

T.B.

Age: 32 Years – 9 Months

Diagnosis: Class I Nonextraction – Adult
(openbite with severe crowding, posterior crossbite,
and very deep, narrow palate)

Background:

This adult patient illustrates new opportunities for face-driven treatment planning. With conventional treatment mechanics, there would have been no question that four first bicuspid would have been extracted. Along with airway problems, this patient was challenged by certain sounds of speech due to tongue posture and a very narrow palate.

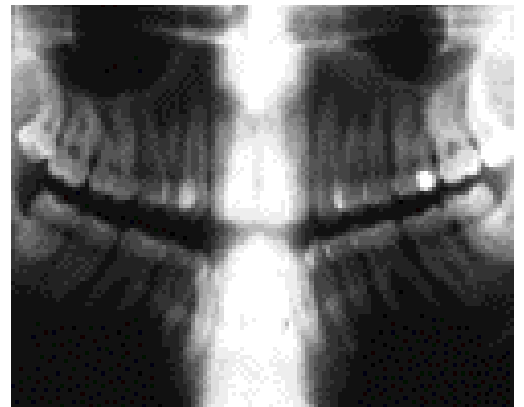
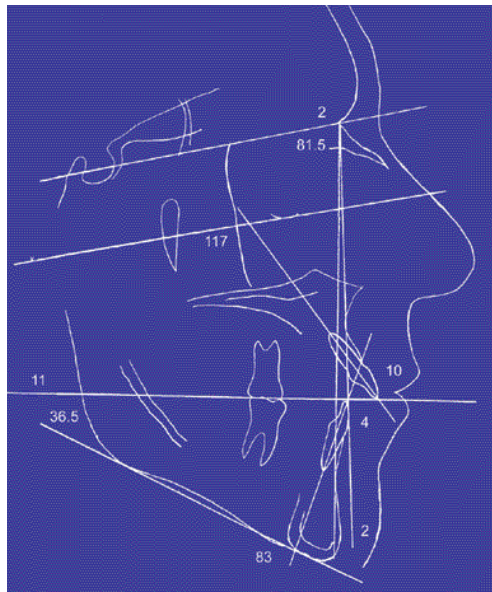
This patient would not have accepted treatment if extractions were required. In this case, our treatment objectives were to apply a more biologically sensible force (*see Bioadaptive Response*) and let the orofacial musculature, bone, and tissue establish a new physiologic tooth position (*see Physiological adaptation*). Evaluate the initial and final models that have been measured for width change. This treatment alternative is very exciting when compared to conventional force systems. I cannot think of another way to have such a positive impact on profile, lateral facial support, airway, bone, and tissue utilizing such simple mechanics in 18 months 2 weeks and 10 patient visits.

Facial Evaluation:

1. Vertical grower – narrow face.
2. Long lower face height.
3. Prominent nose.
4. Lack of lateral facial support.
5. Airway problems.
6. Minimal chin.
7. Tongue-thruster.

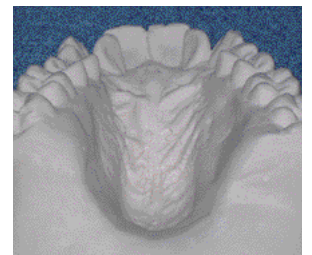
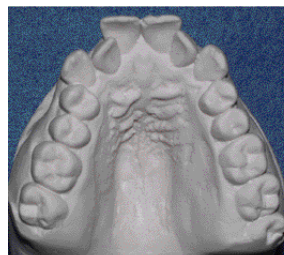


Pretreatment Radiographic Survey:



Dentition Evaluation:

1. Anterior open bite.
2. Severe collapse of maxillary and mandibular arches.
3. Severe crowding – lower right cuspid totally blocked out of arch.
4. Tissue recession – may need grafting.
5. Very deep, narrow palate.
6. Watch third molars.



Treatment Objectives:

Goal:

With low-force/low-friction mechanics, let the orofacial musculature, bone, and tissue establish a new physiologic tooth position (see *Physiologic adaptation*) that allows more room for the tongue. With low-force/low-friction mechanics, let the orofacial musculature, bone, and tissue establish a new physiologic tooth position (see *Physiologic adaptation*) that allows more room for the tongue.

1. Orthodontic treatment will have a very positive impact on patient's facial profile (e.g., minimize prominence of the nose).
2. Increase maxillary posterior arch width (see *Posterior expansion*).
3. Close anterior open bite – improve tongue posture and function (see *Tongue influence*).
4. Have positive impact on periodontium.
5. Improve mid-face support with dentition width change.

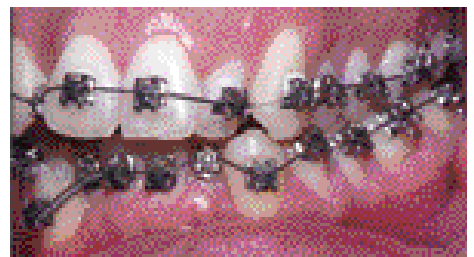
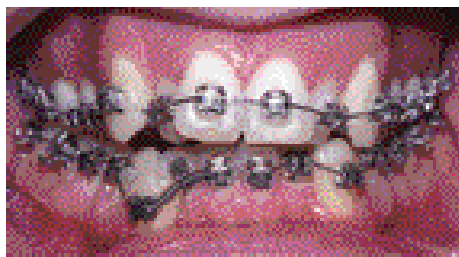
Treatment Sequence:

Special torques in appliance construction.

- Upper laterals +3° (low torque) chosen to prevent laterals from flaring forward.
- Lower centrals and laterals incisors -6° (low torque). These brackets were chosen to keep lower incisors from flaring forward during unraveling.

Start:

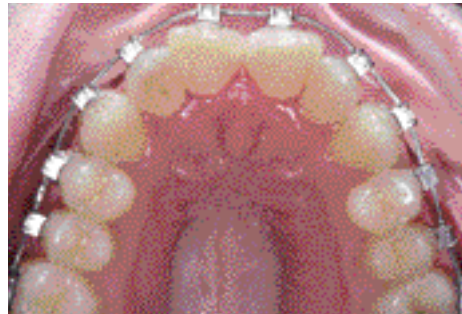
1. Bonded maxillary and mandibular arches 7 to 7.
2. Used 1/2 bracket on lower right lateral incisor tied to archwire with medium-light NiTi coil spring activated the width of one bracket.
3. Placed .014 NiTi SE (see *Initial archwire*) in upper and lower arches. Crimpable stop (see *Crimpable stops*) would have been better positioned between the lower central incisors to permit the wire to fully express itself during unraveling.



Appt. 1
2 months – 2 weeks:



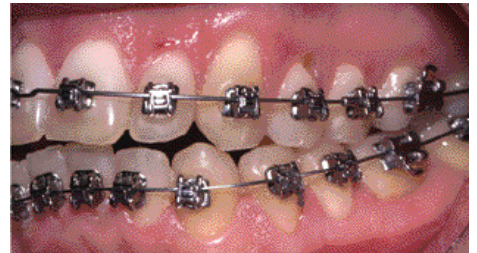
- Placed maxillary .014 x .025 NiTi SE archwire.
- Placed mandibular .016 NiTi SE. Did not change bracket on lower right lateral incisor due to mild tooth tenderness.



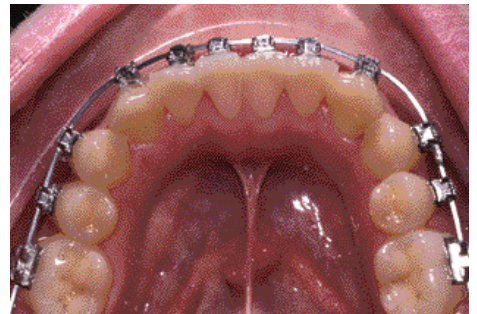
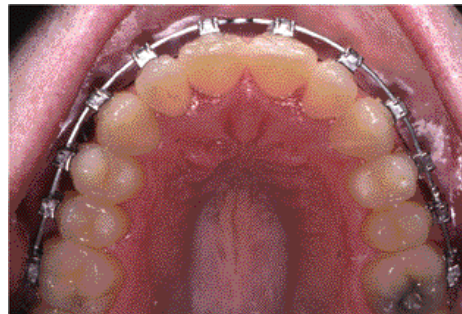
Appt. 2
4 months – 3 weeks:

- Changed bracket on the lower right lateral incisor.
- Rebonded lower laterals and cuspids.
- Continued with maxillary .014 x .025 NiTi SE and mandibular .016 NiTi.

Appt. 3
7 months:

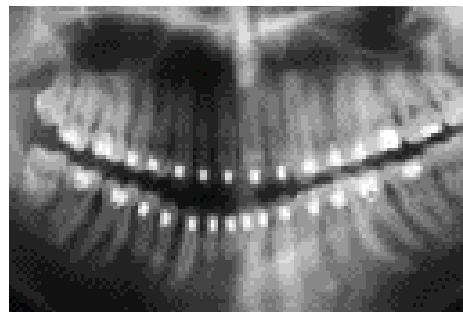


- Placed maxillary .018 x .025 NiTi SE.
- Placed mandibular .014 x .025 NiTi SE.
- Let the NiTi SE archwire work! Very important not to force archwires. The alveolar bone responds best to lighter forces (see *Working phase*).



Appt. 4
9 months:

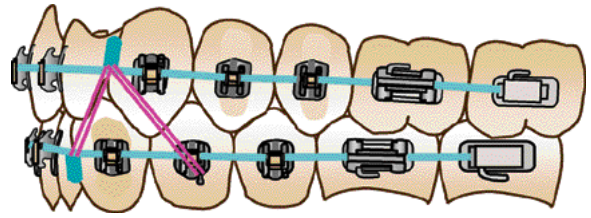
- Took Panorex.
- Rebonded maxillary centrals.
- Placed .019 x .025 preposted SS (see *Final phase*).
- Continued with mandibular .014 x .025 NiTi SE.



Appt. 5

10 months – 1 week:

- Saw patient sooner (only five-week interval). Wanted to start elastics.
- Maintained maxillary .019 x .025 preposted SS.
- Placed mandibular .017 x .025 TMA with crimpable hooks and lateral incisor torque in archwire (see *Final Phase*). Used .017 x .025 TMA for mild torque and play in bracket to enhance impact of elastics.
- Started bilateral tent elastics full time (see *Elastics*).

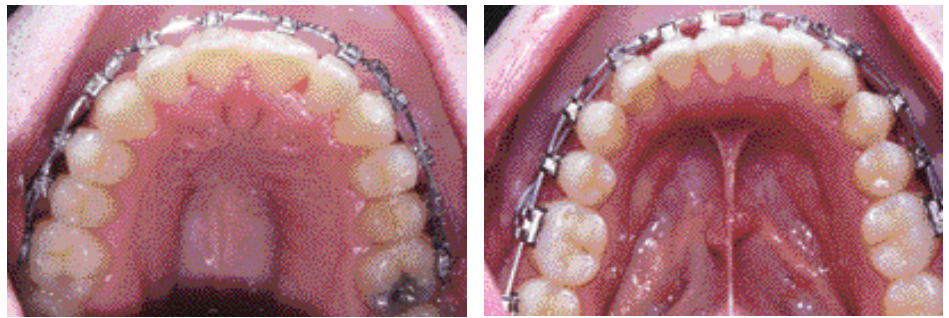


Appt. 6

12 months – 2 weeks:



- Adjusted mandibular .017 x .025 TMA archwire (see *Finishing and Detailing phase*). Note: Tiebacks.
- Continued Tent elastics full time.



Appt. 7

14 months – 2 weeks:

- Adjusted maxillary and mandibular archwires.
- Continued elastics full time.
- Note: upper and lower tiebacks (see *Tiebacks*).

Appt. 8

16 months – 2 weeks:



- Checked occlusion.
- Continued elastics.
- Scheduled debonding in 8 weeks.



Finals

18 months – 2 weeks: Debonded upper and lower



Pretreatment



Posttreatment



Pretreatment



Posttreatment



Final



Final



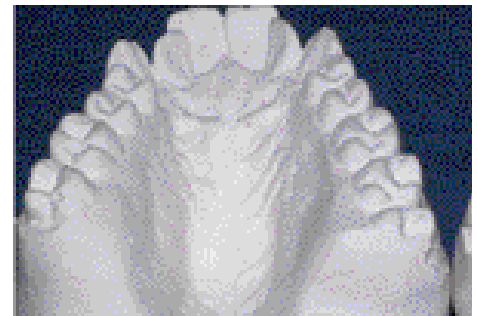
Final



Pretreatment



Pretreatment



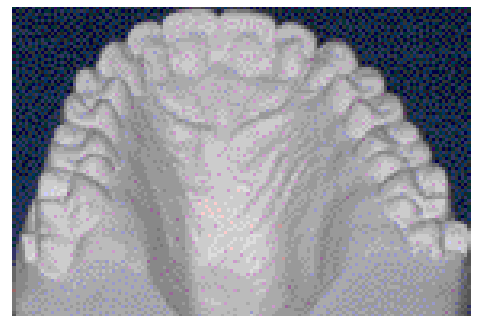
Initial



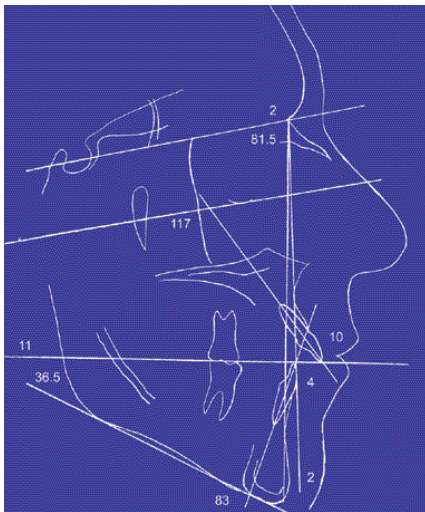
Posttreatment



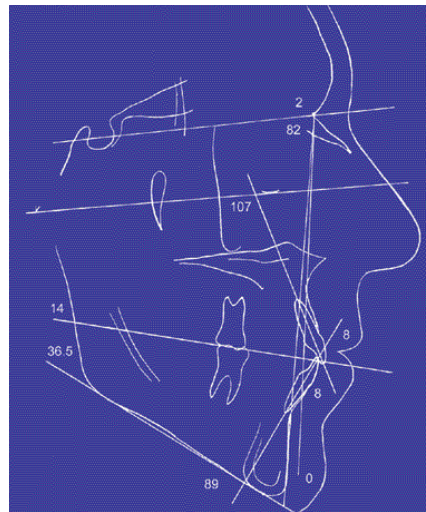
Posttreatment



Final



Initial



Final



Composite

Occlusal Cast Transverse Measurement Comparisons

Pretreatment

Posttreatment

Pretreatment

Posttreatment



32.0 mm



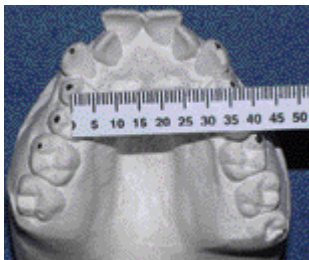
34.5 mm
2.5 mm change



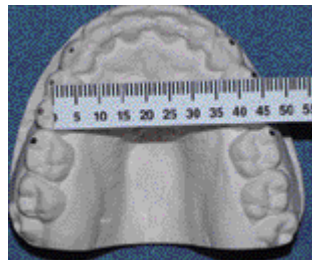
25.5 mm



26.5 mm
1 mm change



35.5 mm



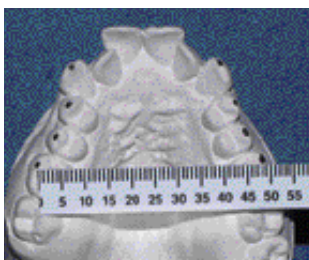
43.5 mm
8 mm change



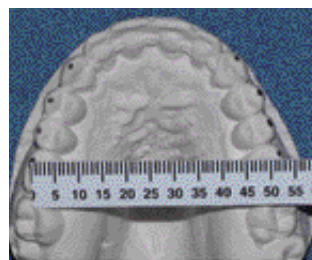
26.0 mm



35.5 mm
9.5 mm change



48.0 mm



52.0 mm
4 mm change



41.0 mm



46.0 mm
5 mm change

Retention:

- 1. Debanded upper and lower.
- 2. Bonded upper and lower retainer wires placed cuspid to cuspid. Bonding all teeth due to severity of crowding and tongue habit.
- 3. Made clear-plastic overlay retainers for upper and lower arches.
- 4. Impression taken for Damon Splint absolutely critical to make splint for nighttime wear – helps contain the tongue and maintain orientation of the upper and lower arches.

T.B. Case Summary

