5 **
L1 to A-Po (°)	12.5	22.0	4.0	-2.4 **
Mand Incisor Extrusion (mm)	-0.4	1.2	2.0	-0.8
Hinge Axis Angle	86.7	90.0	4.0	-0.8
DENTAL RELATIONSHIPS -- Mx/Md Dentition				
Interincisal Angle (U1-L1) (°)	124.3	130.0	6.0	-1.0 *
Molar Relation (mm)	9.3	-3.0	1.0	6.3 ******
Overjet (mm)	11.7	2.5	2.5	3.7 ***
Overbite (mm)	-0.7	2.5	2.0	-1.6 *
Occ Plane to FH (°)	6.7	11.3	5.0	-0.9
ESTHETIC				
Lower Lip to E-Plane (mm)	-4.2	-2.0	2.0	-1.1 *
SUMMARY ANALYSIS				
Class II Molar Relationship				
Skeletal Class II (A-Po)				
Skeletal Class II (ANB)				
Retrusive Mandible (Pg-N)				
Open Bite				
Excessive Overjet				
Facial Pattern: Mild Brachy-facial				

YSMU kafedra analysis

Group/Measurement	Value	Norm	Std Dev	DevNorm
SNA (°)	81.2	82.0	3.5	-0.2
SNB (°)	73.2	80.9	3.4	-2.3 **
SNP (°)	75.1	80.0	3.5	-1.4 *
NL/NSL (°)	14.2	7.0	3.0	2.4 **
MP - SN (°)	34.0	33.0	6.0	0.2
ANB (°)	8.0	1.6	1.5	4.3 ****
Wits Appraisal (mm)	6.7	-1.0	1.0	7.7 ******
S-Go/N-Me (%)	65.0	65.0	4.0	0.0
S-Go (mm)	69.3	67.0	5.0	0.5
Anterior Facial Height (N-Me) (mm)	113.3	117.1	5.5	-0.7
Saddle/Sella Angle (SN-Ar) (°)	127.8	124.0	5.0	0.8
Gonial/Jaw Angle (Ar-Go-Me) (°)	122.3	127.4	6.7	-0.8
Sum of Angles (Jarabak) (°)	394.0	400.7	6.0	-1.1 *
Gonial Mand. Angle (N-Go'-Me) (°)	68.2	72.5	2.5	-1.7 *
Palatal-Mand Angle (PP-MP) (°)	25.5	25.0	6.0	0.1
Anterior Cranial Base (SN) (mm)	63.1	71.0	3.0	-2.7 **
Maxillary length (ANS-PNS) (mm)	50.9	N/A	N/A	N/A
Mandibular length (Go-Gn) (mm)	61.0	65.9	5.5	-0.9
Ramus Height (Ar-Go) (mm)	39.3	38.9	4.5	0.1
Corpus Length (Go-Me) (mm)	65.7	78.1	5.5	-2.3 **
Max. Incisor Inclination (°)	120.8	110.0	6.0	1.8 *
Mand. Incisor Inclination (°)	89.5	94.0	6.0	-0.8
Interincisal Angle (U1-L1) (°)	124.3	130.0	6.0	-1.0 *
U1 - NA (°)	31.0	22.8	5.7	1.4 *
L1 - NB (mm)	1.7	4.0	1.8	-1.3 *
U1 - NA (°)	31.0	22.8	5.7	1.4 *
L1 - NB (°)	16.7	25.3	6.0	-1.4 *

Figure 6. *Pretreatment lateral cephalometric analysis*

Treatment objectives - The purpose of orthodontic treatment was to obtain class I molar relationships, expand the maxilla, keep the growth of maxilla in sagittal plane, get the growth of the mandible, decrease overjet, regulate biting and speech, increase the volume of upper airway, improve facial and smile esthetics.

Treatment alternatives - As noted, in similar clinical cases growth modification can be carried out or wait for permanent dentition stage for orthodontic camouflage with tooth extraction or final growth in order to perform orthognathic surgery. As a result of a cooperative discussion with parents it was decided to carry out a growth modification for correction of skeletal Class II malocclusion in patient as far as possible.

Treatment progress - The purposes of treatment are to correct the relationship of the upper and lower jaws in three planes, keep a growth of upper jaw, stimulate a growth of lower jaw, reduce overjet, obtain class I molar and canine relationship, regulate the normal functional activity of the dentofacial system (biting, chewing and speech), increase the volume of upper airway, as well as to correct the position of tongue. In order to solve the existing problems, first of all, the patient was instructed to abandon a bad habit of biting the lower lip and use hard food. Myogymnastical exercises were also prescribed. The orthodontic treatment included an expansion of the upper jaw with removable expanding plate (the maxilla was expanded for about four months), after which a functional Frenkel appliance was used, the design of which included a lingual shield. Since the overjet was very pronounced (11 mm) therefore the treatment with the Frenkel appliance was carried out in two steps. Eighteen months later normal relationship of jaw was achieved and we could start the retention period. Based on the fact that the patient was already tired of wearing the Frenkel appliance, it could not be used as a retention appliance. In this age group a positioner was used as a retention appliance. Eleven months later an increase of overjet was noticeable due to the fact that the patient had not worn the retention appliance in the prescribed mode. Based on this fact a decision was made to continue treatment with Clark̀ s Twin block up to the start of the second phase of orthodontic treatment. Nine months later an adequate vertical and sagittal relationship was obtained (figures 7, 8, 9).

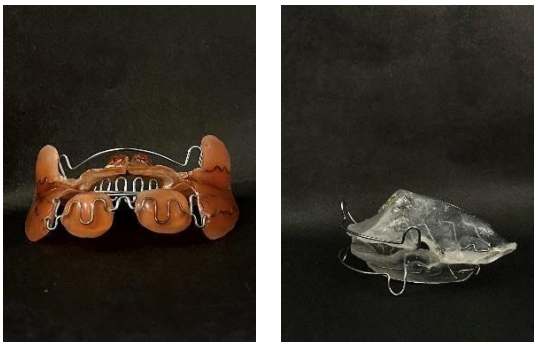
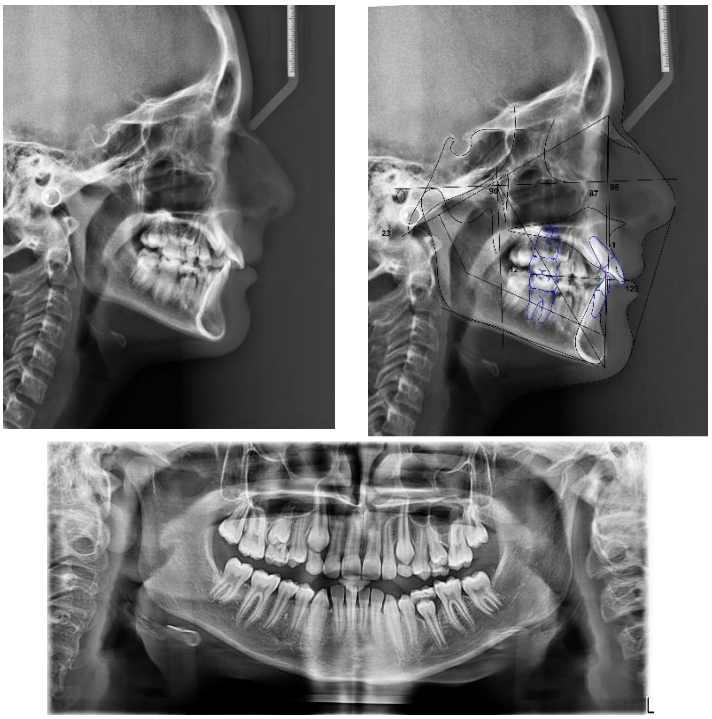
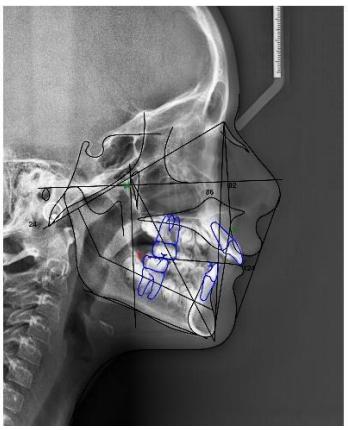
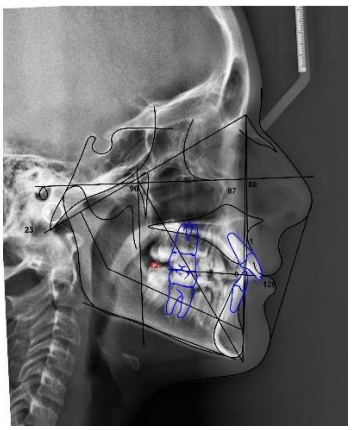


Figure 7. *Frenkel and Twin block appliances*

Figure 8. *Posttreatment facial and intraoral photographs*







Ricketts analysis

CRANIOFACIAL RELATION -- Cranial Structure	Value	Norm	Std Dev	Dev Norm
Cranial Length (mm)	54.5	57.7	2.5	-1.1 *
Posterior Facial Height (Go-CP) (mm)	57.1	54.8	3.3	0.7
Cranial Deflection (°)	28.3	27.3	3.2	0.3
Porion Location (mm)	-40.5	-38.6	2.2	-1.0 *
Ramus Position (°)	68.3	76.0	3.5	-2.6 **
CRANIOFACIAL RELATION -- Mx Position				
Maxillary Depth (FH-NA) (°)	88.5	90.0	3.5	-0.5
Maxillary Height (N-CF-A) (°)	57.6	56.4	3.0	1.1 *
SN-Palatal Plane (°)	8.7	7.3	3.5	0.4
CRANIOFACIAL RELATION -- Md Position				
Facial Angle (FH-NPo) (°)	87.1	87.6	3.5	-0.2
Facial Axis-Ricketts (NaBa-PtGn) (°)	89.5	90.0	3.5	-0.1
FHA (ND-FH) (°)	22.5	24.9	6.5	-0.5
Total Face Height (NaBa-PtGn) (°)	55.1	63.0	3.5	-1.6 *
Facial Taper (°)	70.4	68.0	3.5	0.7
MAXILLO-MANDIBULAR RELATIONSHIPS				
Convexity (A-NPo) (mm)	1.2	1.3	2.5	-0.0
Corpus Length (Go-Gn) (mm)	72.5	79.5	4.4	0.5
Mandibular Arc (°)	40.2	28.7	4.0	2.9 **
Lower Face Height (ANS-Xi-Pm) (°)	41.8	45.0	4.2	-0.8
DENTAL RELATIONSHIPS -- Mx Dentition				
U-Incisor Protrusion (U1-APo) (mm)	6.5	3.5	2.3	1.3 *
U1 - PM (°)	121.6	111.0	6.0	1.8 *
U-Incisor Inclination (U1-APo) (°)	35.9	28.0	4.3	2.0 **
U6 - PT Vertical (mm)	12.1	15.0	3.3	-0.9
DENTAL RELATIONSHIPS -- Md Dentition				
L1 Protrusion (L1-APo) (mm)	-0.0	1.0	2.3	-0.5
L1 to A-Po (°)	10.7	22.0	4.0	-1.8 *
Mand Incisor Extrusion (mm)	1.5	1.2	2.5	0.2
Hinge Axis Angle	85.6	90.0	4.3	-1.1 *
DENTAL RELATIONSHIPS -- Mx/Md Dentition				
Interincisal Angle (U1-L1) (°)	128.4	130.0	6.0	-0.3
Molar Relation (mm)	-0.7	-3.0	1.5	2.3 **
Overjet (mm)	6.6	2.5	1.5	1.7 *
Overbite (mm)	3.1	2.5	2.5	0.3
Occ Plane to FH (°)	6.1	8.9	5.5	-0.6
ESTHETIC				
Lower Lip to E-Plane (mm)	-4.4	-2.0	2.5	-1.2 *

SUMMARY ANALYSIS
Class II Molar Relationship
Skeletal Class II (A-Po)
Skeletal Class I (ANS)
Retrusive Mandible (Pg-N)
Excessive Overjet
Facial Pattern: Mild Brachy-facial

YSMU kafedra analysis

	Value	Norm	Std Dev	Dev Norm
SNA (°)	78.5	82.0	3.5	-1.0 *
SNB (°)	75.8	80.9	3.4	-1.5 *
SNP (°)	77.2	80.0	3.5	-0.8
NL/NSL (°)	12.7	7.0	3.0	1.9 *
MP - SN (°)	32.4	33.0	6.0	-0.1
ANB (°)	2.8	1.6	1.5	0.8
Wits Appraisal (mm)	1.4	-1.0	1.0	2.4 **
S-Go/N-Me (%)	65.8	65.0	4.0	0.2
S-Go (mm)	70.5	67.0	5.0	0.7
Anterior Facial Height (N-Me) (mm)	115.7	129.8	5.5	-2.6 **
Saddle/Sella Angle (SN-Ar) (°)	129.5	124.0	5.0	1.1 *
Gonial/Jaw Angle (Ar-Go-Me) (°)	122.9	125.0	6.7	-0.3
Sum of Angles (Jarabak) (°)	392.4	393.2	6.0	-0.1
Gonial Mand. Angle (N-Go'-Me) (°)	70.6	72.5	2.5	-0.8
Palatal-Mand Angle (PP-MP) (°)	23.7	25.0	6.0	-0.2
Anterior Cranial Base (SN) (mm)	63.9	73.3	3.0	-3.1 ***
Maxillary length (ANS-PNS) (mm)	49.6	N/A	N/A	N/A
Mandibular length (Go-Gn) (mm)	67.9	65.9	5.5	0.4
Ramus Height (Ar-Go) (mm)	40.0	44.0	4.5	-0.9
Corpus Length (Go-Me) (mm)	71.6	78.1	5.5	-1.2 *
Max. Incisor Inclination (°)	120.4	110.0	6.0	1.7 *
Mand. Incisor Inclination (°)	87.5	94.0	6.0	-1.1 *
Interincisal Angle (U1-L1) (°)	128.4	130.0	6.0	-0.3
U1 - NA (°)	33.1	22.8	5.7	1.8 *
L1 - NB (mm)	2.5	4.0	1.8	-0.8
U1 - NA (°)	33.1	22.8	5.7	1.8 *
L1 - NB (°)	15.7	25.3	6.0	-1.6 *

Figure 9. *Posttreatment radiographs and lateral cephalometric tracing and analysis*

Discussion

Thus, as a result of the functional treatment of this clinical case, we received a precise improvement of the patient s profile, improvement of the relationship of jaws, reduced overjet, reposition of tongue, complete rehabilitation of swallowing, biting and speech functions, improvement of molar relationship, normal touch of lips, increased volume of upper airway, broad and beautiful smile of patient, increase of self-esteem.

Conclusions

Summing up the above and the results of the treatment of numerous patients, we can definitely come to a conclusion about the importance of the need of functional treatment. Since the fact on adequate and timely accomplished functional treatment obviously prevents a complicated process of further orthodontic treatment, the necessity of teeth extraction, increases the volume of upper airway, the use of additional appliances during the treatment with fixed - appliances is reduced, moreover the necessity of further orthognathic surgery is decreased.

Disclosure

Conflicts of interest and financial disclosures

The author declares that he has no conflict percent and there was no external source of funding for present research.

Source of funding

The work was not funded.

Ethical approval

The study was approved by the University ethics committee and was conducted in accordance with the Declaration of the World Medical Association. Informed consent Patients were informed verbally and in writing about the study and gave written informed consent.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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ՎԱՂ ՕՐԹՈԴՈՆՏԻԿ ԲՈՒԺՄԱՆ ԿԱՐևՈՐՈՒԹՅՈՒՆԸ և ԱՆՀՐԱԺԵՇՏՈՒԹՅՈՒՆԸ: ԿԼԻՆԻԿԱԿԱՆ ԴԵՊՔԻ ՆԵՐԿԱՅԱՑՈՒՄ

Հրանտ Տեր-Պողոսյան,[1] Իռեն Ծատուրյան,[2] Լիաննա Սեյրանյան[3]

[1] Պրոֆեսոր, Երևանի պետական բժշկական համալսարանի մանկական ստոմատոլոգիայի և օրթոդոնտիայի ամբիոնի վարիչ, ՀՀ ԱՆ գլխավոր մանկական ստոմատոլոգ, Օրթոդոնտների հայկականասոցիացիայի նախագահ, Երևան, Հայաստան

[2] բգթ,Երևանի պետական բժշկական համալսարանի մանկական ստոմատոլոգիայի և օրթոդոնտիայի ամբիոնի դասախոս, Երևան, Հայաստան

[3] Երևանի պետական բժշկական համալսարանի մանկական ստոմատոլոգիայի և օրթոդոնտիայի ամբիոնի կլինիկական օրդինատոր, ընդհանուր ստոմատոլոգ, Երևան, Հայաստան

Ամփոփում

Նպատակը. Ներկայացված է կլինիկական դեպք, որի բուժումն իրականացվել է օրթոդոնտիկ ֆունկցիոնալ մեթոդով, կատարվել է աճի մոդիֆիկացիա պացիենտի խառը կծվածքի շրջանում: Տվյալ կլինիկական դեպքի ներկայացման նպատակը կայանում է ևս մեկ անգամ ընդգծելու ֆունկցիոնալ բուժման կարևորությունը և անհրաժեշտությունը:

Մեթոդներ և նյութեր. Կիրառվել են պացիենտի ախտորոշիչ մոդելների, ֆոտոնկարների և ռենտգեն պատկերների հետազոտություն և ցեֆալոմետրիկ չափումների վերլուծություն:

Արդյունքները. Տվյալ կլինիկական դեպքի ֆունկցիոնալ բուժման արդյունքում ստացել ենք պացիենտի պրոֆիլի հստակ բարելավում, ծնոտների փոխհարաբերության կարգավորում, սագիտալ ճեղքի (overjet) կրճատում, լեզվի վերադիրքավորում, կլման, կծողական և խոսակցական ֆունկցիաների ամբողջական վերականգնում, մոլյարների փոխհարաբերության կարգավորում, շրթունքների նորմալ հպում, վերին շնչուղիների ծավալի մեծացում, պացիենտի անկաշկանդ և գեղեցիկ ժպիտի ստացում, ինքնագնահատականի բարձրացում:

Եզրակացություններ. Ամփոփելով վերը նշվածը և բազմաթիվ պացիենտների բուժման արդյունքները, կարող ենք հստակ եզրակացնել ֆունկցիոնալ բուժման անհրաժեշտության կարևորության մասին: Քանի որ անվիճելի է այն փաստը, որ ճիշտ ժամանակին և ադեկվատ կատարված ֆունկցիոնալ բուժումը հստակ կանխում է հետագա օրթոդոնտիկ բուժման բարդ ընթացքը, ատամների հեռացման անհրաժեշտությունը, մեծացնում է վերին շնչուղիների ծավալը, պակասեցնում է բրեկետ - համակարգով օրթոդոնտիկ բուժման ընթացքում հավելյալ սարքերի կիրառումը, և առավել ևս հետագայում վիրահատական միջամտության (օրթոգնատիկ վիրահատություն) անհրաժեշտությունը:

НЕОБХОДИМОСТЬ И ВАЖНОСТЬ РАННЕГО ОРТОДОНТИЧЕСКОГО ЛЕЧЕНИЯ : КЛИНИЧЕСКИЙ СЛУЧАЙ

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Абстракт

Цели: Представлен клинический случай , ортодонтическое лечение которого проводилось функциональным методом. Была проведена модификация роста в период смещанного прикуса у пациента. Цель представления данного клинического случая состоит в том, чтобы еще раз подчеркнуть важность и необходимость функционального лечения.

Материалы и методы: Были использованы диагностические модели, фото и рентгеновские снимки пациента, а также анализ цефалометрических измерений.

Результаты: В результате функционального лечения данного клинического случая мы получили четкое улучшение профиля пациента, нормализацию взаимоотношений челюстей, уменьшение сагиттальной щели (overjet), репозицию языка, полное восстановление глотательной, жевательной и речевой функций, нормализацию взаимоотношений моляров, нормальное прикосновение губ, увеличение объема верхних дыхательных путей, непринужденную и красивую улыбку, повышение самооценки пациента.

Заключение: Подводя итог вышесказанному и результаты лечения многих пациентов, можно четко сделать вывод о важности функционального лечения. Поскольку неоспорим тот факт, что своевременное и адекватное функциональное лечение четко предотвращает сложное течение дальнейшего ортодонтического лечения и необходимость удаления зубов, увеличивает объем верхних дыхательных путей, уменьшает необходимость применения дополнительных аппаратов во время ортодонтического лечения с помощью брекет - системы и тем более необходимость хирургического вмешательства (ортогнатическая хирургия).