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Case Report

Management of chronic periodontitis: an interdisciplinary approach

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Abstract

Objective: In recent years, advances in technique as well as a growing public interest in developing and maintaining a healthy and attractive smile, has resulted in a greater understanding of the interrelationships between periodontics and orthodontics. The primary objective of periodontal therapy is to restore and maintain the health and integrity of the attachment apparatus of teeth. In adults, the loss of teeth or periodontal support can result in pathological teeth migration involving either a single tooth or a group of teeth. This may result in the development of a diastema, incisal proclination, rotation with collapse of the posterior occlusion.
Materials and methods: This case report is of a 32 year old female patient who reported with swollen gums, generalized spacing between the teeth and extruded upper anterior tooth. Periodontal therapy followed by fixed orthodontic therapy was planned.
Results: At the end of 2 years a stable healthy periodontium was established that was both functional and esthetic.
Conclusion: Adjunctive orthodontic therapy is often necessary for successful restoration of periodontal health. On the other hand, successful orthodontic treatment will depend on the periodontal preparation before and after treatment and the maintenance of periodontal health throughout all phases of mechano-therapy.

Keywords: *Adult Orthodontics; Chronic Periodontitis; Dento-Facial Esthetics; Interdisciplinary Treatment; Pathologic Migration*

1. Introduction

Aesthetic considerations have influenced the management of dental maladies in varying degrees for many years. There is an ever increasing concern for dentofacial esthetics in adult population. The primary motivating factor for seeking orthodontic treatment is dental appearance. [1] (Ngom PI et al. 2006, p. 236). Patient awareness and expectations have increased recently to the point that less than optimal aesthetics is no longer an acceptable outcome. On the same plateau, an essential goal of orthodontic treatment is the long-term stability of the result. For this to be achieved the integrity of the dentogingival junction must be respected, the dental restorations and the periodontium must be in harmony. A predictable, successful outcome can only be expected if complete and accurate diagnosis is obtained and used to generate an appropriate treatment plan and procedure.[2] (Lt Col M Panwar et al. 2010, p. 67)
Advanced periodontal disease is characterized by severe attachment loss, reduced alveolar bone support, tooth mobility and severe gingival recession. Thus periodontal disease and its sequale such as diastema, pathological migration, often lead to functional and esthetic problems either alone or with restorative problems. [3] (Helm S & Petersen PE 1989, p. 223)
One of the most frequently encountered problems among the adult population is pathologic migration of anterior teeth, which is a common cause of esthetic concern. Pathologic migration is defined as change in tooth position resulting from disruption of the forces that maintain teeth in normal position in relation to their arch. [4] (Kokich VG 2009, p. 856)
This disruption of equilibrium in tooth position may be caused by several etiologic factors which include periodontal attachment loss, pressure from inflamed tissues, occlusal factors, oral habits such as tongue thrusting and bruxism, loss of teeth without replacement, gingival enlargement and iatrogenic factors.[5] (Martinez-Canut P & Carrasquer A 1997, p. 492). These factors if left untreated can lead to progressive periodontal attachment loss and ultimately resulting in tooth loss.
This is a case report of a patient whose main concern was unaesthetically appearing upper front tooth. A combined treatment approach, including both orthodontic and periodontal treatment was performed in order to restore the health and function of teeth and the periodontium. The orthodontic treatment was initiated only after periodontal disease was brought under control. This communication highlights good treatment outcome that can be achieved in a patient with impaired dentofacial aesthetics and advanced periodontal disease. [6] (Kalia S & Melsen B 2001, p. 191).

2. Case report

A 32-year-old female patient reported to the periodontics department with the chief complaint of swollen gingiva in lower anterior region and extruded upper front tooth from past six months. Patient also complained of spacing between her upper front teeth, which gradually increased over a period of time. Patient's main

concern was to get her teeth realigned as it was very unaesthetic (Figure. 1)

Fig. 1: Pre-Operative View, Before Phase I.

On hard tissue examination, it was found that 12 was extruded and touching the lower lip, 15 was in cross bite. There was a loss of contact between 12 and 11 due to pathologic migration of 12, causing spacing between the teeth. On the contralateral side, there was an absence of contact between 23 and 24. Periodontal examination revealed sub-gingival deposits that were the cause for the inflammation in the lower gingiva. Furthermore, there were deep periodontal pockets, ranging between 6 to 8 mm, with respect to 12, 15, 16 and 36. Treatment plan included periodontal treatment followed by orthodontic therapy. (Figure. 2, 3)

Fig. 2: Extruded 12 and Loss of Contact B/N 11 and 12.

Fig. 3: Cross Bite WRT 15.

Initially, scaling and root planing was performed to eliminate the local factors. Oral hygiene instructions were given, and patient was put on a rigorous maintenance program. The patient was re-evaluated after 4-6 weeks to check for any clinical signs of gingival inflammation. Once the inflammation subsided localized periodontal flap surgeries were performed in areas with persisting probing pocket depth. After 6 months, the patient was referred for orthodontic treatment. (Figure 4-8)

3. Periodontal flap surgery

Fig. 4: Probing Pocket Depth WRT 12 Is 8 mm.

Fig. 5: Crevicular Incisions Given.

Fig. 6: Full Thickness Mucoperiosteal Flap Reflected.

Fig. 7: Sutures Placed.

Fig. 8: Probing Pocket Depth Reduced to 4 mm 6 Months after Flap Surgery.

Fig. 9: Levelling and Alignment of Upper Teeth.

Fig. 10: Space Closure.

Fig. 11: Correction of Cross Bite WRT 15.

A non-extraction orthodontic therapy was planned. Initially, leveling and alignment of 12 was done followed by space closure in the maxillary arch. A pre-adjusted edgewise appliance was planned. Light orthodontic forces were applied to intrude 12. Once space closure was achieved, torquing of the root with respect to 12 was done to improve the retention. The orthodontic treatment extended over a period of two years during which the patient was recalled on regular intervals for check-up. (Figure 9-11)

4. Orthodontic therapy

At the end of two years, extruded 12 was aligned so that it follows the proper arch contour, 15 that was in cross bite was corrected, and space between 11, 12 and 23, 24 was closed. A permanent lingual retainer was given to the patient. (Figure 12-13)

5. Completion of treatment

Fig. 12: Extruded 12 Is Intruded, Aligned and Space Is Closed B/N 12 and 11.

Fig. 13: Cross Bite WRT 15 Corrected and Fixed Lingual Retainer Placed.

6. Discussion

Age is no longer a contraindication for orthodontic treatment. However, for a successful orthodontic therapy, the periodontal

status should be considered before and after the commencement of treatment. Periodontal health is essential for any form of dental treatment. Majority of adult orthodontic patients manifest with a coexisting periodontal pathology resulting in pathologic migration, spacing, flared incisors and trauma from occlusion. It is of paramount importance to control the existing periodontal disease before initiating comprehensive orthodontics. Hence, an interdisciplinary approach is required to obtain functional and esthetic dentition. [7] (Riberal MBC et al. 1999, p. 979).

Periodontitis appears to be a major factor in bone destruction around the teeth which can cause pathological tooth migration.[8] (Towfighi PP & Brunsvold MA 1997, p. 967).

In the present case 12 had migrated because of severe bone loss that resulted in extrusion of the tooth, thus compromising esthetics. Hence periodontal treatment was initially done to control the inflammation so that the tooth can be subjected to orthodontic forces without further compromising periodontal status.[9] (Wankhede AN et al. 2014, p. 153).

Once desired results are obtained it is of paramount importance the patient is recalled at regular intervals for check-up. Supportive periodontal therapy is important in maintaining the health and integrity of teeth and supporting tissues. [10] (Ong MA et al. 1998, p. 271).

7. Conclusion

Ultimately, it is not only the beauty of the structure, but the foundation that will stand the test of time. The interrelationship between orthodontics and periodontics is often symbiotic and interdependent. Thus co-operation between different specialties in dentistry is extremely important in establishing diagnosis as well as in treatment planning.

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Acknowledgement

This is a text of acknowledgements. Do not forget people who have assisted you on your work. Do not exaggerate with thanks. If your work has been paid by a Grant, mention the Grant name and number here.

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