

## TREATMENT OF DISTAL OCCLUSION IN ADULT PATIENTS WITH DISTAL OCCLUSION, DEPENDING ON THE STRUCTURE OF TEMPORAL-MANDIBULAR JOINTS

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In order to improve the effectiveness of the treatment of adult patients with distal occlusion surveyed maxillofacial region in 227 patients aged 20 to 55 years with the use of clinical, laboratory, X-ray and graphic methods of research. Studies have identified three options for the structure of temporal-mandibular joint, there are two degrees of displacement head lower jaw joint, a criterion for selection of integrated treatment of adult patients with distal occlusion.

**Key words:** temporal-mandibular joint, distal occlusion

### Relevance of the study

Tooth-jaw anomalies and deformities found among people of different ages. In doing so, they compounded the facial skeletal deformities, disrupting the aesthetic proportions. In most cases, tooth-jaw anomalies and distortions presented to the distal occlusion, accompanied by a pathology of temporomandibular mandibular joints and masticatory muscles [1, 3, 7, 8, 9, 10].

### Purpose of the study

To improve the effectiveness of the treatment of adult patients with distal occlusion, depending on the structure and topography of temporal-mandibular joints.

### Material and methods

A survey of 227 patients aged 20 to 55 years in the orthodontic and orthopedic treatment for the treatment of distal occlusion. In 180 patients with distal occlusion of combined defects of tooth rows. The distribution of patients into groups was carried out depending on the version of the structure of temporal-mandibular joint. The first group consisted of patients whose head is the lower jaw more mandibular pit ( $n = 72$ ). The second group included patients whose parameters are consistent with the head lower jaw mandibular pit parameters ( $n = 94$ ). The third group were included patients whose head is less than the lower jaw mandibular pit ( $n = 47$ ). Diagnosis, planning and determination of the rational method of treatment is based on the results of the clinical laboratory, X-ray and graphic methods for the study. The degree of muscular-articular dysfunction de-

finied clinical dysfunction index M. Helkimo on its own scheme. The study of functional occlusion performed with the use of polureguliruemogo articulator of Bio-Art Equipamentos Odontologicos Ltda (Brazil), model 4000 with a professional front arc. A methodology NH Khamitova defined index okklyuzogrammy. Anatomic-topographic structure of temporal-mandibular joint was evaluated by means of lateral tomography carried out on a universal X-ray installation "Orthophos 3" firm "Siemens". Investigation of mandibular function temporomandibular joints, masticatory muscles and occlusal identifying violations carried out by means of funktsiografii M. Kleinrok - VA Hvatovoy based on vnutrirotovoy recording lower jaw movements using funktsiografa. Data obtained from research, process variation-statistical method for the IBM PC / AT «Pentium-IV» on Windows 2000 using the software package Statistica 6 (Statsoft-Russia, 1999) and Microsofr Exsel Windows, 2000. The criterion of reliability of differences evaluated by the Student table.

### Results of the study and discussion

The study found that across the width of mandibular hole course there are three versions of its forms: 1 - narrow ( $11,55 \pm 0,17$  mm), 2 - average width ( $14,15 \pm 0,05$  mm) and 3 - extensive ( $15,88 \pm 0,07$  mm). At a depth of mandibular hole course have been allocated 1 - small ( $6,74 \pm 0,08$  mm), 2 - the average depth ( $10,43 \pm 0,08$  mm) and 3 - deep ( $12,85 \pm 0,11$  mm). Depending on the height of articular tubercles are: 1 - flat ( $6,74$

$\pm 0,08$  mm), 2 - Moderate ( $10,43 \pm 0,08$  mm) and 3 - well-expressed ( $12,85 \pm 0,11$  mm) tubercles. According to the width of the head lower jaw were identified: 1 - small ( $7,45 \pm 0,06$  mm), 2 - average width ( $9,37 \pm 0,06$  mm) and 3 - large ( $11,65 \pm 0,13$  mm). Clinical and laboratory methods of examination of patients revealed various violations of the masticatory muscles and temporomandibular mandibular joints: the limitation of opening the mouth, limiting the lateral movements of the lower jaw, with the restriction of the lower jaw protrusion, asymmetry of movements in the lower jaw, mouth opening, pain in the temporomandibular joint during mandibular movements of the lower jaw, pain in the masticatory muscles in the lower jaw movements, pain with palpation temporomandibular mandibular joint, pain with palpation chewing muscles, the asymmetry of those pathological articular noise. The symptoms of muscular-articular dysfunction identified in 97.3% of patients the first group. Patients two and three groups of these symptoms less frequently in 10.1% and 17.0% respectively. Patients first group of signs of moderate and severe degree of muscular-articular dysfunction found in 43.1% and 23.6% of cases, respectively. The subjects' second and third groups of symptoms of moderate and severe degree of dysfunction are identified less frequently (at 4.9%, and 15, 2% and 10.8% and 13.8% respectively). Premature occlusal contacts identified in the study groups with almost equal frequency (the first group - in 83.4%, the second - in 82.9%, the third - to 80.3%). In the lower jaw movement laterotruzionnom «Klykov Maintenance» breached in the first group to 80.6% of cases. In patients the second and third groups of the violation is detected less frequently in 6.1% and 15.2% respectively. Index okklyuzogramm was among the first group of patients -  $34,91 \pm 3,49$ , the second group -  $41,31 \pm 1,69$ , a third group -  $38,50 \pm 3,50$ .

In patients studied in groups depending on the structure of temporal-mandibular joint has two degrees of displacement head lower

jaw retrad in mandibular yamke. In the first group was determined by the central position of the head of the lower jaw mandibular yamke. In the second group might offset the lower jaw, head retrad up to 2.0 mm (first degree). In a third group might offset the lower jaw, head retrad up to 4.0 mm (second degree). Vnutrirotovaya motion mandibular fractures using funktsiografa revealed a violation of the corner of Gothic and Gothic arch in patients of all groups. Gothic corner marked by asymmetry, violations of the straightness and length of sides. The top of a gothic angle do not coincide with the mid-sagittal line of the metal plate. Musculo-articular breach accompanied by the decrease in value of the Gothic corner in the first group of up to  $85,04 \pm 2,73$  0, second - up to  $89,84 \pm 4,42$  0, and the third - up to  $89,37 \pm 3,39$ .

Gothic arch in all groups was characterized by shortening of one or two sides, the asymmetry and curvature of the lateral movements, the asymmetry of the occlusal field. Point of habitual occlusion was located to one side of the mid-sagittal line of the metal plate. Front okklyuzinnoe movement was characterized by curvature of the lower jaw and did not coincide with the mid-sagittal line of the metal plate. Treatment of adult patients being researched plan based upon the degree of muscular-articular dysfunction. When light degrees immediately started to orthodontic or orthopedic treatment, with moderate and severe degree of pain syndrome first address medical and physiotherapy treatment, and then coordinated the work of restoring masticatory muscles.

To determine the optimum spatial position the lower jaw, the normalization of the topographic relationship of temporal-mandibular joints, restore «klykov reference» produced occlusal tire. In the planning of orthodontic and orthopedic treatment guided version of the structure of temporal-mandibular joint and the head of the lower jaw in the mandibular yamke.

In the first group of patients with a large head of the lower jaw and the mean mandibular yamke, medium head and a small lower jaw mandibular yamke treatment plan without taking into account the movement of the lower jaw and held zuboalveolyarnuyu compensation proteticheskoe primary pathology and treatment, without normalization of the lower jaw.

In patients the second and third groups, with the rear position and a small amount of head lower jaw with all forms of mandibular pit, with an average size head lower jaw with the middle and wider mandibular yamke, with a large head the size of the lower jaw with wide mandibular yamke orthodontic and orthopedic treatment plan with Given the movement of the lower jaw kperedi. To normalize the shape of dental arches used mechanical devices acts as the nomination of the lower jaw were carried out with the help of functional orthodontics guide. Deflection head lower jaw kperedi to the posterior slope of articular tubercles preserving joint gap in the forward department not less than 2.0 mm was determined at the stage of constructive occlusion, under the supervision of Tomograms. Further correction of the situation had the lower jaw relative to the top, taking into account the normalization of occlusal-articulatory relationships dental series, the functional status of masticatory muscles and the topography of temporomandibular mandibular joints. The result of the restoration of occlusal violations is the normalization of relations in the dental series of static and dynamic occlusion, with the creation of «Klykov» reference for the working party and the lack of superkontaktov. The main criterion for determining a displacement of the lower jaw was head of the lower jaw in the mandibular yamke. After the definition of constructive occlusion, under the supervision of Tomograms temporomandibular mandibular joint, we have sought the head of the lower jaw in the central or forward (at the base of talus articular tubercles) divisions mandibular pit. Signs of recovery of func-

tional status of masticatory muscles is the coherence of the results funktsiografii.

Orthopedic treatment was performed in two stages. In the first phase produced temporary proteticheskie construction with restoring «klykov» reference, which helped patients to adapt to new conditions of operation of maxillofacial region. The main criterion was the improvement of device functional state of masticatory muscles on the data funktsiografiii. In the second stage made permanent orthopedic design.

Clinical survey conducted after the treatment, allowing to diagnose signs of musculo-articular dysfunction in 59.7% of patients the first group. The second and third groups of symptoms of dysfunction are identified less frequently in 18.2% and 20.4% respectively. In 40.3% of patients first, second 58.5% of patients and 60.7% of patients groups, the third sign of muscular-articular dysfunction is not set. In addition, as a result of the treatment of patients surveyed groups decreased the number of observation with symptoms of moderate and severe degree of muscular-articular dysfunction.

Index okklyuzogrammy as a result of the treatment increased in patients with a first group of  $34,91 \pm 3,49$  to  $63,84 \pm 1,10$  ( $P < 0,01$ ), in patients with a second group of  $41,31 \pm 1,69$  to  $69,55 \pm 1,05$  ( $P < 0,001$ ) and patients with a third group of  $38,50 \pm 3,50$  to  $71,29 \pm 1,90$  ( $P < 0,05$ ). «Klykov Maintenance» detected in 58.3% of patients first, second 79.8% of patients and 85.2% of patients the third group, that more of the indicator measured before treatment to 38.9%, 54.3% and 50.8% observations, respectively.

As a result of the treatment there was an increase in the value «Gothic angle» to funktsiogrammah in the first group of  $85,04 \pm 2,73$  0 to  $98,37 \pm 1,82$  0 ( $P < 0,001$ ), second - in  $89,84 \pm 4$  42 0 to  $103,47 \pm 3,28$  0 ( $P < 0,05$ ) and in the third - from  $89,37 \pm 3,39$  0 to  $104,86 \pm 2,48$  0 ( $P < 0,001$ ), reflecting restoration activities coordinated masticatory muscles.

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