

MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN
FEDERATION

Federal State Autonomous Institution

higher professional education

"Kazan (Volga) Federal University"
Institute of Fundamental Medicine and Biology
Department of Dentistry and Implantology

METHODICAL DEVELOPMENT

practical lesson for students of the 5th course of the 10th semester in dentistry.

Subject: Diagnosis and treatment of transversal occlusion anomalies.
Classification, etiology, treatment principles.

The purpose of the lesson. To teach students the diagnosis of various forms of deep occlusion based on clinical examination and the use of additional research methods. To familiarize with the methods of treatment of these occlusion anomalies, with the devices used to treat them.

Lesson plan:

1. The teacher determines the initial level of knowledge of students through a survey, group discussion, testing -30 min;
2. The teacher corrects the initial level of knowledge, reveals lagging students -15 min;
3. The teacher checks the readiness of jobs, distributes students to jobs-10 min;
4. Work with literary sources. Compilation of a compendium-60 min;
5. Oral analysis of the material -120 min;
6. Testing -35 min.

Occupation Equipment:

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The list of literature to prepare for the lesson.

1. Yakhina Z.Kh. Teaching aid on orthodontics for students: 2017
2. Khoroshilkina F.Ya., Persin L.S., Okushko-Kalashnikova V.P. Orthodontics. (Moscow, 2005, 453 pp .; ill. Bibliography p. 408-447 (542), Subject index p. 488-453 2000 copies (Code number 616.34-089.23).
3. W. Profit Modern Orthodontics 2016

4. Persin L.S. Orthodontics. Diagnosis and treatment of dentoalveolar anomalies: a Guide for doctors.-M.: Publishing House "Medicine", 2007-360s .; II.-ISBN 5-225-04819-6.

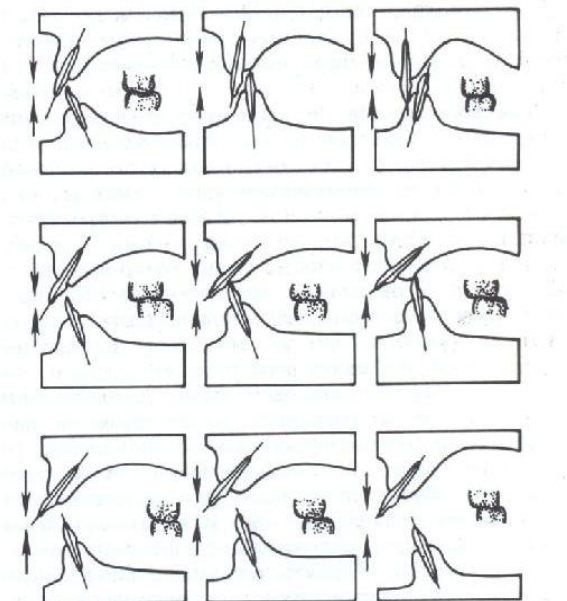
Subject: Deep incisal occlusion and deep incisal disocclusion

Normally, the upper frontal teeth overlap the lower ones by no more than $\frac{1}{3}$, and between them there is a cutting-tubercle contact. With an increase in the overlapping depth in the region of the anterior teeth by more than $\frac{1}{3}$ of the crown height, as well as a violation of their correct closure, an occlusion anomaly is formed in the vertical plane. At the same time, the cutting edges of the lower incisors slip past the palatine tubercles of the upper incisors and come into contact with their palatine surfaces near the necks (deep incisal occlusion), or touch the mucous membrane of the hard palate, leaving imprints on it (deep incisal disocclusion). As an independent anomaly, deep incisal occlusion and disocclusion are rare; in most cases, complicate distal occlusion, and less commonly, mesial occlusion.

There are 2 forms of deep incisal occlusion and disocclusion:

1. Tooth alveolar. It is manifested by morphological disorders within the dentition and alveolar process.
2. Skeletal. It is manifested by morphological changes not only within the dentition, but also in the development of the facial skeleton.

Виды глубокой резцовой окклюзии в зависимости от вестибулярного наклона осей зубов



Etiology

- an inherited structural feature of the facial skeleton;

- prenatal pathology (injuries, infectious diseases of the mother during pregnancy, vitamin deficiency, etc .;
- Diseases of early childhood;
- improper artificial feeding, which leads to the prevalence of muscle development, raising the lower jaw over the muscles pushing the lower jaw;
- a significant break in the timing of eruption of the upper and lower incisors (untimely eruption);
- excessive development of the incisor or intermaxillary bones;
- carious or non-carious damage to the hard tissues of the posterior teeth, leading to the loss of the crown;
- excessive erasure of milk teeth in the lateral areas;
- early loss of temporary molars, first permanent molars or second posterior teeth;
- bad habits (sucking and biting the lower lip, fingers, various objects), causing deviation of the front teeth, violation of cutting contacts with antagonistic teeth, which leads to a decrease in the height of the bite, the establishment of the first permanent molars at the wrong occlusal level and underdevelopment of the alveolar processes in the lateral plots. Disruption of contacts between the front teeth (non-closure of the teeth) causes dentoalveolar elongation in this area.
- changing the location of the front teeth, dentoalveolar elongation;
- increasing the upper dentition in the presence of a supernumerary tooth, diastema of the upper jaw, temporarily delayed molars, macrodontia on the upper jaw or shortening of the lower dentition with retention or adentia of individual teeth (often the second premolar), microdontia on the lower jaw, violation of the sequence of eruption of the upper and lower temporary teeth or terms of eruption of permanent teeth.

Clinic

Morphological disorders:

Tooth alveolar elongation in the anterior portion and dentoalveolar shortening in the lateral regions of both jaws.

There are three degrees of deep incisal overlap, which are determined in relation to the height of the crowns of the central incisors:

from $\frac{1}{3}$ to $\frac{2}{3}$ of their height;

from $\frac{2}{3}$ to $\frac{3}{3}$;

more than $\frac{3}{3}$.

Facial signs:

- the height of the lower third of the face is reduced;
- The chin and nasolabial folds are pronounced;
- the lower lip is turned out;
- reduction of the angle of the lower jaw;

Intraoral signs:

- the upper incisors overlap the lower by more than one third;
- cutting-tubercular contact in the incisors is absent;
- possible trauma to the mucous membrane of the sky with lower incisors;

- dentoalveolar elongation in the front of the lower jaw;
- Alveolar shortening in the lateral sections of both jaws;

Functional Disorders:

- reduction of chewing effectiveness;
 - restriction of the sagittal movements of the lower jaw;
 - overload of the anterior teeth and trauma to the mucous membrane of the palate;
 - violation of pronunciation of sounds;
- Aesthetic disorders;
- a predisposition to the occurrence of arthritis and periodontal disease.

Diagnostics

The diagnosis is made on the basis of an anamnesis, clinical examination of the patient, the study of diagnostic models of the jaws, anthropometric study of the jaws and face, the study of lateral telerecognograms of the head, electromyograms of the masticatory and facial muscles, and evaluation of the data of orthopantomographic studies of the jaws.

Treatment

The treatment of deep occlusion and disocclusion is most effective during periods of teething, first permanent molars, change of milk incisors by constant, eruption of second permanent molars.

Elimination of the cause of the anomaly:

- sanitation of the oral cavity;
- development of the nasopharynx;
- normalization of respiration;
- elimination of bad habits;
- timely prosthetics;
- normalization of chewing and swallowing

Temporary bite treatment

- Chewing solid food (raw fruits, vegetables, stale bread, etc.) to stimulate the normal development of jaws, alveolar processes and dentitions;
- Restoration of crowns of temporary molars in case of their carious destruction using fillings, inlays, thin-walled crowns;
- Preventive dentures with early loss of milk molars;
- Elimination of bad habits;
- Plasty of the frenum of the tongue according to indications;
- Myogymnastics for the development of muscles that push the lower jaw;
- Trainers;

Treatment in the II period of the temporary and I period of a replaceable bite

In the II period of the temporary and I period of the replacement bite, i.e. from 5.5 to 9 years, it is necessary to carry out active orthodontic treatment, the separation of the posterior teeth. When the first permanent molars erupt, it contributes to their dentoalveolar elongation until they come into contact with the antagonizing teeth, which leads to a decrease in the depth of the incisal overlap.

To separate the lateral teeth, a removable plate on the upper jaw with a bite pad can be used to emphasize the lower front teeth. To eliminate the displacement of the lower jaw forward and to the side, the bite pad is made not smooth, but with the imprints of the cutting edges of the incisors and tubercles of the canines of the opposite jaw. Separate teeth 2 mm above physiological rest.

Treatment during intermittent bite

In a removable bite for the treatment of deep occlusion and disocclusion, plates with an inclined plane, with a bite pad, with a vestibular arch, monoblocks, type 2 Frenkel function regulator, Katz plate, Khurgina, Gulyaeva apparatus, expanding plates, Basharova apparatus are used.

Permanent Bite Treatment

In the permanent bite, the above devices are used, as well as intraoral fixed non-removable orthodontic arc devices - the edgewise technique (bracket systems). The duration and success of orthodontic treatment depends on the period of occlusion, the severity of deep incisal occlusion and disocclusion, concomitant anomalies of the teeth, dentition, occlusion and general developmental disorders. The prognosis of treatment is favorable if it is undertaken in the initial period of a shift or permanent bite, during the treatment process not only morphological, but also functional impairments are eliminated and deep occlusion and disocclusion is not a family feature.

Test questions:

1. Decipher the term "Deep Bite".
2. What are the etiological factors leading to deep bite?
3. What are the facial signs of a distal deep bite.
4. List intraoral disturbances with a deep bite.
5. What are the functional disorders with a deep bite?
6. Treatment of deep bite during different age periods of bite formation?

Literature:

1. Yakhina Z.Kh. Teaching aid on orthodontics for students: 2017
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