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MORPHOLOGICAL FEATURES OF THE FACE-JAW IN HUMANS WITH COMPLETE AND PARTIAL ADENTIA

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ABSTRACT

Patients, depending on the total indicator of the diagonal dimensions of the face, are divided into mesodiagonal, microdiagonal, and macrodiagonal types. It has been established that the linear cephalometric parameters and dimensional values of the alveolar arches in people with complete loss of teeth and a macrodiagonal type of face are statistically significantly higher than similar linear parameters in patients with meso- and microdiagonal types. In contrast, the difference between the index values in these patients is statistically unreliable.

KEYWORDS: paradontitis, partial absence of teeth, pre-prosthetic preparation

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INTRODUCTION

One of the primary methods for assessing tooth-jaw variability is based on the calculation of morphological indicator data, which determines whether the dimensions of the teeth correspond to the indicators of the tooth-jaw. Therefore, the purpose is to identify and study the specifics of the topographic structure of anatomical derivatives in the face-jaw using biometric studies before orthopedic, orthodontic treatment of patients with dental - jaw-pathology [2.4.6.8].

Complete or partial tooth loss is considered a complex, unstoppable condition and is defined as" the final marker of disease rates for oral health " [1.3.5.7.9].

When the teeth are lost, several changes occur in the tooth-jaw system. Teeth that have lost their antagonists and the bone surrounding them slide toward antagonists that do not exist in the opposite jaw.

Restoration of occlusion-articulation relations balance at the time of artificial tooth picking over the toothless alveolar tumor is considered a priority of orthopedic dentistry, with the functional properties of the temporomandibular joint, The Shape of the chewing surface of the extracted artificial teeth, and the height of the desired tooth mound should correspond to the trajectory of the movement of the lower jawbone Achieving optimal neuromuscular balance in the face-jaw as well as aspects of the mutual biomechanical interaction of prostheses with the tissues of the prosthesis position, smooth pressure of the prosthetic base on the supporting tissues of the multi-point occlusion contacts and alveolar tumor is facilitated [10.12.14.16.18.20.22.24].

The purpose of the study. Complete and partial adentia is a study of the specifics of morphological changes of the facial jaw in humans.

MATERIAL AND METHODS

A morphometric study of 52 elderly and old age patients (18 men, 34 women; average age - 72.1±3.2 years) with incomplete facial structure of teeth was carried out.

Points "tragion" (t) and "subnasale" (sn) were used as targets on the face, with facial widths (t-t) and diagonals (t-SN) assessed on both sides. With the ratio of the width of the face to the total size of the diagonals, the gnatic index of the face was determined, which was 0.55 - 0.61 in the mesognatic type.

The sum of Diagonal dimensions of 242 mm-262mm determined that the face belongs to the "mesodiagonal" type, with an increase or decrease in value defining the "macrodiagonal" or "microdiagonal" type of face and laying the foundation for the distribution of the studied groups: 24 patients with Group 1 - mesodiagonal type, 12 people with Group 2-macrodiagonal type and 16 patients with Group 3 - microdiagonal type. In the biometry of jawgips models, measurements were carried out between fixed points.

The central point of the upper alveolar arc corresponded to the position of the anterior point of the alveolar tumor in the area of the incision sucker. The upper lip groove and the middle palate seam line served as a highlight. Identifying the central cutting point (in) did not cause difficulty. To determine the location of molar Points (m), a personal method based on the diagonal dimensions of the face and the reciprocal size of the alveolar arcs was proposed.

Clinical and laboratory materials were processed statistically using the statistical set of practical applications "Stat Soft Statistica V7.0".

RESULTS AND DISCUSSION

Results of quantitative distribution of somatotypes (L. Rees-H. J. Eisenk index) shows that picnic Constitutions were specific to 5 males (24.0%) and 4 females(12.8%), normosthenic constitutions - specific to 13 males (56.0%) and 12 females (33.3%), asthenic constitutions - specific to 4 males and 14 females (20.0 and 53.9%, respectively).

The results of the morphometric study of the facial jaw in the studied groups are presented in Table 1.

Table 1.

The leading indicators of the facial jaw (m±m)in humans with mesognathic facial type in complete adentia

Indicators studied on the face-jaw, units of measurement	Diagonal facial types		
	meso-diagonal	macro-diagonal	micro-diagonal
Sum of face diagonals (t-sn), mm	253,22±2,87	274,0±3,62*	232,0±4,12*
Face width (t-t), mm	149,89±2,41	155,02±3,08*	138,04±2,97*
Gnatic facial index, scores	0,59±0,01	0,57±0,02*	0,59±0,02*
Sum of diagonals of high alveolar arcs (in-m), mm	106,57±3,24	117,27±3,72*	99,94±3,65*
High alveolar arc width (m-m), mm	51,18±2,14	54,11±2,53*	50,54±2,71*
High alveolar arc index, scores	0,48±0,02	0,46±0,03*	0,51±0,02*
High alveolar arc depth (in-m'), mm	43,41±2,05	46,32±1,92*	39,68±1,16*
Sum of lower alveolar arc diagonals (in-m), mm	92,42±3,02	101,48±3,15*	87,24±2,98*
Lower alveolar eyeball width (mm), mm	56,01±2,64	61,75±2,47*	52,49±2,28*
Lower alveolar arc index, scores	0,61±0,009	0,61±0,01*	0,60±0,02*
Bottom alveolar arc depth (in-m'), mm	35,53±2,19	39,45±1,89*	33,46±1,78*

In the mesodiagonal type, the mean of total facial diagonal size (t - SN) was 253.22±2.87 mm, while in people with macro-and microdiagonal facial type, statistically reliable was large (274.0±3.62 mm) or small (232.0±4.12 mm), respectively. The largest transverse dimensions of the face were recorded in people of the second group (155.02±3.08 mm), and the smallest - in patients of the third group (138.04±2.97 mm), when the indicators in the mesognatic mesodiagonal face type were 149.89±2.41 mm.

Determined by the dimensions of the alveolar arcs, the sum of diagonals (in-M) in the first group of patients was 106.57±3.24 mm. Reflecting the macrodiagonal type of face, the total value indicators of the diagonal of the alveolar arcs (117.27±3.72 mm) were reliably higher than similar values in humans with the microdiagonal face type, at 99.94±3.65 mm.
The diversity of the upper jaw-alveolar arc index (0.46±0.03 - 0.51±0.02) was determined by calculations of statistically significant elevation above the variety of the lower alveolar arc index in all meso-, macro - and microdiagonal face indicators. The data obtained can be used to structure samples of alveolar arcs, determine the main morphometric targets in toothless jawmodels when installing models on articulators, determine the dimensions of artificial tooth arcs at the stages of constructing dental arches in the prosthetic treatment of patients with numerous or complete adentia.

The results of the processing of temporomandibular joint data in humans with complete adentia showed a difference with their indicators in humans, where physiological bites of the same type of face were detected. Thus, in humans classified as Group 1, the joint pit index averaged 2.0±0.1, the module of the joint pit - 26.18±1.2 mm, and the joint head - 9.51±1.18 mm. The morphological peculiarity of the temporomandibular joint is incongruence due to the size of the articular cavity of the chakra bone from the indicators of the articular head of the lower jaw. The following factors carry out the equalization of incongruence in the temporomandibular joint.

The first is an articular disc with two distinct botities located between the articular surfaces that forms a groove with the lower surface, corresponding in size to the articular head, in which the fissure petrotympanica fossa mandibularis, which crosses the lower jaw transversely, divides it into an intracapsular part lying in the chpjb cavity as well as an extracapsular part.

The second is the contraction of the articular cavity at the front of the fissure petrotympanica at the expense of articular capsule attachment within the fossa mandibularis. Chpjb incongruence results in abnormal attachment element interactions, fossa mandibularis, and caput mandibulae interactions depending on the chewing muscle position and the attachment character of the tooth rows.

In people with a mesodiagonal face type, the mathematically defined percentage ratio of the articular head module to the articular groove was 35.94±2.16%, with a temporomandibular joint incongruence index of 64.18±2.13%, as evidenced by a significant change in The Shape of bone elements (fossa mandibularis, caput mandibulae) when the teeth were lost entirely. It is also necessary to note the decrease and expression of the caput mandibulae deviation height, the distal shift of the peak with a middle or front position in the norm, and the reduction and extension of the height of the processus coronoideus. In the macrodiagonal facial and alveolar arcs, the index of the joint groove was statistically more reliably extensive (2.58±0.04) than in people with mesodiagonal face type and the microdiagonal type - small (1.39±0.03).

In doing so, the value of the incongruence index was highly conserved, accounting for 71.24±2.33% for second-group patients and 66.17±1.98% for third-group patients. When the data obtained was systematized, it was found that irreversible morphological changes occur in the appearance of an increase in the size of the sagittal joint grooves in the bone elements of the temporomandibular joint in patients with complete loss of teeth, which should be taken into account at the stage of artificial tooth arch formation in the prosthetic treatment of patients of this category.

Also, great attention was paid to the alveolar tumor in the upper jaw and changes in the colon of the lower jaw when the teeth were lost. The data obtained is necessary for the anatomical justification of restoring the integrity of the tooth rows using modern methods of Implantology.

Table 2

Comparative description of morphometric indicators of alveolar tumors

Indicators studied at different levels		Statistical indicators X±TX, mm	
Score	Degree	IT	TTMB
Height of the alveolar tumor in the upper jaw	the lateral part of the pear-shaped groove	16,1±0,4	12,4±1,1*
	under-eye cup groove	14,0±0,4	7,1±0,9*

	upper jaw-cheek chock	13,8±0,6	7,0±0,9*
The colon of the lower part of the alveolar tumor in the upper jaw	the lateral part of the pear-shaped groove	8,2±0,1	5,5±0,4*
	under-eye cup groove	9,2±0,1	6,6±0,5*
	upper jaw-cheek chock	12,1±0,4	9,8±1,0*
Maximum Colon of the upper jaworveolar tumor	the lateral part of the pear-shaped groove	11,2±0,3	6,8±0,9*
	under-eye cup groove	12,8±0,3	8,4±1,Г
	upper jaw-cheek chock	14,9±0,3	9,8±1,3*

Note: * - statistically significant differences between it and TTMB groups r<0.05); (group of patients with an IT-intact bite; TTMB-group of patients where teeth are not fully present)

As a result of the research, we noted that all the morphometric indicators studied in the upper jaworveolar tumor change significantly when the teeth are lost. Thus, when the teeth are not fully present, a reliable decrease in their height occurs at different levels: the lateral part of the pear-shaped groove, the eye Bowl groove, and the upper jaw at the level of the cheekbones.

In this case, the most significant values of the height of the upper jaworveolar tumor in the case of complete loss of teeth were observed in the area of lateral incisors and pile teeth (at the level of the lateral part of the pear - shaped groove) - 12.4±1.2 mm, the smallest values-in the area of molars (at the In a group of patients where teeth were not fully present, the average values of this indicator were 8.8±0.7 mm.

When the teeth were lost, the change in the mean values of the upper jaworveolar tumor Colon did not matter. If the average values of the alveolar tumor lower colon in a group of patients with complete set of teeth were 8.8±0.3 mm, and the value of its maximum colon - 12.9±0.3 mm, then in a group of patients with incomplete teeth, the value of these indicators decreased to 7.3±0.6 mm and 8.3±0.7 mm, respectively.

We noted that the greatest changes in the height of the upper jaworveolar tumor when teeth are lost were observed in the area of premolars and molars. In the group of patients with intact teeth, the values of this indicator were 14.0±0.4 mm at the level of the underarm of the eye bowl and 13.8±0.6 mm at the level of the upper jaw-cheek suture. In a group of patients where teeth are not fully present, a significant reduction of them was observed to 7.1 ±0.9 mm and 7.0±0.9 mm,

respectively. At the same time, changes in this indicator at the level of the peg teeth and lateral incisors (at the level of the lateral part of the pear-shaped groove) are not significant (Table 1).

Focusing on the gender and type-related peculiarities of the upper jaw, we have identified the body-dependent differences in indicators that characterize the height and colon of the alveolar tumor at different levels of the upper jaw [11.13.15.17.19.21.23.24].

CONCLUSION

In this case, in the male group, their value in the skull is statistically more significant than in the female group than in the skull (t>2). V.N. Trezubova and hammual. According to (2002), it is of particular importance that the height of the lower jaw decreases in the area of the molars precisely when the teeth are lost since they protect the joint from the side. When the side protection is lost, the entire strength of muscle contractions moves to the front teeth and the temporomandibular joint, thereby causing their tension, ultimately leading to chpjb dysfunction. A study of the analysis of lower jawmorphometric characteristics, which we carried out, showed that changes in the height of the body and molars were more significant when teeth were lost.

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