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The Effect of Vertical Skeletal Pattern in Lateral Negative Space during Posed Smile

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Introduction

Ideal soft tissues render balance in a face and confer beauty. Beauty is the phenomenon of experiencing pleasure through the perception of balance.¹ Facial attractiveness has various essential components including balanced bases, harmonious soft tissues, proportionate skeletal relationship between hard and soft tissues and many others. The re-emergence of the soft tissue paradigm in clinical orthodontics has made smile analysis and designing, key elements in treatment planning. Conclusively, smile is an integral constituent of the facial attractiveness of a person.

Smile is considered the universal friendly greeting in all cultures. A wide attractive smile expedites psychosocial adjustability of the patient in easy the community around. It is expressed as a result of pleasure, emotional agreement, amusement, a friendly gesture and to convey compassion. The importance of physical facial attractiveness in and which the smile plays a major role, has been studied and related to job recruitment initial decisions, impressions, susceptibility to peer acceptance, voting

and juror decisions and social interactions.^{2,3} Gender, age and income among other factors have influenced people's perception of attractiveness of smiles.^{4,5}

Material and Methods

100 subjects were included in this study by random consecutive sampling keeping in mind the inclusion criteria (n =100, 40 males and 60 female patients with excess, normal and insignificant buccal corridors).

Male and female patients of any age group seeking orthodontic treatment for all types of malocclusions with complete permanent dentition with no missing supernumerary tooth (except third molars). or symmetrical arch forms and normal upper lip length (19-22 mm)⁶ were included in the study. Patients with facial asymmetry, temporo-mandibular joint disorders, cleft lip and palate or any other syndrome, orthognathic surgery, active periodontal undergone disease or patients undergoing any surgical procedure, severe malocclusion / cant periodontal of maxillary plane were excluded from the study.

Corresponding Author: Deepak Meena, ijdsir Volume-2 Issue-2, Page No. 135 - 138

Deepanshu Jhunthra, et al. International Journal of Dental Science and Innovative Research (IJDSIR)

Informed written consent was taken from the selected patients who undergo orthodontic were to treatment after taking permission for this study from the ethical committee of the hospital. To control the bias measurement was verified by a colleague. each Lateral cephalograms were taken with patient's Frankfort Horizontal plane parallel to the floor. unstrained lips and teeth in centric occlusion. Radiographs were traced on 8 10inch × standard tracing paper, over a standard translucent acetate illuminated view box with a lead pencil. Ratio between lower anterior facial height to total anterior facial height⁷ were recorded on the patient's data form to establish the vertical skeletal relationship of the patient. This ratio was correlated with the increased or decreased buccal corridor show during posed smile by applying the Pearson correlation coefficient. Data was analyzed on statistical package for social sciences (SPSS version 22). Descriptive statistics were used.



Fig.1 Facial height

Results

Table 1. Buccal corridor area ((in mm on frontal smile)

| Buccal | corridor area | Mean | SD |
|--------|---------------|----------|---------|
| | | 1.782 mm | 0.98 mm |

The buccal corridor area show on frontal smile was measured, the minimum being 0 mm and

maximum being 4.51 mm. The mean buccal corridor area show was 1.782 with standard deviation of 0.98 mm

Table 2. Ratio of lower ant. facial height to total ant.facial height (in degrees)

| Ratio of lower | Mean | SD |
|--------------------|--------------------|----------------|
| ant. facial height | | |
| to total ant. | | |
| facial height | | |
| | 56.34 ⁰ | 3.60° |

The range of ratio of lower anterior facial height to total anterior facial height (in degrees) was 48° to 66° with a mean of 56.34° and standard deviation of 3.60° Table 3. Correlation of buccal corridor area show (in mm on frontal smile) with ratio of lower ant. Facial height to total ant. facial height (in degrees)

| | Buccal corridor area show (in mm on frontal smile) | |
|----------------------|--|---------|
| | Pearson | p-value |
| | correlations | |
| Ratio of lower | -146^{0} | 0.043 |
| ant. Facial height | | |
| to total ant. facial | | |
| height (in | | |
| degrees) | | |
| | | |
| | | |

The correlation of buccal corridor area show (in mm on frontal smile) with ratio of lower anterior facial height to total anterior facial height (in degrees) was negative and statistically significant. The Pearson c orrelation coefficient was -0.146 (P -value < 0.05)

Deepanshu Jhunthra, et al. International Journal of Dental Science and Innovative Research (IJDSIR)

Table 4. Relationship of ratio of lower ant. facial height to total ant. facial height (in degrees) with buccal corridor area show (mm)

| Ratio of | Mean buccal | SD | p-value |
|---------------|----------------|------|---------|
| lower Ant. | corridor area | | |
| facial height | show | | |
| to total ant. | (in mm on | | |
| facial height | frontal smile) | | |
| (in degrees) | | | |
| | | | |
| Lesser than | 2.38 | 0.61 | 0.013 |
| normal | | | |
| Normal | 1.92 | 0.93 | |
| Greater | 1.62 | 1.03 | |
| than normal | | | |

The relationship of ratio of lower anterior facial height to total anterior facial height (in degrees) with buccal corridor area show (mm) was significant (P-value < 0.05). The results show that as ratio of lower anterior facial height to total anterior facial height (in degrees) increases the mean buccal corridor area show decreases.

Discussion

A pre-treatment sample was selected for this study since it exemplified typical orthodontic patients requiring treatment. Since a pre-treatment sample was used, these subjects varied greatly. The variety sample provided a range of smiles and the in dentofacial discrepancies that was ideal in correlating the tissue structures to the resulting smile hard configurations. In this study more female subjects were present as the sample was not collected on the basis of gender.

As already mentioned, minimization of buccal corridor area show during posed smile is an integral component of problem list, treatment planning

goals.⁸ Smile is an important facial feature. and It can be altered tremendously as result of а Many studies have orthodontic treatment. been carried out for the diagnosis and implications of buccal corridor area show during posed smile the factors that increase or decrease it. Every and effort should be made to minimize it.

Three groups were made on the basis of ratios of lower anterior facial height to total anterior facial height. Patients in which lower facial height to total anterior facial height ratio was 54% to 56% were put in normal group, patients having lower facial height to total anterior facial height ratio less than 54% were grouped in decreased LAFH and patients having lower facial height to total anterior facial height ratio more than 56% were grouped as increased LAFH.

For the values of the facial heights our values were less as compared to the values found in the study by Yang 9 that came out to be 46.78° with a standard deviation of 6.17° whereas those found in McNamara's sample slightly raised with a mean value of 59.7° and a were standard deviation of 7.5°. Lower anterior facial height values varied with the amount of buccal corridor area show. But they also found that the vertical skeletal pattern of the lower face contributed to the change in buccal corridor area show where as the upper facial height that also contributes to the over all vertical pattern does not effect this phenome non. One possible reason could be its relationship with the activities of the muscles of the lips which are only present in the lower half of the face. Hence it can be said that a longer face has lesser buccal corridor area show.

To standardize the subjects in normal anterior facial height group only those patients were included in this

Deepanshu Jhunthra, et al. International Journal of Dental Science and Innovative Research (IJDSIR)

group who had the ratio of lower anterior facial height to total anterior facial height within the range given by study on white American male and subjects⁶ as norms of white Americans are female still used as a standard in cephalometric analyses and measurements. As far as distribution of sample according to LAFH is concerned, patients lower anterior with increased facial heights compared to the patients in the other were more as groups. This finding should be considered during treatment planning and deciding about types of mechanics and appliance so that extrusive or intrusive mechanics can be applied for altering the lower anterior facial height if it is in the lower than normal range.

Extrusive mechanics should be done in case of low angle cases, which include mechanics for the eruption of molars. Banding of second molars should be done in case of decreased lower anterior facial height in order to enhance the effects of bite opening mechanics.

Conclusions

There is significant effect of lower anterior facial height on the buccal corridor area show during posed smile increased ratio results in a decreased and buccal corridor area show during posed smile. By correcting lower anterior facial height, buccal corridor area show during posed smile can be brought into the normal range which ultimately results in the improvement of facial profile after orthodontic treatment.

References

- Jahanbin A, Basafa M, Alizadeh Y. Evaluation of the divine proportions in the facial profile of young females. Indian J Dent Res 2008;4:19.
- 2. Jan HU. Restore a wide radiant smile without dental extractions. Pak Oral Dental J

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2005;25:65-8.

- Desai S, Upadhyay M, Nanda R. Dynamic smile analysis: Changes with age. Am J Orthod Dentofacial Orthop 2009; 136:3-10.
- Geron S, Atalia W. Influence of sex on the perception of oral and smile esthetics with different gingival and incisal plane inclination. Angle Orthod. 2005;75:778-84.
- 5. Kerosuo K, Al Enezi S, Kerosuo E, Abdulkarim E. Association between normative and self perceived orthodontic treatment need among Arab high school students. Am J Orthod Dentofacial Orthop. 2004;125:373-78.
- Proffit WR, Sarver DM. Diagnosis: gathering and organizing the appropriate information. In: Proffit WR, White JRP, Sarver DM (edi). Contemporary treatment of dentofacial deformity.1st ed. St Louis: Mosby 2003:127-71
- Isiksal E, Hazar S, Akyalcin S. Smile esthetics: Perception and comparison of treated and untreated smiles. Am J Orthod Dentofacial Orthop 2006;129:8 16
- Moore T, Southard KA, Casko JS, Qian F, Southard TE. Buccal corridors and smile esthetics. Am J Orthod Dentofacial Orthop 2005;127:208-13.
- Yang H-II, Nahm DS, Baek SH. Which hard and soft tissue factors relate with the amount of buccal corridor space during smiling? Angle Orthod 2008;78:5-11