Dento-maxillary disharmony class I malocclusion with severe crowding, crooked canine, midline shifting and lip incompetence management: A case report

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Abstract

Objective: This case report aimed to provide treatment sequential DDM to meet the patient's expectations.

Case Report: Before starting the treatment, 2 first upper premolar needed to be extracted to gain space for severe anterior crowding teeth and 2 second lower molar because the teeth were not in good condition. After extraction, bracket placement with fixed appliance 0.22 MBT prescription and NiTi wires sequences were done for initial leveling. When it has already leveled, start for canine retraction using an elastomeric chain in wire SS 0.016x0.022-inch. Then, T-loop bends were used for anterior retraction in the same wire. Finishing detailing using SS 0.017x0.025-inch. The last one, Hawley Retainer, was used as a retainer.

Keywords: Crooked tooth, Dento-Maxillary disharmony, Incompetent lips, Severe crowding

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Introduction

Dento-maxillary disharmony (DDM) is a state of imbalance between the size of the teeth and the size of the jaw. DDM has characteristic clinical signs. The imbalance between the size of the teeth and jaw results in malocclusion in the form of crowding or multiple diastema. DDM can be categorized as a developmental disorder of the teeth.1

The main factors causing DDM are hereditary or hereditary. Additional local factors, such as lifestyle choices, contribute to this disorder's development. For instance, when children ingest less substantial food, their jaw growth is suboptimal, reducing jaw size relative to its ideal dimensions.2,3

DDM does not have to occur in both jaws or on both sides; DDM can occur only on one side or jaw. However, in general, DDM is more often seen in the maxilla because the arch for the eruption of permanent teeth in the maxilla is limited to the maxillary tuberosity, while in the mandible, it extends to the ascending ramus.4

Ideal primary dentition growth is an indicator of ideal permanent dentition growth. Therefore, physiological space is needed during the primary dentition. This space is important for the stages of permanent tooth eruption and eruption stability. The absence of this space in the primary dentition is a picture of an imbalance between jaw size and tooth size.5

This case report aimed to provide treatment sequential DDM to meet the patient's expectations.

Case Report

A 21-year-old female (Asian) came to the Orthodontics Department of Airlangga University. Her chief complaint was that she had an unpleasing smile, which showed severe crowding and crooked teeth. Also, she sought orthodontic treatment for aesthetic reasons to gain her confidence to smile and to treat her lip incompetence. She had a convex profile, lip incompetence, and permanent dentition. No important medical history was recorded. Both her lower first molars were not in good condition, so the patient had already consented to extract her molar teeth. Figure 1A intraoral examination showed severe anterior crowding in both arches, crooked canine on the upper arch, lower midline shifting, impacted third molar, and lower first mandibular, which were not in good condition. She had a large overjet of 6mm and an overbite of 4mm for her occlusion. Class I molar relationship for both sides. The mandibular midline was shifted 1 mm to the right. Upper arch discrepancies were -15mm,
A CASE REPORT

A 21-year-old female (Asian) came to the Orthodontics Department of Airlangga University. Her chief complaint was that she had an unpleasing smile, which showed severe anterior crowding in both arches, correct crooked teeth, canine, correct midline shifting, and correct overjet to give the patient a better profile. After the diagnosis was made, it was decided that tooth extraction was needed to gain space. For the upper arch, the first premolar was chosen. But for the lower arch, we recommend extracting the first molar instead of the first premolar because those teeth have extensive caries lesions figure 2A – figure 2D.

The upper arch needs maximum anchorage: the lower arch needs moderate anchorage because it needs huge space closing. Treatment started with a fixed appliance for both arches. We used MBT prescription 0.022". Leveling aligning uses NiTi wire in sequence round 0.012, NiTi 0.014, NiTi 0.016, wire rectangular NiTi 0.016 x 0.016, NiTi 0.016 x 0.022, SS 0.016, SS 0.016 x 0.016 with lace back to prevent loss of anchorage. After leveling, the canine retraction was done using an elastomeric chain with wire rectangular SS 0.016X0.022. T-loop bends were used for upper arch anterior retraction. And then, to close small spaces, elastomeric chain and up-down elastic were used. For lower arch, the initial treatment was posterior bracket placement and its leveling aligning first then distalization and mesialization of 35-37 and 45-47 using elastomeric chain on buccal and lingual side figure 3. On the lingual side, we placed a lingual button. The next step was distalization and mesialization of 34-37 and 44-47 with the same technique. After achieving enough space for anterior crowding, anterior brackets were placed, and leveling was aligned with the same wire sequence. The whole lower arch was already leveled and aligned and molar mesialization was done to close the space of the posterior region using the same technique above. After both arches have their space closing steps, finishing detailing, paralleling the roots, and detailing the occlusion. After satisfactory interdigititation, fixed appliances were removed, and a Hawley retainer was placed. The active orthodontic treatment time was 48 months figure 4.

Discussion

The Class I molar and canine relationship was established with satisfactory posterior and anterior teeth interdigititation. The overjet and overbite were maintained. The upper and lower arch length deficiencies were eliminated, and the tooth-size discrepancy was managed successfully. The mandibular dental midline became the center of the remaining lower central incisor. The dentition and the periodontal tissues remained healthy during treatment. Posttreatment radiographs showed that minimal root resorption had occurred in upper and lower dentition during treatment and that root parallelism was satisfactory. The cephalometric evaluation revealed that everything was normal except the lower anterior incisors, which were slightly reclined. A mandibular tooth-size excess more
Conclusion

This case concludes that the patient was happy with the overall treatment results and was satisfied with the pleasant and esthetic smile achieved at the end of the treatment. Synchronizing various specialties with orthodontics in an organized and systematic manner is required to predictably diagnose and resolve esthetic problems. Our ultimate goal as an orthodontist is to achieve pleasing composition in the smile by creating an arrangement of various esthetic elements.

Acknowledgment

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Conflict of Interest

The authors report no conflict of interest

References