

CASE REPORT

A Compromise Treatment for Class II, Division 2 Malocclusion

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The success of Class II treatment generally depends on the patient's growth potential^{1,2} and cooperation with orthodontic appliances. In non-growing patients, or where insufficient cooperation is expected, compromise treatment may be necessary.

One of the "camouflage" options^{3,4} available in such cases involves extracting the maxillary first premolars,¹ correcting the cuspids to a normal Class I occlusion, and leaving the molars Class II. One problem, however, is the difficulty of controlling the deep bite and the anterior torque during space closure.

The present case report demonstrates a solution using segmental mechanics in the ini-

tial phase and continuous wire mechanics to finish the case.

Diagnosis

A 14-year, 9-month-old Brazilian male in the permanent dentition presented for orthodontic treatment, with the chief complaint of deep bite and crowding. Clinical examination revealed a symmetrical, mesocephalic facial type, convex profile, prominent chin, deep labio-mental sulcus, and obtuse nasolabial angle (Fig. 1). Poor oral hygiene was noted.

The patient had a severe Class II, division 2 malocclusion with a 100% overbite and a 3mm overjet. There was moderate crowding in both arches, with a

maxillary arch-length discrepancy of 5.5mm and a mandibular discrepancy of 6mm. The lower midline was coincident with the facial midline; the upper midline was deviated 1.5mm to the left. Both the maxillary and mandibular incisors were upright. The curve of Spee was reverse in the maxillary arch and accentuated in the mandibular arch.

All four third molars were present and appeared to be developing normally. Centric relation was coincident with maximum intercuspation. The patient showed a good range of motion and had no TMJ problems.

The cephalometric analysis confirmed the severe skeletal Class II malocclusion (Table 1). The maxilla was protrusive rela-

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tive to the cranial base (SNA 86°). ANB was 6° and the Wits measurement +10mm, both suggesting an apical base discrepancy. The mandibular plane angle (SN-GoMe) was 26°.

Treatment Plan

Treatment objectives were to:

1. Correct the anteroposterior relationship.
2. Develop an ideal overbite.
3. Level and align both arches.
4. Improve the profile and facial esthetics.

The treatment plan involved:

1. Extraction of the maxillary first bicuspid.
2. Partial retraction of the maxillary cuspids.

3. Intrusion and root correction of the maxillary central and lateral incisors.

4. Maxillary anterior retraction.

5. Uprighting of the mandibular first molars.

6. Flaring of the mandibular central and lateral incisors.

7. Intrusion of the mandibular

anterior segment.

Treatment Progress

The maxillary first bicuspid was extracted. The first molars were banded, and the maxillary arch was bonded from second bicuspid to second bicuspid.

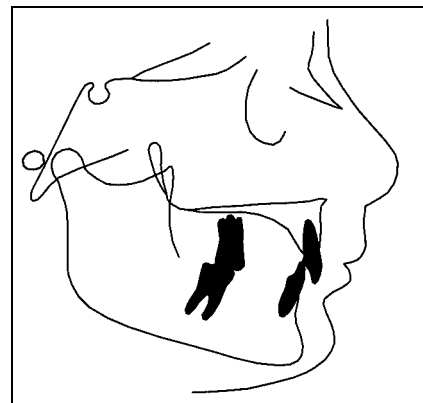
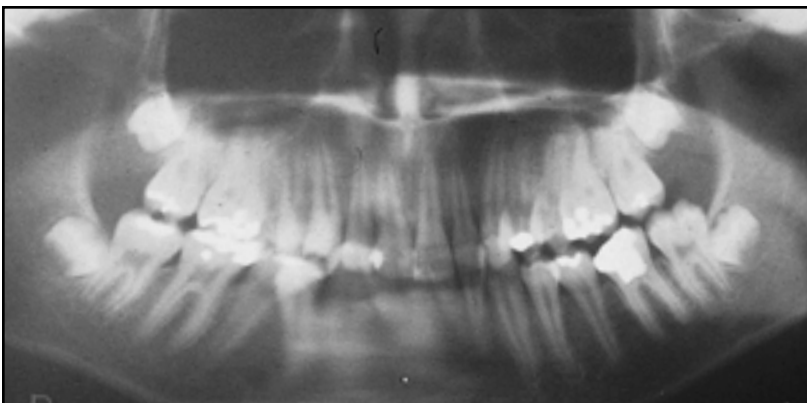


Fig. 1 14-year-old male with Class II, division 2 malocclusion before treatment.

pid with standard .022" edgewise brackets.* A transpalatal arch was placed.

The maxillary canines were partially retracted, using T-loops

to gain enough space for the anterior alignment. An .019" × .025" stainless steel wire was then placed from cuspid to cuspid; after initial alignment, .019"

× .025" segments were added from first molar to second bicuspoid on each side (Fig. 2). An .017" × .025" stainless steel arch was used for anterior intrusion.^{5,6}

In the mandibular arch, a segment of .017" × .025" stainless steel wire was placed from cuspid to cuspid, and an .017" × .025" stainless steel intrusion arch was inserted.

To prevent distal tipping and provide anchorage for the maxillary first molars, a combination headgear was worn while sleeping. The force system was placed above the center of resistance^{5,6} (Fig. 3).

**TABLE 1
CEPHALOMETRIC ANALYSIS**

	Norm	Initial	Final
SNA	82°	86°	83°
SNB	80°	80°	80°
ANB	2°	6°	3°
Wits	-1mm	+10mm	+3.5mm
SN-GoMe	32°	26°	27°
FMA	25°	25°	26°
SN-OP	14°	13°	15°
IMPA	87°	91°	103°
1-NA	22°	3°	26°
1-NA	4mm	1mm	4mm
1- <u>Stm</u>	2-3mm	8mm	2mm
1-NB	25°	17°	30°
1-NB	4mm	2mm	6mm
1-1	131°	152°	121°
NLA	110°	110°	121°

*Morelli, Suracabo, Sao Paulo, Brazil.



Fig. 3 Combination headgear worn at night.

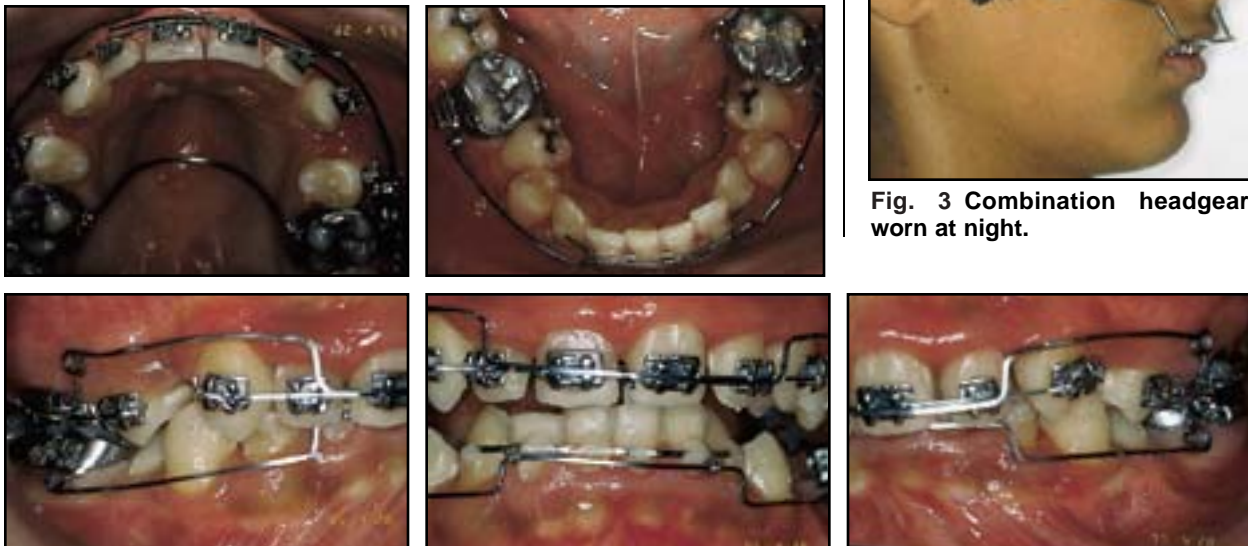


Fig. 2 Maxillary and mandibular incisor intrusion.



Fig. 4 Maxillary anterior root torque correction and mandibular leveling and alignment.

After incisor intrusion was completed, a continuous .018" stainless steel archwire was placed in the maxillary arch to prevent relapse of the anterior segment (Fig. 4). This archwire included the first molar and second bicuspid brackets on each side, passing under the anterior brackets. To correct the maxillary incisor root torque, an .017" × .025" stainless steel archwire was inserted from cuspid to cuspid and engaged between the first molars and second bicuspids.⁷ The system has a low load-deflection ratio and delivers a constant, physiologically compatible force (Fig. 5), so that the torquing bends did not need to be reactivated at each appointment.

Once the mandibular molars were uprighted, a lingual arch was used to stabilize the posterior segment while leveling and alignment were completed with continuous stainless steel archwires. Maxillary anterior re-

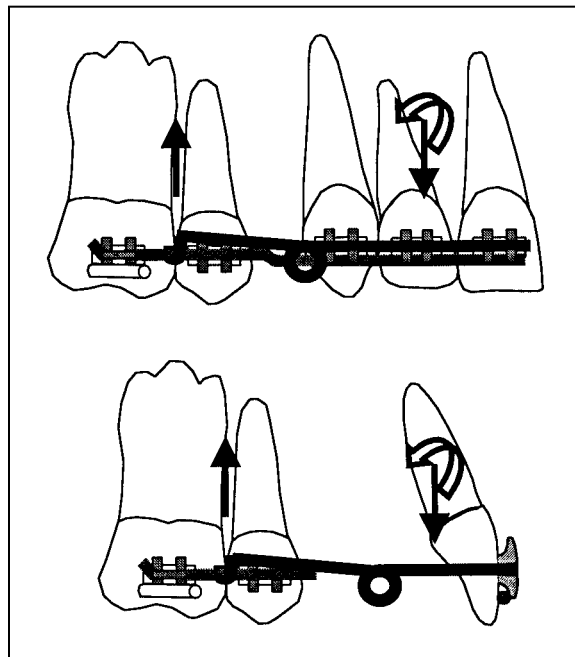


Fig. 5 Force system for maxillary anterior root torque correction.

traction was finished with .017" × .025" TMA** T-loops, using 180° of activation⁷ (Fig. 6).

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Fig. 6 Maxillary space closure with TMA T-loops and mandibular ideal arch.

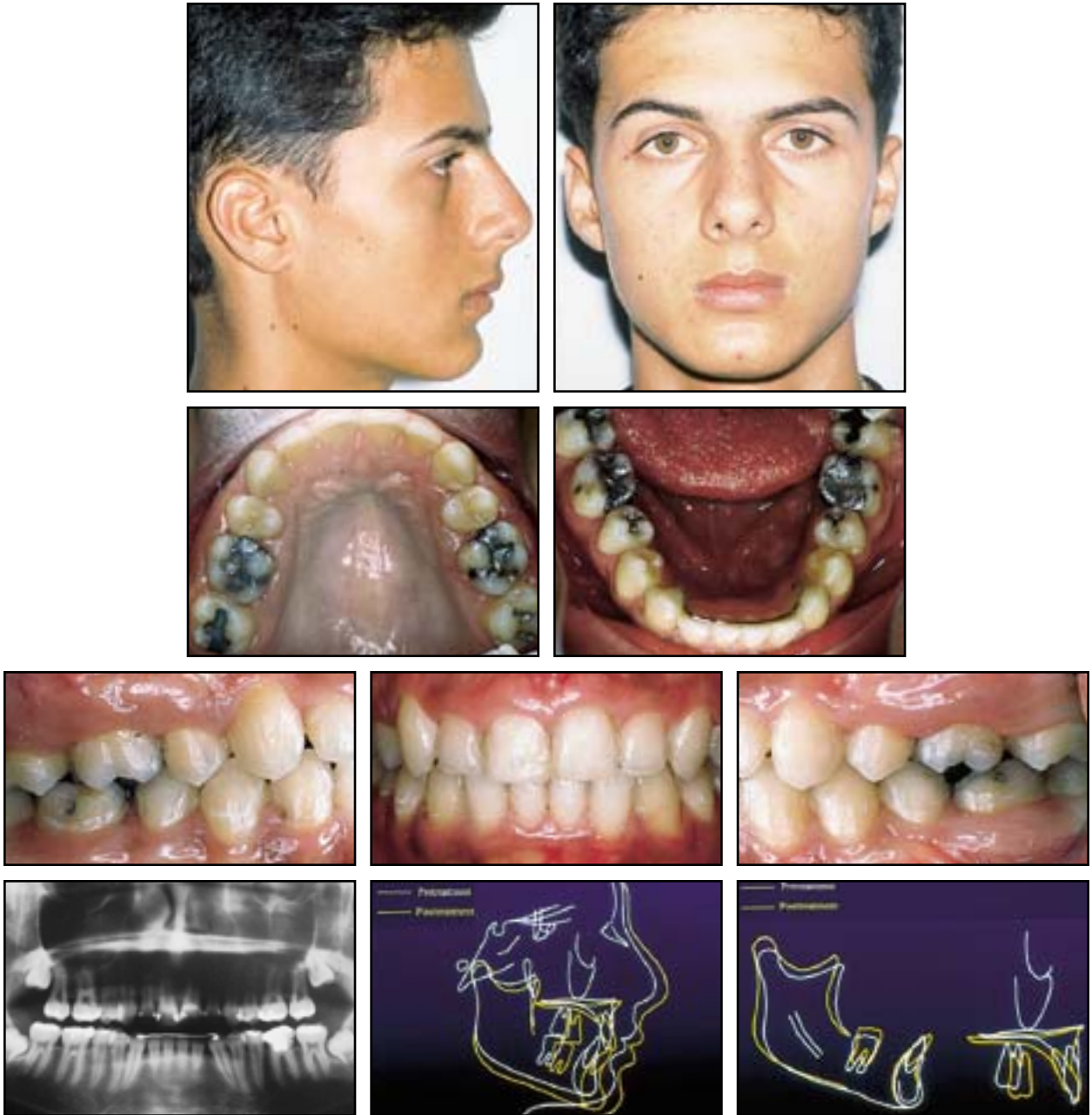


Fig. 7 Patient after treatment.

Treatment Results

Superimpositions demonstrated root correction of the maxillary incisors and excellent anchorage control in the maxillary arch, with mandibular incisor flaring and molar uprighting (Fig. 7). A functional occlusion with a Class I cuspid and Class II molar relationship was achieved, and the patient's facial appearance was improved.

After debonding, a maxillary wraparound Hawley retainer was placed; the patient was instructed to wear it full-time for six months, then at night only. A lingual 3-3 retainer was bonded in the mandibular arch, and the patient was advised that it should be worn indefinitely to insure long-term stability.

The compromise treatment

was successful in a patient with little remaining growth and a poor outlook for cooperation.

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