A 14–year–old boy having excessive overjet and traumatic bite

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Presentation of Case

Dr. Salma Aktar (MS Resident): A 14-year-old male came to the outpatient Department with the complaints of pronclation of the tooth and inability to close his lips. The patient was psychologically depressed for his facial appearance. Extraoral clinical examination showed a mesocephalic symmetrical face with convex facial profile as well as his lower lip was trapped The nasobial angle was acute (Figure 1). His mandibular movement was normal and there was no temporomandibular joint dysfunction. Intraoral clinical examination also revealed class II molar and canine relationship. Furthermore, the maxillay incisors were found excessively proclaimed and the overjet was 13 mm. The palatal impingement of the lower incisors was also found (Figure 2). A soft tissue lesion observed on the lower lip due to chronic irritation by sharp tip upper right canine. Moreover, underlying sagittal jaw discrepancy was severe. As the patient did not allow any orthognathic surgery, the selective extraction of two maxillary first premolar teeth was decided.

Pre-treatment Analysis

Dr. Aktar: The results of lateral cephalometric analysis (in degree) show that the Sella Nasion point A angle was 84. The Sella Nasion point B angle, Frankfort mandibular plane angle and Frankfort mandibular incisor angle were 77.5, 6.5, 17 and 46 respectively (Figure 3).

Post-treatment lateral cephalometric analysis (in degree)

The Sella Nasion point A angle was 84. The Sella Nasion point B angle, Point A Nasion point B angle, Frankfort mandibular plane angle and Frankfort mandibular incisor angle were 77.5, 6.5, 17 and 46 respectively (Figure 3).

 Provisional Diagnosis

Angel’s class II malocclusion

Differential Diagnosis

Binaxillary protrusion

Dr. Sultana Razia Khanam (MS Resident): Bimaxillary protrusion is a state where maxilla and mandible are in balanced position in respect to cranial base. But the teeth especially the anterior teeth are forwardly placed leading to an appearance of prominence of soft tissues (lip). In this case the molar canine and incisor relation are class I. Furthermore, in bimaxillary
prognathism, the jaw bones (basal) remain forward in relation to the cranial bone. The facial profile is convex and lips are usually everted.3, 4 Furthermore, the mesiobuccal cusp of upper molars occludes not only in the mesiobuccal groove but distal to it.5, 6 It is more complicated when the lower anterior teeth are more prominent than that of the upper anterior teeth. Moreover, the patient very often represents with a retrognathic maxillary bone and prognathic mandible.7, 8

Class II division 2 malocclusion

Dr. Aktar: In these cases, the molar relation is class II. The maxillary central incisors are retroclined, the lateral incisors are usually proclined and rotated or overlap the upper central incisors.3, 4 There is natural dentoalveolar compensation for a class II skeletal pattern in order to decrease the overjet and increase the overbite.7, 8 The arch is squarish in appearance and the facial profile is straight.9, 10 The mandibular path of closure is backward and the lips are competent.11, 12, 13

Discussion

Discussion on treatment methods

Dr. Aktar: During treatment of class II malocclusion, it is necessary to perform proper diagnosis, treatment plan, anchorage planning to establish natural esthetic, occlusal and functional requirements of the patient. So, the treatment of this malocclusion is always challenging. In this case, non-surgical treatment was performed according to some previous studies.20, 21 Treatment was performed by using a combination of compensation mechanics and fixed orthodontic appliance. The treatment approach for the patient was camouflaged by the correction of the incisor relationship. Overall, facial, dental and the occlusal changes were achieved. Patient’s aesthetic and functional efficiency was improved. The soft tissue lesion resolved automatically when the fixed orthodontic treatment was carried out. The overall results without any surgical intervention make the patient very much confident and happy.

Comparison with other methods

Dr. Mahmood Sajdeeen (Associate Professor): There are some patients having skeletal class II malocclusion who are in the border line regarding treatment option. This patient’s active growth was almost completed and therefore the treatment option by orthopedic or functional appliance was excluded. Other treatment options include the orthognathic surgery and dental camouflage.22, 23 Most of the patients want to avoid the surgical approach and accept dental camouflage. A previous study has indicated that the level of satisfaction of patients in camouflage treatment versus surgical orthodontic approach is almost similar.24

Comparison with previous studies and relapse

Dr. Aktar: It is considered that the age of the patient also affect the success of the treatment. A study by
Pavoni et al. (2014) reported that if the treatment of class II malocclusion can be started before pubertal growth spurt, there is a significant improvement of dentoalveolar changes, overjet and molar relationships. Treatment at puberty produces significant long-term improvement of sagittal skeletal relationships, which is due to the mandibular changes. The result is similar to the present study. A study by Danz et al. (2018) indicated that 10% of the patients showed relapse and their amount of overbite increase was low. It can be considered that cases with deep bite, gingival contact and palatal impingement were more prevalent for the relapse. In this case, the relapse was not found within the 6 months.

Follow-up

The patient was followed-up at an interval of every 6 months. Clinically, the improvement of the presenting complaints like difficulties in bite were resolved. After completion of the treatment, it was noted that the abnormal occlusion was changed to normal.

Dr. Abdur Rashid Mondol (MS Residence): What treatment options exist?

Dr. Aktar: Treatment methods include orthopedic, myofunctional and fixed appliance associated with class II intermaxillary elastic.

Dr. Abu Bakar Choudhury (MS Resident): What factors would you consider during finalize the treatment methods?

Dr. Aktar: Now-a-day’s, patient demands for high quality treatment with minimum time and cost have been increased. In the case of Class II malocclusion, several factors such as level of anterior-posterior discrepancy and age of the patient affect the treatment success. In this case, the surgical approach was avoided and accepts the dental camouflage due to similar treatment results.

Clinical Diagnosis
Excessive overjet and overbite

Final Diagnosis
Class II division 1 malocclusion

Conflict of Interest
Authors declare no conflict of interest.

References


