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A Challenging Interdisciplinary Approach in Adult Patient for Diastema Closure : A Clinical Report

Dental Science

KEYWORDS:

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ABSTRACT

Age per se is not a contraindication to orthodontic treatment. No single treatment route is best for all adults who have malocclusions and who many times have problems that involve other areas of dentistry aside from the specialized area of orthodontics. This article presents a case report of 55 year old female who came with a chief complaint of rotation and spacing in lower front teeth. She had midline diastema in lower arch with lower cental incisors rotated and high frenal attachment. Her periodontal status showed that there was a severe horizontal bone loss irt 31,41. Patient went to an initial periodontal checkup followed by fixed orthodontic therapy. Care was taken to keep the forces light. After the orthodontic treatment, periodontal intervention was done with gingival repositioning and frenectomy. The patient and the interdisciplinary team were satisfied with the esthetic and functional outcomes of this challenging treatment.

INTRODUCTION: The frequency of malocclusions in adults is equivalent to or more prominent than that observed in children and adolescents.[1]

Age in essence is not a contraindication to orthodontic treatment. With increasing age, cellular activity diminishes and the tissue becomes rich in collagen.[2]

A typical issue in adult patients suffering from periodontal disease is the migration, elongation, and spacing of incisors.[3] Patients who require adjunctive orthodontic treatment often have lost alveolar bone due to periodontal disease. Hence, greater the loss of attachment, the smaller the area of supported root and further apical the center of resistance will become. Thus, lighter forces and relatively larger moments are needed.[4]

Periodontal disease also must be controlled before any orthodontics begins, in light of the fact that orthodontic tooth development superimposed on inadequately controlled periodontal health can lead to fast and irreversible breakdown of the periodontal support apparatus.[5]

No single treatment route is best for all adults who have malocclusions and who many times have problems that involve other areas of dentistry beside the specific zone of orthodontics.[6]

CASE REPORT

A 55 year old female patient came to the dept. of Orthodontics in Kothiwal Dental College and Research Center (Moradabad, U.P.). Her chief complaint was rotation and spacing in lower front teeth. Extraoral examination showed that she had a good facial profile and lips were competent. Intraoral examination revealed midline diastema in lower arch with 31, 41 rotated and high labial frenal attachment. There was approximately 6 mm spacing between the mandibular central incisors. Her periodontal status showed that there was a severe horizontal bone loss irt 31,41 with no mobility.(Figure 1)

After communication and discussion with this patient, the definitive treatment plan included aligning and closing the space between mandibular central incisors to proper position with fixed orthodontic treatment followed by periodontal surgery.

Fig.1 Extra oral and Intraoral photographs of the patient

TREATMENT PROGRESS

After a thorough periodontal check up, scaling and root planning was done and patient was given complete oral hygiene instructions. Case was started with fixed 0.022 x 0.028-inch MBT prescription brackets. Leveling and alignment were performed using 0.012-inch nickel-titanium to 0.16-inch stainless-steel archwires.(Figure 2)

Fig.2 Intial leveling and alignment stage

A 0.017 x 0.025-in stainless steel archwire was used with light continuous force applied through long elastic chain to bodily close the midline diastema. Continous periodontal checkup was done throughout the orthodontic treatment. Complete space closure took about 8 months.(Figure 3)

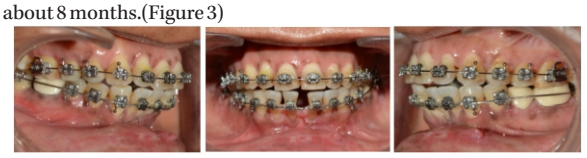

Fig.3 Space consolidation with long elastomeric chain

Well aligned arches with normal overjet and overbite was achieved. A fixed bonded retainer was given to the patient after orthodontic treatment. Total treatment time was about 15 months(Fig.4)

Fig.4 Post orthodontic treatment photographs

Periodontal intervention was done with gingival flap repositioning along with frenectomy after fixed orthodontic treatment.(Fig.5)

Fig. 5 Periodontal intervention with gingival flap repositioning

There was a appreciable increase in the gingival width after the surgical procedure. Even contacts at maximum intercuspation were achieved. A maintenance plan, which included oral hygiene instruction and routine dental checkup was adviced. The patient and the interdisciplinary team were satisfied with the esthetic and functional outcomes of these definitive treatment. (Fig.6)

Fig.6 Post treatment photographs.

DISCUSSION

Achieving a satisfactory anterior esthetic outcome is a considerable challenge for an orthodontist. Multiple interdisciplinary approach are necessary to resolve esthetic defects, especially in cases of improper tooth alignment and excessive space between anterior teeth.

"Difficult roads often lead to beautiful destinations"- this case report described a challenging interdisciplinary approach used for a 55-year-old female with diastema and rotated lower central incisors. The interdisciplinary treatments included orthodontic and periodontic treatments. The combination of orthodontic and periodontic treatment with careful diagnosis and planning were critical for improved esthetic and functional outcomes.

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 median diastema or general spacing of the teeth with or without incisal proclination, rotation or tipping of bicuspids and molars with the collapse of the posterior occlusion and decreasing vertical dimension. Adjunctive orthodontic therapy is necessary to resolve these problems. Thus, periodontal health is very essential for any successful treatment.

CONCLUSION

Periodontal health is essential for any form of dental treatment. Adult patients must undergo regular oral hygiene instruction and periodontal maintenance in order to maintain healthy gingival tissue during active orthodontic treatment. Close monitoring of adults with reduced periodontal support is mandatory. In conclusion, adult orthodontic tooth movement can be performed on both healthy and diseased periodontia with few detrimental effects (root resorption) provided physiologic forces are used, periodontal inflammation is controlled and meticulous oral hygiene is maintained throughout active therapy. With this basic understanding of periodontic-orthodontic interrelationships, the clinician can then work accordingly in the patient's best interest.

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