

Case report

Orthodontic treatment of mandibular anterior crowding

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Abstract

This paper concerns orthodontic treatment of a 17 years old Bangladeshi female with a class I malocclusion along with anterior crowding in the mandibular arch. Orthodontic treatment carried out with preadjusted Roth type (018 slot) fixed brackets with labial flaring of the mandibular incisors to accomplish the treatment. The esthetics and occlusion were maintained after retention.

Key words: Crowding, malocclusion, labial flaring.

Introduction

Crowding is a quantitative discrepancy between the clinical length of the dental arch and the sum of the mesiodistal widths of the teeth¹. While crowding may occur in the anterior or posterior areas of either arch, adults are most likely to have crowding in the mandibular anterior area². Crowding is the lack of space for all the teeth to fit normally within the jaws. The teeth may be twisted or displaced³. Crowding occurs when there is disharmony in the tooth to jaw size relationship or when the teeth are larger than the available space¹⁻². Crowding can be caused by improper eruption of teeth and early or late loss of primary teeth.

Crowding should be corrected because it can:

- a. prevent proper cleaning of all the surfaces of your teeth
- b. cause dental decay increase
- c. the chances of gum disease prevent proper functioning of teeth
- d. prevent proper functioning of teeth
- e. make your smile less attractive

Treatment object

Braces are a simple yet effective form of orthodontic treatment and can generally be used to remedy crowding of the teeth. While many people are hesitant to get braces because of their cosmetic nature and effect on social life, the results generally outweigh the temporary effect.

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Treatment objectives were to:

1. Level and align the arches.
2. Correct mandibular arch length discrepancies.
3. Maintain Class I canine and molar relationships.
4. Maintain dental and facial midline.
5. Normalize the overbite and overjet.
6. Improve the gingival condition.
7. Maintain the profile.
8. Achieve long-term stability.

Treatment progress

The mandibular arch needed to be leveled to correct misalignments, considering that the patient had completed growth. The mandibular arch had 3.5 mm arch length discrepancy (Fig-1) and overjet was 4 mm. To normalize the overjet and misalignments, the best treatment option is 1.75 mm labial flaring of mandibular incisors. Treatment was started in the mandibular arch with preadjusted Roth type (018 slot) brackets. A 0.014 and 0.016 inch nitinol arch was used for leveling and labial flaring of the mandibular incisors. After labial flaring and leveling of the mandibular incisors, a 0.016 × 0.022 inch nitinol arch was inserted for the final alignment and detailing. Lastly a 0.016 × 0.022 inch stainless steel arch wire was used for the alignment stabilization.

An ideal occlusion was obtained after 5 months active fixed orthodontic treatment, and all the appliances were removed. Fixed lingual type retainer was set on the lingual surface of the mandibular anteriors prepared by coaxial wire and set by light cure composite (Fig-1).

Discussion

Tooth crowding is a common orthodontic problem¹⁻². It is basically what it sounds like, the teeth are too crowded together, and become crooked. Peck and Peck⁴ reported a clear relationship between the shape of mandibular incisors and their irregularity, Smith⁵ found little correlation between the shape of mandibular incisors and the degree of the teeth. There is some disagreement regarding the role of incisor crowding in periodontal disease, but there is no dispute about the improvement in oral esthetics that can be achieved by alignment of the teeth. Although treatment of mandibular anterior crowding must be individualized, clinicians should always keep in mind the high potential for relapse as they consider esthetics, treatment mechanics, periodontal conditions, and ultimate retention. Crooked teeth are generally not considered attractive and it is not an optimal occlusion so orthodontic treatment is required to fix this orthodontic problem¹⁻².

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Treatment will not only help create a beautiful smile but will help oral health as well. There are a number of different possibilities for dental treatment of tooth crowding depending on the severity of the case; different situations should be treated differently. Extra space can be created by expansion of the arches or extraction of teeth or stripping or labial flaring. Every

treatment option has its own merits and demerits. On orthodontist's point of view, present case was treated best by labial flaring. Once space is created, braces will eliminate crowding and align the teeth. Correction of crowding can help to prevent dental decay and periodontal disease by improving the ability to remove plaque from the teeth¹⁻².



Figure 1. Pre and post treatment (photographs published with permission).

Conclusion

The treatment goals set in the pretreatment planning were all attained and were successful. Solid intercuspation of the teeth was maintained with class I molar

relationship. The mandibular teeth were found to be esthetically satisfactory in the line of occlusion. The over jet become near ideal and normal overbite was found.

References

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The Prophet (S) said, “Whoever is offered some perfume should not refuse it because it is light to wear and has a good scent” [Abu Dawud, An-Nasai]