Virtual Journal of Orthodontics

Case Report n°4

Patient	
Age:	9
Diagnosis	Angle class.I
ANB	2
OJ	2.5
OB	4
EXTR.	16, 26, 36, 46

Case History

The patient is a nine-year old girl who is in good general health. Her medical history is free of general or local diseases known to
influence the development of craniofacial structures.

Current Status

She is of average height for her age and has a heavy body build. Her face is oval without any extraoral asymmetry and her profile is
straight. Her chin and nose are of average shape and size. The overall face height as well as the jaw angle inclination are normal.

Both the tissue tone and the lip morphology are normal. During swallowing the teeth are in contact but there is neither mentalis contraction nor a tongue thrust. The opening and closing movements are in a straight line without premature contacts.

Intraoral Findings

The oral hygiene as well as the caries activity is average. 16 seems to be the most hypoplastic tooth, while the hypoplasia on the
mandibular first molars appears rather superficial. 21 has a restored incisal edge.

Model Analysis

Lateral View

The molar relationship on the right side is end to end, while the left side is a Class I relationship. The overjet is 1 mm and the overbite 4 mm. She doesn't bite in the palate and has a moderate curve of Spee. Both the maxillary and mandibular incisor axes seem to be upright.

Anterior View

The dental midlines are coincident with the facial midline and there are not individual tooth malpositions.

Occlusal View

The following teeth are present:

16 .. 14 . . 12 11	21 22 24 65 26
46 85 43 42 41	31 32 33 34 36

The alveolar process width is normal. Both the maxillary and mandibular arches seem to have a parabolic arch form. The intercanine mandibular width is 27 mm and the intermolar width is 49.5 mm.

Space Analysis

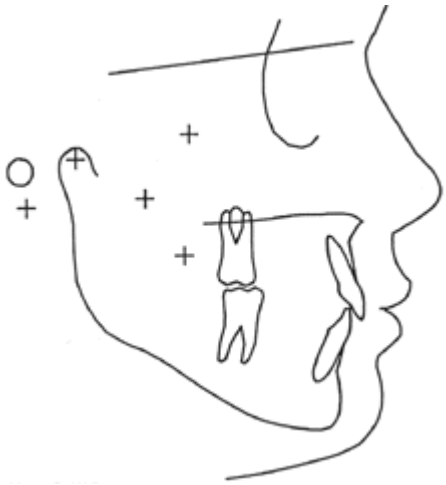
Space analysis reveals a lack of space in both arches. There is 5 mm of upper and 5.5 mm of lower crowding.

Bolton Analysis

Due to the mixed dentition, the Bolton analysis cannot be performed.

Cephalometric Analysis

Cephalometric Analysis	Mean	Value
SNA	**82**	81
SNB	**80**	79
ANB	**2**	2
SNPg	**81**	80
NSBa	**130**	129
ML-NSL-1	**32**	33.5
NL-NSL	**8.5**	9.5
ML-NL	**23.5**	24
Gn-tgo-Ar	**126**	126
N-Sp' (mm)	**-**	52
Sp'-Gn(mm)	**-**	52
N-Sp'/Sp'-Gn x100%	**79**	89.6
Interincisiv	**131**	145
+1-NA	**22**	15
T-NB	**25**	19
+1-NA	**4**	1
T-NB	**4**	1
Pg-NB mm	**-**	2
N-angle	**58**	55
UL-EL (mm)	**2**	3
LL-EL (mm)	**0**	2
H-angle	**8**	9



The position of the maxilla and the mandible reveals a neutral basal sagittal relation (SNA=81° and SNB=79°). The mandibular plane inclination, as well as the nasal plane inclination, are within normal limits at 33.5° and 9.5°, respectively. The mandibular gonial angle is also within normal limits (126°) which indicates a normal growth tendency. The face height ratio is somewhat higher than normal at 89.6. The interincisor angle is higher (145°) due to the more upright maxillary and mandibular incisors The Pg distance is 2 mm.

The position of the lips seems to be in a retruded, or in a more posterior position in relation to the esthetic line: UL-EL=3mm and LL-EL=2mm.

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Growth Prognosis

She is in PP2 stage, which means she has significant growth remaining. However, it isn't of great importance for the treatment
planning. It is most probable that the growth pattern is neutral.

Diagnosis

1. Oval face, straight profile
2. Neutral basal sagittal relation
3. Class I and cusp-to-cusp relation
4. Overjet of 1 mm and an overbite of 4 mm
5. Normal vertical basal relation
6. Lack of space in both jaws: UJ=-5 mm and LJ=-5.5 mm
7. Hypoplastic first permanent molars, especially 16

Etiology

Considering the type of malocclusion, it is probably due to hereditary factors.

Treatment needs

The treatment need is prophylactic, functional, and esthetic, and all considered as objective needs.

Treatment Objectives

1. To keep the neutral basal sagittal relation
2. To achieve Angle Class I relationship on the molars and the canines on both sides
3. To make enough space and align the canines

Treatment Plan

Considering the neutral growth, provided that the ANB angle remains unchanged, according to the Steiner analysis, the incisors should be protruded. The N-angle prognosis supports this idea. The proclination would provide some space, however it is not enough to overcome the crowding in both arches, nor would it enable a Class I molar and cuspid relationship. One other important fact also has to be taken into consideration: The vitality of 16, which, as suggested by the pedodontic department, might need endodontic treatment and in a way compromise the molar distalization (which would be a necessity in both non-extraction or extraction treatment). It was decided to postpone the final treatment decision until after the summer and to wait for the eruption of 17.

Treatment description

Extraction 16, 26. Fixed appliance from November 91 till June 92.

Quad Helix : four months

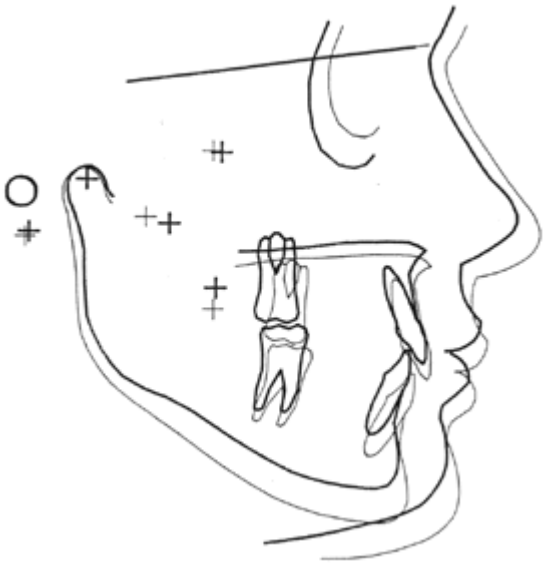
Fixed appliance: 16 months

Retention with a Hawley plate in the upper arch and a bonded lingual 3-3 retainer in the

lower arch.

Evaluation of treatment results

Cephalometric Analysis	Mean	Value 10/92	Value 03/96
SNA	**82**	81	82
SNB	**80**	79	80
ANB	**2**	2	2
SNPg	**81**	80	81
NSBa	**130**	129	129.5
ML-NSL-1	**32**	33.5	32.5
NL-NSL	**8.5**	9.5	5
ML-NL	**23.5**	24	27.5
Gn-tgo-Ar	**126**	126	122.5
N-Sp' (mm)	**-**	52	54
Sp'-Gn(mm)	**-**	58	62
N-Sp'/Sp'-Gn x100%	**79**	89.6	87
Interincisiv	**131**	145	134
+1-NA	**22**	15	21.5
T-NB	**25**	19	22
+1-NA	**4**	1	2.5
T-NB	**4**	1	3
Pg-NB mm	**-**	2	1
N-angle	**58**	55	56
UL-EL (mm)	**2**	3	2



The main goals of treatment were:

1. Maintain a neutral basal sagittal relation
2. Achieve molar and canine Class I relationships
3. Derotate 17 and 27

LL-EL (mm)	**0**	2	0
H-angle	**8**	8	

4. Well align and harmonize the arches providing space to correct the crowding in the lower jaw

The main goals of the treatment objectives were fulfilled.
After extraction of the first upper molars, and mesialization of the upper second molars, the achievement of the Class I relation and the alignment of the lower anterior was achieved by extraction of the lower first molars and by mesialization of the second molars.

Home page

editor@vjo.it