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Dental Health 2021 : Palatally erupted maxillary lateral incisors may be a causative factor of mandibular deficiency : A Review Article- Dina Osman ElAbbasy, Cairo University-Egypt

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The aim of this study was to evaluate the influence of palatally displaced maxillary incisors on mandibular growth in a group of Egyptian patients.

Material and Methods: The sample consisted of the digital lateral cephalograms of 24 patients with age range of 15-30 years during the permanent dentition stage. The radiographs were selected from the patient database of private practice in Cairo. The sample was divided into 2 groups each consisting of 12 patients. Group A had palatally displaced maxillary lateral incisors without crossbite. Group B had palatally displaced maxillary lateral incisors with crossbite. Cephalometric measurements were used to assess the anteroposterior skeletal malocclusion (SNA, SNB, ANB, Witts appraisal). Independent samples t-test was performed between two groups.

Results: Cephalometric measurements revealed statistically significant differences between groups A and B. Group A had skeletal Class II with retrognathic mandible while group B had skeletal Class I pattern with normal mandibular position. The maxilla was well positioned in relation to the cranial base. No statistically significant difference between genders was evident.

Conclusion: Palatally displaced maxillary lateral incisors without crossbite cause restraining effect on normal mandibular growth which results in skeletal Class II with mandibular deficiency.

Statistical analysis: All Data were collected, tabulated and subjected to statistical analysis. Statistical analysis was performed by SPSS in general (version 17), while Microsoft office Excel was used for data handling and graphical presentation.Quantitative variables were described by the Mean, Standard Deviation (SD), the Range (Minimum – Maximum), Standard Error (SE) and 95% confidence interval of the mean. Qualitative categorical variables were described by proportions and Percentages.Shapiro-Wilk test of normality was used to test normality hypothesis of all quantitative variables for further choice of appropriate parametric and non parametric tests. Mostly the variables were found normally distributed allowing the was used of parametric tests. Independent samples t test for comparing the difference (Post-Pre) between the two groups. Chi-squared test was applied for 2 by 2 contingency table.

.DISCUSSION: The etiology of class II malocclusion ranges between skeletal, dental factors, soft tissues, and oral habits (Rita and Sadat, 2014). Accurate diagnosis and treatment planning are crucial for the success of the orthodontic therapy and the choice of the right treatment protocol. Timely intervention is also imperative for reaching successful results by maximizing the benefit obtained from normal growth potential. It is well documented that soft tissue or habitual factors are etiological elements that cause malocclusion (King et al, 1990). However, a number of recent studies assumed that craniofacial morphology is genetically predetermined and that it is frequently the cause behind the development of a habit, such as mouth breathing or lip biting, not the other way round (Patel et al, 2016). Accordingly it is very important to identify the contribution of all the factors towards the development of the malocclusion. This helps to shape the expectations and prognosis regarding the treatment outcome. Another example is incompetent lips which is believed to affect the balance between the labial and lingual pressure on the teeth and are believed to aid the development of skeletal Class II division 1 malocclusion. However, if we look at it from a genetic perspective, we can safely assume that the underlying craniofacial morphology or excessive maxillary and deficient mandibular growth have led to lip incompetency and subsequently worsened the malocclusion (Ionescu et al, 2008). Accordingly it is very important to identify the contribution of all the factors towards the development of the malocclusion. This helps to shape the expectations and prognosis regarding the treatment outcome as well as remove the causative factor of the malocclusion if possible