

Everyone deserves a smile and price should not be a barrier

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Abstract

More and more adults are now presenting for orthodontic treatment. In addition, today's adult patients also present with a demand for more aesthetic and less visible orthodontic appliances. This paper discusses the newer technique in managing adult orthodontic patients with mild-moderate mandibular crowding. It also highlights it as a cost effective aesthetic treatment option with its strengths and weaknesses.

Keywords: Invisible, Orthodontics, Adult, NiTi wire.

Introduction

Ideally, human teeth would line up as neatly as the keys on a piano. The high demand for orthodontic treatment, evidenced over the last decades, has been justified mainly by the greater importance given to facial esthetics, influencing individual's self-esteem.¹ With development of therapeutic techniques age has been excluded from the list of limiting factors and number of adults actively seeking help to correct their malocclusion has been constantly increasing due to social reasons.

In recent years there have been several new advances, which have made a significant impact on adult orthodontic treatment. The introduction of digital three dimensional treatment planning tools, application of skeletal anchorage devices and more importantly the advances in invisible treatment techniques such as aligner treatments and lingual orthodontics have made adult orthodontic treatment much more streamlined and accessible.² The introduction of invisible treatment options that has been the most significant factor in revolutionizing adult treatment. Even though it is a lot more acceptable for adults nowadays to be wearing "braces" most adult patients if given the choice will prefer an invisible treatment option. Today's orthodontists have at the disposal two main appliance systems that will be considered invisible. Lingual fixed appliances and aligner treatments.¹ Clear aligner's great alternative to traditional metal braces.³⁻⁵ The cost of clear aligners depends on the severity of the teeth alignment problem, but the high cost makes it difficult to plan for aligners. Everybody wants a great smile, but a lot of us need help getting there due to cost issues. The Indian population which has a stereotypical mind-set is always more inclined towards cost effective measures as far as treatment approaches are concerned plus high demands of esthetics makes it difficult to find a suitable orthodontic appliance. If an attempt is made to minimize the need for set aligners and correct the malocclusion than from pretreatment. This technique unravels the mild-moderate crowding and for moderate crowding cases minimizes the further set of aligners with high esthetics and minimum need of patient compliance. Based on this proposal, treatment plan was formulated with

use of round NiTi wires directly bonded on lingual tooth surface.⁷⁻⁹

A new horizon towards aesthetic orthodontics with minimalistic inconvenience to patients with mild anterior crowding cases is presented here with view of keeping constant molar and canine relationship and only aligning anterior.

Materials and Methods

Case selection

1. Anterior crowding ranging 0-4 mm
2. Good periodontal health
3. Non extraction cases
4. Absence of Deep bite

Clinical procedures

The clinical procedure involved scaling and polishing with the pumice and rubber cup. Separators were placed for the purpose making space in the crowded area inter proximally around the lingually blocked incisors to easily facilitate the tooth movement. 'O' rings were placed inter proximally at the time of bonding of wire so that the flowable composite doesn't flow inter proximally.

The NiTi wire was coated with vaseline to facilitate easy movement in the composite. The NiTi arch wire was first coordinated for the lingual curvature and arch form along the contact points of the mandibular incisors on the dental cast (Fig. 1). A mushroom shaped arch wire was formed and bonded from premolar to premolar using composite and light cure, and the procedure was completed. A probe was modified for holding the 0.012 NiTi wire in the desirable position while bonding (Fig 2). The patient was recalled after one month for follow up. The crowding was relieved to some extent so it was decided to place 0.014 NiTi wire, so 0.014 NiTi wire was bonded in the similar way as the 0.012 wire. The 0.014 NiTi wire was kept for six weeks and then the patient was recalled.



Fig. 1: Mushroom shaped 0.12 NiTi arch wire



Fig. 2: Modified probe for holding wire

So after six weeks it was noticed that the crowding was relieved completely so it was decided to give fixed retainer from canine to canine with twisted ligature wire.

The entire procedure is advantageous as it is highly aesthetic, acceptance of the patient is more as there is no need to bond the brackets labially, so the labial surface is free from the composite, stains and white spot lesions, it is less time consuming. Complex tooth movement (root movement, rotations) needs to be corrected either by Labial braces or aligners.

Case 1: Mild crowding



Fig. 1

Case 2: Relapse case



Case 3: Relapse case



Fig. 3

Discussion

Adult patients are composing an ever increasing demographic in orthodontic practice. Mandibular crowding is a multifactorial and often encourages patients to seek orthodontic treatment as it raised more cosmetic concerns. Crowded or overlapping teeth can be difficult to clean, making tooth decay and gum disease more likely. Understanding the factors involved in the demand for orthodontic treatment in a particular population enables a better planning of resources as well as a better assessment of treatment needs and priorities.⁶

The orthodontist should decide between protrusion of incisors or decrease in dental volume so as to achieve proper alignment and leveling. The present technique demonstrated active lingual bonded retainer as an effective tool in relieving of mandibular anterior crowding in new as well as in relapse cases in patient who are reluctant to wear brackets. In case report 2 we used bondable buttons along with E-chain for minor rotation correction of canine. The mandibular teeth were found to be esthetically satisfactory in line of occlusion and overjet and overbite was found to be near ideal.

The entire procedure is advantageous as it is highly aesthetic, acceptance of the patient is more as there is no need to bond the brackets labially, so the labial surface is free from the composite, stains and white spot lesions and it is less time consuming.

Advantages

For patients

1. Highly esthetic
2. Patient compliance not needed.
3. Cost effective (set of aligner is reduced).

For orthodontist

1. Less armamentarium and material required.
2. It is easy and a simple procedure to learn.
3. It is less time consuming as compared to conventional bonding of bracket.

Disadvantages

1. It can be used for selective cases only (minimal crowding, absence of deep bite).
2. Only tipping movement can be obtained.
3. Complex tooth movement (root movement, rotations) needs to be corrected either by labial braces or aligners.

Conclusion

In conclusion it can be said that with increasing numbers of adults demanding orthodontic treatment orthodontists are now better equipped to offer an aesthetic treatment option for almost any malocclusion. The practitioner can now select and combine different technologies to customize a treatment solution that can deliver the tooth movement required while still fitting the patient's aesthetic requirements. An orthodontist should always weigh the risks and benefits of procedure before initiating treatment.

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Conflict of Interest

None.

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