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Evaluating Facial Asymmetry and the Relationship of the Maxilla to Cranial Bone Restrictions: A Case Report Utilizing a Homeoblock Dental Appliance

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Looking at Facial Asymmetry from a Dentists' perspective is often overlooked due to the way we are trained to view and treat our patients. The importance of understating this facial asymmetry has a profound effect on the patient's entire health. It is important to recognize these patients and treat them where possible since it has dire consequences on their whole-body health. Realizing that many of our patients are suffering from TMD, Airway and Neurological symptoms is the beginning of recognizing how powerful and impactful treating these patients can be with a dental appliance. It is a well-known fact that posture does dictate airway and neurology.

To better understand this relationship of Posture, Airway and the Autonomic Nervous System requires a reacquaintance of basic anatomy and in particular cranial bones. The human skull consists of twenty-nine bones. Eight bones are in the cranial system, fourteen bones in the facial group and seven more bones consisting of the inner ear and the hyoid bone. The cranial bones have movement dictated by their sutural anatomy and pressure from the cerebral spinal fluid (CSF) which is pumped throughout the spinal cord and brain within the confines of the dura. This CSF is critical for oxygenation and nourishment of the brain and spinal cord, eliminating toxins and cooling the pituitary and hypothalamus which is critical for hormone regulation. The cranial bones are grouped into whether they are paired or midline bones depending on whether they cross the midline or not.

When we look at the face, the skin is supported by fat pads and bone. When we remove the skin, fat pads and look at the position of the cranial bones we start to notice a pattern of asymmetry. Due to many factors such as sitting in the pelvic girdle for 9 months before birth, the journey through the birth canal, C-sections, diet, and the lack of breast feeding can all influence cranial bone positioning and cranial facial asymmetry.

Since dentists deal with the oral cavity and are trained to compartmentalize the parts of the body, we fail to realize the connection of the maxilla to the rest of the body. The maxilla is a paired set of bones that is connected to the paired palatine bones which subsequently interlocks into the sphenoid bone. The sphenoid bone is the central cog of all the cranial bones, just like a central cog to a watch. It is shaped like a swallowtail butterfly with a greater and lesser wing. The greater wing of the sphenoid is the back of the orbit of the eye (ocular asymmetry). The significance of this relationship of the maxilla to the sphenoid bone is critical to understand. If the sphenoid bone is the central cog of all the cranial bones and the maxilla can impact the sphenoid bone indirectly via the palatine bones, then leveling out the maxilla can have an impact on the whole cranial system. Figures 1,2

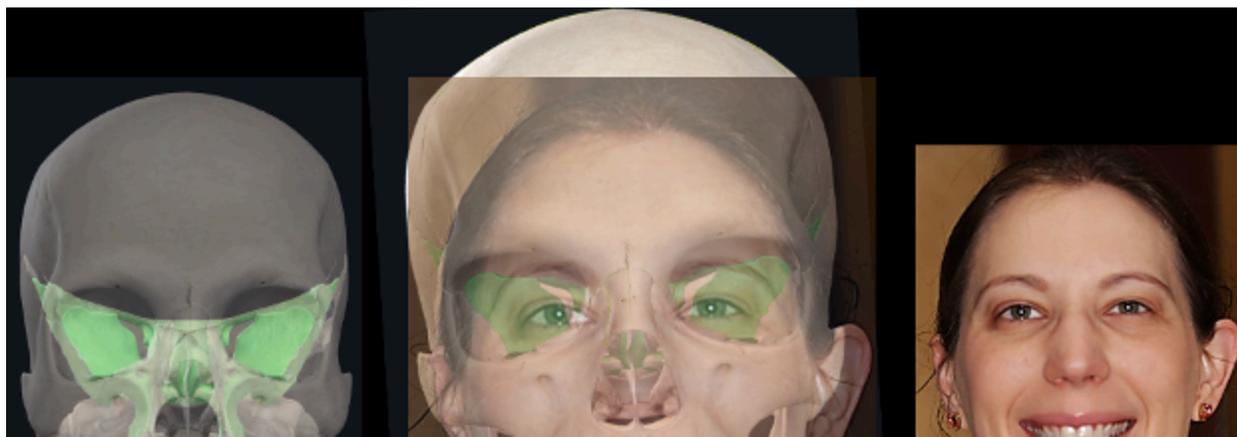




Figure 1

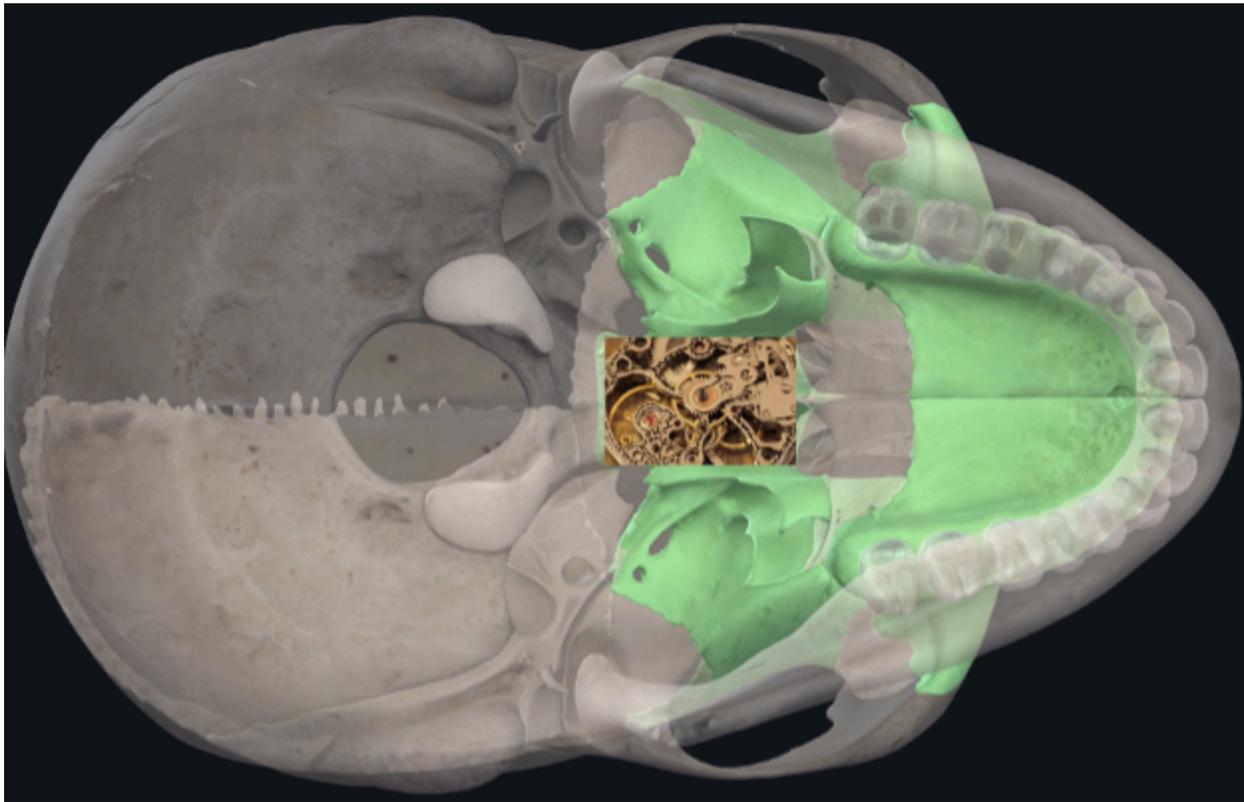


Figure 2 Anatomy Images courtesy of Complete Anatomy

Of the ways to accomplish this leveling of the maxilla, I have used in this case report an appliance called the Homeoblock appliance. The premise of utilizing this appliance is that its' design allows for changes to occur in the cranial bone positioning. Our body is designed to be a closed loop kinematic skeletal chain. Within this closed loop system there are two openings, The arch of the feet and bite. At the end of each swallow cycle the teeth come together which can be more than 2000 to 3000 times a day. When the teeth come together the loop is closed or locked in. This locks the whole system into this closed loop kinematic skeletal chain. So, any adjustments that are attempted to be made with the cranial bones are locked back in the skeletal system at the end of each swallow cycle as the teeth come together. This demonstrates the power that dentists have to help the health care TEAM unlock and free up the restricted cranial bones, thus affecting facial asymmetry and the rest of the posture, airway and neurology.

The Homeoblock appliance has numerous features that are unique to its' design. The main feature that I will focus on is that the appliance only allows the patient to bite on one side. This block on just one side is critical to how it affects the closed loop system by creating a gap or space to allow for the restricted

cranial bones to be freed up. This can have a major impact on these patients being treated for TMD, airway and Autonomic Nervous System challenges.

Since posture dictates airway and neurology, many symptoms of TMD and airway restrictions can be helped by improving the facial asymmetry of these patients.

CASE REPORT

A 37 year old female patient came into the office as a new patient. After a new patient exam and further questioning the patient alluded to the fact that she has many symptoms of TMD and has been treated with 7 different TMJ appliances over a 10-year period of time.

Her symptoms included: headaches, sinus issues, cervical issues, ringing of the ears, dizziness, jaw clicking and popping, forward head posture and tight facial muscles. She was seeing a Chiropractor on a weekly basis.

The patient was treated with a Homeblock appliance for 20 months. We utilized Analyze 14 software designed at the Mayo Clinic to evaluate and measure the changes noted below.

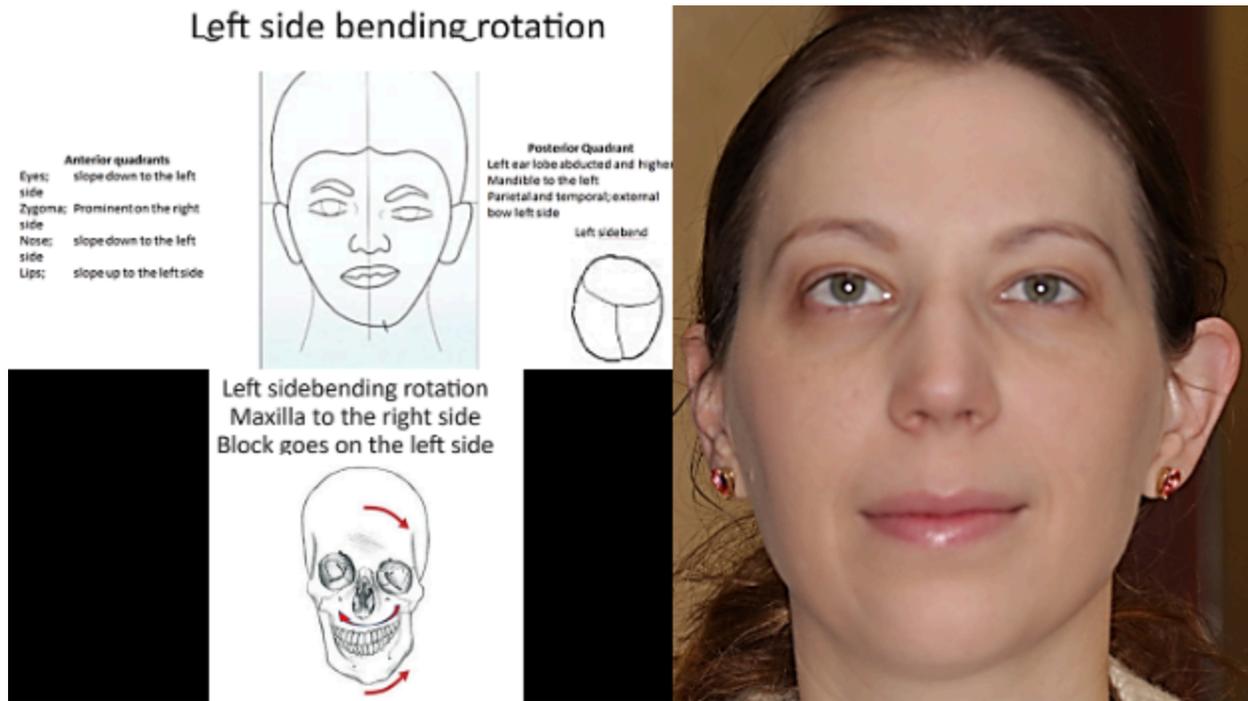
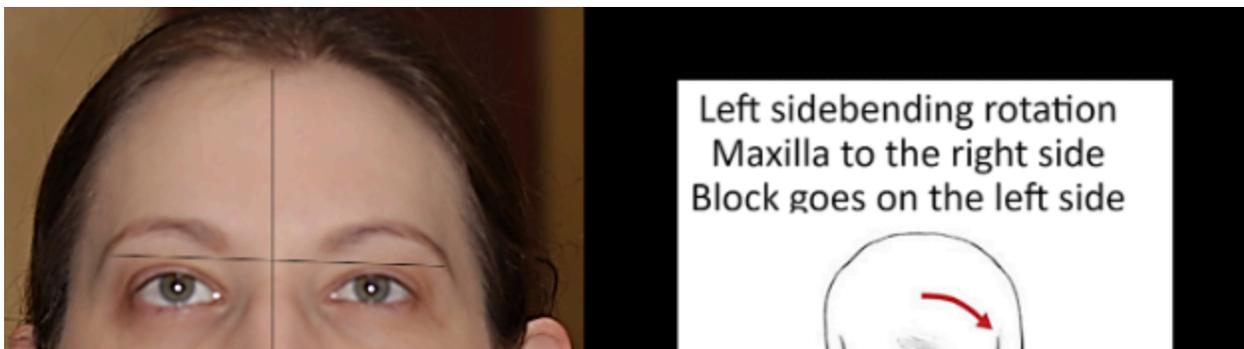
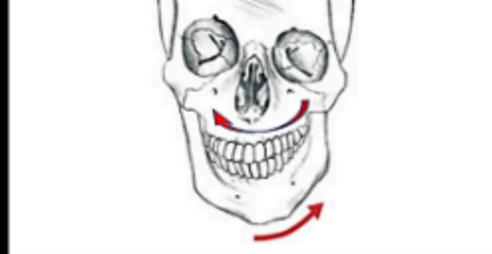


Figure 3 Cranial Strain pictures taken from: Face to Face with the Face By: Thomas Attlee DO, R.C.S.T





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Figure 4 Cranial Strain pictures taken from: Face to Face with the Face By: Thomas Attlee DO, R.C.S.T

Figures 3 and 4: There are 7 cranial strain patterns recognized in the chiropractic world. 4 are physiologic and 3 are pathologic. In my observation this patient fits the left side bending pattern which is designated as a physiologic cranial strain pattern.



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Figure 5 Before and 20 months after treatment.





Figure 6 Before and 20 months after treatment.



Figure 7 Before and 20 months after treatment.



Figure 8 In addition to facial symmetry improvement note the changes in head tilt potentially affecting cervical instability, thus blood flow into and drainage out of brain and the Vagus nerve (parasympathetic).

NOTE: A special thanks for the work of Dr. Jonathan Howat and Dr. Bob Walker. The lines used to

demonstrate facial asymmetry features were originally designed by Dr Bob Walker to be for boney reference points (Triplanar Analysis). The supraorbital notch representing the orbital plane, the external auditory canal representing the otic plane and the maxilla / occlusal plane relating the teeth to the cervical plane. I have modified this by estimating where the boney reference points are on the soft tissue and have added a vertical line that runs down the center of the forehead through the philtrum of the lips.



Figure 9 Improvement seen in general posture and forward head posture.

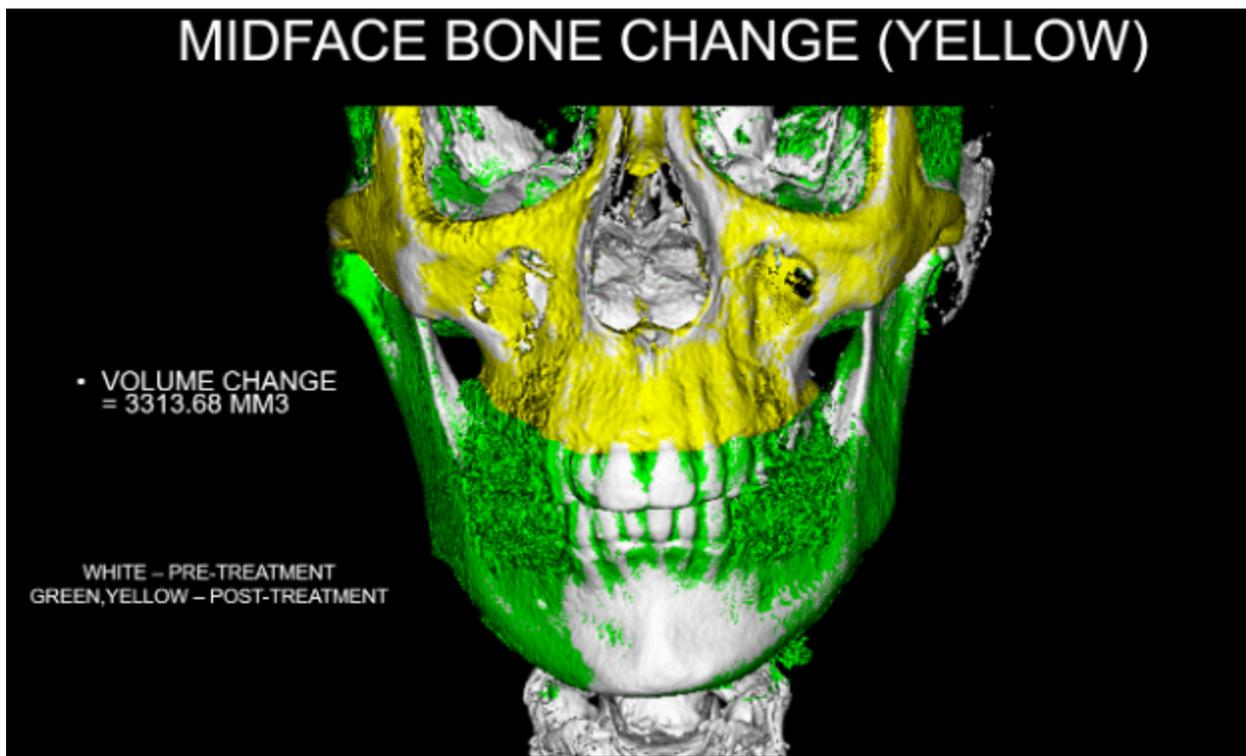


Figure 10 Analyze 14 Software





Figure 11 Analyze 14 Software

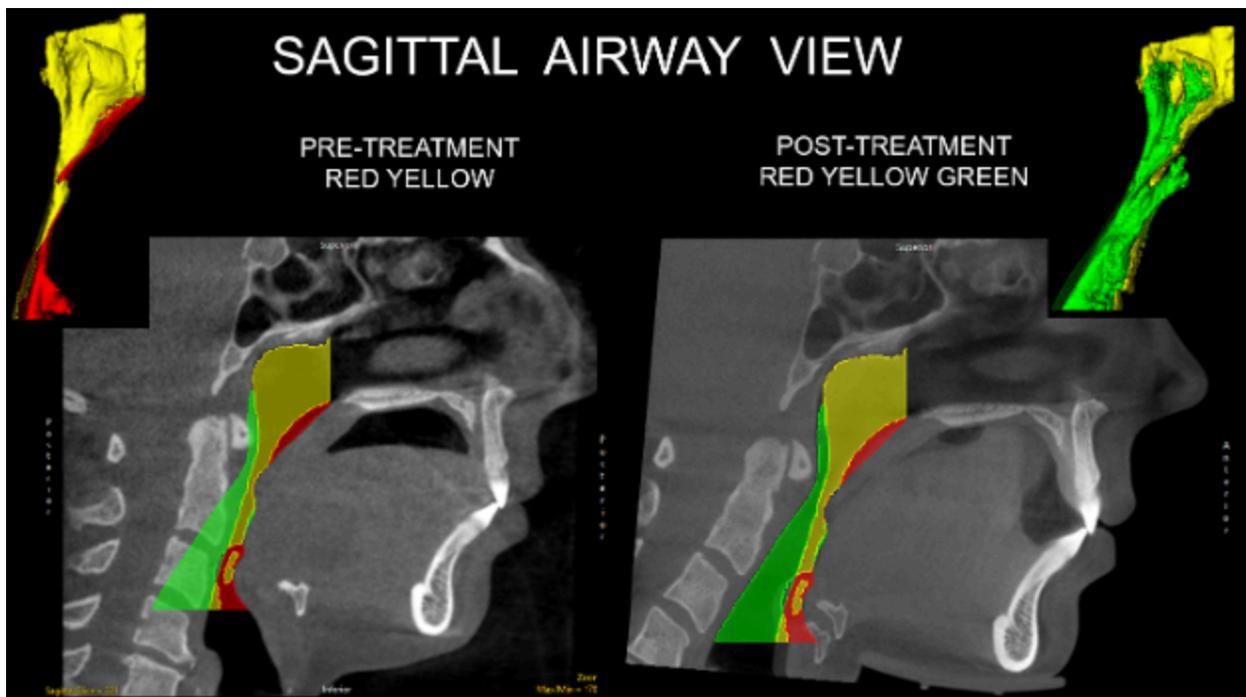


Figure 12 Analyze 14 Software

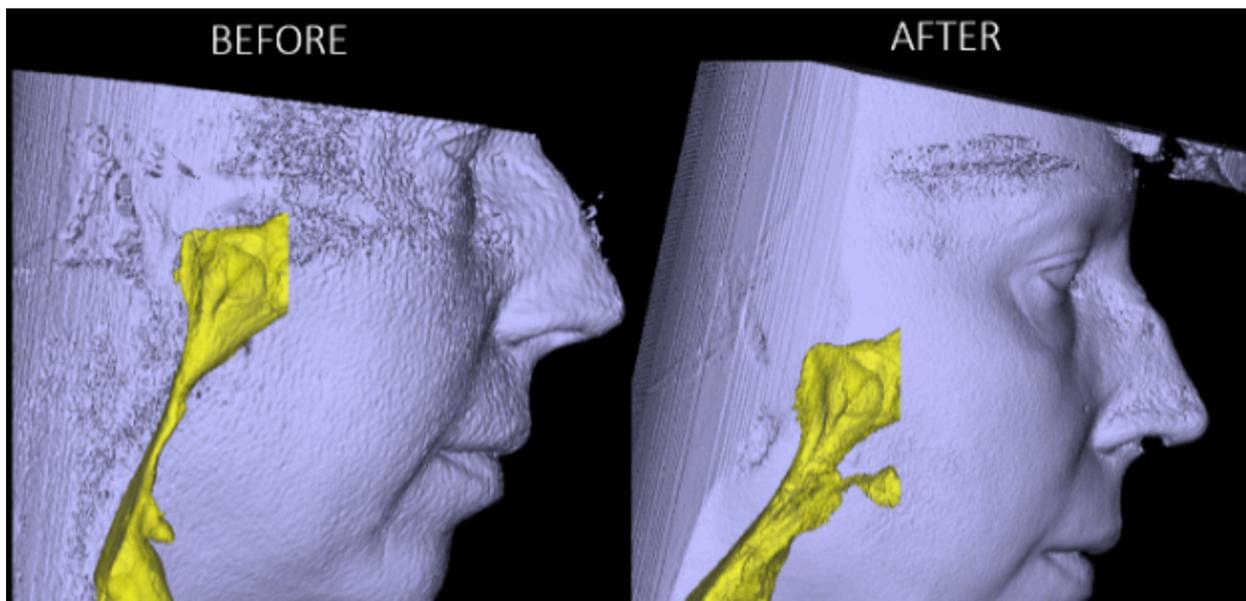




Figure 13 Analyze 14 Software

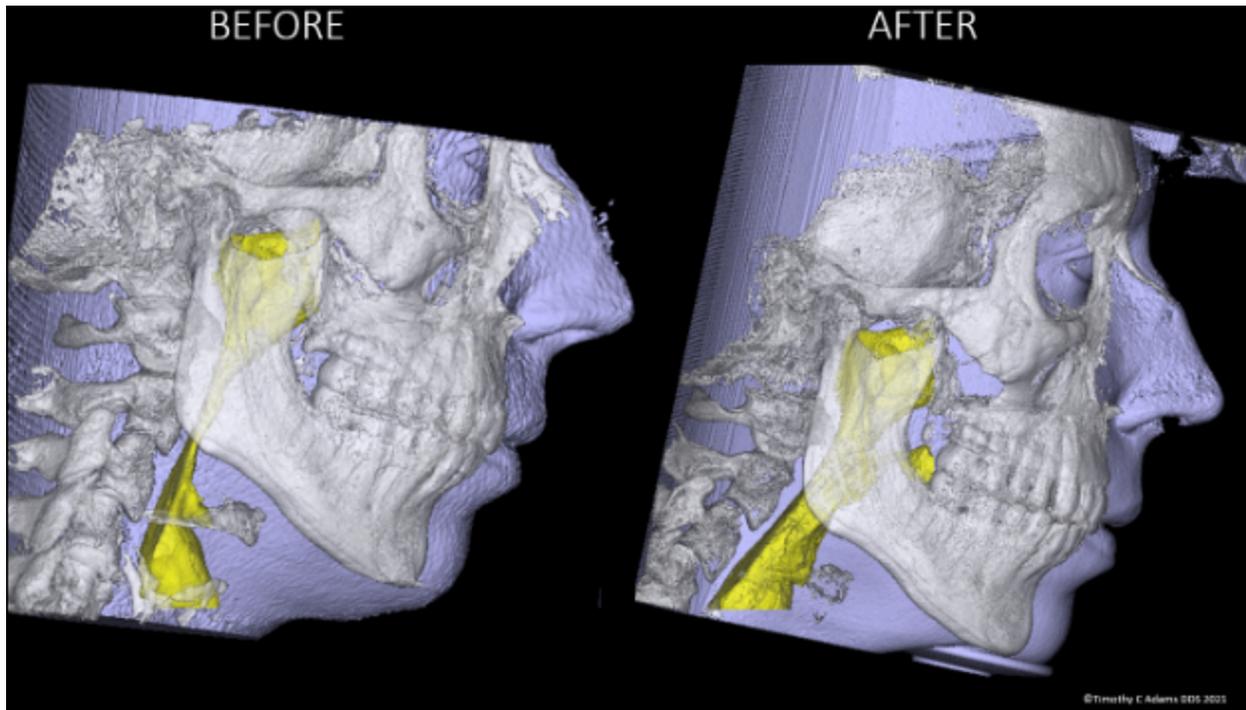


Figure 14 Analyze 14 Software

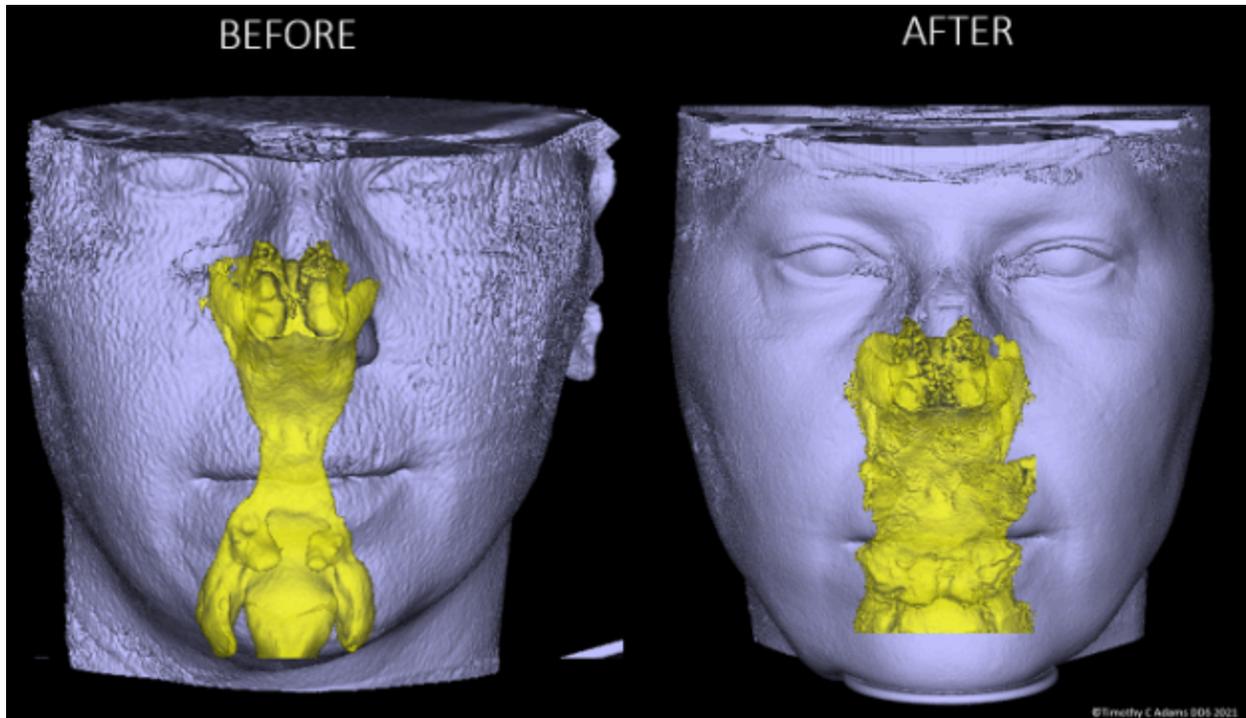


Figure 15 Analyze 14 Software

PRE / POST-TREATMENT AIRWAY VOLUME	
PRE-TREATMENT YELLOW RED AIRWAY VOLUME: 16899.89 MM3	POST-TREATMENT YELLOW GREEN AIRWAY VOLUME: 28179.01 MM3



Figure 16 Analyze 14 Software

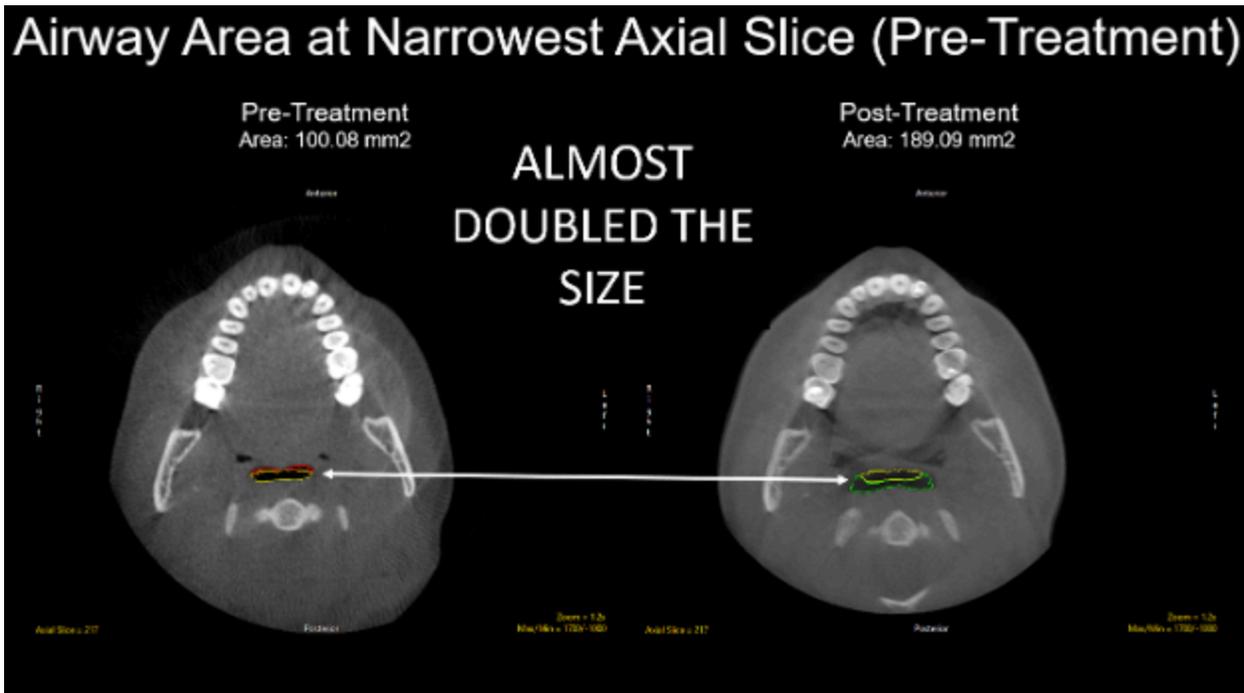


Figure 17 Analyze 14 Software

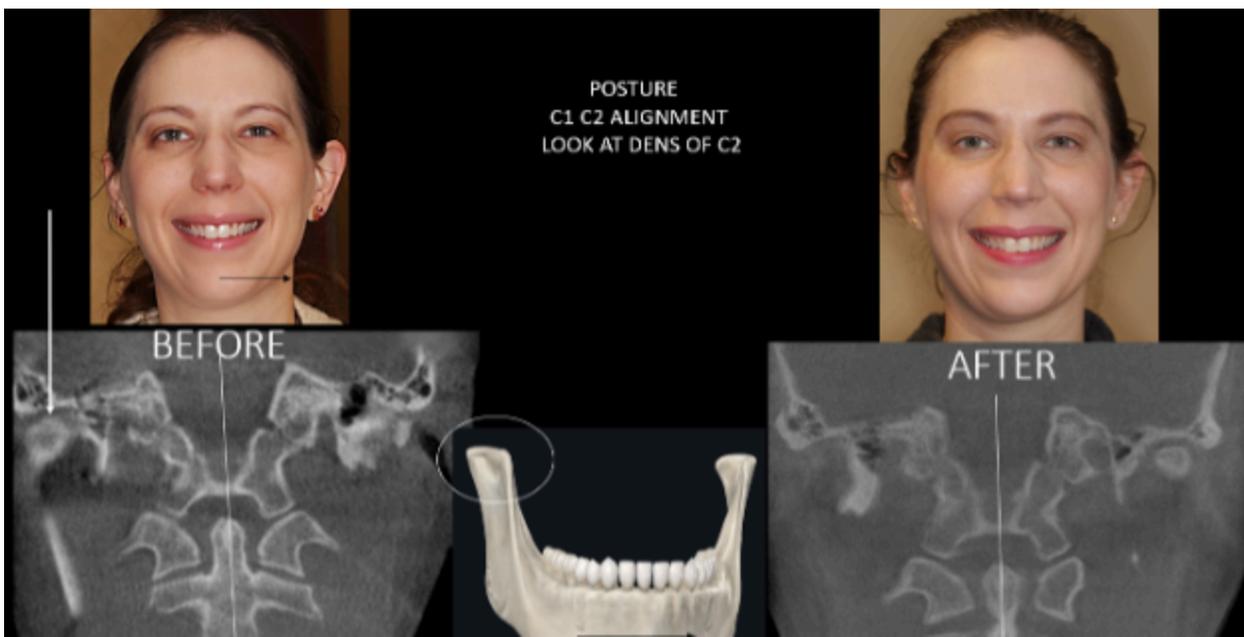




Figure 18 Note how forward the patient's right condyle is which is a direct result of the left temporal bone being externally rotated (abducted ear) driving the mandible to shift to the left. 20 months after treatment the mandible and condyles are more centered ideally and the ears are now more level as a direct result of the temporal bone being in a more natural position as evidenced by the improvement in the level of the ears and left ear abduction.

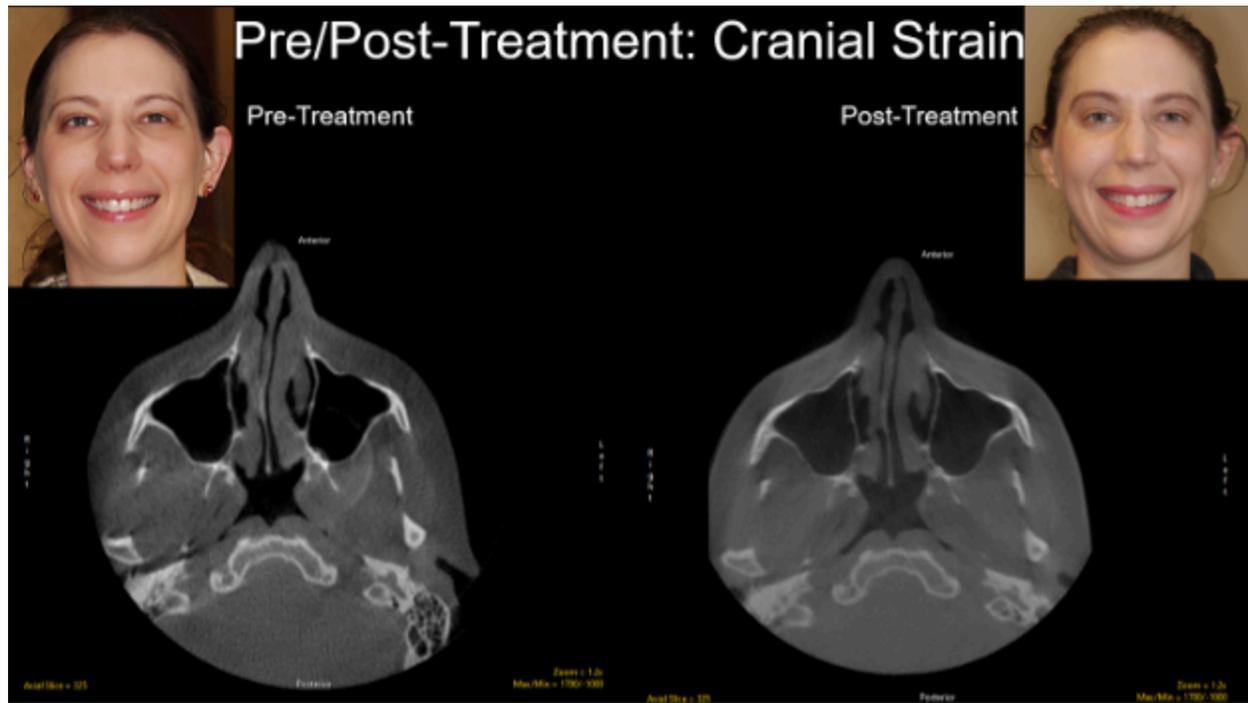


Figure 19 Dramatic improvement in cranial strain pattern.

Improved symptoms after 20 months of wearing the Homeoblock appliance at night only.

Sinus issues are no longer a symptom.

Headaches are totally gone.

Had originally tried 7 different appliances over a 10-year period.

Cervical issues are now nonexistent.

Clicking and popping nonexistent. Jaw does not shift like it use to.

She saw a Chiropractor every week. At about the 3 month mark her Chiropractor noticed a big improvement and recommended seeing her every month. She now goes about every 3 months.

The muscles of the face are much more relaxed. Feels like her bite has a place(home) to go to.

No longer struggles to bite her teeth together.

Snoring drastically reduced as noted by her husband.

Thrilled with her new face rejuvenation. Symmetrical and more natural looking. "Never dreamed an appliance could give these results".

CONCLUSION

The Homeoblock appliance is a unique and valuable tool for dentists to have in their armamentarium. It is simple and comfortable for the patient to wear and very easy for the dentist to use as there are minimal adjustments needed. I recognize in dentistry that there are many ways to get from point A to point B in the clinical arena. This is one of my appliances of choice because it addresses the root cause of the symptoms by affecting posture, airway and neurology. So, the band aid approach of many appliances (treating the symptoms) on the market can be addressed and allow for the root cause of the symptoms to be addressed and treated more ideally.

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