Clear aligner therapy-review of the literature

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Abstract

Clear aligners are becoming increasingly popular as most patients, particularly adults, loathe the look of permanent equipment. To manufacture its orthodontic equipment, the business employed both computer-aided design (CAD) and computer-aided manufacturing (CAM). The clear aligner, as it is now known, was introduced using this technique, which allows for numerous tooth motions from a single imprint. Initially, the technique was employed to address basic tooth movement. However, as time went on, the maker began to use attachments and intermaxillary elastics to achieve diverse motions, and it became a viable alternative to permanent equipment. The doctor should be explicit about the benefits and drawbacks of CAT, and the patient should be informed that he or she should wear the device for 22–23 hours per day and remove it only while eating.

Keywords: Clear Aligner, Tooth Movement.

Accepted on May 26, 2021

Introduction

Clear aligners have become the treatment of choice, particularly among the growing number of adults seeking orthodontic treatment, since they are more comfortable and aesthetically pleasing than traditional fixed equipment [1]. Kesling was the first to offer clear aligners, after developing a thermoplastic tooth positioner to gradually reposition teeth to better positions. Pointz proposed a "invisible retainer" based on the same idea as Kesling's device, however it can only generate little tooth movement. Sheridan advocated employing transparent aligners with interproximal reduction (IPR), which also results in minimal tooth movement and necessitates a fresh impression for each tooth movement, which must be taken virtually every appointment. [2].

CAT has been established in studies to be the therapy of choice for adult individuals at risk of periodontitis.

Orthodontic therapy with CAT may result in root resorption, with an average of 10% of the original root length lost. Its frequency is comparable to that of orthodontic light forces [3].

Clear Aligner Therapy Varieties

Clear aligners might be analogue or digital in nature. Analog CAT uses a physical model that is updated before vacuum-forming the aligner by either resetting the teeth or adding divots and voids in the model. Three-dimensional scans of the dental arches, an imprint, or a plaster model are the starting points for digital CAT. The trays are made from a sequence of 3D-printed models, and all tooth movement is done digitally. Digital CAT provides various advantages over analogue CAT and is essential for any repairs that need more than minor space or crowding. [4].

The Scope and Limitations of Clear Aligner Treatment

Despite the fact that the quantity and complexity of cases treated with clear aligners are increasing, it is difficult to cure all types of malocclusions with this approach. Clear aligners are useful for mild to moderate crowding or diatom, posterior expansion, intrusion of one or two teeth, lower incisor extraction instances, and molar distal tipping. Extrusion, correction of severe rotations, molar up righting, and closure of extraction voids are all known to be more difficult to achieve using aligners. Even yet, incisor extrusion, molar transition, and extraction gap closure are all achievable with the Invisalign® system's attachments. [5].

Conclusion

- Clear aligners are a more aesthetically pleasing and comfortable alternative to traditional fixed mechanics.
- Clear aligner patients have an easier time achieving periodontal health, and less white spot lesions form during therapy.
- Clear aligners can be utilised in mild to moderate crowding instances, but complicated cases should be approached with caution.
- In aligner therapy, such as fixed appliances, root resorption is still a danger linked with orthodontic treatment.
- In this discipline, long-term stability studies are essential.

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