Anterior orthodontics performed simply

The increased patient demand for straighter teeth, coupled with a paradigm shift away from aggressive tooth preparation, has made removable orthodontics an important tool. **LENNART JACOBSEN** discusses...

REMOVABLE orthodontic appliances were once widely used to correct a variety of malocclusions. As techniques associated with fixed appliances developed and became the main preference of orthodontists, the role of the removable appliance diminished.

However, in recent years its popularity has returned with a vengeance. It provides patients who would normally opt out of orthodontic procedures on the grounds of lengthy treatment time, compromised aesthetics and cost, a real alternative to ordinary fixed braces.

A recent study from Sweden indicates a number of cost-benefit advantages to treating patients with removable appliances in general dental practices, rather than through fixed appliances at specialist orthodontists.[1] The conclusion of this study is significant, since a popular choice amongst aesthetic dentists in the UK is removable orthodontics.

A paradigm shift

Although the dental profession owes much to the late GV Black, it has long been widely accepted that his philosophy of "extension for prevention" no longer has a place in modern dentistry.[2]

These days, "minimally invasive" is the new black in operative dentistry. Dentists today must carefully consider the long-term consequences of any irreversible procedure, and inform patients of the benefits and risks involved.

This becomes especially important when patients are seeking aesthetic dentistry where elective procedures are undertaken with little or no pathologic indication.

Recent orthodontic developments, such as the Inman Aligner, have made it possible for the aesthetic dentist to dramatically improve the appearance of anterior teeth in a relatively short space of time using discreet removable appliances. This approach embraces the concept of "minimally invasive", and at the same time, actively involves the patient in treatment, giving them the feeling of being in control and taking ownership for the success of their treatment. This has been shown to be of great significance when measuring patient satisfaction concerning treatment results.[3]

The long-term benefits of minimally invasive dentistry in the aesthetic zone are obvious. In most cases, alignment or pre-alignment of the anterior teeth will result in much less, if any, tooth preparation. The majority of mild anterior malocclusions can be corrected using removable orthodontics alone, sometimes followed by whitening and/or composite bonding.

For cases that do need finishing with veneers, pre-alignment means that preparation can be limited to the enamel, resulting in better predictability with pure enamel bonding. It also greatly reduces the risk of endodontic complications.[4]

Orthodontic effect of the aligner

Inman Aligner's removable appliances are constructed on a stone cast on which model surgery has been performed. On the model, the anterior teeth have been set up in an ideal arch form, and the aligner fabricated to move the teeth into this position (Fig.1).[5]

The risk of over-correction or unintended tooth movements is virtually non-existant, as the aligner will turn into a passive retainer once the desired tooth position has been achieved.

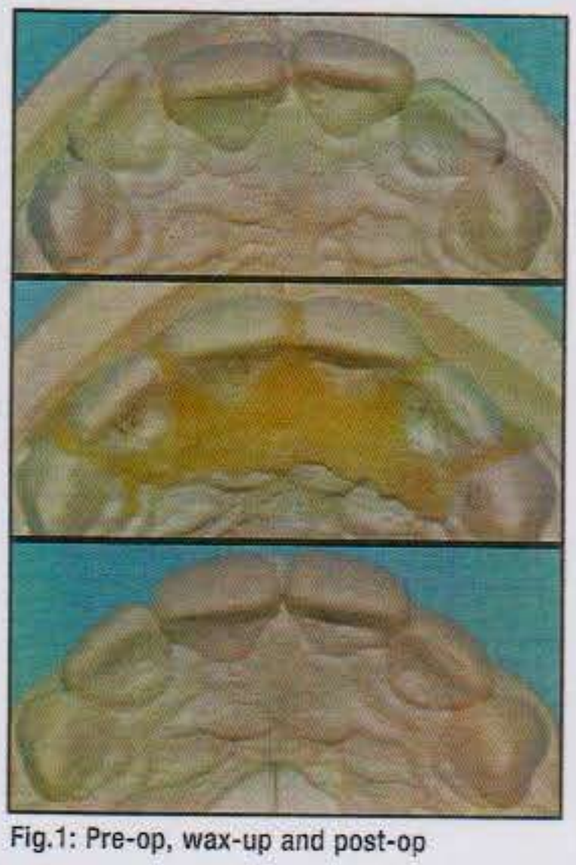

Fig.1: Pre-op, wax-up and post-op

The orthodontic effect of the aligner is generated by four NiTi coil springs that create light, steady reciprocal forces to the incisors and canines via lingual and labial clear acrylic bars (Fig.2). In effect, the anterior teeth are gently "squeezed" into alignment.

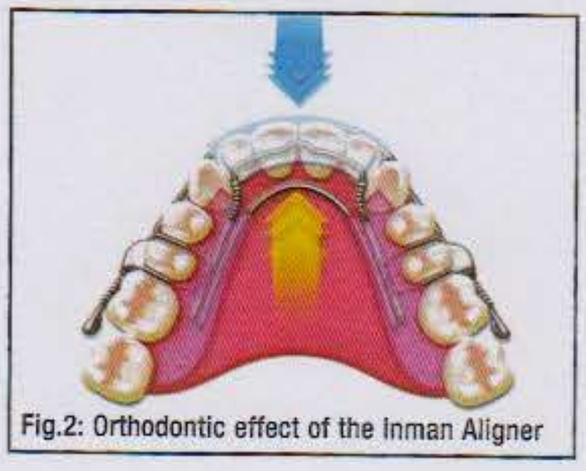

Fig.2: Orthodontic effect of the Inman Aligner

This continuous force application is superior to the interrupted force delivered by some other removable appliances, and results in more effective orthodontic movements and shorter treatment time.[6]

However, the orthodontic effect is limited to tipping and rotation of the incisors and, to a certain extent, canines. However, relative intrusion/extrusion is often seen when misaligned incisors move labially or palatally respectively.

Being a removable orthodontic appliance with the capacity of straightening upper and lower anteriors, the Inman Aligner should be used primarily on compliant adult patients with mild to moderate anterior crowding or spacing. The posterior occlusion must be well-balanced, ideally an Angle Class I. There should be no active periodontal disease and no TMD.[7]

Fixed vs removable appliances

Using removable orthodontics can be a simple and effective way for GDPs to straighten anterior teeth on the right case types. It also greatly reduces the need for any tooth preparations in aesthetic dentistry.

Other comprehensive orthodontic appliances exist and should be used whenever a patient presents more complex or profound problems, such as severe saggital or transverse discrepancies or the need for posterior correction. Fixed orthodontics offer greater treatment versatility and do not depend to the same extend on patient compliance as removable orthodontics.

However, for some indications, removable orthodontic appliances actually have significant advantages over fixed appliances[8] and usually the treatment time with removable appliances is shorter than with fixed.[9]

Studies in dentistry and other fields of medicine have shown that treatment success is closely linked to the shared responsibility of treatment and aftercare between doctor and patient.[10] Given that the treatment result of the removable appliance is heavily linked to the responsibility and compliance of the patient, it might be interesting to compare patient satisfaction from treatment with fixed versus removable appliances in similar anterior malocclusions.

There is little doubt that the future belongs to minimally invasive dentistry. The literature suggests that treating some malocclusions with removable appliances in general dental practice could be the more cost-effective choice. It also links treatment success and patient satisfaction to the active involvement and shared responsibility of the patient.

On the right case types, treatment with the Inman Aligner fulfills all of the above, and, in addition, marries optimal continuous force application with the convenience of a removable appliance.

An aesthetic dentist today should by definition also be an ethical dentist. Helping patients to achieve a more beautiful smile by simple anterior orthodontics rather than invasive preparations is not only possible: it's the right thing to do. ■

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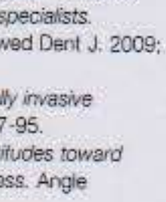
About the author



Lennart Jacobsen DDS is an associate dentist at Aqua Dental Spa in London, where he practises aesthetic and restorative dentistry. He qualified from the University of Aarhus, Denmark and has a special interest in simple anterior orthodontics, using removable or fixed appliances as definitive or pre-prosthodontic treatment. A lecturer on this subject, Lennart has written articles promoting an ethical approach to aesthetic dentistry using removable appliances.

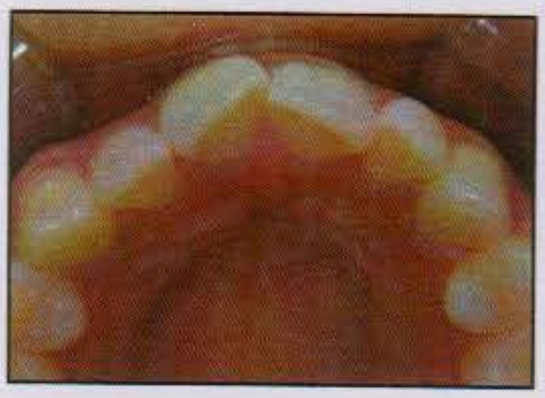
Case examples

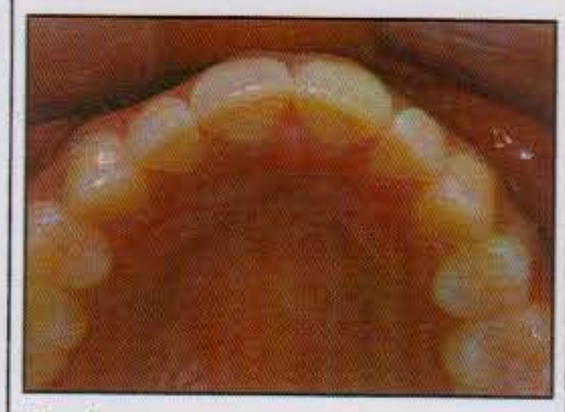
Case one: Upper crowding

22-year-old female concerned about the appearance of her upper front teeth.

This patient did not want fixed appliances and found clear aligners too expensive.

A standard Inman Aligner corrected upper crowding in 10 weeks, after which a palatal bonded wire retainer was placed.





Top: Pre-op
Bottom: 10 weeks

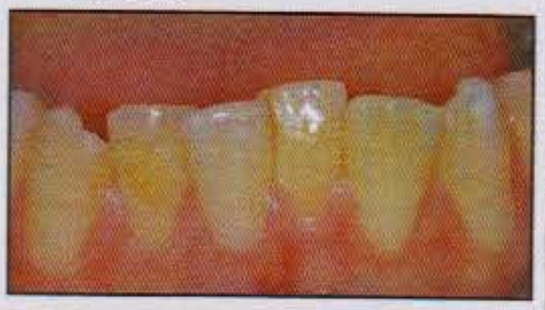
Case two: Orthodontic relapse

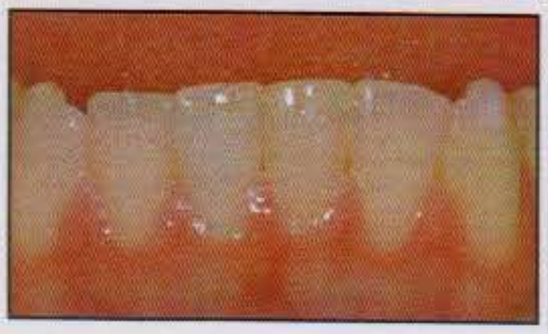
24-year-old female concerned about the appearance of her lower anterior teeth.

She had previously undergone orthodontic treatment, but the lower incisors had relapsed due to lack of long-term retention. Clinical examination found mild to moderate chronic gingivitis associated with lower anterior crowding and the patient reported difficulties keeping lower incisors sufficiently clean. Different orthodontic options were discussed and, in the end, the patient opted for an Inman Aligner. A thorough hygiene regime was initiated and once the periodontal situation had improved, the lower incisors were straightened in 12 weeks using a standard Inman Aligner.

A lingual bonded retainer was fitted to reduce risk of future orthodontic relapse.

Follow-up examinations showed greatly improved periodontal health around the lower incisors.





Top: Pre-op
Bottom: 12 weeks