

Early Treatment of a Class III Malocclusion with Severe Crowding and Deep Bite

Abstract

This report describes a conservative (non-extraction) early treatment for Class III malocclusion with anterior crossbite that began in the mixed dentition (9yr 6mo) and was finished in the early permanent dentition (12yr 8mo). Crowding was 6mm in the lower and 16mm in the upper arch, and there was no space for the unerupted maxillary canines. The probable etiology of the malocclusion was inadequate development of the maxillary arch, associated with ectopic eruption of the maxillary central incisors into an anterior crossbite that developed into a 100% deepbite. The ABO Discrepancy Index (DI) was 29. Early treatment for development of the maxillary arch was achieved with a 2x2 appliance, engaging the first molars and central incisors, supplemented with bite turbos on the lower incisors to open the bite, and open coil springs to tip the central incisors labially. After 23 months of treatment, the buccal segments were erupted and all maxillary teeth except the lateral incisors were bonded with a passive self-ligating (PSL) appliance. Space was opened with open coil springs for the blocked-out lateral incisors. At 28 months, buttons were bonded on the lateral incisors to apply archwire traction, and the lower arch was bonded from first molar to first molar (6-6) with PSL brackets. At 30 months, PSL brackets were also bonded on the lateral incisors and the maxillary arch was aligned. After 38 months of active treatment, 23 mo in mixed dentition and 15 mo in permanent dentition, an acceptable orthodontic alignment was achieved, as evidenced by a cast-radiograph evaluation (CRE) score of 25 points, but the second molars were not scored because they were not fully erupted. The superimposition of cephalometric tracings shows that the upper and lower incisors were tipped anteriorly, molars were extruded, and the mandibular plane angle was open about 3°. Follow-up records 2 years after treatment revealed the correction was stable and late facial growth was within normal limits (WNL). Additional monitoring is indicated until the full permanent dentition (7-7) is achieved. (J Digital Orthod 2018;51:44-61)

Key words:

Early treatment, mixed dentition, Class III, severe crowding, deep bite, arch development

History and Etiology

A 9-year-6-month-old girl presented with an anterior cross bite and severely crowded mixed dentition (Figs. 1-3). A clinical evaluation revealed a Class III molar relationship, deep anterior over-bite and an excessive Curve of Spee in the lower arch. Maxillary canine eruption was blocked out, and potentially impacted. The facial profile was straight with a slightly protrusive lower lip. Both medical and dental histories were noncontributory, and there was no evidence of contributing oral habits or temporomandibular dysfunction. The patient was treated to an acceptable result, as shown in Figs. 4-9.

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■ Fig. 1: Pre-treatment facial photographs



■ Fig. 4: Post-treatment facial photographs



■ Fig. 2:
Pre-treatment intraoral photographs reveal severe crowding of both arches and anterior crossbite.



■ Fig. 5:
Post-treatment intraoral photographs show the anterior crossbite has been corrected.



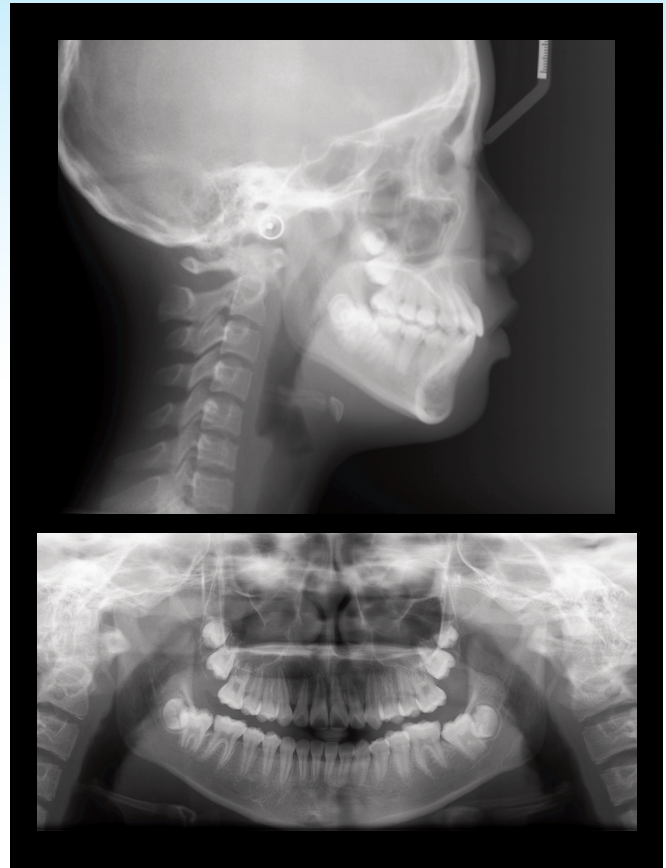
■ Fig. 3: Pre-treatment study models (casts)



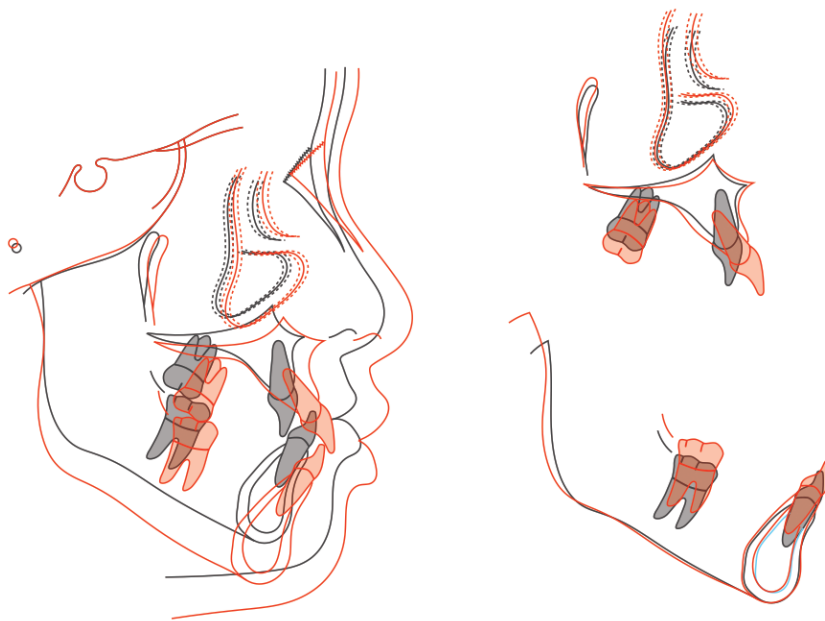
■ Fig. 6:
Post-treatment study models (casts) reveal modest expansion in both arches.



■ Fig. 7:
Pre-treatment cephalometric and panoramic radiographs



■ Fig. 8:
Post-treatment cephalometric and panoramic radiographs



■ Fig. 9:
Pre-treatment (black) and post-treatment (red) cephalometric tracings are superimposed to show the dental, skeletal and soft tissue changes during treatment. See text for details.

Diagnosis

Skeletal:

- Class III (SNA 77°, SNB 79°, ANB -2°)
- Normal mandibular plane angle (SN-MP 36°, FMA 32°)

Dental:

- Midline: The lower midline was shifted 1mm to the left of the facial midline
- Molar Relationships: Bilateral Class III
- Arch-length Discrepancy: -16mm in the upper and -6mm in the lower
- Crossbite: Anterior segment plus the lower first premolars were in buccal crossbite
- Curve of Spee: Excessive in the mandibular arch
- American Board of Orthodontics (ABO) Discrepancy Index (DI): 29, as shown in the subsequent worksheet

Facial:

- Profile: Straight with a slightly protrusive lower lip
- Functional Shift: Anteriorly on closing, centric relation to centric occlusion ($C_R \rightarrow C_O$)
- Symmetry: Within normal limits (WNL)

Specific Treatment Objectives

The principle objectives were to: 1. correct the anterior cross bite, 2. relieve the maxillary and mandibular crowding, 3. establish a normal overjet and overbite relationship, 4. improve the facial profile, and 5. achieve an excellent finish (*alignment*) with an ABO cast radiograph score (CRE) of no more than 30 points.

Maxilla (all three planes):

- A - P: Allow for normal expression of growth
- Vertical: Allow for normal expression of growth
- Transverse: Allow for normal expression of growth

Mandible (all three planes):

- A - P: Decrease consistent with opening the bite to correct the anterior crossbite
- Vertical: Increase consistent with opening the bite to correct the anterior deepbite
- Transverse: Allow for normal expression of growth

CEPHALOMETRIC			
SKELETAL ANALYSIS			
	PRE-Tx	POST-Tx	DIFF.
SNA° (82°)	77°	80°	3°
SNB° (80°)	79°	78°	1°
ANB° (2°)	-2°	2°	4°
SN-MP° (32°)	36°	39°	3°
FMA° (25°)	32°	35°	3°
DENTAL ANALYSIS			
U1 TO NA mm (4 mm)	-1 mm	6 mm	7 mm
U1 TO SN° (104°)	87°	113°	26°
L1 TO NB mm (4 mm)	4 mm	5 mm	1 mm
L1 TO MP° (90°)	88°	91°	3°
FACIAL ANALYSIS			
E-LINE UL (2-3 mm)	-1.5 mm	1 mm	2.5 mm
E-LINE LL (1-2 mm)	1.5 mm	2 mm	0.5 mm
Convexity: G-Sn-Pg' (13°)	2°	10°	8°
%FH: Na-ANS-Gn (53%)	53%	56%	3%

■ Table 1: Cephalometric summary

Maxillary Dentition:

- A - P: *Tip incisors anteriorly*
- Vertical: *Extrude molars to open the bite for deepbite correction*
- Inter-molar / Inter-canine Width: *Expand as needed to correct the crossbite and crowding*

Mandibular Dentition:

- A - P: *Tip incisors anteriorly*
- Vertical: *Intrude incisors and extrude molars to correct the deepbite*
- Inter-molar / Inter-canine Width: *Expand as needed to relieve crowding*

Facial Esthetics:

- Improve the upper lip support and correct the mandibular lip protrusion in centric occlusion.

Treatment Plan

Conservative, non-extraction treatment in the mixed dentition was indicated in preparation for alignment and finishing in the early permanent dentition. Develop the maxillary arch with a 2x2 appliance, engaging the first molars and central incisors, supplemented with bite turbos on the lower incisors to open the bite, and open coil springs in the buccal segments to tip the central incisors labially. As space is opened for the blocked out canines and lateral incisors, progressively bond all permanent teeth in both arches with a passive self-ligating (PSL) appliance. Apply intermaxillary elastics to correct the occlusal relationships. Detail with bracket rebonding

and archwire adjustments. Deliver clear overlay retainers for both arches.

Appliances and Treatment Progress

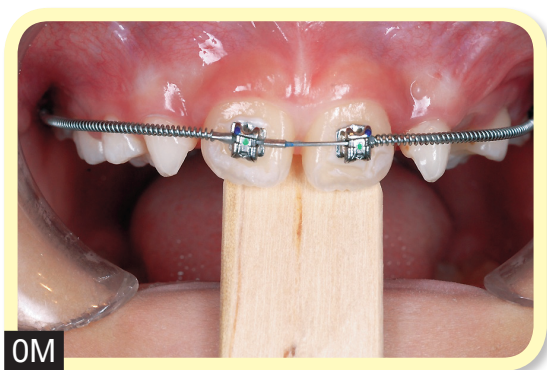
An 0.022-in slot Damon MX® fixed appliance (Ormco, Glendora, CA) was utilized along with the archwires, coil springs and elastics specified by the manufacturer. Mixed dentition treatment was initiated with a 2x2 maxillary fixed appliance (Fig. 10). Low torque brackets were bonded on the maxillary



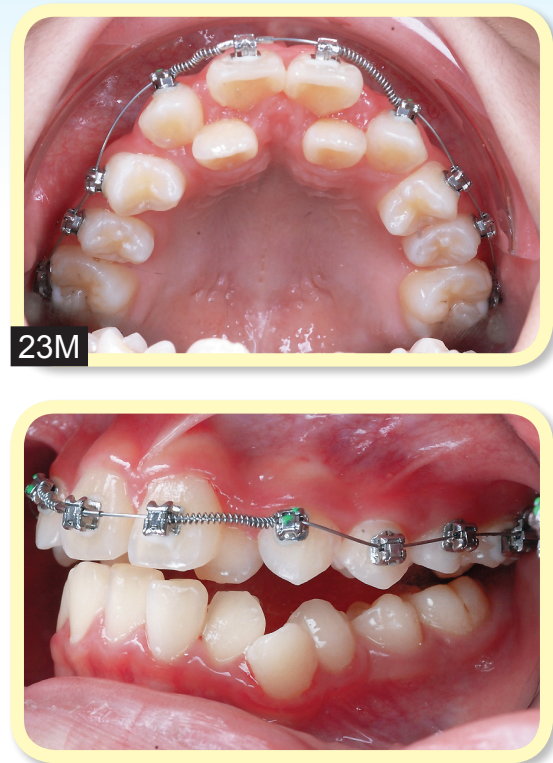
■ **Fig. 10**
At the start of treatment (0M), a 2x2 fixed appliance fitted with open coil springs was used to expand the maxillary arch (above). Composite resin bite turbos were bonded near the incisal edge on the lingual surface of all four mandibular incisors (below).

central incisors to resist the flaring tendency, as spaces were opened with open coil springs for the blocked-out canines and lateral incisors. Molar tubes were bonded on the maxillary 1st molars, and a 0.014x0.025-in CuNiTi wire, supplemented with two open coil springs, was used to tip the central incisors labially. Composite resin bite turbos were bonded on the lingual surfaces of the mandibular incisors to open the bite, and to relieve the restriction on maxillary arch expansion due to the anterior cross bite. The patient was instructed to put a tongue depressor between the maxillary central and mandibular incisors; then bite and hold the position with a moderate force for 5-10 minutes. The exercise was repeated 4 times in succession to complete a cycle, and there were at least 4 cycles per day (Fig. 11). In the 7th month of treatment, the archwire was changed to 0.017x0.025-in TMA, and then to 0.019x0.025-in SS in the 13th month of treatment.

In the 23rd month, a positive overjet was noted and the buccal segments had erupted. All maxillary teeth



■ **Fig. 11:**
A tongue depressor was used to apply force to the lingual surface of the maxillary central incisors to move them anteriorly.



■ **Fig. 12:**
At the 23rd month (23M) of treatment, all maxillary teeth were bonded, except for the lingually positioned lateral incisors, and bilateral open coil springs were used to create space (above). A left lateral intraoral view (below) is the first documentation of a positive overjet during treatment.

from 1st molar to 1st molar (6-6), except for the two palatally positioned lateral incisors, were bonded with PSL brackets (Fig. 12). Open coil springs were applied between the central incisors and canines to gain spaces for the lateral incisors. Bonding of the mandibular arch was completed at 28 months of treatment (Fig. 13). Low torque brackets were selected for the mandibular incisors to control the flaring effect when leveling. Two buttons were bonded on the labial surfaces of the maxillary lateral incisors, and archwire traction was applied; flowable resin was bonded on the steel ligature ties to prevent lip irritation. The maxillary lateral

incisor brackets were bonded at the 30th month of treatment (Fig. 14), and the following arch wire sequence was applied in the maxillary arch: 0.016-in CuNiTi followed by 0.017x0.025-in TMA. The mandibular archwire sequence was 0.013-in CuNiTi, 0.016-in CuNiTi, and 0.014x0.025-in CuNiTi (Fig. 18). Class III elastics (3/16-in 2-oz) were used as needed to correct the sagittal relationships.

In the 35th month of treatment, two torque springs were applied to the maxillary lateral incisors for labial root movement (Fig. 15). After 38 months of

active treatment (23 months in the mixed dentition and 15 months in the early permanent dentition), all the appliances were removed. Following probing and measuring the width of the attached gingiva (Fig. 16), maxillary labial frenectomy as well as gingivoplasty



■ **Fig. 13:**
The lower arch was bonded at 28 months (above). Buttons with ligature wires attached were bonded on the labial surface of the maxillary lateral incisors, and the ligatures were tied to the archwire to produce traction to move the lateral incisors anteriorly (below).



■ **Fig. 14:**
The maxillary lateral incisors were bonded with PSL brackets in the 30th month (30M) of treatment, as shown in a series of three intraoral photographs: frontal (above), lateral (middle) and occlusal (below).

was performed on the maxillary lateral incisors and right central incisor with a diode laser (Fig. 17). Upper and lower clear overlay retainers were delivered for both arches.



Fig. 15: A root labial torquing spring was applied to each maxillary lateral incisor (above). Occlusal (middle) and left buccal (below) intraoral photographs document the position of the lateral incisors when the labial root torque was applied.



Fig. 16: At 38 months (38M) probing depth (above) and the width of attached gingiva (below) were assessed with a periodontal probe in preparation for the gingivectomy.



Fig. 17: Frontal view of the anterior maxillary segment is shown before (above) and after (below) the gingivoplasty and frenectomy procedures.

Results Achieved

Maxilla (all three planes):

- A - P: A point moved anteriorly
- Vertical: Inferiorly positioned consistent with growth
- Transverse: Expanded

Mandible (all three planes):

- A - P: Posteriorly positioned consistent with clockwise rotation
- Vertical: Increased (posterior rotation)
- Transverse: Maintained

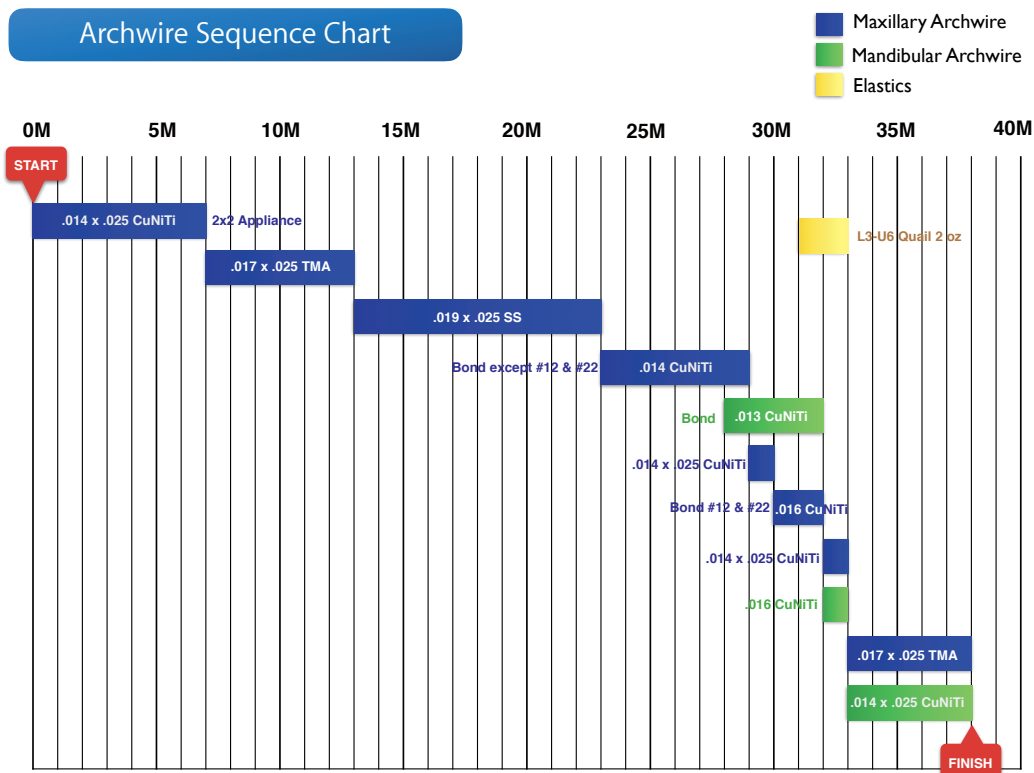
Maxillary Dentition

- A - P: Incisors extruded and tipped anteriorly
- Vertical: Incisors and molars extruded
- Inter-molar / Inter-canine Width: Crowding corrected with arch expansion

Mandibular Dentition

- A - P: Anterior incisors tipped labially
- Vertical: Molars and incisors extruded
- Inter-molar / Inter-canine Width: Crowding was corrected with arch expansion

Facial Esthetics: Lip protrusion WNL, competent lips



■ Fig. 18: Archwire Sequence Chart.

Retention

Clear overlays were delivered for both arches. The patient was instructed to wear them full time for the first 6 months and nights only thereafter. Instructions were provided for home hygiene as well as for maintenance of the retainers.

Final Evaluation of the Treatment

Cephalometric analysis (*Table 1*) and superimpositions (*Fig. 9*) demonstrate that the upper and lower incisors in both arches were tipped labially and extruded. The lower molars were also extruded as the bite was opened. The mandible rotated posteriorly, resulting in a 3° increase in the mandibular plane angle, and a 1° reduction in the SNB angle. The upper incisor to SN angle increased from 87° to 113°. The angle of the lower incisor to the mandibular plane increased from 88° to 91°. Despite the substantial increase in lower facial height, the patient's lips remained competent.

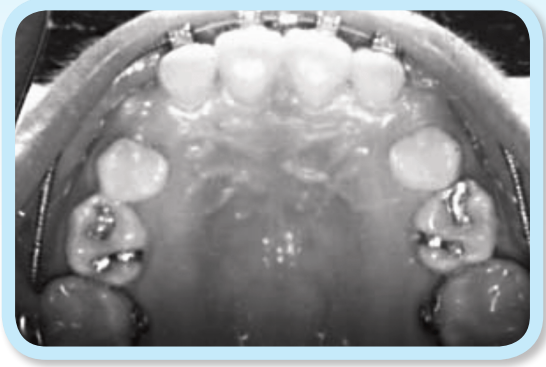
The ABO Cast-Radiograph Evaluation score was 25 points. The major discrepancies were marginal ridge discrepancy (8 points), occlusal relationships (6 points), and overjet (5 points). Overall, the dentition was well aligned, and both the anterior cross bite and deep overbite were corrected. Upper lip support was improved primarily by the increase in the axial inclination of the maxillary incisors (*Figs. 4 and 9*), but there were multiple soft tissue and tooth contour problems in the maxillary anterior region, as reflected in the Pink & White Esthetic score of 6 (*see score sheet at the end of this report*). The patient and her parents were satisfied with the result, but

the substantial increase in the lower facial height and the unerupted second molars were long-term concerns. It was recommended that the patient have follow-up records in about 2 years to evaluate the stability of the correction, the late adolescent growth response, and the eruption of the second molars.

Discussion

Successful early treatment outcomes are strongly related to an accurate diagnosis for each patient. Unpredictable growth and development patterns complicate the diagnostic procedures. Early treatment continues to be controversial because the prolonged treatment time is often associated poor patient compliance with oral hygiene and patient applied mechanics.¹

Lin² has defined a Three-Ring Diagnosis system, which predicts a good prognosis with a conservative treatment for 90% of anterior crossbite patients who have a functional shift, orthognathic profile and canine/molar Class I relationship in the centric relation position. The latter is classified as Pseudo Class III. The present patient matched all three criteria, so a favorable result could be expected. Skeletal Class III (*True Class III*) treatment is usually postponed until the end of puberty, preferably after the late mandibular growth is complete, for a stable treatment outcome.¹ For the current patient, severe space deficiency was related to the anterior crossbite, which also led to the lack of maxillary alveolar bone development and upper lip support. Without intervention to make space



■ Fig. 19:

The traditional D-gainer is a 2x4 or 4x2 fixed appliance with brackets on first molars and all four incisors. There are coil springs in each buccal segment to create space with light force. (Photo from Alan Bagden, *A Conversation - The Damon System: Questions and Answers. Clin Impressions. 2005;14(1):4-13*)

during the mixed dentition, it is likely that the maxillary canines would become impacted.²

Many articles documented successful outcomes and post-treatment stability for the early treatment of anterior crossbites.³⁻⁵ For slight to mild crowding dentitions with single to multiple anterior crossbite teeth, inclined plates or other removable appliances are usually effective. However, when moderate to severe space deficiency is apparent, appliances designed to regain space should be considered. A rapid palatal expander (RPE) is commonly used in growing children. RPE generates a heavy force to separate the mid-palatal suture, and angiogenesis and osteogenesis subsequently promote bone formation to achieve the goal of maxillary arch expansion.⁶ The greatest change of arch expansion by RPE is in the transverse dimension, and if used in conjunction with a face mask, more improvements can be achieved in sagittal relation.⁷ However, pain⁸ and foreign body

sensations during treatment with RPE, coupled with the need of patient compliance with a face mask, are still significant problems.

Correction of Class III malocclusion with anterior crossbite in the mixed dentition may be indicated depending on the severity of the problem and motivation of the patient.⁹ For the present patient a modified (2x2) Damon System D-gainer[®] was used in the maxillary arch to correct the anterior crossbite and deficient development in width (Figs. 10-14). The 2x2 design was necessary because the lateral incisors had erupted in the palate behind the central incisors. The traditional D-gainer is a 2x4 or 4x2 fixed appliance, with brackets bonded on the first molars and all four incisors in each arch, and open coil springs in the buccal segments to increase arch length (Fig. 19).¹⁰ The mechanics of the D-gainer expand the arch with a light continuous force delivered with passive self-ligating brackets, CuNiTi arch wires, and NiTi open coil springs.¹¹ The Ni-Ti coil spring expands the arch and tends to displace the cheeks laterally ("Frankel effect"), but the amount of activation is critical. If the coil spring is excessively activated, the wire will bow into the cheeks, they will counter with a force causing the anterior teeth to flare. A coil spring that is longer than the interbracket space by 1 to 1.5 times the width of a bracket was adequate. The expansion effect continued after bonding the whole arch with PSL brackets. Comparison of the pre- and post-treatment dental casts revealed 12mm of canine expansion in the upper arch and 8mm of canine expansion in the lower arch. The combination of the D-gainer and bite turbos was very effective for correcting

the crossbite and developing the maxillary arch in both length and width. Mikulencak¹² compared rapid maxillary expansion and Damon system for development of the maxillary arch, and found no difference in the amount of molar tipping between the two methods, indicating that the maxillary arch can be expanded with light continuous force. The results for the present patient are consistent with Mikulencak:¹² no significant molar tipping (Figs. 5, 6 and 10-14).

Although early treatment (*phase 1*) for routine malocclusions may lengthen treatment time,⁹ this approach may be effective for decreasing overall treatment time for patients with Class III malocclusion and anterior crossbite. Sugawara¹³ concluded that phase 1 treatment considerably simplified phase 2 correction for mild to moderate Class III patients, who can be managed conservatively.

The following are four key points for the clinical procedure:



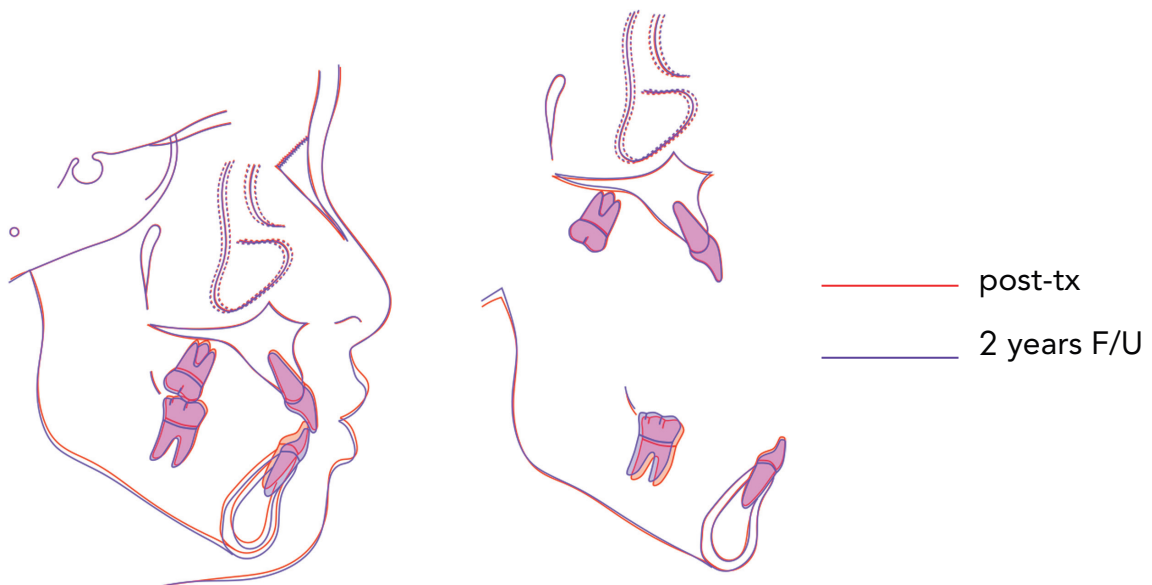
■ Fig. 20:

Two years after treatment a full set of records was obtained. Note the good facial esthetics and stability of the nonextraction correction of a severely crowded Class III malocclusion with anterior crossbite malocclusion (DI 29). Note the persistence of posterior crowding in both arches, which is associated with a lack of eruption of the upper second molars despite complete root development.

1. **Bracket Selection:** Select low torque brackets for the anterior teeth in both arches to decrease the tendency for incisal flaring when expanding and aligning the arch.
2. **Bite Turbos:** Use composite resin on the lingual surface of the mandibular incisors to create balanced occlusal stops that allow the maxillary incisors to move anteriorly for correction of the crossbite in the absence of functional interference. Well constructed bite turbos are critical for enhancing arch



■ Fig. 21: The facial profile is compared before treatment (0M), after treatment (38M), and at 2 year follow-up (2Y F/U).



■ Fig. 22: Cephalometric tracings are superimposed post-treatment (red) and at 2-year follow up (purple) to show the dental and skeletal changes associated with late adolescent growth.



development, increasing the VDO, intruding the incisors and opening the bite for correction of the excessive Curve of Spee. The posterior rotation of the mandible associated with bite turbos that open the VDO >5mm must be carefully managed to avoid producing incompetent lips. Most Class III deepbite patients benefit esthetically and functionally by a clockwise rotation of the mandible to correct the A/P and vertical relationships of the upper and lower jaws.¹⁴

3. **Tongue Depressors:** This is a simple yet effective technique for tipping maxillary incisors anteriorly to correct an anterior crossbite. However, patient compliance with multiple periods of daily exercise is essential.
4. **Torque Springs:** Although low torque brackets were chosen for anterior teeth, the play of the rectangular arch wire in the PSL bracket resulted in compromised torque after aligning and leveling. Correcting torque with differential bends in a full-sized archwire often produces undesirable side effects on adjacent teeth. Torquing auxiliaries

(springs) are very efficient mechanics for individual teeth, but they must be closely supervised to produce the desired effect without iatrogenic damage like root resorption, overcorrection or fenestrations.

A recent randomized clinical trial with a two year follow-up demonstrated that mixed dentition treatment of anterior crossbite affecting one or more incisors can be successfully corrected by either fixed or removable appliances with similar long-term stability.¹⁵ Two year follow-up of the present patient documented the stability of both the arch alignment and expansion. A particularly pleasing and significant finding was that the normal late growth response (Figs. 20-22) resulted in near ideal facial form. Although the correction of the Class III deepbite malocclusion resulted in a two centimeter increase in the VDO and posterior rotation of the mandible (Fig. 9), the lips remained competent resulting in a desirable late growth response. However, there is a lack of space in the posterior arches.

Conclusion

Anterior crossbite in mixed dentition results in esthetic, developmental and functional deficits. With a careful diagnosis, early treatment of anterior crossbite and mid-face deficiency can be effectively and efficiently treated. Arch expansion with light forces is stable, but conservative development of the arches may result in a posterior arch length deficiency, that should be monitored until the permanent dentition is complete.

Acknowledgment

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Discrepancy Index Worksheet

TOTAL D.I. SCORE = 29

OVERJET

- 0 mm. (edge-to-edge) =
- 1 – 3 mm. = 0 pts.
- 3.1 – 5 mm. = 2 pts.
- 5.1 – 7 mm. = 3 pts.
- 7.1 – 9 mm. = 4 pts.
- > 9 mm. = 5 pts.

Negative OJ (x-bite) 1 pt. per mm. per tooth =

Total = 8

OVERBITE

- 0 – 3 mm. = 0 pts.
- 3.1 – 5 mm. = 2 pts.
- 5.1 – 7 mm. = 3 pts.
- Impinging (100%) = 5 pts.

Total = 0

ANTERIOR OPEN BITE

0 mm. (edge-to-edge), 1 pt. per tooth
then 1 pt. per additional full mm. per tooth

Total = 0

LATERAL OPEN BITE

2 pts. per mm. per tooth

Total = 0

CROWDING (only one arch)

- 1 – 3 mm. = 1 pt.
- 3.1 – 5 mm. = 2 pts.
- 5.1 – 7 mm. = 4 pts.
- > 7 mm. = 7 pts.

Total = 7

OCCLUSION

- Class I to end on = 0 pts.
- End on Class II or III = 2 pts. per side 4 pts.
- Full Class II or III = 4 pts. per side pts.
- Beyond Class II or III = 1 pt. per mm. pts.
additional

Total = 4

LINGUAL POSTERIOR X-BITE

1 pt. per tooth Total = 2

BUCCAL POSTERIOR X-BITE

2 pts. per tooth Total = 0

CEPHALOMETRICS (See Instructions)

ANB $\geq 6^\circ$ or $\leq -2^\circ$ = 4 pts.

Each degree $< -2^\circ$ _____ x 1 pt. = _____

Each degree $> 6^\circ$ _____ x 1 pt. = _____

SN-MP

$\geq 38^\circ$ = 2 pts.

Each degree $> 38^\circ$ _____ x 2 pts. = _____

$\leq 26^\circ$ = 1 pt.

Each degree $< 26^\circ$ _____ x 1 pt. = _____

l to MP $\geq 99^\circ$ = 1 pt.

Each degree $> 99^\circ$ _____ x 1 pt. = _____

Total = 4

OTHER (See Instructions)

- Supernumerary teeth _____ x 1 pt. = _____
- Ankylosis of perm. teeth _____ x 2 pts. = _____
- Anomalous morphology _____ x 2 pts. = _____
- Impaction (except 3rd molars) 2 x 2 pts. = 4
- Midline discrepancy (≥ 3 mm) @ 2 pts. = _____
- Missing teeth (except 3rd molars) _____ x 1 pts. = _____
- Missing teeth, congenital _____ x 2 pts. = _____
- Spacing (4 or more, per arch) _____ x 2 pts. = _____
- Spacing (Mx cent. diastema ≥ 2 mm) @ 2 pts. = _____
- Tooth transposition _____ x 2 pts. = _____
- Skeletal asymmetry (nonsurgical tx) @ 3 pts. = _____
- Addl. treatment complexities _____ x 2 pts. = _____

Identify:

Total = 4

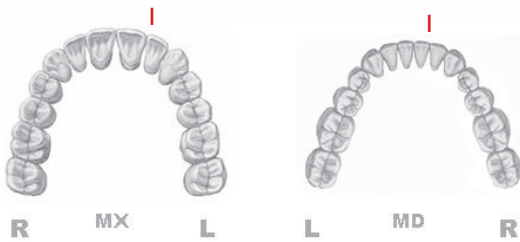
Cast-Radiograph Evaluation

Total CRE Score

25

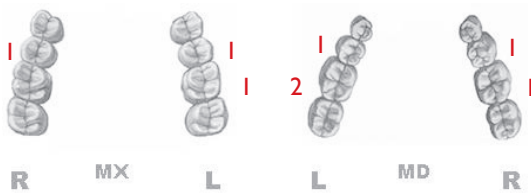
Alignment/Rotations

2



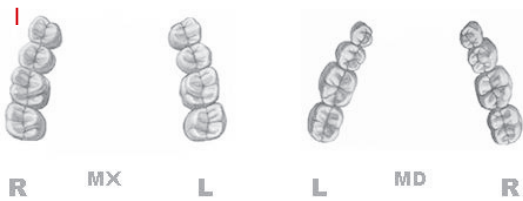
Marginal Ridges

8



Buccolingual Inclination

1



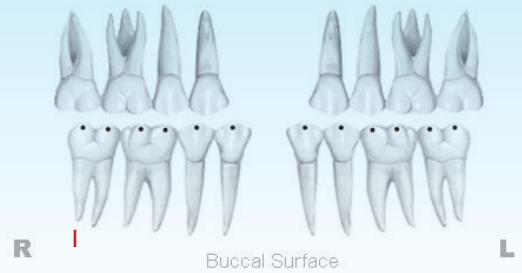
Overjet

5



Occlusal Contacts

1



Buccal Surface



Lingual Surface

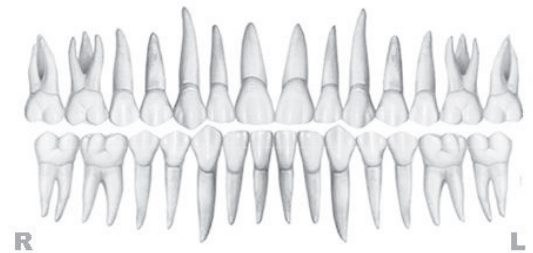
Occlusal Relationships

6



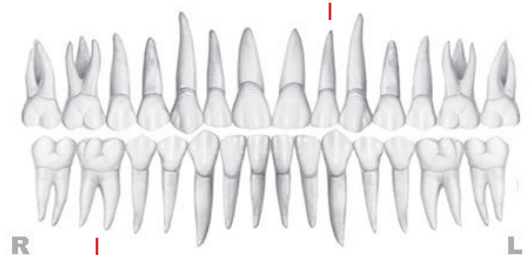
Interproximal Contacts

0



Root Angulation

2



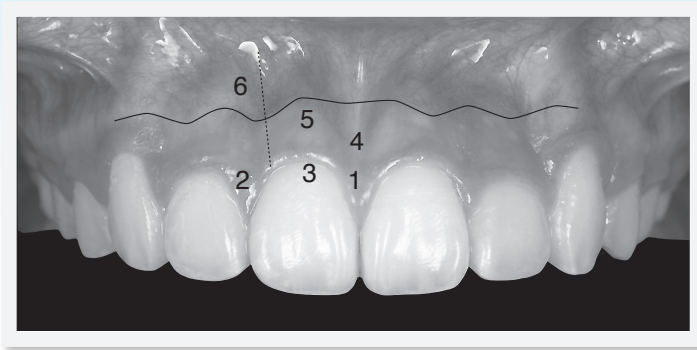
INSTRUCTIONS: Place score beside each deficient tooth and enter total score for each parameter in the white box. Mark extracted teeth with "X". Second molars should be in occlusion.

Note that this CRE score is incomplete because the second molars are not yet in occlusion.

IBOI Pink & White Esthetic Score (Before Surgical Crown Lengthening)

Total Score: = 6

1. Pink Esthetic Score

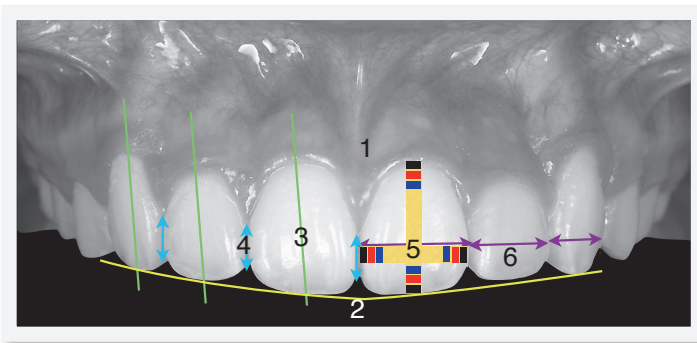


1. M & D Papillae	0	1	2
2. Keratinized Gingiva	0	1	2
3. Curvature of Gingival Margin	0	1	2
4. Level of Gingival Margin	0	1	2
5. Root Convexity (Torque)	0	1	2
6. Scar Formation	0	1	2

Total = 2

1. M & D Papilla	0	1	2
2. Keratinized Gingiva	0	1	2
3. Curvature of Gingival Margin	0	1	2
4. Level of Gingival Margin	0	1	2
5. Root Convexity (Torque)	0	1	2
6. Scar Formation	0	1	2

2. White Esthetic Score (for Micro-esthetics)



1. Midline	0	1	2
2. Incisor Curve	0	1	2
3. Axial Inclination (5°, 8°, 10°)	0	1	2
4. Contact Area (50%, 40%, 30%)	0	1	2
5. Tooth Proportion (1:0.8)	0	1	2
6. Tooth to Tooth Proportion	0	1	2

Total = 4

1. Midline	0	1	2
2. Incisor Curve	0	1	2
3. Axial Inclination (5°, 8°, 10°)	0	1	2
4. Contact Area (50%, 40%, 30%)	0	1	2
5. Tooth Proportion (1:0.8)	0	1	2
6. Tooth to Tooth Proportion	0	1	2