

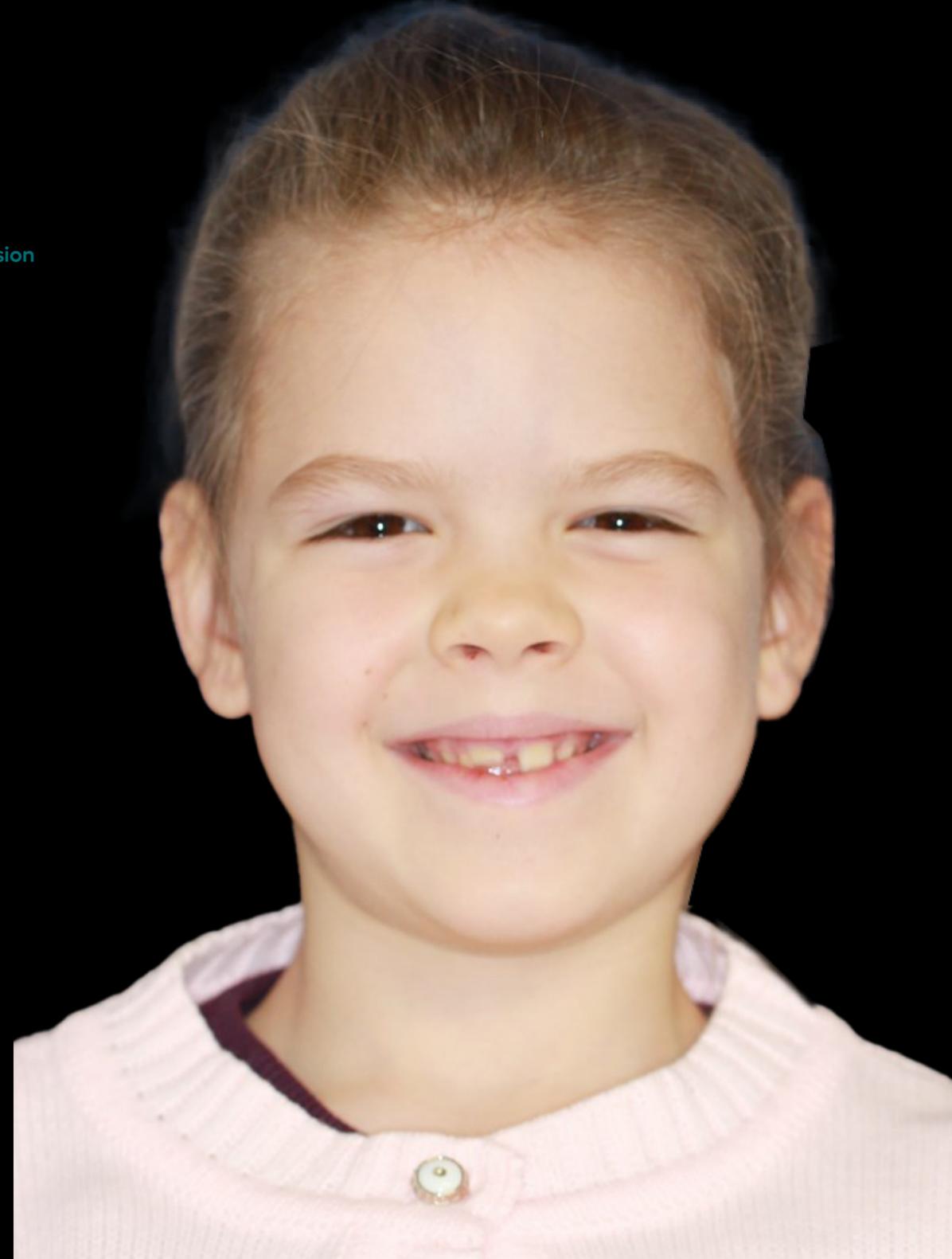
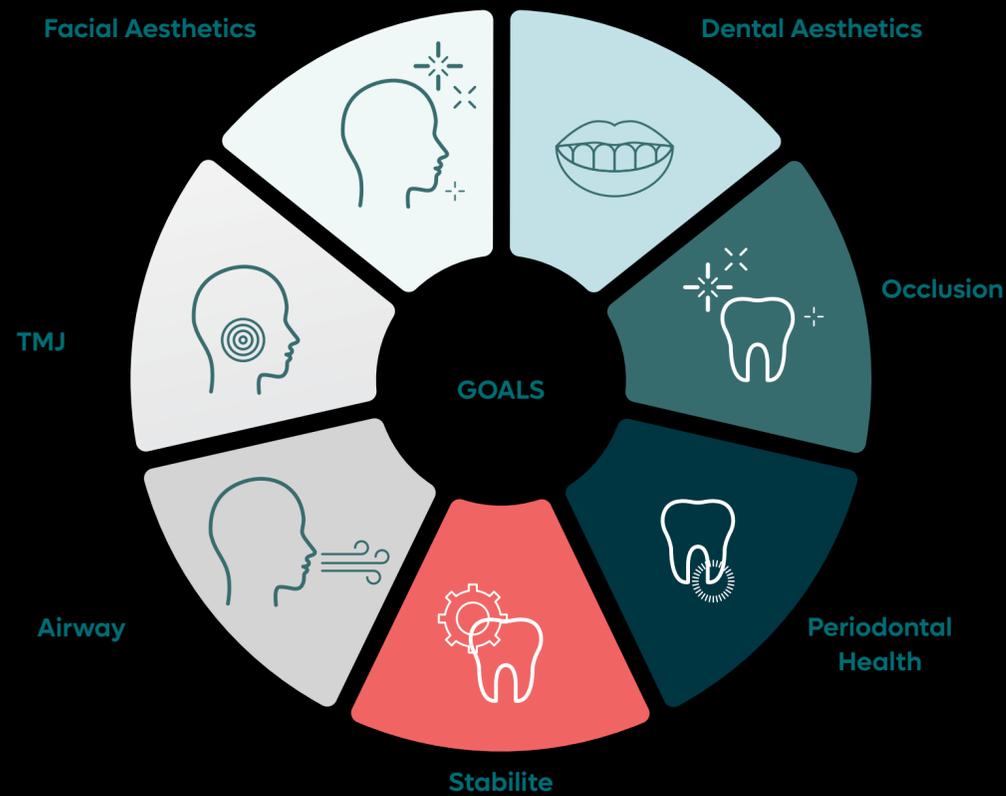
Case description

Dento-facial orthopedics represents the cornerstone of orthodontics, playing a crucial role in guiding and correcting craniofacial growth from an early age. Early orthodontic and orthopedic interventions can prevent the need for complex treatments or surgical procedures in adulthood.

The presented case focuses on the key moments of intervention in the treatment of **maxillary hypoplasia**, highlighting the challenges encountered throughout the stages of growth and development. The main goal of the treatment was to **restore skeletal and dental balance**, ensuring continuous adaptation during the entire growth period until its completion.

By analyzing the therapeutic stages and the patient's evolution, this case emphasizes the importance of **early diagnosis**, careful monitoring of growth, and **interdisciplinary collaboration** in achieving both functional and aesthetic harmony.

Delia D.N.: 28.01.2007

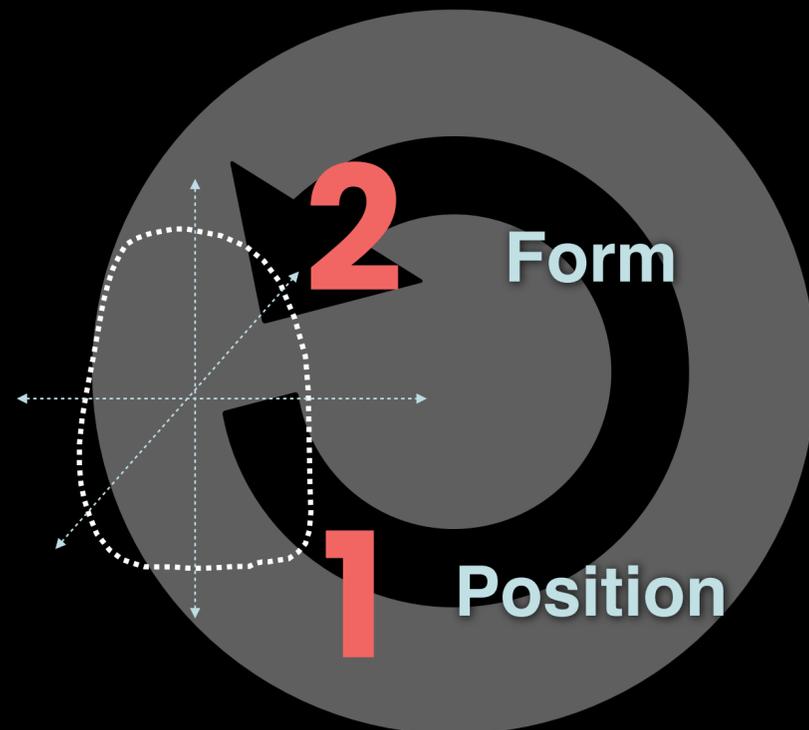


Chief complaint :
Interdental decar 64/65

Age : 7 y (2014)

Diagnosis :
CLSIII, hipoplazic maxilla

Treatment :
Orthopaedic and
Orthodontic treatment



Initial investigations Extraoral photos 20214



Flattening of facial middle third



Straight profile



Frontal incision

Initial investigations Extraoral photos 20214



Coridoare bucale, endognatia
maxilarului



Înfundarea etajului mijlociu al fetei

Initial investigations intraoral photos 2014

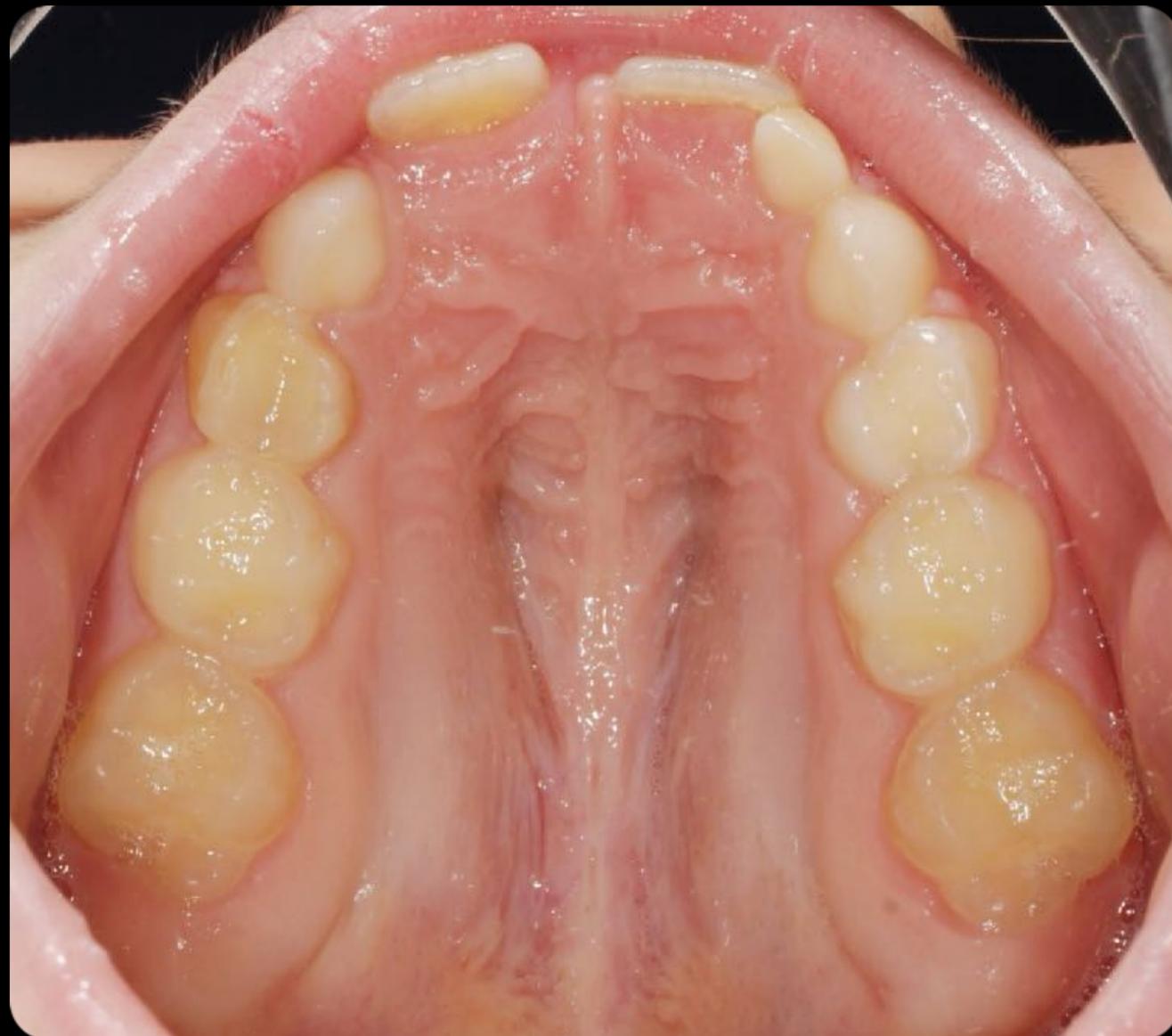


Bilateral cross bite

Frontal incclusion

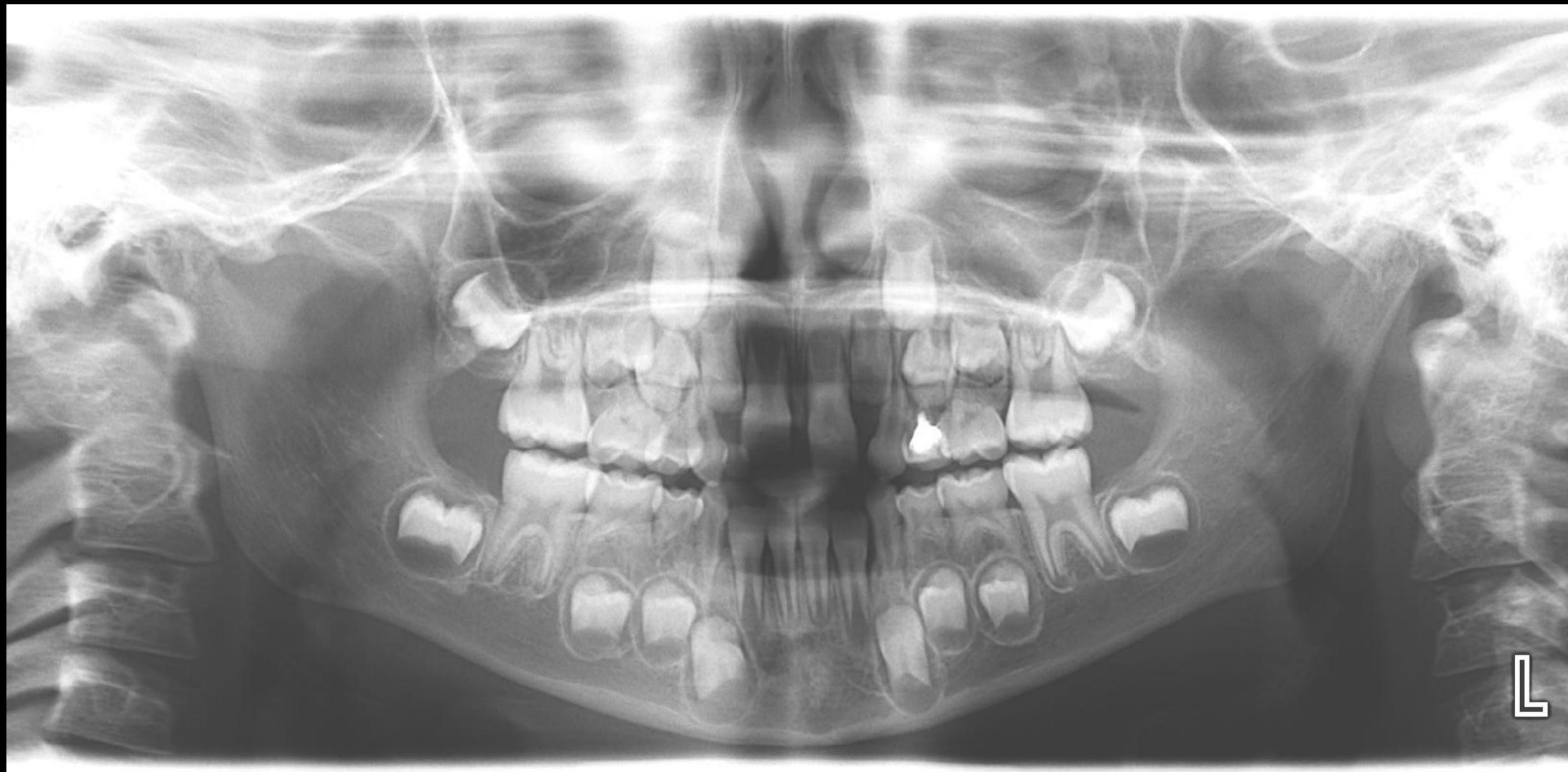
Upper crowding

Initial investigations intraoral photos 2014



U shape upper arch
Ogival palatal vault

OPG

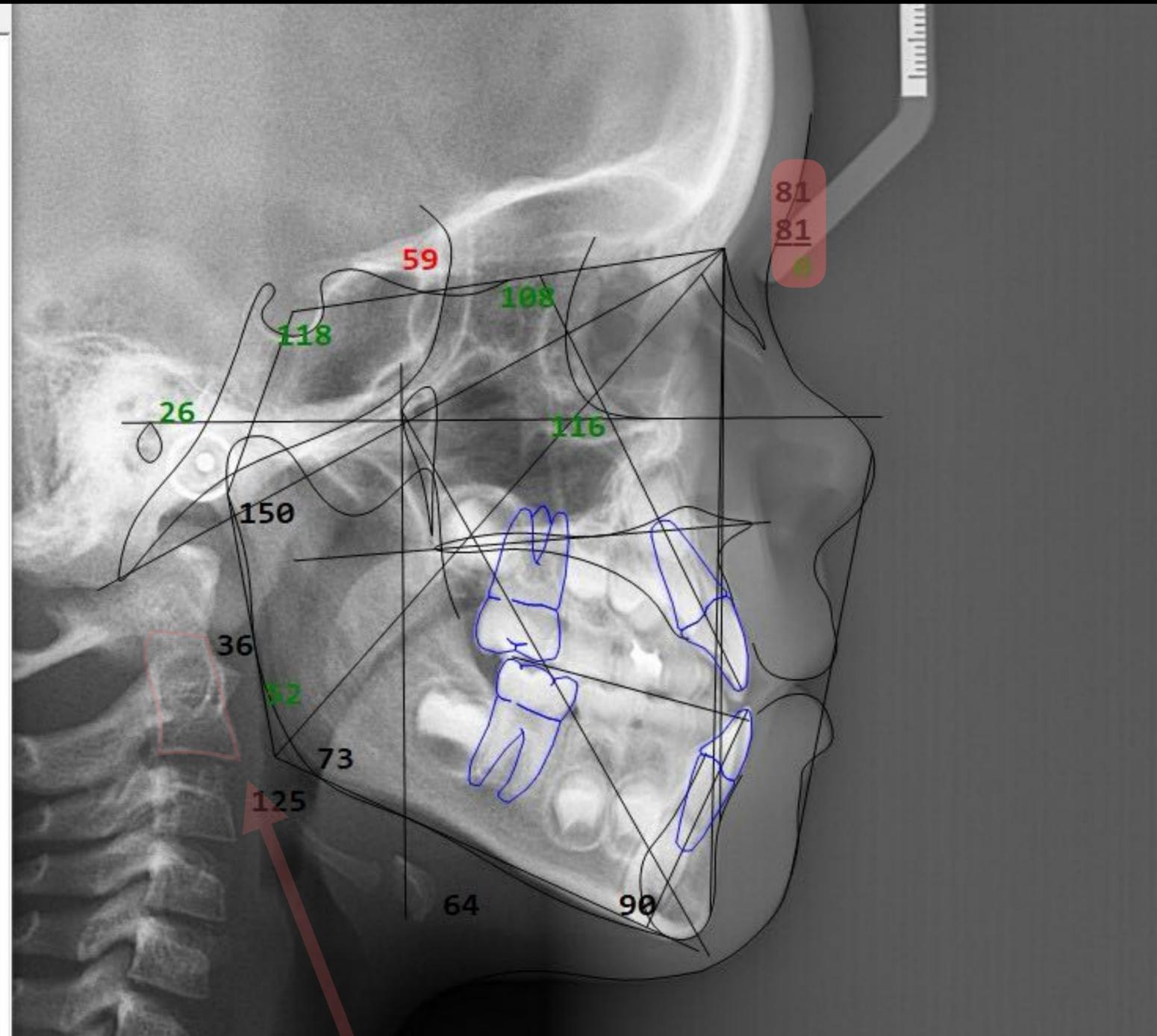


Posterior mandibular rotation

Hiperdivergent pattern

Profile X-ray and CMV(cervical maturation vertebrae)

Group/Measurement	Value	Norm	Std Dev	Dev Norm
Skeletal				
Saddle/Sella Angle (SN-Ar) (°)	118.1	124.0	5.0	100 110 120 130 140
Articular Angle (°)	150.1	145.7	6.0	120 135 150 165
Gonial/Jaw Angle (Ar-Go-Me) (°)	124.8	128.0	6.7	105 120 135 150
Upper Gonial Angle (Ar-Go-Na) (°)	51.7	59.3	7.0	30 45 60 75 90
Lower Gonial Angle (Na-Go-Me) (°)	73.1	69.4	6.0	45 60 75 90
Sum of Angles (Jarabak) (°)	392.9	402.6	6.0	375 390 405 420
Anterior Cranial Base (SN) (mm)	58.5	70.5	3.0	60 70 80
Posterior Cranial Base (S-Ar) (mm)	25.9	30.1	4.0	25 30 40 50
Ramus Height (Ar-Go) (mm)	35.8	37.6	4.5	20 30 40 50 60
Corpus Length (Go-Me) (mm)	58.2	71.0	5.0	50 60 70 80 90
P-A Face Height (S-Go/N-Me) (%)	64.5	65.0	4.0	50 60 70 80
Jarabak Anterior Ratio (x100)	91.2	100.3	4.0	90 100 110 120
SNA (°)	80.6	82.0	3.5	70 80 90
SNB (°)	81.3	80.9	3.4	70 80 90
ANB (°)	-0.7	1.6	1.5	-5 0 5
Anterior Face Height (NaMe) (mm)	92.7	104.4	5.0	80 90 100 110 120
Posterior Face Height (S-Go) (mm)	59.7	64.4	5.0	40 50 60 70 80
Dental				
IMPA (L1-MP) (°)	90.3	95.0	7.0	60 75 90 105 120
U1 - SN (°)	107.7	102.1	5.5	75 90 105 120
U1 - FH (°)	115.6	109.8	5.3	90 105 120 135



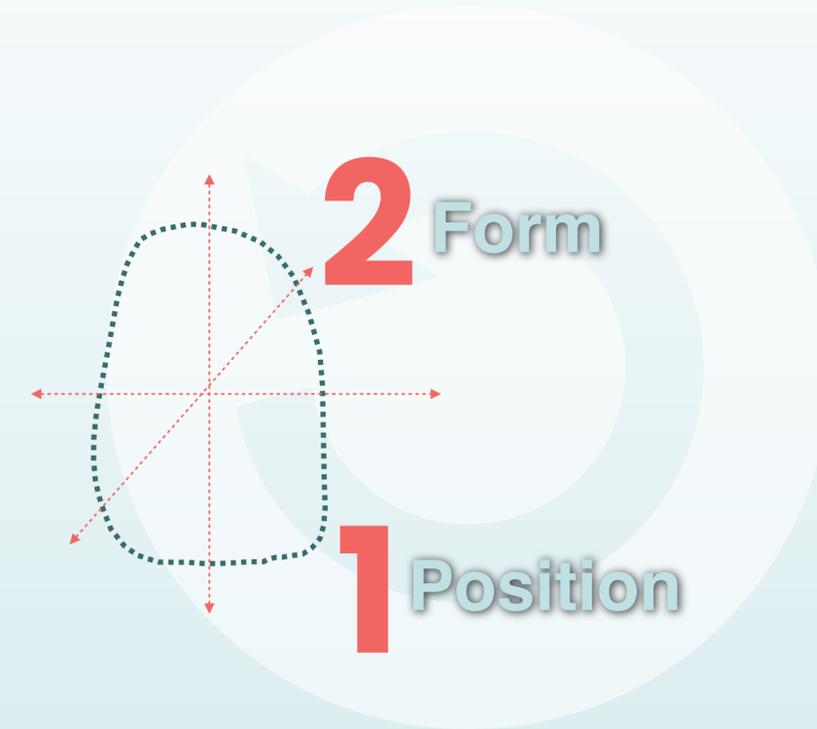
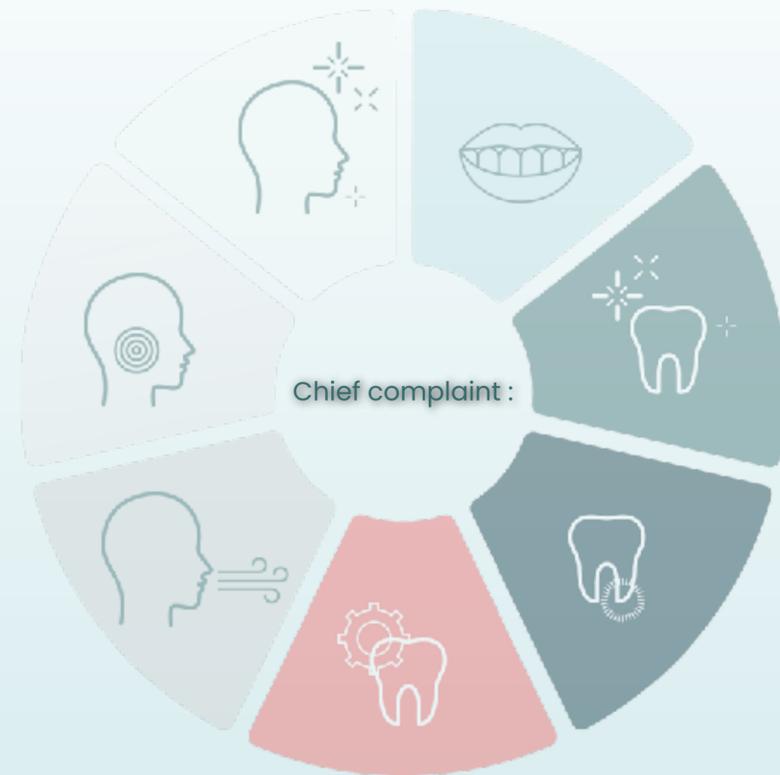
Retrognathism maxilla

Excesive Lower third

Short anterior cranian base

CMV stage 2 (CS2). A concavity is present at the lower border of C2

Plan de tratament



Medical history:

1. Istoric Medical
2. Examinare Clinica
3. Înregistrări Standardizate

Problem list:

1. Flattening of middle third
2. Straight profile
3. Bilateral and frontal cross bite
4. Cls 3 dental and scheletal
5. Hiperdivergent pattern
6. Maxilla Retrognatism

Diagnostic:

1. CLS III with hipoplazic maxilla

Sequence

1. Stimulation of maxillary growth and development, and intrusion of the posterior maxillary segments to promote mandibular autorotation.
2. Periodic reevaluation until the completion of dento-facial growth and development.

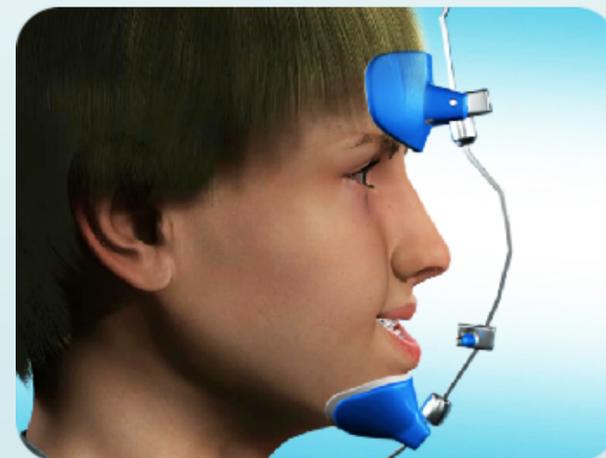
Orthodontic appliances

Stage 1



Hyrax with
bite raisers

Stage 2



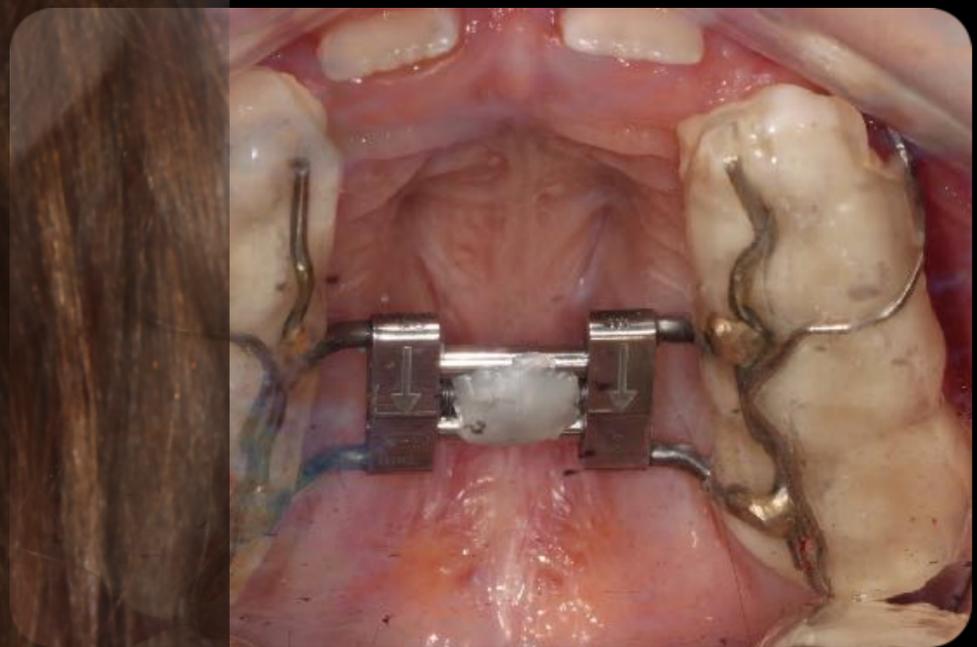
Delaire facial
mask

Stage 3



Periodic
Reevaluation

And of Expansion phase and start of Delaire traction



Final expansion (1 turn, during 4 weeks = 28 activation)

Evolution of Face mask traction



Profile improvement

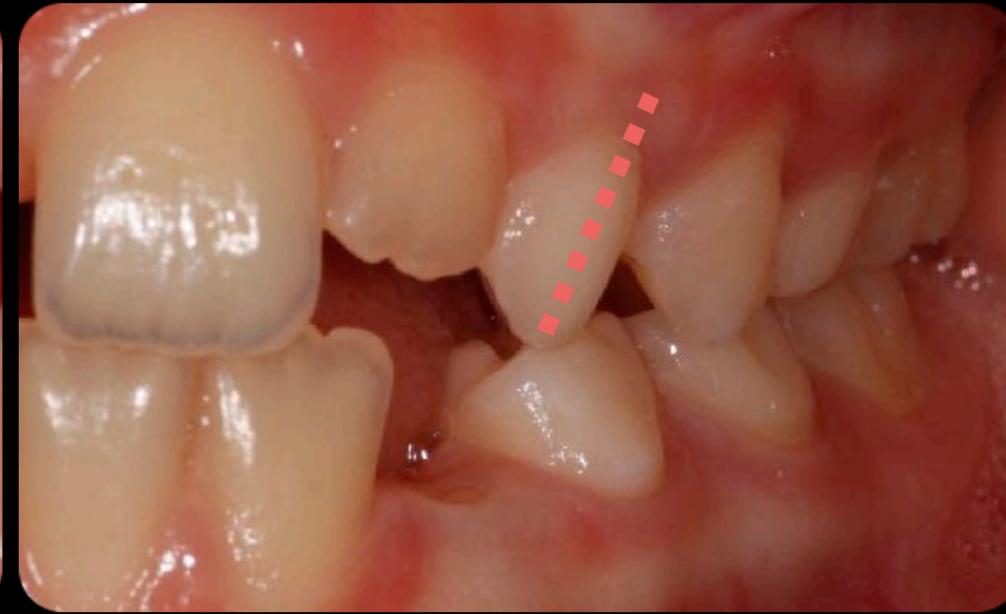
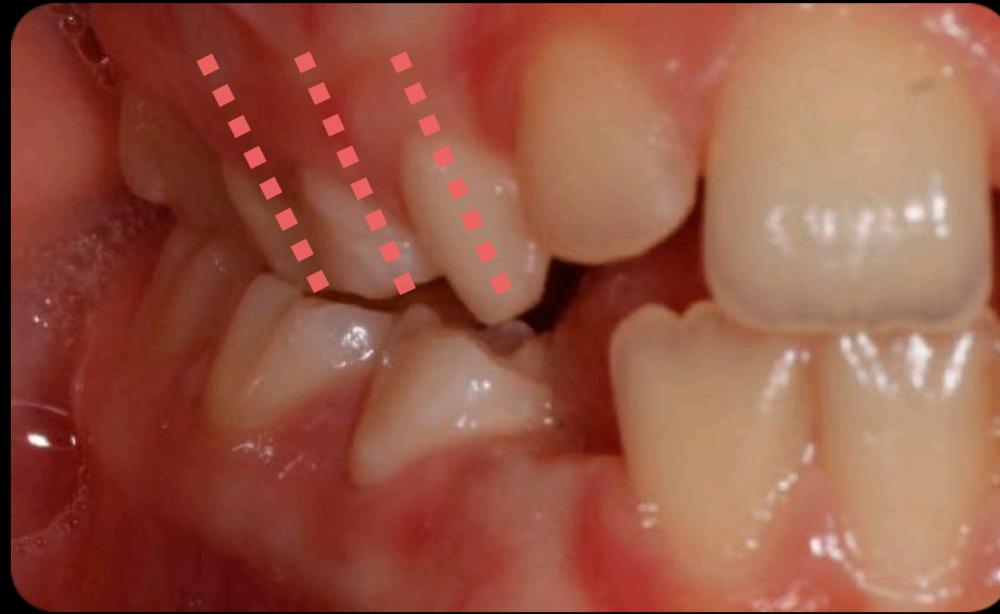
1y and 2 moths of treatment 2015



End of the first and second phase

Maxilar retainer - Hawley appliance

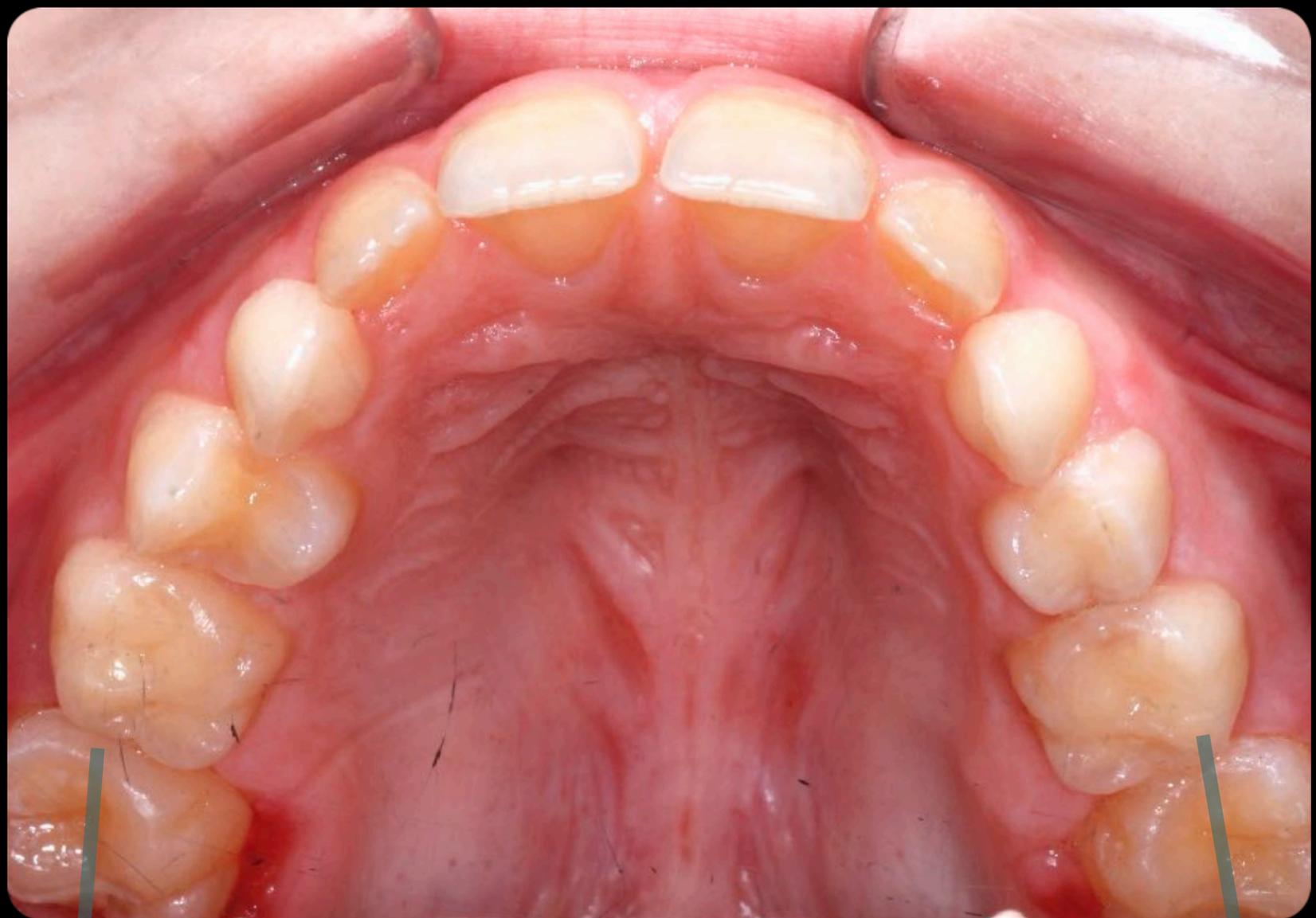
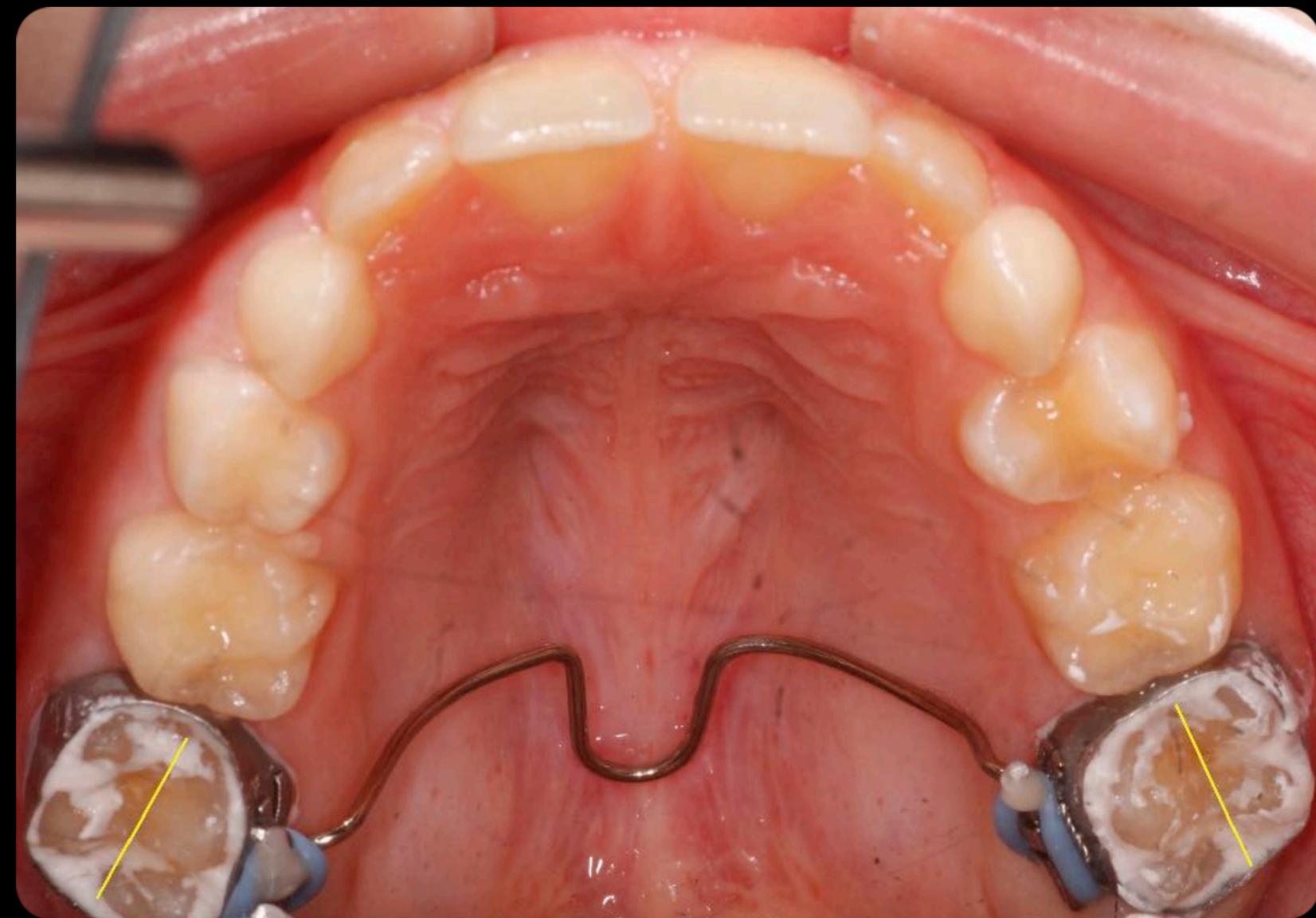
9 ani (2016) Check up



Cross bite tendency 16, 46 (Relapse)

Still open bite tendency

First permanent molar derotation- Transpalatal Arch 16/26



10 ani (2017) Removing transpalatal arch



Corection of cross bite at first molars helped in stopping functional deviation of Mandibula

11 ani (2018) Check up - Another round of Hyrax appliance



Unilateral cross bite

Open bite tendency

12 ani (2019) Check up dental and skeletal



Lateral photos



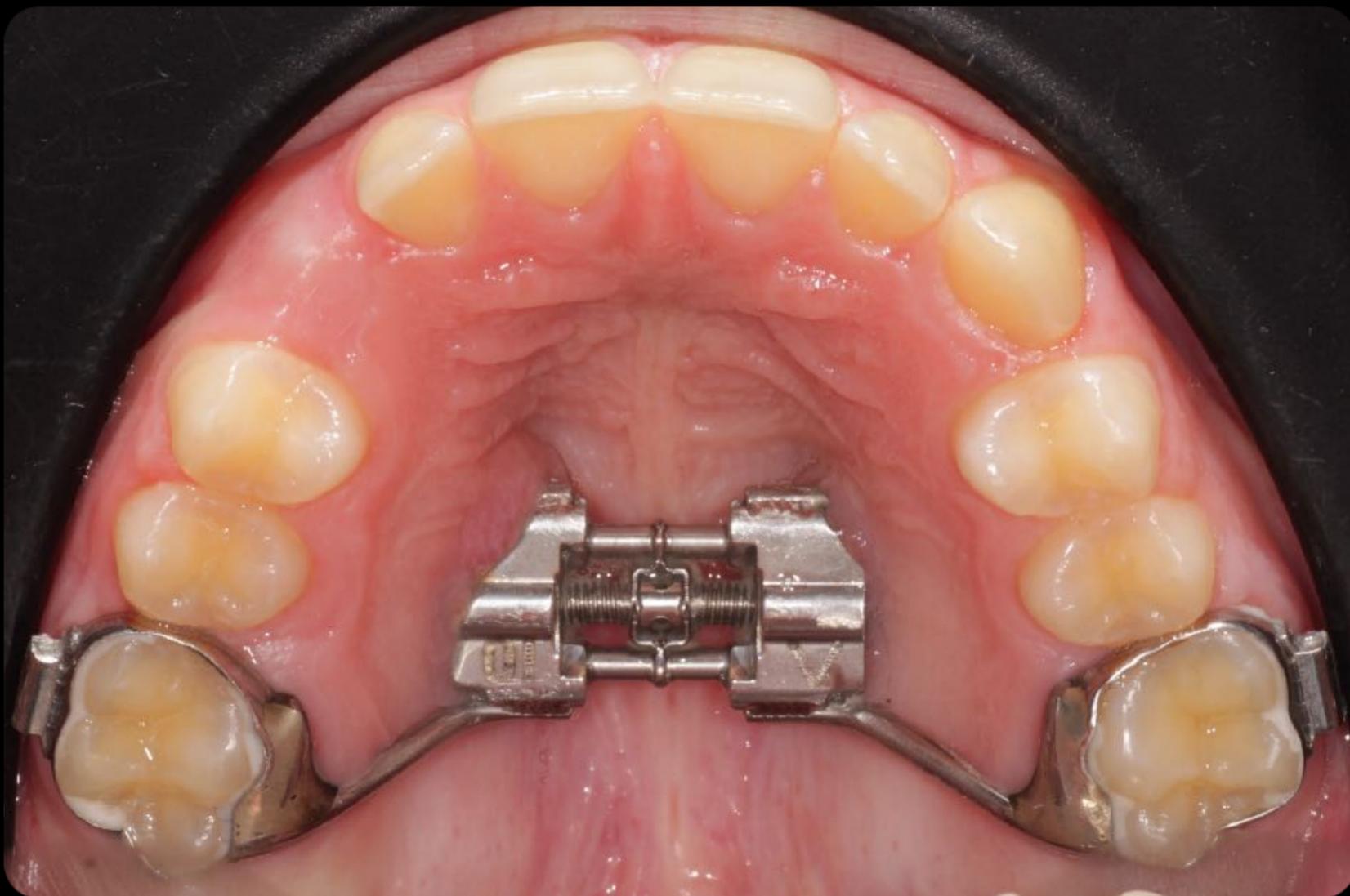
CONvex profile

Excesive lower third

Intraoral photos



Intraoral photos



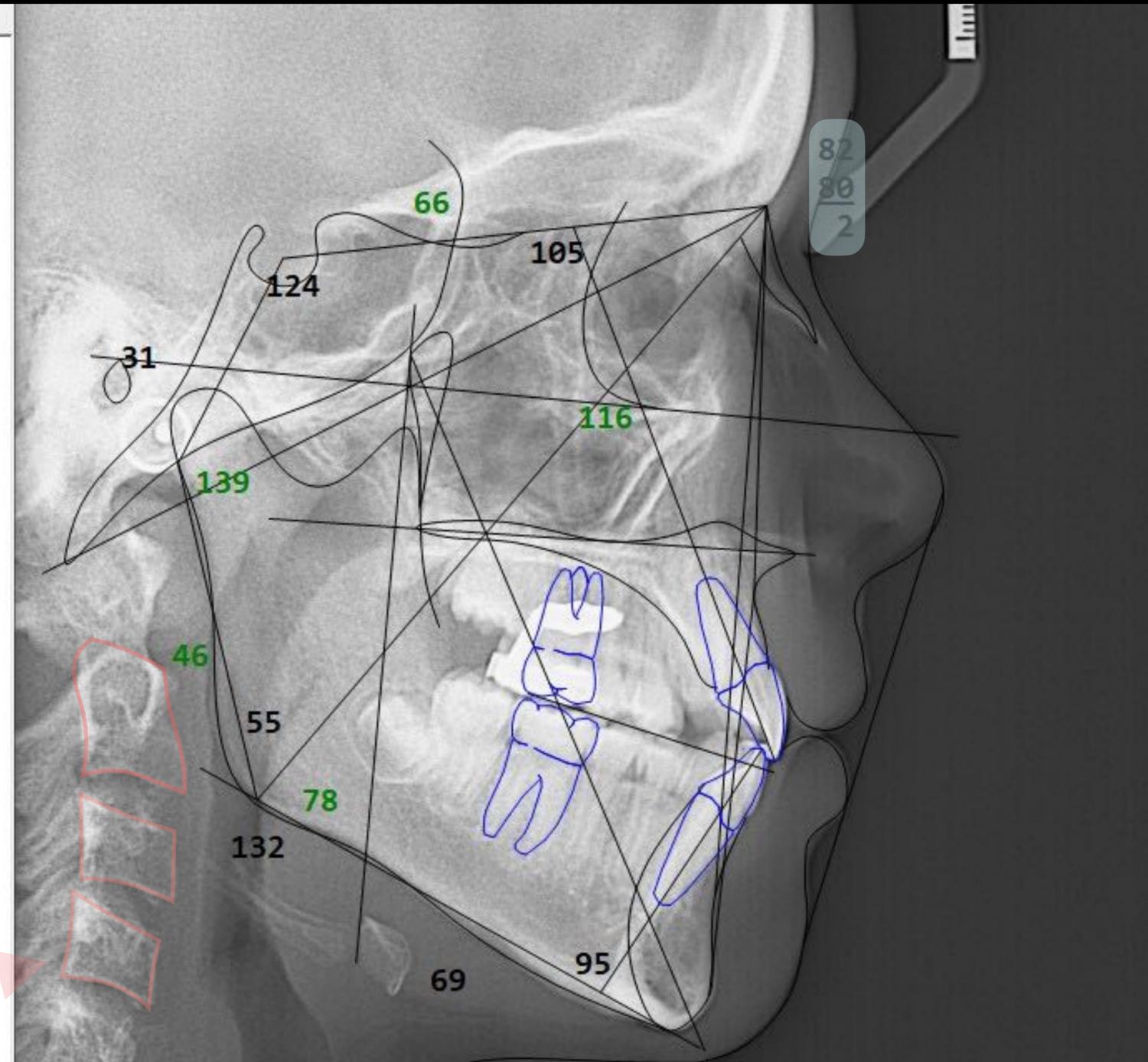
OPG



Hiperdivergent pattern of growth

Profile X-ray and CMV(cervical maturation vertebrae)

Group/Measurement	Value	Norm	Std Dev	Dev Norm
Skeletal				
Saddle/Sella Angle (SN-Ar) (°)	123.6	124.0	5.0	100 110 120 130 140
Articular Angle (°)	139.0	145.7	6.0	120 135 150 165
Gonial/Jaw Angle (Ar-Go-Me) (°)	132.3	128.0	6.7	105 120 135 150
Upper Gonial Angle (Ar-Go-Na) (°)	54.6	59.3	7.0	30 45 60 75 90
Lower Gonial Angle (Na-Go-Me) (°)	77.7	69.4	6.0	45 60 75 90
Sum of Angles (Jarabak) (°)	394.9	402.6	6.0	375 390 405 420
Anterior Cranial Base (SN) (mm)	65.7	70.5	3.0	60 70 80
Posterior Cranial Base (S-Ar) (mm)	30.7	30.1	4.0	20 30 40 50
Ramus Height (Ar-Go) (mm)	45.9	37.6	4.5	20 30 40 50 60
Corpus Length (Go-Me) (mm)	63.6	71.0	5.0	50 60 70 80 90
P-A Face Height (S-Go/N-Me) (%)	65.2	65.0	4.0	50 60 70 80
Jarabak Anterior Ratio (x100)	95.1	100.3	4.0	90 100 110 120
SNA (°)	82.1	82.0	3.5	70 80 90
SNB (°)	79.6	80.9	3.4	70 80 90
ANB (°)	2.5	1.6	1.5	-5 0 5
Anterior Face Height (NaMe) (mm)	110.2	104.4	5.0	80 90 100 110 120
Posterior Face Height (S-Go) (mm)	71.9	64.4	5.0	40 50 60 70 80
Dental				
IMPA (I1-MP) (°)	95.2	95.0	7.0	60 75 90 105 120
U1 - SN (°)	104.9	102.1	5.5	75 90 105 120
U1 - FH (°)	116.2	109.8	5.3	90 105 120 135



CMV stage 3(CS3)Concavities at the lower borders of both C2 and C3 are present. The bodies of C3 and C4 may be either trapezoid or rectangular horizontal in shape. The peak in mandibular growth will occur during the year after this stage.

14 ani (2021) Recheck of growing



Lower third slightly excessive



3 mm Exposure of upper incisors



Coincident upper and lower midline

Lateral photos



Convex profile

Intraoral photos



Minimal OB and OJ



Dual occlusal plane

Intraoral photos



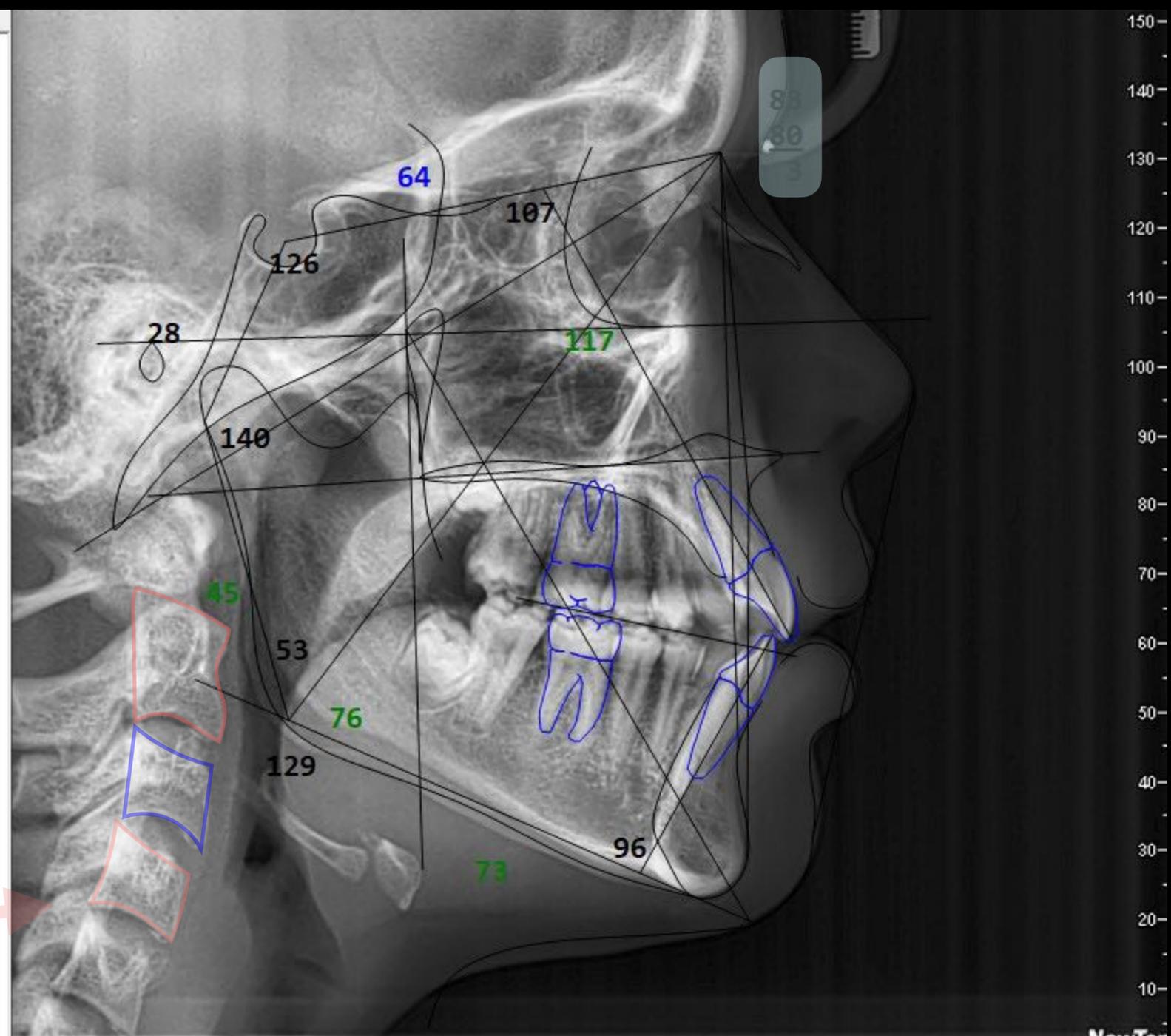
OPG



Hiperdivergent pattern

Profile X-ray and CMV(cervical maturation vertebrae)

Group/Measurement	Value	Norm	Std Dev	Dev Norm
Skeletal				
Saddle/Sella Angle (SN-Ar) (°)	125.9	124.0	5.0	100 110 120 130 140
Articular Angle (°)	140.0	145.7	6.0	120 135 150 165
Gonial/Jaw Angle (Ar-Go-Me) (°)	129.3	128.0	6.7	105 120 135 150
Upper Gonial Angle (Ar-Go-Na) (°)	53.0	59.3	7.0	30 45 60 75 90
Lower Gonial Angle (Na-Go-Me) (°)	76.2	69.4	6.0	45 60 75 90
Sum of Angles (Jarabak) (°)	395.1	402.6	6.0	375 390 405 420
Anterior Cranial Base (SN) (mm)	64.2	70.5	3.0	60 70 80
Posterior Cranial Base (S-Ar) (mm)	28.4	30.1	4.0	20 30 40 50
Ramus Height (Ar-Go) (mm)	44.8	37.6	4.5	20 30 40 50 60
Corpus Length (Go-Me) (mm)	64.0	71.0	5.0	50 60 70 80 90
P-A Face Height (S-Go/N-Me) (%)	64.2	65.0	4.0	50 60 70 80
Jarabak Anterior Ratio (x100)	88.4	100.3	4.0	90 100 110 120
SNA (°)	83.1	82.0	3.5	70 80 90
SNB (°)	80.1	80.9	3.4	70 80 90
ANB (°)	3.0	1.6	1.5	-5 0 5
Anterior Face Height (NaMe) (mm)	107.5	104.4	5.0	80 90 100 110 120
Posterior Face Height (SGo) (mm)	69.0	64.4	5.0	40 50 60 70 80
Dental				
IMPA (L1-MP) (°)	95.7	95.0	7.0	60 75 90 105 120
U1 - SN (°)	107.2	102.1	5.5	75 90 105 120
U1 - FH (°)	117.2	109.8	5.3	90 105 120 135



CMV stadiul 5(CS5) The concavities at the lower borders of C2, C3, and C4 still are present. At least one of the bodies of C3 and C4 is squared in shape. If not squared, the body of the other cervical vertebra still is rectangular horizontal. The peak in mandibular growth has ended at least 1 year before this stage. ——— This means that i can start orthodontic treatment

2D VTO (visualized treatment objectives)

Treatment Simulation (VTO)

CO-CR Growth TxPlan Goals

Maxilla	A-P	Vert
ANS	0.0	0.0
PNS	0.0	0.0
Mx1 tip	-0.2	+1.0
Molar MB cusp tip	0.0	-1.0

Mandible	A-P	Vert
Md1 tip	-0.4	-1.9
Molar MB cusp tip	+0.6	-1.0
B point	+0.9	-1.3
Pog	+1.2	-1.3
Genioplasty	0.0	0.0

Model Block Surgery

Soft Tissue Profile

Auto lip adjustment:

Profile touch-up
 Lip reposturing

V: < [] >
A-P: < [] >

Superimpose... Procedures...

Undo List Prev Notes Delete Rest

- Original -

- 1: Md1 Incline: +4.0 Deg
- 2: Mx1 Incline: -7.0 Deg
- 3: U1 Move: H: +2.0 mm
- 4: Mx1 Incline: -1.0 Deg
- 5: U6 Move: V: -1.0 mm
- 6: Auto-rotate Md: +1.0 Deg

mm mm °

Upper 1: 2.0 0.0 -8.0
Lower 1: 0.0 0.0 4.0
Upper 6: 0.0 -1.0 0.0
Lower 6: 0.0 0.0 0.0
A Point: 0.0 0.0
B Point: 0.0 0.0

Mx (LeFort): 0.0 0.0 0.0
Ant. Mx: 0.0 0.0 0.0
Post. Mx: 0.0 0.0 0.0
Mx+Md: 0.0 0.0 0.0
Md (BSSO): 0.0 0.0 0.0
Rotate Md @ Hinge Axis: 1.0
Rotate Mx+Md @ Hinge Axis: 0.0

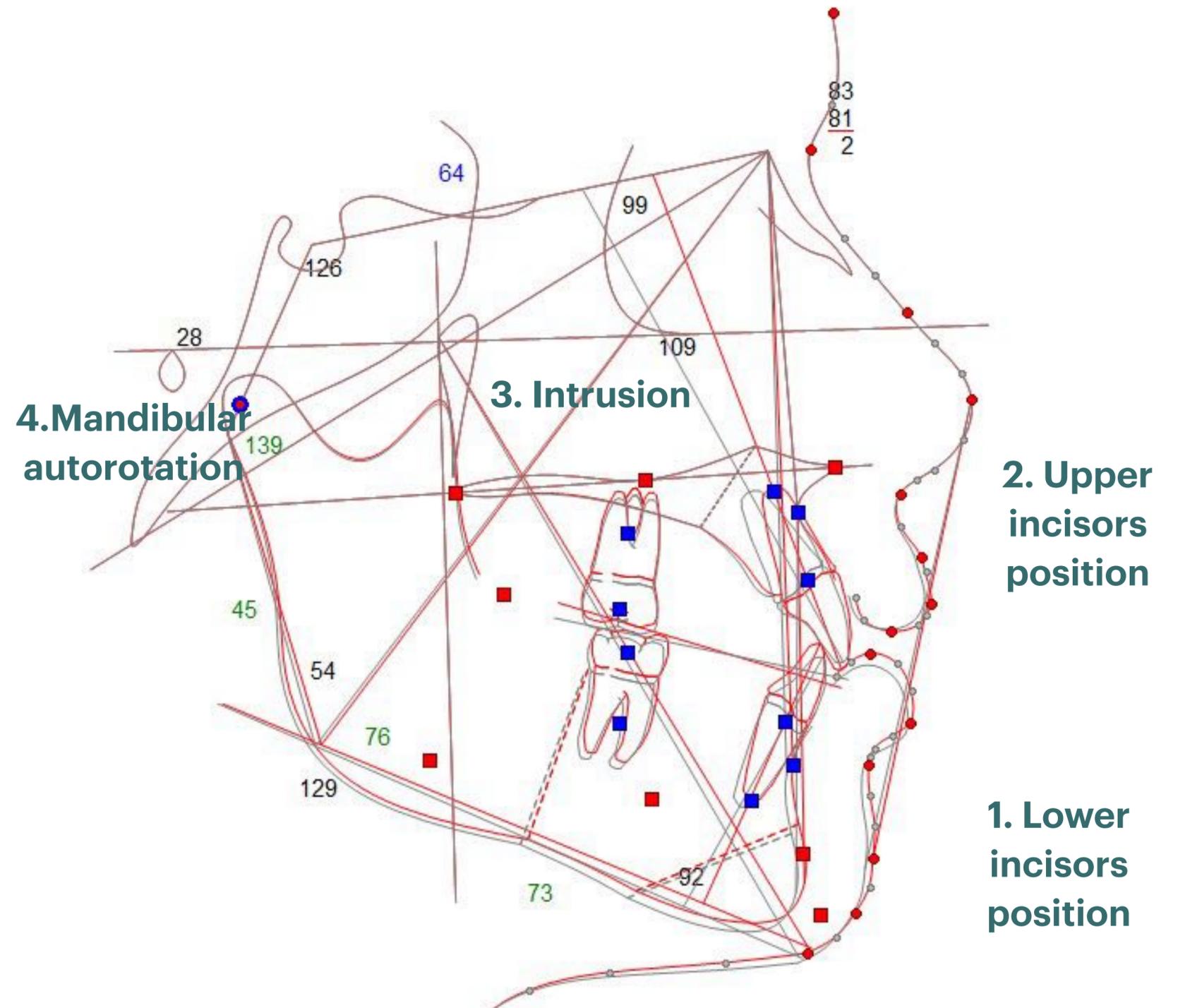
Genioplasty: 0.0 0.0

Others: (S) Post Md Rotate@Hinge

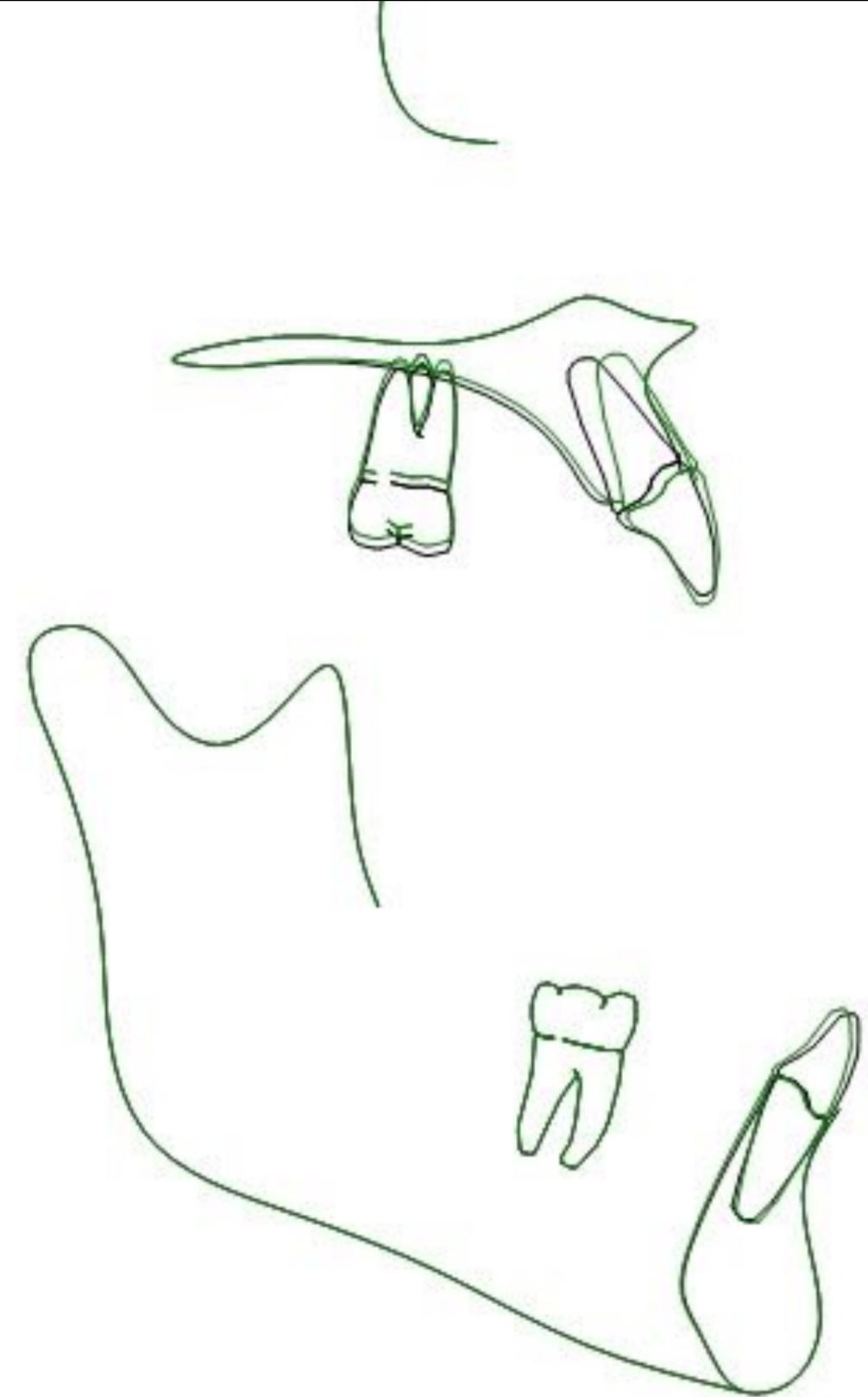
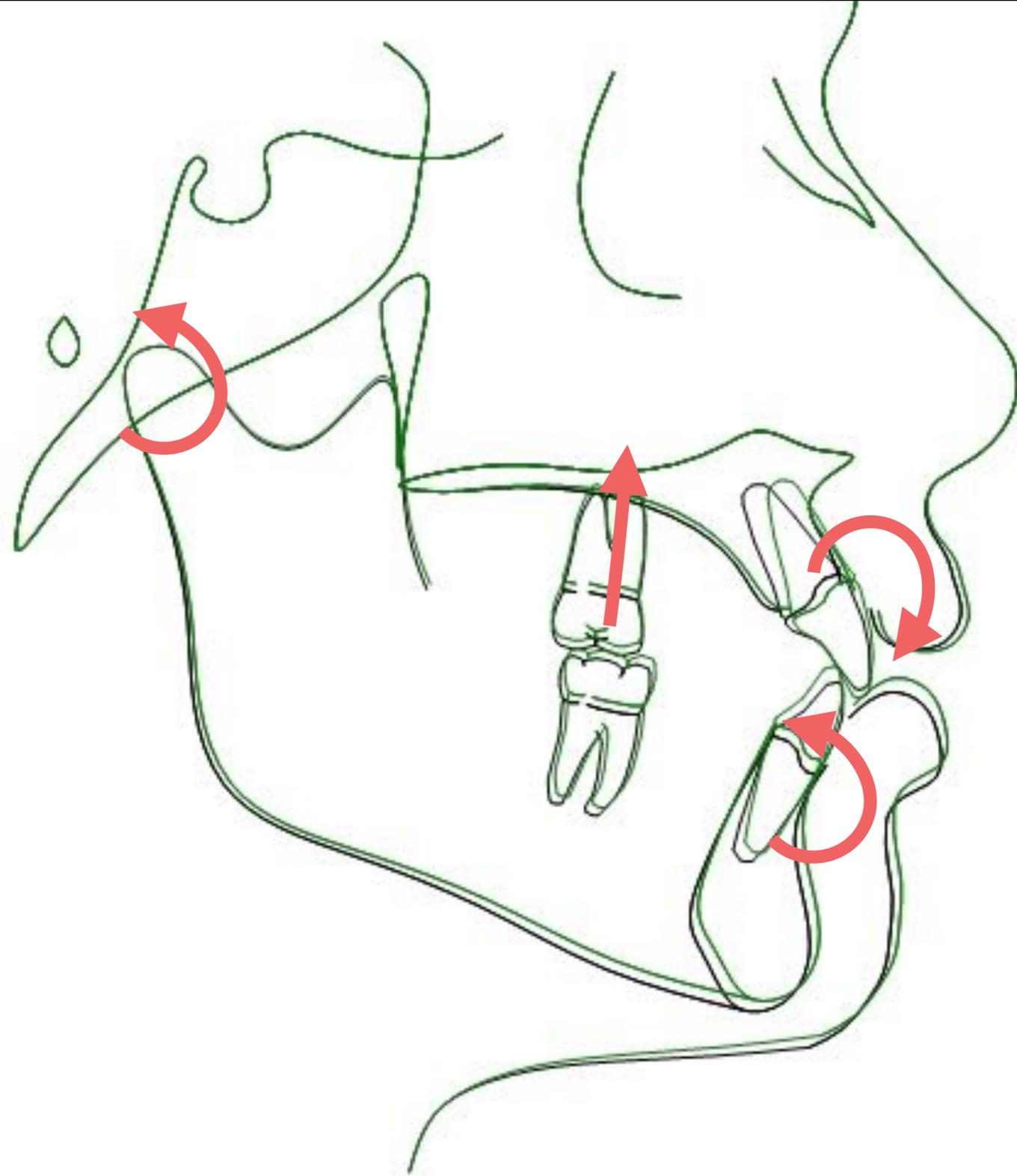
Autorotate mandible

Arch Length Discrepancy

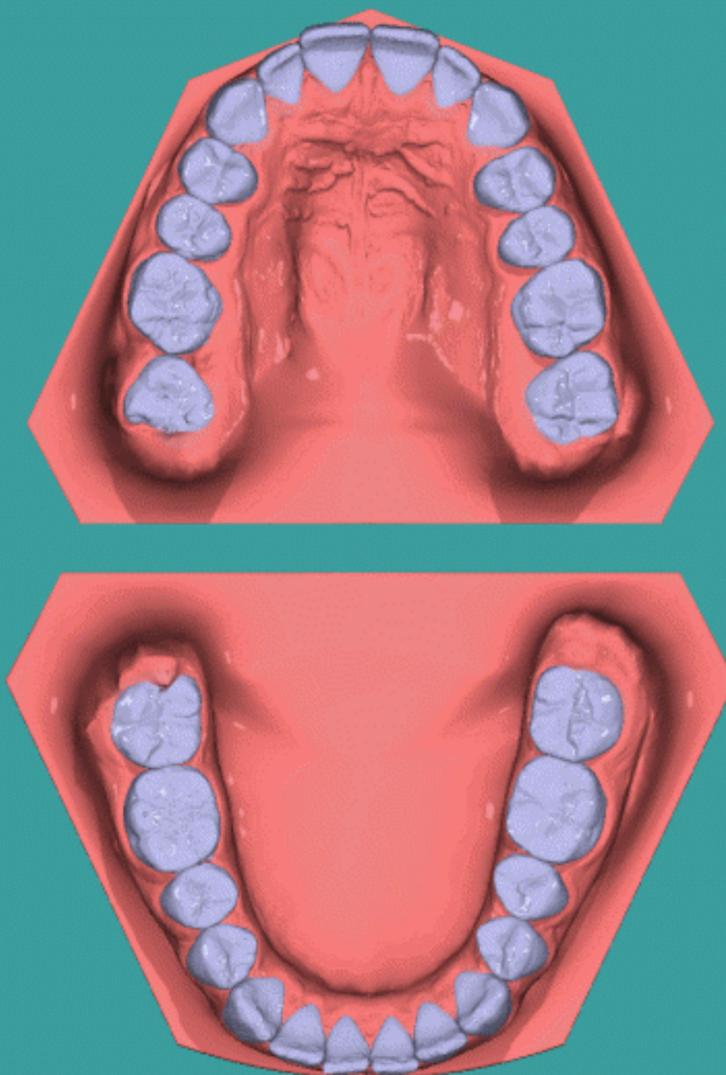
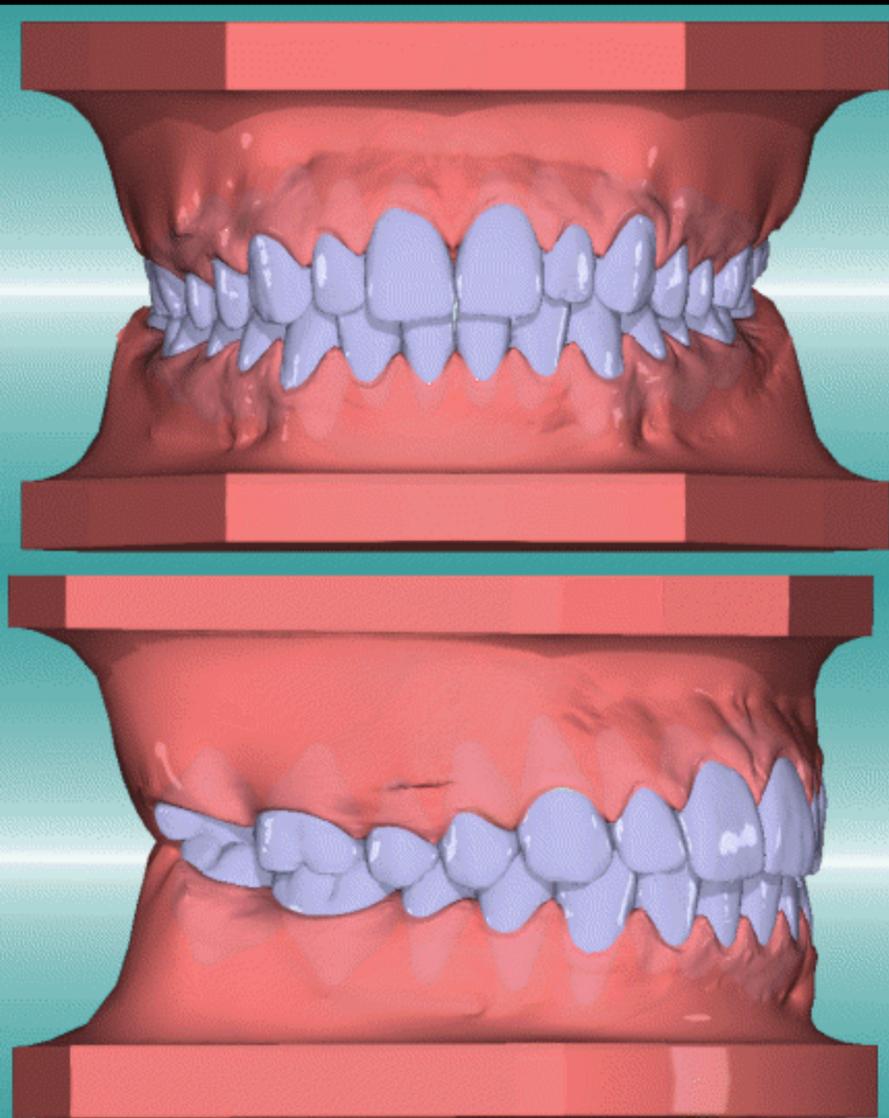
Mx: 0.4 mm Crowding Edit...
Md: 1.9 mm Crowding Extract... Expand... Strip...



Vectors of orthodontic movement

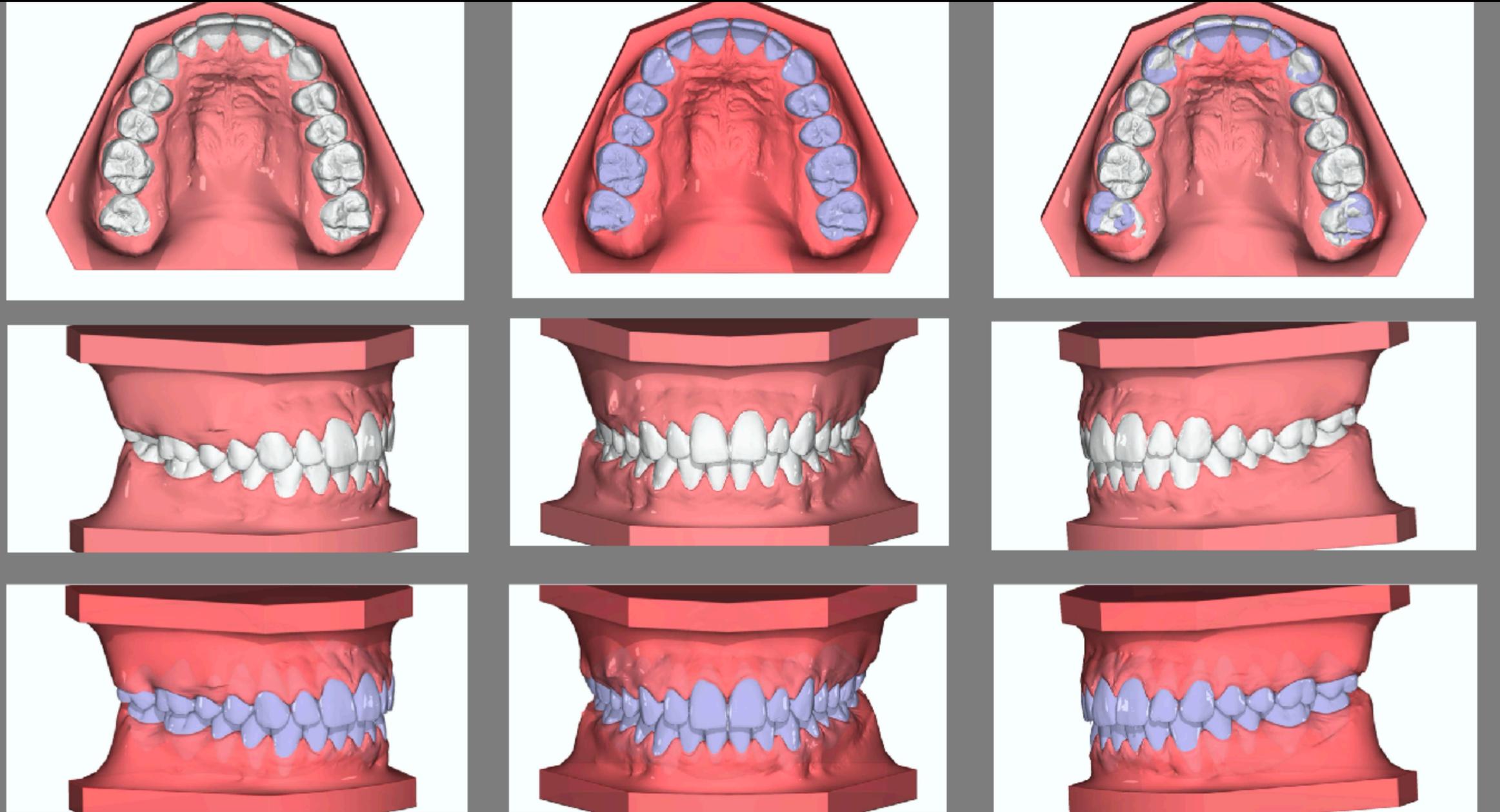


3D Set up ortodontic



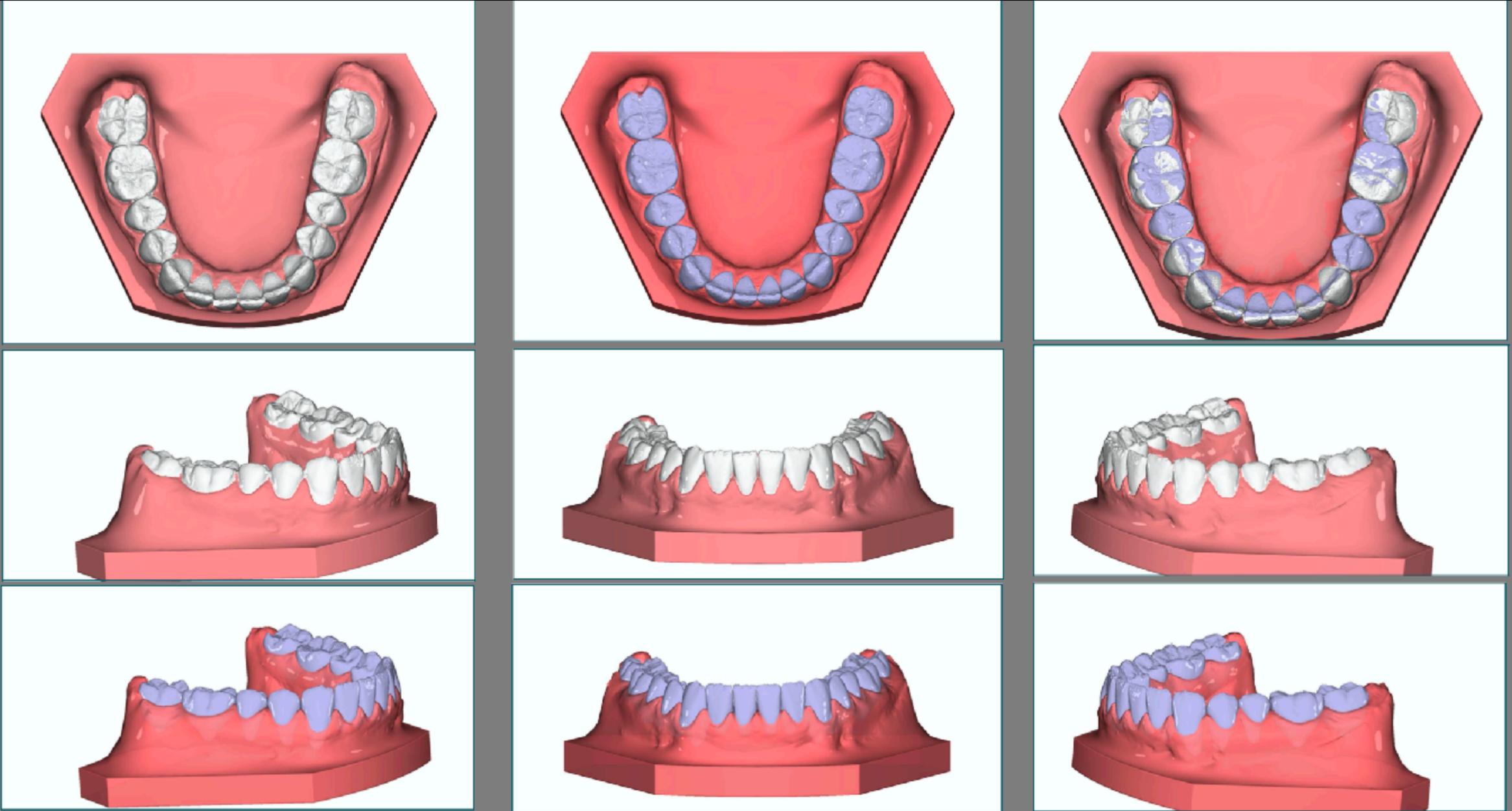
1. Canine's verticalization
2. Tq - lower incisors
3. Flattening curve of wilson and Spee
4. Cls 1 Molar vestibularization of second molars
5. Intrusion 1- 2 mm posterior upper teeth
6. Open spaces between laterals and canines
7. OJ și OB correction

Orthodontic movements/Superimposition initial vs set up



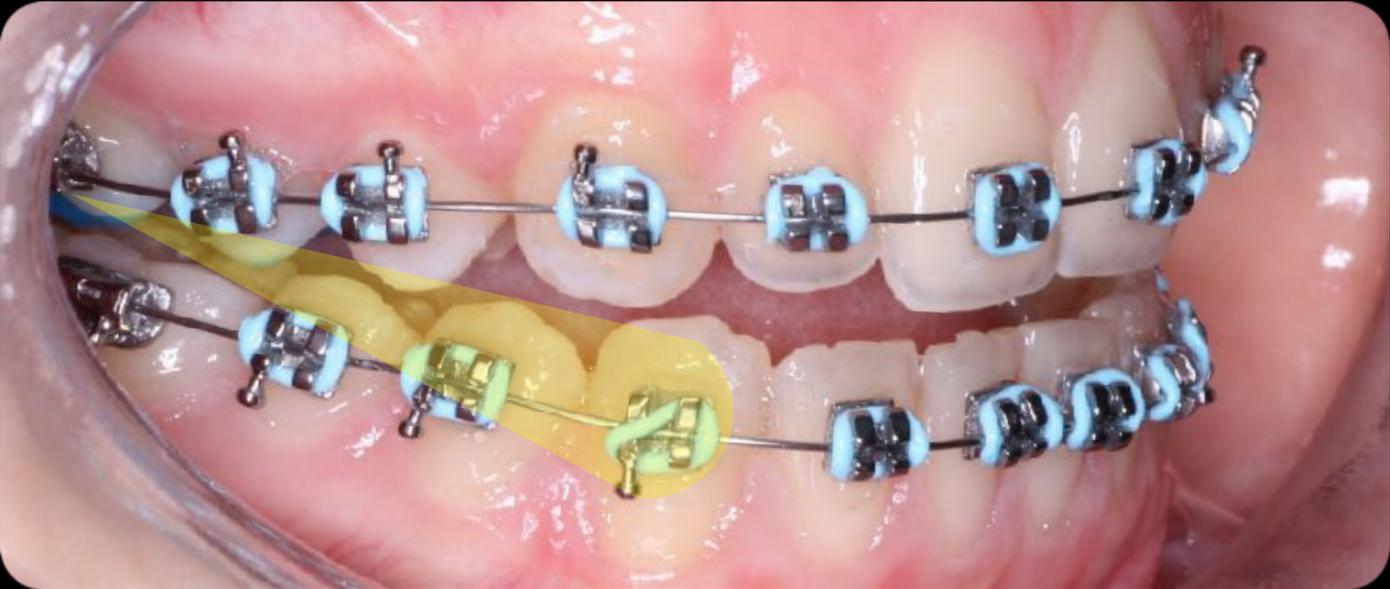
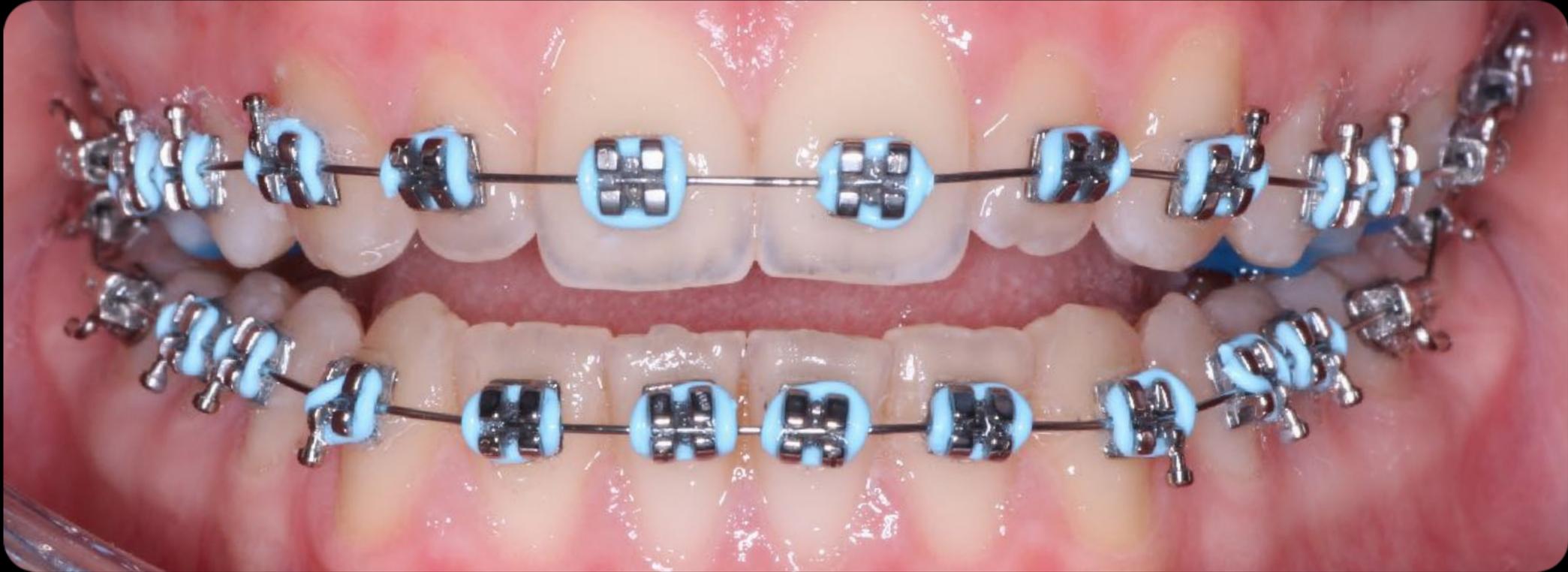
Current Tooth Movement - Max.																
Tooth	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
ASR mesial [mm]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
ASR distal [mm]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Inclination [°]		16.9	-14.5	7.8	-5.6	3.9	12.3	10.8	11.6	10.9	4.4	-7.8	-1.6	-14.6	3.2	
Inclination +/- [°]		3.1	-0.6	3.7	3.0	2.9	2.9	1.5	1.4	0.0	0.4	3.0	-0.2	-3.1	-9.8	
Angulation [°]		2.4	-9.4	-6.8	7.2	13.1	11.3	5.5	0.8	9.0	16.5	4.7	6.0	-1.5	-0.5	
Angulation +/- [°]		3.3	0.1	-11.3	-7.0	2.6	-3.4	0.1	-0.8	-1.7	-0.7	-3.8	0.6	0.4	3.7	
Rotation +/- [°]		21.7	11.3	9.5	1.8	16.0	-5.1	4.5	1.8	1.9	15.3	0.1	2.8	1.4	2.3	
Mesial +/- [mm]		0.17	-0.50	-0.54	-0.40	-0.23	-0.32	0.01	-0.05	-0.23	-0.21	0.32	0.13	0.11	0.42	
Vestibular +/- [mm]		2.75	0.45	0.08	0.20	-0.03	0.17	-0.30	0.00	0.02	0.12	-0.02	0.25	-0.09	0.44	
Occlusal +/- [mm]		0.36	-1.48	-1.80	-1.22	-0.06	-0.02	-0.14	0.05	0.57	-0.07	-1.15	-1.19	-1.03	0.05	

Orthodontic movements/Superimposition initial vs set up



Tooth	Current Tooth Movement - Mand.															
	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
ASR mesial [mm]		0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	
ASR distal [mm]		0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.00	
Inclination [°]		-25.9	-34.5	-23.2	-19.3	-15.7	-3.7	-1.2	-0.3	1.8	-9.8	-19.2	-13.9	-33.5	-24.5	
Inclination +/- [°]		12.5	-4.4	0.0	2.5	0.0	-0.5	-0.1	0.1	1.1	0.0	0.0	1.5	0.0	12.0	
Angulation [°]		-3.8	12.1	1.4	0.2	7.1	5.4	2.0	2.0	5.0	7.6	0.6	1.8	-19.3	-3.5	
Angulation +/- [°]		-5.5	-0.1	-2.4	0.3	0.0	3.1	5.1	5.6	6.2	0.0	0.0	0.0	1.1	-7.1	
Rotation +/- [°]		-10.9	-0.3	-0.1	-2.0	0.3	10.9	10.3	2.0	8.8	0.0	0.0	0.0	0.2	-2.5	
Mesial +/- [mm]		-0.69	-0.52	-0.28	-0.25	-0.11	0.10	0.13	0.10	0.19	-0.01	0.00	0.02	-0.15	0.00	
Vestibular +/- [mm]		0.04	-0.48	0.00	-0.21	-0.23	-0.34	-0.38	-0.44	-0.22	-0.05	0.00	0.00	-0.01	-0.05	
Occlusal +/- [mm]		0.22	0.22	0.25	0.01	0.22	0.00	0.00	0.10	0.12	0.10	0.00	0.20	0.00	0.24	

Bonding - Biomechanics



Bite raisers

Posterior teeth bonding to promote intrusion

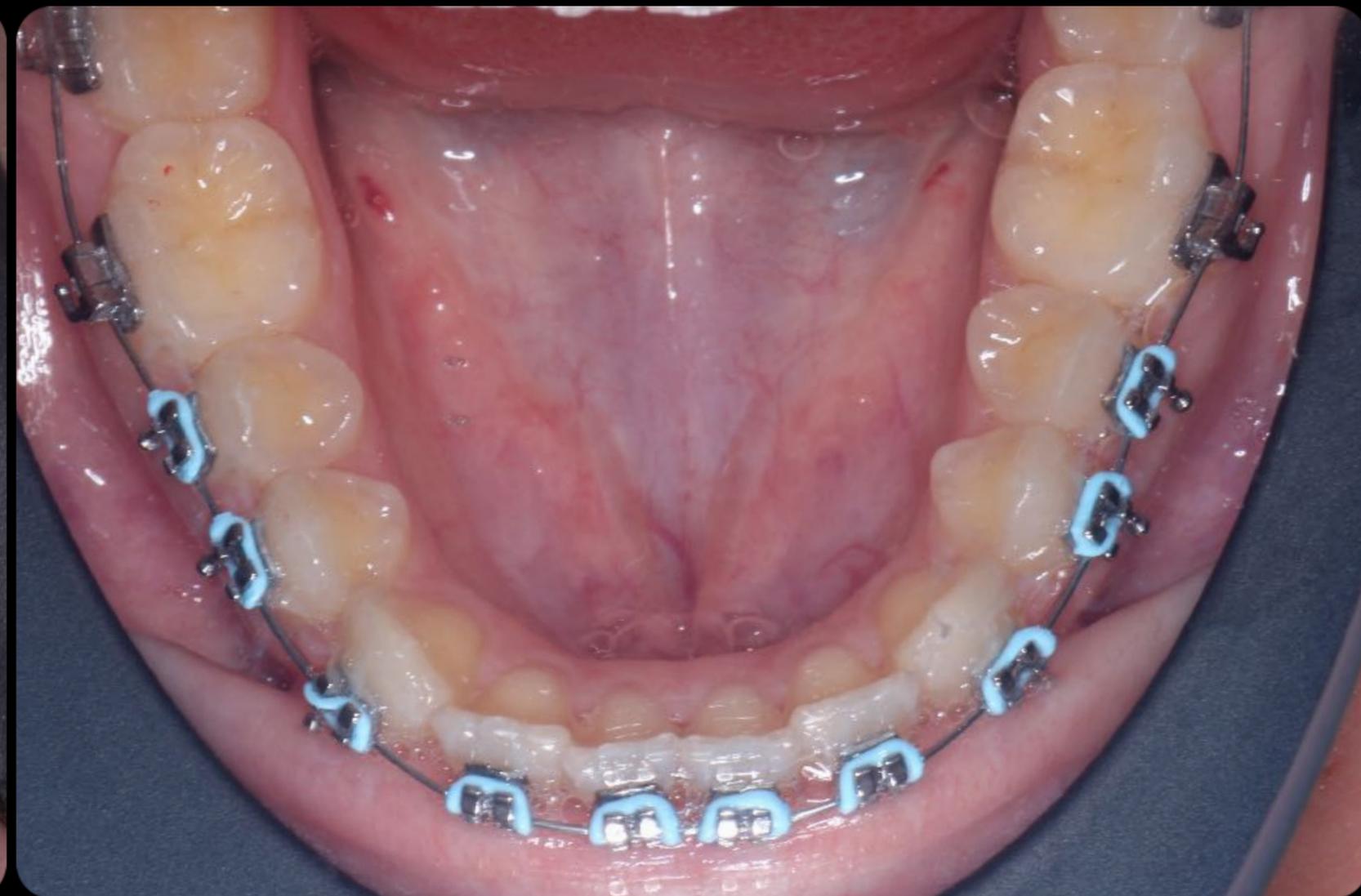
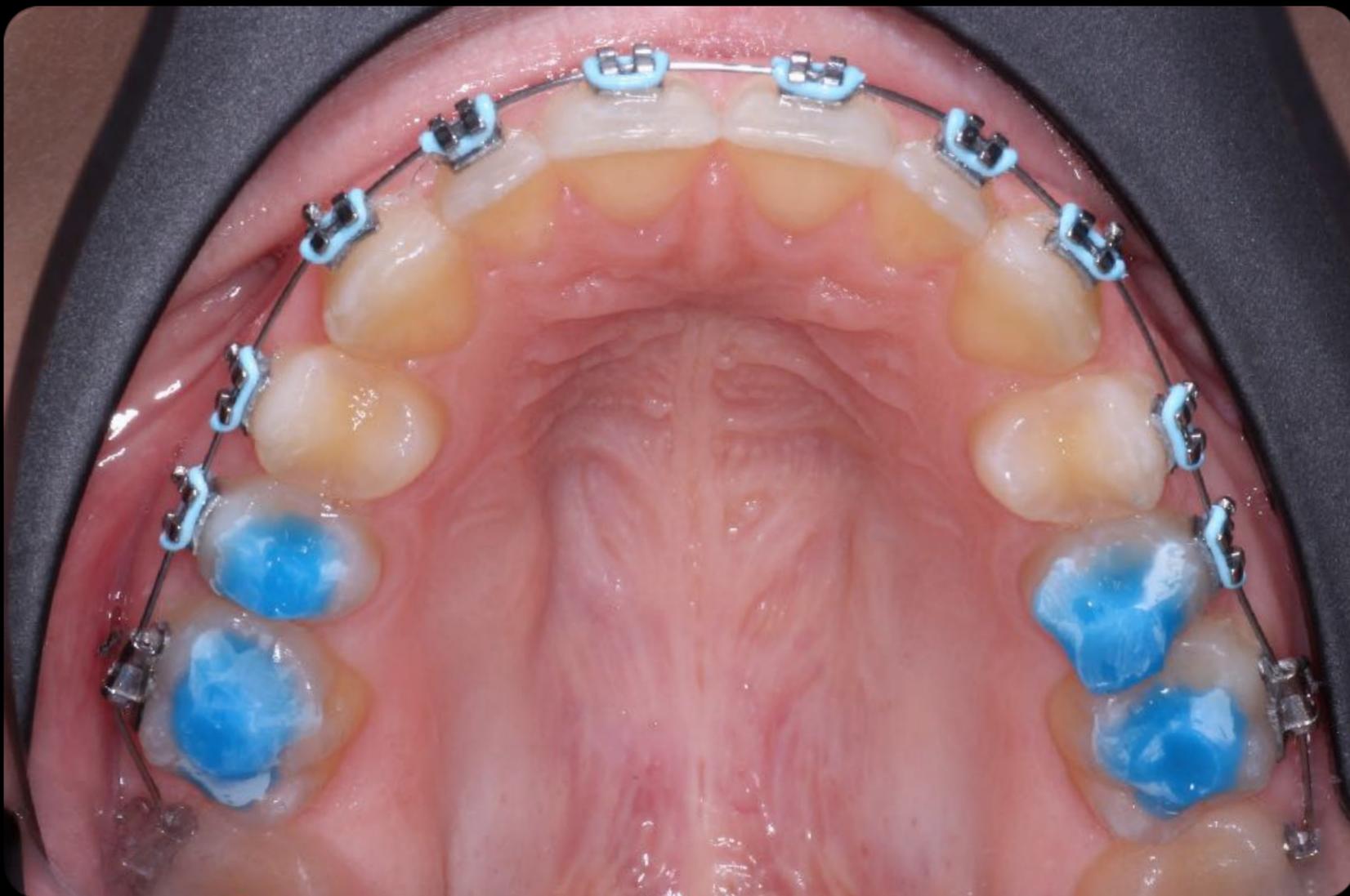


Bracketi UP side Down 12-22- tq to corect OB

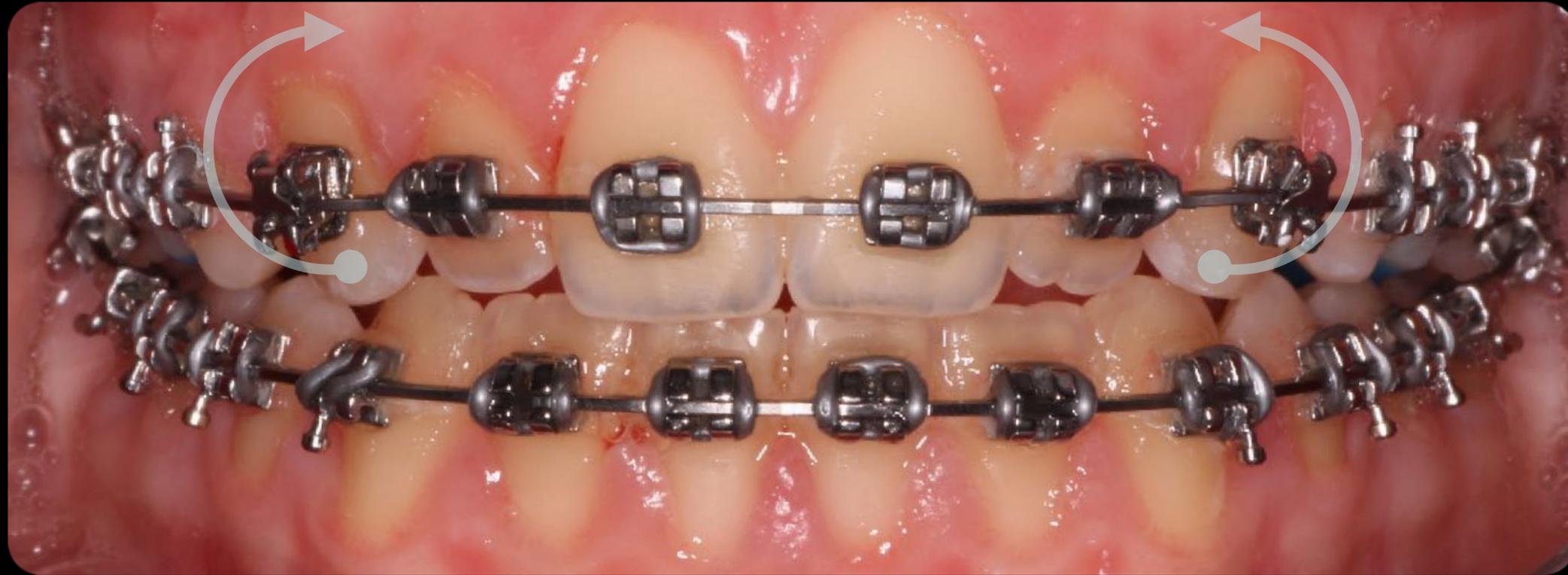
CLs III elastics

Lower Stripping to make space for incisors retroclination

Bonding - Biomechanics



Working bracket 13,23 - Tq + coronar



Finishing- 21/25 Braided-Vertical elastics



Debonding/ Form and Dimensions for Lateral incisors 12, 22 and canines 13, 23



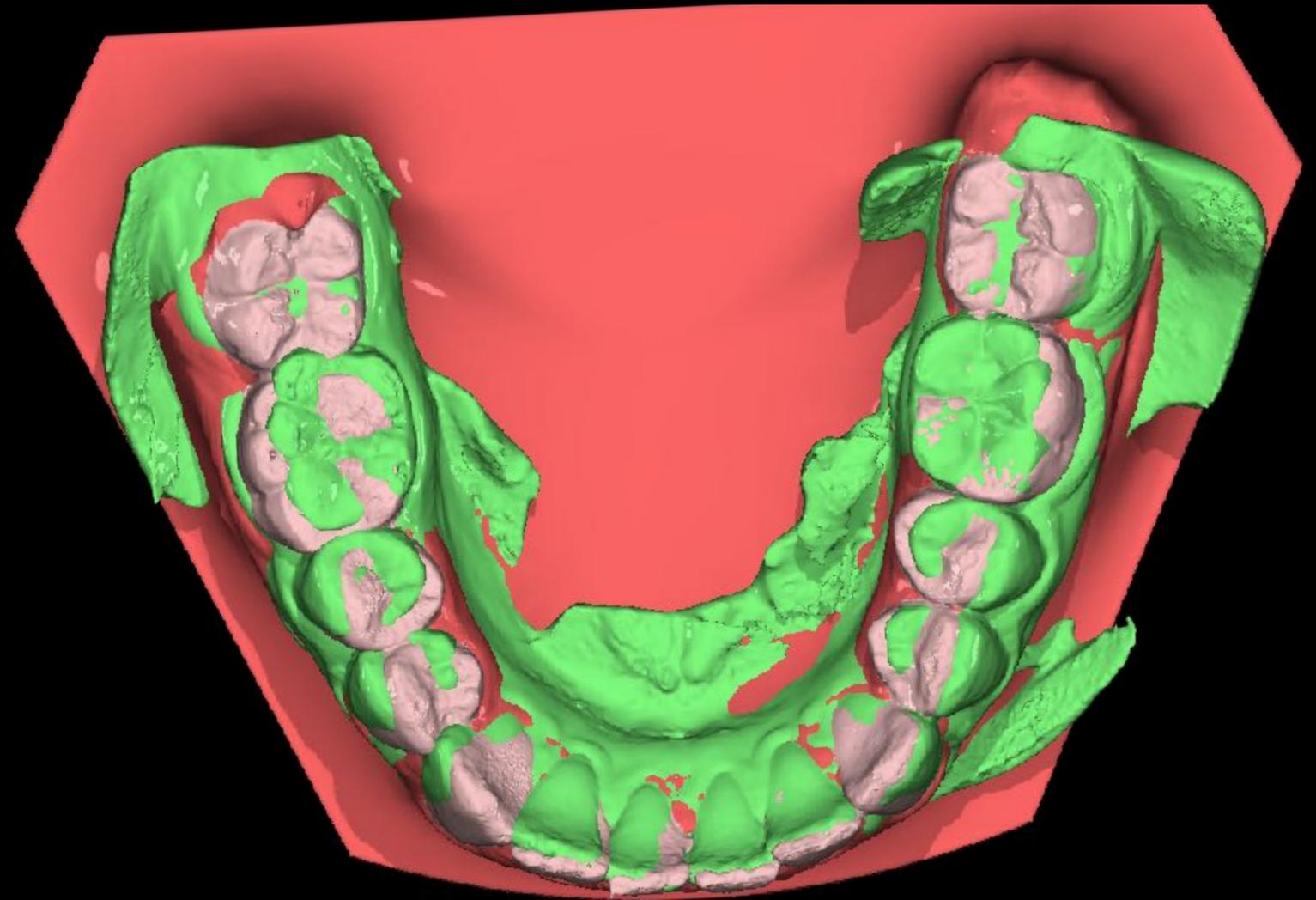
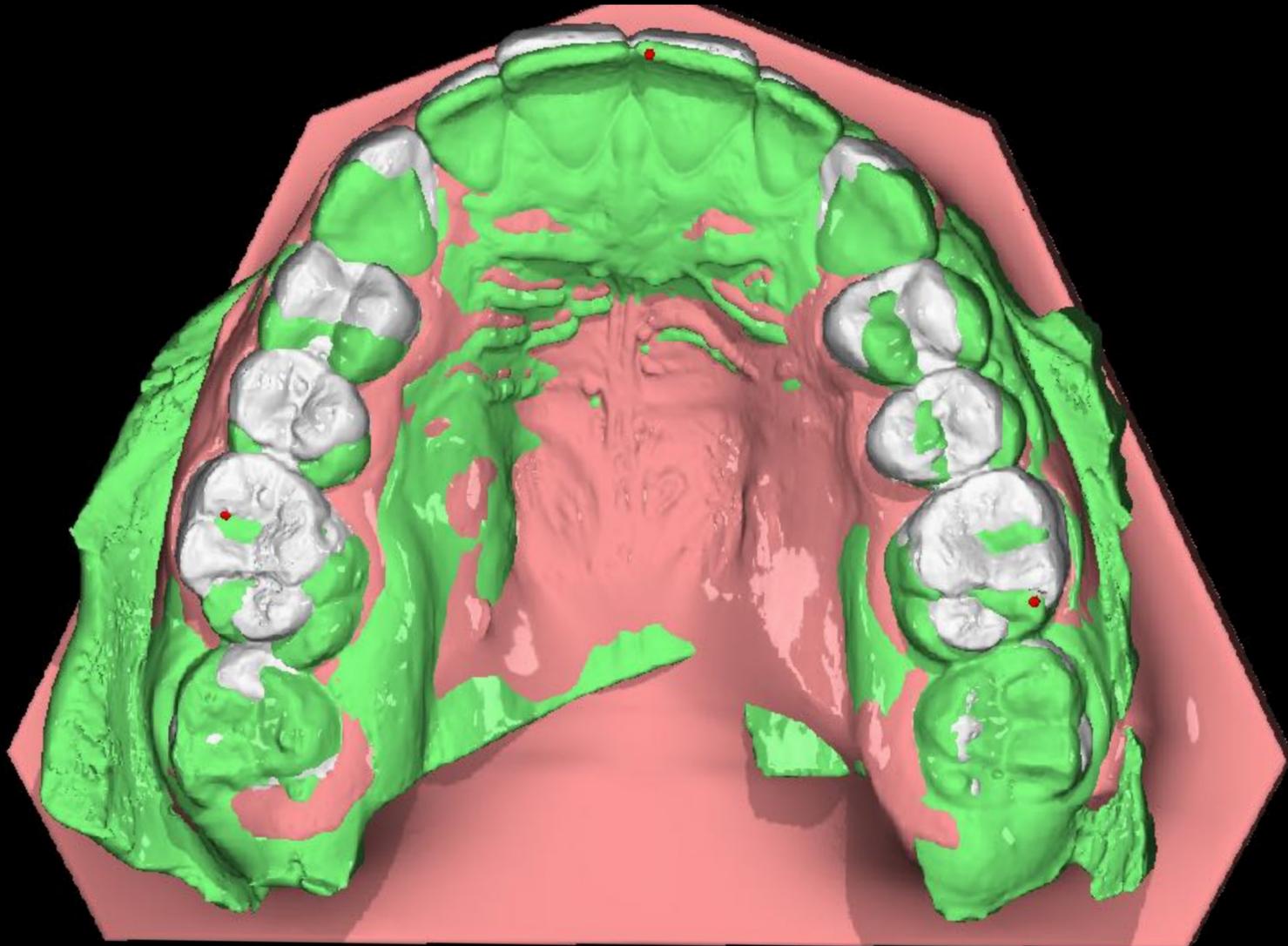
15 ani (2022) Final of orthodontic phase (1y lenght)



Lateral photos

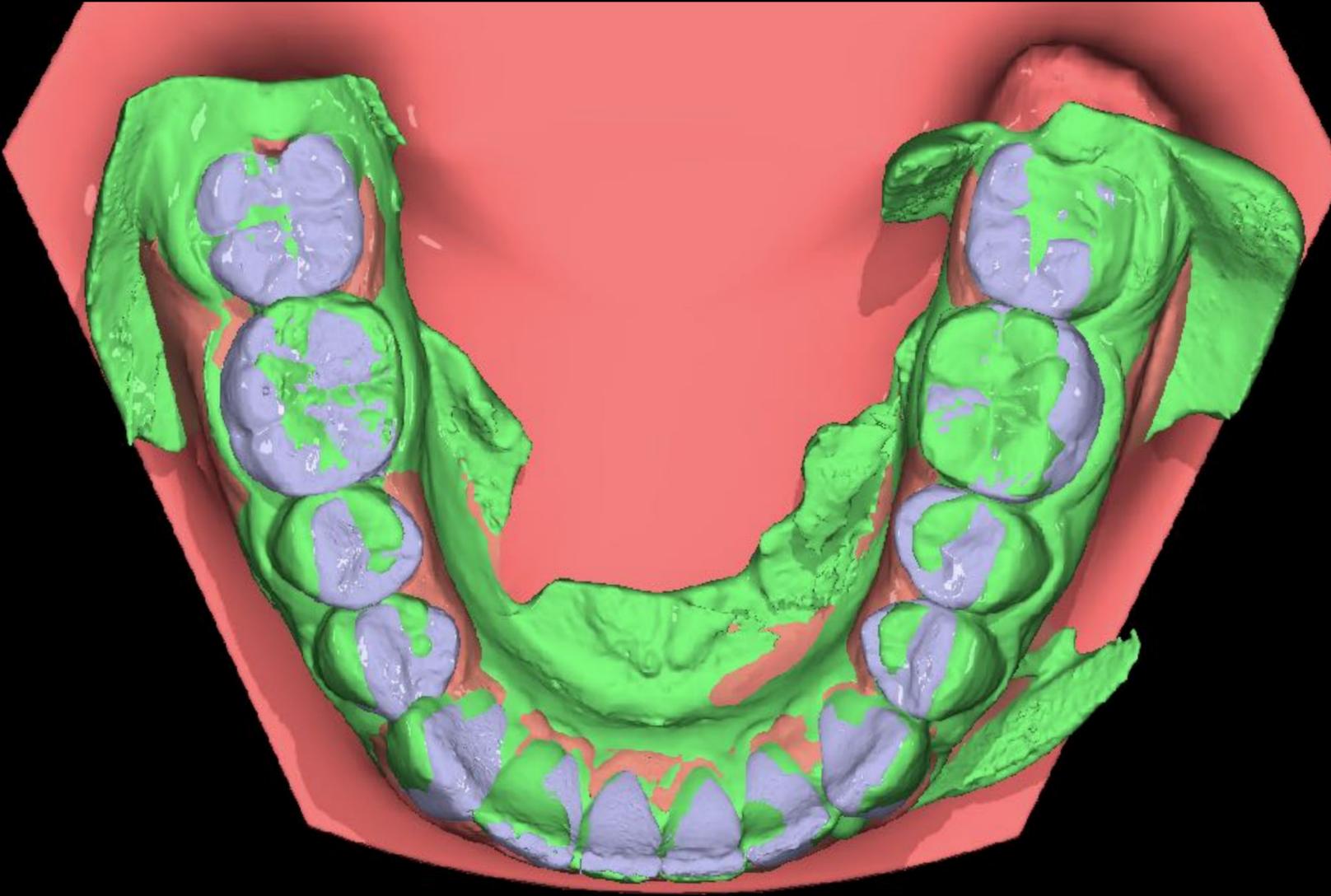
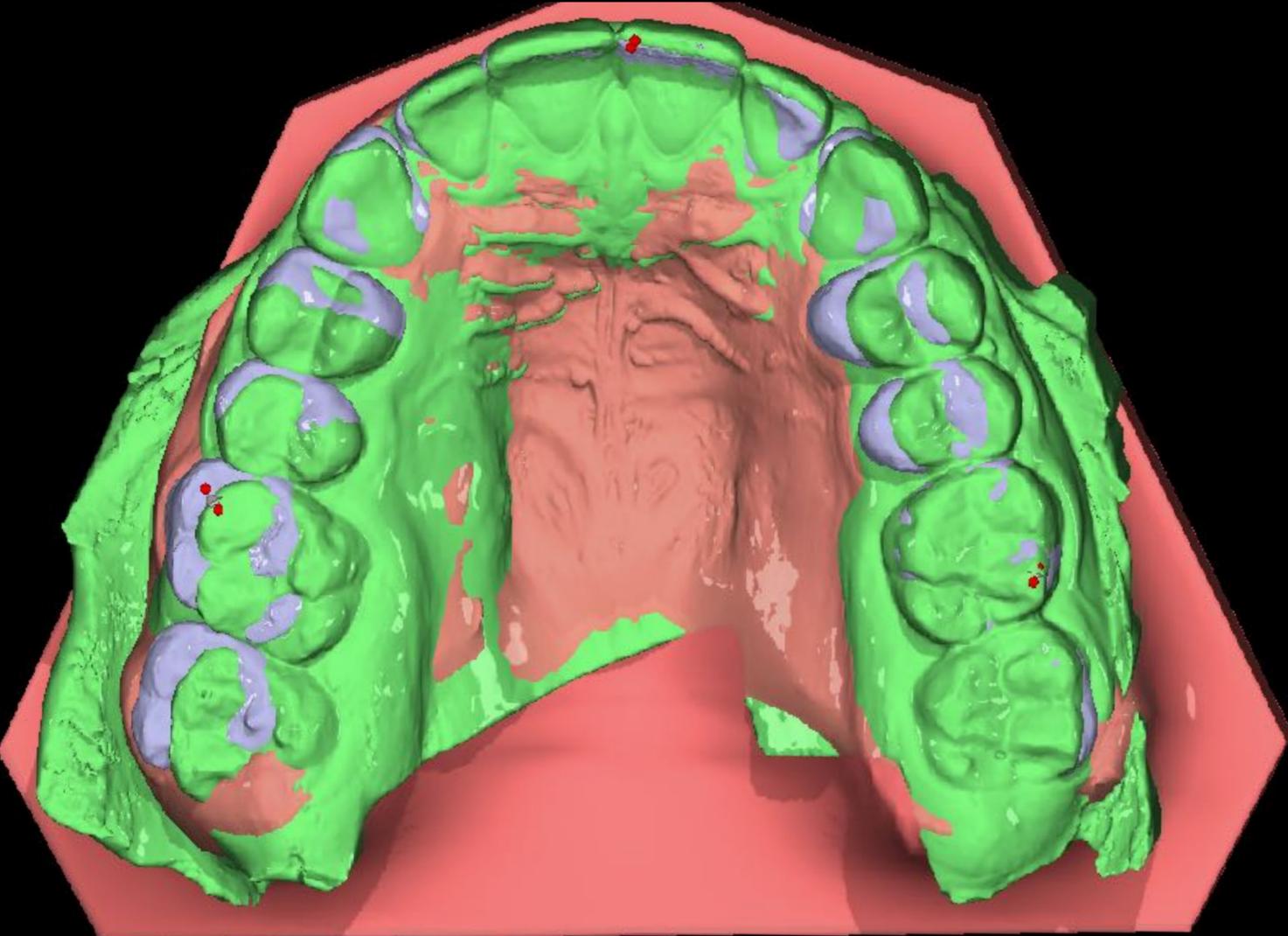


Superimposition Before / After (initial vs final)



Superimposition

Set up / After



Final result has an Over expansion of 2 mm in first quadrant

18 ani (2025) Follow up after 4 ani



Slightly excessive lower third



Slightly more gingival exposure of gingiva at level of 12 and 22- we suggested gingivectomy for Crown lengthning

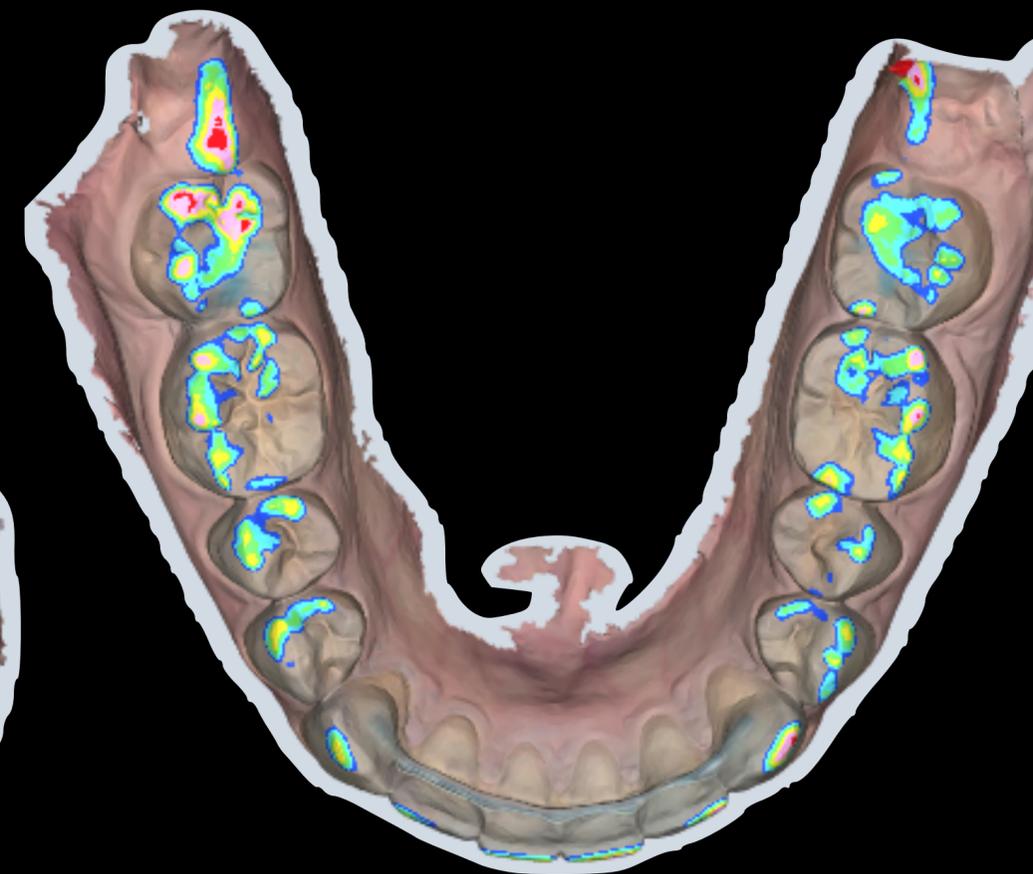
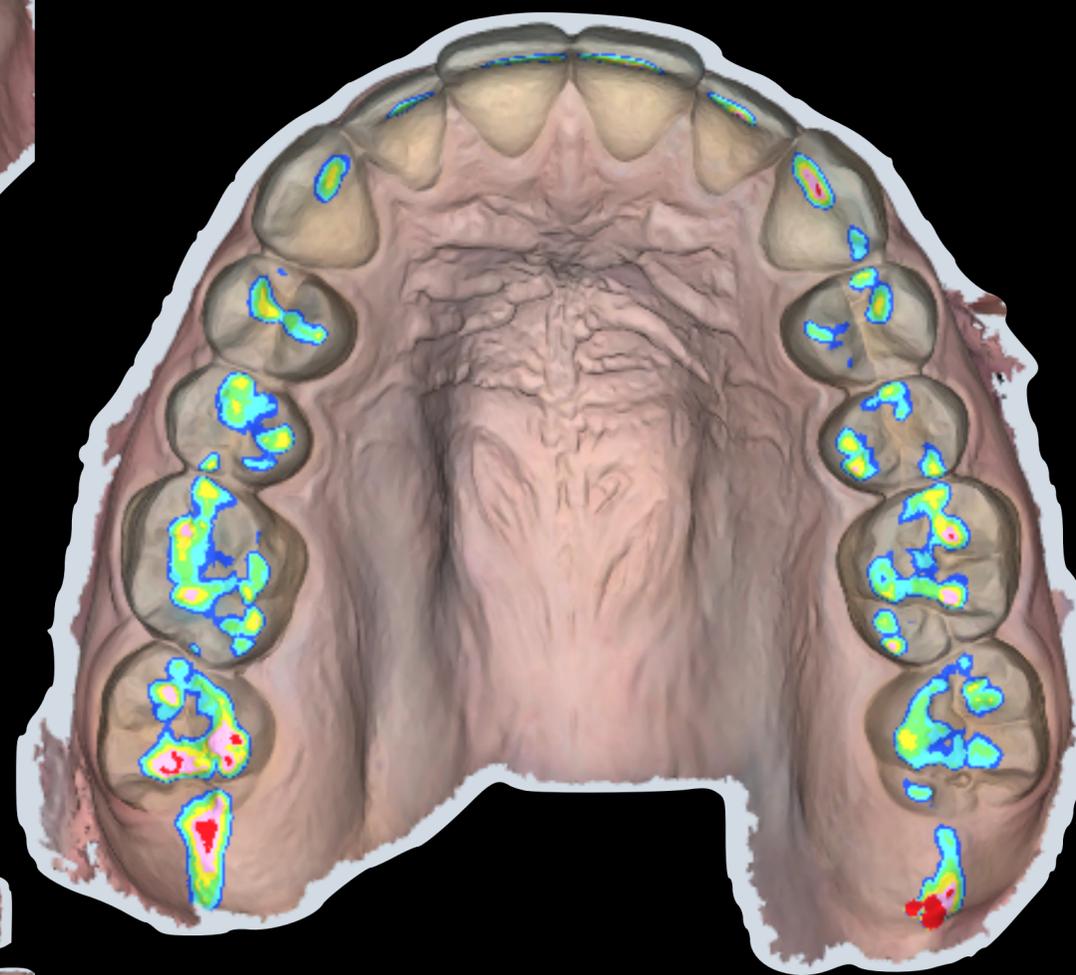
Lateral photos



Intraoral photos



Modjaw, virtual articulator (2025)



Delia from 7- 18 y



Delia from 7- 18 y



Delia from 7- 18 y



