

Adjunct Orthodontics, a Clinical Tool Rarely Used for Multidisciplinary Dental Approach an Example

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Abstract:

For years, orthodontics has been used mainly as a treatment of choice for esthetic purpose. In such a scenario, it had been used as a comprehensive treatment procedure, i.e., orthodontic appliance either in one full arch or both upper and lower arches. In this, the vast majority of the patients come for orthodontic treatment are adolescent or very early adult group which require comprehensive orthodontic procedures. Now a days, there is an increase in a number of patients come for orthodontic treatment are adults. Recent increases in adult patients who seek orthodontic treatment require multidisciplinary approach than purely orthodontic approach alone. Orthodontics for adult patients can be used as an adjunctive tool for restorative, prosthodontic, and periodontal purposes. Adjunct orthodontics is mentioned in literature as a valuable tool for multidisciplinary dental treatment. However, the usage of adjunct orthodontics in multidisciplinary dentistry is very less as compared to comprehensive orthodontics.

Key Words: Adjunct orthodontics, adult orthodontics, multidisciplinary dental treatment

Introduction

Conventionally, patients who come for orthodontic treatment are from the adolescent group, and they come generally for comprehensive treatment. In recent years, the percentage of patients who seek orthodontic treatment are adults, and their number have increased phenomenally.¹ The adults who seek orthodontic treatment are: (1) Young adults; the majority is at their 20s and usually will be under 35 years of age; (2) An older adults are from above 35 age group. In this second group, the majority of the patients are in the 40s and 50s group.¹ The majority of the younger group patients who seek orthodontic treatment will be for comprehensive orthodontic treatment. The older groups who seek treatment come for the

maintenance of their dental health. Adjunct orthodontics has a great role to play in this group of patients.

Adjunct orthodontics is defined as the tooth movement carried out to facilitate other dental procedures necessary to control disease, restores function, and/or enhances appearance.¹ Even though one of the indications of orthodontic treatment,¹ adjunct orthodontics has been rarely used as a treatment of choice in multidisciplinary dental practice.² Most of the adjunct orthodontic procedures can be carried out in a multidisciplinary approach with a general dental practice view. In this, more than one specialist is involved with a coordinated approach. Most of the adjunct orthodontics is related to periodontal, restorative, and prosthodontic approach.³

The purpose of the adjunctive orthodontic treatment is: (1) Regaining of the extraction spaces due to migration of neighboring teeth.¹ The regained spaced being replaced with either partial dentures – removable or fixed partial dentures (FPD) - or with dental implants.^{1,4,5} (2) Esthetic restorations of teeth after aligning of the crowded anteriors.^{1,6,7,8} (3) To give proper splinting to maintain the good interproximal bone contour and embrasure after aligning of the anteriors.^{1,9} The maintenance of the oral hygiene is easily carried out in a well-aligned arch.^{1,10,6} (4) Orthodontic traction and eruption of broken down teeth.¹ This is carried out on its sound root structure over which crown is to be placed.

In general, time required for the adjunct orthodontic procedures is <6 months after the initiation of the treatment. Before adjunct orthodontic procedures, depending on the clinical situation, all the pathology should be eliminated using procedures such as tooth extractions, restoration of caries, and periodontal procedures, etc.

Case Report

A 38-year-old male patient visited the dental office with a complaint of multiple carious teeth and wanted to have conservative treatment. Clinical examination revealed that he had multiple carious teeth and missing teeth in upper and lower arch (Figure 1a and b). There was root stump in between upper right first premolar and first molar (14 and 16) and the space between them had reduced due to the mesial and distal migration of 16 and 14, respectively (Figure 2). The space required for the replacement of second premolar (15) was less compared to the original size.

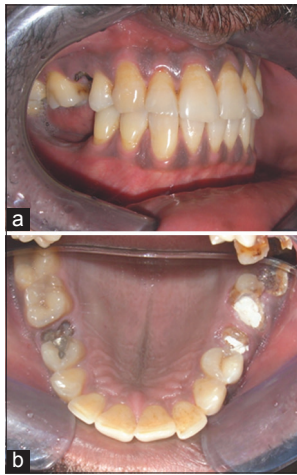


Figure 1: (a and b) Intraoral lateral and palatal pre-treatment view.



Figure 2: Panoramic view.

In this type of clinical situation, the replacement will be by an FPD after intentional root canal treatment of 14 and 16 to get proper axial inclination.³ This is for gaining space for 15 with the help of reducing the tooth material of the 14 and 16 and to avoid the further infection. Regaining of space was planned with the help of orthodontic force.

Treatment was initiated with pre-adjusted edgewise bracket and tube on 14 and 16, respectively, of Roth system. The placement of tube and bracket was placed so as to gain space for the replacement and hence there was no need for root movement (Figure 3).

After bonding the tube and bracket, a 018" stainless steel wire was placed along with an open coil spring through the wire between 16 and 14.

When the patient came after 4 months, the space required for the replacement of 15 with FPD was gained with the adjunctive orthodontic appliance. The regained space in relation to 15 was replaced with FPD connecting from upper right first premolar to first molar (Figure 4).

Discussion

In India, the number of the patients, especially adults who come for dental treatment has increased in the last decade.



Figure 3: Adjunct orthodontic appliance.



Figure 4: Post-treatment with fixed partial dentures.

This is mainly seen in cities and due to multiple reasons. Other than the esthetic or pathological reasons; awareness through media, increase in payment capacity due to overall economic development of the country, increase in middle-class population and increase in power of purchase of the female population.

Conventionally, the multidisciplinary dental treatment includes conservative and prosthodontic part alone. Recently, there is a change in this and it includes periodontics and the reasons behind these are due to increase in a number of young adult patients with periodontal involvement and also recent advancement in periodontal treatment.

In specific cases like these, orthodontics also can use with other disciplines of dentistry as an adjunct method. In this, there is a need to regain the space not only for prosthodontic replacement but also there is a periodontal point of view. In this case, loss of space for 45 is occurred due to mesial as well as the distal tipping of molar and first premolar, respectively.

With the help of orthodontic appliance, the space regaining was achieved through the uprighting of molar as well as first premolar. This helped regain the space for partial denture and parallelism for the abutment teeth and additional expense for

the endodontic treatment can be avoided.³ The uprighting of the abutment teeth will also reduce the plaque accumulation as well as periodontal pocket formation.¹¹

Conclusion

The adjunct orthodontics treatment can be used in esthetic as well as functional oriented clinical dental practice. In this case, clinical examination along with radiograph is required for the proper case selection. This can be incorporated either with general practice or with multidisciplinary dental practice. This will reduce the cost as well as the complexity of the procedure.

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