

# ALGORITHM FOR THE DIAGNOSIS AND TREATMENT OF UPPER MICROGNATHIA TAKING INTO ACCOUNT MORPHOFUNCTIONAL CHANGES IN THE MIDDLE ZONE OF THE FACE

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**Abstract:** *under our supervision in the Department of Oral and Maxillofacial Surgery from 2010 to 2020. there were 12 patients with upper micrognathia and 75 patients in combination with upper micrognathia and lower macrognathia. The main complaints of patients were: a violation of the aesthetic proportions of the face, associated with the retraction of the middle zone of the face, the protrusion of the chin of the lower jaw forward, malocclusion, diction, difficulty biting and chewing food. In addition, 48 patients noted varying degrees of difficulty in nasal breathing. Thus, an analysis of the results of a comprehensive examination of adult patients with upper micrognathia showed that violation of nasal breathing and inflammation of the sinuses are most characteristic of patients with a narrow and high nose and a long face type (55.17%), and comprehensive treatment should be planned with taking into account these changes and the participation of an otorhinolaryngologist.*

**Keywords:** *upper micrognathia, midface, complex treatment.*

## АЛГОРИТМ ДИАГНОСТИКИ И ЛЕЧЕНИЯ ВЕРХНЕЙ МИКРОГНАТИИ С УЧЕТОМ МОРФОФУНКЦИОНАЛЬНЫХ ИЗМЕНЕНИЙ СРЕДНЕЙ ЗОНЫ ЛИЦА

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**Аннотация:** *под нашим наблюдением в отделении челюстно-лицевой хирургии с 2010 до 2020 гг. находились 12 больных с верхней микрогнатией и 75 больных в сочетании верхней микрогнатии с нижней макрогнатией. Основными жалобами больных были: нарушение эстетических пропорций лица, связанное с западением средней зоны лица, выступанием подбородочного отдела нижней челюсти вперед, нарушение прикуса, дикции, затрудненное откусывание и пережевывание пищи. Кроме того, 48 больных отмечали различной степени затруднение носового дыхания. Таким образом анализа результатов комплексного обследования взрослых больных с верхней микрогнатией показала, что нарушение носового дыхания и воспалительные явления придаточных пазух являются наиболее характерными для больных с узкой и высокой формой носа и длинным типом лица (55,17%) и планирование комплексного лечения нужно проводить с учетом этих изменений и участием оториноларинголога.*

**Ключевые слова:** *верхняя микрогнатия, средняя зона лица, комплексное лечение.*

UDC: 616.716.8-007.21(616-056.44-071.2)

**Relevance.** Currently, for the surgical correction of upper micrognathia with impaired nasal breathing, various modified variants of the upper jaw osteotomy are used according to V.M. Bezrukov [1].

These include upper micrognathia, which is often combined with lower macrognathia and is accompanied by malocclusion in various planes and aesthetic facial imperfections. In addition, in some patients, changes in the size of the upper jaw are accompanied by difficulty in nasal breathing, chronic rhinitis, inflammation of the paranasal sinuses and other pathological changes in the nasopharynx and oropharynx [3].

Such pathological changes in the maxillary complex are accompanied by general changes in the body, such as apnea, snoring during sleep, enuresis, increased blood pressure and psychosomatic disorders [2, 4].

And therefore, the aim of our study was to study the rhinomaxelar complex of its anatomical and functional changes in adult patients with upper micrognathia.

To achieve this goal, we studied the features of aesthetic changes in the external nose and its anatomical and functional state in adult patients with upper micrognathia.

**Material and research methods.** Under our supervision in the Department of Oral and Maxillofacial Surgery, City Clinical Hospital No. 7 of Tashkent from 2010 to 2020. there were 12 patients with upper

micrognathia and 75 patients in combination with upper micrognathia and lower macrognathia. Among them, 41 men and 46 women, aged 17 to 36 years (average age 25.3±3.7).

Examination of patients was carried out according to a specially developed scheme, which included:

Clinical and laboratory studies, anthropometry of the face, the inconsistency of the dental arches in the sagittal, vertical and other parameters, x-ray studies according to the program developed by the Central Research Institute of Dentistry, rhinopneumometry, specialist advice.

**Research results.** The main complaints of patients were: a violation of the aesthetic proportions of the face, associated with the retraction of the middle zone of the face, the protrusion of the chin of the lower jaw forward, malocclusion, diction, difficulty biting and chewing food. In addition, 48 patients noted varying degrees of difficulty in nasal breathing. Of these, 42 patients in childhood underwent (ENT) surgery to improve nasal breathing. However, only 23 patients noted the effectiveness of these operations.

According to the anthropometric indicator, the patients were divided into three groups; 12 patients with medium-concave, 41 patients with elongated-concave and 34 patients with a very long and concave type of face.

Anthropometric indicators of patients with upper micrognathia and lower macrognathia M + m. The results of anthropometric measurements showed (table 1) that a fairly wide and low nose shape, a relatively shallow nasolabial angle were observed in patients with a medium-concave type of face. Moreover, in this form of deformation, the proportionality of the vertical sizes of the middle and lower zones of the face and the mismatch of the dental arches of the jaws were noted mainly along the sagittal plane to 8.25±0.76 mm.

High, rather narrow nose shape and deep nasolabial angle are patients with elongated-concave type of face with upper micrognathia and lower macrognathia. Moreover, in this group of patients there is a disproportionate increase in the lower zone of the face vertically and a predominant discrepancy between the jaws along the sagittal (9.2±0.63 mm) and vertical (3.0 ± 0.16 mm) planes.

Table 1. The results of anthropometric measurements

Index	Face type		
	Mid concave n-12	Long concave type n-41	Extra long concave n-34
n-sn	59.5±1.7mm	62.9±2.8mm	67.1±2.9 mm
Sn-gn	65.0±1.7mm	80.8±3.2mm	82.8±4.2 mm
Aln-aln	32.34 mm	25.6±3.5 <sup>0</sup> mm	20.4±4.8 mm
<prn-sn-ls	71.5±2.45 <sup>0</sup>	66.7±1.80 <sup>0</sup>	60.2±0.43 <sup>0</sup>
<n-sn-pg	183.8±3.34 <sup>0</sup>	193±0.63 <sup>0</sup>	190±0.31 <sup>0</sup>
Facial index	88.05±0.56	107.5±1.5	110±0.5
Bite	progenic	progenic	progenic
Sagittal fissure	8.25±0.76mm	9.2±0.63mm	13.8±0.52mm
Vertical gap	-	3.0±0.16mm	3.0±0.23mm
Transversal gap	-	-	-

A very tall, narrow nose with a characteristic hump on the back, an even deeper nasolabial angle are found in patients with a very long and concave type of face. Upper micrognathia is combined with lower macrognathia and macrogenia. However, unlike the other groups, in this group of patients there is a disproportionate increase in the vertical dimensions of the middle and lower zones of the face and an excessive discrepancy between the dental arches of the jaws along the sagittal (13.8±0.52 mm) and the vertical (3.0±0.23 mm )

The results of tele-radiological studies in the face and profile showed that in all patients characteristic cephalometric changes characteristic of upper micrognathia and lower macrognathia were found.

Table 2. Cephalometric and rhinopneumometric indicators of patients with upper micrognathia (lower macrognathia), M + m

Index	Face type		
	mid concave face type n-12	elongated concave face type n-41	very long concave face type n-34
SN	75.5±4.1	65.6±3.7	70.5±2.97
N-SN	60.0±3.4	60.3±3.2	67.1±2.9
SN-GN	67.8±3.3	77.8±3.2	82.1±3.8
SNA-SNP	55.5±0.9	55.2±2.6	51.5±2.3
SN-SNP	51.0±0.99	47.7±1.8	44.3±2.1
MT1	100.5±2.67	98.3±7.5	96.9±5.9
MT2	60.2±1.84	64.1±6.1	62.1±3.8
MX-MX	56.5±2.6	52.9±2.4	53.5±4.2

MP-MP	40.4±0.12	32.9±2.5	33.6±2.04
<SNA	77.6±0.48	76.8±0.3	76.9±0.19
<SNB	82.3±0.33	83.5±0.27	83.9±0.21
<ANB	- 4.88±0.69	-8.73±0.59	-7.62 + 0.37
<GO	130.2±0.68	140.1±1.36	137.7±0.62
The volume of the pear-shaped hole, mm <sup>2</sup>	201.3±3.0	191.4±3.06	177.4±2.6
Rhinopneumometry	5.91±0.48mm. Column water	7.80±0.36 mm water column	15.3±0.46 mm. water column

In patients with a medium-concave type of face, on direct teleentgenograms and zonograms of the middle zone of the face, the width of the pear-shaped opening was within 40.4±0.12 mm, its area was 201.33±2.5 mm<sup>2</sup> without signs of pathology. Rhinopneumometry showed normal air passage through the nasal passages (5.91±0.48 mm. Column water).

Patients with type elongate concave faces on straight and telerecentgenogrammah zonogrammah midface noted symmetrical reduction in transversal dimensions of the upper jaw to 52.9±2.4 mm, reducing the transverse dimension of the pear-shaped openings 32, 0±2,5 mm and its area up to 191.4±3.06 mm<sup>2</sup>. In 11 patients, hyperplasia of the lower nasal concha was observed and changes characteristic of inflammation of the maxillary sinus on the side of the curved nasal septum. Rhinopneumometry showed a slight difficulty in the passage of air through the nasal passages (7.80±0.36 mm. Water column).

In patients with a very long and concave type of face, there was a decrease in the transversal sizes of the upper jaw to 53.5±4.2 mm in the direct tele-roentgenograms and zonograms of the middle zone of the face, a decrease in the transverse size of the pear-shaped opening and its volume to 33.6±2, respectively. 4 and 177.4±2.6 mm<sup>2</sup>. Unlike other types, they revealed a narrow pear-shaped opening, swelling of the ethmoidal labyrinths, hyperplasia of the lower nasal concha and curvature of the nasal septum. In addition, when radiography of SNPs in a semi-axial projection in all patients of this group observed pathological changes characteristic of inflammation of his maxillary sinus on one (26) or two (8) sides. Rhinopneumometry showed an excessive difficulty in passing air through the nasal passages (15.3±0.46 mm. Water column).

**Conclusion** Thus, an analysis of the results of a comprehensive examination of adult patients with upper micrognathia showed that nasal breathing and inflammation of the sinuses are most characteristic of patients with a narrow and high nose and a long face type (55.17%), and comprehensive treatment should be planned with taking into account these changes and the participation of an otorhinolaryngology's.

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