

Comprehensive treatment of patients with distal bite

The content of the topic:

Posterior occlusion treatment is a complicated task, which depends not only on the clinical form and degree of its expressiveness, but also on the patient's age.

The main efforts during posterior occlusion treatment are to be directed at:

- avoiding the inhibiting influence of dysfunctional lips, cheeks, and tongue muscles on jaws growth and formation;
- normalization of dento-gnathic apparatus functions – breathing, swallowing, speech, mastication;
- correction of teeth position, dental arches form, occlusion;
- stimulation of the growth of the dental arches apical bases in the parts of their growth inhibition;
- hampering upper jaw growth and stimulating lower jaw growth.

Posterior occlusion treatment in the temporary period consists in prophylactic measures and comes to creating conditions promoting the normal development of the child's dento-gnathic apparatus. At that, the oral cavity and nasal part of the pharynx are subject to sanitation. In this period great attention must be paid to myogymnastics by the technique of V.S. Kurylenko and Z.F. Vasylevska, aimed at strengthening the orbicular muscle of mouth and the muscles protruding the lower jaw. In some time skeletal muscles training may be included into complex treatment — using the well-known myogymnastics, worked out by Rodgers, and also Dass' apparatus. As the child adapts to treatment procedures, both prophylactic and treatment devices may be used.

Prophylactic devices:

- to prevent lower lip sucking and biting – a device on the lower jaw with and ages on the vestibular arch;
- to prevent finger or tongue sucking – a plate on the upper jaw with a wire or plastic protective shield.

To treat children with posterior occlusion, complicated with deep overbite, such treatment devices are used: Muelleman's propulsor or a plate on the upper jaw with an elongated inclined plane. The inclined plane is to be shaped from the palatine side from the frontal teeth necks at 45° angle for the advanced sliding of the lower incisors to the upper ones. It is expedient to use this device with a sling cap to keep the lower jaw in such position.

At prognathic occlusion, complicated with open bite, the normalization of the breathing and swallowing functions is emphasized. A vestibular mantel (Korbitz' plate) and Kraus' apparatus are used.

Frankel's devices of the 1st and 2nd type are used till the end of temporary period, till permanent teeth eruption. The 1st type – in patients with posterior occlusion combined with dental arches narrowing and frontal teeth protrusion. The 2nd type – in patients with posterior occlusion complicated with deep overbite.

Transitional dentition period is the most favorable for treatment, because it is the period of the most important development stages and dento-gnathic apparatus

establishment. The transitional dentition process is accompanied by increased jaw growth; biological potency to growth is realized to the biggest extent. All this should be taken into account when choosing a treatment method and an orthodontic appliance of efficient design.

In the period of transitional dentition together with myogymnastics and fight against pernicious habits different designs of orthodontic appliances are widely used: Schwarz' plates with an inclined or biting platform (Fig. 168), Frankel's apparatus of the 1st and 2nd type, Kraus' apparatus, Muelleman's propulsor (Fig. 169).

At the underdeveloped lower jaw, accompanied by compression in the lateral parts, there are applied removable devices for lower jaw dilation, which allow influencing teeth and dental arches, alveolar process and jaw selectively.

Dankov's appliance is used at lower jaw distal position. Orthodontic treatment at upper jaw overgrowth mainly consists in changing the axial inclination of the upper frontal teeth, dental arch form change, dental arch shortening, inhibiting upper jaw growth by means of extracting the lower premolars at canine teeth coming out.

Axial teeth inclination may be changed with the help of removable appliances with a retracting arch. In cases of considerable incisors protrusion plastic bandages or hooks are welded on the vestibular arches to prevent arch sliding. To transfer teeth (incisors and canine teeth) orally and reduce spaces between them Osadchyi's or Aisenberg's appliances are used. At supraocclusion of the upper or lower frontal teeth biting platforms are used in the appliances.

To correct the form of the narrowed upper dental arch a screw or Koffin's omega loop is welded into removable devices. A device for treating posterior occlusion – a plate on the upper jaw, which combines the design peculiarities of Osadchyi's apparatus and Schwarz' plate with an inclined platform – is rather effective for these purposes. If it is necessary to dilate the dental arch, a screw or Koffin's loop is welded into it.

In most patients with posterior occlusion the united form prevails, i.e. lower jaw underdevelopment and upper jaw overgrowth, with the narrowing of one or both jaws. Such patients are treated taking into account morphological and functional peculiarities: jaws development degree (basal and alveolar arches), their location in the skull, jaws location relative to one another, dental arches narrowing and teeth axial inclination (especially of the frontal ones) degrees. For this purpose the above mentioned devices are used, and also Andresen-Haupl's, Aisnworth's, Merzhon's devices, Bimler's occlusion former (A and B types), intermaxillary recoil.

In the period of permanent occlusion instrument treatment is rather complicated and is accompanied by recurrences at older age, as stable articulation equilibrium has already appeared, constant myotatic reflexes have established, and the bones of jaws, articular, coronoid, and alveolar processes have lost the capacity to significant plastic transformations. The most expedient treatment methods in this period are the usage of mechanical action devices, brackets in particular. In such cases orthodontic treatment is combined with surgical preparation. It is rather difficult to change the axial inclination of the upper frontal teeth at a big sagittal gap (more than 5 mm) and spaces absence without individual teeth extraction (more

often premolars) with subsequent transfer of canine teeth and incisors. At macrognathia compact osteotomy is conducted for bone tissue plasticity increase and orthodontic treatment acceleration.

Surgical procedures are conducted in severe cases of posterior occlusion.

To accelerate orthodontic treatment and shorten its terms physiotherapeutic methods are widely used (vibration influence, vacuum therapy, electrophoresis, MRT), which give good results in combination with instrument treatment.

Thus, different forms of posterior occlusion are not treated by one method, but require individual approach in every single case. At that it is impossible to restrict influence to one jaw only, as in clinical practice there are almost no cases of an isolated anomaly of one jaw.

The treatment of distal occlusion various forms should be directed to:

- 1) Elimination of the inhibitory influence improperly functioning of the lips muscles, cheeks, tongue on the growth and formation of the jaws.
- 2) Normalization of oral cavity functions: breathing, chewing, swallowing, tongue, closing of your lips.
- 3) Delay the sagittal growth of the maxilla.
- 4) Encourage of the lower jaw growth.
- 5) Changes of the dental arches size and shape.
- 6) Correction of individual teeth position.
- 7) Stimulation of the apical basis growth in those areas where it is showing a delay.
- 8) Mesial displacement of lower jaw.
- 9) Correction of occlusion by height (assuming a combination with a deep bite).

For the treatment of distal occlusion forms are used following orthodontic appliances:

1. Standard vestibular shield or standard vestibular plate.
2. Custom-made vestibular shield.
3. Propulsor of Muleman.
4. Activator by Andresen-Haupl's.
5. The regulator functions Frenkel type i (FR-I , FR-S, FR-Ic).
6. Persin appliance.
7. Open the activator Klammt.
8. Plate for the upper jaw vestibular arch and the inclined plane.
9. Grigorieva-Smaglyuk appliance.
10. Bionator of Balters 1 view.
11. Bionator of Jansen.
12. Biting plate of Katz.

To increase the pressure on the frontal teeth by the F. Y. Khoroshilkina proposes to combine the use of functional devices with extra-oral thrust (vestibular shields, propulsor of Muleman, activator Andresen-Haupl's, etc.).

If any such indications as: individual macrodentia, family similar form of malocclusion, hypoplasia of the mandible or its apical base, marked the close

position of the teeth and lack of space for some of them (usually the lateral incisors and canines) is an expedient extraction of premolars on the upper or both jaws.

Extraction of the first temporary molars with the beginnings of the first premolars at the age of 8.5 years, provides the change in axial inclination of the rudiments of permanent teeth and their distal offset by self-regulation the direction of least resistance (in place of the deleted first temporary molars and first premolars). This treatment is combined with massage (finger, vacuum, vibration or ultrasound).

Orthodontic treatment of adolescents and adults, mainly consists of two stages:

1. The normalization of the individual teeth position and shape of the dentition.

2. Restructuring of vertical relationships.

The third stage is the repositioning of the lower jaw were previously rare, are currently using interdental elastics it is widely used in the treatment with brackets.

Significantly reduce the time of orthodontic treatment of adolescents and adults allow application of compactosteotomy. Tape or perforated conduct of vestibular and oral sides of the upper jaw in the area of incisors. The orthodontic device applied on the 7th day after surgery with normal postoperative course.

With a view to maintaining the achieved results of the treatment (retention), it is possible to apply the apparatus, which was used in the period of active orthodontic treatment, but without activating it or specially made.