

Correction of Crowding with ClearPath® System

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Introduction

The practice of orthodontics is faced with new trends. Adults are increasingly aware of the influence of appearance in their personal and professional lives. A 1999 study showed that the number of adults seeking orthodontic care has been declining. Furthermore, this study concluded that this trend is not likely to improve without a biological or technological breakthrough.¹ Adults make up only a small percentage of the patients in orthodontic practices in the United States.² Possible explanations for the small number of adult patients include fear of pain or discomfort and esthetic concerns associated with general orthodontic treatment.³ Moreover, hygiene and periodontal health are confounding factors associated with adult treatment.⁴ Adults are more likely to have bone and attachment loss than are adolescents. In addition, an increasing number of adults seeking orthodontic care present with relapsed orthodontic treatment. The degree of relapse depends on the normal events of growth and aging after treatment. There is no decisive way to distinguish between normal age-progressive events and those due to relapse.^{5,6} Some patients with orthodontic relapse are apprehensive about going back into braces.

Eventually, if the relapse is excessive, fixed appliances are the only option for treatment. However, a new system, Clearpath® Aligner system (Fig 1) has been introduced in 2008 as a new orthodontic tool to treat orthodontic cases.



Fig. 1: Clearpath® Aligner System

The ClearPath invisible appliance involves a series of plastic aligners that are clear, thin and made by advanced 3D techniques involving use of software also. The transparency of these appliances enhances its esthetic appeal for the adult patients as well as aesthetically conscious patients. Each aligner is around 0.7mm thick and is designed to move the teeth by upto maximum of 0.25 - 0.3 mm over a 2 week period. All aligners in CleatPath® system are delivered altogether and worn through a pre-defined sequence all throughout the day.

Case Report

A 40-year-old white man reported to our practice with the chief complaint of anterior crowding and relapse of his original orthodontic treatment, which included the extraction of 4 premolars. Pre-treatment records including panoramic radiograph, lateral ceph, study models and photographs were recorded (Fig. 2). The patient was diagnosed of having a Class II Div 2 Subdivision left side type of malocclusion with crowded upper and lower anteriors.



Fig 2 Pretreatment Records

Treatment Objectives

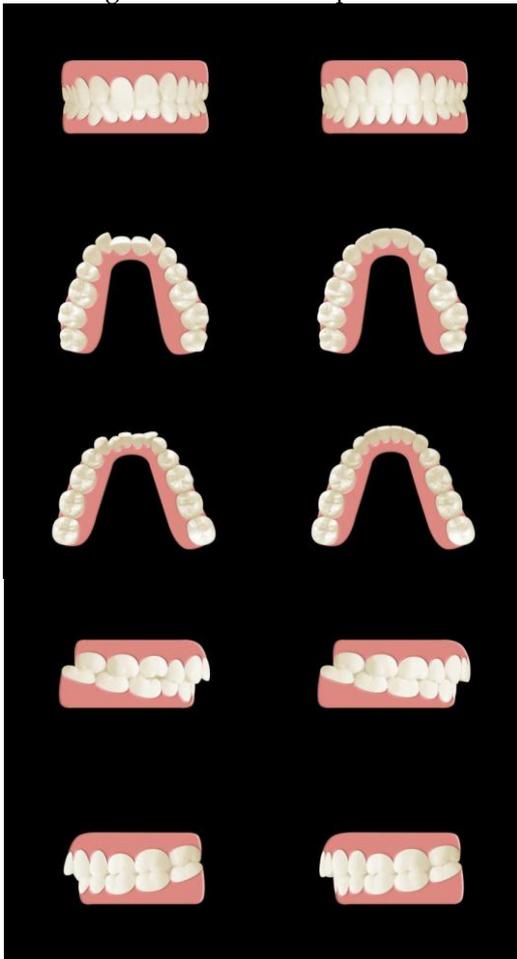
1. Procline the upper and lower anteriors to gain space.
2. Slight expansion to provide space for anterior alignment.
3. Intrusion of upper anteriors.

After approval from ClearPath, we recorded the polyvinylsiloxane (PVS) impressions and PVS bite registration and sent them along with the case analysis form to ClearPath. The final virtual treatment plan was presented in a Virtual Set up file via the Internet to the treating orthodontist (Fig 3).

The Virtual Setup

The virtual setup (Fig 3) of the patient was presented by ClearPath approx 10 days after PVS Impressions & PVS bite were sent. The treatment plan was evaluated and the setup was approved without any modifications. The virtual setup is a very strong

diagnostic tool to visualize your treatment plan, as well as a strong motivator for the patient.



Pre Treatment Post Treatment

Fig 3 - Clearpath Virtual Set Up.

(Source: ClearPath Orthodontics, New Delhi, India)

Aligner Delivery

The patient required a total of 24 UPPER and 24 LOWER aligners. The patient was very satisfied with fit and the invisibility of ClearPath Aligners.



Fig 4 - Fit of the Aligners

Treatment Results

The final treatment result was satisfactory. The treatment progressed smoothly, and got completed in around 12 months. The maxillary and mandibular anteriors were aligned and levelled, and the overbite improved (Fig 5 A and B). Some case refinements were needed and this would have required some extra aligners. However, the patient was extremely happy with his result and did not desire to prolong treatment.



Fig 5 A - Post Treatment Records



Fig 5 B - Post Treatment Records



Pre Treatment Post Treatment
Fig 6 Patient's Smile Close Up

Conclusion

This article discusses a crowding case treated with ClearPath Aligners, a hygienic, removable, and comfortable appliance. With this appliance, the arches were expanded, and the crowding was corrected without reproximation. The treatment progressed with no problems. Other treatment alternatives were considered, but each had disadvantages. Fixed appliances offer better control of treatment but carry the concern for esthetics, hygiene and monthly follow

ups for an adult patient. ClearPath Aligners present a unique mode of treatment for adult orthodontic patients. It removes their esthetic, hygienic, and metalallergy concerns. It also allows treatment to finish in about the same amount of time as fixed appliances. The ClearPath Aligner system does have some limitations. Currently, severe derotations, complex extrusions, and large translations are less predictable with ClearPath Aligner system. The virtual setup is not only a diagnostic aid, but it can also be used as an educational tool for the patient. In addition, patient cooperation is imperative for the success of the treatment.

For this patient, cooperation was not an issue because he was enthusiastic about his treatment. Considering that this appliance is in its development infancy and that this was a moderately severe crowding case, the treatment finished with good results, and the patient was pleased with the outcome.

Disclosure

The author of this paper does not have any direct financial relation with the commercial identities mentioned in the paper that might lead to a conflict of interests.

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