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LIP MORPHOLOGY IN BIMAXILLARY DENTOALVEOLAR PROTRUSION IN CLASS I AND CLASS II ADULTS

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Abstract:

Aim: *The purpose of this study was to compare lip morphology in young adults of Pakistani origin with a bimaxillary dental alveolar protrusion model of class I and class II skeleton.*

Place and Duration: *In the Orthodontics department of Allied Hospital Faisalabad (Dental Section) for one-year duration from March 2019 to March 2020.*

Methods: *100 subjects participated in this cross-sectional comparative study, 50 with a Class I skeleton pattern and the remaining 50 with a Class 2 skeleton pattern. The age of these people ranged from 18-25 years. Sampling included a random selection of subjects. The method consisted of cephalometric analysis of bones, teeth and soft tissues on side cephalograms made in the natural position of the patient's head. A total of 20 variables were used in the study, including 6 skeletal, 3 dental and 11 soft tissue variables. Among the skeletal and tested variables, the sagittal and vertical skeletal analysis showed more or less normal values. However, the variables of the dental analysis determine an increased inclination of the upper and lower incisors and, consequently, a decrease in the angle of the Frankfurt FMIA mandibular incisors.*

Results and Conclusions: *The soft tissue variables showed a full profile with greater vermilion on the upper and lower lips, reduced lip stress, lower lip thickness, and a deficiency in upper and lower lip length. In skeletal II patients, almost all of these variables gave relatively increased readings, but the difference was not statistically significant. The study found that there is no significant difference in the morphology of the lips with a bimaxillary protrusion on the class I and class II skeleton pattern.*

Key words: *bimaxillary protrusion, dento-alveolar protrusion, norms or cephalometric norms*

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INTRODUCTON:

Bimaxillary protruding or full mouth appearance is an ugly state caused by prominent lips, face conveyor and over-spectacle upper and lower lip, resulting from protruding and protruding upper and lower insertion teeth[1-2]. This is usually seen in African-American and Asian populations, but double-peak tooth bloating is dominant among blacks that can be seen in almost all ethnic groups, but also among whites. It's like the decomposition of the face; the importance of the lips is strongly influenced by racial and ethnic characteristics. Whites of Northern European origin often have thin lips, with minimal lip meaning and incisions. Whites in southern Europe and the Middle East are often more lip-like and more willing than their cousins in the north. A higher degree of lip protrusion and incision usually occurs in oriental and black[3-4]. This difference means that only the lip sits in a normal degree and the sharp meaning for many whites will be considered retrusive for many Orientals or blacks. While the normal position of the lip and teeth for blacks would be too protruding for most whites. Protruding dentelle's is observed in three ways in a double-carve of facial vision[5-6]. Excessive disconnection of rested lips (lip failure), executive efforts to put lids on the lips (lip deformation), the protrusion of the lips in the profile should be present in three properties in the diagnosis of tooth tumor and lip bloating[7-8]. Cephalometry provides data for both cross-sectional population studies and longitudinal studies of the same person. On the lateral cephalograms, great variability in the position of the lip can be expected, even if the patient is instructed to comfortably lock the mouth and ears, the mouth is flexible due to the moving tissue. The lip extensions can easily be adjusted to fit the incisions thanks to the wide mobility and can be wider or narrower. A study of racial differences in a cephalometric analysis between Caucasians and Kuwait found that Kuwaitis showed more protruding upper and lower lips and more faces. To determine the impact of retraction of incisors on the profile, several studies were conducted to quantify and predict the relationship between retraction of incisors and lip retraction. Wisth found that the lip response, as a percentage of incisor retraction, decreased as the size of the incisor retraction increased. This seems to indicate that the lips have some inherent support24. Riveiro25, Quintanilla, Chamosa and Cunqueiro conducted a study of the soft tissue profile of the white population of young Europeans in Europe using linear measurements in the natural position of the head, such as the length of the upper / lower lip, upper / lower kidney etc. According to their research, no significant difference was found between the values vermilion of the upper lip and lower lip. Canut in 1996. He introduced aesthetic analysis; He studied the interrelationships of the protuberances of the nose, lips and chin in relation to the Sn-Sm line (aesthetic triad of the face) and the depth of the nasolabial furrow, which he called the aesthetic nasolabial sigma and measured between 2 perpendicular lines to the Frankfort plane through Sn and Ls. The article presents a comparative cross-sectional study conducted on people with bilateral convexity. The purpose of this study was to compare the morphology of the lips in the bimaxillary protrusion on a class I and class II skeleton pattern.

METHODOLOGY:

This cross-sectional comparative study was conducted at the Department of Orthodontics of Allied Hospital Faisalabad (Dental Section) for one-year duration from March 2019 to March 2020. The sample consisted of 100 subjects of age range 18-25 years.

Inclusion criteria

Age range 18-25 years.

Permanent teething.

Patients with class I and CLASS II skeletal models.

Exclusion criteria

Super numerical teeth.

For functional habits such as oral breathing, thumb sucking.

Patients with class III skeletal models.

DATA COLLECTION PROCEDURE

Lateral cephalometric radiographs of the subjects were attained from the Orthosphos plus machine. Each subject was standing in natural head position with relaxed lips and teeth in centric occlusion. The head was positioned in the cephalostat with ear rods. The xray source was placed on the right side of the patient at a distance of 5 feet from the midsagittal plane. The subject film distance was 1 foot. Exposure was made at 90 kvp (kilovoltage) and 12 mAs (milliamperes). Each subject was exposed for 1.2 seconds for each radiograph. Tracing sheets were fixed along the whole length of the left side border of the cephalograms with adhesive tape. The lateral Cephalogram of each subject was traced and measured manually by the same operator on 0.003-inch-thick and 8 by 10-inch size acetate paper with 3H lead pencil. Cephalometric analysis of each test sample was performed on two separate occasions. For the diagnosis, 20 variables, both angular and linear, were selected from the following different methods using multiple baselines to prepare a comprehensive cephalometric analysis. The angular measurement used in the Steiner analysis included sella seeds - point A SNA 80 + 2 degrees, sella seeds - point B SNB is 78+ 2 degrees, annealing point point B ANB 0 + 2 degrees, upper incisor to the SN 102 plane + 2 degrees, Sella seeds to the plane of the mandible, the standard used for SN-MP 32 + 4 degrees. Steiner line (S) (0 + 2 mm). Plane E from Ricketts' analysis crosses the most prominent points at the tip of the nose and chin. It is used to assess the balance of soft tissues between the mouth and the profile. The average distance of the lower lip from the E plane is approximately -2 + 2 mm, and the upper lip is -3 + 2 mm. The angular measurements made from the Tweed triangle were: the angle of the mandibular plane of IMPA incisors (900 + 50), the angle of the Frankfort FMA mandibular plane (250 + 50) and the angle of the Frankfort FMIA 650 + 50 mandibular incisors. and point B to the functional occlusal plane (used as reference plane) and the linear difference between these points was measured. On the face with the right proportions, BO is 1 mm before point A on the male, while both of these projections fall on the same point on the female. Measurements are from Hold away analysis; The average value of the thickness of the upper lip is 15 + 2 mm. upper lip tension 15 mm. Burstone conducted an exhaustive aesthetic analysis of the facial profile. Within the linear parameters, he determined the position of the upper (Ls) and lower (Li) lips in relation to the Sn-Pg line, the length of the nose (measured perpendicular to the palate plane), the length of the upper lip from the foot to the upper ate (SnSto) and the lower lip from the stoma inferior to mentone (StoMe) and interlayer gap (Stack -Stoi), Upper lip length: Sn-Ss, medium 18 + 1.5 mm, lower lip length: SiSm, medium 23 + 1.5 mm, lower lip thickness: medium is 19 + 2mm, upper urethral lip: Ls-Ss, average is 8.5 + 1.5mm, lower urethral lip: Si-Li, average is 10.2 + 1.6mm

DATA ANALYSIS PROCEDURE

The study contains five angular measurements and one linear for skeletal analysis. i.e. SNA, SNB, ANB, Witts value, SNM, FMA, three angular measurements for dental analysis, i.e. The results were analyzed using SPSS 17.0. Descriptive analysis was used to find standards, averages and standard deviations. The mean and the standards were subsequently independent T-tests for significant differences between the mean values.

RESULTS:

The study consisted of 100 (hundreds) defused in two groups. Group 1 consisted of 50 (fifty) experiments with bimaxillary protruding from the Class I skeleton pattern. Group 2 consisted of 50 (fifty) experiments with double bulging dentoalveolar with a Class II skeletal pattern. In the same age range, skeletal analysis, dental analysis and linear measurements of Class I skeletal tissue analysis were compared with linear measurements of skeletal analysis, dental analysis and soft tissue analysis of the Class II skeletal pattern, and the difference was analyzed using t test.

TABLE 1: A COMPARATIVE SKELETAL ANALYSIS OF SUBJECTS WITH CLASS I AND CLASS II SKELETAL PATTERN

Variable name	Mean values	SD	t-value	P-value	Significance
Mean UI to SN (class I skeletal pattern) (degrees Mean UI to SN (class II skeletal pattern) (degrees)	115.12 114.7347	5.50191 5.15904	0.359	0.72	Not Significant
Mean IMPA(class I skeletal pattern) (degrees) Mean IMPA(class II skeletal pattern) (degrees)	102.7 103.4694	3.40018 3.61768	-1.091	0.278	Not Significant
Mean FMIA (class I skeletal pattern) (degrees) Mean FMIA(class II skeletal pattern) (degrees)	55.5 51.8163	5.49304 6.6385	3.011	0.003	Highly Significant

TABLE 2: A COMPARATIVE DENTAL ANALYSIS OF SUBJECTS WITH CLASS I AND CLASS II SKELETAL PATTERN (DEGREES)

Variable name	**Mean values**	**SD**	**t-value**	**P-value**	**Significance**
Mean SNAclass I skeletal pattern) (degrees) Mean SNA(in class II skeletal pattern) (degrees)	82.87 84.7	3.61235 3.59847	-2.538	0.013	Significant
Mean SNB(class I skeletal pattern) (degrees) Mean SNB (class II skeletal pattern) (degrees)	79.67 77.14	3.58228 2.97616	3.841	0	Very Highly Significant
Mean ANB(class I skeletal pattern) (degrees) Mean ANB(class II skeletal pattern) (degrees)	3.2 7.48	1.04978 1.98196	-13.494	0	Very Highly Significant
Mean Witt's value (class I skeletal pattern) (mm) Mean Witt's value (class II skeletal pattern) (mm)	2.6 6.23	1.95615 3.15939	-6.908	0	VeryHighly Significant
Mean SNM (class I skeletal pattern) (degrees) Mean SNM(class II skeletal pattern) (degrees)	31.64 35.02	6.17024 4.82971	-3.05	0.003	Highly Significant
Mean FMA (class I skeletal pattern) (degrees) Mean FMA(class II skeletal pattern (degrees)	25.66 28.58	7.00032 5.5479	-2.312	0.023	Significant

TABLE 3: A COMPARATIVE SOFT TISSUE ANALYSIS OF SUBJECTS WITH CLASS 1 AND CLASS II SKELETAL PATTERN (MM)

Variable name	**Mean values**	**SD**	**t-value**	**P-value**	**Significance**
Mean SNAclass I skeletal pattern) (degrees) Mean SNA(in class II skeletal pattern) (degrees)	82.87 84.7	3.61235 3.59847	-2.538	0.013	Significant
Mean SNB(class I skeletal pattern) (degrees) Mean SNB (class II skeletal pattern) (degrees)	79.67 77.14	3.58228 2.97616	3.841	0	Very Highly Significant
Mean ANB(class I skeletal pattern) (degrees) Mean ANB(class II skeletal pattern) (degrees)	3.2 7.48	1.04978 1.98196	-13.494	0	Very Highly Significant
Mean Witt's value (class I skeletal pattern) (mm) Mean Witt's value (class II skeletal pattern) (mm)	2.6 6.23	1.95615 3.15939	-6.908	0	Very Highly Significant
Mean SNM (class I skeletal pattern) (degrees) Mean SNM(class II skeletal pattern) (degrees)	31.64 35.02	6.17024 4.82971	-3.05	0.003	Highly Significant
Mean FMA (class I skeletal pattern) (degrees) Mean FMA(class II skeletal pattern (degrees)	25.66 28.58	7.00032 5.5479	-2.312	0.023	Significant

P value test below 0.05, P.01 was considered very significant and P.001 statistically significant. The average SNA for those with Class I skeletal models was 82,870 (SD 3,612), average SNB 79,670 (SD 3,582), average ANB 3,200 (SD 1.049) Average distance A-BO 2600 (SD 1 956), average 31 640 SNM (SD 6.170), i.e. 25.660 (SD 7.000) shown in table FMA 1. For dental analysis, the average SN user interface is shown in Table 2 115 120 (SD 5 501), average impA 102 700 (SD 3 400), fmia on average 55 500 (SD 5 493). Similarly, linear measurements for soft tissue analysis of class I patients, Middle lip e line0.9300 (SD3.067), middle upper lip line E -1620 (SD 2594), middle upper lip line S 1350 (SD 2.343), the lower lip line S 2600 (S9.9D) was , the average upper lip length was 2 1260 (SD 2 238), the mean thickness of the upper lip 15 320 (SD 2 084) , mean upper lip voltage 11 120 (SD 2228) The mid-floor lip was 16,180 (SD 2,876), the mean lip thickness was 16,18012,380 (SD 1,523), the upper vermilion average was 10,520 (SD 1,693), and the average lower vermilion was 11,780 (SD 1,798), as shown in Table 3.

DISCUSSION:

The material of this study consisted of 100 side cephalograms. In the study example, a skeletal class I scheme and 50 patients were a skeletal class II scheme. The average age of the whole sample was 18-25 years. The study was based on cephalometric X-rays[10-11]. The purpose of cephalometry is to interpret the geometric expression of the anatomy of the skull. Among the four variables of skeletal fibula analysis, the results of other researchers, such as Fujita and Rirove and Riro, showed three statistically significant elements (P value 0.000) among the maximum top base angle (SNB), the maxillary base of the base angle aktica (ANB) and the Witt value (AO-BO distance). In the vertical analysis, the values of the frankfort mandibular plane angle (FMA) (P 0.023) and the mandibular plane (SNM) (P value 0.003) were statistically significant, these results confirmed proffit5 and Ming findings. Explaining the individual elements of vertical analysis between this example, the sn-mand plane angle was roughly standard in the frame structure and class (Average 31.6400, SD 6.17024), while the optimal angle for the skeletal formula of Class II was visible (Average 35.02, SD 4.82). Based on the result, it can also be concluded that there is no significant difference between the Class I backbone pattern and the Class II backbone pattern[12]. There was no statistically significant difference between 11 variable soft tissue analyses and seven variables, i.e. 10 000 variables. upper lip length (P value 0.784), upper lip thickness (p value 0.104), upper lip tension (p value 0.572), lower lip length (P value 0.104), Value P 0.269), lower lip thickness (P value 0.268), upper vermilion lip (P value 0.102) and lower millennial lip (P value 0.602). These results were found among the lower lip values of Burstone13, Riveiro25, Wisth24 and Ming29 statistically, a very significant difference (P value 0.000) aesthetic line, upper lip e-line, upper lip to Steiner line, lower lip to Line S (P - value 0.001) similar to Keating's findings[13-14]. The mean values of the lips above line E were slightly higher in the Stage II skeleton model of the upper lip of the S line and the lower lip of the S-line, but the difference was statistically significant. These results in all three analyses contradict the hypothesis that there is a difference in lip morphology in patients with a two-pin protrusion in the skeletal structure of Class I and II[15].

CONCLUSION:

According to the results, it can be concluded that there is no significant difference in lip morphology in patients with bimaxillary dento-alveolar protruding into Class I and Class II skeletal patterns.

REFERENCES:

1. Yao, Chung-Chen Jane, Eddie Hsiang-Hua Lai, Jenny Zwei-Chieng Chang, I. Chen, and Yi-Jane Chen. "Comparison of treatment outcomes between skeletal anchorage and extraoral anchorage in adults with maxillary dentoalveolar protrusion." *American Journal of Orthodontics and Dentofacial Orthopedics* 134, no. 5 (2008): 615-624.
2. Ijaz, Abida, Amna Sheikh, and Junaid Israr. "LIP MORPHOLOGY: A FACTOR LEADING TO BIMAXILLARY DENTOALVEOLAR PROTRUSION." *Pakistan Oral & Dental Journal* 31, no. 2 (2011).
3. Yasutomi, Hiroko, Hideki Ioi, Shunsuke Nakata, Akihiko Nakasima, and Amy L. Counts. "Effects of retraction of anterior teeth on horizontal and vertical lip positions in Japanese adults with the bimaxillary dentoalveolar protrusion." *orthodontic waves* 65, no. 4 (2006): 141-147.
4. Bills, Daniel A., Chester S. Handelman, and Ellen A. BeGole. "Bimaxillary dentoalveolar protrusion: traits and orthodontic correction." *The Angle Orthodontist* 75, no. 3 (2005): 333-339.
5. Rahpeyma, Amin, and Saeedeh Khajehahmadi. "Effects of bimax and segmental surgeries for correction of bimaxillary dentoalveolar protrusion class I on soft tissue parameters: upper lip thickness and curvature, nasolabial angle and nasal prominence." *The Journal of Contemporary Dental Practice* 14, no. 6 (2013): 1087.
6. Park, Jae Hyun, Sungkon Kim, Yoon-Jin Lee, Mohamed Bayome, Yoon-Ah Kook, Mihee Hong, and Yoonji Kim. "Three-dimensional evaluation of maxillary dentoalveolar changes and airway space after distalization in adults." *The Angle Orthodontist* 88, no. 2 (2018): 187-194.
7. Trisnawaty, Nety, Hideki Ioi, Toru Kitahara, Akira Suzuki, and Ichiro Takahashi. "Effects of extraction of four premolars on vermilion height and lip area in patients with bimaxillary protrusion." *The European Journal of Orthodontics* 35, no. 4 (2013): 521-528.
8. Uribe, Lina M. Moreno, Sara C. Howe, Colleen Kummet, Kaci C. Vela, Deborah V. Dawson, and Thomas E. Southard. "Phenotypic diversity in white adults with

moderate to severe Class II malocclusion." *American Journal of Orthodontics and Dentofacial Orthopedics* 145, no. 3 (2014): 305-316.

9. Ahn, Hyo-Won, Ye-Jin Chang, Kyung-A. Kim, Sang-Hwan Joo, Young-Guk Park, and Ki-Ho Park. "Measurement of three-dimensional perioral soft tissue changes in dentoalveolar protrusion patients after orthodontic treatment using a structured light scanner." *The Angle Orthodontist* 84, no. 5 (2014): 795-802.

10. Solem, R. Christian, Richard Marasco, Luis Guiterrez-Pulido, Ib Nielsen, Seong-Hun Kim, and Gerald Nelson. "Three-dimensional soft-tissue and hard-tissue changes in the treatment of bimaxillary protrusion." *American Journal of Orthodontics and Dentofacial Orthopedics* 144, no. 2 (2013): 218-228.

11. Aldrees, Abdullah M., and Manal A. Shamlan. "Morphological features of bimaxillary protrusion in Saudis." *Saudi Med J* 31, no. 5 (2010): 512-9.

12. Jamilian, Abdolreza, Dariush Gholami, Mitra Toliat, and Shima Safaeian. "Changes in facial profile during orthodontic treatment with extraction of four first premolars." *orthodontic waves* 67, no. 4 (2008): 157-161.

13. Ayaz, Mohd, and Om Prakash Kharbanda. "Successful treatment of Class II malocclusion with bidental protrusion using standard edgewise prescription." *Contemporary Clinical Dentistry* 7, no. 1 (2016): 75.

14. Jang, So-Jeong, Bong-Kuen Cha, Peter Ngan, Dong-Soon Choi, Suk-Keun Lee, and Insan Jang. "Relationship between the lingual frenulum and craniofacial morphology in adults." *American Journal of Orthodontics and Dentofacial Orthopedics* 139, no. 4 (2011): e361-e367.

15. Bhatia, S., B. Jayan, and S. S. Chopra. "Effect of retraction of anterior teeth on pharyngeal airway and hyoid bone position in Class I bimaxillary dentoalveolar protrusion." *Medical Journal Armed Forces India* 72 (2016): S17-S23.