DENTAL ARCH WIDTHS IN CLASS I NORMAL OCCLUSION AND CLASS II DIVISION 2 MALOCCLUSION

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ABSTRACT

The purpose of this study was to compare dental arch widths in Class II division 2 malocclusion with Class I normal occlusion subjects. The Intercanine, Interpremolar and Intermolar widths were measured on 100 dental casts (50 class I and 50 class II/2 malocclusion subjects). The data were developed on SPSS 16 for windows. Independent-samples t-test was applied for comparing the two groups. Lower Intercanine and Intermolar width was larger in class II/2 malocclusion group. Interpremolar width between the two groups did not reveal any significant difference. Lower Intercanine and Intermolar width was significantly larger in class II/2 malocclusion than the subjects with normal class I occlusion.

Key Words: Dental arch width, Class I malocclusion, Class II div 2 malocclusion.

INTRODUCTION

Class II is a common type of malocclusion that demonstrates a significant diversity in skeletal and dental pattern in three planes of space.1,2,3 Dental class II malocclusion presents with mandibular teeth being posteriorly related to their maxillary counterparts and is further categorized as Class II division 1 and division 2 types.4-7 Amongst these, the Class II/2 malocclusion is less common and little data is available in the literature.8 The Orthodontists grant a significant importance to the dental arch width for diagnoses and treatment planning to address the dental esthetics and stability of the dentition.9,10,11 The literature confirms a significant difference among the dental transverse dimensions among class I, class II malocclusion groups.12,13 Numerous studies advocate that the extreme deep bite may result in deficient growth of mandibular dentoalveoaler segment in antero-posterior dimension.14-17 The contemporary orthodontics propose a number of treatment options for the correction of these divergence of the dental arches.18 The findings determined for other regions might be insufficient for application to different racial or ethnic groups and may exhibit variations. The present study was carried out to determine the difference between dental arch widths of class I normal occlusion and class II/2 malocclusion in this region for better understanding that might be significant for diagnosis and treatment planning.

The purpose of the study was to compare the dental arch widths in patients with Class I normal occlusion and Class II/2 malocclusion.

METHODOLOGY

The study was carried out on 100 dental casts of patients with age range 16-20 years. (50 class I normal occlusion and 50 Class II/2, both genders). Demographic data of patients were recorded and the measurements were taken using vernier scale. Following criteria was used: Class I normal occlusion: All teeth present except third molars, class I canine and molar relation, no or minor crowded arches. Class II/2 maloc-
clusion: All teeth present except third molars, class II canine and full cusp class II molar relation, retroclined upper incisors. The following measurements were used in this study.

Maxillary cast Maxillary Intercanine width (UC-C): Distance between the cusp tips of right and left maxillary permanent canines. Maxillary Interpremolar width (UP-P): Distance between buccal cusp tips of right and left maxillary permanent first premolars. Maxillary Intermolar width (UM-M): Distance between the mesiobuccal cusp tips of right and left maxillary permanent first molars.

Mandibular cast Mandibular Intercanine width (LC-C): Distance between the cusp tips of right and left mandibular permanent canines. Mandibular Interpremolar width (LP-P): Distance between buccal cusp tips of right and left mandibular permanent first premolars. Mandibular Intermolar width (LM-M): Distance between the mesiobuccal cusp tips of right and left mandibular permanent first molars.

RESULTS

There was no statistically significant difference recognized between the first and the second measurements. Table No.1 indicates the comparative result of dental arch widths in class I normal occlusion and Class II/2 malocclusion. The Class II/2 sample had significantly greater mandibular Intercanine and Intermolar arch widths as compared to class I normal occlusion. Both groups revealed similar values for maxillary Intercanine, Interpremolar and Intermolar and mandibular Interpremolar widths, indicating no significant differences. These results were in agreement to various studies conducted previously on different population.8,17,18,20

DISCUSSION

The current study was carried out to compare the dental arch widths in normal Class I occlusion with Class II/2 malocclusion patients. The mean age of the study sample was 18.54±2.3 years. The literature reveals that class II/2 malocclusion is often associated with extreme deep bite that might inhibit mandibular dentoalveolar development in sagittal plane.16

The current investigation indicated no significant difference between the maxillary Intercanine dental arch widths among the two groups. However, the lower Intercanine width was significantly larger in class II/2 malocclusion as compared to class I subjects. These results were similar to Usyal8, Joel19 and Fröhlich20 study.

No significant difference was found in the maxillary and mandibular Interpremolar width between the two groups. The same was found out in previous studies.8,18-20
The difference between maxillary Intermolar arch widths was insignificant for both class 1 and class II/2 group while mandibular Intermolar arch width was significantly larger in class II/2 malocclusion. This was in agreement to previous studies carried out by Usyal\textsuperscript{8}, Christofer\textsuperscript{18} and Frohlich\textsuperscript{20}. In contrary to current study findings, Joel\textsuperscript{19} indicated that maxillary Intermolar width was slightly narrow in class II/2 malocclusion as compared to class I normal occlusion.

**CONCLUSION**

It was concluded from the above study that lower Intercanine and Intermolar width is significantly larger in class II/2 malocclusion as compared to class I normal occlusion.

**REFERENCES**


