The Inman Aligner: A progressive approach to smile design - Part 2

By Dr Tif Qureshi

The following article is Part 2 in a series discussing the use of the Inman Aligner as a tool for minimally invasive cosmetic dentistry. The first article (published in DTMEA Nov-Dec 2013) demonstrated that standalone treatments offer patients an alternative to both fixed braces, which are unsightly and have long treatment times; and to expensive clear aligner treatments in suitable cases. This article will demonstrate that patients who desire a more traditional smile makeover can achieve beautiful results in a more progressive manner that allows them to make their choices along the way. This often results in virtually no removal of tooth structure and a treatment result with the responsibility of decision-making shared between dentist and patient.

Moreover, the subject matter of this article could potentially start one of the most controversial debates in cosmetic dentistry for years. We are not only discussing a radically different approach to smile makeovers, but critically a sharply different approach to the traditional methods of planning smile design.

What would you choose? Patients entering cosmetic practices are often assessed at the initial consultation. They have digital photographs taken and perhaps study models are made. Normally, dental imaging software is used to show patients what can be achieved. These ingenious programmes (see www.snapdental.com/ Aust) can help patients visualise what is possible. Naturally, care must always be taken when promising treatment results that are viewed digitally.

While computer imaging can be a very powerful tool to help the patient see the potential in his/her smile, I believe it also can make a patient focus on a certain prescribed goal that may not be the only way of satisfying his/her wishes. Dentists using imaging would ideally create a set of five to ten different outcomes of varying degrees of improvement to allow the patient to make a more informed decision. While ideal, it is not certain that dentists actually present different levels of treatment to their patients digitally. Even if they were able to see various images of their teeth, it can still be difficult for a patient to really see and feel the suggested changes in their mouth. One can question the ethics of allowing patients to commit to a potentially irreversible procedure based on 2-D photographs.

Three-dimensional wax-ups can also be very useful at this stage. If a patient is keen on the image, going to an additive wax-up can sometimes allow for a direct preview try-in using a silicon stent taken from set-up. Temporary material of variable shades can be tried in directly, without any bonding to allow the patient to see the proposed outline, form and overall aesthetics.

Despite this, veneers are often used to treat alignment issues and it is very difficult for patients to appreciate the alignment of their own teeth with wax-up images. By approaching these cases with a different protocol in mind, a dramatically less invasive treatment plan becomes evident.

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The first step is to look at the patient’s tooth alignment. Mis-aligned teeth often cause issues in gum heights, line angles, light reflections, shades and tooth length. Correcting the misalignment first can create a completely different perception of the apparent problems. Next, the teeth should be bleached. This can be done either immediately after the teeth have been aligned or preferably simultaneously. After alignment and bleaching, edge bonding (we term this the ABB concept) should be offered to improve the incisal edge outline.

This combination of treatments also works well because the Inman Aligner is a removable appliance and only needs to be worn 16 to 18 hours a day. This means simultaneous bleaching is very possible and straightforward. A recent study from Sweden indicates a cost-benefit advantage of treating patients with removable appliances in general dental clinics, rather than with fixed appliances at specialist orthodontists. The conclusion of this study is significant, since a popular choice amongst aesthetic dentists in the UK is removable orthodontics.

The cases outlined here highlight patients who, either at the start of treatment or for years, had originally wanted veneers and had a specific result in mind that only veneers could have offered quickly. They were all concerned about the degree of preparation required, so undertook alignment first. Then, part of the way through, started bleaching and very quickly changed their minds about what they wanted once they saw their own teeth improve.

Case 1 (Figures 1-8) Laura was concerned about her very prominent central incisors. She wanted to have them straightened and had considered veneers. She had ruled out conventional orthodontics and invisible braces because she wanted a quick treatment and did not want anything stuck to her teeth, which is the reason that she had refrained from orthodontic treatment. Several years ago, she may well have had veneers placed.

On viewing her teeth before the occlusal photograph, it was quite clear that this would have involved massive preparation of the upper...
central teeth. Preparation would have been well into dentine and may have even involved elective endodontics. Her lateral teeth would have needed little preparation, but the emergence pro- files would have been poor, creating unrealistic aesthetics and a possible periodontal risk later on. Instead, the alignment was completed with an Inman Aligner in ten weeks. Her treatment se- quence is detailed below.

BACD-style digital photographs were taken and the amount of crowding was cal- culated using an electronic crowding calculator, which can also be done by arch evaluation of the patient’s study models. We measured the ideal curve and sub- tracted this measurement from the total mesial-distal widths of the teeth being moved. The results showed that there was only 1.6 mm crowding. This seemed less than one would have expected; the reason for this was that because the laterals were being pushed out, the arch was being expanded, thus creating space.

It was clear from the photog- raphs that despite the ob- vious crowding, there was some less obvious irregular tooth wear. It was important to indicate this to the pa- tient, as this would become more evident once the mis- alignment had been correct- ed. The patient was quoted for three incisal composite layers. She agreed for an Inman Aligner with an incorporat- ed expander. These expand- ers are a very handy way of creating extra space either to treat cases that are more complex or to use instead of performing interproximal reduction (IPR).

In this case, no IPR was per- formed. We planned to get nearly all space by using the midline expander. The patient was instructed to turn the midline screw once a week for one week of wear. Each turn is a quarter of a revolution and equates to 0.25 mm. At week six, bleaching was started with soft rubber sealed trays. Af- ter nine weeks, the patient had expanded 1.8 mm and her teeth were in alignment (As a rule, less than 2.5 mm expansion with an incorpo- rated expander is easily toler- ated).

Looking at her post-align- ment result, the golden pro- portion, gingival heights and axial-inclinations had improved dramatically, all without a handpiece being picked up and in the space of nine weeks. What was very clear to the patient at this point was that she only needed some simple bond- ing to improve the incisal edge outlines. Without the use of an anaesthetic, the edge outlines were prepared with very slight roughening of the edge, bonding of hy- brid composite on the load bearing edge and a micro- fill on the facial surface. The edges were then polished.

The patient was thrilled with the result we achieved using an Inman Aligner and some simple bonding. She described that when she had once considered having ve- neers, she had hoped for a similar result. There are still minor imperfections, but, in my opinion, these contribute to her natural beauty.

There is a stark contrast be- tween the treatment selected and the potential treatment approaches in this case. Where once a patient, who refused orthodontics, would have consented and received highly aggressive tooth treatments to achieve cor- rect alignment with veneers, now a removable aligner and some simple bonding were able to achieve a similar and arguably better result in less than three months with not a micrometer of tooth reduc- tion needed.

Case 2 (Figures 9-17)

This young lady had been at- tending my practice for some time and was aware of por- ceain veneers, having seen our previously advertised cases. We had spoken about the aesthetic benefits of ve-
Case 5 (Figures 18-20)

This patient presented with what she described as a “wonky smile”. She had previously looked into the possibility of having porcelain veneers placed so understood some of the aims of smile design. However, on studying her teeth, it became clear that there was potential to pre-align first. Her upper right central was mesially rotated by approximately 10° and her laterals were slightly in-standing and mesiallyinclined. Furthermore, she had fairly stained teeth, with the canines two shades darker than the centrals.

On examining the occlusal view, the patient became aware of the extent of aggressive tooth preparation that would be required to place a veneer. She understood that her teeth needed to be aligned before this was decided on the next step in design.

An Inman Aligner was used over the period of eleven weeks to de-rotate the front teeth and to tip out the laterals. At week eight, bleaching had begun using 5% to 45-minute a day H2O2 gels. Simultaneous whitening is a very attractive part of aligner treatment, as it helps with patient motivation. After alignment, the case was re-examined. Once her teeth had been straightened, it became evident to the patient that her problem concerned edge shape, which had actually worsened with alignment owing to dif-ferential wear. In fact, the left central was 2.5 mm shorter along the right. It was very clear to the patient that only these incisal edges needed building in order to achieve the smile she desired.

For placement of the incisal edges at week twelve, no local anaesthetic was admin-
istered. Other than slight roughening of the worn incisi-
al edges of the upper left 1 and 2, no other preparations were needed. A tetric hy-
brid composite (Tetric Flow, Ivoclar Vivadent) was built up free-hand on the incisal edge and palatal surface to match the outline of the other. A small amount of white opaque was dotted in to match the facial surface and was simply filled with a nano-hybrid composite (Ve-

nus Diamond, Heraeus) for high polish. The compos- ite was placed very carefully using rubber sticks (PoGo, DENTSPLY De Trey) to try to blend in with surface anatomy to mask the join. The process was repeated on the lateral.

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tention by using her aligner and an impression was taken for a wire retainer to be fitted two weeks later. It was especially nice to retain the natural aesthetic charac-
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Shared responsibility of treatment

The ABB concept can truly be described as minimally invasive. At the same time, it actively involves the pa-

tient in the treatment, giving him/her a feeling of being in control and taking responsi-

bility for his/her treatment. This has been proven to be of great significance when measuring patient satisfac-
tion of treatment results.

There are many anecdotal stories about patients who had technically beautiful ve-

neers placed but found that they simply did not meet their desires. The problem is

that even with no-prepara-
tion veneers, an irreversible procedure has been under-
taken and this has been done mainly based upon the treat-
ing dentist’s opinion, with the patient having very little input.

In my experience, every pa-
tient that I have treated ac-
cording to the ABB concept has accepted the result hap-
pily, even though technically it might not be perfect from a smile design point of view. Nowadays, with rising levels of litigation, one would have to question the wisdom of selecting a treatment path that could result in conflict over one in which the patient participates in key decisions and sees his/her own teeth improve.

I believe this approach firmly sits alongside minimally invasive cosmetic dentistry core principles, which recommend a more minimally invasive and patient-led approach.

Conclusion

I understand the controversy in challenging the tradition-
al approach to smile design, but the new master of pro-

gressive smile design is vital when we are looking to give our patients what they actu-

al want. Previsously, ‘perfect’ was better, but that was not what patients wanted.

The Philips Sonicare FlexCare Platinum

The Philips Sonicare FlexCare Platinum is uniquely designed to give patients the ability to create a dynamic yet gen-

tle cleaning action. Its brush

head moves with a side-to-side sweeping motion and a high filament tip velocity to gently drie fluid deep between the teeth and along the gum line.

The Philips Sonicare FlexCare Platinum features a new brush head with innovative anchor-

free tufting technology and extra-long filaments designed to reach deep between teeth and remove more interdental plaque biofilm than a manual toothbrush.

The Philips FlexCare Plati-

num’s brush head filaments are molded directly in the plastic housing allowing for a unique filament pattern and lengths designed to deliver an optimal and complete clean. As opposed to other brush heads that wrap filaments in metal loops implanted in the brush head before being cut to size from above, anchor-free tuft-

ing technology pulls filaments through the brush head until they are the right length and are then cut from below. This ensures that the filament tips remain uniform in shape and can be rounded for a gentle yet effective clean.

Anchor-free tufting technology also allows for the brush head to be fitted with more filaments than traditional brush heads, which can be arranged in various patterns to perform specific tasks:

• Reminder filaments — fade to remind the user to change the brush head after approximate-

ly three months
• Along-the-gum-line fila-

ments — remove plaque along the gum line
• Elongated filaments — reach deep in between teeth
• White filaments — polish and clean the surface of the teeth

The InterCare brush head is available in standard and com-

 pact sizes.

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Brushing modes — an individ-

ual brushing experience

Philipson-Sonicare FlexCare Platinum provides an automatic pressure sensor which provides real-time feed-

back during brushing and a UV sanitizer to help reduce the bacteria build up on tooth-

brush heads.

Automatic pressure sensor

The new Philips Sonicare Fl-
exCare Platinum also features an automatic pressure sensor which provides real-time feed-

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Contact Information

Dr. TI Qureshi is the Past Presi-

dent of the BACD. He presents hands on courses and lectures on the Inman Alig-

ner worldwide.

For information on courses please go to:

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By Philips

Philips Sonicare FlexCare Platinum is the latest introduction from the number one sonic toothbrush brand recom-

mended by dental profession-

als worldwide. The new Philips Sonicare FlexCare Platinum is uniquely designed to give patients an even deeper clean between the teeth, removing up to six times more plaque between teeth than a manual toothbrush.

Sonic technology

The innovative Philips Soni-

care FlexCare Platinum power toothbrush uses Philips Sonicare’s patented sonic technology to deliver an exceptional, deep clean between the teeth. Using a unique combination of high frequency and high amplitude, the Sonicflex Care Platinum produces over 30,000 brushstrokes a minute to create a dynamic yet gen-

tle cleaning action. Its brush head moves with a side-to-side sweeping motion and a high filament tip velocity to gently drie fluid deep between the teeth and along the gum line.

InterCare

the innovative interdental brush head

The Philips Sonicare FlexCare Platinum has added a new brush head with innovative anchor-

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tients greater control over their brushing experience and to deliver a cleaning action suit-
	ed to their specific needs. The toothbrush has three cleaning settings:

• Clean — standard cleaning for the whole mouth
• White — removes surface stains and helps whiten teeth
• Gun Care — gently stimu-

lates and massages the gums

Additionally, three adjustable intensity settings are avail-

able.

• Normal — the standard inten-

sity for normal brushing
• Sensitive — a gentle intensity for sensitive teeth
• Extra soft — an extra-gentle intensity for an even softer brushing experience

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