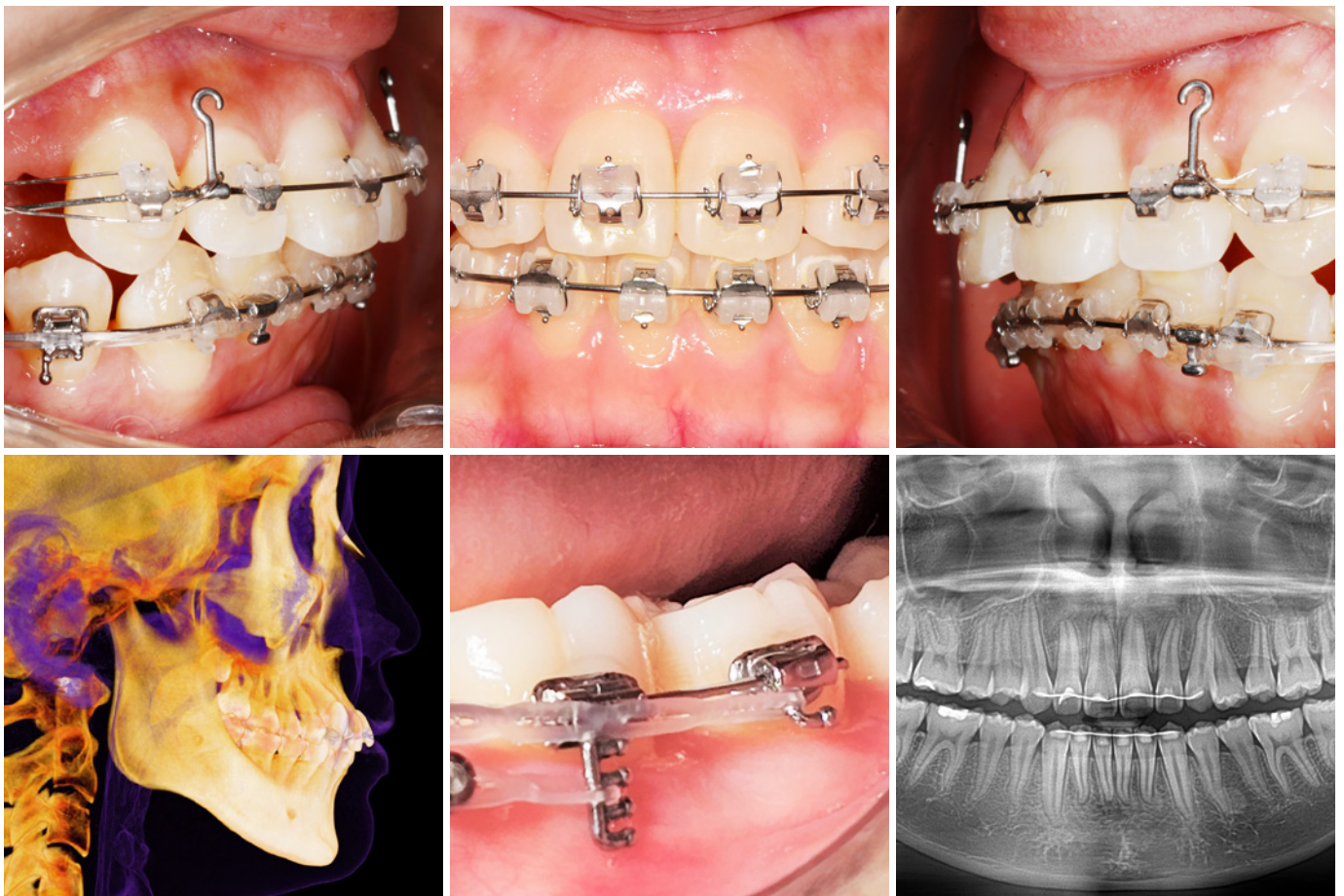


OSSTEM ORTHODONTICS CASE BOOK

Orthodontic Clinical Cases
using MAJESTY Self-ligating brackets



We Make Your Smile Beautiful

Crowding Case 1

Patient : K. J. H.
Patient C.C. : U, L Crowding
Treatment period : 1 year, 6 months

INITIAL



FINAL
1Y 6M Later

LBR BONDING/
DE-BONDING



PROGRESS 1
5M Later

Performed the leveling with
DBS of the whole upper/lower
jaws and ligation of 014N



PROGRESS 2
8M Later

Performed the leveling with
ligation of maxillary/mandibular
016N



PROGRESS 3
1Y 1M Later

Did the finishing for
the upper/lower jaws



Clinical Comments

- The patient made a visit with issues of crowding on the maxillary and mandibular anterior region and partial edge-to-edge bite
- Was able to secure a decent teeth alignment and tooth-to-tooth relationship

Crowding Case 2

Patient : K. N. R. / 16 y / male

Patient C.C. : U, L Crowding / edge-to-edge bite

Treatment period : 1 year, 2 months

INITIAL



FINAL 1Y 2M Later

LBR BONDING/
DE-BONDING



PROGRESS 1 2M Later

Performed maxillary full DBS and mandibular 3-3 DBS. Carried out the levelling by using 014N.



PROGRESS 2 6M Later

Addressed spacing on anterior region by using power chains.



PROGRESS 3 8M Later

Continued with treatment of spacing on the anterior region with the power chains. Did the finishing on the upper/lower jaws



Clinical Comments

- The patient made a visit with the issue of spacing on maxillary/mandibular anterior region and open bite due to the habit of sticking tongue out.
- Proceeded with treatment without extraction and encouraged the patient to practice swallowing saliva properly.
- The progress was decent although more could have been done for the overbite.
- As open bite can occur again, the patient needs to continue with the practice of proper saliva swallowing.

Crowding Case 3

Patient : K. M. S. / 20 y / female

Patient C.C. : Want to have the teeth aligned.

Treatment period : 2 years, 5 months

INITIAL



FINAL 2Y 5M Later



PROGRESS 1

Bracket Bonding



PROGRESS 2

14M Later



Clinical Comments

- First proceeded with caries treatment as multiple caries were found
- Bonding was done with the bypassing of #12 on the maxilla and #32 and #42 on the mandible
- Performed molar individual distalization by using open coil after extraction of #18,28,38,48 teeth and screw improvement in the maxilla/mandible (Clinical case photo on 29 Oct 2022)
- Levelling was done after distalization to #13, 33 and 43 and bonding of #12,32 and 42.

Wire Sequence

- Initial : U/L 014 Ni-Ti
- 14M : U 016×022 Ni-Ti, L 019×025 Ni-Ti
- 15M : U/L 019×025 Ni-Ti

Crowding Case 4

Patient : L. J. Y. / 10 y / female

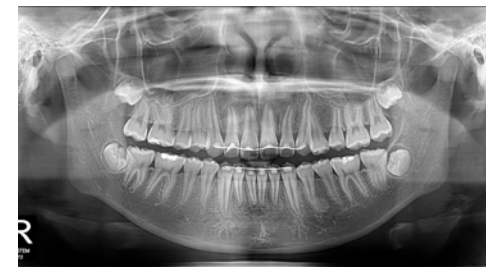
Patient C.C. : Crowding

Treatment period : 2 years, 2 months

INITIAL



FINAL 2Y 2M Later



PROGRESS 1 2M Later



PROGRESS 2 1Y Later



Clinical Comments

- The patient presented with maxillary crowding as the chief complaint.
- Although an extraction treatment was initially planned based on the patient's facial profile, it was decided to proceed with a non-extraction approach due to the guardian's opposition.
- To minimize anterior protrusion, a microimplant was placed in the maxilla to restrict the forward movement of the maxillary dentition.

Wire Sequence

- 1M : U 012 Ni-Ti
- 2M : L 014 Ni-Ti
- 3M : U 014 Ni-Ti, L 016 Ni-Ti
- 4M : U 016 Ni-Ti, L 018 × 018 Ni-Ti
- 5M : U 018 × 018 Ni-Ti
- 6M : U/L 020 × 020 Ni-Ti
- 8M : U/L 018 X 025 Ni-Ti
- 11M : U 018 × 018 Ni-Ti (upper 6 incisors bracket reposition)
- 13M : U 020 × 020 Ni-Ti
- 14M : U 018 × 025 Ni-Ti
- 18M : U 017 X 025 SS, L 017 X 025 Ni-Ti
- 22M : L 017 X 025 TMA
- 26M : Lingual Fixed retainer bonding
- 26M : Debonding

Protrusion Case 1

Patient : P. E. H. / 25 y / male
Patient C.C. : I want my teeth to become well-aligned, especially my front teeth to be pushed inward.
Treatment period : 1 year, 6 months

INITIAL



FINAL
1Y 6M Later



PROGRESS
6M Later



Clinical Comments

This is the case of a 25-year-old patient who visited our clinic with the chief complaint of wanting their teeth to be well-aligned and their anterior teeth to be pushed inward. The patient preferred non-extraction orthodontic treatment, and diagnostic analysis revealed excessive overjet (5.0 mm at #11), a left-sided Class II canine relationship, and skeletal Class II malocclusion accompanied by buccal inclination of the second molars.

Using MAJESTY brackets (Roth 0.022), treatment involved interproximal reduction of the maxillary and mandibular arches, palatal movement of the bilateral maxillary second molars using a transpalatal arch, and correction of the canine relationship and midline with a miniscrew implant on the maxillary left side.

Protrusion Case 2

Patient : Y. S. G. / 29 y / female

Patient C.C. : Anterior open bite & Crowding

Treatment period : 10 months

INITIAL



FINAL 10M Later



PROGRESS 5M Later



Clinical Comments

- The goal of this treatment is to improve the ant. open bite by removing the interference from #22 and correct maxillary and mandibular incisor crowding.
- Considering the lateral profile, the maxillary and mandibular incisor were aligned to labial and no interproximal reduction was performed. Brace only bonded to #14~#24 and #34~#44.
- Incisor tip wear was improved by resin build up and partial incisor reshaping.

Wire Sequence

- Upper : 012NT→014NT→016NT→020NT→020SS
- Lower : 012NT→014NT→016NT→020NT→020SS

Protrusion Case 3

Patient : K. S. E. / 17 y / female

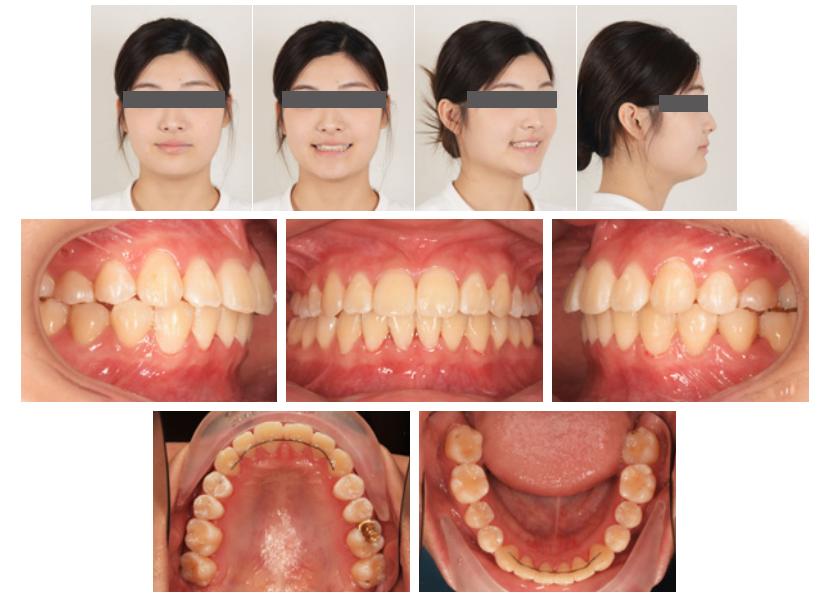
Patient C.C. : My front teeth are protruded

Treatment period : 2 years, 4 months

INITIAL



FINAL 2Y 4M Later



PROGRESS 1 1M Later



PROGRESS 2 1Y 2M Later



Clinical Comments

The patient presented with maxillary anterior protrusion as the chief complaint and showed a brachy facial type with a Class II.

It was decided to proceed with a non-extraction treatment plan, and the anteroposterior discrepancy of the maxillary and mandibular dentition was addressed by moving the maxillary arch posteriorly. To achieve posterior movement of the maxilla, a microimplant was placed between the maxillary second premolar and first molar, allowing for the posterior retraction of the maxillary dentition. As the maxillary dentition moved posteriorly, the protrusion of the high lip was reduced, resulting in an improved profile while maintaining a favorable Class II relationship.

Wire Sequence

- Initial : U/L 014 Ni-Ti
- 2M : U/L 016 Ni-Ti
- 3M : U/L 018 × 018 Ni-Ti
- 4M : U/L 018 × 025 Ni-Ti
- 6M : U/L 018 × 025 SS with Hook

- 11M : L 017 X 025 Ni-Ti
- 13M : L 017 X 025 SS
- 23M : U 017 × 025 SS
- 28M : lingual fixed retainer bonding
- 29M : Debonding

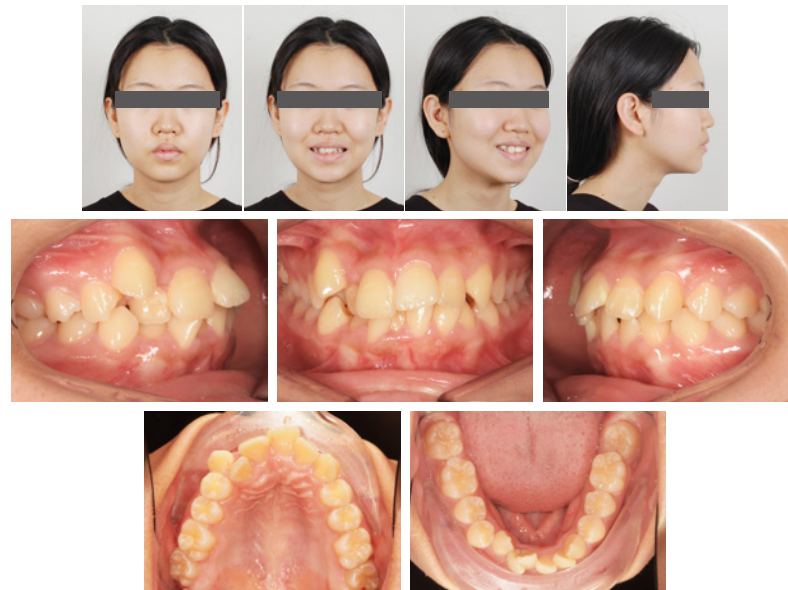
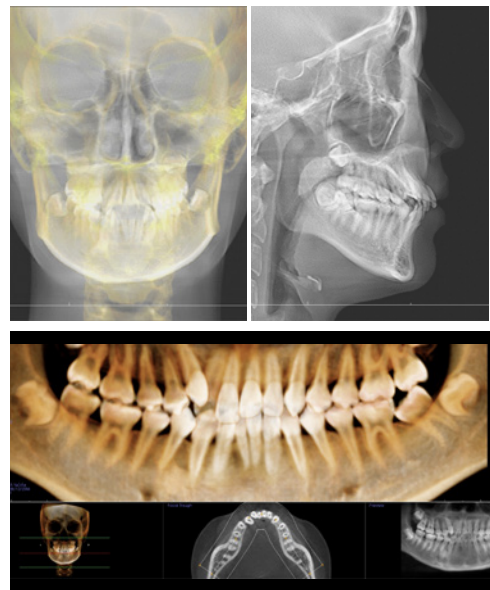
Crowding Case 1

Patient : P. E. H. / 16 y / female

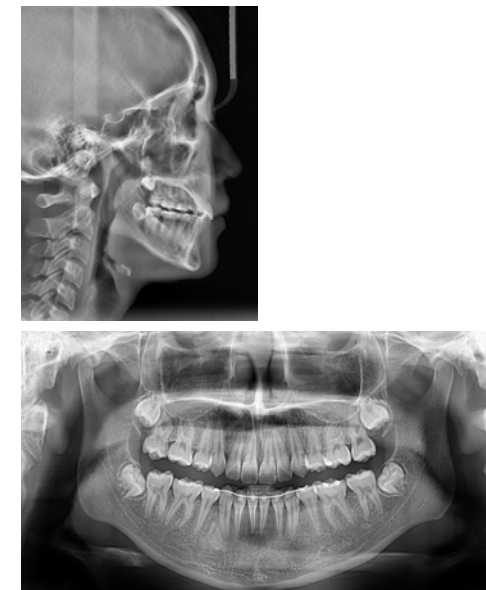
Patient C.C. : My teeth are uneven, and it feels uncomfortable when chewing.

Treatment period : 1 year, 11 months

INITIAL



FINAL 1Y 11M Later



PROGRESS 1 2M Later



PROGRESS 2 1Y 2M Later



Clinical Comments

- The patient presented with crowding as the chief complaint.
- An extraction treatment was planned considering the crowding and the patient's profile.
- The extraction spaces were closed using sliding mechanics, and the space closure was completed without significant issues.

Wire Sequence

- Initial : U 010 Ni-Ti
- 1M : L 012 Ni-Ti
- 2M : U/L 014 Ni-Ti
- 4M : U/L 016 Ni-Ti
- 5M : U/L 018 × 018 Ni-Ti
- 6M : U/L 018 × 025 Ni-Ti
- 7M : U/L 018 X 025 SS with hook (sliding space closing)
- 15M : U/L 018 × 025 Ni-Ti for releveling
- 17M : U/L 017 X 025 TMA for detailing
- 22M : Lingual fixed bonding
- 23M : Debonding

Protrusion Case 1

Patient : P. G. H. / 29 y / female

Patient C.C. : Mouth is protruded / cannot close the mouth properly

Treatment period : 1 year, 11 months

INITIAL



PROGRESS 1

4M Later

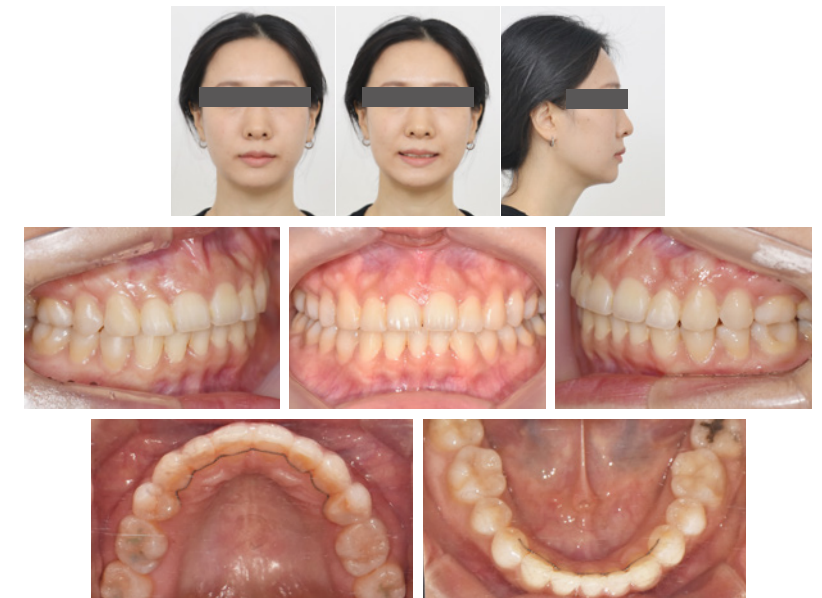


PROGRESS 2

1Y 3M Later



FINAL 1Y 11M Later



Clinical Comments

- 3 mandibular incisors (congenital missing tooth)
- Proceeded with orthodontics after extraction of teeth #15 and 25 on the maxilla
- Performed mandibular anterior intrusion by planting a screw on the mandibular anterior region
- Corrected overjet and mouth protrusion with the retraction of maxillary anterior region

Wire Sequence

- Initial : U 014 Ni-Ti
- 1M : L 014 Ni-Ti
- 2M : U 016 Ni-Ti
- 3M : U 016×022 Ni-Ti, L 016 Ni-Ti
- 3M-1 : U 018×025 Ni-Ti, L 016×022 Ni-Ti
- 4M : U 017×025 SS
- 10M : L 018 Ni-Ti
- 11M : L 016×022 Ni-Ti
- 14M : L 016×022 SS
- 19M : U 016×022 SS
- 22M : Debonding

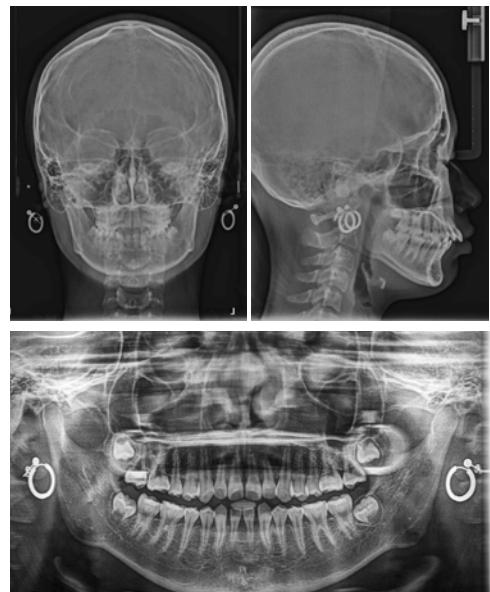
Protrusion Case 2

Patient : P. J. H / 14 y / female

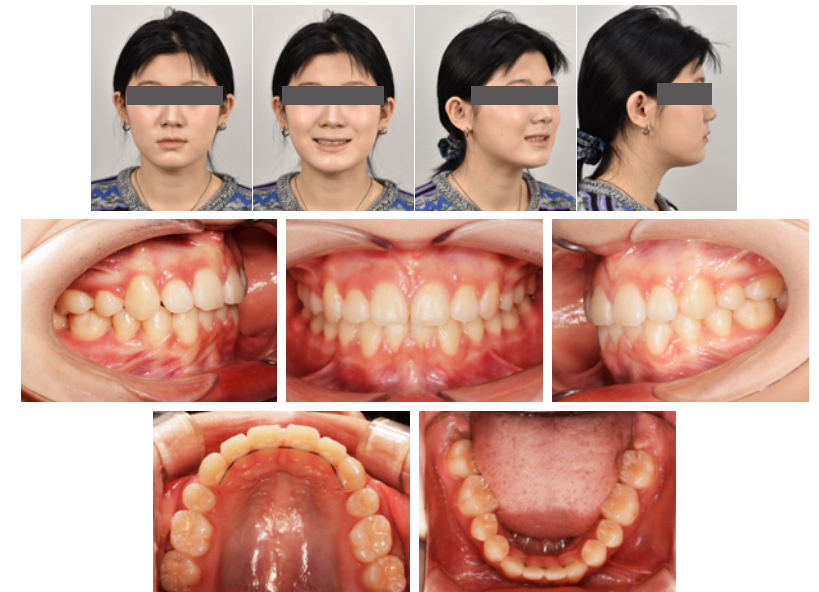
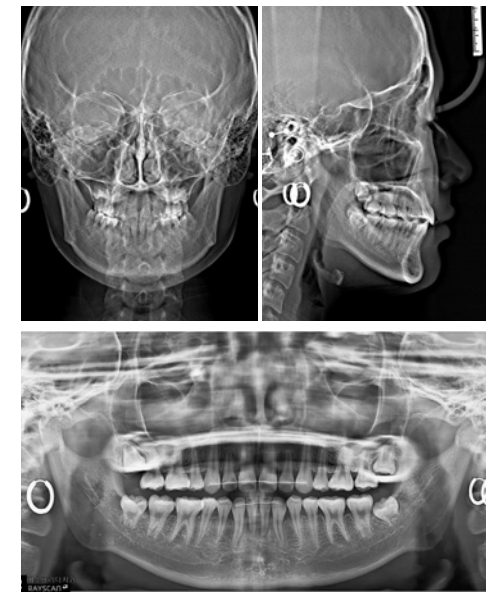
Patient C.C. : #32, 42 congenital missing

Treatment period : 2 years, 1 month

INITIAL



FINAL 2Y 1M Later



PROGRESS 1 6M Later



PROGRESS 2 1Y 6M Later



Clinical Comments

Case Comments: The patient showed Class I canine relationships due to congenital absence of teeth #32 and #42 in a skeletal Class II case. Teeth #33 and #43 were substituted as lateral incisors, and the treatment plan involved extracting only the maxillary first premolars to facilitate the retraction of the anterior teeth.

Post-treatment, the patient's facial profile showed improvement. Although the canine relationships were not perfect due to discrepancies in Bolton analysis ratios, a relatively stable occlusion was achieved.

Wire Sequence

- Initial : U/L 014 Ni-Ti
- 2M : U/L 018 Ni-Ti
- 3M : U/L 016X022 Ni-Ti
- 4M : U 019X025 Ni-Ti, #14,24 Extraction, Mini Screw insertion
- 5M : U 017X025 SS with hook, L 019X025 Ni-Ti
- 6M : L 017X025 SS
- 12M : Lower arch reposition & #33, 43 IPR for lateralization
- 20M : finishing& detailing
- 24M : Debonding

Protrusion Case 3

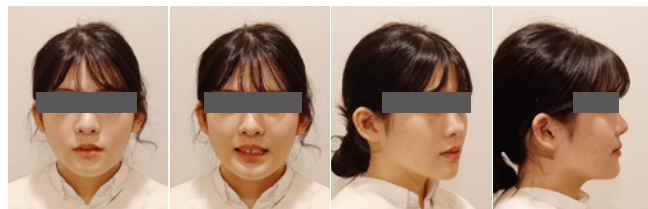
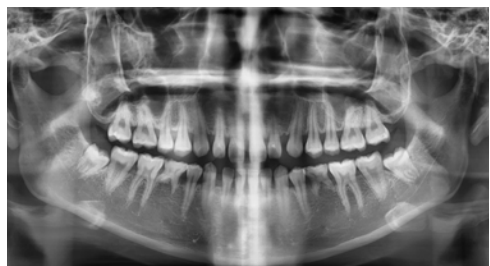
Patient : K. N. H. / 16 y / female

Treatment period : 2 years, 5 months

Patient C.C. :

- 1) The patient presented with congenital absence of the mandibular second premolars on both sides, and at the time of the visit, the mandibular second primary molars on both sides were retained as over-retained teeth.
- 2) Spacing was observed in both the maxilla and mandible.
- 3) Both maxillary lateral incisors exhibited a peg-shaped morphology.

INITIAL



PROGRESS 1 4M Later



PROGRESS 2 1Y 8M Later

Molar Protraction



PROGRESS 3 1Y 10M Later

Molar Protraction



PROGRESS 4 2Y 5M Later



This Case is not finished yet. (Dec, 2024)

Clinical Comments

The patient's frontal and lateral appearance was in good condition, with plans to achieve improvement in the intrusion of the maxillary central incisors and correction of their angulation. The treatment aims to improve the maxillary and mandibular dental midlines. The mandibular second primary molars will be extracted, and mini-screws will be placed posterior to the first premolars. Additionally, Dr. Unbong's M-P Tube will be bonded to the mandibular first molars on both sides to design the center of resistance and facilitate the closure of the extraction spaces.

Dr. Unbong's M-P(Molar Protraction) Tube



Consolidation of mandibular edentulous space can lead to mesial crown tipping of the molars being protracted. In this Pearl, the authors present a new molar-tube design with a long buccal hook that applies the force closer to the tooth's center of resistance, thus minimizing undesirable side effects.

SERGIO HERNAN VALVERDE MONTALVA,
DDS, MS
Associate Editor for Pearls

Molar Protraction Tube with Multiple Hooks

Molar protraction for closure of posterior edentulous spaces can be challenging to achieve without crowding or protrusion of the incisors. The use of temporary anchorage devices (TADs) makes it possible to rotate the entire dentition forward, resulting in extrusion of the protracted molar and intrusion of the incisors^{1,2} (A).

To prevent mesial tipping of the molars during protraction, the force should be applied close to the center of resistance (CR) of the molars, which is near the root furcation.² The position of CR will vary depending on the molar root length and morphology and the alveolar-bone level.

Some clinicians use a long buccal hook or a lever arm made from orthodontic wire.^{3,4} A custom-

made buccal hook can be soldered to a molar tube, but this is time-consuming to fabricate and difficult to manipulate for control of the force vector (B).

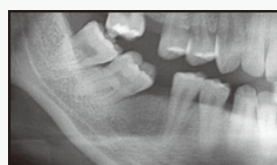
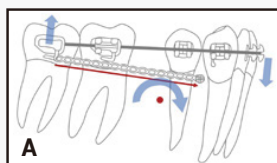
M-P Tube

Dr. Un-Bong's Molar Protraction Tube (M-P Tube) enables the clinician to control the moment-to-force ratio without making a customized lever arm (C). The M-P Tube has a long hook with four steps, allowing the protraction force to be applied as close as possible to the CR of the molars. The end of the hook is rounded to prevent soft-tissue irritation, but the hook can be cut as needed to produce the desired force vector. Although the M-P Tube is designed to fit the average buccal molar contour (see box), it can be bent buccolingually to accommodate a patient's anatomy. Bending should be minimized to avoid fatigue fracture.

The technique is demonstrated on a patient whose mandibular second molar was mesially tipped due to a missing first molar, which had

SPECIFICATIONS

- Slot size: .022"
- Hook length: 5.17mm
- Mesiodistal length: 2.33mm
- Distance between steps: 1.3mm
- Material: grade 630 stainless steel
- Torque: -15°
- Angulation: 0°
- Offset: 0°
- In-out bend: .64mm



PEARLS

been extracted 10 years earlier (D). The M-P Tube was bonded to the second molar, and elastomeric chain was attached from the appropriate step to a buccal miniscrew between the premolars (E). Thus, the molar angulation was controlled during space closure.

Discrepancies in the in-out, angulation, and torque of the protracted molar can be adjusted by replacing the tube with a conventional bracket after molar protraction is complete. Although it is designed for mandibular molars, the M-P Tube can also be used for maxillary molar protraction by simply inverting it and bonding it on the opposite side.

REFERENCES

1. Baik, U.B.; Kim, M.R.; Yoon, K.H.; Kook, Y.A.; and Park, J.H.: Orthodontic uprighting of a horizontally impacted third molar and protraction of mandibular second and third molars into the missing first molar space for a patient with posterior crossbites, Am. J. Orthod. 151:572-582, 2017.

2. Baik, U.B.; Chun, Y.S.; Jung, M.H.; and Sugawara, J.: Protraction of mandibular second and third molars into missing first molar spaces for a patient with an anterior open bite and anterior spacing, Am. J. Orthod. 141:783-795, 2012.
3. Kravitz, N.D. and Jolley, T.: Mandibular molar protraction with temporary anchorage devices, J. Clin. Orthod. 42:351-355, 2008.
4. Kim, S.J.; Sung, E.H.; Kim, J.W.; Baik, H.S.; and Lee, K.J.: Mandibular molar protraction as an alternative treatment for edentulous spaces: Focus on changes in root length and alveolar bone height, J. Am. Dent. Assoc. 146:820-829, 2015.



JUNG-SUB AN, DDS, PhD
Professor
Department of Orthodontics
Seoul National University Dental Hospital
Seoul, Korea



UN-BONG BAIK, DDS, PhD
Private practice
Smilewith Orthodontic Clinic
30 Dobongro, Ecopia 7F
Gangbuk-gu, Seoul 01220, Korea
baikub222@naver.com



HOI-SHING LUK, DDS, PhD
Private practice
Dr. Luk's Orthodontic Clinic
Taichung, Taiwan



YOON-JI KIM, DDS, PhD
Assistant Professor
Department of Orthodontics
Asan Medical Center
College of Medicine, University of Ulsan
Seoul, Korea



NIKHILESH R VAID, BDS, MDS, PhD
Adjunct Professor
Department of Orthodontics
Saveetha Dental College
Saveetha Institute of Medical and Technical Sciences
Chennai, India

Crowding & Protrusion Case 1

Patient : H. N. E. / 18 y / female

Patient C.C. : Had the orthodontics treatment abroad and want to continue with the treatment in Korea.

Treatment period : 2 years, 4 months

INITIAL



FINAL 2Y 4M Later



PROGRESS 1 2M Later



PROGRESS 2 1Y 4M Later



Clinical Comments

- Came back to Korea during the orthodontics treatment abroad
- Large overjet, minimum crowding and Class II on left and right sides were detected (Right: 1/4 PMW, Left: 1/2 PMW)
- Extracted teeth #14,24,35,45 with the purpose of addressing overjet and crowding and improving molar relationship
- Enhanced the anchorage by planting the maxillary screw as molar Class II was severe on the left side
- Improved the molar relationship by using Class II elastic

Wire Sequence

- Initial : U/L 016 Ni-Ti
- 9M : U/L 019×025 Ni-Ti
- 10M : U/L 019×025 SS
- 15M : U/L 019×025 SS

Crowding & Protrusion Case 2

Patient : P. J. H. / 18 y / female

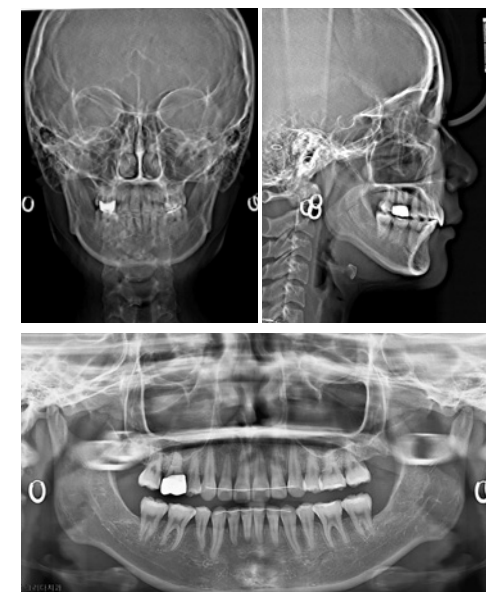
Patient C.C. : Crowding & lip protrusion

Treatment period : 2 years, 1 month

INITIAL



FINAL 2Y 1M Later



PROGRESS 1 7M Later



PROGRESS 2 1Y 8M Later



Clinical Comments

- The patient showed a mesofacial pattern with dental Class II. To improve protrusion and address crowding, the maxillary first premolars and mandibular second premolars were extracted.
- Class II elastics were used to improve the canine and molar relationships without skeletal anchorage.
- Post-treatment, the patient's facial profile improved through anterior retraction, and there was an improvement in crowding as well as the canine relationships intraorally.

Wire Sequence

- Initial : U/L 012 Ni-Ti
- 2M : U/L 016 Ni-Ti
- 3M : U/L 018 Ni-Ti
- 4M : U/L 016X022 Ni-Ti
- 6M : U/L 019X025 Ni-Ti
- 7M : L 017X025 SS wire with hook
- 8M : U 017X025 SS wire with hook
- 18M ~ 24M : Finishing & Detailing
- 25M : Debonding