CEO: Principle in Adult Orthodontics

Classification of Misalignment

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Disclaimer: The cases presented below are real cases from Dekanoidze Dentistry Professional Corporation™, for privacy reasons no personal patient information will be disclosed and facial features will not be shown. Images were not hand picked. The quality of images vary as they were taken by several staff members at different times.

The purpose of this article is to offer some reflections on an ongoing paradigm shift in adult orthodontics.

The majority of case-review studies are presented in a routine way. This case-review study is written in a reader-friendly manner. It begins with a report on a true story.

A pleasant young man without any facial deformities came to our practice to seek orthodontic care. He did, in fact, have pleasant facial features.

I asked him my usual question: “What don’t you like about your teeth?”

“Just look at me," was his answer.

I had been looking at him and had noted that aside from the fact that he was vey skilled at hiding his teeth while speaking, there was nothing unusual. He was extremely skinny and slightly pale, but that was the extent of my initial observations. I proceeded to take a closer look. When he opened his mouth, my own mouth inadvertently dropped. With some reluctance, I said, “Unfortunately, I can’t help you. But I will be happy to refer you to an oral surgeon and an orthodontist.”

For the first time during our consultation, he looked me straight in the eyes and said, “I have been through five different orthodontists and oral surgeons. I don’t have $30,000 and I don’t have 10 years to spare doing this, and I am really scared to have that Lefort-type surgery. It’s not an option for me. When I checked your website, I saw your motto: “Dental office with a heart.” I thought you would deliver what you promise.”

“I apologize,” I said, “But I think it’s beyond my expertise and beyond the capabilities of the treatment modality that I am working with. You need to have much more serious intervention than I can offer."

That was my prudent answer. “Stay out of trouble” was the warning ringing in my head.

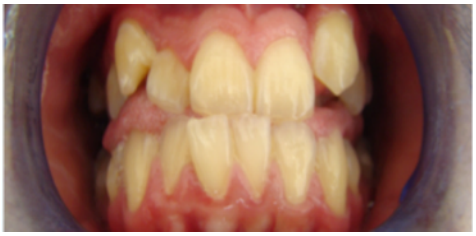
He then said, “I am not leaving your clinic until you find a solution for me that will be a humane alternative to your so-called professional opinion!”

“Look,” he continued, gazing at his fingernails while picking at them, “I really like this girl, but I can’t go out with her. I am embarrassed to eat in front of her, the type of food that I eat. I have also developed GI condition due to the effects of the diet I am on. I am sort of antisocial, and I am seeing a psychiatrist now to help me deal with my issues. Is there any doctor who will be willing to help me?”

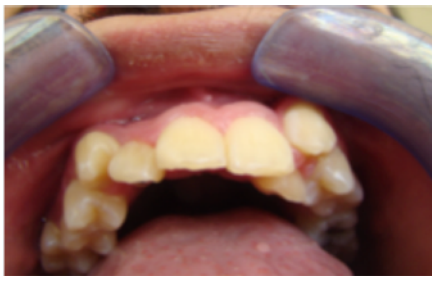
Needless to say, I do see patients from time to time who seek orthodontic care in order to subconsciously resolve their psychological problems. All dentists are aware of this subgroup of patients. We have to be very careful and watchful while undertaking initial intake evaluations. But where there is a chicken and where is the egg? As for the case of the patient who was in my chair, the answer appeared to be obvious. Any psychiatric evaluation was secondary to his oral condition.

I was feeling torn between my fear of the Royal College and the compassion I felt towards him as a person and as a patient.

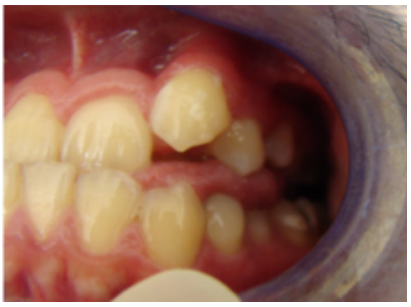
"Oh my," I thought, "it's time for me to do what I believe is right." And after a decade of doing clear aligner therapy with 1,500 cases behind my back, I could visualize the possible treatment plan and the final outcome for him. Despite my initial apprehensions, I knew it would work – I took a deep breath and said, "Let's give it a try, but no promises". "This is the best day of my life! You didn't give up on me! And I have hope now." He leapt from the chair and grabbed my latex covered hand.



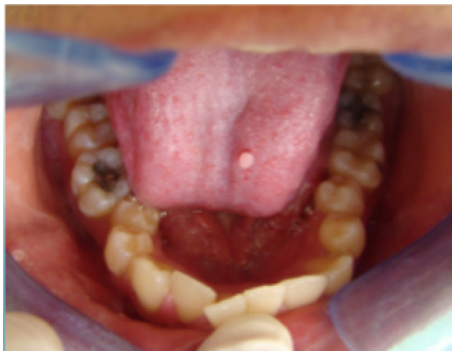
My thinking pattern went like this: It can't get any worse and if his TMJ is still adapting to this condition, it probably has a flexibility to adapt. And doing nothing would likely produce a much worse outcome in all areas of his health and life. So someone should make a judgment call. "Why me?"



Following the proper procedures, I consulted with a prosthodontist oral surgeon and with another orthodontist and confirmed that the only option that they thought to be feasible was to proceed with braces followed by orthognathic surgery followed by more braces. I won't go too deep into the details of the proposed treatment, but it appeared to be lengthy, with lots of risks, not to mention the astronomical monetary cost.



That morning my car radio was playing Frank Sinatra's "My way." Sometimes it's the small things that can give necessary courage to open ones office doors.



The following account will represent the course of action that I took and the subsequent analysis of our current approach to treatment of complex malocclusions and misalignment. It will also reflect on a paradigm shift in the current approach and considerations while treating complex cases specifically in adult orthodontics.

Case Study I

27-year-old male with severe skeletal class 3 malocclusion, complicated by severe crowding and complete absence of CO. (Teeth will not have any contact points in CR. and the mandible grossly over-closes). Upon deviation of the mandible contact points could be achieved on the second molars only. Patient is on a liquid or semi-liquid diet.

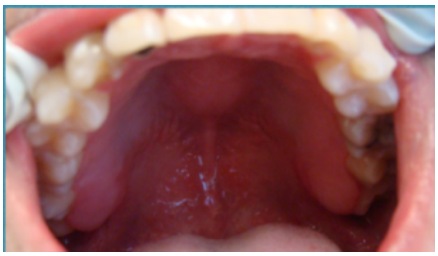
Chief Complaint
Inability to socially integrate into society, GI complications and phycological inhibitions.

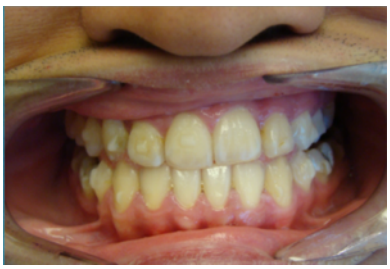
Chief objective
The ability to eat solid foods, smile and talk without hiding his teeth. To be able to do so in a reasonable time frame, utilizing some form of inconspicuous appliance without jaw surgery and affordable financial considerations.

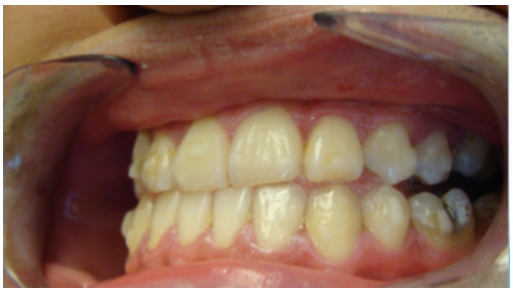
After carefully evaluating the slew of pros and cons, we decided to proceed with impressions, X-rays and the Invisalign Clincheck simulation as a diagnostic tool.

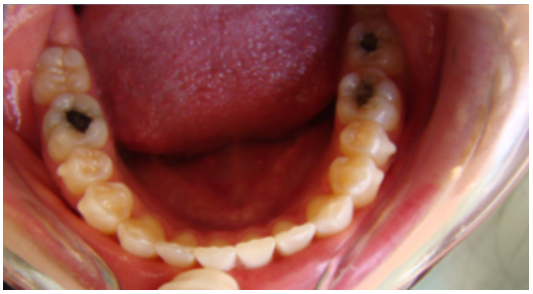
Teeth 2.3, 4.4 and 3.4 were first removed virtually and then in a surgical manner.
18 months later his chief complaint and chief objective have both been met.

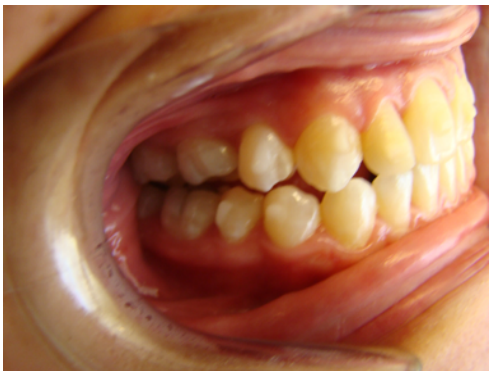
Mid-treatment











Patient is currently in treatment, with no side effects, pain or discomfort. His quality of life significantly improved. He is maintaining a much healthier weight, his GI symptoms have been normalized. He is in no need of psychological evaluation, and he even has a girlfriend now. All of this just 18 months later without any risky surgery and at a fraction of what it could have cost to the patient.

Approximately 25-30% of my current patients follow within the similar pattern of complex cases who opted out of treatment prior, due to traditional recommendations, and as a result have been suffering significant psychological, physiological and social ramifications. And in terms of numbers, that is 40-50 patients over the last twelve months. That translates to roughly 500 patients in 10 years. Multiply by the number of dentists in Toronto and divide it by 2, we come up with a staggering number of 1,250,000 people quietly suffering, because we as providers, failed to offer our patients a treatment modality that would suite their lives and financial means.

Discussion
The current approach to the treatment of complex malocclusions fails to give adequate consideration to the patient's chief complaints and chief objectives.

Angles (1855-1930), the father of orthodontics, developed precise guidelines and principles, and these will most certainly survive for centuries.

Yet they cannot and should not be the sole guidelines according to which we approach the challenges of treatment when it comes to adult patients. To quote Blake McAdam, it is time to switch from dentistry as a "cult of an individual" to a patient-oriented approach.

Don't get me wrong, there will be plenty of patients in need of orthognathic surgery, patients with facial deformities and asymmetries, and in addition, I would not recommend the described approach while treating children and teenagers. Orthodontists are able to successfully redirect their growth patterns, and children usually don't mind wearing metal braces and head gear.

The focus of this article is on the under-serviced and under-treated population, the population that would not otherwise receive any form of orthodontic care. Those adults suffer socially and are often at risk of developing health problems while dental professionals have the power to rehabilitate this group of people using methodical protocols that put their chief complaint and chief objective as a primary focus around which to create a treatment plan.

I am suggesting a catchy acronym to the above mentioned approach, calling it **CEO**. Every patient deserves to have it offered, at least as a consideration to his or her treatment protocol. Every patient deserves to be treated as a CEO. Aside from the traditional translation as Chief Executive Officer, the term extrapolates to:

Conservative Enhancement Orthodontics

1. Listen carefully to the **chief complaint** and **chief objective.**

2. Obtain medical and dental history, and listen to what the patient has to say.

3. Evaluate soft tissue in repose, profile and movement (smile). Always remember, soft tissue rules!

4. Obtain records (digital or regular models, pan and Celph X-rays).

5. Soft tissue considerations, dental and skeletal considerations.

6. Analyze the data in the priority as above: 1. c/ c , 2.c/o etc.,

7. Suggest different treatment options, including but not limited to no treatment, **CEO** and comprehensive options, if applicable. Obtain an informed consent while clearly specifying risks, benefits, pros and cons.

8. Let the patient decide based on the information provided.

Ultimately it is his/hers mouth, teeth, subsequent life impact and sacrifices which should be based on particular complaints and their respective objectives. We, as dental practitioners should be facilitators rather than dictators.

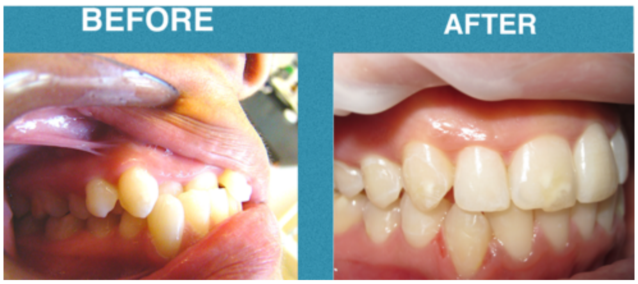
Needless to say, as dentists or orthodontists, we are not incredibly well versed in the soft tissue implications of any orthodontic (never mind surgical) involvement. Consult with a plastic surgeon if in doubt. Respect that the hard tissue provides support for the soft tissue. Sometimes soft tissue compensates in an aesthetically pleasing way and only minimal dental alignment will be suggested in order to be conservative in terms of long-term effects on the soft tissue profile. Ensure that the patient is aware that any major intervention in patient dentition and jaw will inevitably lead to the change in soft tissue. Let the patient know that with age those inadvertent changes could lead to the increase in muco-buccal folds, elongating of the upper lip, marionette lines, smokers lines, nose prominence, mid and lower face changes and other undesirable features.

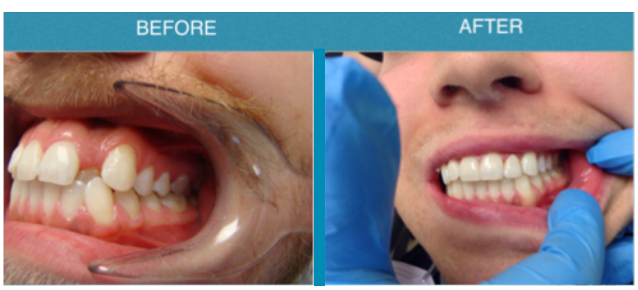
The **CEO** approach is a valid treatment modality: minimum input, maximum output.

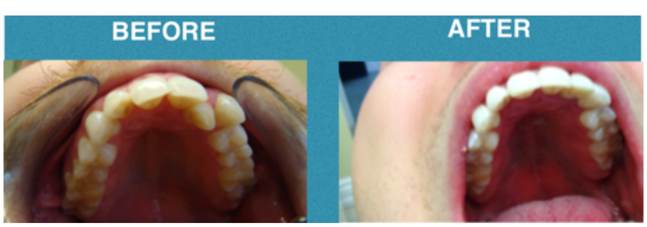
Minimize risks associated with major surgeries and permanent irreversible losses, minimize treatment time, minimize aesthetic discomfort associated with the treatment.

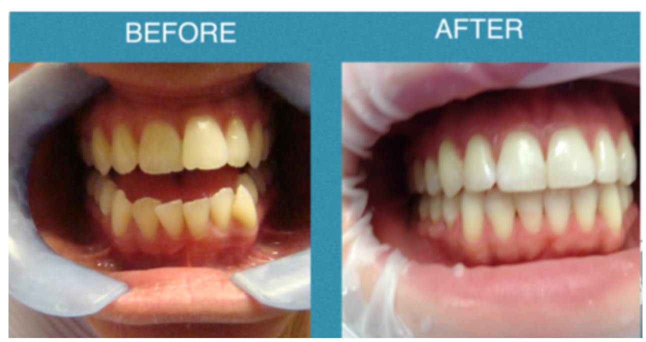
Maximize patient satisfaction in terms of resolving patient's chief complaint and chief objective. Find the most cost-effective solution. There is as much art as science in this approach and frequently the outcome surpasses the traditional expectations; as a result of certain methodology in conjunction with creativity and experience.

Before & After CEO Cases









Clear aligner therapy appears to be a preferred treatment modality in the adult population. The sophisticated software capabilities also provide an advantage in terms of treatment planning. Our objective shifts towards teeth alignment and achieving "functional occlusion" (P. Dawson), rather than ideal Angle cl 1.

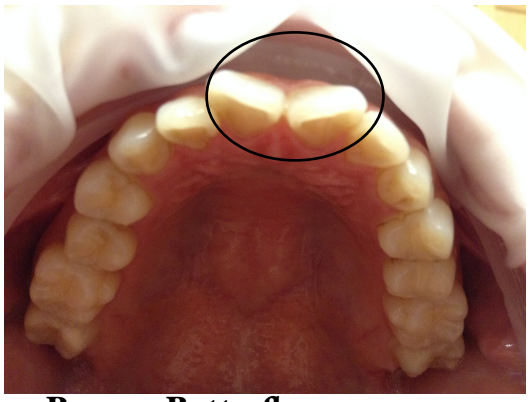
As conservative providers, we often face challenges in terms of addressing our own diagnostic statements and problem lists, but we recognize that often they have very little connection with the patient's chief complaint and objective.

For instance, the following diagnostic statement is rather common: cl 2 div 1 skeletal type of malocclusion, complicated by moderate to severe crowding and excessive o/b, o/j, narrow arches. It is very hard to create a photo robot of this dentition based on this diagnostic statement. It also sounds very vague and non-descriptive when it comes to patient complaints and it forces us to address cl 2 div 1 malocclusion above all.

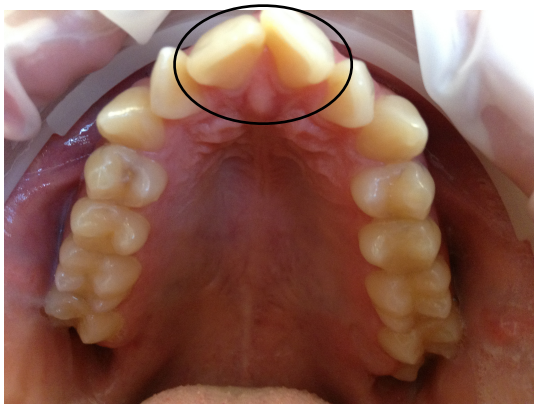
That leads us to the notion **that as dental orthodontic providers we are not only treating malocclusion, we are also treating misalignment.**

After successfully completing over 1,500 cases, I observed certain patterns. Allow me to present my **classification of misalignment**.

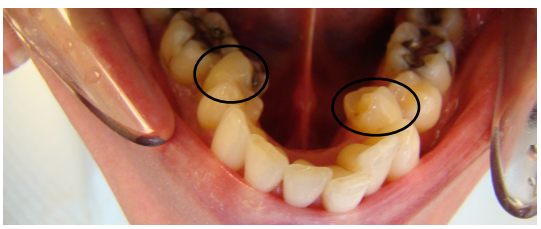
1. Butterfly



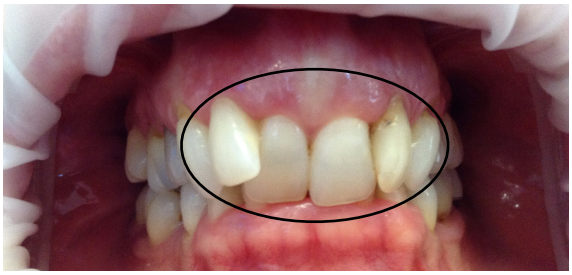
2. Reverse Butterfly



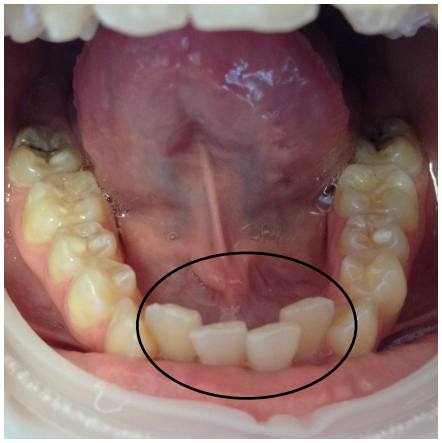
3. Bicuspid Plunge



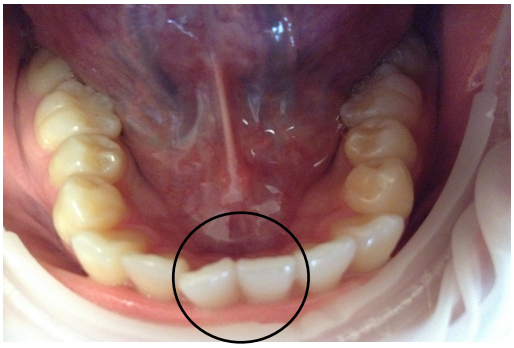
4. Siamese Walk



5. Simple Overlap

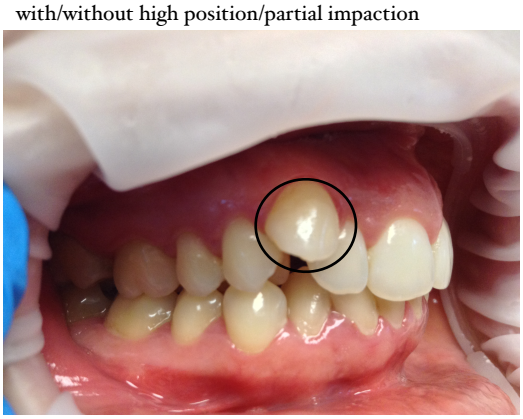


6. Single Wing Butterfly

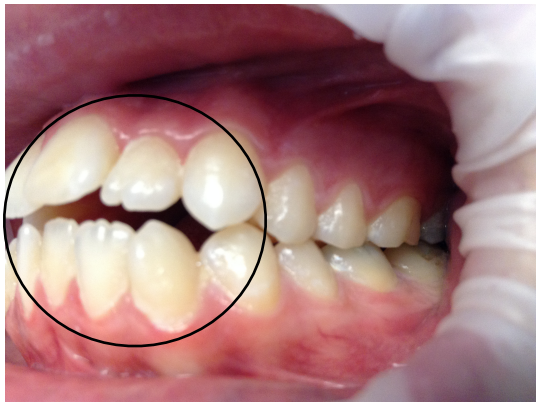


7. Canine Turn

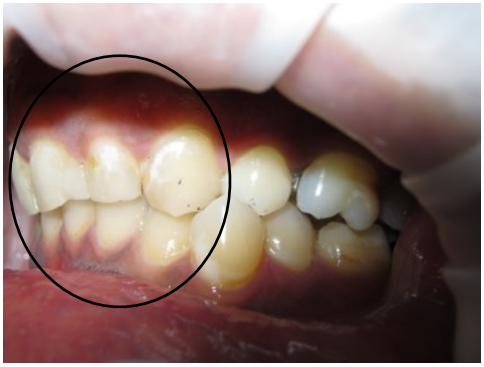
with/without high position/partial impaction



8. Hidden Crowding

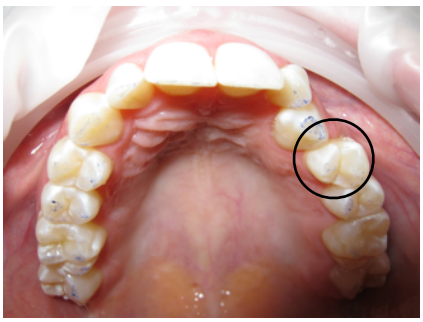


9. Pseudo Crowding /Hidden Spacing

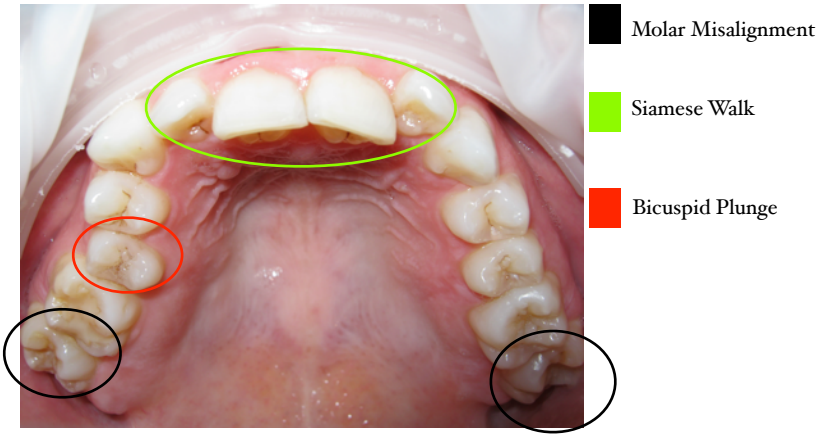


10. Pseudo Spacing

11. Bicuspid Rotations



12. Molar Misalignment



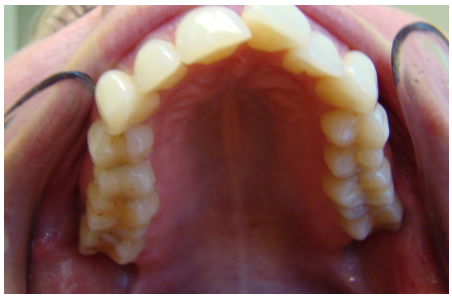
Often we see different combinations ofmisalignment. (see image above)

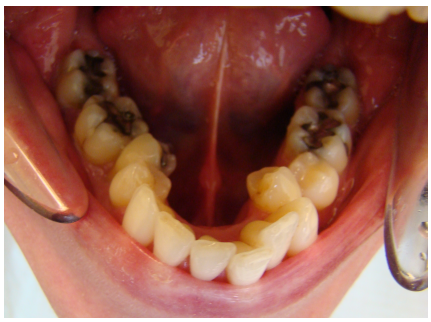
Case Study II

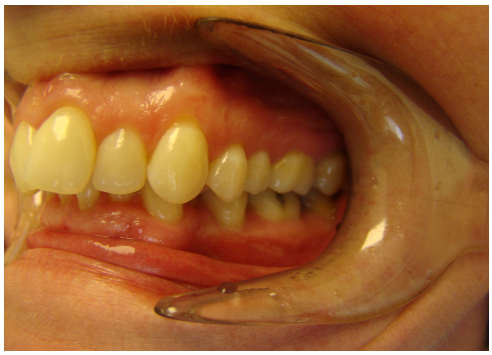
The new and expanded diagnostic statement for a very pleasant 55 year old lady, that has been posted prior to the classification, will evolve as follows: skeletal cl2 div 1 malocclusion complicated by severe reverse butterfly maxillary crowding, moderate butterfly mandibular crowding with severe mandibular bicuspid plunge, complicated by excessive o/b , o/j and constricted arches.

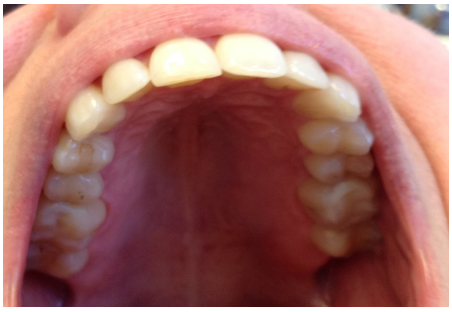
Patient's chief complaint: inability to smile and difficulty with cleaning. Patients chief objective: to improve her appearance and improve oral hygiene. Picture this dentition now. It is easy to create a photo robot as well.

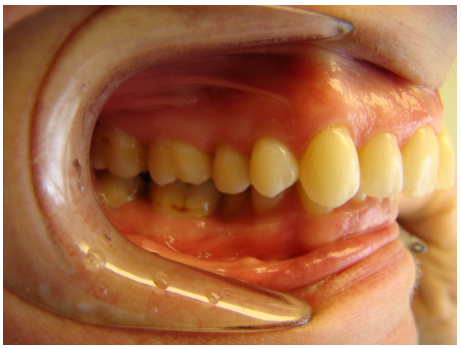
Before

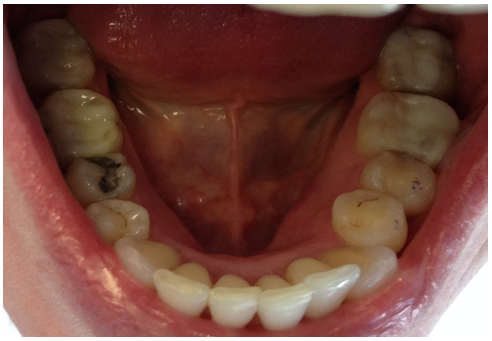




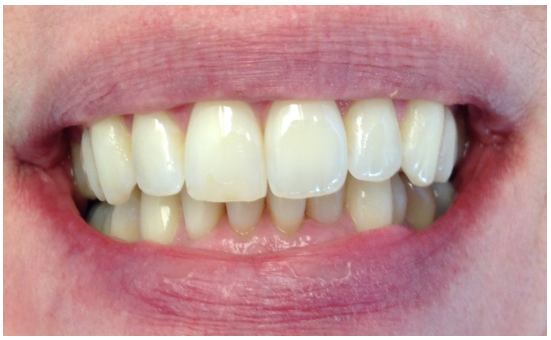


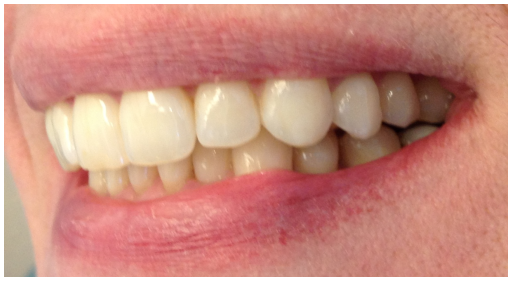


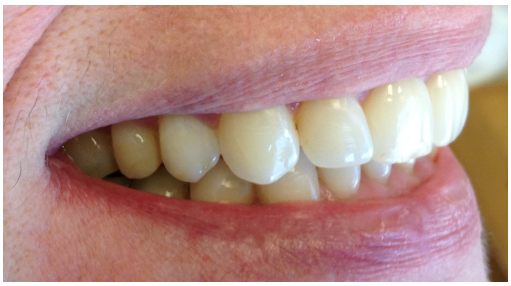




Mid Treatment (Patient was happy at this point and decided to close the treatment and switch to retainers)







While utilizing the **CEO** approach, we will be shifting our focus on treating misalignment and creating or maintaining functional occlusion, thus satisfying the patient's chief complaint and chief objective.

The classification presented above is also very helpful in terms of identifying and overcoming treatment deficiencies and establishes treatment planning while utilizing clear aligner therapy. But this is a topic for a different discussion.

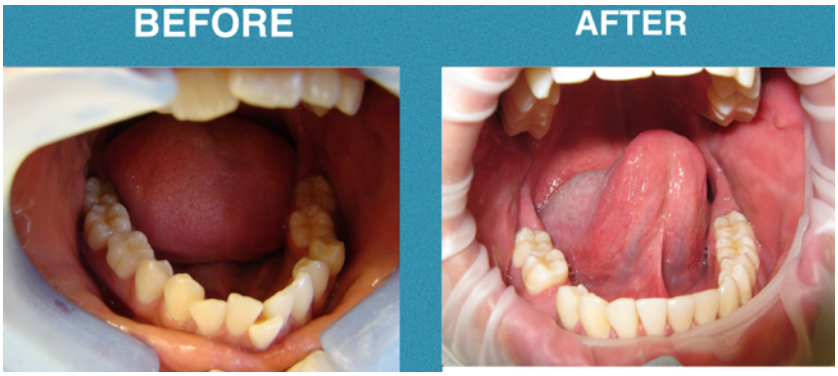
Below is another example of a **CEO** applied case that has been completed in 18 months using the above described methodology and classification of misalignment.

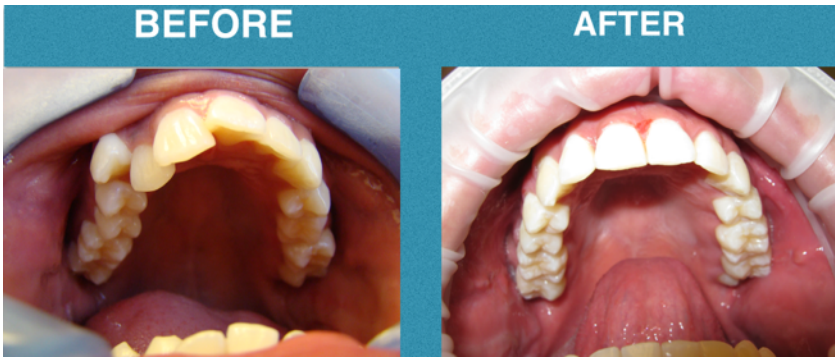
Patient education is an important aspect of informed consent. We ought to provide various options of treating malocclusions, misalignments, deep bites, open bites etc. It is important to clarify to the patient the difference between "improvement" of the condition versus complete resolution of the issues. For instance; the case below demonstrates the improvement in the o/b o/j, not complete alignment of the midline and cl 2 occlusion on the right side. **CEO** approach has been utilized. Patient opted to proceed with the Invisalign treatment alone and was very happy with the outcome.

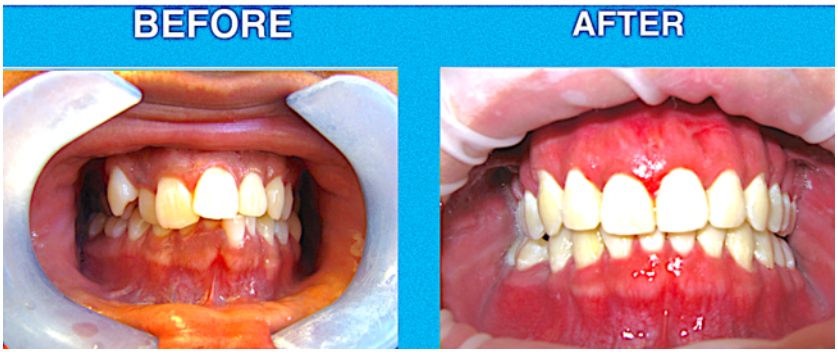
Certain subtypes of the new classification of misalignment call for certain treatment techniques while utilizing clear aligner therapy. For instance, high positioned canines might require not only extrusion attachments but also possible auxiliaries and overcorrection considerations. However, not every patient is in agreement with the use of the above mentioned treatment approach.

Evolution of CEO Approach (Accelerated Orthodontics)

When we talk about Conservative Enhancement Orthodontics we understand that everything revolves around our patient . We take into consideration his/her needs, wants and desires as well as their life circumstances and, in turn, we try to prioritize efficiency. Our treatment goals should be not only cost efficient but *time efficient* as well.







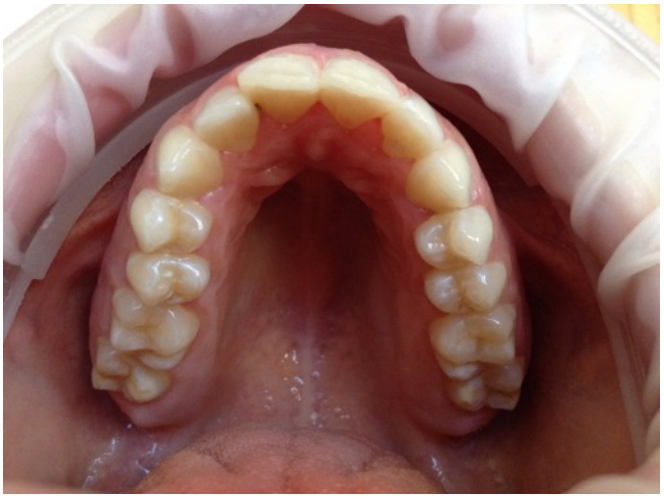
Case Study III

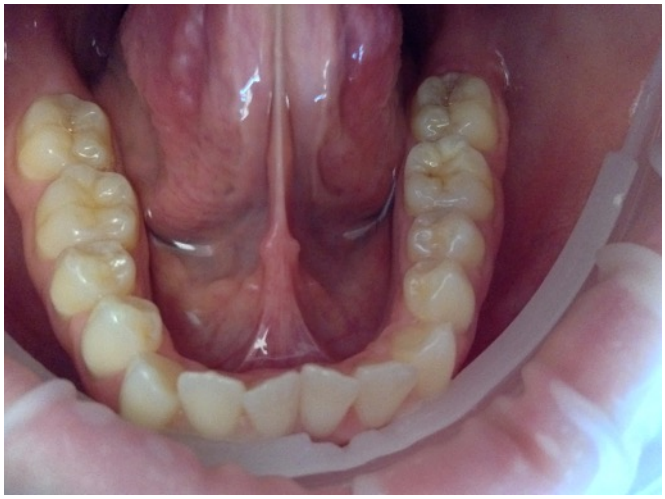
Diagnostic Statement: cl 1, slight tendency cl 2 malocclusion complicated by moderate mandibular butterfly pseudo crowding, mild maxillary pseudo crowding, unilateral posterior cross bite, anterior open bite, excessive o/j, constricted arches, high vaulted palate, tongue thrust habit.

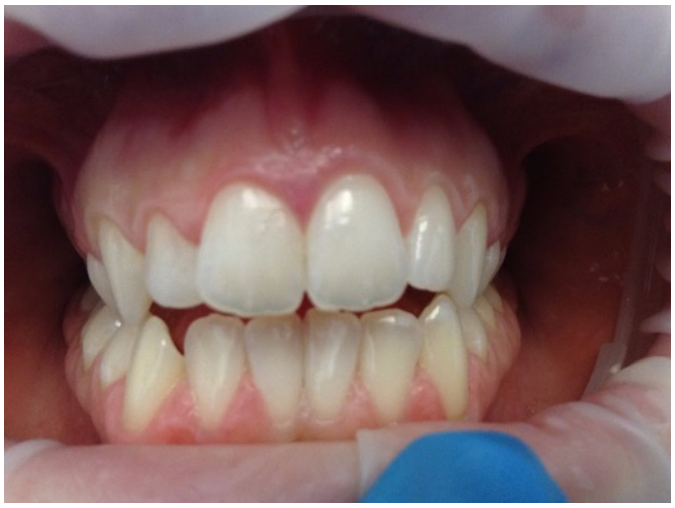
Treatment consisted of clear aligner therapy alone (Invisalign). No IPR preformed. Two sessions of **Propel** accelerated the treatment that consisted of seventeen upper aligners and 19 lower aligners in active stages. And for those who are skeptical that posterior cross bite is not treatable with clear aligner therapy alone, I submit the following images.

Total treatment length: **twenty weeks.** Yes, we do have our professional secrets...

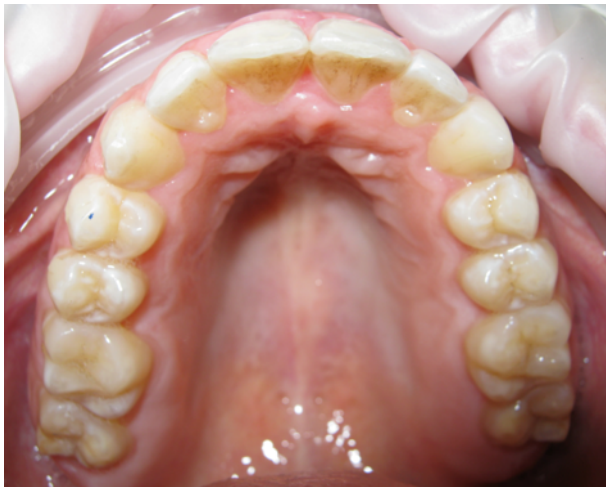
Before

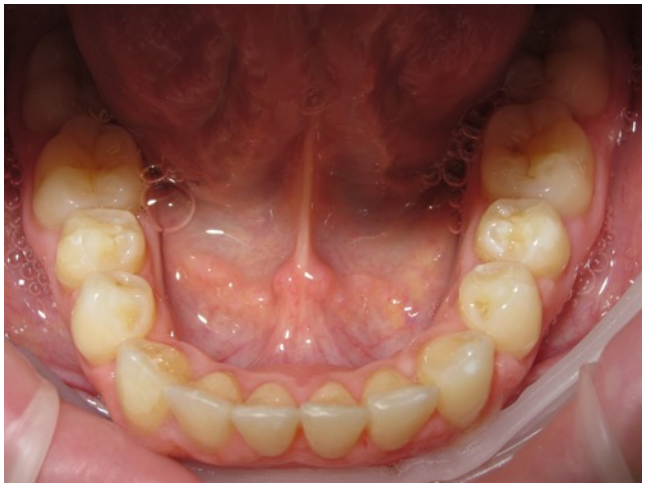


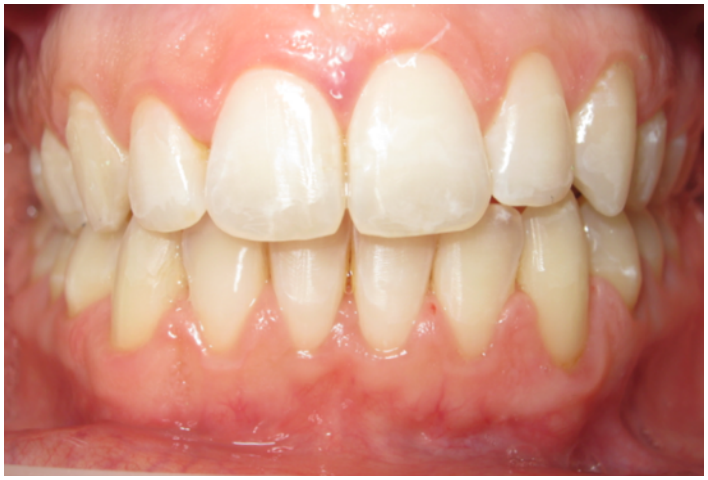




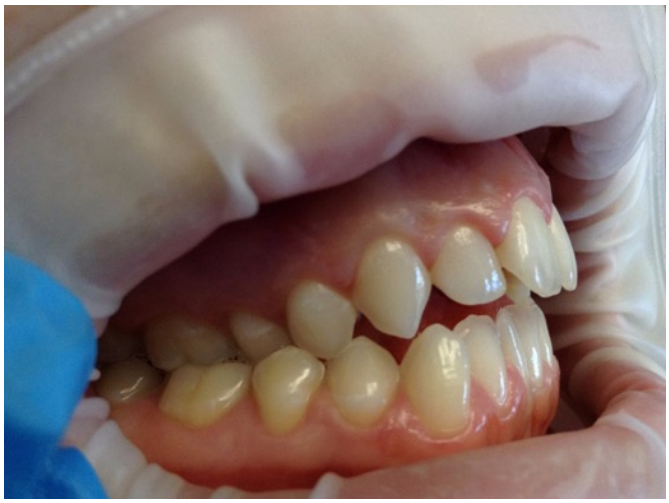
20 Weeks Later

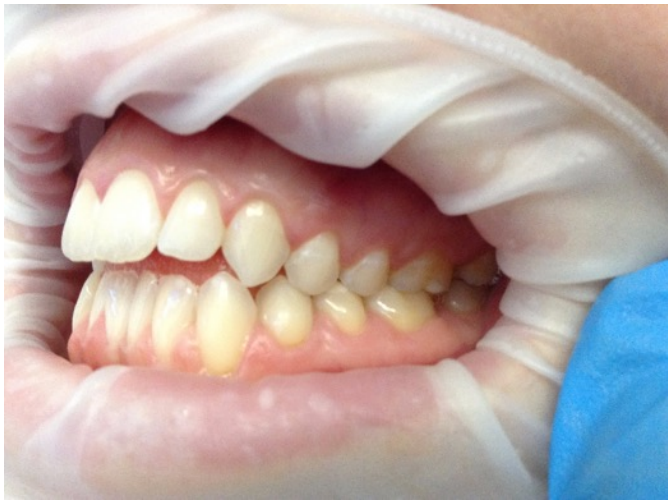




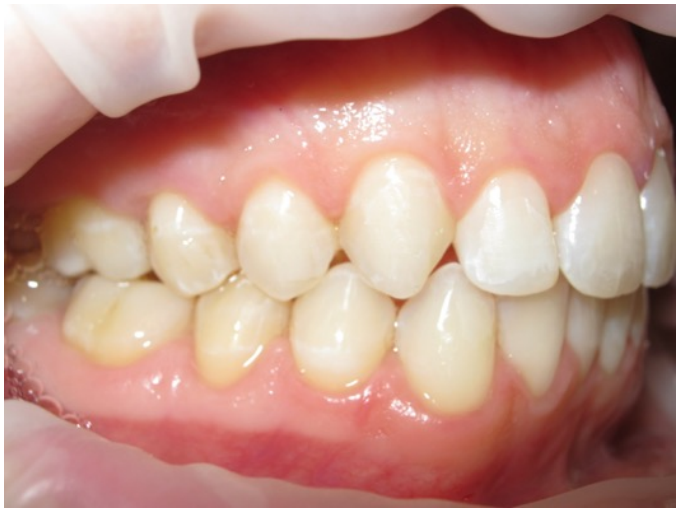


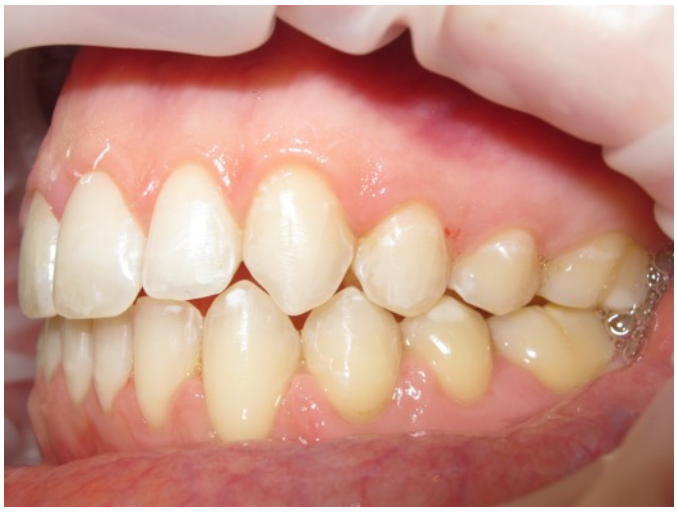
Before





20 Weeks Later





Conclusion

At present time, we are in possession of multiple treatment modalities that patients are actively seeking, so we ought to exercise an approach to patient management that does not fail to take into consideration the patient's **chief complaint** and **chief objective**. We have to give immediate consideration to the **CEO** approach in that respect. The **CEO** approach also requires a **new sub-classification of misalignment** which can be extremely helpful in terms of efficacy of treatment planning in complex cases. It will be prudent to take a serious look at the soft tissue implications of our dental intervention both in the immediate and long term and if necessary extend the alliance with conservative plastic surgeons to facilitate the treatment outcome or correct deficiencies in the most beneficial and *patient friendly way* .