3M℠ Health Care Academy

Enhancing Class II treatment efficiency with Clarity™ SL Self-Ligating Brackets and Forsus™ Class II Correctors.

CLARITY™ SL
SELF-LIGATING APPLIANCE SYSTEM

FORSUS™ Class II Correctors

Dr. Ricardo Moresca

Dr. Ricardo Moresca received his dental degree in 1991 and his post-graduate certificate in Orthodontics in 1996 from the Federal University of Paraná, Brazil, his M.S. in Orthodontics from the Methodist University of São Paulo, Brazil, in 2000 and his Ph.D. in Orthodontics from the University of São Paulo, Brazil, in 2006. Since 2004, he is Assistant Professor of the Department of Orthodontics at Federal University of Paraná, maintaining a part-time private practice in Curitiba, Brazil.

Introduction

The Class II malocclusion is considered one of the most challenging treatment needs to orthodontists. Besides the skeletal and/or dental characteristics, facial features can also influence treatment options. In this case report, a half-cuspid Class II malocclusion patient was successfully treated with Forsus™ Class II Correctors, enabling reduction in treatment time and patient's compliance. Clarity™ SL Self-Ligating Brackets were selected to improve aesthetic appearance and performance (low friction during initial phases and control during Class II correction). The MBT™ System prescription was essential to achieve excellent torque control, especially in the lower anteriors.

Patient

Female; 12 years, 11 months

Patient's Main Concern

Misalignment of anterior teeth and spacing between upper central incisors.

X-ray Findings

- Complete permanent dentition
- Roots mineralization beginning on third molars
- Short roots noted on teeth #1.1 and 2.1

Dental Analysis

- Half-cusp Class II Division 2 malocclusion
- Deep overbite (5 mm)
- Upper central incisors extruded and tipped distally with a 2 mm diastema
- Upper lateral incisors tipped labially
- Lower posterior teeth tipped lingually
- Accentuated lower curve of Spee (4 mm)

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Treatment Plan

- Upper/Lower Clarity SL ceramic self-ligating brackets – .022" slot – MBT System Prescription
- Molar tubes bonded to upper and lower molars – .022" slot – MBT Prescription
- Buildups on lower first molars tubes to open the bite allowing lower brackets positioning
- Alignment and leveling of upper and lower arches
- Forsus™ Appliance for Class II correction (bonded first upper molar tubes were replaced with bands)

Treatment	**20 months (February 2013 – October 2014)**		
Mx	February 2013	Indirect	.014" SE, .016" SE, .014" and .016" SE, .017"×.025" SE, .019"×.025" SE, .019"×.025" SS, .019"×.025" Braided
Md	April 2013	Indirect	.014" SE, .016" SE, .018" SE, .017"×.025" SE, .019"×.025" SE, .019"×.025" SS, .019"×.025" Braided
Forsus™ Treatment	4 months (July 2013 – November 2013)		
# of visits	18		
Emergencies	1		

Retention

- Removable appliance with bite plane on upper arch to avoid lower incisors extrusion
- 3×3 fixed lingual retainer on lower arch

Initial Records

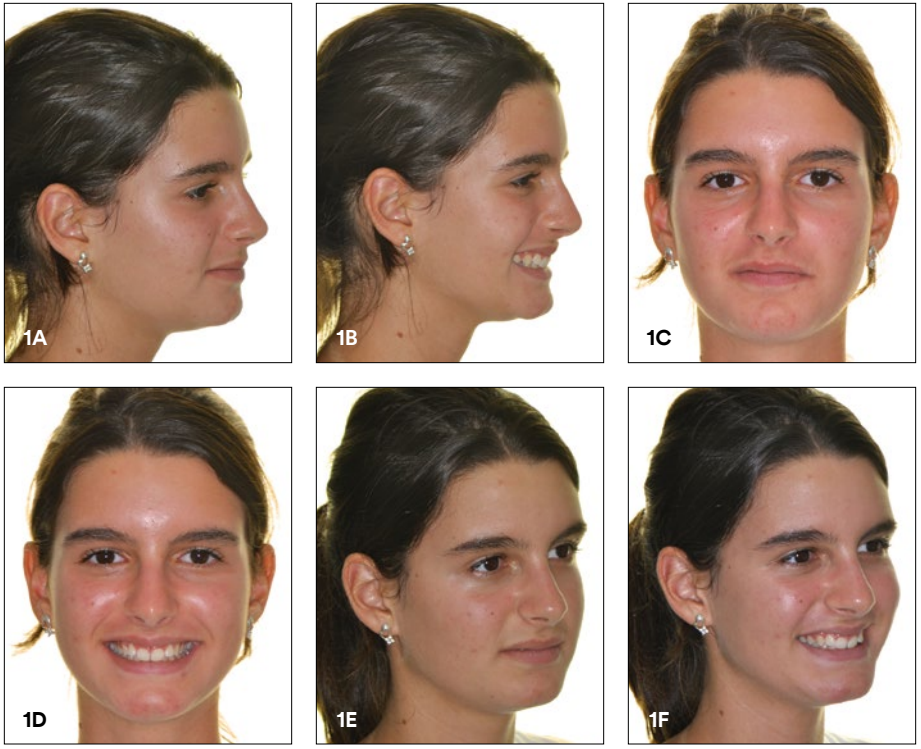


Figure 1A-F: Initial facial analysis.

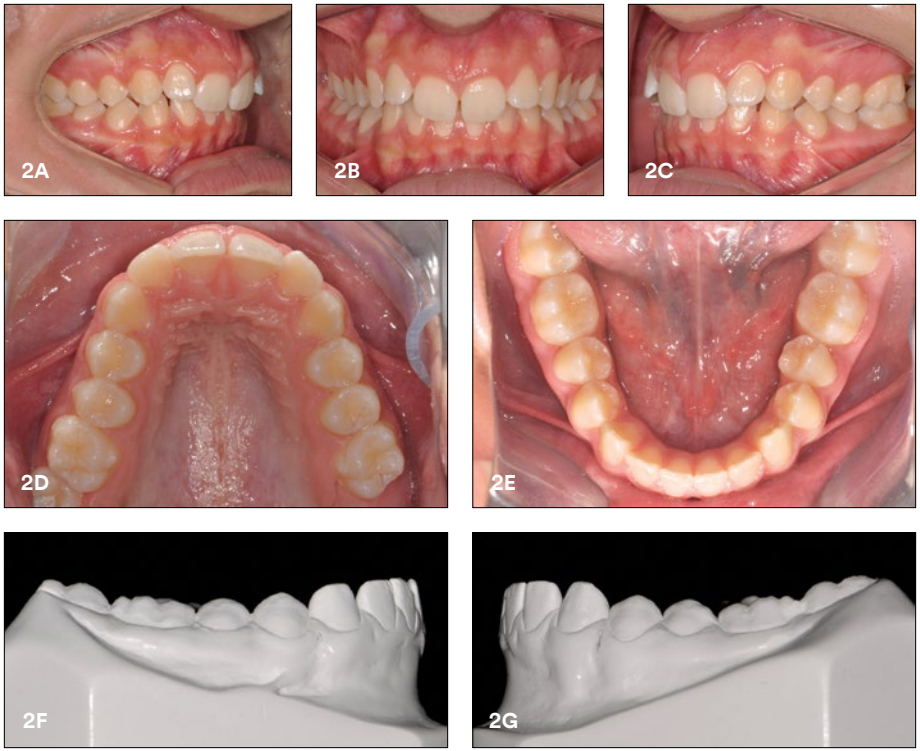


Figure 2A-G: Initial dental analysis.

Figure 3: Initial panoramic X-ray.

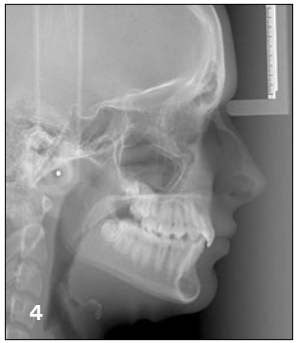


Figure 4: Initial cephalometric X-ray.

Cephalometric Analysis	Norm	Initial	Final
Maxilla to Cranial Base			
SNA (°)	82.0	82.1	81.5
Mandible to Cranial Base			
SNB (°)	80.0	80.2	80.0
SN – GoGn (°)	32.0	26.4	27.5
FMA (MP-FH) (°)	25.0	20.0	21.0
Maxillo-Mandibular			
ANB (°)	2.0	1.9	1.5
Maxillary Dentition			
U1 – NA (mm)	4.0	2.8	3.2
U1 – SN (°)	103.0	98.0	103.7
Mandibular Dentition			
L1 – NB (mm)	4.0	2.1	3.9
L1 – GoGn (°)	93.0	95.6	102.3
Soft Tissue			
Lower Lip to E-Plane (mm)	-2.0	-2.7	-2.8
Upper Lip to E-Plane (mm)	-4.0	-4.7	-5.3

Table 1: Cephalometric analysis.

Treatment Progress

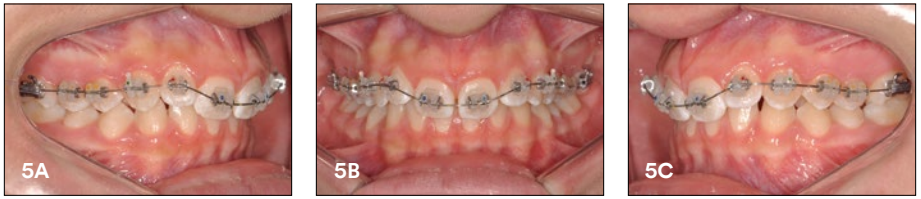
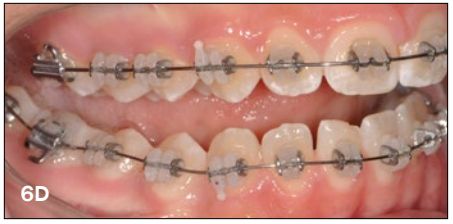


Figure 5A-C: Upper arch – .014" SE.



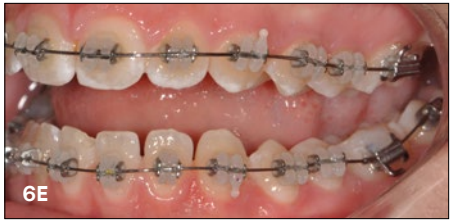
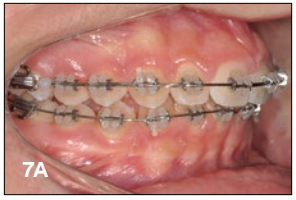


Figure 6A-F: Upper arch – .016" SE; lower arch – .014" SE.



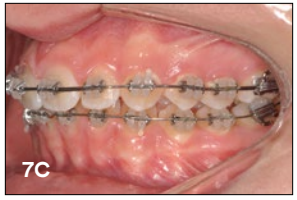
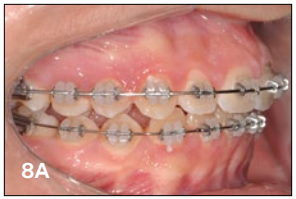


Figure 7A-C: Upper arch – .014" and .016" SE; lower arch – .016" SE.



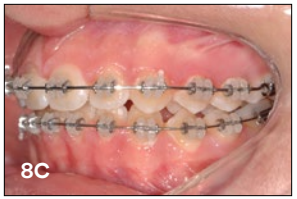


Figure 8A-C: Upper arch – .017"x.025"; lower arch –.018" SE.

Figure 9A-C: Forsus™ Appliance.

Figure 10: Panoramic X-ray after Forsus™ Appliance.

Figure 11: Cephalometric X-ray after Forsus™ Appliance.

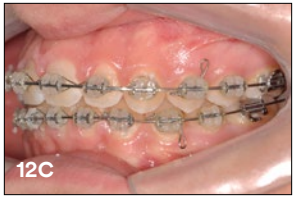


Figure 12A-C: Releveling after brackets repositioning.

Final Records

Figure 13A-F: Final facial analysis.

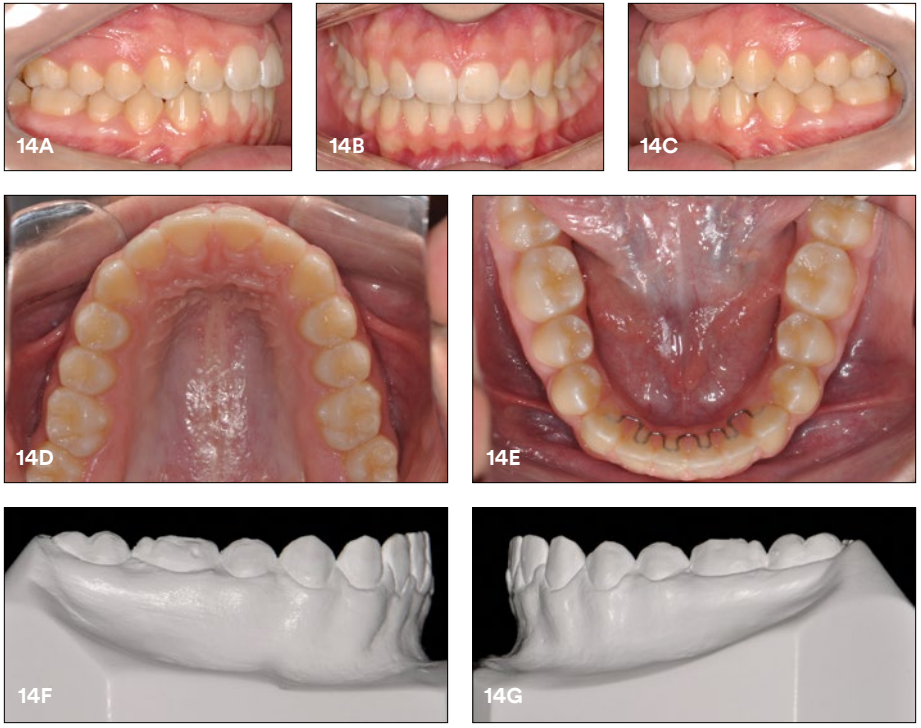


Figure 14A-G: Final dental analysis.

Figure 15: Final panoramic X-ray.

Figure 16: Final cephalometric X-ray.

Doctor's Notes

1. Lower brackets and tubes were bonded in the third month of treatment after an initial alignment of upper incisors. Buildups in first lower molar were planned to prevent upper teeth enamel wear and lower brackets failure.

2. First lower molars buildups were removed progressively during treatment allowing extrusion of these teeth during lower curve of Spee leveling.

3. SE denotes NiTi Super Elastic wire and SS denotes stainless steel wire.

4. This case was treated with Forsus Correctors, adapted to bands on first upper molars. Currently, it is recommended to use the Forsus™ Wire Mount that requires no bands.

5. Forsus Correctors were adapted to lower canine's brackets objecting a more horizontal vector during Class II correction due patient's horizontal skeletal pattern. Adapting Forsus Correctors on first premolar's bracket could produce a more vertical vector tending to intrude upper first molar that was not a desirable effect in this case.

6. The effects of Class II treatment with Forsus Correctors were in accordance to the reported in previous studies, including distal movement of upper molars, mesial movement of lower molars and proclination of lower incisor. No skeletal effect was observed.

7. After Forsus Appliance correction, nocturnal Class II elastic were applied (1/4 in./8 oz.). During finishing some brackets were repositioned to improve occlusal relationship.

8. MBT System incisors torque prescription (U1=17°; U2=10°; L1 and L2=-6°) allowed an excellent torque control of these teeth especially in the lower arch. Proclination of lower incisors was well controlled despite the effects of the Forsus Corrector therapy and Curve of Spee leveling.

Case photos provided by Dr. Ricardo Moresca

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