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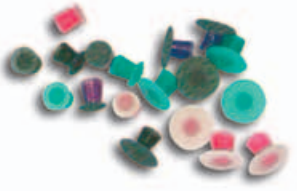

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Dear Reader,

Dr So-Ran Kwon
Co-Editor-in-Chief

_Welcome to this year's second edition of cosmetic **dentistry**!

Under the great leadership of AAAD President Dr Sim Tang Eng, the 11th Biennial Asian Academy of Aesthetic Dentistry Scientific Meeting was successfully held in Kuala Lumpur, Malaysia, from 14 to 17 May 2010. The meeting highlights were the four international keynote speakers: Dr Rhys Spoor (USA), Dr Didier Dietschi (Switzerland), Dr Mauro Fradeani (Italy) and Dr Galip Gurel (Turkey) presented lectures on direct composite restorations in the anterior and posterior region, as well as on all-ceramic restorations and porcelain laminate veneer restorations. The lectures and the well-organised, hands-on courses actively engaged participants, and were received with great appreciation.

Since the first Scientific Meeting in Singapore in 1990, the AAAD Scientific Meeting has been held biannually in wonderful locations, like Seoul, Kagoshima, Taipei, Singapore, Mumbai, Nagoya and Bali. At the closing ceremony in Kuala Lumpur, Dr Sim Tang Eng passed the Presidency to Dr Hisashi Hisamitsu. We look forward to the 12th Biennial AAAD Scientific Meeting, which will be held in Sapporo in Japan, with great anticipation, expecting another wonderful meeting that will bring all our members together to share precious moments, knowledge and expertise with colleagues.

The AAAD was established in 1990 with the purpose of promoting the art and science of disciplines in aesthetic dentistry. The scientific meetings serve as the primary tool in accomplishing the goals of the Academy. Additionally, past and current editors have strived to fulfil this mission through the official AAAD publication, but all faced difficulties in collecting high-quality articles from AAAD members. In 2008, we were very fortunate to join with German-based publishers Dental Tribune International and Oemus Media, who have strongly motivated our members.

cosmetic **dentistry** has grown to be one of the most popular aesthetic dental magazines in the Asia Pacific region and I am confident that you will enjoy this edition filled with articles on clinical practice, practice management, research and industry reports!

Sincerely yours,

Dr So-Ran Kwon
Co-Editor-in-Chief
President, Korean Bleaching Society
Seoul, Korea


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The Inman Aligner—An effective tool for minimally invasive cosmetic dentistry (Part I)

Author_ Dr Tif Qureshi, UK


Fig. 1


Fig. 2

Fig. 1_Side smile view before treatment.
Fig. 2_Side smile view after nine weeks with an Inman Aligner.

_Traditionally, cosmetic dentistry has always been faced with the challenge of treating poorly aligned teeth. Treatment options available for mildly and moderately crowded teeth include orthodontics and restorative dentistry. Many patients have chosen the restorative approach, for example porcelain veneers, over orthodontic techniques because of longer treatment times combined with either unsightly labial wires and brackets or the expense of 'invisible' braces.

In cases in which patients choose to have crowded upper and lower anterior teeth treated with veneers, it is extremely challenging to prepare teeth conservatively, owing to their anatomy and the minimum thickness of porcelain required. A difficult balance has to be found between over-preparing the teeth and placing over-contoured restorations. However, owing to the excitement and emotion created by the effect of popular large smile makeovers, aggressive tooth preparations, in which teeth are prepared to stumps, seem to have been accepted as normal practice, simply because there has been no alternative that could achieve the patient's objectives in a sufficiently short period.

Inman Aligners are now offering a minimally invasive alternative to patients in the UK. With only one appliance, most Aligner cases can be completed in six to 16 weeks. In anterior crowding cases, Inman Aligners have proven to be much more time and cost effective than invisible braces or conventional fixed and short-term orthodontics. To date, I have treated about 1,000 cases and have found that case acceptance has been close to 100 per cent, simply because many patients much prefer a removable solution that fits their lifestyle more easily. Treatment can also easily be combined with simultaneous bleaching and final edge-bonding for quick and non-invasive, dramatic results. From this, a new procedure has arisen in cosmetic dentistry—alignment, bleaching, bonding—which will be covered in the second part of this series. The cases presented in this article will outline some case types that can be treated.


Fig. 3


Fig. 4

_The Inman Aligner

For over 30 years, spring aligners were used to correct minor tooth movements. Early designs were developed for minor tooth movements and to treat slight rotations. Previous spring aligners were useful, but several problems always limited the amount of tooth movement achievable. Their active components were made from stainless-steel wire, which is relatively inflexible and lacks any innate springiness. As a result, traditional removable appliances required periodic reactivation, leading to short-lived force application that limited the speed of tooth movement, owing to the need to allow the bone around the roots of the teeth being moved to 'rest' between successive activations. In addition, the direction of force application with traditional springs was less easy to control, leading to a mousetrap-like force that tended to unseat the appliance. These factors limited the degree of correction that could be accomplished. For larger movements, single appliances were insufficient to complete the movement.

In developing the Inman Aligner, Donal Inman CDT created a patented design that takes advantage of the gentle, steady and consistent forces generated by NiTi. The design relies on piston-like components driven by NiTi coil springs. Inman designed lingual and labial components to function or move in parallel to the occlusal plane, eliminating the mousetrap-like unseating forces and allowing actual physiological movement of teeth. Inman Aligners are ideally worn for 16 to 20 hours a day. Studies have demonstrated that the removal of orthodontic forces for four hours a day massively reduces the risk of root resorption[1] and that risk of root resorption is lower in removable versus fixed appliances.[2]

A standard Inman Aligner as described in the following cases consists of both lingual and labial components. The forces have the effect of squeezing the teeth into alignment. The components can be used in isolation to retract teeth with a more steady force, requiring less adjustment than a standard labial bow retractor. In Case III, a unique approach that incorporates an expander on the Inman Aligner is described.

Patient selection

Case selection for the Inman Aligner is critical. The following criteria should be met before treatment proceeds:

1. Cases should require movement of incisor and/or canine teeth only.
2. Root formation of the teeth to be moved must be complete.

Fig. 3_Occlusal view before treatment.
Fig. 4_Occlusal view after treatment.


Fig. 5


Fig. 6

Fig. 5_Occlusal view before treatment.
Fig. 6_Occlusal view after 13 weeks with an Inman Aligner.


Fig. 7


Fig. 8

Fig. 7_Smile view before treatment.
Fig. 8_Smile view after treatment.

3. Crowding or spacing should be less than or equal to 3 mm. Arch evaluation must be performed to determine the amount of space required. Cases with over 3 mm of crowding require additional space creation techniques, as pioneered in the UK, which should only be attempted with training. It is quite possible to treat cases with 5.5 mm crowding easily and predictably in less than 16 weeks.
4. Cases should have fully erupted posterior teeth to facilitate retentive clasps, with a reasonably well-aligned arch form to facilitate the path of insertion of the appliance.
5. Cases should be stable and preferably free from periodontal disease.
6. Patients must agree to wear the Aligner for about 20 hours a day and be responsible for good appliance and oral hygiene. Should the patient wear the Aligner for 14 hours a day only, treatment will still be successful.

Model evaluation/arch analysis with Spacewize

Arch analysis should be performed before any Aligner case is attempted in order to ensure that the case is suitable and, if not, what additional space creation techniques will be needed to allow the Inman Aligner to work. The extent of crowding present is calculated[3] by measuring the sum of the mesial-distal widths of the teeth to be moved. This distance is called the *required space or the teeth*. If canines and incisors are to be moved, this distance will be measured from the distal surface of one canine to the distal surface of the other canine.

Using an orthodontic retaining or jeweller's chain or a polishing strip, the ideal arch form is then measured from the distal of each canine in alignment with the ideal arch form following orthodontic correction. Critically, the arch needs to pass through the suggested position of the contact points and not the incisal edges. This is described as the *available space or the curve*.

It is possible to perform this task more quickly and just as accurately with software such as Spacewize. Just one simple occlusal photograph is required, which can be taken chairside. One tooth needs to be measured for calibration. A curve can be digitally established and this is normally easier when observing the patient's aesthetic requirements and occlusion directly. The extent of crowding is immediately calculated using such software.

Laboratory requirements

Accurate upper and lower impressions are taken, preferably two of the arch being treated. Simple alginate can be used if cast quickly. A bite registration and prescription should be completed and sent to a certified Inman Aligner Laboratory. The technician should be informed of the amount of crowding calculated. The teeth to be repositioned should be noted clearly. The prescription should provide full details to the technician regarding the teeth to be moved, the area they are to be moved to and the distance they are to be moved. A Spacewize trace of the ideal curve can also be submitted.

Interproximal reduction

Interproximal reduction (IPR) is begun at the fitting appointment using abrasive strips or discs. The model analysis will have already calculated the extent of IPR required.

Many authors acknowledge that the reduction of half of the interproximal enamel on the mesial and distal of each incisor tooth is a safe technique.[4–7] This equates to 0.5 mm per contact point, creating 2.5 mm of space between the canines. In some cases, the distal of the canine and mesial of the premolar can be reproximated allowing for a total of 3.5 to 4.5 mm. These cases will require more experience in using the system but offer a number of possibilities for clinicians once trained to use the system correctly.

Meticulous records of the amount of stripping performed should be kept. An in-surgery fluoride rinse or application of topical fluoride is recommended after any enamel reduction procedure.

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