

**SIMULTANEOUS ENGLISH-SPANISH TRANSLATION**



**SPAIN II MADRID**



# **MINI-IMPLANTS & MINI-PLATES**

## **ADVANCED USE IN ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS**



**Dr. Won Moon II Dr. Ramón Mompell II Dr. Cheol-Ho Paik**

**MODULAR COURSE**

**Theoretical-Practical  
With practice in real patients**

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# 1. PRESENTATION

## Welcome to **Mini-implants course: Advance use in orthodontics and dentofacial orthopedics**

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**Mini Implants** have become a necessary element to solve many malocclusions. Generally, they are used for the control of the **dental anchorage**. However, its use in the orthopedic **treatment** of transverse, sagittal, vertical problems or the combination of several of them, is more and more frequent. Thus, many cases where orthognathic surgery was the only treatment option can now be treated **predictably** through the use of mini- implants.

This course shows a philosophy of treatment based on the use of mini-implants to solve those malocclusions that require the use of them.

You can combine the **THEORY** with **PRACTICES IN BIOMODELS AND ANIMAL MODELS**. and you can receive **CLINICAL ASSISTANCE IN YOUR OWN PATIENTS**.

El **Dr. Won Moon y el Dr. Cheol-Ho Paik**, will present everything related to mini-implants. They will show how to treat different malocclusions in a predictable way by teaching how to solve the most severe malocclusions that involve both dental and orthopedic movements.

El **Dr. Ramón Mompell**, will be responsible for teaching the use of mini-implants in combination with alienators. It will also show the different digital protocols for making surgical splints for placement of mini-implants, mini-plates and MARPE.



## 2. SPEAKERS

### *Dr. WON MOON*



- ▶ Program Director, Post-Doctoral Orthodontic Program, Section Orthodontics, UCLA
- ▶ Director, International Affairs, UCLA School of Dentistry, Section of Orthodontics.
- ▶ Program Director, Combined Pediatric/Orthodontic Programs, UCLA School of Dentistry, 2004- 2010
- ▶ Program Director for Southern Region, Pacific Coast Society of Orthodontists (PCSO) 2005-2007
- ▶ Reviewer, the Angle Orthodontist, since 2012
- ▶ Reviewer, Dental Press Journal of Orthodontics, since 2012
- ▶ Harvard School of Dental Medicine, D.M.D., 1989
- ▶ University of California, Irvine, BS in Mathematics, 1984

### *DR. C-HO PAIK*



- ▶ Clinical Assistant Professor, Dept. of Orthodontics, Dental College Hospital, Seoul National University since 2001
- ▶ Visiting faculty, Dept. of Orthodontics, UCLA, Los Angeles, USA since 2003
- ▶ Clinical Professor, Dept of Orthodontics, Samsung Hospital since 1997
- ▶ President, Korean Society of Orthodontics (KSO) in 2007-2008
- ▶ Visiting faculty, Division of Orthodontics, Dept. of Growth and Development, Univ. of California, San Francisco, USA
- ▶ Chairman and Director, Dept. of Orthodontics, Chong-A Hospital, Seoul 1991-1994
- ▶ 3 National Licenses of Dentist - KOREA, JAPAN & U.S.A. (California)

### *DR. R. MOPELL*



- ▶ Active Member of the research team in the Craniofacial Growth and Development Division. Dept. Of Orthodontics, University of California Los Angeles (UCLA).
- ▶ Active member of different scientific societies: SEDO, AESOR, AAO y WFO
- ▶ Master Orthodontics and Craniofacial Orthopedics. University Hospital Fundación Jiménez Díaz. Madrid, España.
- ▶ Master in Oral Biology. University Rey Juan Carlos (URJC). Madrid, Spain.
- ▶ Clinical residency in the University Hospital of the University of Coimbra (UC), Portugal.
- ▶ Clinical residency at the University of Sao Paulo (USP) Brasil.



### 3. OBJETIVES

our **Main objective** is to provide you all the needed tools to really incorporation the **Mini-Implants** in your daily clinical practice.

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**At the end of the course, doctors will be able to:**

1. **Apply** the knowledge acquired during the course, for the resolution of dental and orthopedic problems, both in adults and children, through the use of mini-implants: control of anchorage in the absence of teeth, cases of extraction, "In-mass retraction", "In-mass protraction", occlusal plane canting, surgical set-ups, maxillary protraction, etc.
  2. **Differentiate** the various types of mini-implants, parts, elements, sizes and difference between them.
  3. **Know** the biomechanics with the use of mini-implants and to design the elements of expansion, traction and anchorage.
  4. **Use** different auxiliary elements and know the ways of connection to the mini-implants depending on the needs.
  5. **Identify** ideal places of insertion.
  6. **Know** the different bone densities by placing mini-implants in different types of bones and different anatomical areas.
  7. **Analyze** the evolution of the treatment, through the study of different malocclusions in real patients.
- 

**Objective:** Apply the knowledge acquired during the course, to solve dental and orthopedic problems, both in adults and children, through the use of mini-implants



## 4. CHARACTERISTICS

- **Addressed to:** Orthodontists. the number of students is limited.
- **Course Coordinator:** Dr. Ramón Mompell.
- **Modality:**
  - **On-site Theoretical-practical.** Course in biomodels and animal models, and real patients.
  - **OPTIONAL: Clínica hands-on - REAL PATIENTS.** Mini-implants, MSE (MARPE) and mini-plates insertion\*\*\*

\*\*\* Clinical hands-on in REAL PATIENTS will be take place at Dr. Mompell Clinic in Madrid. It is recommended to bring your own patient.
- **Duration:** 3 sections of 2 days each with the posibilita of practice in real patients at Dr. Mompell clinic in Madrid.

\*\*\* The course can be complementen by attending to Dr. Mompell Clinic in Madrid and relieve clínica assistance for delivering mini-implants, mini-plates or MARPE. It is recommended to bring your own patient.
- **Language:** Simultaneous English-Spanish translation.
- **Place:**
  - Sections I, II y III in Madrid, Spain.
  - **Clinical hands-on – REAL PATIENTS** in Madrid. Dr. Mompell clinic. **OPTIONAL.**
- **Speakers:** Dr. Won Moon, Dr. Chaol-Ho Paik and Dr. Ramón Mompell.
- **Hours:** Friday from 10:00 a 18:00, Saturday from 10:00 a 18:00.
- **Dates:**
  - ✓ **Section I: 22-23 January 2021.**
  - ✓ **Section II: 26-27 February 2021.**
  - ✓ **Section III: 26-27 March 2021.**
  - ✓ **Clinical Hands-on – REAL PATIENTS** in Madrid. Dr. Mompell clinic. **Before April 2021.**





## 5. PROGRAM

**At the end of the course, the orthodontist will be able master**

- I. General consideraciones with Mini-Implants (MI)***
- II. Clinical applications and biomechanics***
- III. Correction of transversal problems***
- IV. Correction of sagittal problems***
- V. Correction of verticals problems***
- VI. Correction of sagittal problems in combination with vertical problems***
- VII. Correction of asymmetries***
- VIII. Mini-implants in combination with aligners INVISALIGN.***
- IX. Updates in Digital dentistry***
- X. Other topics***

***CLINICAL PRACTICE WITH REAL PATIENT(OPTIONAL)***



# SECTION I

**22-23 January 2021 (MADRID)**

- I. General considerations with Mini-Implants**
- II. Clinical applications and biomechanics**
- III. Correction of transversal problems**
- IV. Correction of sagittal problems.**

## 22 January (FRIDAY)

### **I. I. GENERAL CONSIDERATIONS WITH MINI-IMPLANTS (MI)**

1. Introduction to the Mini-Implant Course and its advanced use in Orthodontics and Dentofacial Orthopedics and the relationship to be established with the University of California, Los Angeles (UCLA). The Melting Pot of Diverse Ideas and Emerging Technology.
2. Description of MI: Types of Mi. Parts, elements, sizes and differences between them.
3. Attachments for insertion and management
4. Auxiliary elements and ways of connecting to the MI depending on the needs.
5. Place of insertion. Ideal areas.

### **II. CLINICAL APPLICATIONS AND BIOMECHANICS**

1. Clinical application of MI and biomechanics: Considerations of anchorage, absence of teeth, Cases of extraction, retraction "in mass", Protraction "in mass", canting of the occlusal plane, Surgical Set-Ups, etc.

### **III. CORRECTION OF TRANSVERSAL PROBLEMS**

1. Maxillary Skeletal Expander (MSE). Non-surgical expansion of the facial mid-third with Micro Implant Assisted MSE. A special type of MARPE..
  - **PART 1:** Considerations in the design. Manufacture of MSE. Place of placement. Expansion Protocols.
  - **PART 2:** Clinical Advantages / Disadvantages of MSE. Description of Effects on Circummaxillary Structures. Presentation of clinical cases.
  - **PART 3:** Updates and presentation of clinical cases. Digital design using STL files superimposed to CBCT's
  - **PART 4:** MSE + Invisalign PROTOCOL. A new approach for the treatment of the obstructive sleep apnea syndrome (OSAS)



# SECTION I

22-23 January 2021 (MADRID)

23 January (SATURDAY)

## IV. CORRECTION OF SAGITAL PROBLEMS

1. Anterior-posterior movement using micro-implants. Retraction "In masse" of the entire dental arch with MI. Distaliation in class II, Class III and biprotrusive cases.
2. Sagittal dimension: orthodontic correction of class II patients and orthopedic correction of growing class II patients, including patients with open angle.
3. Intraoral Orthopedic Approach for Skeletal Class III. Treatment using Rapid Palatal Expansion (RPE) and Lip-Bumper.

## PRACTICAL WHORKSHOP 1

1. Placement of different types and sizes of Mini-Implants in the different anatomical zones:
  - a. On biomodels with real consistency of soft and hard tissues.
  - b. On mandible and maxilla of lamb
  - c. On mandible and maxilla of pig.
2. Placement of the different types of auxiliary elements on the different Mini- implants heads.
3. Design of Maxillary Skeletal Expander (MSE) On biomodels with real consistency of soft and hard tissues.





# SECTION II

**26-27 February 2021 (MADRID)**

- V. Correction of vertical problems**
- VI. Correction of sagittal problems in combination with vertical problems**
- VII. Correction of asymmetries**

## **26 February (FRIDAY)**

### **V. CORRECTION OF VERTICAL PROBLEMS**

1. Vertical dimension: Open bite correction with MI: Can we treat all cases?; Management of patients with increased and decreased lower facial height.
2. Deep-bite correction by molar extrusion and increase of the lower facial third. Retention. Inserting MI protocol.

### **VI. CORRECTION OF SAGITTAL PROBLEMS IN COMBINATION WITH VERTICAL PROBLEMS I**

1. Orthodontic and orthopedic treatment of growing class III patients. Special attention in dolichofacial patients.
2. Orthodontic and orthopedic treatment of patients with finished skeletal growth (adults) of Class III. Non-surgical treatment of class III surgery cases.



# SECTION II

**26-27 February 2021 (MADRID)**

## **27 February (SATURDAY)**

### **VI. CORRECTION OF SAGITTAL PROBLEMS IN COMBINATION WITH VERTICAL PROBLEMS II**

1. Correction of facial aesthetics using the dentition as a tool: Intrusion Molar with mini-implants for vertical excess with anterior open bite and vertical excess without anterior open bite.
4. Orthopedic treatment of growing patients and adults. Controlling occlusal plane and Mandibular Plane/ Making Smile Brighter. Incisor Showing and Smile arc.

### **VII. CORRECTION OF ASYMMETRIES**

1. Asymmetric Movement: Midline, Canting correction and Chin Point Control using Mini-Implants.

## **PRACTICAL WHORKSHOP 2**

1. Placement of the Maxillary Skeletal Expander (MSE) on a biomodel with a real consistency of soft and hard tissues
2. MSE miniplants insertion
3. Insertion of MI with mini-handdriver and the wrench
5. Remotion of MSE.





# SECTION III

**26-27 March 2021 (MADRID)**

**VIII. Mini-implantes in combination with aligners -INVISALIGN.  
IX. Updates in Digital dentistry  
X. Other topics.**

## **26 March (FRIDAY)**

### **VIII. MINI-IMPLANTES IN COMBINATION WITH ALIGNERS (INVISALIGN) I**

#### **1. Transverse corrections and airway considerations**

- Midfacial Skeletal Expansion (MSE) vs Rapid Palatal Expansion (RPE) in combination with Aligners and Anterior Lower Miniplates or Facemask. Protocol MSE + Invisalign (DR.MOMPELL)

#### **2. Sagittal corrections.**

- Dental correction; Bodily dental movements: In-mass distalization of Upper and Lower dental arches
- Dental correction; Specific dental movements: Posterior distalization, Posterior mesialization and Anterior distalization (extraction cases)
- Skeletal correction: Maxillary protraction in children, adolescents and adult patients With MI and Mini-plates.
- Skeletal correction: Mandibular advancement in growing patients with MI

#### **3. Vertical corrections.**

- Dental correction. Anterior dental movements of upper and lower: Anterior intrusion (Deep-bite) and Anterior extrusion (Open-bite)
- Dental and Skeletal corrections. Posterior dental movements of upper and lower teeth associate with skeletal accommodation: Posterior extrusion (Deep-bite) and Posterior intrusion (Open-bite)



# SECTION III

## 26-27 March 2021 (MADRID)

### 27 March (SATURDAY)

#### VIII. MINI-IMPLANTES IN COMBINATION WITH ALIGNERS (INVISALIGN) II

##### 4. Other movements

- Molar uprighting correction: Transversal molar uprighting. Sagittal molar uprighting: Crown distalization and Root mesialization.
- Molar Intrusion: Direct anchorage for molar intrusion and Indirect anchorage for molar intrusión.
- Force eruption of retained and impacted teeth correction
- Occlusal plane control and Dental Midline correction.

#### IX. UPDATES IN DIGITAL DENTISTRY.

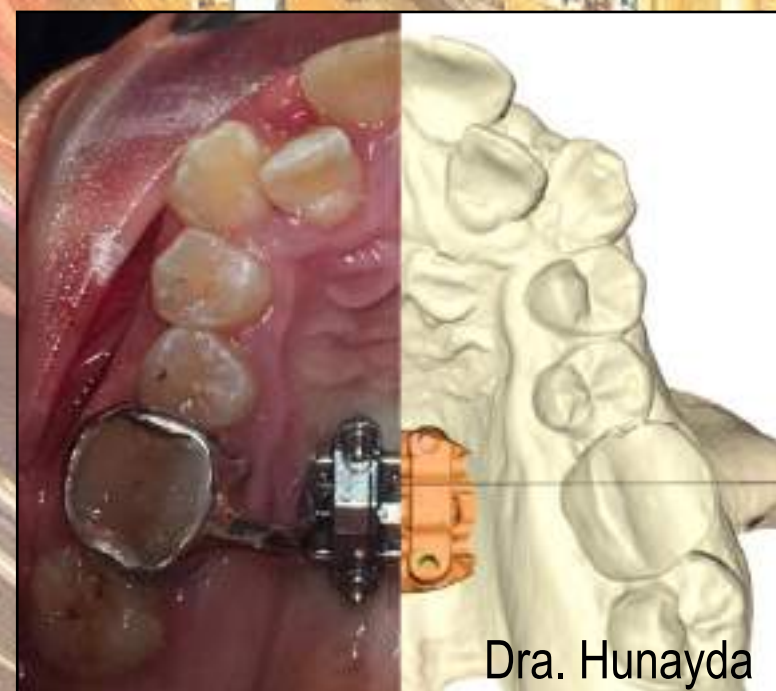
1. New digital protocols in orthodontics from a digital perspective. Conticopunctures using a digital surgical guide.
2. Digital design of MSE superimposing STL files to CBCT data
3. Digital analysis of the expansion using CBCT superimpositions.

#### X. OTHER TOPICS

1. MI in lingual orthodontics
2. Failures, Problem Solving and Risk Management in MI use.
3. Tissue-friendly strategic orthodontics: Activated Extra-length (AEL) NiTi / Strippingbefore Leveling / Low friction sliding mechanics

## PRACTICAL WHORKSHOP 3

1. Insertion of different mini-implants and mini-plates from different brads for student evaluation.
2. Study on real skull of the movement of maxillary bones and circummaxillary structures after maxillary expansion and protraction in articlable typodont.
3. Design and planning live with the MSE digital laboratory.



Dra. Hunayda



# CLINICAL HANDS-ON

## -HANDS-ON IN REAL PATIENTS-

**BEFORE APRIL 2021 (optional)**

### **DATES TO BE DEFINED BETWEEN THE STUDENT AND DR. MOMPELL.**

- **Dr. Mompell clinic in Madrid.** Clinical practice in real patients with Dr. Mompell. Planning of cases that require mini-implants or miniplates.
- The student can bring their own patients for the placement of mini-implants, mini-plates or MARPE.
- Records need to be sent in advance for the well planification of the case. Records such as intraoral scanner, CBCT, 3D facial scanner, etc. can be done without cost at Dr. Mompell's clinic. Dr. Mompell will help in the planification of the case if is needed.
- In case of performing the MARPE + Invisalign protocol of Dr. Mompell, Dr. Mompell will help in the entire process of making the Clin-Check. The student will design the MSE, cement it and place the MI.
- The material to be used is not included in the price of clinical assistance. The student must send all the necessary records for the evaluation of the case prior to the placement of the mini-implants.
- **STUDENT WILL PLACE THE MINI-IMPLANTS OR THE MARPE ON THE PATIENT**
- **IN THE EVENT OF PLACEMENT OF MINI-PLATES, THE ORAL SURGEON'S ASSISTANCE WILL BE HELD FOR THE PLACEMENT. HOWEVER, IT WILL BE THE STUDENT WHO DESIGNED AND MANUFACTURES THE MINI- PLATES TO ADAPT THEM INTRA-OPERATIVELY**





## 6. REGISTRATION

For registration COMPLETE the  
**REGISTRATION** FROM THE WEB  
([WWW.FORMACIONDENTALGRAM.COM](http://WWW.FORMACIONDENTALGRAM.COM))

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## 7. MATERIAL Y OBSERVACIONES

### 1) Material provided by the course::

- Work case including maxillary, mandibular and soft tissue biomodel. All of them with real bone consistency of cortical and spongy bone. The model is radiographable to allow the subsequent analysis of the placement of the different elements.
- Maxilar and mandible of lamb and pig to verify the different densities and resistances of the bone. It will also be possible to analyze how the screws can be broken and the process for their extraction.
- MSE type II with 4 screws of 1.8 x 11. All the necessary elements will be supplied for installation (Mini Hand-driver, Wrench, connecting rod, activation key, activation safety key)
- Different types of micro-screws of different companies, so that the students can analyze the characteristics of each one of them. Each system will have everything needed for its installation.
- Simultaneous English-Spanish translation.

### 2) Material provided by the student:

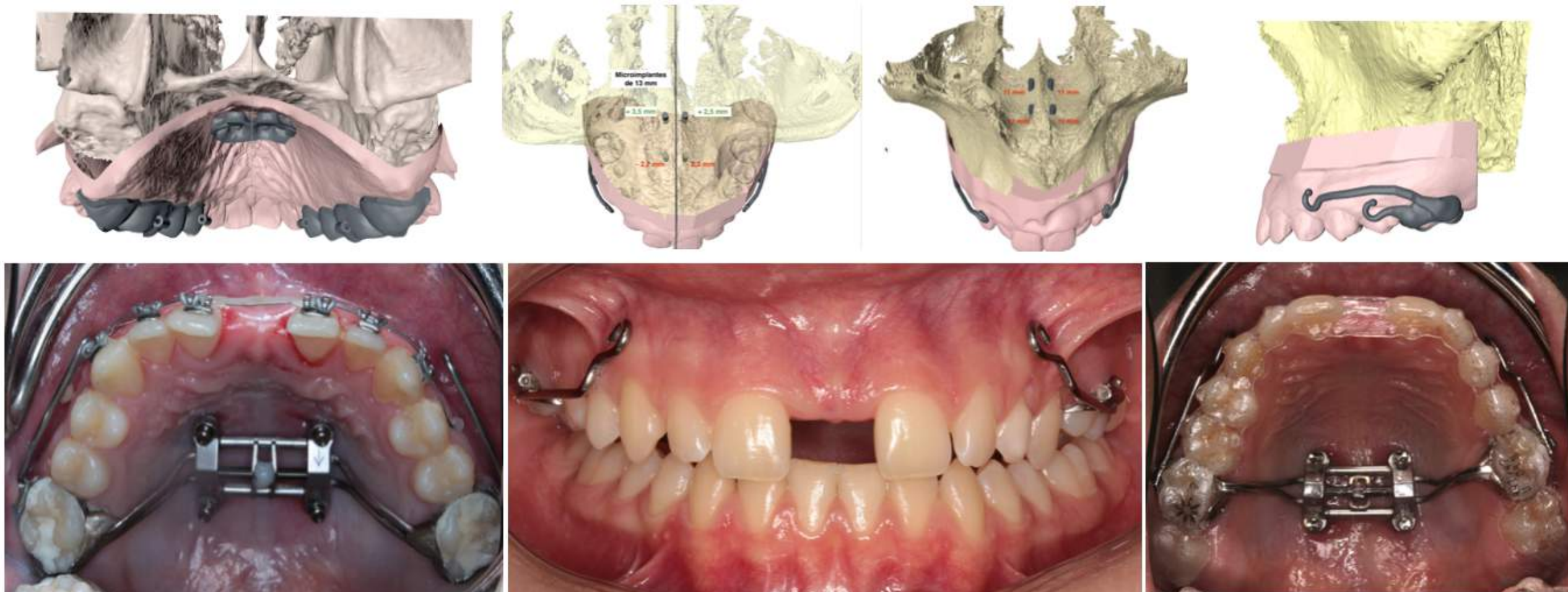
- The student can bring his own clinical cases to discuss them during the course in order to find the diagnosis and treatment plan that is appropriate for each case

### 3) Included in the course:

- The total price of the course includes the 3 Sections. Practices with real patients are optional
- All the material to be used during the course is included in the price
- Coffee breaks and meals are included.
- Flight tickets and accommodation are not included







Planificación Digital Expansión Rápida Palatina Asistida por Microtornillos (MARPE)

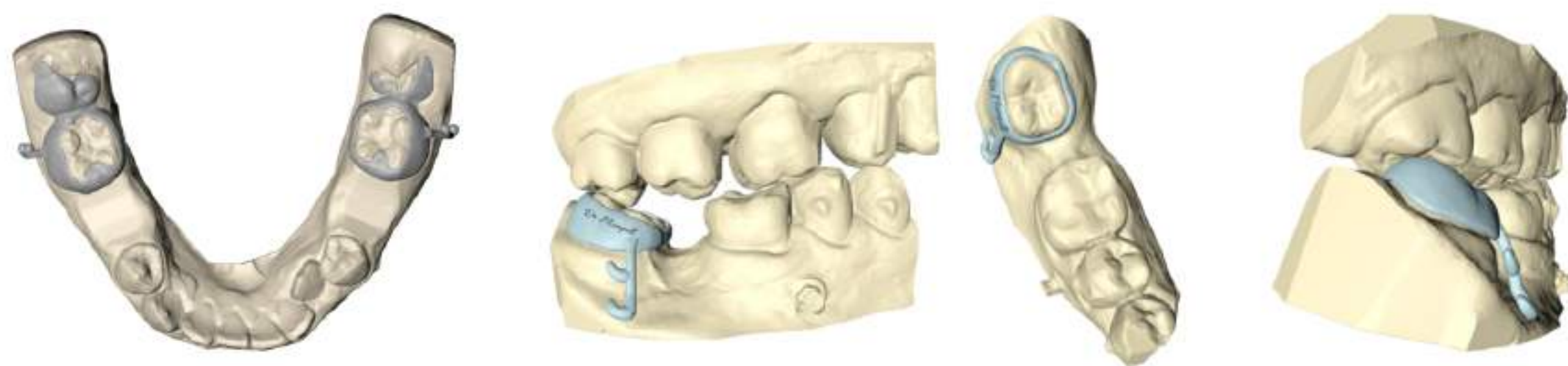


Caninos incluidos inferiores + Microtornillos + Alineadores



Mini-placas antero-inferiores para tracción anterior maxilar



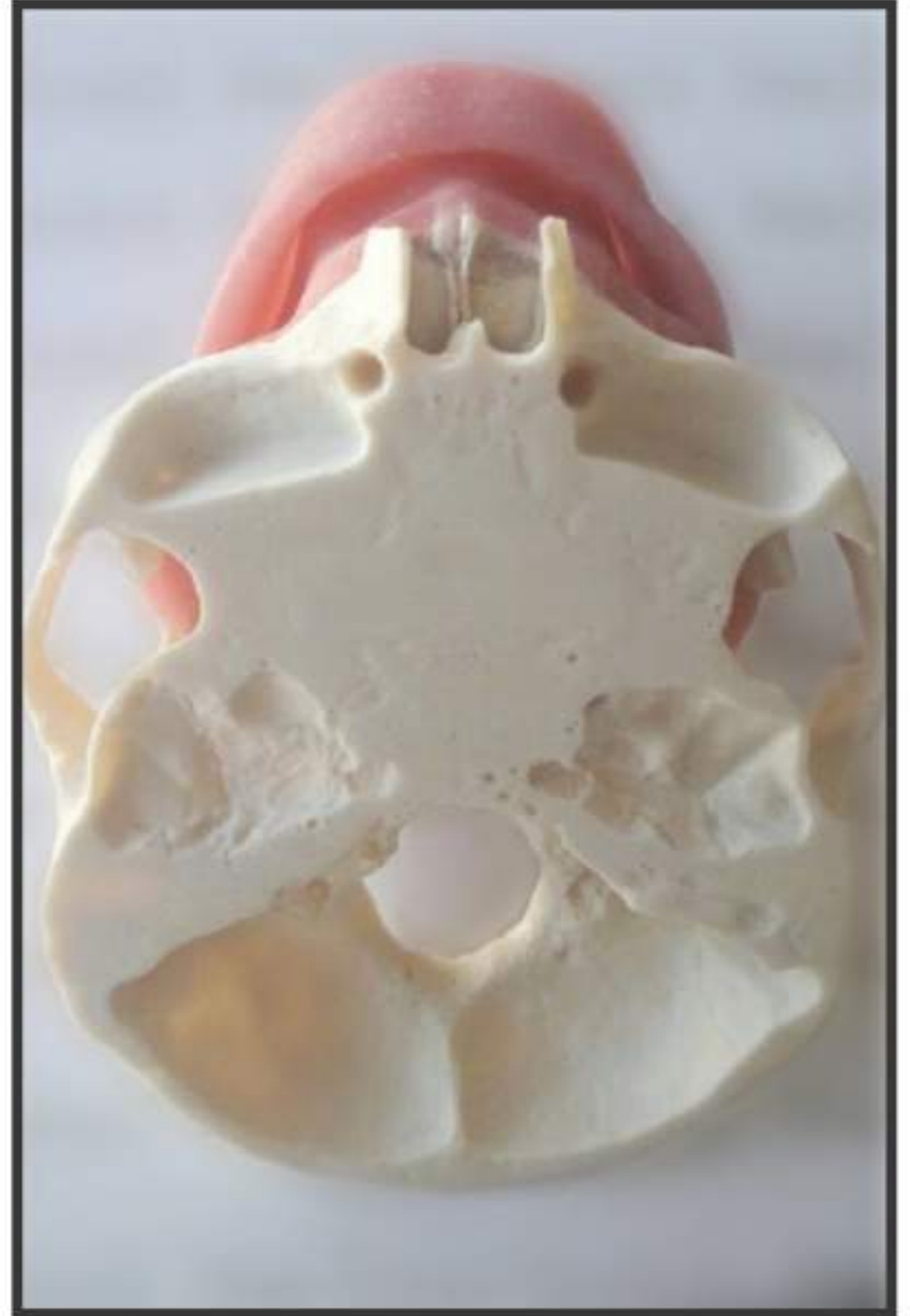
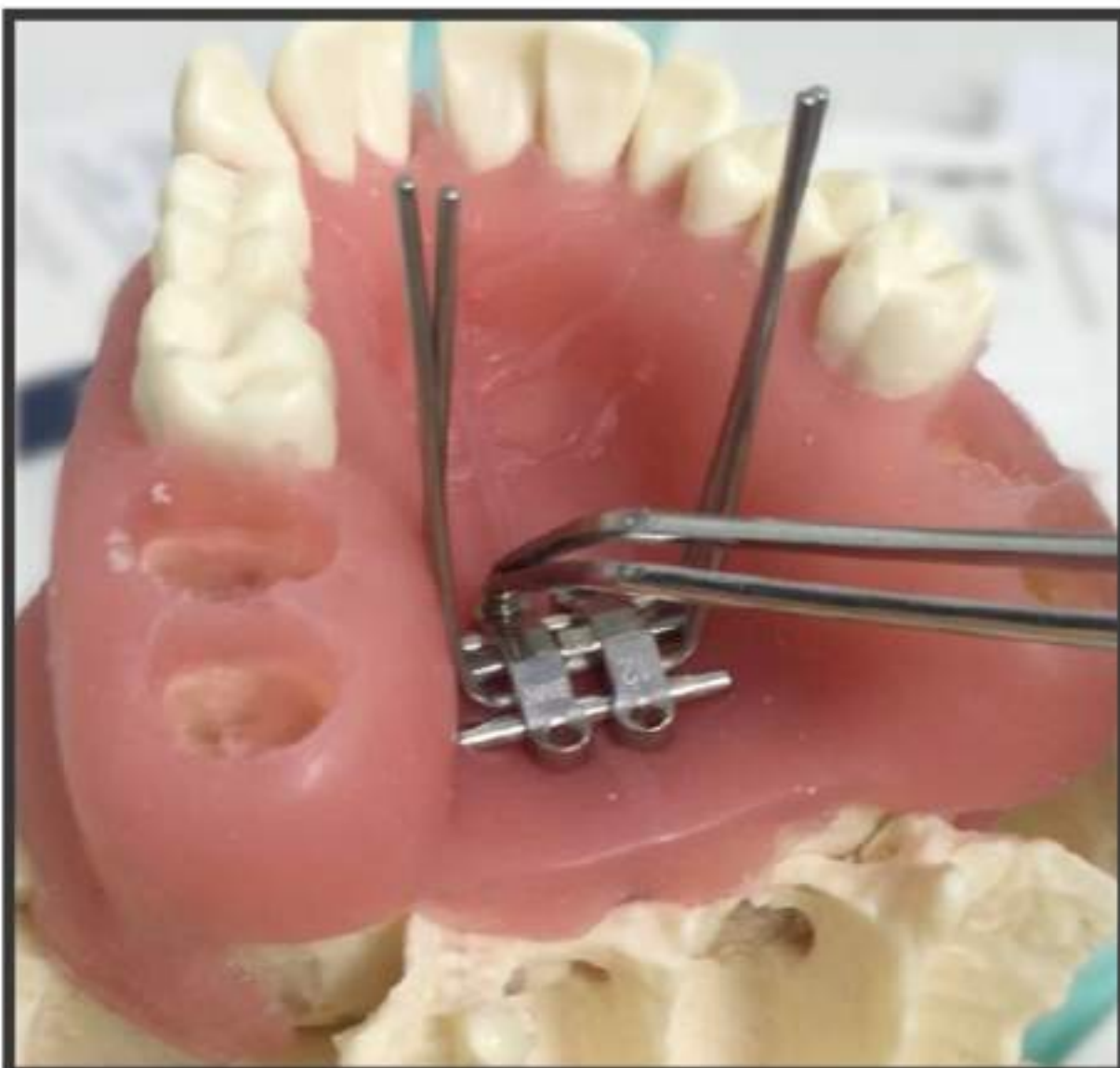


Planificación digital mesialización molar + bandas sinterizadas + microtornillos



Otros usos de Mini-implantes para distalizaciones en masa, intrusiones, mesializaciones...





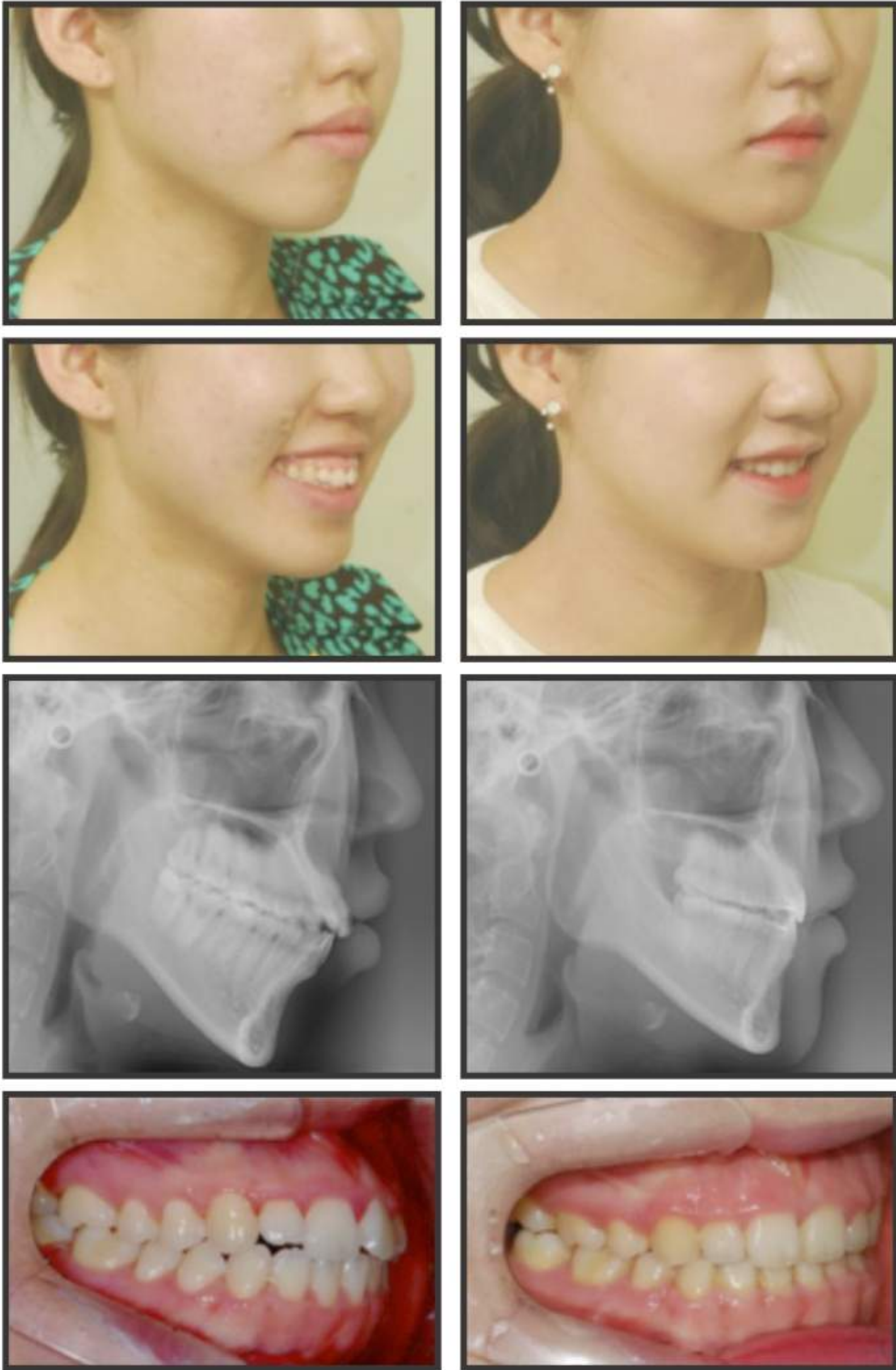












*Vertical excess without anterior open bite case:*

*Closing of the mandibular plane angle using the MI driven molar intrusion*







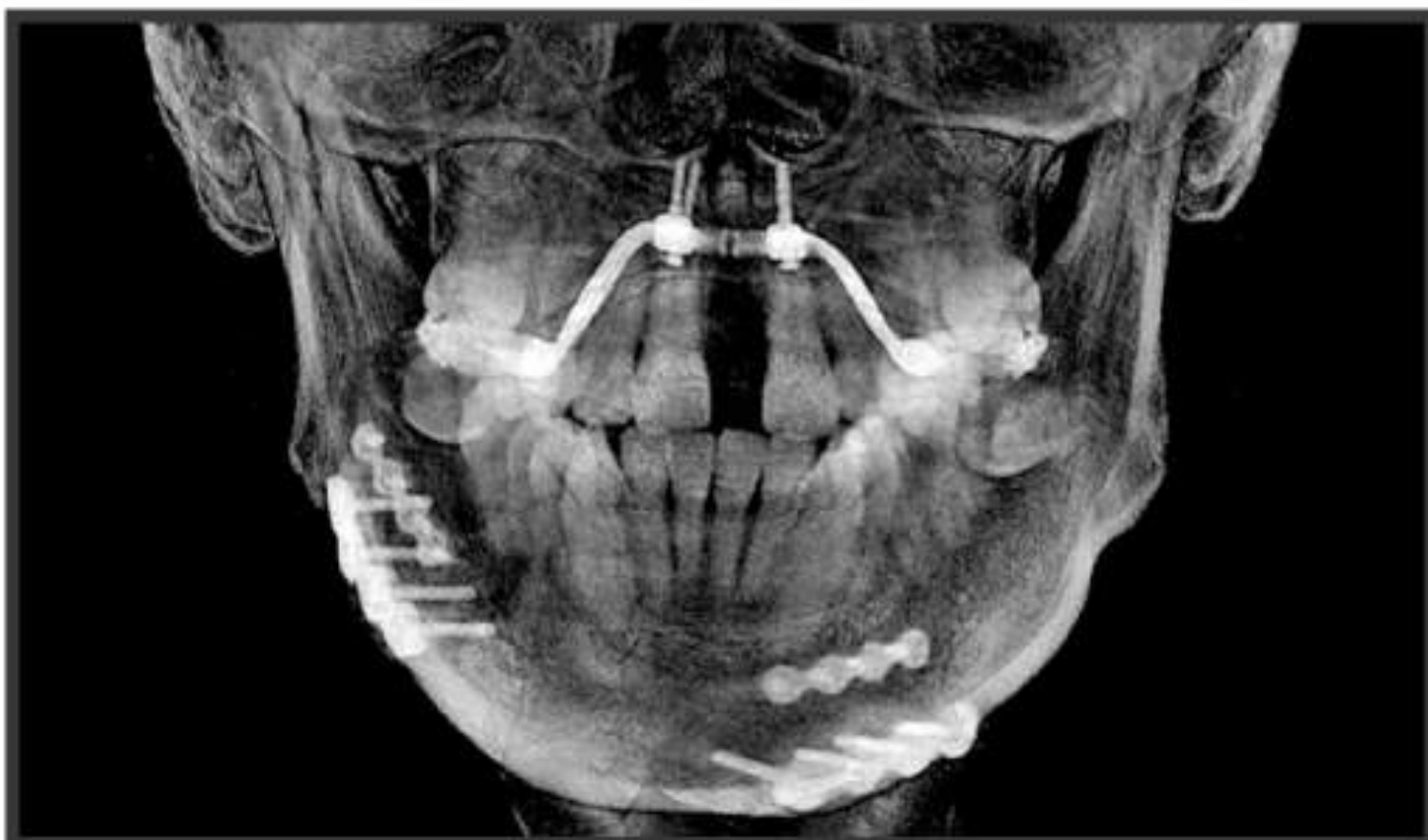
*Typical upper and lower MI driven molar intrusion for vertical excess cases*



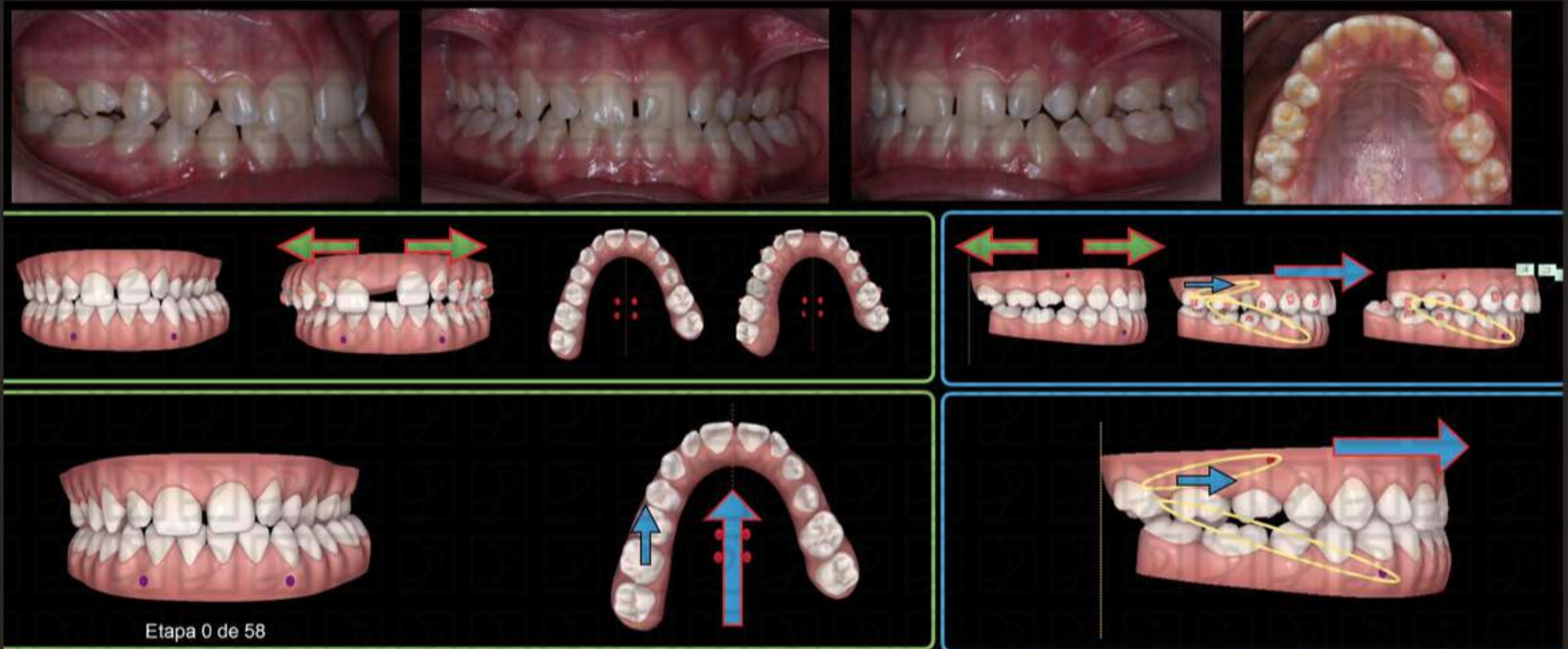
*En Masse Retraction of Whole dentition using Micro-Implants (MI)*







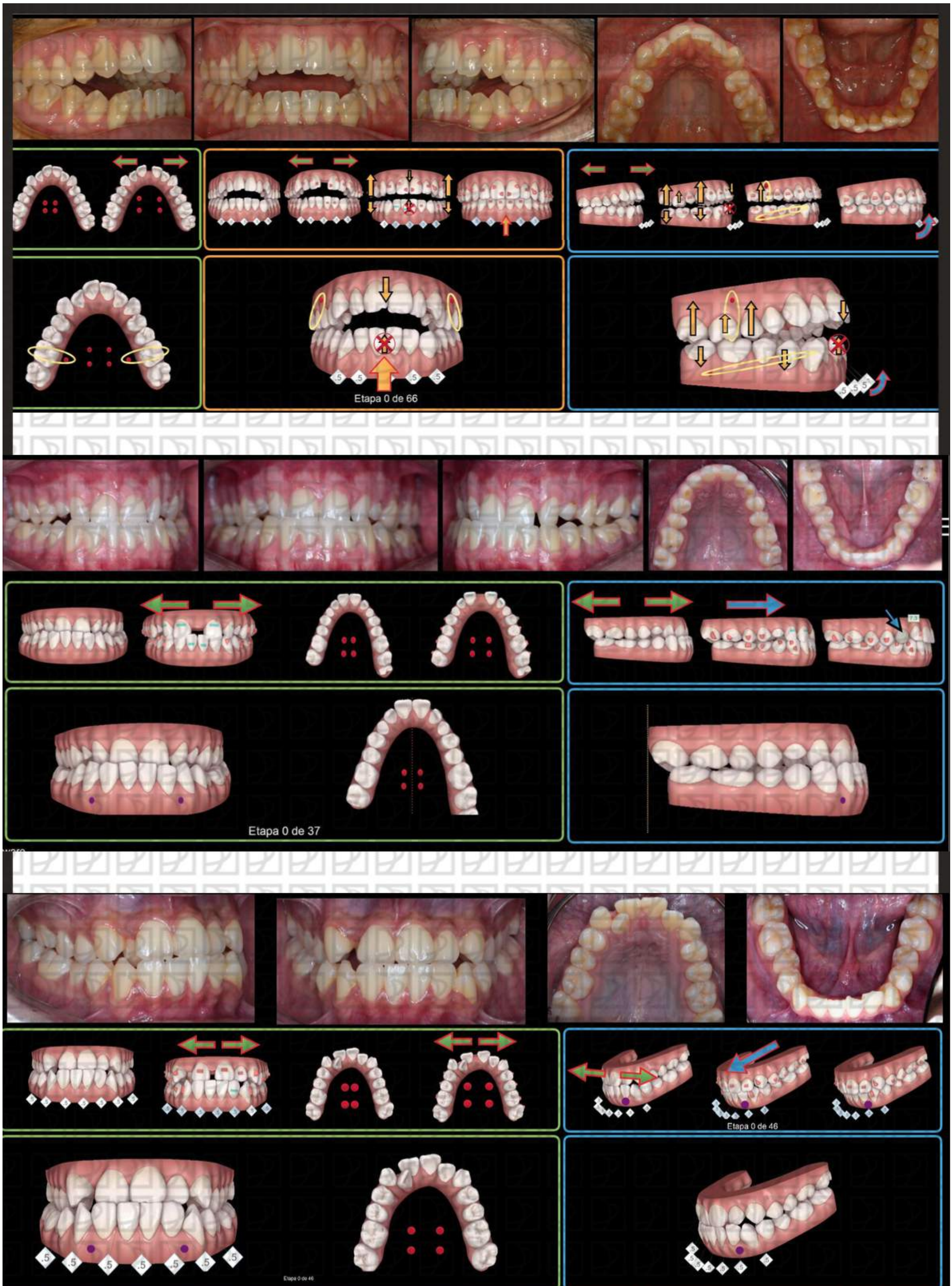




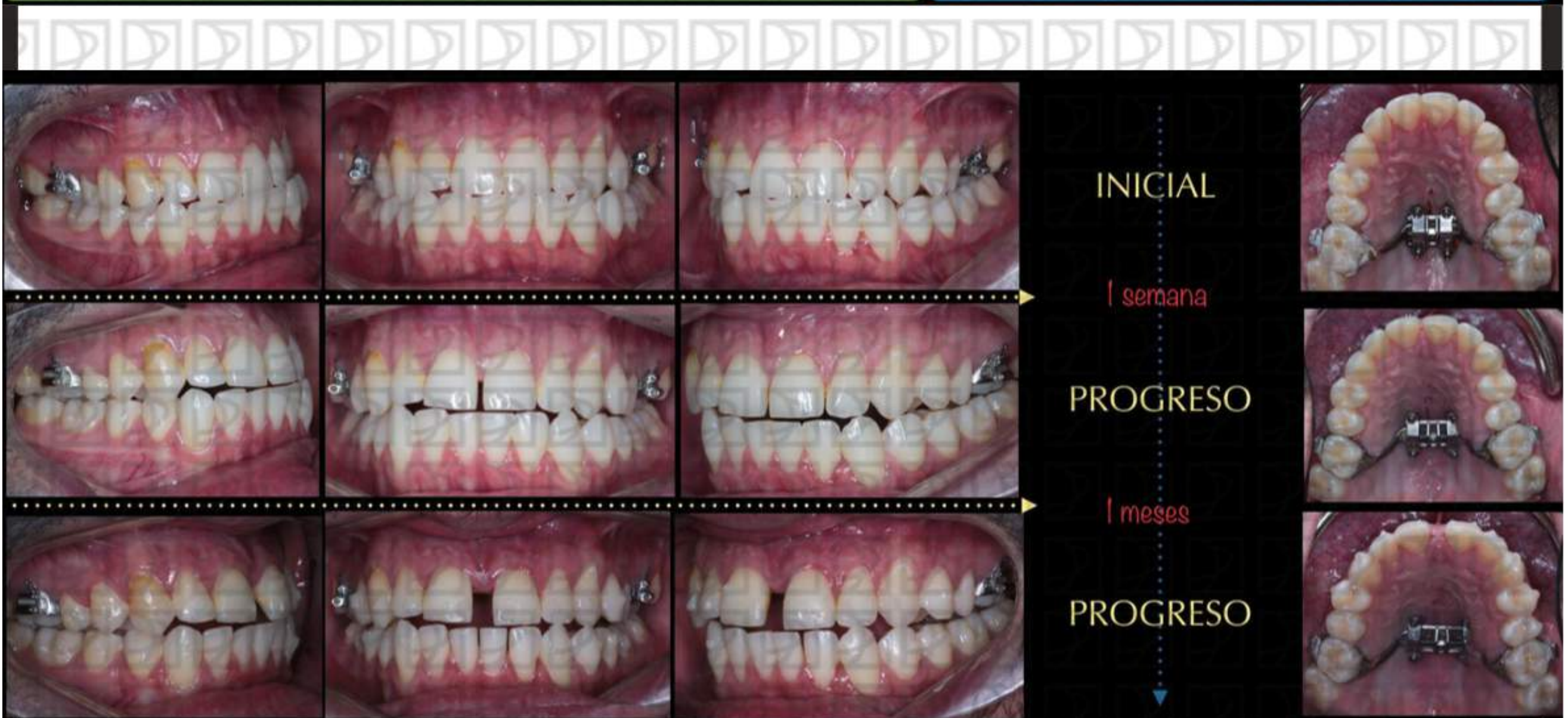




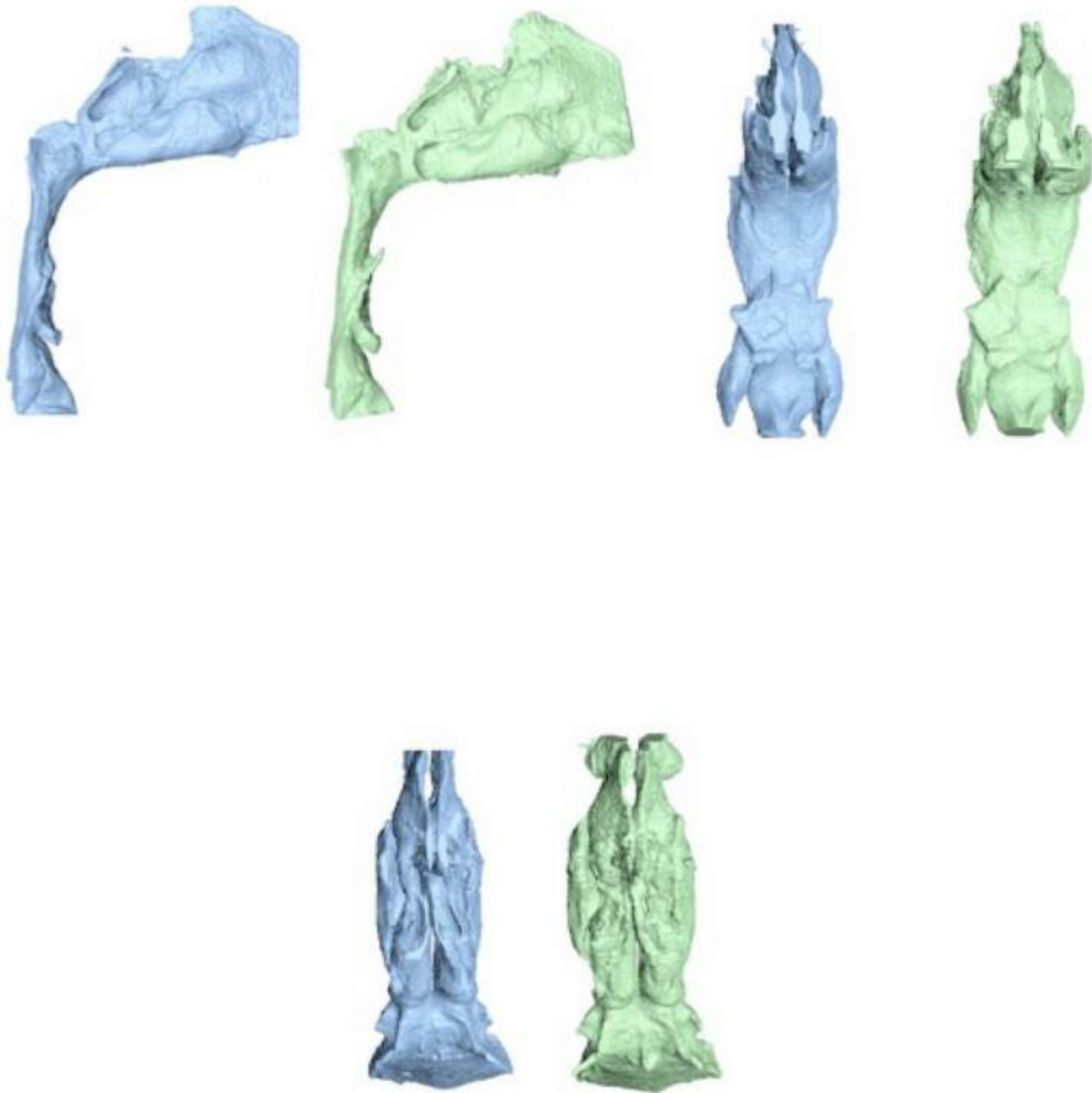








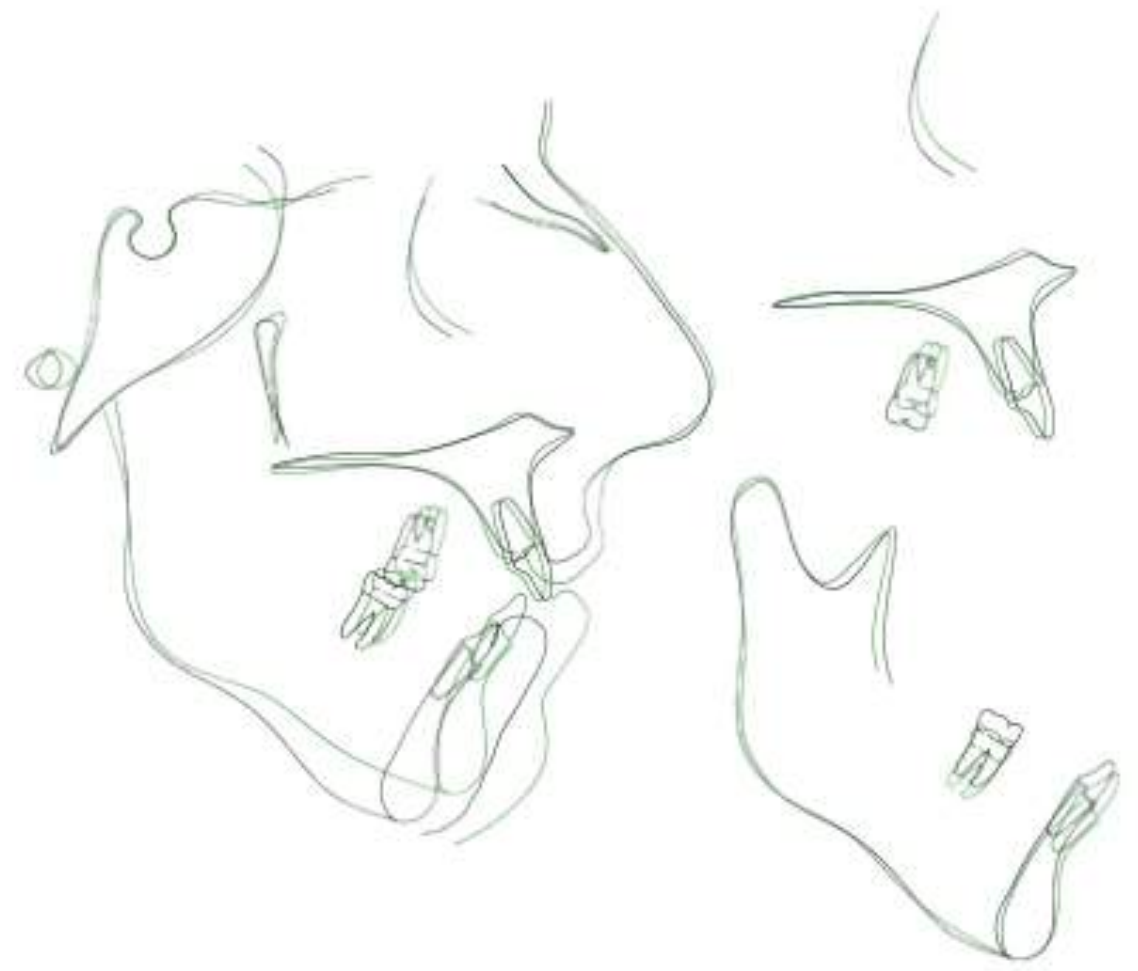
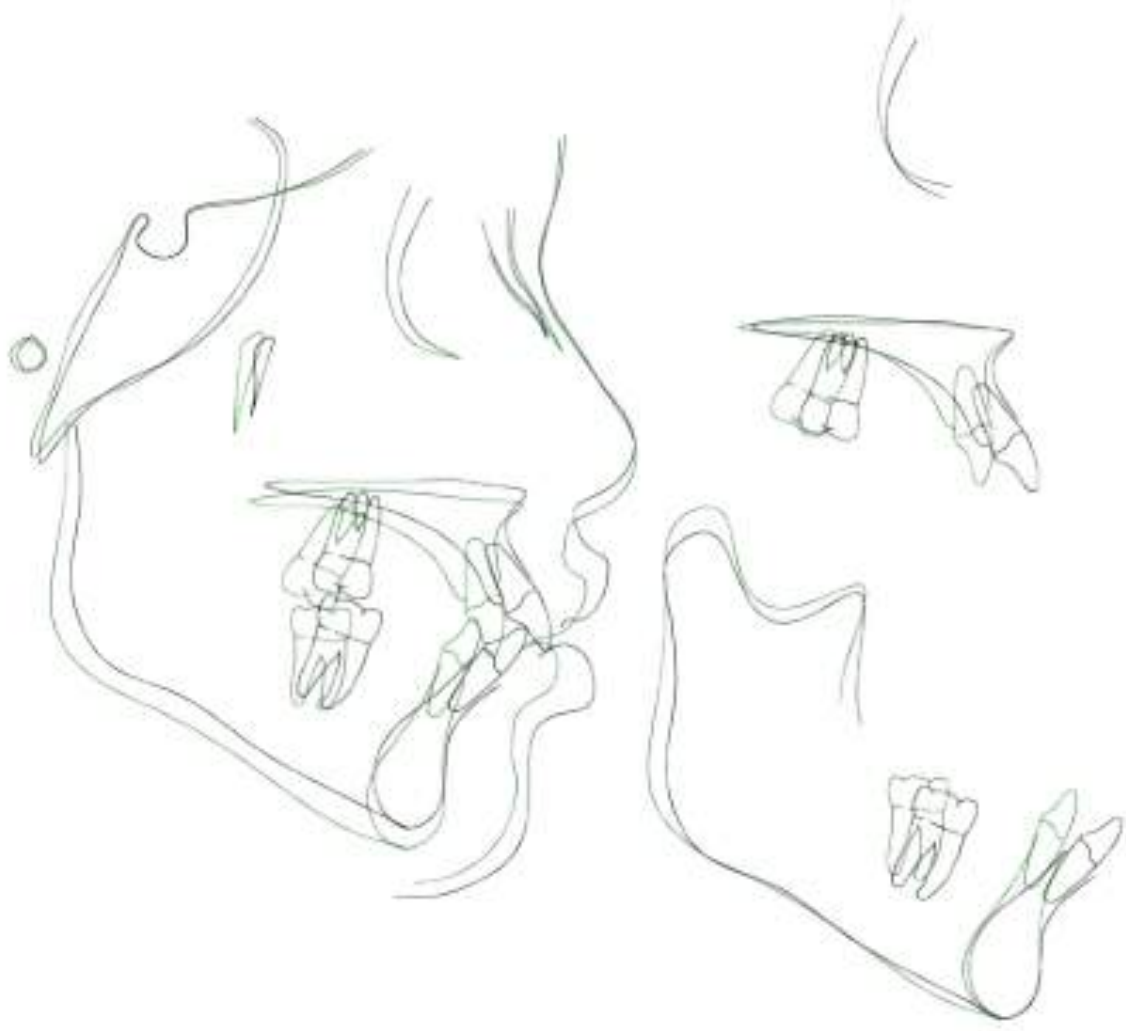




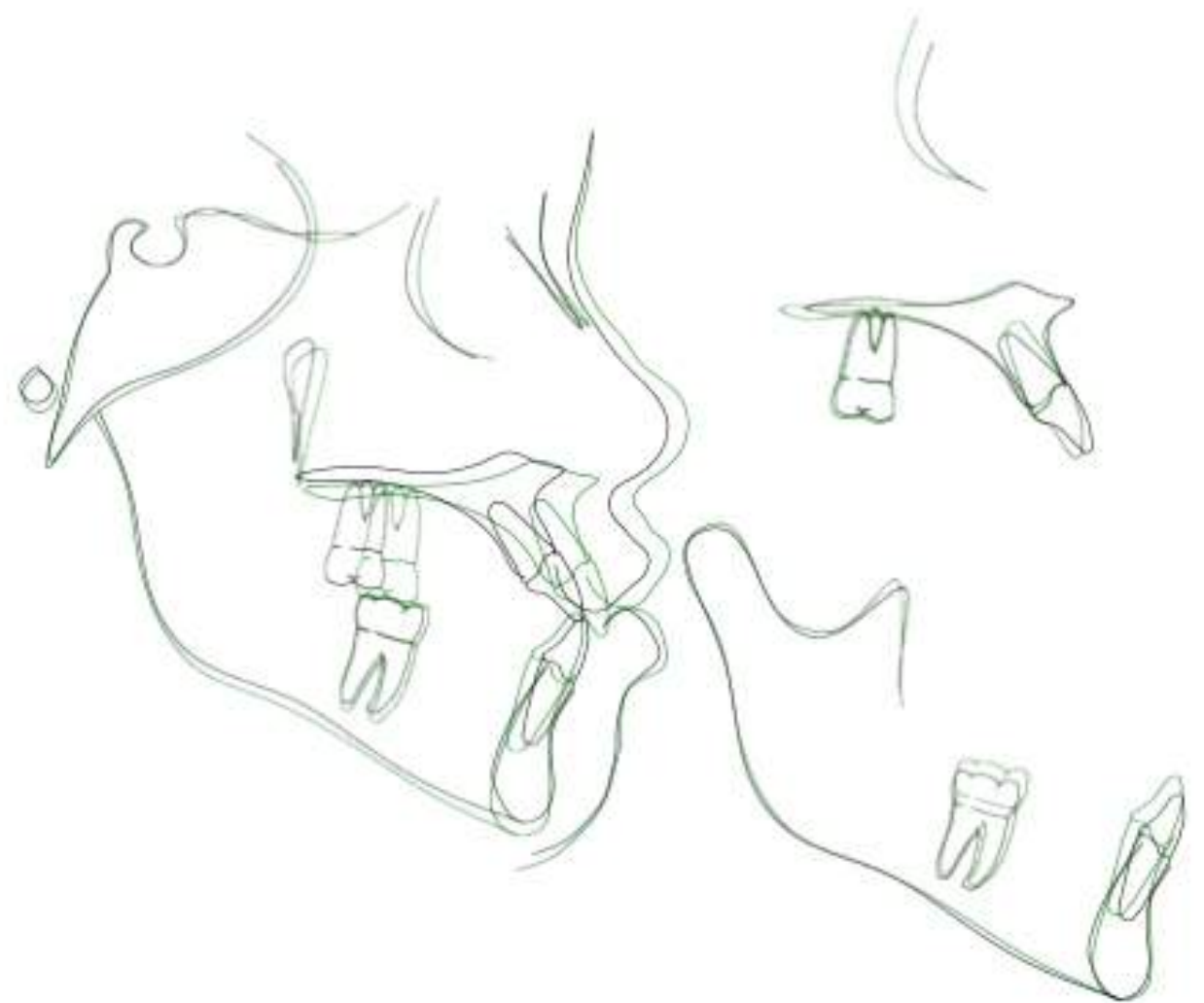
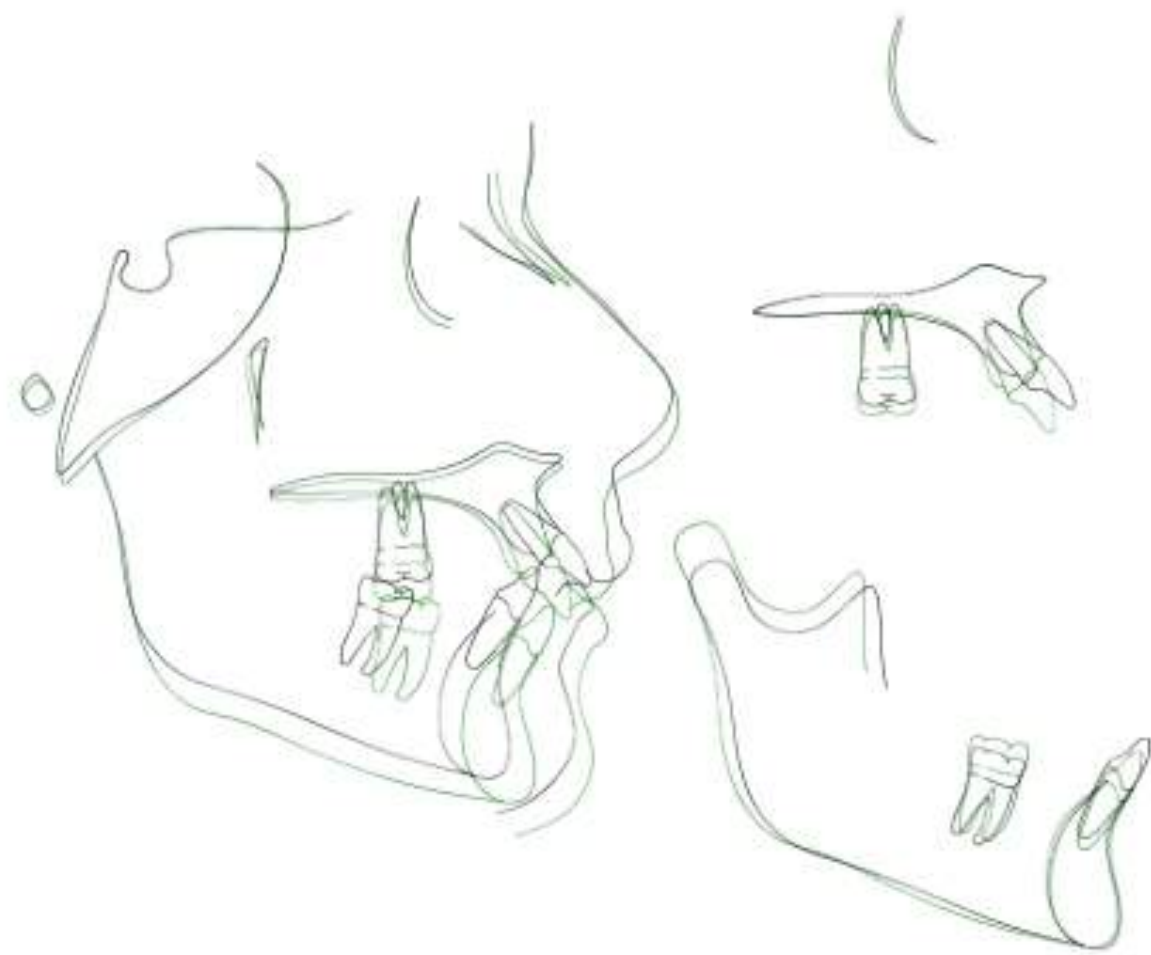
*Nasal Airway Before (Blue) and After (Green) MSE*







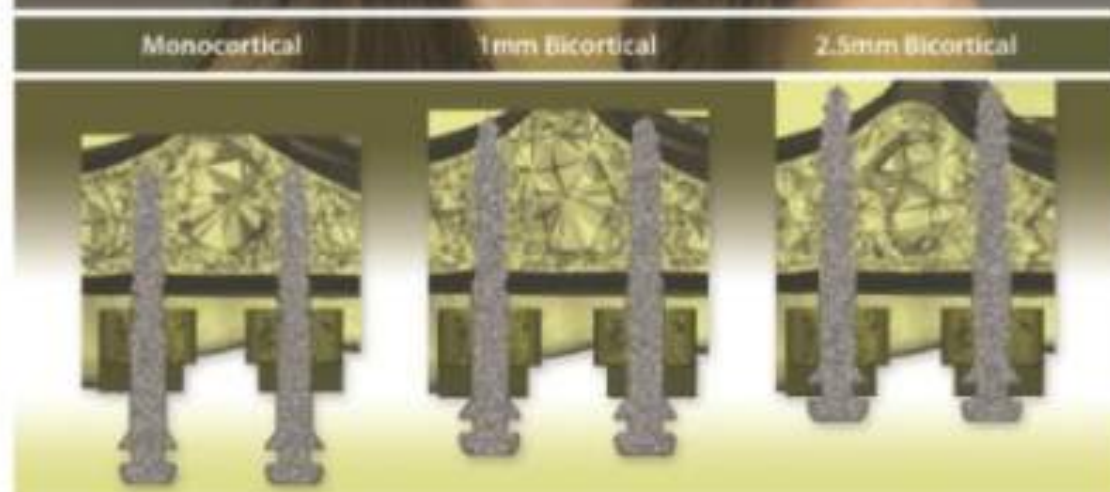
*Non-surgical Openbite Correction*



*Non-surgical Class III Orthopedic Correction*







## Effects of monocortical and bicortical mini-implant anchorage on bone-borne palatal expansion

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Dentistry's  
First Specialty

## Microimplant-assisted rapid palatal expansion appliance to orthopedically correct transverse maxillary deficiency in an adult

Submitted by the first author in partial fulfillment for certification by the American Board of Orthodontics and selected by its Board of Directors as the best case presented at the August 2014 clinical examination.

[Chuck Carlson](#), [Jay Sung](#), [Ryan W. McComb](#), [Andre Wilson Machado](#), [Won Moon](#)  



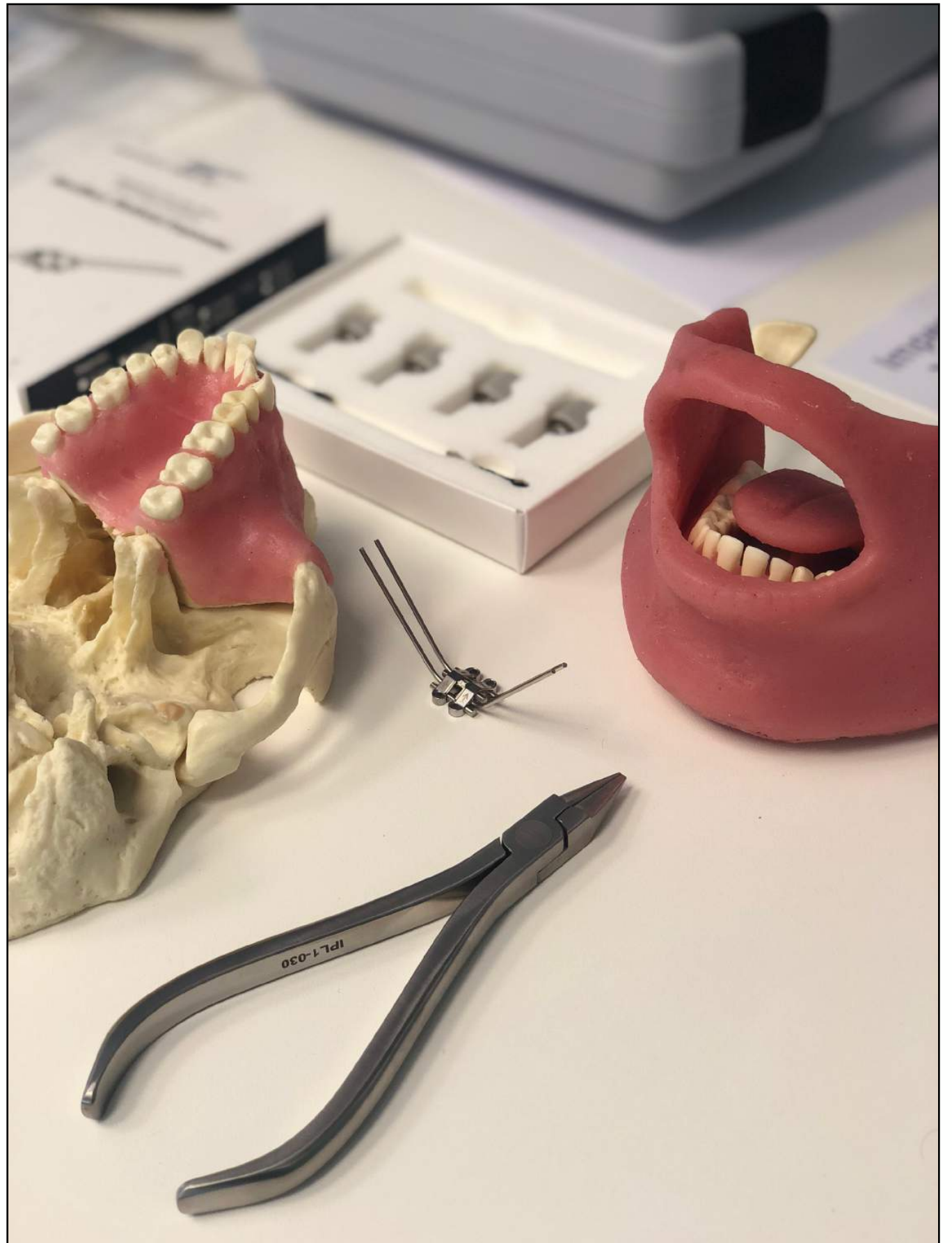








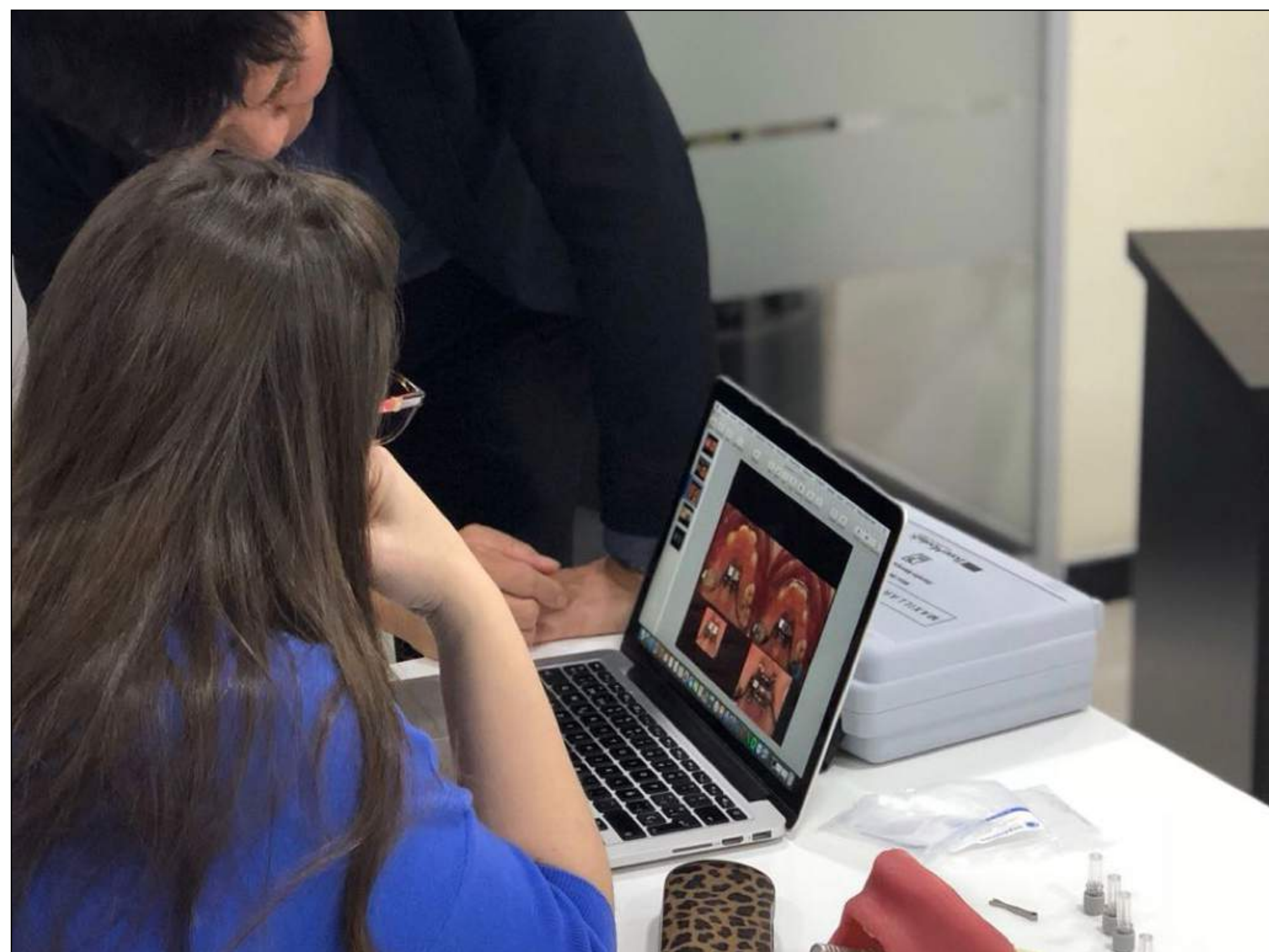
























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