Virtual Journal of Orthodontics

Case Report n°6

Patient	**06**
Age:	6.3
Diagnosis	Class I
ANB	1
OJ	0.5 mm
OB	0 mm
Note:	Agenesis 25, 45, 18,28, 38,48 two phases treatment extraction case

Case History

The patient is a 6 years old girl who is in good general health. Her medical history is free of general or local diseases known to influence the development of the craniofacial structures. She shifts 31 and 41. She used pacifier up to age 2.

Current Status

Her height is average for her age, and her body build is also average. Her face is square without no extraoral asymmetry and her profile is straight, while the nose and the chin are of average shape and size. The overall face height as well as the jaw angle inclination is normal.

Both the tissue tone and the lip morphology are normal. During swallowing the teeth are not in contact and there is some degree of tongue thrust. No mentalis contraction is apparent. She breathes through her mouth and nose, mainly the nose. She has got a lateral forced bite to the left and a midline deviation of 3 mm to the left in the lower jaw.

Intraoral Findings

The patient has good oral hygiene and low caries activity. The supporting tissue, labial frena and tongue are normal. She is in mixed dentition and radiographs indicate absence of toothbuds for 25 and 45.




click on picture to zoom

Model Analysis

Lateral View

She has a bilateral molar and cuspid Class I relationship.The overjet is 0.5 mm. The overbite is 0 mm, and no palatal impingement. The curve of Spee is flat. The upper incisors are retruded and the lower are normal.

Anterior View

The mandibular midline is about 3 mm to the left of the facial midline. 31 is distally inclined. There is a left posterior crossbite.

Occlusal View

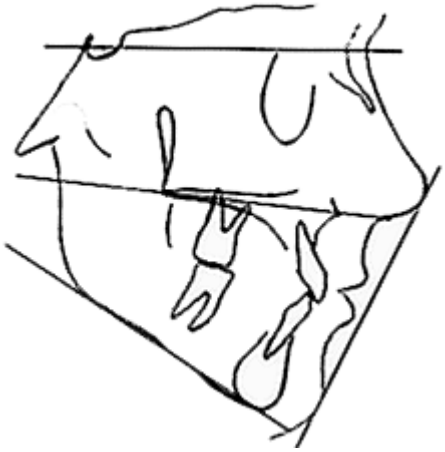
The following teeth are present:

16 55 54 53 52 51	61 62 63 64 65 26
46 85 84 83 82 41	31 72 73 74 75 36

The alveolar process width is normal. Both the maxillary and mandibular arches seem to have a parabolic arch form. 31 is rotated. The lower interincanine width is 24 mm and the intermolar width is 32 mm. There is a mild lower crowding and no primates spaces.

Cephalometric Analysis

Cephalometric Analysis	Mean	Value
SNA	**82**	81
SNB	**80**	80
ANB	**2**	1
SNPg	**81**	80
NSBa	**130**	128
ML-NSL-1	**32**	33
NL-NSL	**8.5**	6
ML-NL	**23.5**	27
Gn-tgo-Ar	**126**	129
N-Sp' (mm)	**-**	52
Sp'-Gn(mm)	**-**	68
N-Sp'/Sp'-Gn x100%	**79**	76.4
Interinc.	**131**	133.5
+1-NA	**22**	22
T-NB	**25**	22.5
+1-NA	**4**	3
T-NB	**4**	2.5
Pg-NB mm	**-**	0
N-angle	**58**	65.5
UL-EL (mm)	**2**	4.5
LL-EL (mm)	**0**	3
H-angle	**8**	



The position of the maxilla and the mandible suggests a Class I relationship.

Diagnosis

1. Straight profile, square face
2. Angle Class I
3. Overjet 0.5 mm
4. Overbite 0 mm
5. 31 rotated and distally inclined
6. Midline deviation

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.

Phase I Treatment consist of:

Introductory treatment: The patient used a plate for over a year, however, co-operation was poor.
A Quad-Helix was cemented three years later.

Re-evaluation (11 years)

Case History

The patient is now 11 years old and in good general health. Her medical history is free of general or local diseases known to influence the development of craniofacial structures.
Exfoliation of the primary teeth has been normal. There is no history of any dental trauma in her medical history. No habits are noted. She used pacifier up to age 2.

Current Status

Her height is average for her age and her body build is also average. Her face is square with no extra-oral asymmetry and her profile is straight, while the nose and the chin are of average shape and size. The overall face height as well as the jaw angle inclination is normal.

Both the tissue tone and the lip muscle morphology are normal. The upper lip seems to be thin while the lower is normal. During swallowing the teeth are in contact and there is no peri-oral musculature contraction. She breathes through her mouth and nose, mainly the nose. No speech problems were noted. The opening and closing movements are apparently not asymmetric.

Intraoral Findings

The patient has a good oral hygiene and low caries activity. The supporting tissue, labial frena and tongue are normal. The radiographs reveal a mixed dentition with agenesis of 25 and 45. None of the wisdom teeth germs could be noted. There is a caries noted on 65.

click on picture to zoom

Model Analysis

Lateral View

There is a bilateral Class I molar relationship while the canines are in a cusp to cusp relationship. The overjet is 2.5 mm and the overbite is 4.5 mm, with no palatal impingement. The curve of Spee is moderate. The lower incisors seem to be retruded while the uppers are normally inclined.

Anterior View

The midline are coincident with the facial midline and there is no individual malposition.

Occlusal View

The following teeth are present:

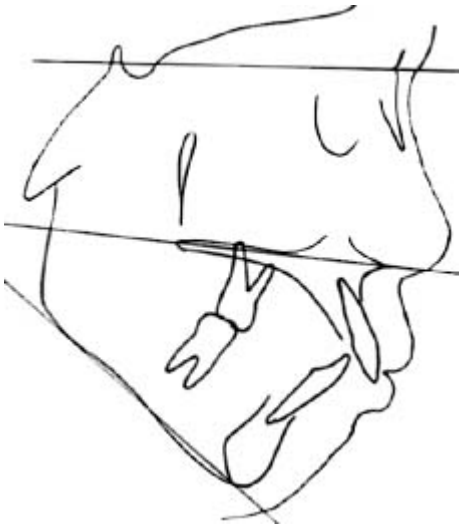
16 55 14 13 12 11	21 22 23 24 65 26
46 __ 44 43 42 41	31 32 33 34 __ 36

The alveolar process width is normal. Both the maxillary and mandibular arches seem to have a parabolic arch form. The lower interincanine width and intermolar width are 27 mm and 34 mm. There is a mild lower crowding and no primates spaces.

Space Analysis: There is a total of 2 mm of upper and 3.5 mm of lower spacing. (The Bolton analysis was not performed because of the agenesis of 25 and 45.)

Cephalometric Analysis

Cephalometric Analysis	Mean	Value
SNA	**82**	81.5
SNB	**80**	80
ANB	**2**	1.5
SNPg	**81**	80.5
NSBa	**130**	127
ML-NSL-1	**32**	34
NL-NSL	**8.5**	6
ML-NL	**23.5**	28
Gn-tgo-Ar	**126**	130
N-Sp' (mm)	**-**	48
Sp'-Gn(mm)	**-**	61
N-Sp'/Sp'-Gn x100%	**79**	78
Interinc.	**131**	132
+1-NA	**22**	23
T-NB	**25**	23
+1-NA	**4**	4
T-NB	**4**	2.5
Pg-NB mm	**-**	1
N-angle	**58**	62
UL-EL (mm)	**2**	-4.5
LL-EL (mm)	**0**	-2.6
H-angle	**8**	9



The position of the maxilla and the mandible suggest a Class I relationship. The value of SNPg is 80.5° and NSBa is 127° which means that they are within normal range.The inclination of the mandible, ML-NSL-1 is 34° and it is very close to the average value. The inclination of the maxilla is slightly anterior, being NL-NSL=6°. The inclination between the two jaws ML-NL is 27° showing a slight open configuration and also the jaw angle is 129°.

The face height index has a value of 76.4 indicating a longer than average lower face height. The interincisal angle is, more or less, average (132°).
The mandibular incisors follow the table values, but the maxillary ones are in a retruded position:1-NA=2.5mm and 22.5°. The position of the lips is distal to EL. The upper is 4.5mm and the lower is 3 mm distally placed from the EL.

Growth

The carpal radiograph indicates her to be in the MP3 cap stage of her growth meaning that she is in her growth spurt. Evaluation of the mandibular growth pattern on the cephalogram indicates posterior rotation of the mandible.

Diagnosis

Face: Square face, straight profile
Basal sagittal relation: neutral basal sagittal relation
Angle classification: CL I
Overjet: 2.5mm
Basal vertical relation: tendency for open bite configuration
Overbite: 4.5
Basal transversal dev.: -
Dent. alv. transv. dev.:-
Space condition: UJ=+2 mm LJ=+3.5 mm
Deviation in morphology/ n° of teeth: agenesis of 25,45, 18,28,38,48
Deviation in the position of any tooth: 35 seems impacted
Deviation in function: -

Etiology

Considering that most of the hypodontia cases are genetically influenced it could be stated that the etiology is due to hereditary factors.

Treatment needs

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

Treatment aim

1. Keep neutral basal sagittal relation and the transversal relation.
2. Achieve CL I relation after the planned extraction.
3. Align and harmonize both arches after the extraction of the temporary teeth in the maxilla (55 and 65) and the premolars 35 and 15.

Treatment plan

The treatment will aim at improving the dento-alveolar relationship. The ANB angle of 1° will be accepted and as the Steiner analysis suggests, the upper incisors will remain as they are and the lower incisors will be retruded slightly, if no changes of the Pg point position are expected. There is 3.5 mm of lower

spacing, which is mainly due to the agenesis of 45. In order to produce a symmetric arch the decision to extract 35 was made. In the upper jaw we have more or less the same situation with an excess of 2 mm and agenesis of 25. In order to harmonize the arches, it was decided to extract 15 . The case will be considered a four-bicuspid extraction case. We are going to mesialize 16, 26 and at the same time would like to distalize 13, 14 and 23, 24 which are crowded. In the lower arch, we will mesialize 36, 46 in order to close the spaces. As soon as levelling is completed, we will mesialize the molars with bull loops and gable bends. CL II elastics will also be used. Eventually a Delaire mask can be considered. The anchorage in the upper will be intramaxillary since for the planned movement we are going to use reciprocal forces in order to mesialize the molars and distalize the canines. For the lower the anchorage can be critical, since we would not like to see retraction of the lower anteriors.

Treatment summary

Referred for extraction of 55, 65, 15 and 35.

Fixed Appliance in both arches.

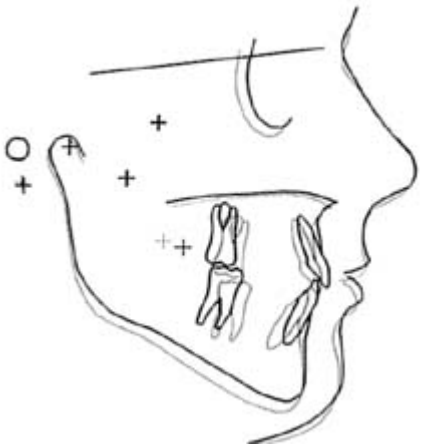
Debonding, Hawley plate and 3-3 retainer in the lower arch.

Final Record
Evaluation of treatment results

(Click on pictures to zoom)

Cephalometric Analysis	Mean	starting value	Final Value
SNA	**82**	81.5	80.5
SNB	**80**	80	79
ANB	**2**	1.5	1.5
SNPg	**81**	80.5	80.5
NSBa	**130**	127	127

ML-NSL-1	**32**	34	34
NL-NSL	**8.5**	6	6
ML-NL	**23.5**	28	28
Gn-tgo-Ar	**126**	130	130
N-Sp' (mm)	**-**	48	55
Sp'-Gn(mm)	**-**	61	70
N-Sp'/Sp'-Gn x100%	**79**	78	79
Interinc	**131**	132	127
+1-NA	**22**	23	21.5
T-NB	**25**	23	30
+1-NA	**4**	4	3.5
T-NB	**4**	2.5	2
Pg-NB mm	**-**	1	2.5
N-angle	**58**	62	57
UL-EL (mm)	**2**	-4.5	-5
LL-EL (mm)	**0**	-2.6	-4
H-angle	**8**	9	9



The ANB angle has not changed during treatment and both SNA and SNB have remained at their original values. Both maxillary and mandibular planes have rotated slightly anteriorly and therefore the change of the intermaxillary angle is minimal. The patient has not grown much during treatment with fixed appliance and therefore the facial height has remained fairly stable. The interincisal angle has decreased from 133 degrees to 127, mainly because of the proclination of the lower incisors.

The main goals of the treatment objectives were met.
The mesialization of 36 and 46 and slight retrusion of the upper and lower incisors closed the spaces due to the agenesis and the extractions.

[Home page]

editor@vjo.it