The New Frontier of Interceptive Aesthetic Orthodontics

How the simple "3 –Step Smile" can offer far more than you might realize. Dr. Tif Qureshi, discusses how the treatment of mild and moderate crowding has far more than just cosmetic orthodontic objectives.

By Dr. Tif Qureshi, UK

Currently in the market of dentistry it seems as if they are 1000 short-term orthodontic systems out there. The term "cosmetic orthodontics" has been around for a little while but in this article we are going to take an alternative view of what we can achieve. The problem with the term "cosmetic" is that it often suggests things are being done just for visual reasons. This article will argue that in treating mild and moderate crowding cases we are potentially carrying out an interceptive functional treatment.

There have been criticisms from people suggesting that the cosmetic orthodontics and short term orthodontics causes anterior flaring and loss of control of the anterior occlusion. This may be true if there has been no arch evaluation/planning or space creation strategy. If these things have been carried out then actually the opposite is true, and arguably every better control of the anterior occlusion than in any other form of orthodontics.

This article will also look how simple three-step approach can massively improve the patient’s appearance, their function and intercept the continual crowding life causes more problems without the need to pick up a drill or damage any teeth.

This three-step approach we call the ‘three step smile’ through alignment bleaching and bonding. With the right components carried out at the right time it is possible to make the patient’s own teeth look more beautiful without the need for porcelain veneers or other irreversible procedures.

The most important article in dentistry that the profession seems to miss is (Br J Orthod. 1990 Aug; 17(3):235-41. Stability and relapse of dental arch alignment.)

Little RM

1. Arch length reduces following orthodontic treatment, but also does so in untreated normal occlusions.
2. Arch width measured across the mandibular canine teeth typically reduces post-treatment whether the case was expanded during treatment or not.
3. Mandibular anterior crowding during the post-treatment phase is a continuing phenomenon well into the 20-40 age bracket and likely beyond.
4. Third molar absence or presence, impacted or fully erupted, seems to have little effect on the occurrence or degree of relapse.
5. The degree of post-retention anterior crowding is both unpredictable and variable and no pretreatment variables (clinical findings, casts, or cephalometric radiographs before or after treatment) seem to be useful predictors.

This 40 year study is so important.
Conceived by dental educators and designed by world-class Italian designers, the Smily Dental Simulator is a patented and multi-dimensional teaching modality.

Its modular construction addresses space considerations while providing self-contained learning islands for ultimate teacher/student interface. In addition to teaching simulation the Smily platform incorporates multimedia capabilities that enhance the teaching process and accommodate the growing requirement for audio, video, data processing and image guided technologies: EasyTeach 3D and EasyLearn.

EasyTeach 3D permits the video-transmission of lesson to all connected positions, monitoring in real-time all students. EasyLearn is a revolutionary computerized dental training system. It uses the latest in optic, imaging and simulation technologies to give the dental student the best and most effective training experience available in the world today. As s/he practices procedures, the dental student is provided with case history information about the simulated patient, on-screen visual tracking of the procedure s/he is performing, real-time digital feedback and evaluation of procedures performed.
for two main reasons. The first highlights the point now widely accepted that retention after orthodontics is for life.

The second point is even more important: that in adults with mild or moderate crowding, the arch length will reduce regardless of whether the patient had orthodontics or not.

This is a critical point for all dentists to understand especially anyone carrying out restorative treatment. That is the teeth you have moved, that you may expect to remain in the same position through life will keep moving and the functional contacts will change. It is one typical reason why composite fillings classically chip on the front teeth. Basically if you have crowded it will get worse and arch width will collapse which may have an effect on the patient’s guidance. It also means that lower incisors, which have wear facets due to crowding caused by irregular dynamic contacts, will get worse and wear faster causing more dentine exposure and darkening from the soaking of stain.

These two patients were told 25 years ago that the upper teeth needed treatment but the lower teeth were considered not crowded enough to treat. At the time they were not that crowded, but over time as per the findings of Little’s study the teeth have continued to crowd causing the evident result. (Fig 1,2)

These two patients both had comprehensive orthodontics but no fixed retainers were used and no long-term follow-up was carried out by their orthodontist -a result the patient teeth relapsed almost to the original position. (Fig 3,4)

This patient was treated 30 years ago for mild crowding having relapsed 3 years after comprehensive treatment. There was differential tooth wear already visible and at the 10 years follow up there’s been no irregular wear. The teeth have been held in the correct position. Her teeth were aligned with an Inman Aligner in 4 weeks and fixed retained. The original retainer has remained in place for 10 years. Being a regular patient, in GDP practice, the retainer can be reviewed at correct intervals. (Fig 5-7, Lucy)

This patient was only 21 and her crowding was getting worse, as was the differential tooth wear on her lower teeth. Her canine guidance was collapsing and she was slowly moving into group function. Her lower incisors were starting the wear differentially. After aligning her teeth in 9 weeks and fixing retaining, her canine width was increased and held, function returned and 7 years later there has been barely any increase in wear in the lower edges Fig 8 Cara.

Detailed case

This case example will go through the steps needed for the three-step smile, outlined planning and consenting processes involved.

This patient presented originally wanting porcelain veneers. However he was aware of the high costs and that it would involve heavy prepa-ration on his teeth so he decided to consider aligning his teeth. When he was shown the results possible with corrected bleaching and bonding the patient decided against veneers altogether.

After a full examination and orthodontic assessment, our first step was to decide on a landmark reference tooth. This is a tooth, which is considered aesthetic by the patient and aesthetic and functional to the clinician.

An Arch evaluation and an occlusal trace is carried out with this reference point in mind using Spaceswize software, so that the 3-D setup created by the technician following the exact prescription of the dentist. In this case it was decided that the canines were in an ideal position so we certainly should not be fixed on the set up. The curve strictly dictated the position to be achieved (Fig SW trace).

It was discovered when considering the landmark point in looking at a chin up view, that to achieve the ideal upper position, a lower tooth was in the way and would need treatment. (Fig)

A full 3-D digital setup was produced by the laboratory based on this curve this was checked by the dentist before going ahead. A 3-D model was then produced to ensure the before and after positions. The patient has shown the print before any aligners were built. This ensured he was fully consented that he understood the potential compromises of only treating the anterior teeth. The patient reviewed the models in his hand and was happy with what was proposed. The 3-D models were returned to the lab and an upper Inman aligner and lower Clear Smile aligners were built on the setups.

A full Inman Aligner space creation guide with provided that outlined not only IPR but also PPR (predictive proximal reduction) understanding this makes the difference between average aesthetic and superb aesthetic results.

Progressive space creation was carried out over a period of 12 weeks. The patient’s teeth started to align.

Simultaneous bleaching

Towards the last part of treatment bleaching trays were made for the patient started bleaching teeth simultaneously. Impressions were taken and upper sealed trays were made on the nearly aligned teeth - 6% Day white whitening from Philips was given to the patient with full instructions. He carried out whitening once twice a day for 35 minutes at a time.

At two weeks notice a significant improvement in the tooth colour. A mockup outline was carried out using flexible composite and the patient was happy with the proposed build-ups, which involved 4 teeth.

Edge Bonding

2 weeks later the edges were permanently built using Versa Diamond and a very simple 2-layer reverse triangle technique. No preparation was required.

The retainer was fitted on the same day using a jig made on an impression post-alignment. This was bonded using Versa Flow.

Conclusion

One can see the natural-looking end result of this patient. He was thrilled with the fact that the treatment simply made his own teeth look as good as they possibly could, rather than totally changing his appearance and feeling, as if someone else’s teeth were in his mouth. More significant is the fact that this could be done by any dentist with the simple "Three step smile" alignment bleaching and bonding, with far less risk, better consenting and arguably a far more natural outcome than traditional veneer preparations. With upper and lower fixed retainers in position, canine widths and guidance can also be maintained meaning reduced chance of composite fracture better long term function and better long-term aesthetics. The 2 year follow up showed no changes in occlusal con- tacts or shifts in guidance.

Fig. 7. 10 years after Inman treatment 2015

Fig. 8. Before treatment 2017

Fig. 9. 9 weeks later 2017

Fig. 10. 7 years later

Fig. 11. Before treatment

Fig. 12. 9 weeks later

Fig. 13. 7 years later 2025

Fig. 14. Occlusal view

Fig. 15. Spaceswize through landmark points

Fig. 16. Chin up view before

Fig. 17. Printed model set to spaceswize

Fig. 18. Before treatment

Fig. 19. After 3 step smile

Fig. 20. Occlusal after treatment with retainer

Fig. 21. Before treatment

Fig. 22. 2 years review
“Never stop being curious and open for new things”

An interview with Dr. Gun Norell

By Dental Tribune MEA & CAPMmea

Dental Tribune MEA & CAPMmea spoke with Dr. Gun Norell about Inman Aligner Academy.

Dental Tribune MEA & CAPMmea: A true pleasure having the opportunity to interview Dr. Gun Norell. You have been quite active in the Middle East since 2007 now. Could you elaborate on your experience in the region and the experience behind working in Dubai as a dentist?

Dr. Gun Norell: To work as a Dentist in this region has been a wonderful experience but also a great challenge since we have a multicultural population. Everyday I treat patients with different needs and complaints. Some of them seem comprehensive multidisciplinary treatments while other patients only need some cosmetic improvements. It is very important to listen carefully and respect every individual patient. This means I continuously have to develop my skills.

You have famously become an advocate for minimal invasive dentistry and the Inman Aligner Academy, how were you first exposed to the possibilities behind the Alignment, Bleaching and Bonding concept/treatment and why did you start?

First time I heard about Inman Aligner was in the US when I attended a meeting AACD (American Academy for Cosmetic Dentistry) and talked to a Swedish colleague. She told me about the Inman Aligner and the concept with bleaching and bonding. This immediately caught my interest so I signed up for next Certification course in London 2006. After the course I couldn’t wait to get back to Dubai and start treating my patients this way. Finally I had the knowledge and the treatment to give my patients a great smile in a fast, safe and predictable way that fits the lifestyle of most people in UAE. As predicted, the Inman Aligner treatment has been a great success from the very beginning and the treatment usually only takes 6-16 weeks.

With the experience you have in the region, why is minimal invasive dentistry so important for the patients as opposed to invasive dentistry?

Most people want white, straight teeth and a beautiful smile but they do not understand the full procedure for different treatments. My patients in this region are young and that means most of them they have healthy front teeth but they are often misaligned and discolored. If you cut these teeth and fit them with veneers you put them in a great risk for further treatments later on. The gums recede by the time and veneers usually has to be replaced after 10-15 years. Each time you replace them in the veneers you remove more tooth substance. Therefore veneers should be the last resort.

To align the teeth the minimal invasive way with the Inman Aligner before bleaching and bonding with composite gives you a natural beautiful smile with white and straight teeth for life.

How do you best describe the Inman Aligner as a concept and its integration into the Alignment, Bonding and Bleaching package?

What has been revolutionary about Inman Aligner is to show how you can combine different kind of treatments in a way that has not been described before and since GP can do all treatment it is available for all patients.

When should dentists use the concept of the Academy and how long can each treatment last before the patient is happy with the results?

IAS training doesn’t stop there, however, a learning continuum has been developed that encourages dentists to carry on refining their practical skills and experience through a range of additional courses, study clubs, workshops and online resources. Full case mentoring is also provided and new users can submit their first completed cases for review and evaluation the online support to achieve full accreditation.  

If dentists in the MEA region would like to use the New Concept of ABB, they should first attend the certification course of the Inman Aligner Academy. What exactly happens during the treatment?

Dr. Gun Norell, Sweden

Would you like to share anything additional with our readers?

Never stop being curious and open for new things - even if you are not convinced from beginning it is never too late to learn new techniques. Always listen to and be honest with your patient - that will make you trust you and feel confident with you. For me Inman Aligner truly change my way of thinking of Dentistry. After 30 years in the business I’m still excited every morning going to work to see what new day has to bring.