

**MINISTRY OF HEALTH PROTECTION OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY
FACULTY OF DENTISTRY
DEPARTMENT OF ORTHOPEDIC DENTISTRY**



**METHODOLOGICAL DEVELOPMENT
TO PRACTICAL LESSONS
FROM EDUCATIONAL DISCIPLINE**

Faculty **of dentistry**, course **4**

Educational discipline **Orthopedic dentistry**

Approved:

Meeting of the Department of Orthopedic
Dentistry of ONMedU

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PRACTICAL LESSON No. 1

Topic: Examination of the oral cavity of a patient with complete absence of teeth. Obtaining anatomical impressions from edentulous upper and lower jaws for the manufacture of individual spoons.

Goal: Acquaint the acquirers with the anatomical and physiological changes in case of complete loss of teeth. Know the methods of examination of patients with complete absence of teeth. Master the basic clinical methods of examining patients with complete absence of teeth. Acquaintance with imprint materials. To train the acquirers to take anatomical impressions and evaluate them. Formation of professional literacy and the ability to think logically in students. Formation of the principles of medical ethics and deontology in students.

Basic concepts: anamnesis, proportionality of the face, symmetry of the face, senile appearance of the face, senility about genius, torus, anatomical retention points, exostosis, mucosal compliance, mucosal mobility, neutral zone, "A" line, valvular zone, neutral zone, anatomical impressions, impression materials, impression trays.

Equipment: Computer, multimedia projector, phantoms.

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform practical classes (knowledge requirements, list of didactic units);

Know:

- structure of the upper jaw;
- structure of the lower jaw;
- structure of the temporomandibular joint;
- the structure of the mucous membrane of the oral cavity.

Be able:

- determine the relationship between the upper and lower jaws;
- palpate the movement of the head of the lower jaw;
- to clinically determine the presence of a submucous layer in different areas of the mucous membrane of the oral cavity.

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- History and clinical examination.
- Main complaints.

- Dental history.
- Medical history.
- Examination. External overview. The degree of reduction of the lower third of the face, the expression of facial skin folds, the degree of mouth opening (free, difficult).
- Examination of the temporomandibular joint.
- Examination of the masticatory muscles.
- Be able to choose a standard impression spoon for obtaining anatomical impressions from edentulous jaws;
- Obtain anatomical impressions from the upper and lower jaws with complete edentation.

3. Formation of professional skills, skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

content of tasks (tasks, clinical situations, etc.);

The complete absence of teeth on the jaws is caused by the same reasons as their partial loss. These are complications of dental caries, diseases of periodontal tissues, specific inflammatory processes, functional overload of teeth, etc.

Complete loss of teeth leads to topographical changes in oral cavity tissues. Therefore, the examination of the oral cavity, where all the teeth have been lost, has a specific character, because the toothless mouth is significantly different from the oral cavity, where the teeth are preserved. It is necessary to pay special attention to the study of the features of the clinical picture of the edentulous oral cavity, which will ensure the success of orthopedic treatment in the future. The mucous membrane of the oral cavity, the bone base, namely the alveolar processes, the body of the jaws, and the hard palate are subject to a detailed examination.

Examination of the patient begins with a survey, during which it is determined:

- data on working conditions, suffered diseases, bad habits;
- time and causes of tooth loss;
- have previously used removable prostheses.

During the conversation, special attention is paid to finding out whether the patient used removable prostheses before, for how long, how he got used to them; it is desirable to examine these prostheses as well.

After the survey, they proceed to the examination of the patient. Examination of the face must be carried out inconspicuously for the patient, during a conversation, paying attention to symmetry, the presence of scars, the degree of reduction in the height of the lower third of the face, the nature of closing the lips,

the expression of nasolabial and chin folds, the condition of the mucous membrane and skin in the corners of the mouth.

Examination of the oral cavity begins with the determination of the degree of opening of the mouth, attention is paid to whether the opening is difficult or free, after which the nature of the proportions of the edentulous jaws is determined. During the examination of the alveolar processes, the nature of their atrophy is assessed, and palpation is performed to detect exostoses and tooth roots that have not been removed. The condition of the mucous membrane of the oral cavity covering the alveolar processes, the hard palate, and the topography of the transitional folds are studied.

In addition to examination and palpation of tissues of the oral cavity, if necessary, other types of research are carried out (x-rays of alveolar processes, joints, graphic records of movements of the lower jaw, records of incisor and articular pathways).

Anatomical impression in case of complete removable prosthetics performs the function of the previous one, that is, the model that is cast after it is not intended for modeling the prosthesis, but only for the formation of an individual impression spoon. In general, the method of obtaining anatomical impressions from edentulous jaws is little different from the traditional one, but it has some peculiarities.

First of all, standard impression spoons for edentulous jaws of smaller sizes, with a lower height of the sides, as well as a pronounced arch of the palate. This is because the impression should give a clear image of the alveolar process and transitional fold.

When choosing an impression spoon with full dentition, the length of its sides should be taken into account. They should stand back from the edentulous alveolar process and from the palate by at least 3-5 mm. At the same time, when using alginate or silicone materials, this distance can be minimal, and when removing an impression with plaster - maximal. The alveolar processes should be in the middle of the bed of the spoon.

You should not choose spoons with long sides that dip into the transition fold. The edges of the spoon during the fitting should only reach the transition fold. Thus, when removing the impression, the thickness of the material will raise the edge of the spoon by 2-3 mm from the transition fold.

In some cases, even special spoons for toothless jaws require individualization, namely shortening or lengthening their edges with wax, creating perforations in areas of the torus or hypertrophied mucous cords.

On the lower jaw, you need to pay attention to the lingual edge of the spoon, which should be made longer than the outer one, in order to be able to push the soft tissues of the floor of the mouth deep. It is also mandatory to overlap the edges of

the spoons of the humps on the upper jaw and the retromolar and retroalveolar spaces on the lower jaw.

The next stage of obtaining anatomical impressions is the selection of material. The condition of the mucous membrane of the prosthetic bed and the degree of atrophy of the alveolar process should be taken into account. With an atrophied mucous membrane, it is advisable to use liquid materials, while a normal pliable and hypertrophied mucous membrane allows you to get impressions under pressure using dense, viscous materials.

The most difficult is the method of obtaining a plaster cast from toothless jaws. At the same time, despite the difficulties, the technique justifies itself in view of the possibility of obtaining high-quality prints. Depending on the consistency of the mixed gypsum, they can be obtained both under pressure and without it.

To mix plaster, pour approximately 100 ml of 3% salt solution into a rubber cup. Gypsum powder is poured in small portions until a small bump appears on the surface of the liquid, after which it is stirred in a figure-of-eight motion until a homogeneous mass is obtained. The mixed plaster is applied with a spatula to the edges of the spoon and introduced into the oral cavity.

To obtain an impression from the upper jaw, the right corner of the mouth is removed with the second finger of the left hand, and a spoon is inserted into the mouth with the right hand and set so that the handle is located along the middle line of the face. First, the back part of the spoon is pressed to the jaw, then the front part. The patient's head should be slightly tilted. The spoon should be held by the handle with the first and third fingers, and the second should be placed on the arched spoons. At the end, the patient's upper lip is pulled forward and down.

To get an impression on the lower jaw, the right corner of the mouth is removed with the second finger of the left hand, and a spoon is inserted into the mouth with the right hand and its handle is placed along the middle line of the face. After that, the patient is asked to raise his tongue and press first on the front part of the spoon, and then on the distal part. It is necessary to offer the patient to stick out the tongue. The spoon is held by placing the second and third fingers on its base, and the first - under the chin. The lower lip should be pulled forward and up.

After the formation of the edges, complete hardening of the plaster is expected, which is accompanied by the release of heat. The final readiness is determined by the remaining material in the rubber cup. After the plaster begins to break, the impression can be removed from the oral cavity. To do this, put the second finger of the right hand on its edge and twist it up or down (depending on the jaw) to break it. It is also possible to create incisions on the impression. Inserting a spatula into the incisions, parts of the impression are chipped off with lever-like movements. All pieces of gypsum are collected in a tray and washed in water. Then the print is folded and glued. Plaster pieces are placed in a spoon,

starting with larger ones, and then smaller ones, after which they are glued to the edges of the spoon with melted wax.

Attention should be paid to the technique of mucostatic impression for the lower edentulous jaw with complete atrophy of the alveolar process, when rarely mixed plaster is poured into the sublingual space, without using an impression spoon at all.

The use of alginate masses greatly simplifies the method of obtaining anatomical impressions from edentulous jaws. Measure 2 measures of powder and 2 measures of water into a rubber cup. Then the powder is combined with water and thoroughly mixed for a minute until a mass of uniform consistency is obtained. Features of the use of alginate masses are the use of perforated impression spoons, as well as the impossibility of pushing out the mucous membrane of the prosthetic bed. After structuring the mass, two fingers (the first and the second or the first two) are inserted into the cavity of the mouth and the impression is taken out. Taking into account the deformation of alginate masses after obtaining an impression, the model must be cast immediately.

The combined technique of removing anatomical impressions with hydrocolloid masses is used for minor atrophy of alveolar processes. The essence of the technique is the use of hydrocolloid impression mass, which is in cartridges. The mass should be heated to 60°C so that it acquires a plastic state. After heating, the cartridge is inserted into a syringe with a cannula and a piston and fixed. From the syringe, the mass is squeezed directly into the oral cavity outside the future prosthesis: in the transition fold in the area of the cheeks, frenulum, lips, as well as in the area of the palatal seam. Immediately after that, an impression spoon with a compatible alginate material is inserted. The structuring of the mass takes place within 3 minutes, then the impression is removed according to the traditional method.

In addition to the described methods, there is a technique for simultaneously obtaining anatomical impressions from both jaws with the mouth closed in the central ratio. To obtain such impressions, double spoons are used, which are the upper and lower spoons, which are connected to each other in a single block thanks to special guides that ensure their movement in the sagittal plane.

Spoons are selected according to size and fitted in the oral cavity, individualized as necessary. Then, they are connected to each other and introduced into the oral cavity with a lateral rotating movement and placed on the lower jaw, after which the patient slowly closes his mouth. To register the height of the lower part of the face, outline the points on the nose and chin and measure the distance between them. This size will serve as a reference for obtaining the spatial relative location of the jaws during impression taking.

The patient is asked to place his tongue in the space between the spoons; make swallowing movements; breathe through the nose; press the spoons not with the jaws, but with the lips.

Alginate masses of a thick consistency, which are produced in capsules, are used to simultaneously obtain impressions from both jaws. First, the capsule is squeezed using a squeezer, then fixed in a special vibrator and shaken for 30 seconds, after which the capsule is placed in a syringe. All the material is pressed first on the lower and then on the upper spoon.

After applying the alginate impression material, both spoons are successively introduced into the oral cavity and applied to the lower jaw. At the same time, the alginate mass of the upper and lower impression spoons is connected. With his free hand, the doctor lifts the upper lip, and the patient slowly closes his mouth. The spoons are moved during closing movements in the direction of the least resistance and are fixed in this position with alginate conglomerate.

When the alginate mass goes beyond the transitional fold, the upper lip is lowered. The patient's lips should be closed, while he breathes through his nose and performs swallowing movements. When taking an impression, the interalveolar height is checked at the outlined points, which can be corrected only if it exceeds a predetermined distance. The resulting complex of upper and lower impression spoons with impressions is produced as a single block.

Before casting plaster models, the area of the tongue is filled with silicone mass (without catalyst). When obtaining impressions at one time, with one mixing of plaster, both casting of the models and plastering them into the articulator (occluder) are performed.

The quality of the print is evaluated by the accuracy of the relief of the prosthetic bed, in particular the transitional fold with all the moving formations located on it.

Indications for retaking the impression are: blurring of its relief, inconsistency with the future dimensions of the prosthetic bed, lack of clear design of the edges, presence of pores.

Disinfection of impressions is a measure aimed at preventing the spread of infectious diseases in a dental clinic. Impression materials that are in contact with the tissues of the patient's mouth and are contaminated with saliva, blood, and particles of dental plaque should be considered as potential sources of infection. When disinfecting prints, immersion (immersion) using various chemicals, physical methods (exposure to high and low temperatures, ultraviolet radiation), as well as ultrasonic treatment are usually used.

The most common use of the first method, and the most acceptable for disinfection of silicone and alginate impressions are 2.0-2.5% glutaraldehyde buffer solution or ready-made preparation "Glutarex". These agents have

pronounced activity against hydrophilic and lipophilic viruses that cause viral hepatitis B and HIV. When disinfection of silicone impressions is carried out by the immersion method using these solutions, the amount of exposure is 5 minutes, alginate impressions - 10 minutes.

In addition, the following are used for disinfection of silicone impressions by immersion: 0.5% sodium hypochlorite (20 minutes), 0.1% deoxone (10 minutes), 4.0% and 6.0% hydrogen peroxide (15 and 10 minutes, respectively) , iodoform solution diluted 1:213, as well as ready-made solutions: glutaral, glutaral H (10 minutes), Sydex ("Jonson&Jonson", USA - 10 minutes), MD-520 ("DÜRR DENTAL", Germany - 10 minutes).

It should be noted that the immersion method is most suitable for disinfection of silicone materials, because alginate masses can change their volume (they shrink in air, and swell in water). Therefore, the disinfection method based on the principle of irrigation using a special device ("DÜRR DENTAL", Germany) is the most suitable for them.

recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

requirements for work results, including registration;

— Conduct an examination of a patient with a complete absence of teeth.

— Analyze the results of an examination of a dental patient with complete absence of teeth.

— Make a plan for an additional examination of a patient with a complete absence of teeth.

— Explain the results of clinical and special (additional) research methods.

— Determine the tactics of treatment of a patient with a complete absence of teeth in the clinic of orthopedic dentistry.

— Determine the design of complete removable prostheses.

control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 55-year-old patient has a complete removable upper jaw prosthesis made. Objectively: uniform significant atrophy of alveolar processes, maxillary ridges, flat palate. Transitional fold at the level of alveolar processes. What type of upper jaw according to Schroeder?

A. I

V. II

S. III

D. IV

E. V

2. The patient, 80 years old, is undergoing prosthetics due to the partial absence of teeth on the upper jaw and the complete absence of teeth on the lower jaw. When making a diagnosis, the doctor uses the Suple classification. What is it used for?

- A. When assessing the condition of the mucous membrane on the upper jaw
- B. When assessing the condition of the mucous membrane on the lower jaw
- S. When assessing the condition of the mucous membrane on both jaws
- D. When assessing the type of the upper jaw
- E. When assessing the type of the lower jaw

3. The patient, 67 years old, complained of chewing disorders, pronunciation, cosmetic defect. During the examination, a complete absence of teeth on both jaws was established. The conditions of prosthetics are evaluated and the restoration of defects of the upper and lower dentition with complete removable prostheses is planned. To which zone of compliance of the mucous membrane according to Lund does the area of the sagittal suture on the hard palate belong?

- A. I
- V. II
- S. III.
- D. IV
- E. V

4. The patient, 62 years old, complains about the absence of all her teeth. Objectively: the mucous membrane of the alveolar process of the upper jaw is moderately pliable, and the lower one is mobile, gathers into a fold. To which classes according to Supley does the mucous membrane of the upper and lower jaws belong?

- A. Upper – I, lower – II
- B. Upper – I, lower – III
- S. Upper - II, lower - III
- D. Upper - II, lower - IV
- E. Upper – I, lower – IV

5. The patient, 62 years old, complains about the absence of all her teeth. Objectively: the alveolar process of the upper jaw is slightly atrophied, and the lower one is sharply and uniformly atrophied. Define the types of atrophy according to Oxman.

- A. Upper – I, lower – II
- B. Upper – I, lower – III
- S. Upper - II, lower - III
- D. Upper - II, lower - IV
- E. Upper – I, lower – IV

6. A 60-year-old patient is scheduled for a complete removable upper jaw prosthesis. It is assumed that its edge will overlap the neutral zone. What is a "neutral zone"?

- A. Mobile mucous membrane
- B. The boundary between mobile and immobile mucous membrane
- S. Immobile mucous membrane
- D. A pliable mucous membrane
- E. Section of the valve zone

7. A 68-year-old patient is scheduled to have complete removable prostheses manufactured. Objectively: the alveolar process of the lower jaw has significant but uniform atrophy. What is the type of edentulous mandible according to Keller in this patient?

- A. I
- V. II
- S. III
- D. IV
- E. V

8. The patient, 68 years old, complains about the complete absence of teeth on the lower jaw. Objectively: significant atrophy of the alveolar process, in the lateral parts of the lower jaw on palpation, symmetrical sharp bony protrusions covered by a thin mucous membrane are determined. What are the tactics for treating this patient?

- A. Resection of the alveolar crest
- B. X-ray examination
- S. Plastic surgery of the alveolar ridge
- D. Fabrication of a complete removable prosthesis
- E. Production of a complete removable prosthesis with a double base

9. A 68-year-old patient has complete absence of teeth on the lower jaw, significant atrophy of the alveolar process. What should be done to improve the fixation of the prosthesis?

- A. Expand the boundaries of the prosthesis
- B. Reduce the borders of the prosthesis
- C. To increase the height of the teeth
- D. Expand the dentition
- E. Narrow the tooth row

10. The patient, 65 years old, complains about poor fixation of a complete removable prosthesis on the lower jaw. Objectively: atrophy of the alveolar process of the lower jaw IV type according to Keller. What anatomical formation on the lower jaw can be used to improve the fixation of the prosthesis in this case?

- A. Maxillohyoid space

- B. Branch of the lower jaw
- S. Transitional fold
- D. Retroalveolar space
- E. Internal oblique line

11. A 66-year-old patient complained of the inability to chew, impaired appearance, and diction disorders. During the examination, a complete absence of teeth on both jaws was established. A decision was made to manufacture complete removable prostheses. What manipulation does the doctor perform at the first clinical stage?

- A. Determination of the central ratio of the jaws
- B. Matching of individual spoons
- C. Production of diagnostic models
- D. Obtaining anatomical impressions
- E. Obtaining functional prints

12. A 62-year-old patient applied to the clinic for the purpose of manufacturing new complete removable prostheses. He used former prostheses for 8 years. What prints should be obtained from this patient?

- A. The patient's prostheses
- B. Standard spoons
- C. Double prints
- D. Collapsible spoons
- E. Prints are not required

13. A 60-year-old patient has a complete removable prosthesis made for the lower jaw. Objectively: alveolar processes are moderately atrophied. The mucous membrane of the prosthetic bed is of normal compliance. Impressions are being taken to make an individual spoon. Which group of materials should be preferred?

- A. By those that crystallize
- A. Because they are polymerized
- S. Alginate
- D. Siliconov
- E. Thermoplastic

14. A 52-year-old patient is being made complete removable plate prostheses for the upper and lower jaws. Objectively: type II according to Schroeder and type I according to Keller. The mucous membrane covering the jaws is hypertrophied, loose on palpation, hyperemic, well moisturized. Which group of materials should be preferred when removing impressions for the manufacture of individual spoons?

- A. By those that crystallize
- V. Alginate
- S. Thermoplastic
- D. Those that polymerize

E. Hydrocolloid

15. An objective examination of a 69-year-old patient with a complete absence of teeth revealed significant atrophy of the alveolar processes, a significant torus, and a flat palate. The mucous membrane of the prosthetic bed is thin, atrophied. What should be taken into account when choosing a material for obtaining anatomical impressions?

- A. Mucous ductility
- B. Prominence of the torus
- C. Degree of atrophy of alveolar processes
- D. Functional mobility of the mucous membrane
- E. Relief pattern of the prosthetic bed

16. A 90-year-old patient is scheduled to have a complete removable prosthesis made for the lower jaw. Objectively: significant atrophy of the alveolar process on the lower jaw. What impression should be obtained?

- A. Anatomical
- B. Anatomical decompression
- S. Anatomical compression
- D. Functional decompression
- E. Mucostatic gypsum

17. Complete removable prostheses are made for a 60-year-old patient. In the first visit, full anatomical working impressions with alginate material were obtained. How to disinfect prints?

- A. For 10 minutes in the Sydex solution
- B. For 10-15 minutes in a 2.3% glutaraldehyde solution
- C. Immerse in 3% chloramine solution twice for 10 minutes
- D. For 10-15 minutes in 1% lysoformin solution
- E. For 10-15 minutes in the "Dezefect" solution

18. A 70-year-old patient applied to the orthopedic dentistry clinic for prosthetics of edentulous jaws. A 3% solution of sodium chloride is used when making anatomical impressions with gypsum. For what purpose is this solution used?

- A. Inhibition of gypsum crystallization
- B. Acceleration of gypsum crystallization
- C. Improvement of impression strength
- D. Prevention of vomiting reflex
- E. Ease of removal of the impression from the mouth

19. A 60-year-old patient complains of the inability to chew due to complete loss of teeth. During the examination, slight atrophy of the alveolar processes and normal flexibility of the mucous membrane of the prosthetic bed were established.

A decision was made to manufacture complete removable prostheses. Selection of standard spoons for obtaining anatomical impressions is carried out. How should their edge relate to the toothless alveolar processes?

- A. Tight fit
- B. Stand for 1-2 mm
- C. Stand for 3-5 mm
- D. Leave for 1 cm
- E. Stretch the transition fold

20. Complete removable prostheses are made for a 66-year-old patient. Obtained anatomical impressions. What is the next technical stage?

- A. Determination of the central ratio of the jaws
- B. Making wax bases with biting rollers
- C. Obtaining functional prints
- D. Production of individual spoons
- C. Verification of the design of prostheses

4. Summary:

— History of a patient with complete absence of teeth. Main complaints. Medical history. Dental history.

— Examination. External overview. Reduction of the lower third of the face, expressiveness of nasolabial and chin folds, degree of mouth opening (free, difficult). Temporomandibular joint. Examination of the masticatory muscles.

— Intraoral examination. Assessment of the state of bone and mucous formations affecting the fixation of the prosthesis in the oral cavity.

— Determination of mobility and flexibility of the mucous membrane. Topography of line "A" and neutral zone.

— Classification of edentulous jaws according to Schroeder, Koehler and Oxman.

— Assessment of the condition of the mucous membrane of edentulous jaws according to Suple and Lund.

— Diagnosis. Plan and objectives of orthopedic treatment. Preliminary treatment before prosthetics. Types and tasks of prosthetics.

— What are the features of obtaining anatomical impressions from edentulous jaws?

— By what criteria should a spoon be selected for obtaining an anatomical impression in the complete absence of teeth?

— By what criteria is the material chosen for obtaining an anatomical impression from a toothless jaw?

— How to get anatomical cast impressions from the upper and lower jaws?

— Tell us about the peculiarities of obtaining anatomical impressions with alginate masses.

— What is the combined technique of removing anatomical impressions with hydrocolloid masses?

— How to get anatomical prints from both jaws with the mouth closed in the central ratio of the jaws of one moment?

— How to assess the quality of an anatomical impression in the complete absence of teeth?

— Tell us about the disinfection of prints and the rules for its implementation.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadskyi <http://www.nbu.gov.ua/>

PRACTICAL LESSON No. 2

Topic: Making individual spoons for the upper and lower jaw. Anatomical substantiation of the construction of the borders of complete removable

prostheses. Fitting hard individual spoons. Obtaining functional impressions from the upper and lower edentulous jaws.

Goal: Acquaint the collectors with the methods of making individual spoons. Applicants must know the etiology and pathogenesis of complete absence of teeth; limits of an individual spoon for the upper jaw; the limits of the individual spoon for the lower jaw. Acquaint applicants with the consequences of mistakes made at the stage of matching individual spoons. Obtain functional impressions from the upper and lower jaws. Formation of professional literacy and the ability to think logically in students. Formation of the principles of medical ethics and deontology in students.

Basic concepts: individual spoon, anatomical impression, functional impression, materials for obtaining a functional impression, a working model.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform practical classes (knowledge requirements, list of didactic units);

- etiology and pathogenesis of complete absence of teeth;
- limits of an individual spoon for the upper jaw;
- limits of an individual spoon for the lower jaw;
- methods of fitting individual spoons (Vasilenko, Herbst, Tsito, etc.)
- fitting of individual spoons using Herbst samples.

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- Methods of single-moment production of individual spoons. Methodology of Shrot, TSITO, Vasylenko.

- Methods of laboratory production of individual spoons.
- Materials for making individual spoons.
- Rules for making a spoon on a model made of fast-hardening plastic.
- The method of making a spoon on the model from AKR-P.
- Method of making an individual spoon according to Vares.
- Method of compression pressing of individual spoons.
- The method of casting pressing of individual spoons.
- Fitting hard individual spoons according to Herbst's method.
- Herbst tests for the upper and lower jaw.
- The method of obtaining functional impressions with the help of rigid

individual spoons, fitted using Herbst samples.

- Classification of functional prints.
- Actually functional and impressions that are functionally absorbed.
- Obtaining compression, unloading and differential pressure impressions.
- . Forming the edges of a functional impression.
- Choice of technique and impression material depending on the clinical situation.

3. Formation of professional skills, skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Functional prints were first proposed by Schroth (1864). The technique involved making metal spoons for both jaws, to which springs were soldered. Heated gutta-percha was used to obtain impressions. For 15-20 minutes, the patient performed various movements of the jaws, lips, cheeks and tongue.

Today, individual spoons, which are a prerequisite for obtaining a functional impression, can be made by two methods.

The first is a direct (one-moment) method of making an individual spoon, when the doctor makes a spoon without the participation of a dental technician directly in the oral cavity from a plate of base wax.

According to the methodology of the Central Institute of Traumatology and Orthopedics (CITO), the borders of the wax spoon should end at the transitional fold and at the "A" line, which makes it impossible to obtain a valve along the "A" line.

To obtain an individual spoon according to the Vasylenko method, a standard plate of wax is folded in half on the upper jaw, the front edge is cut with a dental spatula according to the shape of the alveolar process, slightly bent and inserted into the oral cavity, overlapping the "A" line by 1-2 mm with the distal edge. With the help of 1, 2, 3 fingers of both hands, press the wax plate evenly first to the hard palate, and then to the alveolar processes, bending them all the way from the vestibular side to the transitional fold. The spoon is cooled by a stream of air and removed from the oral cavity. To complete the preparation of an individual spoon, its edges are shortened with a heated spatula in such a way that they overlap the alveolar process by 3-4 mm (in the case of a flat form - by 1.5-2 mm in width), while not reaching the "neutral zone", i.e. ending on the immovable mucous

membrane. In the area of the bridle and folds, the edges are cut even more. The distal edge is shortened along the "A" line (at least by 1-1.5 mm), so that after the release of the pterygo-maxillary folds, it has the shape of a rectangular concession to the back. Finally, two holes with a diameter of 2-3 mm are made along the sagittal seam; one – in the zone of greatest concavity of the hard palate, the second – in the distal third.

To make an individual spoon for the lower jaw, 1/3 of the length and width of the standard base wax plate should be taken. After warming up in warm water, the plate is folded lengthwise in half, the halves are firmly squeezed together and bent in the form of a horseshoe, introduced into the patient's mouth, pressed over the entire alveolar process in such a way that the plate covers the alveolar process from both sides to the transitional fold, covers the mandibular tubercle, sublingual and retroalveolar spaces. Before removing, the spoon is cooled in the oral cavity, then immersed in cold water.

Despite the ease of implementation and the possibility of shortening the laboratory stage, recently the technique of one-time production of individual spoons is practically not used, which is connected with the appearance of new materials for the accurate display of the microrelief of the prosthetic bed, which require embossing when obtaining an impression. It is impossible to get impressions under pressure with wax spoons, because there is a high probability of their deformation.

The second, indirect (laboratory) method involves the creation of a rigid individual spoon based on an anatomical impression, which is obtained using a standard spoon.

History includes methods of manufacturing individual spoons by stamping from metal plates. Currently, the most common method of laboratory execution of hard individual spoons is made of fast-hardening plastic ("Protacryl", "Redont", "Carboplast"). On the model, the edges of the spoon, which should reach the movable mucous membrane, are clearly outlined with a chemical pencil (Table 2). The prepared plastic dough is rolled out with a glass rod on a polyethylene plate to a thickness of 4 mm. The resulting plate is placed on the model and shaped. The plastic is applied in an even layer on the varnish-insulated surface, forming a spoon and a handle for removing and holding it in the process of forming the edges of the impression. After the plastic has hardened, the spoon is removed from the model and processed with milling cutters, making sure that its edges match the boundaries marked on the models and maintaining a thickness of 1.5 mm to create volume.

The method described above is based on the free molding of plastic. To obtain a higher-quality, more accurate and durable individual spoon, the technique of compression pressing of plastic is used. To do this, the boundaries of an individual spoon are outlined on a plaster model obtained from an anatomical impression.

Then a plate of base wax is heated and pressed onto the model. Excess wax is cut off along the outlined borders. To prevent the plastic from sticking to the plaster, the prosthetic bed is covered with insulating varnish. Then the model is plastered in a cuvette to replace the wax with hot-setting plastic. To prevent deformation of the edges of the spoon during hardening, it is better to carry out polymerization in a pneumatic polymerizer.

With the help of a gypsum mold, obtained after melting the wax, an individual spoon can be obtained by the method of casting pressing. At the same time, the base plastic is introduced through sprue holes, and then polymerized under a continuous pressure of 8 atm.

Also, for the manufacture of individual spoons, you can use standard blanks, in particular AKR-P, which are heated, pressed on the model and trimmed according to the outlined boundaries. A handle is formed from the scraps of the plate, gluing it to the spoon with a very heated spatula. The disadvantage of such individual spoons is deformation during the impression, as well as thin edges.

Individual spoons according to Vares are made from sheet thermoplastic material using a dental orthopedic press unit (SOPU). To do this, the plaster model is installed on the base of the installation, covered with a thermoplastic plate, covered with a casing, and the electric lamp is turned on. After 5 minutes, when the plate becomes plastic, its edges are pressed with a special ring to the base of the installation, after which the heating is stopped and the vacuum pump is turned on. The thermoplastic plate tightly presses the plaster model and accurately reproduces the relief of the prosthetic bed. The disadvantage of spoons made of thermoplastic materials is their smooth surface, which does not contribute to the retention of the impression material, and requires the additional creation of retention points with the help of a patch, as well as by forming holes on its surface.

Unlike individual spoons, the edges of which are formed in the oral cavity, rigid individual spoons made in the laboratory require fitting in the clinic.

Rigid individual spoons require fitting in the clinic using functional tests systematized by Herbst.

Functional tests - non-chewing movements of the lower jaw. If the spoon is dropped during the test, it must be shortened in the corresponding area.

Functional tests during the fitting of the spoon should be carried out with the mouth half-closed with a reduced amplitude of movements.

To clarify the borders of the spoon, as well as to form the volume of the edges, there are methods of so-called "deformation" of its sides. For this, thermoplastic masses or strips of base wax are used. In the first case, the thermoplastic mass heated in hot water in the form of a roller is glued to the edges of the spoon in such a way that it does not lengthen them, but thickens them. After that, the mass is warmed up, re-introduced into the oral cavity, placed on the jaw

and evenly pressed with the fingers to the prosthetic bed, functional tests are repeated according to the jaw being worked with. After the mass has cooled and hardened, carefully remove the spoon from the oral cavity, feeling the slight suction of the spoon.

For functional impressions, hard individual spoons use crystallized masses - gypsum, repin. It is also possible to use silicone masses of prolonged action. The difference between the latter is that these impression materials harden when mixed with a catalyst, retaining their plastic properties for a certain time.

After fitting an individual spoon, a functional impression is obtained. Correct choice of the method of obtaining it ensures fixation of the prosthesis. The following factors should be considered:

- 1) general contour or relief of the prosthetic bed;
- 2) the degree of flexibility and mobility of the mucous membrane in different areas of the prosthetic bed;
- 3) the shape of an individual spoon, the length of its edges;
- 4) properties of the impression material and, first of all, its fluidity;
- 5) the force of pressure created on the fabric of the prosthetic bed;
- 6) the method of design of the edges is active or passive;
- 7) method of obtaining a print.

Anatomical and functional prints are primarily distinguished by their edges. Anatomical impressions have the highest edges, they are obtained using a standard spoon and a large amount of impression mass, as a result of which the transition fold is stretched. If a complete removable prosthesis is made according to the anatomical impression, its edges will lie far outside the neutral zone. A functional impression is obtained with an individual spoon using a relatively small amount of impression material. It almost does not deform the transition fold and ends at the neutral zone or somewhat overlaps it.

Functional prints are divided into properly functional and functionally absorbed prints. The edges of the actual functional impression end at the neutral zone, while the edges of the functionally resorbable impression are somewhat larger and overlap the neutral zone by 1-2 mm. The oral edge of such an impression on the upper jaw is located 1-2 mm distal to line "A".

According to E.I. Gavrilov, functional prints can be issued

- using passive movements;
- with the help of chewing and other movements;
- with the help of functional tests.

According to the degree of imprinting of the mucous membrane, functional prints are divided into:

- compression (obtained under pressure);
 - decompression (unloaders);
-

- differentiated (combined).

The method of functional impression must be chosen taking into account the condition of the mucous membrane. So, for normal and hypertrophied (loose) mucosa, it is advisable to take compression impressions that provide compression of the buffer zones. In cases of atrophied, inflexible mucous membrane, it is worth applying the unloading impression technique. Differentiated impressions involve the creation of pressure only in the areas of the posterior third of the palate and the transitional fold. The method of differentiated impression is most indicated in the presence of moving strands of mucous on the alveolar ridges.

The best fixation of prostheses made from compression impressions obtained under bite pressure (chewing pressure). For this, individual plastic spoons are made and fitted. Then bite rolls are made on them from stencils and hard wax and the central ratio of the jaws is determined. In a spoon for the upper jaw, a thin layer of impression mass is applied, it is introduced into the oral cavity, pressed against the jaw and the edges of the impression are shaped. After that, the patient is asked to close his mouth, clench his jaws and keep this position until the impression mass hardens. Without removing the upper spoon, an impression is obtained from the lower jaw in the same way.

Fixation of prostheses made according to decompression impressions is weak. This technique is used for specific indications: with significant or complete atrophy of the alveolar processes and mucous membrane, as well as with increased sensitivity of the latter.

In turn, the differentiated impression provides an individual load on individual parts of the prosthetic bed, depending on their functional endurance. Functional design of the edges of the prints in all parts of the valve area is also provided.

An impression under differential pressure is obtained in two stages. The material is applied to the fitted spoon and an impression is obtained from the entire prosthetic bed under pressure. After removing the impression from the oral cavity, the areas that are planned to be unloaded are removed with a scalpel or a cutter, and perforations are made in these same places. Then a second layer of impression is obtained using a liquid material.

In cases of mobile alveolar ridge, a hole is made in the individual spoon so that the ridge remains completely exposed. Then they get a total impression zinc oxide tin mass or liquid silicone; without removing it from the oral cavity, the impression material is layered on the movable mucous membrane. After structuring the mass, the impression is removed from the oral cavity.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 60-year-old man has complete removable prostheses for the upper and lower jaws. Objectively: the alveolar processes of the jaws are slightly atrophied, the mucous membrane is moderately flexible. Obtained anatomical impressions. What stage of prosthetics for this patient should be next?

- A. Obtaining functional prints
- B. Determination of the central ratio of the jaws
- C. Making wax bases with biting rollers
- D. Production of individual spoons
- E. Verification of the design of prostheses

2. A 63-year-old patient with a complete absence of teeth on the upper jaw is simultaneously made an individual wax spoon according to Vasylenko. Where is the distal border of the spoon located?

- A. On line "A"
- B. It does not reach the "A" line by 1-2 mm
- S. It does not reach the "A" line by 3-4 mm
- D. Overlaps line "A" by 1-2 mm
- E. Overlaps line "A" by 4-5 mm

3. When manufacturing complete removable prostheses for a 78-year-old patient, individual spoons were made outside the laboratory. What was used for this?

- A. Standard spoons
- V. Plastic
- S. Basic wax
- D. Standard plates
- E. Disposable spoons

4. An individual spoon is made for the upper jaw of an 80-year-old patient. Objectively: complete absence of teeth on the upper jaw, the alveolar process is sharply and evenly atrophied, the humps of the upper jaw have not been preserved, the torus is weakly expressed. The cheekbones and frenulum of the upper lip are attached almost at the level of the apex of the alveolar process, the palatal slope sloping. What should be done with a custom spoon to create a strong shut-off valve?

- A. To extend the external borders
 - B. Extend the boundaries along line "A"
 - C. Extend the borders in the frontal area
 - D. Extend the borders in the area of the maxillary humps
 - E. Cover with an individual spoon the weight and the bridle
-

5. A 70-year-old patient complains of complete loss of teeth on the upper jaw. After receiving the anatomical impression, the doctor outlines the boundaries of the individual spoon on the model. Where should it go? its back border?

- A. Overlap line "A" by 1-2 mm
- B. End on line "A"
- C. Overlap line "A" by 2.5 mm
- D. Overlap line "A" by 2-3 mm
- E. Must not overlap line "A"

6. A 58-year-old patient has a complete removable upper jaw prosthesis made. An individual spoon is formed freely from plastic that hardens quickly. What should be done to prevent plaster from sticking to the inner surface of the spoon?

- A. Soak the model in cold water
- B. Put the cellophane on the model
- C. Apply insulating varnish
- D. Wipe the model with a swab dipped in hydrochloric acid
- E. Soak the model in hot water

7. A 70-year-old patient is being made complete removable prostheses for the upper and lower jaws. It is planned to make individual spoons according to Boyanov. What material will be used?

- A. Protacryl
- V. Karbodont
- S. AKR-P
- D. Record plate
- E. Wax plate

8. A 59-year-old female patient complains of chewing disorders due to complete loss of teeth. After the examination, a decision was made to manufacture complete removable prostheses for both jaws, while the use of individual spoons according to Vares is envisaged for obtaining functional impressions. What is the disadvantage of these spoons?

- A. They fit loosely to the prosthetic bed
- A. They do not provide retention of impression materials
- C. They are deformed when the impression is removed
- D. Contain residual monomer
- E. Have sharp edges

9. In order to obtain functional impressions from the upper and lower jaws during the manufacture of complete removable prostheses for a 67-year-old patient, individual spoons of fast-hardening plastic are formed on plaster models. Polymerization is carried out in a pneumatic polymerizer. What disadvantage of spoons can be prevented by using a polymerizer?

- A. Deformations of the edges of spoons
-

- B. Porosity of plastic
- C. Surpluses of the final monomer
- D. Injury to the mucous membrane of the prosthetic bed
- E. Surface roughness

10. When manufacturing a complete removable prosthesis, the technician makes a spoon from a standard AKR-P workpiece by heating it and pressing it on a plaster model. The resulting spoon has a sharp edge. How to eliminate this shortcoming?

- A. Cover with plaster
- B. Restore with plastic
- S. Edging with wax
- D. Round with a milling cutter
- E. Round by polishing

11. In a 68-year-old patient, during the manufacture of a complete removable prosthesis for the upper jaw, at the stage of fitting an individual spoon using Herbst's samples, it was found that it falls off when the cheeks are retracted. Where should the edge of an individual spoon be shortened?

- A. In the area of the cheek folds
- B. In the front department
- C. From the back of the maxillary hump to the middle of the alveolar process
- D. Along the entire vestibular margin
- E. Along line "A"

12. A 75-year-old patient has a complete removable upper jaw prosthesis made. When fitting an individual spoon according to Herbst's method, the doctor discovered that it falls off when the lips are pulled with a tube. In which area should it be corrected?

- A. Vestibular between canines
- B. Distal along the "A" line
- C. In the area of buccal cords
- D. Along the entire vestibular margin
- E. Behind the maxillary humps

13. A 60-year-old patient has a complete removable upper jaw prosthesis made. While fitting an individual spoon according to Herbst's method, the doctor discovered that the spoon falls off during swallowing. On which part of the spoon should correction be made?

- A. In the area of the pterygoid folds
 - B. In the area of the buccal cords
 - C. In the area of the maxillary humps
 - D. Vestibular between canines
 - E. Throughout the vestibular margin
-

14. A 57-year-old patient has a complete removable upper jaw prosthesis made. At the stage of fitting an individual spoon, the vestibular border in the area from canine to canine is specified. What Herbst test should be performed?

- A. Swallowing saliva
- B. Licking the upper lip with the tongue
- C. Wide opening of the mouth
- D. Retraction of the cheeks
- E. Lip extraction with a tube

15. A 70-year-old patient has a complete removable prosthesis made for the lower jaw. At the stage of fitting an individual spoon, the border in the area of the frenulum of the tongue is specified. What Herbst test should be performed?

- A. Swallowing saliva
- B. Licking the upper lip with the tongue
- S. Touching the left and right cheek alternately with the tongue
- D. Protruding the tongue in the direction of the tip of the nose
- E. Wide opening of the mouth

16. A 68-year-old patient is being made a complete removable prosthesis for the lower jaw. At the stage of fitting an individual spoon, the border in the area of the alveolar humps is specified. What Herbst test should be performed?

- A. Swallowing saliva
- B. Licking the upper lip with the tongue
- S. Touching the left and right cheek alternately with the tongue
- D. Protruding the tongue in the direction of the tip of the nose
- E. Lip extraction with a tube

17. A 65-year-old patient is being made a complete removable prosthesis for the lower jaw. Objectively: the alveolar process is moderately atrophied. The fitting of an individual spoon is carried out with the help of Herbst samples. When passing the tip of the tongue along the red border of the lower lip, the spoon is dropped. In which area should the edge of the spoon be shortened?

- A. Along the maxillohyoid line
- B. From the place behind the mucous tubercle to the maxillohyoid line
- C. From canine to canine on the lingual side
- D. From the mucous tubercle to the place of placement of the first molar
- E. From canine to canine on the vestibular side

18. A 65-year-old patient is being made a complete removable prosthesis for the lower jaw. The fitting of an individual spoon to obtain a functional impression is carried out with the help of Herbst samples. When swallowing saliva, the spoon falls off. In which area should its edge be shortened?

- A. From the place behind the mucous tubercle to the maxillohyoid line
 - B. From canine to canine on the vestibular side
-

- C. From canine to canine on the lingual side
- D. Along the maxillohyoid line
- E. In the area of premolars on the lingual side

19. At the stage of fitting an individual spoon, Herbst tests are carried out. What muscles determine the displacement of an individual spoon during a functional test - alternately touching the tip of the tongue to the right or left cheek?

- A. Maxillohyoid
- B. Bigastric, chin-hyoid
- C. Chin and circular muscle of the mouth
- D. Mimic muscles
- E. Chewing muscles

20. After obtaining the anatomical impressions during the manufacture of a complete removable prosthesis, an individual spoon is fitted. What material should be used for the functional design of its edges?

- A. Thermoplastic
- V. Alginate
- S. Siliconovy
- D. Plaster
- E. Tiokolovy

21. In a 65-year-old patient, during the examination of the upper jaw, atrophy of the alveolar process of the III degree according to Schroeder was established, the maxillary humps are atrophied, the alveolar processes are covered with an atrophied, thin, pale mucous membrane. What method of obtaining a functional impression should be used in this patient?

- A. Arbitrary pressure
- B. Constant pressure
- C. Metered pressure
- D. Decompression
- E. Compression

22. During the examination of the oral cavity of an edentulous patient, a mobile alveolar ridge was found on the upper jaw. The degree of atrophy of the alveolar process according to Schroeder is II. The mucous membrane is moderately mobile. Which imprint should be preferred by the degree of compression?

- A. Differentiated
 - V. Compression
 - S. Decompression
 - D. Combined
 - E. Because it loads
-

23. A 60-year-old patient has complete removable prostheses made for both jaws. A compression technique was chosen to obtain a functional impression. What printing mass should be used?

- A. Zinc oxydeugenol
- V. Alginatna
- S. Liquid gypsum
- D. Thermoplastic
- E. Silicone corrective

24. In an 80-year-old patient, a functional impression was removed from an edentulous upper jaw using a removable prosthesis made according to an anatomical impression. To obtain a functional impression, thermoplastic mass was used, which was replaced by soft plastic. By what method was the functional impression obtained?

- A. According to Kurlyandskyi
- V. According to Shrot
- S. For Momme
- D. THIS
- E. Za Vasylenko

25. Complete removable prostheses are made for a 70-year-old patient. Objectively: uniform atrophy of alveolar processes, exostoses. Pronounced torus. Bone protrusions are covered with a thin mucous membrane. In other areas, the mucous membrane is moderately pliable. What functional impression should be obtained?

- A. Compression
- B. Decompression
- S. Differentiated
- D. Under masticatory pressure
- E. The one who unloads

26. A 67-year-old patient with complete absence of teeth applied for prosthetics. Objectively: significant atrophy of alveolar processes on both jaws. The mucosa is atrophied, inflexible. Which spoon should be used to get a functional impression?

- A. With a solid individual perforated spoon
- B. With a solid individual spoon
- S. With an individual wax spoon
- D. Individual spoon with isolated and perforated areas
- E. A standard spoon

27. A 67-year-old patient complained about missing all his teeth. Objectively: the mucous membrane of the alveolar process of the upper jaw is loose, and that of

the lower jaw is inflexible. What functional impressions should be obtained in this case?

- A. The upper one is compressive, the lower one is the one that unloads
- B. The upper one is the unloading one, the lower one is the compression one
- S. Upper – compressive, lower – differentiated
- D. The upper one is the one that unloads, the lower one is differentiated
- E. Upper – differentiated, lower – compression

28. A 65-year-old patient complained about the complete absence of teeth on the upper jaw. When examining the oral cavity, significant flexibility of the mucous membrane was revealed. What impression should be obtained?

- A. Full anatomical cast
- B. Discharge impression with zinc oxydeugenol mass
- S. Compression two-layer silicone mass
- D. Functional thermoplastic mass
- E. Functional alginate mass

29. A 72-year-old patient has complete dentures made. Objectively: the alveolar process on the upper jaw is sharply atrophied, the palate is flat, the torus is sharply defined. The mucosa of the prosthetic bed is thin, without a submucous layer. What print should I get?

- A. Functional decompression with silicone mass
- B. Full anatomical cast
- S. Full anatomical alginate mass
- D. Functional compressive thermoplastic mass
- E. Functional differentiated repinoma

30. A 70-year-old patient complained about the absence of all teeth in the lower jaw. Objectively: uneven atrophy of the lower jaw and uneven flexibility of the mucous membrane. The production of a complete removable prosthesis is planned. What method of obtaining a functional impression is shown?

- A. Impression under masticatory pressure
- B. Decompression impression
- S. Compression print
- D. Differentiated print
- E. Impression under metered pressure

4. Summary:

- Who proposed the method of obtaining a functional impression?
 - What is the method of one-time production of an individual spoon? Name its advantages and disadvantages.
 - What methods of making individual spoons in the laboratory do you know?
 - What materials can be used to make individual spoons?
-

- Give a comparative description of various methods of laboratory production of individual spoons.
- What are "Herbst tests"?
- How to fit a rigid individual spoon on the upper jaw?
- How to fit a rigid individual spoon on the lower jaw?
- How to arrange the edges of individual spoons?
- What are the features of obtaining functional prints with the help of rigid individual spoons, fitted with the help of Herbst samples?
- Fitting a rigid individual spoon to the upper jaw.
- Fitting a rigid individual spoon to the lower jaw.
- Designing the edges of the spoons on the upper and lower jaw.
- How does a functional impression differ from an anatomical one?
- What are "properly functional and functionally resorbable prints"?
- Tell us about Gavrylov's classification of prints.
- In what cases is a compression print indicated? How to get it?
- Tell us about the indications for the unloading impression and the features of its receipt.
- How to get an impression under differential pressure?
- Compare different methods of obtaining functional prints?
- Describe the doctor's tactics when obtaining a functional impression in the presence of a mobile alveolar ridge?
- Obtaining a compression functional impression.
- Obtaining a functional imprint that relieves stress.
- Obtaining a differentiated functional impression.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadskyi <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 3

Topic: Determining the central ratio of the jaws in the case of group IV dentition defects. Errors in fixing the central ratio of the jaws, signs, their elimination.

Goal: To acquaint students with modern aspects of biomechanics, the method of determining the central ratio of the jaws, the importance of achieving successful prosthetics of edentulous jaws. To study the classification of methods of determining and fixing the central ratio of the jaws; methods of forming the prosthetic plane and the vestibular surface of the upper roller; criteria for assessing the quality of determining the central ratio of the jaws;

Basic concepts: articulation, occlusion, types of occlusion, central occlusion, central relationship of the jaws, wax templates, wax rollers, interalveolar height, bite height.

Equipment: Computer, multimedia projector, phantoms.

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform

- articulation,
- occlusion,
- types of occlusion,
- central occlusion,
- central jaw ratio,

- wax patterns,
- wax rollers,
- interalveolar height,
- bite height

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

3. Formation of professional skills, skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1 content of tasks (tasks, clinical situations, etc.);

The clinical stage of determining and fixing the central ratio of edentulous jaws includes:

- formation of the vestibular oval;
- determination of the level of the prosthetic plane;
- formation of the prosthetic plane;
- definition interalveolar height;
- definition and fixation mesiodistal ratio of the jaws;
- drawing indicative lines.

Requirements for wax templates with bite rollers. Wax templates must have a thickness of no more than 2 mm, match the borders of the prosthesis and not balance on the jaw. Bite rollers should fit tightly to the template and not peel off on the cut (be monolithic). Their height in the area of the front teeth should be 1.5 cm, in the area of the molars - 0.8-1.0 cm. The width of the ridges in the frontal section should be equal to 0.5 cm, they should be slanted in the oral direction. In the area of the third molars, the ridges are cut in the distal direction at an angle of 45°.

The formation of the vestibular oval is a correction of the thickness of the upper occlusal ridge in the frontal department. When teeth are lost, there is atrophy of the alveolar process, which causes the upper lip to droop, which gives the face an aged appearance. Therefore, to reproduce the appearance of the patient, there is a need to model the vestibular surface of the roller in the front area.

When determining the level of the prosthetic plane, the length of the upper bite roller in the front section is specified. At the same time, they focus on the fact that the cutting edges of the upper central incisors when the mouth is closed coincide with the line of closing the lips, and during a conversation they are located below the upper lip by 2 mm. Therefore, the length of the roller is adjusted in such a way that, with the mouth half-open, it protrudes from under the upper lip by 2 mm. If the prosthetic plane is falsely close to the lower jaw, then the teeth are excessively high. On the contrary, when its level is raised to the upper jaw, they

become invisible (Fig. 7). Hence, setting the optimal level of the prosthetic plane is of cosmetic importance and, in addition, plays a role in sound production.

The formation of the prosthetic plane is carried out according to anatomical landmarks - the pupil and nasolabial (tragonasal, Kamperov) lines. The biting roller on the upper template is cut or extended until the parallelism of the rulers is achieved.

It is more convenient to model the prosthetic plane using the Larin apparatus, which consists of an intraoral occlusion plate and extraoral defining plates, which must be installed behind the nasolabial lines. In the front part, these plates have screw connections and can be installed at any height and width.

There are 4 methods for determining the interalveolar height:

- anatomical;
- anthropometric;
- functional and physiological (hardware);
- anatomical and physiological.

The anatomical method is based on restoring the correct configuration of the patient's face. Gizi and Koehler recommends using the following features to determine the height of the bite, which ensure the aesthetic optimum of the face: the lips do not droop, they close calmly and without tension; the nasolabial folds are distinct, the corners of the mouth are raised; the circular muscle of the mouth functions freely. The disadvantage of the method is subjectivity, so it is practically not used.

The anthropometric method is based on the principles of proportionality of individual parts of the face. There are several methods of its reproduction:

-Kantarovich - division of the face into three equal parts: 1) from the border of the hair to the middle of the eyebrow arches - the upper (cerebral) part of the face; 2) from the middle of the eyebrow arches to the edges of the nose - the middle (respiratory) third; 3) from the edges of the wing of the nose to the lower part of the chin - the lower (digestive) third of the face. With age, the upper third of the face increases (the border of the hairy part of the forehead recedes), the lower third of the face decreases (due to the loss of teeth); the middle part of the face remains unchanged, by measuring which, you can get the height of the bite;

-Wadsworth-White - dividing the face into two equal parts: from the middle of the pupils to the line of closing the lips and from the base of the wing of the nose to the lower part of the chin.

- Jupitza - division of the face in the extreme and middle relations with a "golden dissection" compass. In practical use, there is a Gehringer compass, which consists of two parts: a large (outer) and a small (inner) compass, which are located in the opposite direction to each other. The point of rotation of the legs of the small compass lies on the line that connects the legs of the outer compass, and at all

positions divides this line in the extreme and middle terms. The occlusal rollers are adjusted until the point of rotation of the small compass lies on the top of the tip of the nose, while keeping the outer leg of the compass on the point on the chin, which is most prominent.

The functional-physiological method is based on the principle that the masticatory muscles develop the greatest activity in the process of chewing food. With a greater or lesser interalveolar distance or lateral displacement of the lower jaw, the strength of the masticatory muscles decreases. The AOTSO apparatus ("central occlusion determination apparatus", Russian) is used.

The anatomical and physiological method, the most common, consists in determining the height of relative rest, which is 2 mm greater than the height of the central ratio of the jaws. 2 points are applied with a pencil on the patient's face - at the base of the nose and chin at the most prominent point. The patient is asked to relax and sit without straining the facial and chewing muscles. The patient's attention is distracted by conversation, they are offered to make swallowing movements. For greater accuracy, measurements between points are carried out several times. After that, both wax templates are introduced into the oral cavity and the lower roller is adjusted under the upper one in such a way that when the jaws are closed, the distance between the points is 2 mm less than the measured one.

To fix the central ratio of the jaws on the upper roller in the area of the first premolars and molars, two non-parallel notches are made with a sharp spatula, and a well-heated strip of wax is applied to the lower bite roller. It is necessary to place the index fingers in the area of the side teeth, offering the patient to touch the back third of the palate with the tip of the tongue, and in this position to close the jaws. Wax templates are removed from the oral cavity, cooled. The correctness of fixing the central ratio is checked on models and several times in the oral cavity.

The last stage is the drawing of approximate lines for placing the six upper teeth. The technician uses these guidelines to select tooth sizes. The middle line is drawn vertically as a continuation of the middle line of the face, which divides the nasolabial groove of the upper lip at the level of the part. The midline is located between the central incisors. The canine line is lowered from the outer wing of the nose. It passes along the ridges of the canines. The smile line is drawn along the border of the red border of the upper lip. The necks of the teeth should be above this line.

3.2. requirements for work results, including registration;

- Stages of determining and fixing the central ratio of edentulous jaws.
 - Requirements for wax patterns with biting rollers.
 - The method of forming the vestibular oval.
-

- Determination of the level of the prosthetic plane and the rules for its formation in a patient with complete absence of teeth.
- Methods of determining the interalveolar height.
- Determination and fixation of the mesiodistal ratio of the jaws
- Approximate lines, values for designing tooth rows.
- Evaluate wax templates with biting rollers on models.
- Determine and record the central ratio of edentulous jaws.
- To determine the interalveolar height by different methods.

3.3. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 65-year-old patient complained of difficulty chewing food due to the absence of all teeth on the upper and lower jaws. The last tooth extraction was carried out a year ago. Previously used partial removable prostheses. What method of determining the interalveolar height is most acceptable in this case?

- A. Anatomical
- B. Anatomical and physiological
- C. Anthropometric
- D. Physiological
- E. Functional and physiological

2. Complete removable prostheses are made for a 70-year-old patient. At the stage of determining and fixing the central ratio of the jaws to establish the interalveolar height, the height of physiological rest is measured. What method is used?

- A. Anatomical
- V. Anatomical and physiological
- S. Functional and physiological
- D. Anthropometric
- E. Hardware

3. Complete removable prostheses are made for a 67-year-old patient. To determine the central ratio of the jaws, wax bases with biting rollers are made. What is the optimal height of the ridge on the upper jaw in the area of front teeth and last molars?

- A. In the area of front teeth - 0.5 cm, last molars - 1.5 cm
- B. In the area of the front teeth - 0.2 cm, last molars - 2 cm
- S. In the area of front teeth - 1.5 cm, last molars - 0.8-1.0 cm
- D. In the area of front teeth - 4 cm, last molars - 3 cm
- E. In the area of front teeth - 3 cm, last molars - 2 cm

4. A 70-year-old patient has complete removable prostheses made for both jaws. At the stage of determining and fixing the central ratio of the jaws, the length

of the upper bite roller in the frontal section is corrected. How many millimeters should it protrude from under the upper lip?

- A. 1
- B. 2
- P. 3
- D. 4
- E. 5

5. Complete removable prostheses are made for a 65-year-old patient. At the stage of determining and fixing the central ratio of the jaws, the vestibular oval is formed. What manipulation is next?

- A. Formation of the prosthetic plane
- B. Determination of the height of the upper bite roller
- C. Refinement of the boundaries of wax templates
- D. Fitting the lower bite roller
- E. Determination of interalveolar height

6. Complete removable prostheses are made for a 62-year-old patient. At the stage of determining and fixing the central ratio of the jaws, a prosthetic plane is formed. Construction of the prosthetic plane begins with:

- A. Corrections of the vestibular surface of the wax roller
- B. Formation of the prosthetic plane in the lateral area on the right
- S. Formation of the prosthetic plane in the lateral area on the left
- D. Formation of the prosthetic plane in the frontal area
- E. Determination of the height of the wax roller in the frontal area

7. An 80-year-old patient has complete removable prostheses made for both jaws. At the stage of determining and fixing the central ratio of the jaws, a prosthetic plane is formed on the upper bite roller. What anatomical landmark should be used?

- A. Kamperovsky horizontal
- V. Frankfurt horizontal
- S. Naso-ear line
- D. Pupillary line
- E. Occlusal plane

8. A 69-year-old patient is being made complete removable prostheses for the upper and lower jaws. Objectively: the face is proportional, nasolabial and chin folds are well defined. The central ratio of the jaws is determined. How much interalveolar height should be less height of rest in this case?

- A. 2-3 mm
 - B. 4-5 mm
 - C. 5-6 mm
 - D. 6-7 mm
-

E. 7-8 mm

9. A 60-year-old patient has a complete removable upper jaw prosthesis made. What approximate lines should an orthopedist draw on the upper bite roller after determination of the central ratio of the jaws?

- A. Middle, smiles
- B. Middle, premolars
- C. Smiles, teeth
- D. Middle, ikol
- E. Smiles, median, hiccups

10. A 56-year-old patient applied to the orthopedic dentistry clinic to determine the central ratio of the jaws during the manufacture of a complete removable plate prosthesis for the upper jaw. What is the next clinical step?

- A. Removal of a functional impression
- B. Checking the wax composition of the prosthesis
- C. Putting on a complete removable prosthesis
- D. Determination and fixation of the central ratio of the jaws
- E. Obtaining an anatomical impression

4. Summary:

- What are the requirements for wax templates with biting rollers?
- How to correct the upper bite roller in the front department when determining the central ratio of edentulous jaws?
- How to form a vestibular oval?
- How to form a prosthetic area in a patient with a complete absence of teeth?
- What are the methods of determining the interalveolar height?
- How to determine and record the mesiodistal ratio of the jaws?
- What are "reference lines"? What is their importance for the construction of tooth rows?

- Evaluation of wax patterns with bite rollers on models.
- Determination and fixation of the central ratio of edentulous jaws.
- Determination of interalveolar height by various methods.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky
<http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 4

Topic: Biomechanics of lower jaw movements. Occlusion factors. Articulation theories, basic provisions. Principles of working with an articulator in the prosthetics of patients with a complete absence of teeth.

Goal: to acquaint students with the general basics of functional anatomy, to determine its place and role in the biomechanics of the lower jaw, as well as in the formation of the most functionally complete artificial dentition. Get acquainted with the main types of articulators and facial arches, their classification. Know the basic methods of registering the movements of the lower jaw. To master the technology of transferring the central ratio to the articulator with partial loss of teeth. Learn the basic principles of spherical and joint theories of articulation; demonstrate the Efron-Gelfand-Katz method and the Christensen phenomenon. Compare different types of articulators; be able to plaster models in the articulator; register the movements of the lower jaw; to know the principles of working with an articulator in the prosthetics of patients with a complete absence of teeth.

Basic concepts: articulation, occlusion, types of occlusion, central occlusion, central relationship of the jaws, wax templates, wax rollers, interalveolar height, bite height, occluded, articulator.

Equipment: Computer, multimedia projector, phantoms.

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- Articulation
- Occlusal plane
- Occlusion factors
- Sagittal joint path
- Sagittal incisal path
- Transverse articular path
- Transversal incisal path
- Spee's sagittal occlusal curve
- Wilson's transverse occlusal curve
- Classification and characteristics of articulators.
- Principles of working with an articulator during prosthetics of patients with a complete absence of teeth.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1 content of tasks (tasks, clinical situations, etc.);

The components of the maxillofacial system are interconnected, firstly, anatomically, secondly, by a single phylo- and ontogenesis, and thirdly, by common functions. The functions of the maxillofacial apparatus include speech, swallowing, sucking, breathing, laughter, etc. But chewing movements are of the greatest importance for orthopedic dentistry. Chewing can be carried out fully only if the teeth of the upper and lower jaws are in occlusal contact. This is the main principle of occlusal programming used in dental prosthetics. Teeth clenching is the main manifestation of chewing movements. The only criterion that determines the correct articulation of artificial teeth is the presence of numerous and unhindered sliding of the teeth in all phases of chewing movements. This feature, on the one hand, ensures an even distribution of chewing pressure, the stability of dental prostheses, and an increase in their functional value, on the other hand, it prevents the occurrence of pathological changes in the tissues of the prosthetic bed.

The lower jaw moves in three directions: vertical, sagittal and transversal.

Vertical movements of the lower jaw (opening and closing the mouth) are carried out due to the alternate contraction of the muscles that lower and raise the lower jaw. Lowering of the lower jaw occurs with active contraction of the maxillohyoid, chin-hyoid and bibicularis muscles, provided that the hyoid bone is fixed by the muscles lying below it. Closing the mouth occurs due to the contraction of the temporal, masticatory and pterygoid medial muscles with the gradual relaxation of the muscles that lower the lower jaw.

When opening the mouth simultaneously with the rotation of the lower jaw around the transverse axis, the heads slide along the slopes of the articular tubercles downward and forward. At the maximum opening of the mouth, the articular heads are installed at the front edges of the articular tubercles. At the same time, different movements occur in different parts of the joint. In the upper part, the disc slides down and forward together with the head, and in the lower part, the head rotates in the depression of the lower surface of the disc, which is a movable joint fossa for it. The distance between the upper and lower rows of teeth in an adult with maximum opening of the jaws is 4 cm on average.

When opening the mouth, each tooth of the lower jaw moves down and back, forming a concentric curve with the center of rotation in the articular head. Since the lower jaw when opening the mouth drops down and shifts back, the curves in space will shift, and at the same time the rotation of the head of the lower jaw will shift. If you divide the path taken by the head of the lower jaw relative to the slope of the articular tubercle (articular path) into separate segments, then each segment will have its own curve. Thus, the entire path traveled by any point located, for example, on the chin ridge, is not a straight curve, but a broken line consisting of many curves. The center of rotation of the lower jaw during its vertical movements moves to different phases of its movements.

Sagittal movements of the lower jaw - forward movements of the lower jaw, which are carried out due to the bilateral contraction of the lateral pterygoid muscles, which are fixed in the pits of the pterygoid processes and are attached to the joint bag and the joint disc. Movements occur simultaneously in both joints. The greatest distance that the head can travel forward and down the articular tubercle is 0.75-1.0 cm. When chewing, this distance is 2-3 mm.

Sagittal movements are characterized by the angle of the sagittal articular path, which according to Guizi is on average 33° and the angle of the sagittal incisal path, the value of which is $40-50^\circ$.

With anterior occlusion, tooth contact is possible at three points: one of them is located on the front teeth, and the other two are on the back cusps of the last molars. Such a contact is called a "three-point contact according to Bonneville".

When lowering the lower jaw, a gap is formed between the side teeth, which is equal to the size of the incisal overlap. This is possible due to the location of the lateral teeth along the sagittal curve, which was called the compensatory curve of Spee.

In the area of the lateral teeth, the occlusal surface has a curvature, which is directed by its convexity downwards. When the lower jaw moves forward, its rear part descends and a lumen appears between the last upper and lower molars. Due to the presence of a sagittal compensatory curve, this lumen is closed (compensated) when the lower jaw is pushed forward, hence the name -

compensatory curve. In addition to the sagittal, a transverse Wilson compensation curve is distinguished (Fig. 16). It passes through the chewing surfaces of the molars of the right and left sides in the transverse direction. This phenomenon is due to the different level of location of the buccal and palatal tubercles due to the inclination of the teeth towards the cheek. At the same time, the radius of curvature of the curve is different for each symmetrical pair of teeth.

Transverse (lateral) movements of the lower jaw occur with unilateral contraction of the lateral pterygoid muscle. At the same time, the muscle on the side opposite to the displacement of the jaw is shortened. When the lower jaw moves sideways, the articular head on the working side rotates around a vertical axis, while on the balancing side, it slides along the articular surface of the tubercle together with the disc. Thus, on the balancing side, the glenoid head is displaced downward, forward, and slightly outward (transverse articular path). The path of its passage is at an angle of 17° in relation to the sagittal articular path.

Transverse movements are characterized by displacements of occlusal contacts. As the lower jaw moves to the right and left, the teeth describe curves that intersect at an obtuse angle. The most obtuse angle is formed at the intersection of the right and left transverse paths of the central incisors. It determines the maximum amplitude of lateral movements of the lower jaw and is $100-110^\circ$ - the "Gothic angle".

During lateral movements, on the working side, the teeth of the upper and lower jaws are set opposite each other with the same cusps, and on the balancing side - with different names (the buccal lower cusps contact the palatal ones).

Of practical interest for dental prosthetics are chewing movements, which Gizi described as cyclical (Fig. 19). The initial moment of movement is the position of the central jaw. Then four phases take place continuously. The first - the jaw lowers and moves forward; the second - displacement of the jaw to the side; the third - the teeth are closed on the working side with the same name bumps, and on the balancing side - with different names; the fourth - return to the central occlusion position. After the end of chewing, the jaw is set in a position of relative rest.

According to Gross and Matthews, the following "occlusion factors" influence the character of occlusal contact of the teeth during movements of the lower jaw:

- articular path;
- movement Benet (lateral movement of the lower jaw);
- occlusal plane;
- curve Spee;
- curve Wilson;
- morphology of the chewing surface of the lateral teeth;

- incisal path;
- the distance between the articular heads.

The factors are interrelated and are taken into account when placing teeth on complete removable prostheses. So, with a vertical slope of the articular tubercle, you need to model higher humps and deep pits on the teeth. With flat articular tubercles found in elderly patients, there are flat tubercles and shallow pits of the lateral teeth.

The greater the angles of the articular paths, the greater the opening of the lateral teeth in anterior occlusion and the lateral teeth on the balancing side in lateral occlusion. In order to prevent pathological tooth contacts, either "canine guidance" is required - the creation of contacts on the canines on the working side and their absence - on the balancing side, or the presence of high humps on the working side during "group guidance".

In the absence of sufficient incisal overlap in the anterior occlusion, contact of the lateral teeth will be observed, which causes pathological attrition. Therefore, minimal incisal overlap is created only on complete removable prostheses, which in this clinical situation ensures stability of prostheses during chewing.

The position of the front teeth significantly affects the occlusion of the lateral teeth. The greater the horizontal incisal overlap, the lower the ridges of premolars and molars should be. With a large vertical overlap, higher humps of the lateral teeth can be modeled.

The more pronounced the curve of Spee, the smaller the cusps of the molars should be, which avoids the occurrence of supercontacts of the lateral teeth during anterior occlusion.

The position of the teeth in relation to the centers of rotation depends on the distance between the joint heads.

A common requirement of many articulating theories is the provision of multiple sliding contact between artificial teeth during masticatory movements.

According to the spherical theory of articulation, developed in 1918 by Monson, the longitudinal axes of all teeth and the net force of masticatory forces converge at one point, located in the area of the cock's crest of the ethmoid bone. The cutting edges of the incisors, the buccal humps of the chewing teeth, and the articular heads are located within a spherical surface with a center at the indicated point and a radius of 10.4 cm.

According to this theory, it is advisable to design artificial tooth rows with different types of prosthetics using spherical surfaces.

According to different authors, the radius of the sphere ranges from 4 to 18 cm.

Monson's theory reflects the spherical properties of the structure of the maxillofacial apparatus, as well as the complex three-dimensional rotational movements of the lower jaw.

The most prominent representatives of the theory of balancing (joint theory) are Guizi and Ganau. According to Gizi, chewing movements are carried out cyclically, according to a parallelogram. Preservation of cusp and incisal contact is a more important factor in this theory. At the same time, the inclination of the articular path gives direction to the movements of the lower jaw, and these movements, in turn, are affected by the size and dimensions of the articular tubercle. Thus, the decisive factor in the theory of balancing is the emphasis on the leading role of the temporomandibular joints in the movements of the lower jaw. To reproduce the tooth rows, it is necessary to accurately determine the joint path, record the incisal path, determine the sagittal and transverse compensation curves, take into account the height of the cusps of the lateral teeth.

Based on his own observations, Bonville formulated the laws that became the basis for the construction of articulators (Fig. 21). The most important of them are:

- 1) an equilateral Bonville triangle with a side equal to 10 cm;
- 2) the character of the cusps of the lateral teeth is directly dependent on the size of the incisal overlap;
- 3) the line of closure of the lateral teeth is curved in the sagittal direction;
- 4) when the lower jaw moves to the side on the working side, the closure occurs with the same-named bumps, on the one that balances, with different-named bumps.

Bonville defined the three-point contact as a defining feature of the physiological articulation of tooth rows. With anterior occlusion, tooth contact is observed at three points - one on the front teeth and two on the distal cusps of the molars.

Ganau deepened the above concepts, substantiating them biologically and emphasizing the regular, directly proportional relationship between the following factors of occlusion:

- sagittal joint path;
- incisal overlap;
- height of chewing tubercles;
- the severity of the curveSpee;
- occlusal plane.

This complex is known as "Ganau's articulating five" and is used in the reconstruction of tooth rows in articulators.

Christensen's phenomenon consists of the following: if, after determining the central ratio of the jaws by the usual method, the patient pushes the lower jaw forward, then a wedge-shaped space is formed in the area of the chewing teeth.

This is a sagittal phenomenon. When the lower jaw is shifted to the side, a space of the same shape appears between the rollers on the opposite side. This disconnection is called Christensen's transversal phenomenon.

The setting of teeth according to Efron-Gelfand-Katz is based on the Christensen phenomenon (Fig. 22). The technique consists in the formation of individual occlusal curves in the oral cavity. Rigid individual spoons are used for both jaws, on which wax-abrasive (wax plus sand, emery or other abrasive) occlusion rollers are attached. Occlusal ridges are formed by the technician with the reproduction of sagittal and transverse occlusal curves and taking into account the Christensen phenomenon. The patient is offered to perform various movements of the lower jaw for a certain time. Grinding of the upper and lower occlusal ridges is carried out before establishing the interalveolar height.

The articulator is designed to reproduce the ratio of the upper and lower jaws in the intercusp contact position (central occlusion), as well as during its sagittal and transverse movements. It is a hinged mechanical device into which models of the upper and lower jaws are plastered. The basis of the design of most articulators is the Bonville triangle, which connects the heads of the lower jaw and the incisal point and has sides equal to 10 cm. The main disadvantage of such an articulator is the horizontal placement of the joint paths.

All the variety of articulators can be divided into four main types:

- 1) simple hinged;
- 2) medium anatomical (linear-planar);
- 3) semi-regulated;
- 4) fully adjustable.

In simple hinged articulators, only one hinged movement can be performed; lateral movements are excluded. They are usually smaller than the patient's jaws, so registration of the intercuspular ratio does not always correspond to reality, which reduces their practical significance

In average anatomical articulators, the value of the joint angle is fixed and equal to 30° . This design does not allow you to adjust transversal movements, but it allows changing the ratio of incisors. This is an improved version of a simple hinged articulator, it can be used to reproduce relatively accurately the intercusp ratio of the jaws. An example of such articulators is the Sorokin articulator, in which the upper frame is movable; the inclination of the articular path in relation to the occlusal plane is equal to 30° ; lateral articular – 17° ; sagittal incisor - 40° ; lateral incisor - 120° . Landmarks for fixing the lower model in the space of the articulator are three points: the middle line pointer and two protrusions on the vertical part of the lower frame.

Semi-adjustable articulators allow you to adjust the angle of joint tilt (sagittal joint path) and Bennett's angle. The interalveolar distance is usually fixed (110 mm), but some articulators allow you to change this value.

There are two types of semi-adjustable articulators: Arson and Non-Arcon. In Arson-type articulators, the joint mechanism and imitation of the joint fossa are located in the upper frame, and the imitation of the joint head is in the lower one. Such devices duplicate the anatomical structure of the temporomandibular joints. Thus, the position and movements of the appendages are the same as in the joints. In Non-Arcon type articulators, the appendage is attached to the upper frame, and the lower frame has a groove mechanism. Such devices duplicate the anatomical structure of inverted joints.

In some clinical situations, when the patient has significant deviations from the average dimensions, for example, in cases of a very steep or inclined articular path, the teeth are set in fully adjustable articulators. In such cases, it is necessary to record the articular and incisal pathways using intraoral or extraoral methods.

For extraoral recording of the movements of the lower jaw, the Gizi apparatus is used, which consists of a metal horseshoe-shaped plate and a facial arch. The horseshoe-shaped plate is attached to the lower bite roller in the area of the frontal teeth and is connected to the facial arch. The ends of the facial arch are equipped with pencils and are located in the area of the joints. Paper is placed on the cheek in front of the ear, to which the pointed ends of the pencils are directed. During the movements of the lower jaw, pencils are also moved forward, thus drawing the direction of the joint path on paper.

To record the lateral movements of the lower jaw, change the direction of the pencils, which are set with the drawing ends not in the direction of the articular head, but upwards. Paper is placed under the pencils, on which the pencil leaves traces during sideways movements of the lower jaw.

To record the angle of incisal slip, the pencil is placed not in the area of the articular heads, but in the area of the frontal teeth. The end of the drawing pencil should be positioned horizontally towards the incisal point, and the paper should be in the plane of the maxillary suture. The movement of the lower jaw is outlined on paper, and the incisal sliding angle can be obtained from it.

Intraoral recording of the movements of the lower jaw is carried out as follows. On the occlusal surface of the upper bite roller, 4 small pins protruding from the wax by 1-2 mm are fixed: two - in the area of the central incisors and two in the area of the molars (right and left). On the lower occlusal roller, in the places opposite these pins, notches are made, which are filled with plastic mass or unhardened amalgam. Then the upper and lower rollers are placed on the jaws, which are closed in central occlusion. After that, the patient is offered to move the lower jaw forward and to the sides. At this time, the pins groove the soft amalgam

on the lower roller and thus record the movements of the lower jaw. The rollers are removed from the mouth, the amalgam is allowed to harden and the models are fixed in a fully adjustable (custom) articulator.

recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.); requirements for work results, including registration;

- What is "biomechanics of the maxillofacial apparatus"? Its value in the prosthetics of the complete absence of teeth.

- In what planes does the lower jaw move?

- Describe the movements of the lower jaw.

- What muscles take part in sagittal and transverse movements of the lower jaw?

- How do the articular heads move when the lower jaw is moved forward and to the sides?

- What are "sagittal joint path" and "sagittal joint path angle"?

- What are "sagittal incisal path" and "sagittal incisal path angle"?

- What is the Bennett angle formed and what is it equal to?

- What is a "Gothic corner"?

- Describe the chewing movements of the lower jaw according to Guizi.

- Name the factors of occlusion. What is their significance for the construction of dental rows in complete removable prostheses?

- Reproduction of the movements of the lower jaw in the articulator.

- Analysis of occlusion factors in a patient with complete absence of teeth.

- Monson's spherical theory of articulation, basic provisions.

- Joint theory of articulation (balancing theory).

- Laws of Bonville. Bonville three-point contact.

- "Ganau's Articulating Five".

- Christensen's phenomenon. Methodology of Efron-Helfand-Katz.

- Demonstrate the Efron-Gelfand-Katz method.

- Demonstrate the Christensen phenomenon.

- What is an "articulator"?

- Tell us about the classification of articulators.

- Compare different types of articulators.

- In what cases is it necessary to record the movements of the lower jaw?

- How to conduct an extraoral recording of the movements of the lower jaw?

- How to conduct an intraoral recording of the movements of the lower jaw?

- The choice of articulator depending on the clinical situation.

- Plastering of models in the articulator.

- Extra- and intra-oral registration of movements of the lower jaw.

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 65-year-old patient has a complete removable denture made for the lower jaw. A dental technician installs artificial teeth. It reproduces the surface of the tooth row, which in the oral cavity begins at the rear contact point of the first premolar and ends at the distal-buccal tubercle of the wisdom tooth. What is the basis of this production?

- A. Spee curve
- B. Midline
- C. Transverse curve
- D. Pupillary line
- E. Kamperov horizontal

2. During lateral movements of the lower jaw, the front teeth move to the side. The movement of the cutting point from the central position to the side is measured by an angle of 100-110°. What characterizes this displacement of the cutting point?

- A. Lateral incisor path
- B. Lateral articular path
- C. Sagittal incisal path
- D. Sagittal joint path
- E. Bennett's Corner

3. The patient is examined during prosthetics with complete removable prostheses occlusal ratios during various movements of the lower jaw. The function of which muscle determines the transverse movements of the lower jaw?

- A. External (lateral) pterygoid muscle
- B. Internal (medial) pterygoid muscle
- C. Temporal muscle
- D. Masticatory muscle
- E. Biceps muscle

4. A 75-year-old patient came to the orthodontic clinic with complaints about the inability to chew due to complete loss of teeth. During an objective examination, the doctor studies the sagittal movements of the lower jaw. What muscles move the lower jaw forward?

- A. Lateral pterygoid muscles
- B. Medial pterygoid muscles
- C. Maxillohyoid muscle
- D. Biceps muscle
- E. Chin-hyoid muscle

5. A 60-year-old patient came to the orthopedic dentistry clinic with complaints of complete loss of teeth. An examination of the muscular apparatus is carried out. Indicate which muscles ensure lowering of the lower jaw.

- A. Maxillo-hyoid, bi-abdominal, chin-hyoid
- B. Masticatory, medial pterygoid
- C. Temporal, lateral pterygoid, biventricular
- D. Circular muscle of the mouth, maxillohyoid
- E. Chin-hyoid, medial pterygoid

6. A 67-year-old patient is being made complete removable prostheses for the upper and lower jaws. For placing artificial teeth in the articulator, the movements of the lower jaw are recorded. What is the average angle of the sagittal joint path?

- A. 13
- V. 23
- P. 33
- D. 43
- E. 53

7. An 80-year-old patient came to the clinic of orthopedic dentistry, during which the complete absence of teeth was revealed. Temporomandibular joints are palpated. Specify the features of attachment of the joint capsule in this joint.

- A. From the outside of the joint
- B. Inside the joint
- C. Outside and inside the joint
- D. This joint does not contain a capsule
- E. It is fixed to the articular head

8. The patient, 55 years old, applied to the orthopedic dentistry clinic for prosthetics of edentulous jaws. During the examination, the vertical movements of the lower jaw are checked. Where are the heads of the lower jaw located relative to the articular tubercle when the mouth is maximally opened?

- A. The heads slide along the surface of the articular tubercle
- B. At the front edge of the articular tubercle
- C. At the top of the articular tubercle
- D. At the base of the articular tubercle
- E. At the posterior edge of the articular tubercle

9. A 50-year-old woman complains of difficulty in chewing and a cosmetic defect. The doctor diagnosed a complete absence of teeth on both jaws. When manufacturing complete removable prostheses, it is planned to place artificial teeth on the plane that passes between the outer edge of the nose wing and the middle of the ear bridge, below the occlusal plane by the amount of the incisal overlap. What is a plane?

- A. Prosthetic
 - B. Occlusal
 - C. Transversal
 - D. Sagittal
-

E. Vertical

10. Complete dentures are made for an 80-year-old patient. When modeling the dental rows, the technician creates flat ridges and shallow pits of the lateral teeth. What factor of occlusion determines such a feature of complete removable prostheses?

- A. Joint path
- B. Spee curve
- C. Wilson curve
- D. The distance between the articular heads
- E. Morphology of the occlusal surface

11. A 60-year-old patient is shown the manufacture of complete removable prostheses. The average degree of atrophy of the alveolar processes is determined on the upper and lower jaws. The ratio of the jaws in the central position is orthognathic. The setting of the teeth is carried out according to the spherical surface of Sapozhnikov and Napadov. What radius corresponds to the occlusal surface of artificial teeth?

- A. 4.8 cm
- H. 9 cm
- P. 10.4 cm
- D. 12.5 cm
- E. 16 cm

12. A 75-year-old patient with complete loss of teeth is scheduled to have complete removable prostheses with porcelain teeth manufactured. Placement of artificial teeth is envisaged with the formation of individual occlusal curves. What occlusal rollers are used?

- A. Voskovi
- V. Hard
- S. Abrasives
- D. Thermoplastic
- E. Gypsov

13. A 70-year-old patient is scheduled to have artificial teeth placed on individual occlusal surfaces (according to the Efron-Gelfand-Katz method). What is this technique based on?

- A. Popov-Godon phenomenon
- V. The Christensen phenomenon
- S. Bonville Triangle
- D. Five Ganau
- E. Kryva Speye

14. An 80-year-old patient has complete removable prostheses made for both jaws. Anatomical setting of the teeth according to Gizi is carried out. The contact

of the teeth during chewing movements is checked. What position of the lower jaw ends the cycle of chewing movements?

- A. Central occlusion
- B. Lateral occlusion
- C. Anterior occlusion
- D. Posterior occlusion
- E. The central ratio of the jaws

15. A universal articulator is used to place artificial teeth in complete removable prostheses on the upper and lower jaws. What is its design based on?

- A. Popov-Godon phenomenon
- V. The Christensen phenomenon
- S. Bonville Triangle
- D. Five Ganau
- E. Kryva Speye

16. A 69-year-old patient is being made complete removable prostheses for both jaws. Setting of artificial teeth is carried out in a universal articulator. Why is the average distance between the incisal point and the articular heads of the lower jaw according to Bonville?

- A. 5 cm
- H. 9 cm
- S. 10 cm
- D. 12 cm
- E. 16 cm

17. A 70-year-old woman complains of difficulty chewing due to complete loss of teeth. It is planned to manufacture complete removable prostheses for both jaws. Which factor from Ganau's five is important to take into account to ensure the functional value of prostheses?

- A. Directionality of interalveolar lines
- B. The inclination of the longitudinal axes of the lateral teeth
- S. The height of the chewing tubercles
- D. The height of the lower third of the face
- E. Radius of a spherical surface

18. A 50-year-old patient applied for prosthetics. During the examination, the complete absence of teeth and their orthognathic relationship was established. What is the peculiarity of placing central incisors on complete removable prostheses according to the theory of balancing?

- A. Minimum incisal overlap
 - B. The upper incisors overlap the lower incisors by 1/3
 - C. The upper incisors overlap the lower incisors by 2/3
 - D. The upper incisors overlap the lower incisors to the height of the crown
-

E. The lower incisors overlap the upper incisors by 1/3

19. An 80-year-old patient has complete removable prostheses made. After determining the central ratio of the jaws, the patient pushes the lower jaw forward, while a wedge-shaped space is formed in the area of the chewing teeth. What is the name of this phenomenon?

A. Christensen's sagittal phenomenon

V. Christensen's transversal phenomenon

S. The Popov-Godon phenomenon

D. Three-point contact according to Bonneville

E. Kryva Speye

20. A 60-year-old patient is being made complete removable prostheses with porcelain artificial teeth. It is planned to simplify and shorten the process of setting teeth by using the patient's maxillofacial apparatus as an articulator. What setting of the teeth is planned?

A. Anatomical arrangement of teeth according to Gizi

B. Setting according to individual occlusal surfaces

S. Anatomical placement of teeth according to Vasiliev

D. Positioning of teeth on a spherical surface

E. Positioning of teeth according to Hanau

21. A 60-year-old patient has complete removable prostheses made for both jaws. Construction of tooth rows is carried out in an average anatomical articulator. How many points of support does the articulator have?

A. 1

B. 2

P. 3

D. 4

E. 5

22. A 70-year-old patient has a complete removable upper jaw prosthesis made. The construction of the tooth rows is carried out in the average anatomical articulator. What angle of the lateral incisal path is the basis of its design?

A. 120

V. 110

P. 90

D. 70

E. 30

23. During prosthetics of a patient with a complete absence of teeth, the construction of tooth rows is carried out in a fully adjustable articulator. What method does it use?

A. Record of movements of the lower jaw

V. Electromyography

S. Mastication

D. Orthopantomography

E. Odontoparodontography

24. A 73-year-old man consulted a doctor about dental prosthetics. Objectively: complete absence of teeth, moderate atrophy of alveolar processes. The construction of dental rows in complete removable prostheses is carried out in a partially adjustable articulator. What angle of the sagittal incisal path should be set in the articulator?

A. 10

B. 20

C. 30

D. 40

E. 50

25. A 43-year-old man consulted a doctor about dental prosthetics. Objectively: complete absence of teeth. It is planned to use a non-arc (Non-Arcon) articulator for the construction of the prosthesis. What is its advantage over the arc (Arcon) articulator?

A. It has a freely movable axis

B. Has an imitation of joint heads

C. Does not require recordings of mandibular movements

D. Articulating fossa in the upper part of the mechanism

E. Direct articular path

26. In a 64-year-old female patient, when checking the constructions of complete removable prostheses with porcelain teeth modeled in the occluder, it was established the need to rework the prosthesis according to new guidelines using a semi-adjustable articulator. So, this need most likely arose due to the fact that the ratio of the hinge axis and models in the occluder:

A. Does not match

A. That's right

S. Impossible

D. Disrupted due to the appearance of non-working occlusal contacts

E. Disrupted due to the appearance of working occlusal contacts

27. A 70-year-old patient with a complete absence of teeth on both jaws came to the orthopedic dentistry clinic. A very inclined articular slope is determined on the radiograph of TMJ. What articulator should be used for setting teeth in complete removable prostheses?

A. Simple hinged

B. Medium anatomical

C. Semi-regulated

D. Fully adjustable

E. Occluder

28. During prosthetics of a patient with a complete absence of teeth, the construction of tooth rows is carried out in a fully adjustable articulator. An extraoral recording of the movements of the lower jaw is performed to adjust the articulator. What device is used?

- A. Facial arch
- B. Guizi's apparatus
- C. Apparatus of Larin
- D. AOCSO
- E. Balancer

29. Complete removable dentures are made for a 55-year-old patient. It is planned to use a fully adjustable articulator. An extraoral recording of the movements of the lower jaw was made. The recorded data is 16° . Why does this result correspond?

- A. Sagittal incisal path
- B. Sagittal joint path
- C. Transversal incisal path
- D. Transverse joint path
- E. Angle of Bonville's triangle

30. A 68-year-old patient has complete removable prostheses made for the upper and lower jaw. The stage of determining the central ratio of the jaws has been carried out. Setting the teeth is carried out in an individual articulator. What allows you to install this articulator?

- A. Angles of the incisal and articular paths
- B. The angle of the sagittal incisal path
- C. The angle of the sagittal articular path
- D. Sagittal incisal path and the angle of the sagittal path
- E. Joint path

4. Summary:

- What is "biomechanics of the maxillofacial apparatus"? Its value in the prosthetics of the complete absence of teeth.

- In what planes does the lower jaw move?

- Describe the vertical movements of the lower jaw.

- What muscles take part in sagittal and transverse movements of the lower jaw?

- How do the articular heads move when the lower jaw is moved forward and to the sides?

- What are "sagittal joint path" and "sagittal joint path angle"?

- What are "sagittal incisal path" and "sagittal incisal path angle"?

- What is the Bennett angle formed and what is it equal to?
- What is a "Gothic corner"?
- Describe the chewing movements of the lower jaw according to Guizi.
- Name the factors of occlusion. What is their significance for the construction of dental rows in complete removable prostheses?
- Reproduction of the movements of the lower jaw in the articulator.
- Analysis of occlusion factors in a patient with complete absence of teeth.
- What theories of articulation do you know? What is their meaning?
- What is the essence of the spherical theory of articulation?
- What is the basic principle of joint theory?
- What laws did Bonville formulate? What is "three-point contact according to Bonneville"?
- What factors are included in "Ganau's five articulations"?
- What is the Christensen phenomenon?
- How is the Efron-Gelfand-Katz method carried out?
- Demonstration of the Christensen phenomenon.
- Demonstration of the Efron-Gelfand-Katz technique.
- What is an "articulator"?
- Tell us about the classification of articulators.
- Compare different types of articulators.
- In what cases is it necessary to record the movements of the lower jaw?
- How to conduct an extraoral recording of the movements of the lower jaw?
- How to conduct an intraoral recording of the movements of the lower jaw?
- The choice of articulator depending on the clinical situation.
- Plastering of models in the articulator.
- Extra- and intra-oral registration of movements of the lower jaw.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky
<http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 5

Topic:Anatomical placement of teeth on glass, on a spherical surface.
Anatomical placement of teeth under the condition of progenic and prognathic ratio of the jaws.

Goal:get acquainted with the variety of clinical signs accompanying the clinic of complete loss of teeth; to know the anatomical and physiological features of the oral cavity with complete loss of teeth and the features of the examination of patients with complete loss of teeth; to master the skills of working with devices that reproduce the movements of the lower jaw; to learn the technique of anatomical placement of teeth with the help of glass and the formation of individual occlusal curves on wax-abrasive biting rollers.

Basic concepts: physiological bite, pathological bite, anatomical setting of teeth, artificial teeth, guidelines for setting teeth.

Equipment:Computer, multimedia projector, phantoms.

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform practical classes (knowledge requirements, list of didactic units);

- Define the concepts of "fixation", "stabilization" and "equilibrium of complete removable prostheses".

- Anatomical formations in the oral cavity, which must be taken into account when manufacturing complete removable prostheses.

- Articulation laws, occlusion factors, their practical significance for setting artificial teeth.

- What are such lines as Kamperova and pupil lines used for?

- What are the rules for working with wax with abrasive biting rollers on v\sh and n/sh.

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- Efron-Gelfand-Katz method of setting artificial teeth.

- What devices simulate the movements of the lower jaw and what are the differences between them?

- Rules for plastering models into the occluder and articulator.

- The technique of placing artificial teeth on glass, on a spherical surface.

- Rules for choosing artificial teeth.

3. Formation of professional skills, skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1 content of tasks (tasks, clinical situations, etc.);

Anatomical placement of teeth according to Guizi consists in setting all the teeth of the upper jaw within the prosthetic plane parallel to the Camper line, which passes at a distance of 2 mm below the upper lip.

In his second modification, a step-wise approach, Gizi proposed, taking into account the curvature of the alveolar part of the lower jaw in the sagittal direction, to measure the inclination of the lower teeth, placing each of them parallel to the plane of the corresponding areas of the jaw. By using a stepped arrangement, Gizi pursued the goal of increasing the stability of the mandibular prosthesis.

The third, most common arrangement of teeth according to Gizi consists in setting the lateral teeth along the so-called leveling plane. According to this method, the lateral teeth of the upper jaw are placed as follows: the first molar touches the plane only with the buccal tubercle, the remaining tubercles and all tubercles of the second molar do not touch the leveling plane. The lower teeth are placed in close contact with the upper teeth. Given that the fangs are on the turn, Guizi recommended installing them without contact with the antagonists.

Principles of setting teeth according to Hanau. The Hanau technique is built in accordance with the principles of articulation, which are laid out in the theory of Guizi, the main one of which is the one that determines the leading role of the temporomandibular joint in the movements of the lower jaw.

installed Ganau summarized the relationship between 5 articulatory factors in the form of 10 laws.

1. As the slope of the articular tubercles increases, the depth (prominence) of the sagittal increases occlusion curve.

2. As the slope of the articular tubercles increases, the slope of the occlusion plane increases.

3. As the inclination of the articular tubercles increases, the angle of inclination of the incisors decreases.

4. As the slope of the articular tubercles increases, the height of the tubercles increases.

5. With increasing sagittal depth of the occlusal curve, the slope of the occlusion plane of the prosthesis decreases.

6. With an increase in the degree of sagittal curvature of the occlusal curve, the angle of inclination of the incisors increases.

7. As the inclination of the occlusion plane of the prosthesis increases, the height of the tubercles decreases.

8. With increasing slope of occlusal plane, the inclination of the incisors increases.

9. As the slope of the occlusion plane increases, the height of the ridges decreases.

10. As the angle of the incisors increases, the height of the ridges increases.

To ensure all the mentioned points in their mutual connection, it is necessary, as noted Ganau, use an individual articulator.

According to the method Ganau, when installing a lateral tooth, it is necessary to check the degree of individual overlap of the tooth rows, to ensure tight and uniform contacts between the teeth in the state of central occlusion (creating a balanced occlusion), as well as smooth sliding of the cusps of the teeth and their numerous contact on the working side and the balancing side (creation of balanced, balanced articulation of teeth).

Anatomical placement of teeth according to Vasiliev (behind the glass). Setting teeth starts from the upper jaw. After plastering the models with occlusion rollers in the hinged occluder, the glass is glued to the upper occlusion roller. Then the glass is transferred to the lower occlusion roller, a part of the lower roller is cut by 2–3 mm, thin columns of softened wax are glued and the occluder is closed to the stop of the pin at the interalveolar height. After fixing the glass with a glass graph, the perimeter of the upper occlusal roller, the middle line and the line of the canines are marked on it. The glass is separated from the upper roller and a new wax base is made with a small diameter (3–4 mm) roller, which is glued exactly behind the ridge of the alveolar process.

The upper teeth are placed as follows (Fig. 26):

- central incisors touch the glass with the cutting edge;
- side cutters do not reach the surface of the glass by 1 mm;
- fangs touch the glass;
- first the premolar touches the glass only with the buccal tubercle, and the palatine tubercle lags behind by 1 mm;
- second the premolar touches the glass with both cusps;
- the first molar touches the glass only by the medial-palatine tubercle, the medial-buccal tubercle lags behind by 0.5 mm, the distal-palatine tubercle by 1 mm, and the distal-buccal tubercle by 1.5 mm;
- the second molar does not touch the glass and stand back from it with the anterior palatine tubercle - by 0.5 mm, the posterior palatine tubercle - by 1.5 mm, the anterior buccal tubercle - by 1 mm, the posterior buccal tubercle - by 2 mm.

After setting the teeth of the upper jaw, the teeth of the lower jaw are placed behind them. The second premolars are installed first, then the chewing teeth and the first premolars, and the front group of teeth is installed last. By setting teeth according to Vasiliev's method, sagittal and transverse occlusal curves are obtained on the tooth rows, which ensure effective chewing function.

Designing dentitions on spherical surfaces is rational in view of the possibility of ensuring articulatory balance in the phase of chewing movements, freedom of movement of the lower jaw, the possibility of forming a bumpless chewing surface, which excludes the formation of moments that reset, disrupt the fixation and stability of prostheses.

The use of spherical surfaces greatly facilitates the placement of artificial teeth in complete removable prostheses. There is a range of spherical surfaces. According to Napadov and Sapozhnikov, the radius of the spherical surface is 9 cm. The spherical surface can be continuous in cases where the inclination of the interalveolar lines in relation to the vertical in the area of the lateral teeth does not exceed 16° , and collapsible if the inclination of the interalveolar lines even on one side exceeds 16° . The collapsible spherical plate consists of three parts: two side parts, which form a sphere with a radius of 9 cm, and the front - a horizontal plate. The side parts of the plate are connected to the front with the help of hinges in such a way that they can freely rotate around their axis. Slots are made in the side parts, into which arrows are inserted - indicators of the direction of the radii of the spherical surface.

The staging method is as follows. A spherical positioning plate is glued to the occlusal surface of the upper bite roller. Place the upper artificial teeth in such a way that they touch all their ridges and cutting edges of the plate (with the exception of the two upper lateral incisors). The teeth must be placed strictly in the center of the alveolar ridge and taking into account the direction of the alveolar

lines. The placement of the lower artificial teeth is carried out behind the upper teeth.

Positioning of teeth according to individual occlusal surfaces. In 1929, Efron, based on the Christensen phenomenon, proposed a method of setting teeth according to individual occlusal surfaces, which are created on wax templates. Katz and Gelfand in 1937 modified this method by replacing the wax rollers with rollers made from a stencil. According to their method, the sagittal and transverse curves are formed after covering the rollers with pumice stone or sandpaper during various movements of the lower jaw.

For today, the method Efron-Helfand-Katz is as follows. Models are obtained from functional impressions, on which spoons and special viscoabrasive rollers are made from plastic that hardens quickly. The material for making rollers includes paraffin, beeswax, rosin, peppermint oil, finely dispersed abrasive treated with an aqueous solution of oxyethylated ethyl alcohol.

Viscoabrasive occlusal rollers are heated and bent into the shape of the alveolar process on maxillary and mandibular models, and then fixed with molten wax on plastic spoons. The rollers are glued to the spoons in such a way that they correspond to the direction of the interalveolar lines and the bite height is greater than 2 mm on each roller. This is necessary so that when receiving an intraoral recording, the height of the lower third of the face does not decrease.

The installation of artificial teeth begins on the model of the upper jaw, replacing the hard template with a wax one. In this case, all teeth, with the exception of the lateral incisors (they lag behind by 0.5 mm), must touch the plane of the lower occlusal roller. Placement of teeth on the lower jaw is carried out in close contact with antagonists on the upper jaw.

Anatomical placement of teeth under the condition of prognathic and progonathic ratio of the jaws. With a prognathic ratio of the jaws, the teeth are set according to an orthognathic or direct bite. If the progeny is pronounced, the front teeth are set in a progeny bite, the upper tooth row is shortened by one tooth - the second premolar on both sides. In order to balance the difference in the size of the dental arches and create conditions for free sliding of the dentition of the lower jaw in relation to the upper jaw, the lateral teeth are cross-positioned. The right lower chewing teeth are placed on the upper jaw on the left, and the lower - left - on the upper jaw on the right. The chewing teeth of the lower jaw overlap those of the upper jaw.

Placing artificial teeth in the case of a prognathic bite also has its own characteristics, which consist in reducing the length of the arch of the lower dental row by two premolars (the first premolars on each side are not placed). As for the rest, the setting of the teeth is carried out according to generally accepted rules. In the case of true prognathia, the front teeth are placed at the tributary point with the supragingival pelotes.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and skills, etc.);

3.3. requirements for work results, including registration;

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 55-year-old patient with complete loss of teeth is scheduled to have complete removable prostheses with porcelain teeth manufactured. Which method of placing artificial teeth is better to use in this case?

A. Behind the glass

B. On a spherical surface with a radius of 9 cm

S. On a spherical surface with a radius of 10.4 cm

D. Behind the staging area of Napadov-Sapozhnikov

E. According to individual occlusion curves

2. Complete removable prostheses for the upper and lower jaws are made for a 75-year-old patient. Setting teeth in prostheses is carried out according to the spherical surface proposed by Napadov and Sapozhnikov. What is the average radius of this surface?

A. 5 cm

H. 6 cm

P. 7 cm

D. 8 cm

E. 9 cm

3. A 70-year-old patient with complete loss of teeth on the upper and lower jaws, complete removable prostheses are made. Setting of teeth is carried out according to individual occlusal surfaces. From what material should the rollers be made to create individual occlusions surfaces?

A. Abrasive

B. Stens

C. Plastics

D. Lavaks

E. Sticky wax

4. A 65-year-old patient complained about the breakage of a complete removable prosthesis on the upper jaw, manufactured a month ago. When examining the prosthesis, a crack was found near the center of the base. The dental arch in the lateral parts of the jaws is widened, the teeth are set with a vestibular inclination. How was it necessary to place premolars and molars in the prosthesis?

A. In the center of the ridge of the alveolar process

B. With a shift orally

- C. With vestibular shift
- D. With an inclination distally
- E. With an inclination medially

5. Complete removable prostheses for the upper and lower jaws are made for a 70-year-old patient. Setting of artificial teeth is carried out according to the Vasiliev method. Which teeth in the upper denture should not touch the glass?

- A. Lateral incisors and second molars
- B. Central incisors and first molars
- C. First and second premolars
- D. Canines and first molars
- E. Second premolars and first molars

6. Complete removable prostheses are made for a 66-year-old patient. At the stage of placing artificial teeth, the upper incisors overlap the lower incisors by $1/3$. What is the maximum degree of incisal overlap allowed in complete removable prostheses?

- A. 1.8-2.0 mm
- H. 2.5-2.7 mm
- P. 2.8-3.0 mm
- D. 3.1-3.3 mm
- E. 3.4-3.6 mm

7. A 72-year-old patient has complete removable prostheses made for the upper and lower jaw. Objectively: prognathic ratio of the jaws, sharply expressed atrophy of the upper jaw. How many artificial teeth should be placed on the upper denture?

- A. 8 teeth
- B. 10 teeth
- P. 12 teeth
- D. 14 teeth
- E. 16 teeth

7. Complete removable prostheses are made for a 70-year-old patient. Objectively: prognathic closing of the jaws. What are the features of setting teeth?

- A. The upper dental arch is shortened by 2 premolars
- B. The lower dental arch is shortened by 2 premolars
- C. The front teeth are set in a straight closure
- D. Front teeth are placed in orthognathic closure
- E. Chewing teeth change places

9. A 63-year-old patient complained of missing teeth and difficulty in chewing food. Objectively: complete absence of teeth on the upper and lower jaws. Underdevelopment of the lower jaw is noted. What a feature in the staging teeth need to be taken into account?

- A. The lower dentition is shortened and the front teeth are tilted forward
- B. The upper tooth row is shortened by 1 tooth
- C. Upper front teeth are sharpened
- D. Upper front teeth tilt back
- E. Chewing teeth are placed in an orthognathic bite

10. A 60-year-old patient complained of difficulty in chewing food due to the absence of teeth on the upper and lower jaw. Objectively: the pear-shaped alveolar process in the frontal area of the upper jaw. What is the peculiarity of Is it necessary to take into account the setting of the teeth?

- A. Upper front teeth are sharpened
- B. The upper dental arch is shortened by 1 tooth
- C. The lower dental arch is shortened by 1 premolar
- D. Chewing teeth change places
- E. The front teeth are placed in a progenic ratio

4. Summary:

- How to carry out anatomical placement of teeth in complete removable prostheses according to Gizi?

- What is a "leveling plane" and a "stepping arrangement"?

- What are the laws of setting teeth according to Hanau?

- How to carry out setting of teeth behind glass?

- Tell about the setting of teeth in complete removable prostheses according to the spherical theory.

- How to set teeth in complete removable prostheses using the Efron-Gelfand-Katz method?

- Anatomical placement of teeth in complete removable prostheses.

- Positioning of teeth in complete removable prostheses on a spherical surface.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky
<http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 6

Topic: Verification of the design of complete removable prostheses.

Goal: to be able to check the design of complete removable prostheses, to be able to detect errors in determining the central ratio of the jaws.

Basic concepts: minimal incisor overlap, mesiodistal position of the lower jaw, spatula test, conversational test.

Equipment: Computer, multimedia projector, phantoms.

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- Visual inspection of plaster models of jaws.

- Checking the position of the teeth in the occluder or articulator.

- Checking the wax structure of the future prosthesis in the oral cavity.

- Error elimination methods.

- Examine plaster models of toothless jaws.

- Check the position of the teeth in the articulator and occluder.

- Check the wax composition of the complete removable prosthesis in the oral cavity.

- Eliminate errors that are established at the stage of checking wax compositions of complete removable prostheses.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1 content of tasks (tasks, clinical situations, etc.);

Checking the design of complete removable prostheses includes three stages:

- check of setting of artificial teeth in occluders or articulators;

- review of jaw models;

- checking the wax base with artificial teeth in the oral cavity.

Before inserting the wax base with artificial teeth into the oral cavity, it is necessary to check the position of the teeth in the occluder or articulator in detail. They pay attention to the color, size and shape of the teeth, the size of the incisal overlap. Inadmissible overlap of the lower incisors with the upper incisors by more than 1-2 mm, this may be the cause of a violation of the fixation of prostheses.

Check the degree of overlap of the buccal tubercles of the lower chewing teeth with the upper ones of the same name, the placement of artificial teeth in relation to crest of the alveolar process. There is a rule according to which the lower front teeth, chewing teeth of the upper and lower jaws should be located only in the middle of the alveolar process. The upper front teeth should be located as follows: 2/3 of the tooth - in front of the middle line of the alveolar process, and 1/3 - behind it. The next step is to check all occlusal contacts of the lateral group of teeth from both the vestibular and oral sides. Identified deficiencies must be eliminated.

During the inspection of the models, attention is paid to whether there are cracks, violations of the contours of the prosthetic bed. In case of detection of certain defects, it is necessary to remove a new functional impression and cast a new model.

To check the construction of the wax composition of the prosthesis in the oral cavity, it is treated with alcohol and introduced into the mouth, in order to control the correctness of the determination of the interalveolar height and all components of the central ratio of the jaws.

The interalveolar height is checked using an anatomical and physiological method and a conversational test.

If the interalveolar height is increased, the appearance of the patient can be described as "surprised". The lower third of the face is enlarged, the lips close with tension, the nasolabial folds are smoothed. The patient feels discomfort in the chewing muscles. When smiling, the wax base of a complete removable prosthesis on the upper jaw is exposed. When pronouncing the sound "O", the gap between the front teeth is less than 5-6 mm.

If the interalveolar height is increased, correction of errors is possible in two ways. If the upper teeth are in the correct relation to the upper lip and the occlusal

plane is not disturbed, it is advisable to lower the interalveolar height at the expense of the teeth of the lower prosthesis. To do this, they are removed, a new bite roller is placed on the wax base, and the central ratio of the jaws is determined again. Then, the upper model is separated from the occluder, compared with the lower one in a new position, and plastered again for repositioning of the lower teeth.

An increase in the interalveolar height can be combined with an incorrect determination of the height of the upper occlusal ridge in the anterior department. In this case, the upper front teeth protrude from under the lip, making the smile ugly. To correct the error, previously manufactured biting rollers are used, on which the central ratio of the jaws is re-determined.

The understated interalveolar height is characterized by the preservation of the "aged facial appearance", which was already discussed. In this case, provided that the upper dentition is set correctly, it is necessary to apply a strip of heated wax to the lower dentition and re-determine the central relationship of the jaws. The upper model is separated from the occluder and placed in a new position to be re-plastered in the occluder.

The largest number of errors is made at the stage of determining and fixing the mesiodistal position of the lower jaw. In particular, the most characteristic error is the protrusion of the lower jaw forward into a prognathic ratio (that is, instead of a central occlusion, the front one is fixed). During the examination of the wax composition, in this case, the prognathic ratio of the tooth rows, tuberos closing of the chewing teeth is observed; an increase in the interalveolar height by the size of the tubercle; the gap between the front teeth. It is necessary to take a softened strip of base wax, apply it to the lower teeth and help align the jaws in the central relationship. Or you need to remove the artificial teeth from the base and, having installed new bite rollers, repeat the determination of the central ratio of the jaws.

If one of the lateral occlusions was fixed with bite rollers, a crossbite occurs when the teeth close in the central occlusion position. Such a situation requires re-determination of the central ratio of the jaws.

After checking the determination of the height of the lower part of the face and the central occlusion, attention is paid to the density of the closure of the antagonistic teeth. The doctor tries to insert a spatula between the lateral teeth on the left and right. When correctly positioned, the spatula should not pass between the rows of teeth. A gap between the side teeth is the result of overturning the bite pattern on one side or hanging it on the upper jaw behind. To eliminate this deficiency, take a softened plate of wax, place it on the teeth on the side where the gap was identified, and ask the patient to close the teeth. Based on the wax impression, the upper, previously separated model is connected to the lower one and plastered again in the occluder.

When checking the design of complete removable prostheses, attention should be paid to the compliance of the color, shape, and size of the teeth with aesthetic requirements, in particular, compliance of the cutting edges of the front teeth with the smile line, canine line, and midline of the face. To mask complete removable prostheses, some artificial teeth of the frontal group are placed asymmetrically.

Checking the design of prostheses ends with specifying the limits of the prosthetic bed on the models.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical abilities and skills, etc.);

- Inspection of the placement of teeth in complete removable prostheses in the occluder.

- Review of plaster models of edentulous jaws.

- Inspection of wax compositions of complete removable prostheses in the oral cavity.

- requirements for work results, including registration;

- What should you pay attention to when checking the position of teeth in complete removable prostheses on models in the articulator?

- How should the front and side teeth be positioned in relation to the alveolar process?

- What are the requirements for the image of prosthetic bed tissues on plaster models?

- How is the correct determination of the interalveolar height checked?

- What is characterized by overestimation and underestimation of the interalveolar height at the stage of checking wax compositions of complete removable prostheses? How to eliminate these errors?

- How do the teeth on complete removable prostheses close when checking in the oral cavity, if at the previous stage, instead of the central occlusion, the front or side was fixed?

- How to eliminate errors associated with incorrect fixation of the mesiodistal ratio of the jaws?

- How to check the density of closure of opposing teeth on wax compositions of complete removable prostheses in the oral cavity?

- What aesthetic requirements require attention at the stage of checking wax compositions of complete removable prostheses?

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 60-year-old patient has complete removable prostheses made for the upper and lower jaws. Inspection of wax compositions of prostheses in the oral

cavity is carried out. Objectively: the configuration of the face is disturbed, its lower third is elongated, the lips close with tension. When smiling, the wax base of a complete removable prosthesis on the upper jaw is exposed. What mistakes were made at the previous clinical stage?

- A. Overbite height
- B. Underbite height
- C. Defined posterior occlusion
- D. Defined anterior occlusion
- E. Incorrect placement of teeth on the upper jaw

2. During the inspection of the design of complete removable prostheses, it was found that the patient has: pronounced nasolabial folds, the lower jaw is slightly pushed forward. What mistake was made by the doctor at the previous stage?

- A. Low interalveolar height
- B. Incorrectly defined prosthetic plane
- C. The mesiodistal position of the lower jaw is incorrectly recorded
- D. Increased interalveolar height
- E. Improperly applied guideposts to bite rollers

3. A 66-year-old man is being made complete removable prostheses for the upper and lower jaws. Objectively: the alveolar processes of the jaws are slightly atrophied, the mucous membranemoderately susceptible. At the stage of checking the design of prostheses in the oral cavity, the lips are closed with tension, the height of the lower third of the face when the teeth are closed and at physiological rest turned out to be the same. How much should the occlusal height be reduced?

- A. 0.5-1.0 mm
- B. 1.0-2.0 mm
- C. 2.0-4.0 mm
- D. 5.0-7.0 mm
- E. 8.0-10.0 mm

4. A 68-year-old patient with complete loss of teeth on both jaws applied to the orthopedic department for prosthetics. During the inspection of the structures of the prostheses, it was found that interdental contact is observed only in the lateral areas. In the frontal department, there is a sagittal slit 1 cm wide. What mistake was made during the previous clinical stages?

- A. Anterior occlusion was identified and fixed
- B. Inaccurate anatomical impressions were obtained
- C. The interalveolar height was incorrectly determined
- D. Determined and recorded lateral occlusion
- E. Deformed wax base

5. At the stage of checking the wax compositions of complete removable prostheses, an overestimation of the interalveolar height was detected. What must be done?

- A. Bite the wax strip in the anterior occlusion position
- B. Bite the wax strip in the central occlusion
- C. Bite the wax composition hard
- D. Correct the wax base
- E. Redefine the central ratio of the jaws

6. In a 75-year-old patient, during the inspection of the design of complete removable prostheses, it was found that only the lateral artificial teeth are in contact, there is a gap between the front teeth. In the lateral areas on one side it is noted tuberos-tuberos interdental contact, on the other - a horizontal gap; the centerline is displaced. What mistake was made?

- A. Lateral occlusion was determined
- B. Unevenly softened occlusal ridges
- C. Anterior occlusion was determined
- D. Increased interalveolar height
- E. Deformation of wax templates

7. A 47-year-old patient has complete removable prostheses made for the upper and lower jaws. At the stage of checking their design, a protrusion of the upper lip is observed. At what stage did the error occur?

- A. Formation of the vestibular surface of the bite roller
- B. Determination of the height of the upper bite roller
- C. Formation of the occlusal plane
- D. Determination of the height of the lower third of the face
- E. Central occlusion fixation

8. A 75-year-old patient was made complete removable prostheses in the orthopedic dentistry clinic. During fixation of the central occlusion, the patient shifted the lower jaw forward. What is the ratio of dental rows of prostheses that the doctor will observe when checking the design?

- A. A horizontal gap between the front teeth
- B. Gap between the lateral teeth on the right
- C. Deep overlapping
- D. Biprognathia
- E. Vertical slit in the front area

9. A 70-year-old patient has complete removable prostheses made for the upper and lower jaws. Appeared at the clinical stage of checking the wax composition of prostheses. To find out the correctness of the determination of the interalveolar height, a conversational test was used. The patient was offered to

pronounce the sound "O". What should be the distance between the front teeth when correctly determining the interalveolar height?

- A. 1-2 mm
- B. 3-4 mm
- C. 5-6 mm
- D. 7-8 mm
- E. 9-10 mm

10. Complete removable prostheses are made for an 80-year-old patient. Inspection of wax compositions in the oral cavity was carried out. What is the next technical method of the laboratory stage of manufacturing prostheses?

- A. Base modeling
- B. Positioning of teeth
- S. Plastering in a ditch
- D. Production of a plaster mold
- E. Plastic packaging

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

An overview of the placement of teeth in complete removable prostheses in the occluder.

- Review of plaster models of edentulous jaws.
- Inspection of wax compositions of complete removable prostheses in the oral cavity.

4. Summary:

- What should you pay attention to when checking the position of teeth in complete removable prostheses on models in the articulator?
- How should the front and side teeth be positioned in relation to the alveolar process?
- What are the requirements for the image of prosthetic bed tissues on plaster models?
- How is the correct determination of the interalveolar height checked?
- What is characterized by overestimation and underestimation of the interalveolar height at the stage of checking wax compositions of complete removable prostheses? How to eliminate these errors?
- How do the teeth on complete removable prostheses close when checking in the oral cavity, if at the previous stage, instead of the central occlusion, the front or side was fixed?
- How to eliminate errors associated with incorrect fixation of the mesiodistal ratio of the jaws?

- How to check the density of closure of opposing teeth on wax compositions of complete removable prostheses in the oral cavity?

- What aesthetic requirements require attention at the stage of checking wax compositions of complete removable prostheses?

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>

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- National Library of Ukraine named after V.I. Vernadsky
<http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 7

Topic:Laboratory stages of manufacturing complete removable prostheses.

Processing of complete removable prostheses after polymerization of plastics.

Goal:to know the material and technical support for the production of complete removable prostheses;to be able to form and polymerize plastics;learn the sequence of processing removable prostheses after polymerization; demonstrate base correction and occlusion in complete removable prostheses.

Basic concepts:Packaging (molding) of plastic. Plastic pressing.Plastic injection molding.Polymerization of plastic.Gas porosity.Compression

porosity. Granular porosity. Prosthesis processing. Grinding, polishing of the prosthesis.

Equipment: Computer, multimedia projector, phantoms.

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform practical classes (knowledge requirements, list of didactic units);

- Materials used for the manufacture of complete removable prostheses.
- Types of basic polymers (rigid, elastic), their physical and mechanical properties.

- Methods of formation and polymerization of denture bases.

- Compression and foundry pressing.

- Direct, reverse and combined methods of plastering a wax reproduction of a prosthesis in a cuvette.

- Modes of plastic polymerization.

- Removal of removable prostheses from the cuvette after polymerization.

- Sequence of treatment of complete removable prostheses after polymerization.

- Grinding and polishing of complete removable prostheses. Means and tools.

- Principles of correction of the base of complete removable prostheses.

Occlusion correction.

- Causes of failure of complete removable prostheses. Methods of repairing removable prostheses.

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- Plaster the wax composition of the complete removable prosthesis in the cuvette.

- Forming and polymerization of plastic.

- Packaging (molding) of plastic.

- Plastic pressing.

- Injection-molding pressing of plastic.

- Polymerization of plastic.

- Gas porosity.

- Compression porosity.

- Granular porosity.

- Carry out final processing of complete removable prostheses after polymerization.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

content of tasks (tasks, clinical situations, etc.);

Base plastics are used to manufacture the bases of complete removable prostheses. Depending on the nature of the processes that take place during the formation of the product, they are divided into thermoplastics (thermoplastic) and reactive plastics (thermosetting).

Reactive plastics include materials whose processing into a product is accompanied by chemical reactions of formation three-dimensional polymer - hardening. At the same time, the plastic loses its ability to soften when reheated.

When forming products from thermoplastics, hardening does not occur, chemical reactions do not occur, and the materials do not lose their softening properties when reheated. Thus, reactive plastics are irreversible, and thermoplastics are reversible materials.

Thermoplastics include polymethyl methacrylate, polystyrene, polypropylene, polyethylene, and thermosetting plastics - aminoplasts, phenoplast. The use of thermoplastics as a basis for complete removable prostheses is not justified due to the impossibility of creating a closing valve.

According to the classification, plastics are divided into the following groups:

- 1) plastics for bases;
- 2) plastics for soft base substrates;
- 3) plastics for rebasing and repairing removable prostheses;
- 4) structural plastics – self-hardening materials used for the manufacture of orthodontic appliances and in maxillofacial orthopedics.

The technology of using plastics involves the preparation of plastic dough by displacing monomer and polymer in a volume ratio of 1:3. The dough ripens within 30-40 minutes. During this time, swelling, loosening and partial dissolution of polymer granules occurs, and monomer molecules under the influence of the initiator begin to partially polymerize. There are 4 phases of plastic maturation. At different stages of polymerization, depending on the chosen method of forming - compression or injection molding - the prepared plastic is formed, that is, plaster molds are filled with it. In turn, the plaster form is obtained by plastering the wax composition of the prosthesis in the cuvette. In injection-molding pressing, plastic is fed into a plaster mold under pressure.

In the future, to ensure the best physical and mechanical properties of plastic during its hardening, the optimal temperature regime is observed.

As a result of violation of the polymerization regime, defects are formed in the plastic structure: porosity, internal stress, cracks.

They distinguish:

- gas porosity caused by rapid heating of plastic and poor thermal conductivity of gypsum;
- compression porosity, the basis of which is the decrease in the volume of the mass being polymerized, caused by insufficient pressure;
- granular porosity caused by insufficient monomer.

Rapid cooling will lead to the appearance of microcracks. Ingress of moisture or uneven mixing of powder with liquid will cause the appearance of a "marble pattern".

Recently, instead of gypsum, silicone masses are increasingly used, which are selected in accordance with the polymerization mode of the base plastic. With this method of pressing and polymerization, elastic internal stresses are significantly reduced, therefore deformation of the base of the prosthesis is practically excluded. In addition, it is possible to reduce the content of the final monomer to 0.2-0.5%.

A distinction is made between polymerization under wet and dry conditions. When polymerizing plastics in a dry environment, you should follow the manufacturer's recommendations. There are so-called classical temperature-time regimes for water.

In addition to the usual rigid base technique, the double base technique, which involves the use of an elastic substrate between the base plastic and the mucous membrane of the prosthetic bed, has recently been widely used. This technique is most justified in the following cases:

- with sharp uneven atrophy of alveolar processes with dry, inflexible mucous membrane;
- in the presence of exostoses on the prosthetic bed, sharp oblique line and contraindications to surgical preparation;
- with allergic reactions to acrylates;
- in the manufacture of complex maxillofacial prostheses.

The technology of manufacturing complete removable prostheses with a two-layer base involves the use of traditional methods before the stage of replacing wax with plastic. After removing the wax from the cuvette with a plate of heated base wax, the technician presses the model and cuts the wax outside the border of the future prosthesis. Then, in one cup, the usual base plastic (hard) is mixed, in the other - elastic, for example, PM-01. Dough-like hard plastic is introduced into the half of the cuvette where the teeth are present and pressed. The cuvette is opened. The base wax plate is removed from the model, and plastic dough of elastic plastic is placed in its place and repeated pressing is carried out, the polymerization mode is usual.

Removal of removable prostheses from the cuvette after polymerization is carried out by installing the cuvette, after removing the cover and base, in a special manual mechanical press, which is used to squeeze out a plaster mold (a conglomerate of gypsum and a prosthesis embedded in it).

Using various devices and cutting tools (special forceps, plaster knife, brushes, etc.), the prosthesis is freed from the plaster as much as possible. Remains of plaster from the surface of the base of the prosthesis are removed with the help of hair brushes. Using cutting tools (mills and heads of various shapes) on an electric motor, excess base plastic is removed along the borders of the prosthesis, achieving a uniform thickness of the base.

The final processing of prostheses is carried out after removing the prosthesis from the cuvette, for cosmetic and hygienic reasons, and includes the stages of grinding and polishing.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and skills, etc.);

requirements for work results, including registration;

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 70-year-old patient complained about the absence of all teeth on the upper jaw. Objectively: the alveolar process of the upper jaw is slightly atrophied, the mucous membrane is moderately flexible. It is planned to manufacture a complete removable prosthesis with a plastic basis. Choose plastic for the base of this prosthesis.

- A. Thorax
- B. Carboplast
- C. Noracryl
- D. Sinma
- E. Stadont

2. The patient, 54 years old, turned to the clinic of orthopedic dentistry with complaints of severe abrasion of artificial teeth on complete removable plate prostheses, which were made 6 months ago. Suffers from bruxism. What are the doctor's tactics in this case?

- A. Make new dentures with porcelain teeth
- B. Make new prostheses with plastic teeth
- C. Restore abraded teeth with acrylic oxide
- D. Install new plastic teeth on old dentures
- E. Install new porcelain teeth on old dentures

3. A 60-year-old patient complained of frequent breakages of a removable plate prosthesis. From the anamnesis, it was found that the patient suffers from

epilepsy. In order to prevent breakage of the removable lamellar prosthesis, which material is recommended for the manufacture of the prosthesis base?

- A. Cobalt-chromium alloy
- B. Etacryl
- C. Ortosylu M
- D. Thorax
- E. Redontu

4. A 79-year-old patient consulted a doctor for the purpose of replacing a prosthesis. History of stroke. Objectively: sharp uneven atrophy of the alveolar processes of the upper and lower jaws, the mucous membrane of the oral cavity is dry, immobile. Previous prostheses are not fixed. It is planned to manufacture a complete removable prosthesis for the lower jaw with a two-layer base. What plastic is used for the elastic lining?

- A. Orthoplast
- V. Protakryl-M
- S. Boxyl
- D. PM
- E. Akrel

5. A 57-year-old patient is made a complete removable prosthesis for the upper jaw with the placement of the front teeth at the tributary point, which is due to the hypertrophied alveolar ridge of the frontal area. What method of plastering in the ditch will be used?

- A. Combined
- B. Direct
- S. Reverse
- D. Plastering in the counterstamp of the cuvette
- E. Plaster in a ditch filled with moldin

6. A 67-year-old patient is made a complete removable prosthesis on the upper jaw by the method of injection-molding pressing. At what stage of plastic maturation should the plastic be formed in a cuvette syringe?

- A. After activation of monomer molecules
- V. In the sand stage
- S. In the dough-like stage
- D. In the liquid stage
- E. In the rubbery stage

7. Complete removable prostheses are made for a 45-year-old patient. At the stage of putting on prostheses, it was found that the base of the prosthesis is uniformly thickened. When applying the prosthesis, it was established that only the chewing group of teeth is in contact. What caused these violations?

- A. Insufficient pressing

- B. Excess amount of plastic
- C. Formation of plastic at the rubbery stage
- D. Violation of the polymerization process
- E. Formation of immature plastic

8. Before applying complete removable prostheses, the doctor saw large pores in the bases. What mistakes are made in the manufacture of prostheses?

- A. Rapid temperature rise during plastic polymerization
- A. A very thick layer of plastic
- S. A very small layer of plastic
- D. "Old" plastic
- E. Rapid cooling of plastic after polymerization

9. When examining the base of the complete removable prosthesis, the doctor found a clear "marble pattern" in the form of a grid of white stripes that penetrate the thickness of the plastic. What is the cause of this defect?

- A. Violation of the plastic polymerization process
- B. Violation of the grinding process of the prosthesis base
- C. Violation of the polishing process of the prosthesis base
- D. Uneven wetting of base plastic by monomer during its swelling
- E. "Old" plastic

10. A 68-year-old patient had complete removable prostheses made for the upper and lower jaws. During the inspection of the prostheses, microcracks were found in the plastic. What is the reason for their occurrence?

- A. Slow cooling of plastic after polymerization
- B. Rapid cooling of plastic after polymerization
- C. High hygroscopicity of gypsum form
- D. Insufficient pressure during polymerization
- E. Violation of the polymer-monomer ratio

4. Summary:

- What materials are used to make the bases of complete removable prostheses?
- What is "double basis" and what are the indications for its use?
- How to plaster a wax composition of a complete removable prosthesis in a cuvette?
- What methods of plastering exist? What are the indications for their use?
- What are the differences between compression and injection-molding methods of plastic pressing?
- How to ensure the optimal temperature regime for plastic polymerization?
- What is the manufacturing technology of complete removable prostheses with a two-layer base?

- Plastering of the wax composition of the complete removable prosthesis in the cuvette.

- Forming and polymerization of plastic.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

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PRACTICAL LESSON No. 8

Topic: Fixation of complete removable prostheses. Correction of complete removable prostheses. Adaptation to prostheses.

Goal: learn the concepts of fixation, stabilization and balance of complete removable prostheses; perform a check of fixation of complete removable prostheses in the patient's oral cavity. Principles of correction of the base of complete removable prostheses. Occlusion correction.

Basic concepts: learn the concepts of fixation, stabilization and balance of complete removable prostheses; perform a check of fixation of complete removable prostheses in the patient's oral cavity. Principles of correction of the base of complete removable prostheses. Occlusion correction. Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

2.1. requirements for students' theoretical readiness to perform practical classes (knowledge requirements, list of didactic units);

- The concept of fixation, stabilization and balance of complete removable prostheses.

- Fixation methods (mechanical, biomechanical, physical and biophysical). The use of adhesive preparations to improve the fixation of prostheses.

- Anatomic retention. Topography of the sublingual, retromolar and retroalveolar space.

- Checking the fixation of complete removable prostheses in the patient's oral cavity.

- Principles of correction of the base of complete removable prostheses. Occlusion correction.

- Causes of failure of complete removable prostheses. Methods of repairing removable prostheses.

- Adaptation to prostheses. Phases of adaptation to prostheses according to V. Yu. Kurlyandskyi.

- Hygienic processing of complete removable prostheses.

2.2. questions (test tasks, tasks, clinical situations) to check basic knowledge on the subject of the lesson.

- Apply complete removable prostheses.

- To give recommendations to the patient on the use of complete removable prostheses.

- Carry out final processing of complete removable prostheses after polymerization.

- Carry out correction of complete removable prostheses.

- Repair a complete removable prosthesis

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Handing over of prostheses on an edentulous jaw is carried out in two stages: preliminary inspection of the prostheses and application in the oral cavity.

When examining prostheses, you should pay attention to the thickness of the bases and their edges, the quality of processing and surface polishing. When determining visually or palpating minor defects of prostheses (surplus plastic in the form of ledges or roughness on the base and its edges, unsatisfactory polishing,

etc.), they must be eliminated: treat the area of the prosthesis with a milling cutter or a carborundum head, perform repeated polishing.

After disinfection, the prostheses are inserted into the oral cavity and checked for stability. When planning the design of a complete removable prosthesis, the following methods of fixation can be chosen, which are divided into 4 groups:

- mechanical (springs, weight increase of the lower prosthesis, implants);
- biomechanical (application of natural anatomical formations -pelotes, gum clasps, base expansion);
- physical (magnets, rubberwetting agents, adhesion, cohesion);
- biophysical (creation of a closing marginal valve).

Modern complete removable prostheses use anatomical retention, adhesion and cohesion, and most importantly, functional suction. It should be noted that the use of adhesive preparations to improve the fixation of prostheses is aimed at improving adhesion, therefore it belongs to physical methods. At the same time, it is important to prevent the reset of the prosthesis not only at rest, but also during chewing and non-chewing movements.

To check the fixation of the prosthesis, a "balancing test" is used, pressing fingers alternately on the front and side teeth. To check the closing valve, the "finger test" is used, the essence of which is to press the front teeth of the upper prosthesis from the oral surface in the vestibular direction. At the same time, a characteristic sound should be observed when removing the prosthesis. On the lower jaw, using the same techniques, determine the quality of fixation of the base in the distal parts, alternately on the right and left.

The complete removable prosthesis should be checked for its retention, that is, the degree of resistance to vertical displacement when pulled away from the prosthetic bed. Retention is considered to be excellent if the prosthesis moves only with a violation of the valve during retraction; good - if it moves with difficulty without breaking the valve; satisfactory - if the prosthesis moves easily under finger pressure; bad - if the prosthesis moves without resistance.

In cases of unsatisfactory fixation of the prosthesis, most likely, an error was made at the stage of obtaining a functional impression. Such prostheses are subject to rebasement in the future.

Stabilization of the prosthesis is determined by finger pressure on the prosthesis in the direction of the prosthetic bed and is assessed as excellent if it moves minimally under various loads; good - if the shift occurs under a strong one-sided lateral load; satisfactory - if the prosthesis moves during rotational movements and shifts under average unilateral loading; bad - if it shifts under any load.

Dropping of the prosthesis during non-chewing movements may be associated with a violation of the boundaries of the base due to poor fitting of the individual spoon.

Checking the accuracy of the borders of complete removable prostheses and the correctness of the closure of artificial tooth rows in the central occlusion when applying the prosthesis is mandatory.

On the upper jaw, the border of the prosthesis should pass from the vestibular side along the transition fold, overlapping it by 1-2 mm. For the frenulum of the upper lip and the mucous folds of the cheeks, there should be notches in the prosthesis, but at the same time, the edges of the prosthesis exactly adhere to the lateral surfaces of the frenulum and the fold. In the oral part of the upper jaw, the border of the base overlaps the "A" line. The maxillary humps must also be covered by the prosthesis.

On the lower jaw, the border of the prosthesis overlaps the transition fold by 2-3 mm. Buccal and lip lines are bypassed. In the retromolar area, the border passes 2 mm behind the tubercle. On the lingual surface, from the tubercle, the border goes down to the internal maxillo-hyoid line, overlapping it by 2-3 mm, bypassing the lingual frenulum.

After studying the limits of the prosthesis, the patient is asked to close his mouth, close his teeth and check the central occlusion. With the help of copy paper, the points of premature contacts are detected in all occlusions, which are then polished. Thus, they ensure constant contact between the teeth during all movements of the lower jaw.

On the day of delivery of complete removable prostheses, correction of the bases is not carried out, and the patient is appointed for the first three days, then according to indications.

The patient is taught the rules of using prostheses. In the first days of using the prosthesis, you should not try to bite off food, it is more appropriate to put it in your mouth in small pieces and chew on the left and right sides. After eating, it is mandatory to rinse the mouth and clean the prosthesis from food residues. It is not recommended to eat hard food, for example, nuts, crackers, caramel, to prevent fractures of the prosthesis base.

To accelerate getting used to prostheses, the patient is recommended to talk and read more; and also during 7-10 days to use the prosthesis both during the day and at night. After getting used to the prosthesis at night, it is recommended to remove it and store it dry in a special container.

Acrylic bases of removable prostheses are a microporous surface on which microorganisms are fixed and mineralized deposits can form. Therefore, after each meal, the prostheses must be removed and rinsed under running water. In the

morning and in the evening, you need to clean the dentures with a special brush and paste.

Brushes for prostheses have bristles on two sides of the head: on one side, zigzag-shaped, for cleaning the outer surfaces of the prosthesis, on the other, rounded, for the concave part of the base. Artificial bristles are much stiffer than regular toothbrushes.

However, the efficiency of mechanical processing of removable prostheses is insufficient. Much more effective ultrasonic cleaning with the use of special devices generating ultrasonic frequency oscillations. At the same time, the prosthesis is immersed in water or an antiseptic solution. This method is used in specialized dental offices. In similar conditions, devices that generate microwave radiation, which can destroy microorganisms, can also be used.

Methods of chemical cleaning of removable dentures involve soaking in various solutions. Sodium hypochlorite, diluted in water in a ratio of 1:10, is most often used. At the same time, a sufficient antibacterial effect is achieved.

It is more effective to use commercial solutions (in the form of liquid or fast-dissolving tablets) designed for soaking removable structures. The composition of such substances is different, but most often they include agents containing active oxygen (alkaline perborate), agents that cause the release of gas bubbles (perborates and/or carbonates), chelating agents (EDTA), detergents, dyes, flavorings. Prostheses are soaked in such solutions every day for 10-20 minutes. An additional advantage of chemical cleaning of prostheses is the possibility of eliminating unpleasant odors.

The doctor must warn the patient about the possibility of pain sensations under the base of the prosthesis and the need for correction. If pain occurs, it is recommended to remove the prosthesis at night, and put it on 3-4 hours before visiting the doctor. Examinations are scheduled until the doctor is sure that the tissues of the prosthetic bed are not damaged, chewing and speech functions are restored.

The patient is scheduled for the primary correction of a complete removable prosthesis on the next day after application. Subsequent corrections are made at first once every 3 days, then once a week.

At the stage of correction, the patient's complaints are clarified. An examination of the oral cavity is carried out: examination of the mucous membrane for the presence of lesions, palpation of the bone base. Complaints about pain can be caused by: mechanical trauma to the sharp part of the prosthesis; thickening of the edge of the prosthesis, especially in the retroalveolar space; overloading of the area of the alveolar process as a result of uneven contact of the tooth rows when closing the teeth. The examination reveals hyperemia, desquamation of the epithelium of the mucous membrane, and in some cases even a decubitus ulcer.

The actions of the doctor should be aimed at correcting the parts of the prosthesis that caused similar symptoms. The affected mucous membrane is marked with a chemical pencil or cement or plaster powder for transfer to the base of the prosthesis. Later, the installed area is polished.

It is possible to eliminate the traumatic effect of the prosthesis by shortening the elongated edge with the help of functional tests, as well as selective grinding of artificial teeth with the help of copying paper to create uniform contact over the entire surface of the tooth row.

In cases of significant injury to the mucous membrane and the impossibility of fitting, the prostheses are subject to rebasement.

At the stage of the control examination after handing over the prosthesis, the patient may complain about its poor fixation. When inspecting the structure, as a rule, shortening of the edges is determined, as a result of which the shut-off valve is broken. In this case, it is necessary to lengthen the edges of the prosthesis with thermoplastic mass or fast-hardening plastic, directly in the patient's mouth using functional tests. In the future, it is necessary to rebase the prosthesis using a laboratory method.

Complaints about the balancing of the prosthesis require its processing by removing functional impressions with the use of prostheses as individual spoons and subsequent rebasing in the dental laboratory

Complaints about impaired speech of some sounds involve phonetic correction of a removable prosthesis, namely the creation of the necessary shape of the dental arch; modeling the shape of the palate; thinning of the base of the prosthesis in the cervical part from the palatal side, as well as a change in the length, shape and inclination of the front teeth according to the individual characteristics of the patient.

During the first days after application, the denture is perceived by the patient as a foreign body, as an irritant. According to V. Yu. Kurlyandskyi, adaptation to a complete removable prosthesis occurs in three phases.

The first is the phase of irritation, which is characterized by impaired speech, increased salivation, urges to vomit, difficulties in chewing and swallowing. This phase lasts during the first day after handing over the prosthesis. The second phase - partial inhibition - lasts for 2-3 days. Salivation returns to normal, recovery of diction is observed, nausea disappears, chewing efficiency increases. The third phase - complete braking - is characterized by the complete recovery of all functions and the disappearance of the sensation of a foreign body.

The moment of adaptation to prostheses can be considered as a manifestation of cortical inhibition, which occurs at different times, varying depending on many reasons from 10 to 30 days. Its duration depends on the degree of fixation and stabilization of the prosthesis, the presence of painful sensations, design features,

type of nervous system, etc. With repeated prosthetics, the adaptation period is reduced to 3-5 days.

Psychological preparation of the patient, awareness of the need to get used to the prosthesis, understanding that the effectiveness of the prosthesis depends not only on the quality of the structure, but also on the desire to get used to it, are of great importance in adaptation.

recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.); requirements for work results, including registration;

- What should be done during the delivery of a complete removable prosthesis?

- What should be paid attention to when examining a prosthesis outside the oral cavity?

- How to apply a complete removable prosthesis in the patient's oral cavity?

- What is "fixation of a complete removable prosthesis"? What determines its quality? How to check it?

- What is "stabilization of a complete removable prosthesis"? What determines its quality? How to check it?

- What determines the "balance of a complete removable prosthesis"? What should be done in case of its violation?

- What recommendations should be given to the patient when fitting a prosthesis?

- Define "adaptation". What are the phases of adaptation to a complete removable prosthesis? Name the average period of getting used to a complete removable prosthesis.

- Application of complete removable prostheses in the oral cavity.

- Recommendations for the patient on the care of the prosthesis.

- How to remove complete removable prostheses from the cuvette after polymerization?

- What are the stages of final processing of complete removable prostheses and their purpose?

- How to grind the bases of complete removable prostheses?

- What means and tools are used for polishing the bases of removable prostheses?

- Tell us about the stagecontrol examination after handing over the prosthesis. What complaints can the patient make and how can the identified deficiencies be eliminated?

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. An 80-year-old patient had a complete removable upper jaw prosthesis made. During the handover of the prosthesis, a special cream is recommended to improve its fixation. To which method of fixation should the use of cream be classified?

- A. Mechanical
- V. Physical
- S. Chemical
- D. Biophysical
- E. Biomechanical

2. A 55-year-old patient had a complete removable prosthesis made for the lower jaw. After inserting the prosthesis into the oral cavity, the doctor checks the quality of fixation of the prosthesis. What is prosthesis fixation?

- A. Stability at rest
- B. Stability during non-chewing movements
- C. Stability during chewing movements
- D. Stability on the working model
- E. Stability under functional load

3. At the stage of application and correction of a complete removable plate prosthesis on the upper jaw, the doctor checks the creation of a closing valve in the section of line "A". What fingerprint should he use for this?

- A. Pressure on the molars in the vertical direction
- B. Pressure on the molars in the oral direction
- C. Pressure on the incisor in the vestibular direction
- D. Pulling the prosthesis down in the area of the premolars
- E. Pulling the prosthesis to the side in the area of the incisors

4. A 70-year-old patient complained of insufficient fixation of a complete removable prosthesis on the upper jaw. Objectively: the edge of the prosthesis in the area of the frenulum of the upper jaw is shortened, the closing valve is broken. What should be done to improve the fixation of the prosthesis?

- A. Processing of the prosthesis
- B. Extension of the edges of the prosthesis base
- C. Correction of the prosthesis
- D. Three-dimensional modeling of the prosthesis base
- E. Extension of the edges of the prosthesis base

5. A 76-year-old patient applied to the orthopedic dentistry clinic with complaints of poor fixation of a complete removable prosthesis on the lower jaw. An examination of the alveolar process revealed its atrophy. How can the fixation of the prosthesis be improved?

- A. Expand the boundaries of the base
- B. Shorten the boundaries of the base
- C. Narrow the tooth row
- D. Expand the dentition
- E. Make a double base

6. A 67-year-old patient has complete removable prostheses made for the first time. The patient appeared for the clinical stage of "implantation of prostheses". Among the recommendations, the doctor indicates the period of use of prostheses. After how many years is it recommended to make new prostheses?

- A. 1
- B. 2
- C. 3-4
- D. 5-6
- E. 10

7. A 62-year-old patient had a complete removable upper jaw prosthesis made. For the next day, the patient complains of increased salivation, unclear pronunciation of some words. Which the average period of adaptation to a removable prosthesis according to Kurlyandskyi?

- A. 33 days
- B. 7 days
- C. 18 days
- D. 1 day
- E. 50 days

8. A 68-year-old patient came to the clinic at the stage of correction of complete removable prostheses with complaints about balancing the prostheses while chewing food. Objectively: significant atrophy of the alveolar processes of the jaws, prognathic ratio of the jaws. The artificial teeth were installed in an orthognathic relationship. When opening the mouth and closing the teeth, the prostheses are fixed on the prosthetic bed. What is the most likely cause of denture balancing?

- A. Improperly installed artificial teeth
- B. Missing circular shut-off valve
- C. Insufficient anatomical retention of prostheses
- D. Weak functional absorption
- E. Insufficient insulation of the torus

9. When a 70-year-old patient was fitted with a complete removable prosthesis for the lower jaw, it was found that the prosthesis was dropped when opening the mouth and moving the tongue. At what stage of prosthesis manufacturing was an error made?

- A. Obtaining an anatomical impression

- B. Fitting an individual spoon
- C. Obtaining a functional print
- D. Determination and fixation of the central ratio
- E. Checking the wax composition of the prosthesis

10. A 58-year-old patient has a complete removable upper jaw prosthesis made. During the delivery of the prosthesis, it was established that it does not fix on the upper jaw at rest. During the examination, the discrepancy between the relief of the prosthetic field and the prostheses is noted. At what stage of prosthesis manufacturing was an error made?

- A. Obtaining an anatomical impression
- B. Fitting an individual spoon
- C. Obtaining a functional print
- D. Determination and fixation of the central ratio
- E. Checking the wax composition of the prosthesis

11. A 59-year-old patient complained of pain in the area of the transitional fold of the upper jaw, which appeared 3 days after the start of using a complete removable prosthesis. During the examination, a decubitus ulcer was found. What must be done?

- A. Correct the base of the prosthesis
- B. Re-polymerization of plastic
- C. Polish the prosthesis
- D. Make a new prosthesis
- E. Rebase the prosthesis

12. A 65-year-old patient complains of biting the mucous membrane of the cheeks while chewing food. Complete removable prostheses were made 2 days ago. What is the likely cause?

- A. Extended borders of the base
- B. Tuberos-tuberos contact in the area of the lateral teeth
- C. Selected teeth of an inappropriate size
- D. Incorrectly determined bite height
- E. Fixed anterior occlusion

13. During the correction of complete removable prostheses, the patient complains of biting the mucous membrane of the cheek. Objectively: in the central relationship of the jaws, there is a tuberos-tuberos contact between the lateral artificial teeth. How to correct the prosthesis?

- A. Grind the buccal tubercles of the upper molars
- B. Grind the buccal tubercles of the lower molars
- C. Grind the lingual tubercles of the lower molars

- D. Grind the palatal tubercles of the upper molars
- E. Grind the buccal tubercles of the upper and lower molars

14. The patient was made full removable prostheses for the upper and lower jaw. Correction of occlusal contacts is carried out using copy paper. To maintain the height of the bite in dentures, what does not need to be polished?

- A. Palatal slopes of the tubercles of the upper and buccal - lower teeth
- B. Buccal ridges of the cusps of the upper and lingual ridges of the lower teeth
- C. Bits of chewing teeth entering into supercontact
- D. Lingual slopes of the cusps of the upper and lower teeth
- E. Buccal ridges of the cusps of the chewing teeth of the lower and upper jaws

15. A 50-year-old patient came to the clinic with complaints of sharp pain under a fully removable prosthesis on the lower jaw when chewing. The prosthesis was made 2 weeks ago. Objectively: in the frontal area of the lower jaw in the region of the transition folds are found decubitus ulcers. Determine the cause of this complication.

- A. Inconsistency of the borders of the prosthesis with the prosthetic bed
- B. Increased interalveolar height
- C. Disturbed plastic forming technology
- D. Allergic reaction to the plastic of the prosthesis base
- E. Disturbed plastic polymerization technology

16. A 70-year-old patient complained of frequent breakages of a complete removable prosthesis for the upper jaw. Objectively: on the palatal surface of the prosthesis, there is a crack running in the direction between the central incisors, traces of repeated repairs. The prosthesis was made 8 years ago. Your actions?

- A. Make a new lamellar prosthesis
- B. Repair the prosthesis
- C. Rebase the prosthesis
- D. Repair and rebase the prosthesis
- E. Correct the prosthesis

17. A 65-year-old patient complains of unsatisfactory fixation of a complete removable plate prosthesis on the upper jaw. The prosthesis was made for the first time 6 years ago. Objectively: balancing and poor fixation of the removable prosthesis is noted. What caused this condition?

- A. Atrophy of the bone base of the tissues of the prosthetic bed
- B. Abrasion of artificial teeth
- C. Poor hygienic condition of the removable prosthesis

- D. Discoloration of the base plastic
- E. Loss of individual antagonistic teeth

18. A 58-year-old patient came to the clinic with complaints about the breakage of a complete removable prosthesis on the lower jaw, which he had been using for 5 years. After the prosthesis broke, he used one part for 2 weeks. Objectively: a fracture of the prosthesis in the area of tooth 33, it is impossible to compare the edges of the fragments. What are the doctor's tactics?

- A. Make a new prosthesis
- B. Carry out a clinical rebasing of the prosthesis
- C. Carry out a laboratory rebase of the prosthesis
- D. Repair the prosthesis on the model
- E. Obtain a partial impression with a prosthesis

19. A 73-year-old patient applied for a fracture of the base of a complete removable prosthesis on the upper jaw. The prosthesis was made 1 year ago. What plastic should be used to fix the prosthesis?

- A. Protacryl-M
- V. Boxyl
- S. Norakryl
- D. Sinma
- E. Orthosil

20. A 70-year-old patient applied to the orthopedic department, complaining of poor fixation of a complete removable prosthesis for the lower jaw. The prosthesis was made a year ago. The removable prosthesis is of satisfactory quality, but an objective examination reveals a slight discrepancy between the relief of the prosthetic field and the prosthesis. What is your tactic?

- A. Make a new prosthesis
- B. Carry out clinical rebasing
- C. Carry out laboratory rebasing
- D. Restore the inner surface with soft plastic
- E. Correct the base of the prosthesis

4. Summary:

- What should be done during the delivery of a complete removable prosthesis?
- What should be paid attention to when examining a prosthesis outside the oral cavity?
- How to apply a complete removable prosthesis in the patient's oral cavity?

- What is "fixation of a complete removable prosthesis"? What determines its quality? How to check it?

- What is "stabilization of a complete removable prosthesis"? What determines its quality? How to check it?

- What determines the "balance of a complete removable prosthesis"? What should be done in case of its violation?

- What recommendations should be given to the patient when fitting a prosthesis?

- Define "adaptation". What are the phases of adaptation to a complete removable prosthesis? Name the average period of getting used to a complete removable prosthesis.

- Application of complete removable prostheses in the oral cavity.

- Recommendations for the patient on the care of the prosthesis. Tell us about the stagecontrol examination after handing over the prosthesis. What complaints can the patient make and how can the identified deficiencies be eliminated?

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky <http://www.nbu.gov.ua/>

PRACTICAL LESSON No. 12

Topic: Transport tires. Ligature binding of teeth, indications, contraindications. Errors and complications are possible. Treatment of jaw fractures without displacement of fragments using bent wire splints. Tire errors.

Goal: Know the types of transport immobilization. Demonstrate ligature binding of teeth. To study possible errors and complications when using orthopedic devices. Know the materials and tools necessary for the manufacture of tires. Know the indications for use and the technique of making a smooth tire clamp. Know the indications for use and the technique of manufacturing a tire with a spacer bend. Know the indications for use and the technique of making a tire with hooks (loops). Know the indications for use and the technique of manufacturing a tire with an inclined plane. Know the indications for use and the technique of manufacturing a tire with support loops. Know the indications for use and the manufacturing technique of the Entelis tire. Know the indications for use and the technique of making a Zbarzh wire splint. Know the mistakes when tire

Basic concepts: maxillofacial devices, splints, ligature binding of teeth.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- Transport immobilization tires, methods of their application.
- Ligature binding of teeth, methods of application.
- Possible errors and complications when using orthopedic devices.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

The first medical aid for jaw fractures consists in temporarily immobilizing the fragments. This is necessary to stop or prevent bleeding, as well as to stop pain. Extra-oral methods of transport immobilization

Temporary (transport) methods are divided into extra-oral (bandage bandage, chin sling, etc.) and intra-oral (spoon splints with "whiskers", intermaxillary

ligature fastening, etc.)

Indications for temporary immobilization:

- lack of conditions for medical immobilization;
- lack of specialized personnel capable of performing medical immobilization;
- lack of time for therapeutic immobilization. This is usually observed during hostilities or other emergency situations (earthquake, mass casualty accidents, etc.) when there is a large flow of casualties;
- severe general somatic condition (traumatic shock, coma, intracranial hematoma, etc.), which is a temporary relative contraindication to therapeutic immobilization.

Transport immobilization is indicated if it is necessary to transport a patient with a fractured jaw to a specialized institution.

Temporary immobilization is usually maintained for 1-3 days (the maximum time required to transport the injured to a specialized institution or call a specialist).

All transport bandages and slings are applied with pressure (those that press) or without pressure (those that support).

Pressure bandages are shown:

- to stop bleeding;
- for all fractures of the upper jaw with the preservation of a sufficient number of teeth, which will allow to put the fragments in the correct articulation. This prevents additional injury to the brain and its membranes and contributes to the reduction of liquefaction;
- with fractures of the lower jaw outside the dental arch.

Standard, gauze bandages and a sling that support are imposed in all other cases of damage to the OBJ. Their main purpose is to keep massive hanging pieces of soft tissue and debris in a calm state, which is important during transportation.

A parietal-chin bandage according to Hippocrates.

It is the most affordable and simplest method of temporary fixation of fragments. The circular tours of the bandage, passing through the chin and parietal bones, do not allow the fragments to shift during the transportation of the victim. For this, you can use an elastic mesh bandage.

Indications for use: in case of fractures of the lower jaw, it fixes the fragments to the undamaged upper jaw. In case of fractures of both jaws, the bandage supports and prevents the removal of fragments of the damaged jaws, thereby significantly limiting their mobility.

Standard elastic sling-shaped bandage

(According to Z.N. Pomerantseva-Urbanska).

Indications for use: means of transport immobilization for fractures of the upper and lower jaw. It is not recommended to use this bandage on toothless jaws in the absence of dentures.

Standard sling-shaped transport bandage by D.A.Entin.

Indications for use: means of transport immobilization for fractures of the upper and lower jaw.

Depending on the number of pairs of rubber rings used in the sling, the sling can hold the debris without pressure or exert pressure on it. In the case of a fracture of the lower jaw behind the tooth row or in case of a fracture of the upper jaw, a standard bandage can be applied using three pairs of rubber rings (such that it presses).

In case of fractures of the lower jaw within the dental row, it should be applied only to support the fragments. Excessive pressure on broken fragments leads to even greater displacement and danger of asphyxiation.

Intraoral methods of transport immobilization

The simplest bandage.

It is made using improvised means (pencil, spatula, etc.).

Indications for use: transport immobilization for isolated fractures of the upper jaw.

Limberg's board.

It is made of plywood with a thickness of 3-4 mm. It is fixed with bandages or with the help of rubber bands (rubber traction) to a headband or a cap.

Indications for use: transport immobilization for isolated fractures of the upper jaw.

Ligature dental bandages.

Intermaxillary ligature binding is the most frequently used method of temporary immobilization of jaw fragments. Every dentist should perform this immobilization in an outpatient setting. Bonding is often carried out with a bronze-aluminum wire (ligature) with a diameter of 0.4-0.5 mm or a polyamide thread with a diameter of 0.5-0.6 mm for a period of no more than 1-3 days (to prevent loosening of the teeth).

Indications for use:

1. For fixing fragments of the lower jaw together, provided that each of

them has at least 2-3 stable teeth (monomaxillary - single jaw bandage);

2. Fixation of fragments of the lower jaw, which have permanent teeth, with permanent teeth of the intact upper jaw (bimaxillary - double jaw bandage);

3. Monomaxillary splinting for fractures of the alveolar process with the use of a chin;

Contraindications for use:

1. Intermaxillary binding with simultaneous fractures of the lower and upper jaws;

2. For intermaxillary bonding with mobile teeth and fractured teeth located in the gap.

3. For intermaxillary ligature binding in concussion, the possibility of bleeding from the oral cavity, the danger of vomiting during transportation.

The first of the known ligature bandages is the eight-shaped one according to Hippocrates, now it has only historical significance.

Rigid intermaxillary ligature according to A.A. Limberg is used to fix the fragments of the lower jaw to the upper teeth by twisting the ends of the ligatures together in front of the oral cavity. Such fixation of fragments is used with a sling-like bandage for a period of a little more than 10 days.

Intermaxillary ligature binding according to Ivy, Heykin, Wilga:

Ivy's method is easy to make, functional and more convenient than other methods, since it does not create coarse tangles of wire on the eve of the oral cavity. If it is necessary to open the mouth, it is enough to cut 2 vertical wire ligatures passed through the loops.

Vilgane's method is convenient in that special "buttons" with two holes are required for intermaxillary fixation.

The negative side of Heykin's method is that non-ecological lead pellets are used.

General rules for all types of ligature binding of teeth:

- The ends of the ligature are twisted only clockwise
- The excess of the ligature is cut off, leaving a "twist" 5 mm long
- The "twists" are bent to the teeth in a direction parallel to the surface, returning them to the cosmetic center.

Standard transport splints for immobilization of the upper jaw:

1) Faltina;

2) Olga;

3) Romanov;

- 4) Moscow Institute of Traumatology and Orthopedics;
- 5) Limberga
- 6) Ulyanitskyi.

When edentulous patients have removable dentures, they can be used together with a chin sling as a means of transport immobilization. Prostheses are connected to each other in the area of the side teeth with ligatures or self-hardening plastic. At the same time, the front teeth should be cut to ensure nutrition.

Orthopedic treatment of fractures of the upper jaw
Standard set by Y.M. Zbarzh.

It consists of an arch splint, a supporting headband and connecting rods. The device allows you to exercise and fix the debris at the same time. The arch splint is a double steel arch covering the maxillary dentition on both sides. The dimensions of the wire arch are adjusted by extending and shortening its palatal part. Extraoral rods directed backwards depart from the arch. These rods are connected to the main harness by means of metal connecting rods.

Indications for use: transport immobilization for fractures of the upper jaw, treatment of fractures of the upper jaw such as Le Fort upper and middle.

Individual tires produced outside the laboratory.
Wire tires.

Shina Kurlyandsky V.Yu. (Responding and immobilizing tire).

The dental part with loops for fixation of extraoral processes is bent from elastic steel wire on a plaster model. The oral ends of extraoral rods are sealed to prevent rotation. The splint is fixed by attaching the extra-oral rods to the plaster orthopedic cap with a hard wire.

Indications for use: bilateral fracture of the upper jaw such as Le Faure medium-upper without a bone defect and in the presence of a large number of teeth.

Individual wire tire by Y.M. Zbarzh.

Indications for use: treatment of bilateral fractures of the anterior part of the alveolar process of the upper jaw

Manufacturing sequence:

- a) Inner part with extraoral rods.
- b) Wire rods designed to fix the tire to the plaster head bandage.
- c) Fastening to the main bandage with retaining rods of the finished tire.

Orthopedic treatment of fractures of the lower jaw.
Standard tires.
Tape standard tire V.S. Vasiliev (1967).

A tire made of a thin flat metal strip (width 2.3 mm, length 134 mm, thickness - 0.25-0.3 mm) with 14 hooks is made using special stamps from sheet stainless steel. The tire bends easily in the horizontal plane, but does not bend in the vertical plane. It is fixed to the teeth with a ligature wire.

Indications for use: in case of uncomplicated fractures of the lower jaw in the presence of stable teeth, on one or both jaws, like the Tygerstedt splint, and often in combination with it, it is fixed with a ligature wire to the teeth, if necessary, an intermaxillary rubber traction is applied.

For single-jaw splinting, it is undesirable to use Vasiliev's splint due to its low strength. The impossibility of bending the tape splint in the vertical plane leads to trauma to the mucous membrane in the lateral parts of the tooth row due to the discrepancy in the Spey curve.

Standard plastic tire according to F.L. Hardashnikova.

Standard dental splint made of elastic plastic (food-grade polyethylene) with mushroom-shaped appendages for intermaxillary extraction with the help of rubber rings. It is fixed on the teeth with a wire ligature.

Indications for use: pre-medical and qualified medical care for fractures of the lower jaw, in the presence of permanent teeth on fragments.

Individual tires produced outside the laboratory.

Wire tires.

S.S. Tigerstedt's wire dental splints. (1916)

There are five main types of these tires: a) smooth tire clamp; b) a tire with a spacer bend; c) tire with hook loops; For the manufacture of dental splints, you need: aluminum wire with a diameter of 1.8-2.0 mm and a length of 12-15 cm or a stainless steel wire with a diameter of 1.3-1.5 mm, a bronze-aluminum ligature wire with a diameter of 0 is used to fix the splints 5-06 mm or polyamide thread. The disadvantage of wire dental splints is the impossibility of using them in the case of a deep bite with a vertical or retrusion position of the teeth.

1 A smooth splint can be used for the treatment of mandibular fractures, provided that there are at least 4 permanent teeth on the larger fragment, and at least 2 permanent teeth on the smaller one. At the same time, the teeth located in the fracture gap are not taken into account.

Indications for use:

- 1) one-sided linear fracture of the lower jaw, located within the dental row, without removal or with easily removable fragments within the frontal group of teeth;
- 2) fractures of the alveolar part of the lower jaw and the alveolar process of the upper jaw;
- 3) fractures and dislocations of teeth, when there are permanent teeth on

both sides of the undamaged areas of the jaw;

- 4) splinting of teeth in acute odontogenic osteomyelitis and periodontitis.
 - 5) for the prevention of a pathological fracture of the lower jaw, before sequestrectomy operations, cystectomy, cystotomy, resection of part of the jaw, etc.;
 - 6) incomplete fractures (cracks) of the lower jaw.
2. A tire with a spacer bend in the area of the tooth row defect.

Indications for use:

Unilateral fracture of the lower jaw without removal or with easily maneuverable fragments, if the fracture gap passes through the alveolar part devoid of teeth.

3. Tire with hook loops.

Variants of hook loops a) according to Rauer at an angle of 90° b) according to Limberg at an angle of 45°

Indications for use:

- 1) fractures of the lower jaw outside the dental row;
- 2) fractures of the lower jaw within the dental row in the presence of 4 permanent teeth on the larger fragment, and 2 permanent teeth on the smaller one;
- 3) fractures of the lower jaw with hard-to-manipulate fragments that require extraction;
- 4) bilateral, double and multiple fractures of the lower jaw;
- 5) easily maneuverable fracture of the upper jaw on the lower, medium, less often upper type with slight displacement of fragments (with mandatory use of chin sling and rubber gasket in the area of molars);
- 6) simultaneous fractures of the upper jaw and lower jaw (supplemented by the chin slingshot).

4. A tire with an inclined plane.

Indications for use:

1) with significant defects of the lower jaw due to traumatic osteomyelitis, gunshot wound or after resection operations. It prevents the fragment from shifting towards the oral cavity, setting it in the correct articulatory relationship with the opposite row of teeth.

2) fractures in the area of the ascending branch.

5. A tire with a holding plane.

Indications for use: on the upper jaw to hold tampons, flaps of soft tissues of the palate in case of damage or in the postoperative period.

Tire of V.A. Entelis (twisted strut tire)

Indications: fractures of the lower jaw with a bone tissue defect in the anterior part.

3.4. control materials for the final stage of the lesson: assignments, tasks,

tests, etc. (if necessary).

1. A woman, 65 years old, she turned to the maxillofacial surgery clinic in connection with a fracture of the edentulous lower jaw (in the area of the missing premolars on both sides - with displacement of the fragments, in the area of the angle on the right and the coronal process on the left - without displacement). History: trauma of the lower jaw. The patient uses a complete removable prosthesis of the lower jaw. What method of immobilization should be used?

- A. *Prosthesis of the patient with fixation with ligatures to the lower jaw
- B. Osteosynthesis using bone frames or pins.
- C. Vankevych tooth-gingival splint with one inclined plane.
- D. Gum splints of the Limberg, Sheremet type.
- E. Port-Guning type gingival splints.

2. Patient K., 19 years old, came to the clinic with signs of concussion /nausea, repeated vomiting/. During the examination, a fracture of the vertebral column in the region of the mental foramen on the right with displacement of fragments was determined, the dentition is intact, the teeth are stable. In conditions of limited time /due to an unfavorable general condition/ it is preferable to carry out splinting

- A. *Vasilyev's standard tape tire;
- B. A plastic splint according to Marey;
- C. Tygerstedt tire;
- D. Weber's gingival splint;
- E. Vankevich with a gingival splint.

3. Patient C, 35 years old, was brought by the ambulance team to the maxillofacial hospital after a facial injury from work. Objectively: the dentition is intact. Fracture of the lower jaw in the frontal section with a bone defect measuring 0.8 cm, the fragments are mobile. Primary surgical treatment of the wound was carried out, an aseptic bandage was applied. What method of therapeutic immobilization of fragments of the lower jaw should be used?

- A. *Applying Entelis twisted spacer bar
- B. Applying a Tigerstedt splint with a spacer bend
- C. Applying a Tigerstedt splint with hook loops
- D. Applying a Tigerstedt splint with an inclined plane
- E. Applying a smooth splint with a stencil insert

4. Patient S., 45 years old, came to the clinic with complaints of pain in the lower jaw. Three weeks ago, the patient received an injury, which resulted in a right-sided fracture of the lower jaw. The patient was fixed with an aluminum wire splint with hooks. Objectively: the face is symmetrical, opening the mouth is accompanied by slight pain, slight mobility of the fragments is observed. The occlusal relations are slightly disturbed. The teeth on the lower jaw are stable, have

low crowns. These radiographs show that between teeth 45 and 46, a fracture of the body of the lower jaw is determined without a defect bones Which splint should be used to complete the treatment?

- A. *Weber tire
- B. Shina Vankevich
- C. Shina Limberga
- D. Shina Zbarzh
- E. Chin sling

5. A 25-year-old patient applied to the maxillo-facial surgery clinic due to a fracture of the lower jaw (in the area of the missing molars on both sides - with displacement of the fragments, in the area of the corner to the right). On both jaws, 3 teeth remained on both sides of the fracture. What method of immobilization of the lower jaw should be used

- A. *Vankiewicz tooth-gingival splint with two inclined planes
- B. Osteosynthesis using bone frames or pins.
- C. Bimandibular extraction with Tigerstedt splints
- D. Dento-gingival splint of the Weber type
- E. Ligature binding of teeth

4. Summary:

- Types of transport immobilization.
- Ligature binding of teeth.
- Possible errors and complications during ligature binding.
- Materials and tools necessary for the manufacture of bent wire tires.
- Indications for use and the technique of making a smooth tire clamp.
- Indications for use and the technique of manufacturing a tire with a spacer bend.
- Indications for use and the technique of manufacturing tires with hooks (loops).
- Indications for use and the technique of manufacturing a tire with an inclined plane.
- Indications for use and the technique of manufacturing a tire with support loops.
- Indications for use and technique of manufacturing Entelis tire.
- Indications for use and the technique of making Zbarzh wire splint.
- Errors during busing.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 13

Topic: Etiology, clinic and orthopedic treatment of jaw fractures with permanent displacement of fragments.

Goal: To know the etiology, pathogenesis of development, methods of treatment of fractures of the lower jaw with rigid fragments. Mastering the methods of examination of patients with injuries of the maxillofacial region. Diagnosis of damage to the maxillofacial area; with the help of basic and

additional examination methods. Providing medical care to this group of patients.

Basic concepts: maxillofacial devices, splints, ligature binding, rigid fragments.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

1. Classification by Z.A. Shura.

2. Clinical signs of fractures with rigid fragments.

3. Methods of treatment of fractures with rigid fragments, structural features of repositioning devices.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

The mobility of fragments of the lower jaw after a fracture, hence the possibility of their adjustment, depends on the time of the patient's visit. Debris can be easily mobile, limited mobile and rigid mobile. They can be shifted in the vertical, sagittal and transversal directions. Displacement of debris in one direction, as a rule, does not happen. Most often, debris is displaced simultaneously in two, less often in three directions. When the fragments are easy to move, splinting is quite simple. In cases of persistent displacement, when simultaneous finger repositioning (reposition) is impossible, there is a need to use special repositioning orthopedic devices. Repositioning devices (correcting or moving) are divided into mechanical and functional (directional) devices.

Resonating devices for mechanical action (intraoral).

Removal of debris in the vertical direction can also be carried out with the help of aluminum tires with S.S. Tigerstedt hook loops, or similar tires made of stainless steel (according to Z.N. Pomerantseva-Urbanska).

Elastic (expansive) arch of Engle.

Indications for use: fractures of the alveolar process in the lateral parts.

Angle's stationary arc.

Indications for use: crushed fractures of the alveolar process, as well as its fractures in the front part (with a shift of the fragment to the palatal side or down).

Apparatus Posta.

It is made of stainless steel wire with a diameter of 1.5-2 mm.

Indications for use: for the treatment of a bilateral fracture of the lower jaw with displacement of the middle fragment. By placing the U-shaped protrusion of the tire horizontally, vertically or at an angle, it is possible to move the median fragment in the desired direction.

Wire splints with adjusting loops (Moora).

They are made of steel wire with a diameter of 1-1.2 mm.

- a) simple;
- b) L-shaped shortening of the tire;
- c) round for lengthening the tire.

Indications for use: for the reposition of fragments in fractures of the lower jaw with their slight displacement and stiffness. By bringing the lateral parts (shoulders) of the loops closer together on the tire fixed to the teeth, or by reducing the circle of the loops by squeezing them, they achieve the necessary movement of fragments for repositioning.

Grozovsky's kappa-bar apparatus.

Indications for use: for repositioning fragments in mandibular fractures with a defect and a small number of teeth on a smaller fragment.

- 1) during the repositioning of the fragments (the screw rests against the support platform, which has many small depressions).
- 2) during fixation (rods-bars are inserted into the tubes and fixed with screws).

Katz's apparatus.

Indications for use: for the reposition of fragments in mandibular fractures with a defect and immobile fragments. The wreckage is gradually restored by hand. Their achieved movement is secured by wire ligatures placed on the extraoral ends of the rods, for which several grooves are applied to them in advance. Fragments can be moved not only in the transversal, but also in the vertical and sagittal directions. The device allows the patient to eat harder food, and also creates the correct movements of fragments, which in turn increases the regeneration processes of damaged tissues.

Oxman's apparatus. (Modification of Katz's apparatus)

Indications for use: for the reposition of fragments in fractures of the lower jaw with a defect in the chin and rigid fragments. This is an apparatus of sequential combined action – first reponing, then fixing, forming and replacing.

Brun's apparatus (intra-intraoral).

Differs from the Katz apparatus by extraoral crossing rods with hooks on

which a rubber traction is applied.

Indications for use: for the reposition of fragments in case of fractures of the lower jaw with a defect and immobile fragments. The device effectively acts on the front ends of the fragments, pushing them apart, but at the same time, the corners and branches of the lower jaw are displaced inward, which increases the deformation. The device does not resist the rotation of the fragments around its axis and does not create a stable connection between them.

Brun's screw device (intraoral).

Indications for use: for the repositioning of fragments of the lower jaw, by scrolling the sleeve, the separation of the fragments of the lower jaw is achieved in the transversal direction (frequency: 1-2 turns per day).

Courlyandsky's reponing devices:

1. Apparatus with an arc like a Coffin spring.

Indications: treatment of fractures of the lower jaw with a defect. After repositioning the fragments, the arch is pulled out, two rods are inserted into the lower and upper tubes, turning the device into a fixing device.

2. Apparatus with repulsive screw and pellet.

Indications for use: treatment of fractures of the lower jaw with a defect, in the absence of teeth in one of the fragments. After repositioning the fragments, the lever with the screw is removed, and the fragments are fastened with a curved bar (bush), fixing it to the mouthpiece tube and the specially created recess of the pellet.

3. Apparatus with a resonating loop.

Indications for use: treatment of fractures of the upper jaw with a median defect, when fragments are displaced relative to the median line. The device is fixed by placing a rubber pull between the hooks of the extra-oral rods and the hooks of the plaster cap.

Kurlyandsky's apparatus with levers.

Indications for use: treatment of fractures of the lower jaw with a bone defect and in the presence of a small number of teeth on the fragments (less than four on a small fragment and less than two on a large fragment) when they are located near the fracture line.

Shura resonating devices.

1. Apparatus for the treatment of bilateral fractures of the angle and branches of the lower jaw with defects in these areas: a) extraoral rods; b) intraoral brace; c) removable inclined plane; d) model apparatus.

Shura's apparatus is combined. For repositioning, the external rods (a, b) are inserted into the tubes soldered to the tires, and a rubber traction is put on their

hooks, the device becomes a mechanical repositioning device. After repositioning, the rods are pulled out, and the correct position of the fragment of the lower jaw is fixed by inserting a tube of a metal bracket (c), - a fixing device. The introduction of a removable inclined plane (d, d) into the tubes transforms the Schur resonator apparatus into a mechanically, functionally acting (directional) one.

2. Shura's apparatus with opposing rods.

Indications for use: with a bilateral fracture of the upper jaw and limited mobility of fragments.

It consists of: 1) a plaster cap, into which two vertical rods 150 mm long are plastered; 2) a single soldered splint on the upper jaw with supporting crowns on the canines and first molars of both sides. Flat tubes with a cross section of 2x4 mm and a length of 15 mm are soldered to the tire from the buccal side in the area of the first molar; 3) two extraoral rods with a cross section of 3 mm and a length of 200 mm. A soldered tire is cemented on the teeth of the upper jaw. A plaster cap is formed on the patient's head and at the same time short rods are plastered in it vertically on both sides so that they are located a little behind the lateral edge of the orbit and go down to the level of the wings of the nose. Extraoral rods are inserted into the tubes and bent along the buccal surface of the teeth. In the area of the canine, they go back, at the level of the short upper rod, they bend to meet it. Movement of the jaw fragments is achieved by changing the direction of the extraoral rods. After setting the jaw in the correct position, the ends of the levers are tied with a ligature.

Responsive functional devices (intraoral).

For repositioning fragments of the lower jaw, an inclined plane is used, which is included in the non-removable splints of S.S. Tigerstedt and the splints of Weber, M.M. Vankevich, and others. Instead of an inclined plane in tires, you can use tires with sliding joints.

Shura's apparatus with an elastic inclined plane.

Indications for use: fractures of the lower jaw outside the dental row, with displacement and limited mobility of the fragment, in the presence of teeth on the intact upper jaw.

1. a) a wire rod with a flattened end, from which the bracket is bent (the direction in which the rod should be bent is shown by a dotted line);

b) supporting part of the apparatus;

c) an inclined plane soldered to the bracket;

d) the device in assembled form.

2. Scheme of action of an elastic inclined plane, with a large displacement of fragments of the lower jaw.

a) in the first days of treatment, the inclined plane lags behind the supporting teeth by a long distance;

b) by the end of the treatment, after repositioning the fragment, the inclined plane is close to the supporting teeth.

3. Shura apparatus on a working model.

Pomarantseva-Urbanska tire with a sliding joint.

Indications for use: fractures of the lower jaw outside the dental row, with a bone defect and when fragments are displaced towards the oral cavity.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. What repositioning device should be used in the treatment of fractures of the lower jaw with displacement of rigid fragments (localization of the fracture at the level of the central incisors). Mobility of teeth in the lateral parts of the 1st-2nd degree:

A. Oxman's apparatus

B. Katz's reponding apparatus

C. guidance device Vankevich

D. Grozovsky's apparatus

E. responding apparatus of Pomerantseva-Urbanska

2. In what sequence does the process of fusion of fragments of the lower jaw take place:

A. chondroblastic, fibroblastic, bone;

B. fibroblastic, bone;

C. fibroblastic, chondroblastic;

D. fibroblastic, chondroblastic, bone?

3. In the treatment of fractures with incorrectly fused fragments with displacement in the horizontal plane and a small number of supporting teeth, use:

A. Revzin tire;

B. orthodontic treatment;

C. fixed prosthesis with vestibular overlays;

D. removable prosthesis with duplicating dentition.

4. A 62-year-old man has a median fracture of the lower jaw with rigid fragments. Objectively: dental formula 17161514131211/21222324252627 - 4241/3132 - 4241/3132 teeth have mobility of the I and II degrees. Fragments of the lower jaw are turned towards the oral cavity. The use of which reponing apparatus is more indicated in this case?

A. *Vankevich-Stepanova

B. Bruna

- C. Katz
- D. Kurlyandskyi
- E. Shura

5. Patient V., 25 years old, came to the clinic on the third day after a facial injury with complaints of pain in the lower jaw on both sides, difficulty swallowing and breathing. Objectively: slight swelling in the chin area, a fragment of teeth 44434241!31323334 shifted down and back. One-moment repositioning of the fragment does not lead to the desired result. What device should be used for repositioning the fragment?

- A. *Post's apparatus.
- B. Single-jaw splint with Kurlyandsky weights.
- C. Weber's apparatus.
- D. Betelman's apparatus
- E. Apparatus with elastic weights according to Katz.

6. A 17-year-old patient has an improperly fused fracture of the lower jaw with the formation of an anterior open bite. Objectively: dentitions are intact, teeth are stable. Between the front teeth of the upper and lower jaws there is a vertical gap up to 3 mm in size. Which method of treatment is more indicated?

- A. * Orthodontic treatment
- B. Grinding of articulating teeth
- C. Removal of articulating teeth
- D. Prosthetics with crowns
- E. Making a prosthesis with a double row of teeth

7. Patient D., 59 years old, applied for prosthetics. Three months ago, he was treated for a fracture of the left side of the body. Missing: 18, 27, 28, 38, 32, 31, 41, 42, 43, 44, 45, 47, 48, teeth. Left-sided crossbite with the lateral surfaces of the teeth closed. Which method of treatment is the most effective?

- A. *Removable prosthesis with a double row of teeth
- B. Grinding of teeth followed by permanent prosthetics
- C. Orthodontic treatment
- D. Fixed prosthesis on implants
- E. Removable prosthesis with clasps according to Kemen

4. Summary:

1. Classification of Z.Ya. Shura of different degrees of mobility of fragments.
 2. Clinic of fractures with rigid fragments.
 3. Criteria for the selection of the device in the case of immobility of fragments.
 4. Treatment of jaw fractures with displacement of fragments in the vertical direction. Apparatus Posta, Z.N. Pomerantseva-Urbanska.
-

5. Treatment of jaw fractures with displacement of fragments in the sagittal direction. Apparatus Z.Ya. Shura, V.Yu. Courlandsky, Tigerstedt with an inclined plane.

6. Treatment of jaw fractures with displacement of fragments in the transversal direction. Apparatus A.Ya. Katsa, I.M. Oksman, A.A. Limberga, Bruna, responding apparatus V.Yu. Kurlyandskyi with a spring arc, D.L. Grozovsky

7. Design features of reponing devices (screw, elastic levers, spring, guide, wire).

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespriyadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespriyadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespriyadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky
<http://www.nbu.gov.ua/>

PRACTICAL LESSON No. 14

Topic: Volume of specialized orthopedic care for patients with jaw fractures. Laboratory-made tires (Weber, Vankevych, Limberg, Guning-Port tires).

Goal: Know the volume of specialized orthopedic care for patients with jaw fractures. Tires manufactured in a laboratory, know the clinical and laboratory stages of tire manufacturing by Weber, Vankevych, Limberg, Guning-Port).

Basic concepts: Tires of Weber, Vankiewicz, Limberg, Guning-Port.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- Indications and use of removable tires of the Weber type, M.M. Vankevich, Porta, Guninga, A.A. Limberg.

- Features of the design of removable splints depending on the nature and localization of the fracture, the presence of teeth on the fragments and their condition, as well as associated complications.

- Clinical and laboratory stages of manufacturing removable splints of the Weber type, Vankevich, M.M. Vankevich-A.I. Stepanov, Porta, Guninga, A.A. Limberg.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Toothed plastic tires.

Weber's gingival splint.

The author made a tire from rubber, now it is made from acrylic plastics, cold and hot hardening in a dental laboratory. They are used when the tooth row is preserved or in the presence of defects. At the same time, artificial teeth are placed in the tire, and it becomes a prosthetic tire. Its disadvantages include the fact that it does not keep fragments from vertical displacement, labor-intensive manufacturing and mobility that occurs over time.

Indications for the use of a periodontal splint:

1) fracture (crack) without removal of jaw fragments;

- 2) fractures with easily maneuverable fragments that do not displace after repositioning;
- 3) treatment of fractures, after removal of the double-jaw apparatus, when the bone callus is not yet reliable;
- 4) when insufficient for fixation dental tires number of teeth;
- 5) with the mobility of the teeth remaining on the debris.

Weber tooth-gingival splint with an inclined plane.

There are two types of this tire: with a non-removable and a removable inclined plane, which allows you to adjust the degree of removal of the reponed fragment if necessary.

Indications for use: for immobilization and prevention of lateral removal of fragments in case of fractures of the lower jaw outside the dental row, fracture of a branch or articular process due to the impact of an inclined plane on the vestibular surface of antagonistic teeth of the upper jaw; with significant defects of the lower jaw, which occurred as a result of traumatic osteomyelitis, a gunshot wound, or after resection of the lower jaw due to a tumor.

Dentogingival splint M.M. Vankevich.

It is a periodontal splint with support on the alveolar part of the upper jaw and a hard palate with downward-facing support planes. These planes rest on the front edges of the branches and the alveolar part of the lateral parts of the body of the lower jaw and do not allow the fragments of the lower jaw to move forward, up and inward. It is used in combination with a chin sling.

Indications for use: in the treatment of fractures of the lower jaw with edentulous alveolar processes in the lateral areas; during osteoplasty of the front part of the body of the lower jaw to hold bone grafts; for repositioning fragments of the edentulous lower jaw that have shifted in the transversal direction. For this purpose, the vertical processes of the tire are corrected with the help of cold-hardening plastic or with the help of a stencil followed by its replacement with plastic.

To the shortcomings of the tire M.M. Vankevych owns its bulkiness and impossibility of use with limited opening of the mouth.

M.M. Vankevich's tire in A.I. Stepanov's modification

In this splint, the maxillary base is replaced by a metal arch, which facilitates its introduction, accelerates adaptation, increases hygiene, does not change the sense of taste, does not cause a gag reflex.

Indications for use: the same as for M.M. Vankevich tires.

Clear plastic tires.

Gunning tire. (Detachable)

Indications: used for fractures of the edentulous lower jaw, when there is a limited opening of the mouth or in the presence of 1-2 teeth. It is fixed on the teeth using tape clips.

Tire Porta. (monoblock)

Indications for use: in case of fractures of the edentulous lower jaw without removal of fragments. Necessary condition - unhindered opening of the mouth.

Limberg tire. (detachable) d

Indications for use: treatment of fractures of the lower jaw with complete dentition and difficulty opening the mouth.

Shina Limberga in the modification of the gurtkivs of the Department of Orthopedic Stomatology of the KhNMU, in which metal sleeves are used as retainers for the manufacture of stamped crowns.

All these splints are used as immobilizing devices in combination with a chin sling. The fixing capacity of such devices is low.

The clinical and laboratory stages of manufacturing removable gingival and seminal splints from acrylic plastics are similar to those in the manufacture of removable structures of dental prostheses.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 34-year-old patient complains of pain in the area of the lower jaw on the right, limited opening of the mouth. Objectively: the dental rows of the upper and lower jaws are intact, premature contact of 46 and 47 teeth is observed. Diagnosis: traumatic fracture of the lower jaw in the area of tooth 46 with displacement of fragments. What structure should be rationally used for temporary immobilization of fragments of the lower jaw?

A. Temporary plastic splint

B. Weber tire

C. Plastic mouthpiece

D. Chin Sling of Entyn

E. Tire of Tigerstedt

2. A 39-year-old patient has microstomia. What impression spoon should be rationally used?

- A. Collapsible
- B. Standard for edentulous jaws
- C. Comprises
- D. Individual plastic
- E. Standard

3. A 22-year-old patient has a unilateral linear fracture in the angle of the lower jaw. Immobilization was performed by applying a double-jaw dental wire splint with hook loops and interjaw elastic traction. Healing proceeded without complications. Tire removal is shown through:

- A. 10 days
- B. 3 weeks
- C. 1 week
- D. -
- E. 2 weeks

4. A 62-year-old patient has a median fracture of the lower jaw with joint formation. Objectively: dental formula 33, 34, 35, 36, 37,47,46,45,44,43. The teeth are intact, stable, the crowns are high. The mobility of the fragments is insignificant, there is no displacement. Which prosthesis is the most appropriate to use?

- A. Plate without hinge
- B. Bridge-like without a hinge
- C. Lamellar with a Weinstein hinge
- D. Laminar with an Oxman hinge
- E. Laminar with a Gavrilov hinge

5. A 45-year-old patient has a median defect of the hard palate measuring 2x3 cm. The dentition is intact. What construction of the obturator is better to use in this case?

- A. A lamellar prosthesis with an obturating part
- B. Palate plate
- C. Floating obturator
- D. Illinois-Markosian obturator
- E. Obturator of Pomerantsevo-Urbanska

4. Summary:

- Indication and application of Weber-type removable tires.
 - Indication and use of removable tires M.M. Vankevich.
 - Indication and application of Porta removable tires.
 - Indication and application of Guning removable splints.
-

-Indication and use of removable Limberg splints.

- Features of the design of removable splints depending on the nature and localization of the fracture, the presence of teeth on the fragments and their condition, as well as associated complications.

- Clinical and laboratory stages of manufacturing removable splints of the Weber type, Vankevich, M.M. Vankevich-A.I. Stepanov, Porta, Guninga, A.A. Limberg.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky

PRACTICAL LESSON No. 15

Topic: Use of orthopedic means during osteoplasty and plastic surgery of soft tissues of the maxillofacial region (forming and fixing devices).

Goal: to acquaint applicants with orthopedic devices used in osteoplasty and plastic surgery of soft tissues of the maxillofacial area (forming and fixing devices).

Basic concepts: Osteoplasty. Soft tissue plastic. Forming, fixing devices.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

1. The role of maxillofacial orthopedics in providing medical care to patients with defects and deformities of the jaws and face that occurred after injuries, operations, and previous illnesses.

2. Characteristics of forming devices.

3. Characteristics of fixing devices.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

There are isolated defects of the bone tissue of the maxillofacial region, which are located within one bone, and combined - defects of one or more bones, which are combined with a defect of soft tissues. Depending on localization, defects of the lower third of the face - lower jaw, lower lip, chin, and defects of the middle third of the face - upper jaw and palate, soft tissues of the nose, cheeks, upper lip, corner of the mouth are distinguished.

The main method of treatment is restorative bone plastic surgery and soft tissue plastic surgery. Orthopedic measures in these cases are auxiliary.

Indications for use:

1. If damage to soft tissues is combined with the absence of front teeth, defects of the alveolar process and body of the jaw, when the lips and cheeks lose support.

2. If necessary, the use of forming devices in the presence of all teeth, for

example, in plastic surgery of the oral cavity.

Forming devices.

Forming devices form the bed of the future prosthesis, provide fixation of the graft during its implantation, provide the shape of the part of the face that is being restored. They all consist of two parts: a replacement or forming part and a fixing part.

The choice of the design of the orthopedic device, the prosthesis depends on the nature of the defect, the plan for future surgical intervention and the conditions for strengthening the device: the presence of teeth, their condition, the presence of a bone tissue defect, and others.

Forming devices during plastic surgery of the wall of the oral cavity.

The tasks of orthopedic intervention during plastic surgery of the oral cavity are: creation of support and retention of the transplanted material, prevention of its wrinkling and deformation. In order to fix the skin flap, you can use an insert made of thermoplastic mass of impressions, placed on the edges of the splint or prosthesis. With intact tooth rows, you can use forming devices with dental fixation.

A.A. Limberg's forming apparatus.

Method of use: during the operation, a thermoplastic mass is layered on the loop of the device, an impression of the wound surface is obtained. Then the splint is removed from the oral cavity, the mass is cooled in an isotonic solution of sodium chloride, dried, and a thin (0.2-0.3 mm) skin flap is glued to it with the patient's blood, with the wound surface up. The splint is fixed to the teeth for 8-10 days.

Forming structure for holding thermoplastic mass. With partial or complete absence of teeth, you can use a removable prosthesis made before the operation. After the adaptation period, a steel zigzag wire with a diameter of 0.8 mm is fixed to it.

Removable prosthesis for plastics of the transitional fold (according to Shitova).

Sometimes a removable prosthesis is made immediately with elongated edges in the place of the scarred transitional fold. The edge of the prosthesis must be rounded and have a thickness of at least 2 mm. After dissection of the scar, the prosthesis is applied to the wound.

If there are no teeth on the lower jaw, and there are a sufficient number of them on the upper jaw, then 3-4 crowns are made on them, with horizontal tubes on the vestibular side, into which a vestibular arch with semicircular protrusions is inserted to fix the liner with the graft. In addition, a hard chin sling is used.

Forming devices for plastic surgery of the lower lip.

A.I. Betelman's devices for lower lip plastic surgery:

Indications for use: plastic surgery of the lower lip and soft tissues of the chin.

Forming devices for bone plastic surgery of the jaws.

Forming apparatus for defects of the lower lip and jaw.

In the form of a wire splint with hooking loops on the upper jaw and a forming plate with hooking hooks and impressions of the upper teeth on the chewing surface. Fixation of the device due to the intermaxillary rubber traction.

Shargorodsky's forming apparatus.

With the help of mouthguards with inclined planes, the fragments are set in the correct position, rods are made with bushings that repeat the contour of the dental arch, and they are soldered to the mouthguards. A U-shaped rod with a forming part and artificial teeth is inserted into the bushings. A simplified version of fixation of the forming part - with the help of oral and vestibular arches, which are inserted into horizontal tubes soldered to the cap.

Indications for use: Bone defect, immobility of fragments of the lower jaw and a small number of teeth on the fragments.

Kurlyandsky's forming apparatus with shoulder processes-lever.

Indications for use: lip and chin plastic surgery of the lower jaw.

Shura's forming apparatus.

Indications for use: used for plastic surgery of significant defects of the upper jaw, lips and mouth. For finger-like processes in the thickness of the cheeks, a recess is surgically created with a skin graft. The external rod is attached to the rods protruding from under the main plaster cap with the help of a wire ligature or a flattened thin-walled metal tube.

Fixing devices for osteoplasty.

Graft engraftment during osteoplasty of the lower jaw is achieved by reliable fixation of its fragments. If there are teeth on the fragments, laboratory-made fixing devices with intermaxillary fixation are used.

Apparatus A.I. Betelman.

Indications for use: fixation of fragments in fractures of the lower jaw with a bone defect in the front part and in osteoplasty of the lower jaw. The device is fixed by inserting a wire pin into the four-sided tubes soldered to the cap.

I.M. Oksman's apparatus.

Indications for use: fixation of fragments in fractures of the lower jaw with a bone defect in the front part and in osteoplasty of the lower jaw.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

1. Fixing devices for osteoplasty (Rudko, Panchokh, Yermolayeva-Kulagova devices).

2. Selection of the apparatus for fixation of fragments of the lower jaw during osteoplasty depending on the clinical situation.

3. Forming devices for plastic surgery of large defects of the upper jaw, lip and oral cavity (Shura device).

4. Forming devices for plastic surgery of large defects of the lower jaw (Kurlyandsky's kappa device).

5. Methods of fixing forming devices.

6. Techniques for obtaining impressions and determining central occlusion in the manufacture of forming devices.

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. What devices are used to fix the transplant during its implantation, ensure the shape of the facial part during recovery, and create a bed for the future prosthesis?

- A. Responding
- B. Fixatives
- C. Formative
- D. Substitutes
- E. Preventive

2. What device is indicated for plastic surgery of the lip and soft tissues of the chin?

- A. Shura's apparatus
- B. Apparatus Vankevich
- C. Tire of Tigerstedt
- D. Betelman's apparatus
- E. Apparatus Postu

3. What device is indicated for plastic surgery of defects of the upper jaw?

- A. Shura's apparatus
- B. Shargorodsky's apparatus
- C. Betelman's apparatus
- D. Kurlyandsky's apparatus
- E. Rudka's apparatus

4. Devices for extraoral fixation of fragments include:

- A. Shina Vankevich
 - B. Rudka's apparatus
 - C. Kurlyandsky's apparatus
 - D. Postu's apparatus
-

E. Shina Zbarzha

5. What device is indicated for bone defects and narrowing of the oral cavity:

A. Kurlyandsky's apparatus with levers

B. Shura's apparatus

C. Shargorodsky's Kappa-bar apparatus

D. Rudka's apparatus

E. Stockings apparatus

4. Summary:

- Indications for osteoplasty and soft tissue plastic surgery.
- Characteristics of forming apparatuses.
- Forming devices that are used in plastic surgery of the wall of the oral cavity.
- Shaping devices used in labiaplasty.
- Forming devices used in bone plastic surgery of the jaws.
- Characteristics of fixing devices.
- Fixing devices for osteoplasty.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

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Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: DEXY Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko,

O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

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<http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 16

Topic: Etiology, pathogenesis, clinic of contractures of the lower jaw, their classification. Prevention of contractures and orthopedic methods of their treatment.

Goal: Get acquainted with the etiology, pathogenesis, clinic of contractures of the lower jaw. Know the classification of contractures of the lower jaw. Master the methods of orthopedic treatment of contractures of the lower jaw.

Basic concepts: Contracture, mechanotherapy, devices for the treatment of contractures

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- Classification of contractures

- Etiology of contractures

- Pathogenesis of contractures

- Mechanotherapy in the treatment of contractures

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Contracture is understood as a complete or partial limitation of joint mobility as a result of pathological changes in soft tissues, bones or groups of muscles

functionally related to this joint.

Classification of contractures

1. Articular.

Occur as a result of changes in the joint that lead to a complete loss of mobility in temporomandibular joint - ankylosis.

2. Extra-articular

a) Reflex muscle contractures

They arise from irritation of skin and muscle receptors in tetanus, inflammatory processes in SLD, long-term intermaxillary fixation (more than 3-4 weeks), with jaw fractures

b) Cicatricial contractures

They arise during the healing of wounds, defects of the SCD tissues, and during their rejection. Scars connect the bone with soft tissues, limit the movement of the lower jaw.

In orthopedics and traumatology, it is customary to divide contractures into two main groups:

a) passive (structural)

b) active (neurogenic).

Passive contractures are caused by mechanical obstacles that arise both in the joint itself and in the tissues surrounding it. Passive contractures are divided into arthrogenic, myogenic, dermatogenic, desmogenic and mixed. Ischemic and immobilization contractures are distinguished as separate forms of contractures.

Active (neurogenic) contractures are divided into: 1) psychogenic (hysterical), 2) central (cerebral, spinal) and 3) peripheral (irritation-paretic, painful, reflex).

Factors that contribute to the development of contractures

1. Myogenic and endogenous

As a result of inflammatory and dystrophic processes.

2. Ischemic

As a result of long-term pain and refractory muscle tension in the facial area.

3. Arthrogenic

As a result of past arthritis and arthrosis of the temporomandibular joint.

4. Post-traumatic

Especially after fractures of the lower jaw in the area of the neck and angle of the lower jaw and after two-jaw immobilization of fragments.

Clinically, unstable and stable contractures are distinguished.

According to the degree of mouth opening, they are divided into: severe (up to 1 cm), medium (up to 2 cm), light (by 2-3 cm).

Prevention of the development of contractures includes:

- timely immobilization of debris, if possible with help single jaw tire;

- timely intermaxillary fixation of fragments in case of fractures in places of muscle attachment in order to prevent muscle hypertension;
- prevention of the development of rough scars by correct and timely treatment of the wound (maximum convergence of the edges, with the application of sutures;
- with large tissue defects, suturing of the mucosal edge is shown shells with skin edges);
- early use of therapeutic gymnastics.

Treatment of contractures may include the following approaches:

1. Conservative

Physiotherapy and rehabilitation: Exercises to strengthen muscles, improve joint mobility and reduce pain. A physical therapist can recommend an individualized exercise program.

Massage and muscle relaxation: Massage helps to relax tense muscles and improve blood circulation in the joint area.

Medicines: Use of anti-inflammatory drugs, muscle relaxants and hyaluronic acid injections to reduce inflammation and improve mobility.

2. Operative

Surgical intervention: In severe cases, surgical correction of the contracture may be necessary.

3. Orthopedic

Use of orthopedic devices: For example, night splints to support the joint and maintain mobility.

4. Combined

In the event of extra-articular contractures, active therapeutic gymnastics is performed - stretching the changed tissues (shortened muscles) with the fingers. special devices and apparatus for mechanotherapy; physiotherapeutic procedures - massage, electrotherapy, ultraviolet irradiation, thermal procedures.

The application of hardware mechanotherapy is shown:

1. when the age of the lesion is 30-40 days
2. with limited opening of the mouth (less than 1 cm) in the presence of persistent limitation of the mobility of the lower jaw (15-20 days after the injury)

Simple devices for mechanotherapy: a wedge (wooden, rubber, plastic), a clothespin, a plastic screw with an inclined thread, rubber spacers and crusts, folded in half, rubber plates according to N.N. Yezhkin. The lack of all these devices is a gross malphysiological action based on individual teeth or a group of teeth, which can cause damage to their periodontium, elimination, and violation of the bite.

Devices for mechanotherapy are built according to the principle of active and passive movements of the lower jaw. Passive movements (opening the mouth) are

performed by the action of the apparatus, active movements are performed by the contraction of the chewing and facial muscles (closing the mouth, closing the lips).

K.S. Yadrova's apparatus (swinging boards)

- 1) with straight beveled ends for a severe degree of contracture.
- 2) with arcuate ends with mild and medium degree of contracture.

AA Limberg's apparatus - swinging spoons
(Individualized using stencils).

Apparatus d'Arcissac

It is a dental splint on both jaws. It is used mainly for arthrogenic contractures.

Apparatus d'Artesisac in the modification of I.M. Oksman.

It is made of two standard impression trays for the upper and lower jaw, to which are attached intra- and extra-oral rods with hooks at the ends. A rubber pull is applied between the hooks, and the impression spoons are individualized with the help of a stencil.

Apparatus V.Yu.of Courland

- 1) jaw opener with flat platforms for the treatment of severe contractures.
- 2) jaw depressor with oscillating spoons for the treatment of mild and moderate contractures.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

1. Innervation and coordination of activity of the elements of the dento-jaw system.

2. Definition of the term "contracture". Classification of contractures.

3. Factors causing the development of contractures.

4. Reflex contractures. Prevention and treatment of reflex contractures

5. Cicatricial contractures. Prevention and treatment of cicatricial contractures.

6. The structure and principle of action of Yadrova, Limberg, Darsisak, and Weinstein apparatuses.

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 19-year-old patient complains of pain and tension in the masticatory

muscles, weariness of the masticatory tubercles, and grinding of teeth at night. What method of treatment will be optimal?

- A. Use of disconnecting caps, myogymnastics, self-massage.
- B. Pharmacological course of small tranquilizers.
- C. Treatment by a psychologist.
- D. Making crowns for chewing teeth.
- E. Use of bite plates.

2. The pathogenetic link in the development of cicatricial contractures is:

- A. Jaw fracture with localization in the area of muscle attachment.
- B. Muscular hypertension.
- C. Formation of scar tissue.
- D. Irritation of the receptor apparatus of muscles by bone fragments.
- E. Dystrophic changes in masticatory muscles.

3. The pathogenetic link in the development of reflex muscle contracture is:

- A. Wound healing by secondary tension.
- B. Muscular hypertension.
- C. Deformation of tissues by scars.
- D. Formation of scar tissue.
- E. Sclerotic changes in connective tissue.

4. Name the design feature of the Limberg apparatus:

- A. The presence of two boards connected by a wooden roller.
- B. The presence of two blinding spoons, fixed with a hinge.
- C. The presence of two blinding spoons fixed immovably.
- D. The presence of two molding spoons fixed with extraoral rods.
- E. Plastic screw with an inclined plane.

5. Factory-made machine for mechanotherapy:

- A. Nuclear apparatus.
- B. Limberg's apparatus.
- C. Vanstein's apparatus.
- D. Darsisak's apparatus.
- E. Oxman's apparatus.

4. Summary:

- Concept of contracture
- Classification of contractures.
- What factors contribute to the development of contractures.
- Approaches in the treatment of contractures.
- Devices for mechanotherapy in the treatment of contractures.

5. List of recommended literature (main, additional, electronic information)

resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

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Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine
<http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky
<http://www.nbuv.gov.ua/>

Topic: Etiology, pathogenesis, clinic and orthopedic treatment of fractures that have not fused properly. Causes of false joint formation, clinic. Pathological anatomy of a false joint. Dental prosthetics.

Goal: To acquaint applicants with the etiology, pathogenesis, clinic and orthopedic treatment of fractures that have not fused properly. To know the causes of the formation of a false joint, the clinic. To study the pathological anatomy of a false joint. Dental prosthetics with a false joint.

Basic concepts: false joint, improperly fused fractures.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- To know the etiology, pathogenesis, clinic and orthopedic treatment of fractures that have not fused properly.

- Causes of formation of a false joint, clinic.

- Pathological anatomy of a false joint.

- Dental prosthetics with a false joint.

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Untimely or unqualified provision of specialized care to patients with jaw fractures leads to the fusion of fragments in a defective position, and the wound of soft tissues heals with the formation of rough scars that limit the movement of the lower jaw, lips, cheeks, and tongue.

Improperly fused fragments can be displaced in a vertical, horizontal or transversal direction, sometimes in two or three directions at the same time.

According to the degree of occlusal disorders in the horizontal: plane, three groups of patients are distinguished. In patients of the first group, occlusal contacts are preserved in the form of a tuberos closure, in the second group, the teeth close only on the lateral surfaces, and in patients of the third group, the closure of the teeth is completely absent.

Methods of treatment of incorrectly fused jaw fractures can be surgical, prosthetic, orthodontic and hardware-surgical.

If surgical treatment is impossible (the patient's condition, refusal of surgery, slight displacement), restoration of normal occlusion is carried out with the help of orthodontic treatment - by moving the teeth. They use devices that increase the

bite, and in general mechanically acting removable and non-removable devices. Orthopedic treatment consists in grinding protruding teeth, prosthetics with removable and fixed prostheses that increase the bite.

Fixed metal prostheses

Fixed metal prostheses (stamped, one-piece, metal-ceramic, metal-plastic crowns, bridge-like prostheses) have manufacturing features. Teeth can be polished, depulped, prepared at an angle to the axis of the tooth, when making crowns, the necks of the teeth are not engraved or lengthened.

Fixed plastic prostheses:

Kappa Revzina. (a)

It is made without preparation of supporting teeth.

Indications for use: Violation of the shape of the dental arch and the need to correct improper closing of the tooth rows.

Revzin's prosthesis (b) is used for improper fusion of jaw fragments.

Indications for use: the same as for kappa.

At the Department of Orthopedic Dentistry of KhNMU, plastic "Sinma-M" with improved physical-mechanical and sanitary-hygienic properties is proposed for the manufacture of dental caps.

Partial removable prostheses:

Removable prostheses - buckled or plate-like are fixed with supporting and holding clasps, telescopic crowns.

A prosthesis with a duplicate (double) row of teeth.

Indications for use: crossbite, due to improper fusion of the fracture when the supporting teeth do not close with the antagonist teeth and their number is insignificant.

A removable lamellar prosthesis with a base placed on the inclined teeth on the vestibular side.

Indications for use: with a significant lingual inclination of the supporting teeth.

In the case of hook prosthetics, the supporting arch is also placed from the vestibular surface of the alveolar process.

Orthopedic methods of treatment for faulty joints.

A false joint (pseudoarthrosis) is persistent abnormal mobility in any part of the lower jaw due to the lack of consolidation at the fracture site during the double-triple period required on average for normal healing.

The causes of the formation of a false joint can be general and local. Diseases that reduce the body's reactivity and disrupt bone reparative processes (tuberculosis, vitamin deficiencies, dystrophies, vascular diseases, metabolic

disorders, diseases of the endocrine glands) should be included among the general ones.

Local factors are:

- 1) untimely removal of debris, insufficient immobilization, or vice versa, continued without sufficient grounds, earlier removal of the tire;
- 2) large tears of soft tissues and their use (interposition) between fragments;
- 3) jaw fractures with a bone tissue defect of more than 2 cm;
- 4) detachment of the periosteum over a large area of the jaw;
- 5) long-lasting traumatic osteomyelitis of the jaw.

Classification of false joints of the lower jaw (according to I.M. Oksman).

1. Both fragments have 3-4 teeth each:
 - a) with a jaw defect up to 2 cm;
 - b) with a jaw defect of more than 2 cm.
2. Both fragments have 1-2 teeth.
3. Defects of the lower jaw with edentulous fragments:
 - a) with one toothless fragment;
 - b) with both toothless fragments.
4. Bilateral defect of the lower jaw:
 - a) in the presence of teeth on the middle fragment, but in the absence of them on the side fragments;
 - b) with the presence of teeth on the side fragments and their absence on the middle one.

V.Yu. Kurlyandsky considers three groups of false joints:

- 1) unfused fractures within the tooth row in the presence of teeth on fragments;
- 2) unfused fractures within the dentition in the presence of edentulous fragments;
- 3) unfused fractures behind the tooth row.

The main principle of prosthetics for patients with a false joint of the lower jaw is that the parts of the prosthesis located on the fragments of the jaw are connected movably so that they do not interfere with the displacement of the fragments. Replacement of dentition defects in patients with fractures of the lower jaw with conventional prostheses that have not grown will lead to functional overload of the supporting teeth.

A non-removable bridge-like prosthesis is indicated in the event that there are practically no anatomical and functional disorders in the case of a false joint, there are sufficient stable teeth on the fragments, then a bridge-like prosthesis is made on soldered crowns, 2-3 on both sides of the prosthesis, and it acts as a splint.

A removable lamellar prosthesis without a hinge can be used only when the fragments are displaced to the midline without vertical movements. For example, in the case of a chin defect of the lower jaw.

The choice of the design of the hinged prosthesis is determined by the clinical picture. The presence of a sufficient number of teeth with a healthy periodontium on the fragments, slight mobility of the fragments, and their correct position allow the use of hinged bridge prostheses.

Fixed hinged bridge prostheses.

Indications for use: defects of 1 group 1 subgroup.

Kopp hinges: fixed on crowns or artificial metal teeth.

Fixed prosthesis with a hinge by I.M. Oksman.

Provides displacement of parts of the prosthesis in the vertical direction. The amplitude of movements depends on the size of the grooves in the sleeve.

A small number of teeth on the jaw, a significant amplitude of displacement of fragments, a violation of the relationship of the tooth rows, localization of a false joint in the lateral part of the lower jaw are indications for prosthetics with a removable plate prosthesis with a hinged connection of its parts.

Hinged prostheses for false joints of the lower jaw (according to I.M. Oksman).

B.M. Kostur and V.A. Menyayeva suggested connecting parts of removable lamellar prostheses with false joints with magnets, taking into account the fact that two magnets with a diameter of 3 mm and a thickness of 2.5 mm, made of samarium-cobalt, are attracted with a force of 196 N (20 kg)

Wheel damping clamp according to Kurlyandskiy V.Yu.

Indications for use: to fix the removable plate prosthesis to the abutment tooth on a small fragment and to prevent it from loosening during chewing.

Removable hinged prosthesis according to Weinstein B.R.

With a spiral spring that is fixed in the tubes of both parts of the prosthesis.

Removable hinged prosthesis according to O.I. Gavrilov.

With wire loops. With a large amplitude of elimination in the false joint, one of the loops is made trapezoidal, the sole of this trapezoid (loop) corresponds in size to the range of displacement of the fragments.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

1. Causes of occurrence, clinic of fractures that have not fused properly.
2. Indications for surgical, orthopedic, orthodontic, hardware-surgical methods of treatment of fractures that have not fused properly.
3. Principles of treatment of improperly fused fractures with complete

preservation of dentition, partial and complete absence of teeth.

4. Causes, clinic and pathological anatomy of a false joint.

5. Classification of false joints of the lower jaw.

6. Orthopedic methods of treatment for false joints (one- and two-joint removable prostheses of Oxman, removable articulated prostheses of Vainshtein, Gavrilov).

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. State the most common symptom of an improperly fused fracture:

A. Close contact between antagonist teeth.

B. Absence of contacts between opposing teeth or presence of contacts of individual teeth.

C. Deep bite.

D. Mobility of teeth.

E. Distal bite.

2. What types of prostheses are indicated for vertical shifts due to improperly fused fractures:

A. Plastic or one-piece mouthguards.

B. Partial lamellar prosthesis.

C. Complete removable prosthesis.

D. Bügel prosthesis with locking fixation.

E. Immediate prosthesis.

3. What types of prostheses are indicated for horizontal elimination in the absence of a tooth row defect:

A. Partial lamellar prosthesis.

B. Plastic mouthpiece.

C. Immediate prosthesis.

D. Bügel prosthesis with locking fixation.

E. Complete removable prosthesis.

4. A false joint is called:

A. Bone defect of more than 2 cm.

B. Bone defect - 3 cm.

C. Bone defect up to 2 cm.

D. Bone defect over 3 cm.

E. Bone defect up to 4 cm.

5. What prosthesis is indicated for localization of a false joint in the area of the angle of the lower jaw, when one tooth is preserved on a smaller fragment:

A. Vainshtein's removable hinged prosthesis.

B. Oxman single-joint removable hinged prosthesis.

C. Oxman's fixed hinged prosthesis.

- D. Gavrilov's removable hinged prosthesis.
 - E. Port's prosthesis.
6. In the presence of a bilateral false joint, is a prosthesis indicated?
- A. Oxman's two-joint removable hinged prosthesis.
 - B. Port prosthesis.
 - C. Oxman's fixed hinged prosthesis.
 - D. Gavrilov's removable hinged prosthesis.
 - E. Weinstein's removable hinged prosthesis.

4. Summary:

- Causes of improper fusion of fractures.
- Methods of treatment
- Fixed prostheses for improperly fused fractures.
- Removable prostheses for improperly fused fractures.
- The concept of a false joint.
- Causes of false joint.
- Classification of false joints of the lower jaw.
- The main principle of prosthetics for patients with a false joint of the lower jaw.
- Fixed hinged bridge prostheses.
- Hinged removable prostheses for false joints of the lower jaw.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.
- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.
- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.
- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of

maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

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<http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 18

Topic: Microstomia. Etiology, clinic. Features of dental treatment of microstomia. Prosthetics with microstomia.

Goal: Acquaint applicants with the term microstomia, the causes of its occurrence. Prevention of occurrence of microstomia, treatment of microstomia.

Basic concepts: Prevention of microstomia, mechanotherapy, prosthetics, removable dentures.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- Types of microstomia.

- Mechanotherapy for microstomia

- Dental prosthetics with microstomia

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Narrowing of the oral cavity (microstomia) can be congenital or acquired as a result of injuries of the maxillofacial area, during operations for inflammatory

diseases (noma, carbuncle), neoplasms, injuries, facial burns, postoperative interventions, as well as in systemic scleroderma and tuberculous ovum.

Scars of the soft tissues surrounding the oral cavity reduce their elasticity, prevent the opening of the mouth and reduce the oral cavity. Long-standing colloid scars cause deformation of the tooth rows and disfigure the face, which, in turn, leads to changes in the patient's psyche. Patients with microstomia find it difficult to contact a doctor and often do not believe in the success of prosthetics. Narrowing of the oral cavity leads to impaired eating and pronunciation.

Prosthetics of patients with a narrowing of the oral cavity is difficult due to the limitation of opening the mouth. Therefore, first of all, it is necessary to find out the possibilities of expanding the oral cavity surgically. But surgical intervention is not always possible (age of the patient, general condition, systemic scleroderma, tuberculous ovum).

Prosthetics with permanent prostheses of defects of tooth crowns and partial loss of teeth in the lateral areas of the tooth rows is associated with difficulty in local anesthesia and preparation of teeth for crowns. In such cases, it is possible to use anesthesia, premedication. Separation of side teeth is carried out with discs with protective heads or thin burs. Preparation of other tooth surfaces is carried out with diamond burs.

Taking an impression in patients with microstomia is also difficult due to the loss of elasticity of the soft tissues surrounding the oral cavity. In addition, in some patients, microstomia is combined with a defect of the alveolar process or with a contracture of the lower jaw. At the same time, the volume of the impression increases and the distance between the teeth decreases, which makes it difficult to remove the impression. In prosthetics with removable prostheses, the choice of the method of obtaining an impression depends on the degree of narrowing of the oral cavity. It is possible to get a print with a children's standard spoon or a regular standard spoon that has been cut into two parts. It is best to form an individual wax spoon in the oral cavity, replace the wax with plastic and get an impression with a hard spoon. The spoon with the impression material is inserted and removed through the healthy corner of the mouth.

The difficulty of obtaining impressions with microstomia is related to the lack of space between the teeth when opening the mouth. An ordinary standard spoon without an impression material can be inserted into the oral cavity, but a spoon with an impression material is no longer possible. Therefore, the impression mass should be applied to the prosthetic bed, and then pressed down with a spoon. After the impression is made, it is removed in the reverse order (first the spoon, then the impression).

A significant reduction of the oral gap makes it difficult to determine the central occlusion in the usual way with the help of wax templates. At a fixed

interalveolar height, central occlusion is determined using gypsum blocks. Rolls of thickly mixed plaster are inserted into the oral cavity and the patient is asked to close his teeth. The models are compared based on the prints on the plaster. In the case of an unfixed height of the interalveolar height, the central ratio of the jaws is determined with the help of bite rollers and templates made of thermoplastic mass. If necessary, the rollers are made narrower than usual, and the template is shortened.

The design of the removable prosthesis is chosen depending on the degree of narrowing of the oral cavity. With significant microstomia and defects of the alveolar process, collapsible or hinged prostheses are sometimes used, but their construction is quite complicated. Prostheses should be simple and affordable. Reducing the base of the prosthesis and narrowing the artificial dental arch facilitate insertion and removal of the prosthesis from the oral cavity. When applying a removable prosthesis, the doctor must teach the patient how to insert the prosthesis into the oral cavity.

Collapsible prostheses, as well as folding prostheses, are used as forming and replacement in the presence of significant defects of the body of the lower jaw and soft tissues near the mouth. These orthopedic devices and prostheses usually have a large volume, they often perform the role of a forming device during plastic surgery on the face, rather than the role of a functioning prosthesis. After plastic surgery and restoration of facial contours, the oral cavity narrows, which makes it difficult to insert and remove orthopedic appliances from the oral cavity, so they are made so that they are folded or collapsible. Similar prostheses are used in the case of cicatricial narrowing of the oral cavity of various etiology and, in particular, with scleroderma, in the case of a fracture of the lower jaw that has not fused properly.

The folding prosthesis consists of three parts: two side parts and a middle connecting part. The side parts are connected to each other with the help of a hinge. The prosthesis is inserted into the oral cavity in a folded form; in the oral cavity, it straightens, takes the correct position and is fixed by three pins fixed in the middle part of the prosthesis.

The technique of manufacturing a folding prosthesis. Impressions of the upper and lower jaws are obtained, most often in parts, parts of the prosthesis are prepared according to the obtained models in a sequence similar to the manufacture of prostheses, in the case of false joints. If there is a part of the body of the jaw, alveolar process and teeth, partial bases are made on them beforehand and they are connected in the oral cavity with the help of a plaster block-impression. After that, the general model is cast and the manufacturing of the connecting parts and the hinge is started.

Take one or two (depending on the vertical size of the prosthesis) orthodontic

tubes, attach strips of sheet steel 2 mm wide and 1 cm long to each of them at the edges at an angle of 90° and solder them together. After that, the tubes are cut in half, and small notches are made on the plates. The sawn tubes are connected with a rod (it is possible with a standard clapper), thus forming a metal hinge frame.

The missing part of the prosthesis is modeled with wax, and only the area of the alveolar process and the restorative part are modeled (artificial teeth are not placed). A hinge is inserted into the wax in the center of the prosthesis.

After the final fitting of the hinge between the lateral parts of the prosthesis, a stainless steel plate with a bend slightly protruding in front of the prosthesis is laid in the sagittal plane. Wire segments with freely protruding ends are placed in the hinge and in the tubes to secure the hinge and tubes in plaster after the wax is boiled and to prevent their displacement when packing the prosthesis. When processing the front surface of the prosthesis, part of the protruding bent plates are cut off, after which the side parts of the prosthesis diverge, rotating along the hinge. First, the main part of the prosthesis is finished, then by means of additional inspection and fitting, the third - removable part of the prosthesis is finished. This part of the prosthesis, which contains two U-shaped pins, can be made by modeling on an already finished main prosthesis. The third part is necessarily removable. If it is prepared at the last stage, then modeling is carried out after a U-shaped loop is placed in the grooves, and artificial ones are placed in place of the missing teeth. The wax blank is removed from the main prosthesis and polymerized separately.

A removable prosthesis is also made from 3-4 parts, which are connected to each other with the help of protrusions and grooves with their fixation with pins inserted into parallel holes. The prosthesis is inserted into the oral cavity in parts and matched inside the mouth.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. Patient I. developed a microstomia after a chemical burn of the oral cavity. When examining the oral cavity, a diagnosis of partial adentia was made. What is the feature of obtaining a print in this clinical situation?

1. A standard spoon
2. A spoon with low sides
3. A toothless spoon
4. A collapsible spoon
5. With a perforated spoon

2. Patient A. turned to the clinic of orthopedic dentistry after a thermal burn of

the maxillofacial region and scar microstomia for the purpose of prosthetics. Makes a partial removable prosthesis. It is at the stage of fixing the central occlusion. Which of the performed methods will be used to fix it?

1. Biting rollers
2. With the help of a facial arch
3. Does not require fixation
4. Gypsum block
5. It is possible to compare the CO without fixing

3. Patient B., 27 years old, with microstomia, makes a collapsible removable prosthesis according to Kurlyandsky. How many parts does this prosthesis consist of?

1. From 2
2. From 3
3. From 4
4. From 5
5. From 7

4. In patient D., after surgical intervention, cicatricial changes were formed on the soft tissues of the pre-oral region, which led to microstomia. When examining the oral cavity, 36,37,46,47 teeth were preserved on the lower jaw. Which of the prostheses is appropriate to use in the prosthetics of this clinical situation?

1. Collapsible removable prosthesis according to Kurlyandsky
2. Partial removable prosthesis
3. Partial removable prosthesis with a metal base
4. Complex hinged prosthesis
5. Bridge-like prosthesis

5. After a burn in the preoral region, patient A. developed scar changes that led to microstomia. When examining the oral cavity, 37,36,33,32,31,41,42,43,46,47 teeth were preserved on the lower jaw. Which of the prostheses can be used for prosthetics?

1. Collapsible removable prosthesis according to Kurlyandsky
2. Partial removable prosthesis
3. Partial removable prosthesis with a metal base
4. Complex hinged prosthesis
5. Removable microprostheses with supporting and holding clasps

6. For microstomia, use:

1. Bügel prostheses
 2. Plate prostheses
 3. Dental and dental-gingival tires
 4. Complex prostheses
 5. Removable bridge prostheses
-

7. What is the feature of prosthetics for patients with microstomia?
1. Making bridge-like prostheses after tooth preparation
 2. Making bridge-like prostheses without tooth preparation
 3. Production of partial removable prostheses with bent clasps
 4. Production of partial removable prostheses with supporting and holding clasps
 5. Production of collapsible removable prostheses
8. Patient Ya., 58 years old, has a microstoma due to a facial burn. Dental formula: 12, 11, 21. It is planned to manufacture a partial lamellar prosthesis for the upper jaw. With which impression spoon is it better to get an impression?
1. standard perforated;
 2. disposable plastic;
 3. individual plastic;
 4. individual from wax;
 5. standard without holes.
9. Patient S., 39 years old, was diagnosed with microstomia. Which impression spoon is more rational to use?
1. standard for toothless jaws;
 2. collapsible;
 3. individual plastic;
 4. standard perforated.
10. Patient B., 58 years old, with microstomia, had a partial removable lamellar prosthesis fixed a few days ago. Complaints of sharp pain in the area of the transitional fold, which increases during chewing movements. Objectively: between teeth 17, 16, 25, 26, 27, the mucous membrane is hyperemic, painful to the touch. What should an orthopedic dentist do in this situation?
1. Correct the edge of the base of the removable prosthesis in the area of decubitus ulcers.
 2. Carry out direct rebasing of the removable prosthesis.
 3. Carry out indirect rebasing of the removable prosthesis.
 4. Carry out articulation correction of the chewing surface of artificial teeth.
 5. Make a new partial removable lamellar prosthesis.

Option 2

1. When examining a 60-year-old patient with microstomia, the degree of mouth opening is determined. Which of the following muscles takes part in opening the mouth?
1. Temporal;
 2. Chewing;
-

3. Maxillohyoid;
4. Lateral pterygoid;
5. Medial pterygoid.

2. A 48-year-old patient is scheduled to have a partial removable prosthesis for the lower jaw. Objectively: tooth 33 standing alone, has a low clinical crown. What method of fixation of a partial removable prosthesis on the lower jaw should be used in this case?

1. Mechanical stapler;
2. Double-sided wire clip;
3. Supporting and holding clasp;
4. Telescopic stapler;
5. Wire loop.

3. Patient K., 54 years old, is being made a removable plate prosthesis for the lower jaw. A base wax is used in the laboratory stages of making a wax template. To which group of auxiliary materials does this material belong?

1. Abrasive;
2. Modeling;
3. Fixing;
4. Imprints;
5. Formative.

4. Patient S. during prosthetics with partial removable prostheses was checked for occlusal ratios during various movements of the lower jaw. Indicate which muscle is responsible for transverse movements of the neck?

1. External (lateral) pterygoid muscle.
2. Internal (medial) pterygoid muscle.
3. Temporal muscle.
4. Chewing muscle.
5. Biceps muscle.

5. Patient S., 47 years old, applied to the clinic of orthopedic dentistry for the purpose of prosthetics. Objectively: defect of the tooth row on the upper jaw II class according to Kennedy, microstomia. In this clinical case, the impression is obtained:

1. standard metal spoon;
2. standard plastic spoon;
3. partial impression spoons;
4. spoons made according to the CITO method.

6. Patient A, 54 years old, applied to the clinic of orthopedic dentistry after a thermal burn of the maxillofacial area and the scar microstomia that formed, for the purpose of prosthetics. A partially removable prosthesis is made. The stage of determining and fixing the central occlusion. Which of the following methods will

be used to fix it?

1. biting rollers;
2. with the help of a facial arch;
3. does not require fixation;
4. gypsum block;
5. it is possible to determine the central location without fixation.

7. Patient B., 27 years old, with microstomia, has a removable prosthesis according to Kurlyandsky. How many parts does this prosthesis consist of?

1. from 2;
2. from 3;
3. of 4;
4. out of 5;
5. of 7.

8. After surgery, patient D developed scar changes on the soft tissues of the pre-oral area, which led to microstomia. When examining the oral cavity, 36, 37, 46, 47 teeth were preserved on the lower jaw. Which of the prostheses should be used when prosthetics for this patient?

1. collapsible removable prosthesis according to Kurlyandsky;
2. partially removable prosthesis;
3. partially removable prosthesis with a metal base;
4. complex hinged prosthesis;
5. bridge prosthesis.

9. Patient S., 47 years old, applied to the clinic of orthopedic dentistry for the purpose of rational prosthetics. Objectively: a defect of the dentition on the upper jaw, class I according to Kennedy, microstomia. Is it used in this clinical case?

1. brace prostheses;
2. lamellar prostheses with supporting and holding clasps;
3. tire constructions;
4. folding prostheses;
5. tires with a Schroeder hinge.

10. Construction of the tooth row at the tributary point is carried out:

1. on the lower jaw in the frontal section;
2. on the upper jaw in the lateral part;
3. on the upper jaw in the frontal section;
4. on the lower jaw in the lateral part.

Option 3

1. Plastering by a combined method is carried out in the following cases of construction of artificial tooth rows:

1. the production was carried out according to Vasyliev;
 2. on the upper jaw, the frontal area at the tributary, the lateral ones are normal;
 3. the production was carried out with porcelain teeth;
 4. in all cases of setting teeth in any way.
2. At what stage of maturation of acrylic plastic must it be packed in a dental cuvette, provided that the casting pressing method is used:
 1. sandy;
 2. rubbery;
 3. stretching threads;
 4. doughy.
 3. At what stage of maturation of acrylic plastic is it packed in a dental cuvette in the case of using the compression pressing method:
 1. rubbery;
 2. dough-like;
 3. sandy;
 4. threads stretching.
 4. What rule must be followed when preparing plastic dough:
 1. add polymer to the monomer until saturation;
 2. add monomer to the polymer;
 3. introduce monomer and polymer into the crucible at the same time;
 4. the quality of the plastic is not affected by the preparation method.
 5. What is the maximum percentage of residual monomer allowed in ready-made bases of partial removable plate prostheses:
 1. 1%;
 2. 3%;
 3. >0.5%;
 4. 1.5%.
 6. The reason for the emergence of "marble plastic"?
 1. polymerization was carried out under pressure;
 2. a water bath was used for polymerization;
 3. cooling was carried out very slowly.
 4. during the preparation of the plastic dough, the required amount of monomer was underestimated;
 7. What is the reason for the appearance of "gas porosity" during the polymerization regime:
 1. an excess of monomer;
 2. lack of monomer;
 3. polymerization was carried out at a low temperature;
 4. the bugel with the cuvette was immersed in boiling water.
-

8. After releasing the finished base from the cuvette, there are significant defects in the area of the hard palate, the prosthesis must be processed. What mistake did the dental technician make at this stage?

1. the polymerization was not carried out to the end;
2. the polymerization was carried out with a violation of the time regime;
3. after packing the plastic, did not control the filling of the cuvette with plastic;
4. used the wrong acrylic plastic.

9. In the finished base of the prosthesis, the plaster was firmly connected to the base, which created significant difficulties during its processing. What mistake did the dental technician make?

1. incorrectly prepared plastic dough;
2. did not isolate the surface of the gypsum model "Isokolom".
3. the polymerization regime was carried out with violations;
4. used the wrong plastic;

10. From how many parts is a removable prosthesis used in the case of microstomia constructed?

1. from 2;
2. from 3;
3. of 4;
4. from 1.

4. Summary:

- Types of microstomia.
- Mechanotherapy for microstomia
- Dental prosthetics with microstomia
- Clinical and laboratory stages of manufacturing fixed prostheses for microstomia.
- Clinical and laboratory stages of manufacturing removable prostheses for microstomia.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.
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- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 19

Topic: Prevalence, etiology, pathogenesis and orthopedic treatment of defects of the hard and soft palate. Obturators. Clinical and laboratory stages of manufacturing obturators.

Goal: Acquaint applicants with the causes of palate defects, methods of treatment for palate defects. Know different types of obturators.

Basic concepts: hard, soft palate; obturators, face mask.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- Types of palate defects; functional disorders of the oral cavity with defects of the palate.

- Causes of palate defects.

- Treatment methods for defects of the palate.

- Obturator prostheses, their types, examples.

- Obturators for replacing defects of the hard palate.

- Obturators for replacing defects of the hard and soft palate: with a rigid obturation part, with a movable or elastic obturation part.

- The technique of manufacturing the Keza floating obturator.

- The technique of obtaining an impression for defects of the palate with the help of an impression spoon, an S-shaped spatula. 3. Formation of professional abilities and skills (mastery of skills, conducting curation, determining the treatment scheme, conducting laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

CLASSIFICATION OF PALATE DEFECTS

By etiology:

— trauma (domestic, industrial, sports, surgical).

— odontogenic and non-odontogenic infection (non-specific and specific)

— congenital defects and deformities.

— acquired defects and deformations.

— senile deformations of the skin of the face, lips, cheeks, eyelids, neck.

By localization:

— soft tissues of the face;

— soft tissues of the jaw;

— soft tissues of the face, oral cavity and facial bones;

— soft tissues of the face and cartilage of the nose;

— soft tissues of the face, cartilages of the nose and the mucous membrane of the oral cavity.

According to the nature of the dysfunction:

— violation of facial expressions;

— impossibility or difficulty in chewing food and the formation of a food lump;

— impossibility or difficulty opening the mouth;

— difficult or impossible swallowing, speech, breathing, violation of all or several functions.

Congenital defects and deformities:

— non-union of the lips (unilateral and bilateral, partial or complete, combined with other defects of the face and jaws);

- non-union of the face (corner of the mouth, cheeks, eyelids, unilateral, bilateral, full, partial, combined);
- non-union of the palate (partial, complete, open, combined with defects of the lips, cheeks etc).
- macro- and microstomia;
- microtia, anethia;
- non-union of parts of the nose (combined, subcutaneous or hidden);
- deformity of the nose (hump, curvature, etc.).

Acquired defects of the maxillofacial area have a wide variety of localization, size, depth, starting from small defects of the surface layer of the skin and ending with the absence of all facial bones and soft tissues adjacent to them, eyelids, eyeballs, auricles.

Causes of defects: mechanical injuries, thermal burns, frostbite, chemical injuries (liquid acids, caustic alkalis), transferred infectious diseases (noma, lupus, syphilis, osteomyelitis), operations for neoplasms, tissue damage due to radiation sickness, skin tattoos.

Non-union of the palate is one of the severe types of birth defects, which are characterized by the presence of a wide connection between the nasal and oral cavities, which leads to impaired breathing, nutrition and speech. It is accepted to distinguish incomplete and complete non-union of the palate. Incomplete non-union can spread to the uvula and soft palate. Left-sided and right-sided, through and non-through non-unions are distinguished. Through non-unions, in contrast to non-through, extend to the entire hard palate and cellular process, capturing the soft palate and uvula. Left-sided ones are more often observed among unilateral transverse non-unions of the palate. Bilateral non-union of the palate is sometimes called "cleft palate"; it is usually combined with bilateral non-union of the cellular process and lip.

At the same time, the plowshare is not fused with the palatal plates. The interscapular bone with the blade protrudes forward. Hidden non-unions of the soft and hard palate (submucosal) are less often observed. These types of non-union are characterized by non-union of the muscles of both halves of the soft palate, and sometimes also the plates of the hard palate.

There are also non-unions of the nose, median non-unions of the face, lower lip, lower jaw, transverse, oblique facial non-unions.

From the moment the child is born, there is a pronounced violation of the functions of the lip and palate (sucking, swallowing, and later - chewing), which, in turn, causes deviations in the child's development. In cases of non-union of the palate, correct sound production is disturbed, with age a speech defect is revealed:

the pronunciation becomes unclear, with nasal sounds.

Feeding a child with a cleft palate with mother's milk is carried out in a semi-sitting position so that the milk does not enter the nose. At the same time, obturators and horns are used to close the gap between the gums and the palate.

A pneumatic obturator is a perforated rubber cap that mothers put on the mammary gland. It has a rubber plate placed in the cleft palate and over which an inflatable balloon is attached to cover the cleft palate.

When feeding with expressed mother's milk, a Tytarev horn-obturator is used: a finger from a rubber glove is connected to a rubber tube 25-30 cm long, which is attached to a graduated bottle with a nipple. Before feeding, the nipple is placed in the mouth so that the rubber finger is under the non-union. Air is blown into the finger through the tube and its end is clamped. The rubber finger closes the non-union and ensures that the child sucks.

Treatment for defects of the palate can be surgical (plastic surgery) or orthopedic (replacement of the defect with a prosthesis).

Such prostheses are called obturators (closing prostheses).

Term of operative intervention

All children with non-union of the lips and palate from the newborn period must be under the dispensary observation of a dental surgeon, orthopedist, pediatrician, speech therapist, psychoneurologist, otolaryngologist, and visiting nurse. It should be taken into account that during surgical interventions for non-union of the lips and palate, not only the anatomical defect is eliminated. The restoration of physiological and functional features is of great importance.

Contraindications to the operation of young children are deep prematurity, infectious diseases, high body temperature, metabolic diseases and nervous diseases, a combination of developmental defects (cardiovascular system and digestive tract). Childbirth trauma to the central nervous system (CNS) and its consequences preclude surgery in newborns.

There are different data regarding the terms of surgical treatment for congenital non-unions of the lip and palate. O. I. Yevdokimov, A. A. Limberg, V. M. Mukhin consider the most optimal terms for surgery for congenital non-union of the lip to be 6—12 months, T. S. Vaher — 5—10 months, S. D. Ternovsky — 3 months. Operative intervention at a later date leads to gross anatomical changes in the adjacent tissues. Carrying out an operation to close a defect of the upper lip in the 1st month of a child's life causes the formation of keloid scars.

Opposing views exist regarding surgical intervention for non-unions of the palate. According to most authors, early intervention leads to a violation of the normal development of the upper jaw and the shape of the dental arch. Because of this, A. A. Limberg considers the age from 10 to 12 years the most favorable for performing the operation, O. I. Yevdokimov - 6-7 years.

Currently, the term of surgical intervention for nonunions of the palate is determined individually depending on the type of nonunion and the presence of concomitant diseases.

Different spatulas are used to remove impressions from patients with non-union of the palate

An obturator is a device that closes a defect in the palate.

Types of obturators:

1) Rigid connection of the obturating part with the fixing part (Suersen, Schroeder (with a metal plate)

2) Obturators with a movable obturating part (Shyldskiy (with a spring), with a hinged attachment, Ilyina-Markosyan (with a button), Pomarantseva-Urbanskaya (with a springy metal plate)

3) Keza's floating obturator

PROTECTIVE PALATINE PLATE FOR DEFECTS OF THE HARD PALATE Characteristic:

It is used after surgery on the palate, during plastic surgery of the palate (uranoplasty), to protect the wound, to hold tampons with medicines, to form the palatine vault.

SUERSEN'S OBTURATOR

Characteristics: Rigid connection of the obturating part with the fixing part.

OBTURATOR OF SHYLDISKY

Characteristics: The base is connected to the obturator by means of a round, elastic spring

metal plate.

OBTURATOR ILYINOI-MARKOSYAN

Characteristic:

It consists of a rigid base (fixing) plate and an obturator made of elastic plastic, connected by a metal or plastic button

When deciding on prosthetics, it is important to take into account the localization of the defect and the presence of teeth on the remaining part of the upper jaw.

Taking this into account, V.Yu. Kurlyandsky suggested distinguishing 4 groups of palate defects

1 group- a defect of the hard palate in the presence of supporting teeth on both jaws (upper jaw – paired)

and. median defect

b. lateral defect of the palate of the message from the maxillary cavity

in. frontal palate defect

2nd group- a defect of the hard palate in the presence of supporting teeth on one half of the upper jaw

- and. median palate defect
- b. complete absence of one jaw
 - in. the absence of most of both jaws while preserving a little more than 1-2 teeth on one side
- 3 group-** palate defect with edentulous upper jaw:
 - and. median palate defect
 - b. complete absence of both upper jaws with a violation of the edge of the orbits.
- 4 group-** defects of the soft palate or hard and soft palate
 - and. cicatricial shortening and displacement of the soft palate
 - b. defect of the hard and soft palate in the presence of teeth on one of the jaws
 - in. defect of the hard and soft palate in the absence of teeth on both upper jaws.

Prosthetics of the first group of defects in the presence of supporting teeth on both jaws. Prosthetics of small defects of the hard palate, located in its middle part, in the presence of a sufficient number of teeth for clasp fixation, can be performed with the help of braced prostheses. The arch of the brace prosthesis will carry the obturating part. In the absence of conditions for fixing the brace prosthesis and in the presence of a large defect of the hard palate, removable plate prostheses without an obturating part are used. The staple line should have a transverse or diagonal direction. Clammers should not interfere with the prosthesis. The tighter the fit of the prosthesis to the hard palate, the more hermetically closed its defect. Therefore, it is not recommended to use a clasp with occlusive pads in these cases.

In order to create a closing valve, on the palatal surface of the base plate, at a distance of 2-3 mm from the edge of the defect, a roller with a height of 0.5-1.0 mm is created, which, during the settling of the prosthesis, sinks into the mucous membrane and ensures the tightness of closing the defect. With a thin unyielding mucous membrane or in the presence of scars along the edge of the defect, the roller will damage the prosthetic bed. In this case, to achieve a tight fit of the prosthesis along the edge of the defect, you can use a gasket made of elastic plastic.

With lateral defects of the hard palate connected to the maxillary sinus, in case of an unsuccessful attempt to surgically close the defect, V.Yu. Kurlyandsky suggests using partial removable prostheses with a similarly created closing valve.

In the case of a frontal defect of the hard palate, a forming and supporting prosthesis should be made early. V. Yu. Kurlyandsky proposed the following design of the prosthesis. There is a supporting roller on the forming plate of the prosthesis, according to which a groove is formed in the soft tissues, which additionally contributes to the retention of the prosthesis.

Clip fixation has its own characteristics. Crowns are placed on two teeth on each side. On the tooth closest to the defect to the crown, from the vestibular side, along the equator, a soldered wire or a roller pressed out with contour pliers, behind which the shoulder of the clasp should descend. The same roller or solder, only on the palatal side, is made on the crown of the 2nd or 3rd tooth from the defect. Clasps in the prosthesis are designed in such a way that the shoulder of one is located from the vestibular side, and the second, respectively, from the palatal side. Such a double fixation of the prosthesis prevents its front part from hanging out.

Prosthetics of the second group of defects in the presence of supporting teeth, one half of the upper jaw is considered the heaviest. The possibility of suction of the prosthesis is significantly reduced or completely excluded. As a result, only staple fixation and adhesion can be used. Adhesion can be achieved by building a system of valves - internal and peripheral. The internal valve is formed, as described above, in the form of a roller located on the edges of the defect, the external valve, also in the form of a roller, is formed from the vestibular surface of the jaw along the transition fold and line A. Staple fixation during prosthetics of this group of defects is the main one. Conventional clasps do not provide sufficient fixation, so artificial crowns should be made with special devices that strengthen and keep the prosthesis from sagging on the side of the defect.

V.Yu. Kurlyandsky, to ensure the most complete fixation of the prosthesis, suggests making metal artificial crowns with round or square tubes soldered to them from the palatal surface, according to which pins are installed in the prosthesis.

On the vestibular surface of the crowns, along the equator of the tooth, a roller is squeezed out or a wire is fed, behind which the clasp of the prosthesis should go. Additional fixation and greater tightness is achieved by creating a vestibular ridge.

Fixation of the prosthesis using vertical tubes (according to V. Yu. Kurlyandsky):

Sometimes staple fixation is not enough. In the event that the remaining teeth are unstable, additional vertical strengthening of the prosthesis is resorted to on the side of the tooth row defect and the palate by installing a supporting spring.

For defects of the soft palate complicated by cicatricial muscle changes, the Pomerantseva-Urbanska obturator is used. It consists of a fixing plate with staples and an obturating part. Both parts are connected by a spring steel plate. In the obturating part there are two holes covered with thin celluloid plates. One hole is covered with a plate from the side of the oral cavity, the other - from the nasal surface; two valves are created: one for inhalation, the other for exhalation.

3.2. recommendations (instructions) for performing tasks (professional

algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

1. Types of palate defects and functional disorders of the oral cavity caused by them.

2. Etiology of palate defects.

3. Methods of treatment of palate defects, obturator prostheses and their types.

4. The technique of obtaining an impression for defects of the palate using an impression spoon, an S-shaped spatula.

5. Obturators for replacing defects of the hard palate.

6. Obturators for replacing defects of the hard and soft palate: with rigid, movable or elastic obturating parts.

7. Clinical and laboratory stages of manufacturing the Keza floating obturator.

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. Patient K., 76 years old, has a complete absence of teeth on the upper jaw and a through defect of the hard palate as a result of a gunshot wound, which is located in his front and middle third and has an oval shape measuring 1x2 cm without violating the integrity of the transitional fold. What method of fixation of the prosthesis is most acceptable in this case:

A. By creating a double protrusion around the defect in the prosthesis.

B. Separate manufacturing of obturators and complete removable prosthesis.

C. Due to the obturating part of a complete removable prosthesis.

D. Using magnets.

E. Using springs.

2. Patient A., 47 years old, complains of hoarseness, impossibility of a full meal, pouring of liquid food through the nose. Objectively: the continuity of the tooth row is preserved. The bite is orthognathic, the mucous membrane is unchanged. A post-traumatic tissue defect was detected on the hard and soft palate. What structure of the prosthesis should be made?

A. Keza's obturator.

B. Obturator of Schildsky.

C. Obturator Suersen.

D. Protective palatal plate.

E. Illinois-Markosian obturator.

3. A 45-year-old patient has a median defect of the hard palate measuring 2x3 cm. The dentition is intact. What construction of the obturator is better to use in this case?

A. Palate plate.

B. Obturator of Pomerantsevo-Urbanska.

- C. Floating obturator.
- D. Illinois-Markosian obturator.
- E. Plate prosthesis with obturating part.

4. A six-month-old child came to the clinic with a cleft of the soft and hard palate through the middle. The cleft of the upper lip was sewn up at 1.5 months of age. What obturator should be made?

A. Floating stapleless Keza obturator, manufactured according to Z.I. Chasovska

- B. Obturator with staple fixation of Suersen's monolithic type.
- C. Obturator from Illina-Markosyan.
- D. Obturator on Pomerantsevo-Urbanska.
- E. Kelley IV prosthesis.

5. Patient Kh., 45 years old, complains of hoarseness, impossibility of a full meal, pouring of liquid food through the nose. There is a history of gunshot wounds. Objectively: maxillary dentition with bilateral included defects. The supporting teeth are stable. In the front third of the palate, there is a defect measuring 1.0 x 1.5 cm. The borders of the defect are scarred, the scars have a rounded shape. The patient refused surgical treatment. What orthopedic construction is indicated in this case?

- A. Obturator prosthesis with a two-layer base.
- B. Replacement palatal plate.
- C. Removable partial denture with retaining clips.
- D. Collapsible structure - an obturator that fixes the plate.
- E. Bügel prosthesis with an obturator made of elastic plastic.

4. Summary:

- Etiology of defects of the hard and soft palate.
- Pathogenesis of defects of the hard and soft palate.
- Classification of hard and soft palate defects.
- Classification of obturators.
- Monolithic obturators.
- Obturators with a movable palatal curtain.
- Prosthetics of acquired defects of the hard and soft palate.

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons]

/ L. B. Yeris, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 20

Topic: Prosthetics of defects of the facial area. Resection prostheses. Ectoprostheses. Getting a face mask.

Goal: To acquaint applicants with the constructions of orthopedic devices during surgical interventions on the jaws and soft tissues of the oral and pre-oral areas. To familiarize with the manufacture of a postoperative prosthesis of the upper jaw according to I. M. Oksman. To learn how to take impressions for the manufacture of immediate and early post-resection prosthesis for the upper jaw. To familiarize with the technology of obtaining a face mask

Basic concepts: resection, resection prostheses, facial defects, face mask, ectoprostheses.

Equipment: Computer, multimedia projector, phantoms

Plan:

1. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

2. Control of the reference level of knowledge:

- Causes of facial defects, methods of their elimination.
- The concept of "ectoprosthesis". Ways of fixing ectoprostheses.
- The technique of manufacturing facial prostheses.
- Rules for modeling a nose prosthesis.
- Rules for modeling an eye prosthesis
- Obtaining a face print
- Making a face model (mask).

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

3.1. content of tasks (tasks, clinical situations, etc.);

Resection of the jaws is performed for various neoplasms. Prostheses designed to replace lost tissues and organs, restore impaired functions (chewing, swallowing, speech, breathing), and form a bed (prosthetic field) for a permanent prosthesis are called replacement prostheses. Prostheses made during jaw resection are called post-resection prostheses. A distinction is made between immediate post-resection prosthetics and delayed prosthetics.

With direct post-resection prosthetics, a replacement prosthesis is made before the operation and put on immediately after the operation (on the operating table), but no later than 24 hours (immediate prostheses).

Delayed prosthetics is divided into early or immediate prosthetics, which is carried out soon after the operation during the wound healing period, that is, in the first two weeks, and later or remote prosthetics, not earlier than 1.5-2 months later.

Prosthetics after resection of the lower jaw.

On the lower jaw, resection of the alveolar process, chin of the lower jaw with loss of bone continuity, economical resection of half of the lower jaw while preserving the continuity of its body, resection of half of the jaw with exarticulation and its complete removal are distinguished.

Classification of acquired defects of the lower jaw (according to L.V. Gorbanyova, with additions by B.K. Kostur and V.A. Minyaeva).

According to this classification, acquired defects of the lower jaw are divided into 6 classes:

1. Defects and deformations during correct fusion of mandibular fragments. In these cases, a defect of the dentition and alveolar part of the lower jaw may be observed, which sometimes extends to the basal part of the jaw. In addition, the defect can be combined with cicatricial changes in the surrounding soft tissues;

2. Defects and deformations of the lower jaw when fragments are joined in the wrong position. At the same time, significant violations of the articulation of the dentition are observed as a result of the inclination of fragments with preserved teeth in the oral direction or towards the shortened part of the body of the lower jaw. Cicatricial changes of the surrounding soft tissues are also observed;

3. Defects and deformations of the lower jaw during fusion of fragments with the help of a bone graft;

4. Defects and deformations in unfused fragments of the lower jaw after traumatic injuries;

5. Defects of the lower jaw after resection of its separate areas;

6. Defects after complete removal of the lower jaw.

Thus, according to the specified classification, defects and deformations of the lower jaw are included in the 1st-3rd class, when the continuity of the body of the jaw is restored thanks to the fusion of fragments with each other (1st and 2nd classes) or with the help of a bone graft (3- and class), and with defects of classes 4-6, the continuity of the lower jaw is broken.

The design of prostheses used in resection of the lower jaw depends on the location and length of the removed area, the number of teeth on the part of the jaw that has been preserved, and the state of their periodontium

Direct prosthetics after chin resection of the lower jaw

Direct prosthetics after chin resection of the lower jaw (according to I.M. Oksman) is shown in the case of a small defect and in the presence of a sufficient number of stable teeth for clasp fixation.

The fixing part of the prosthesis is kept on the remaining teeth with the help of telescopic crowns, gingival retainers, multi-link and support-holding clasps. The block of incisors, sometimes including canines, is made removable so that the tongue can be pulled out postoperatively to avoid dislocation asphyxia. In the front part of the prosthesis, there is a removable chin protrusion for the formation of soft tissues of the lower lip and chin. It is attached to the prosthesis using cold-hardening plastic only after removing the sutures.

Direct prosthetics after resection of half of the lower jaw (according to I.M. Oksman).

The fixing part of the prosthesis is kept on the remaining teeth with the help of multi-clamper fixation. If the height of the clinical crowns of the supporting teeth is small, they are covered with crowns with retention points. An inclined plane (removable or non-removable), located on the side of the vestibular teeth on

the healthy part of the jaw, and keeps the jaw fragment from shifting. The lower edge of the prosthesis should have a rounded shape, the outer surface of the replacement prosthesis should be convex, and the inner surface should be concave with sublingual ridges for free placement of the tongue.

Direct prosthetics during resection of half of the lower jaw with ascending branch and articular head (according to Z. Ya. Shuru).

A hinge with a plastic rod with a rounded end is attached to the distal end of the replacement prosthesis, which makes up the body of the jaw. The branch of the jaw is created on the operating table by layering gutta-percha or cold-hardening plastic on the rod. With its help, if necessary, you can adjust the limits of the prosthesis.

Prosthetics after complete resection of the lower jaw.

Prosthetics after complete resection of the lower jaw (according to I.M. Oksman).

The replacement prosthesis is made with sublingual protrusions for better fixation, hook loops, bushings for springs or magnets.

After resection of the jaw, the wound is sutured, an aluminum wire splint with hooks is placed on the teeth of the upper jaw, a resection prosthesis is inserted and held in place with rubber rings. After 2-3 weeks, the rings are removed and if the fixation by the formed scars is insufficient, then intermaxillary fixation using springs or magnets is used.

Prosthetics after resection of the upper jaw.

Acquired defects can be the result of inflammatory processes (osteomyelitis), a specific infection (syphilis, tuberculosis), necrosis of the palate due to the erroneous introduction of a solution that has the properties of a protoplasmic poison (alcohol, formalin, hydrogen peroxide, etc.), operative malignant or benign tumors previously produced by uranostaphyloplasties, as well as injuries: gunshot, household, sports.

A defect of the hard palate can also occur as a result of its irritation by a suction prosthesis, which leads to the appearance of a hematoma with subsequent inflammation of the mucous membrane, periosteum and bone with its sequestration.

There are significant functional disturbances - speech distortion, change in breathing; frequent inflammation of the mucous membrane (rhinitis), significantly impaired swallowing, various mental disorders.

Acquired defects differ from congenital ones not only by origin, but also by the fact that they do not have strict localization, certain outlines; they depend on the geometric shape of the wounding projectile; Various scars are observed along the edge of the defect. On the upper jaw, a distinction is made between resection of

the alveolar process, unilateral and bilateral resection of the body of the upper jaw.

Classification of palate defects arising after gunshot wounds, inflammatory diseases and oncological operations, E.A. Kolesnikova.

By localization:

- 1) defects of the front,
- 2) back department
- 3) border areas of the hard and soft palate;
- 4) one and two-sided.

According to the condition of the alveolar process and localization of the defect in it:

- 1) without a defect of the alveolar process;
- 2) with a process defect (through or not through);
- 3) with a process defect in the front department;
- 4) with a process defect in the lateral department.

Depending on the preservation of supporting teeth on the upper jaw:

- 1) defects in the presence of teeth (on one side; on both sides; 1-2 teeth in different departments);
- 2) defects in the complete absence of teeth.

According to the condition of the surrounding tissues:

- 1) without cicatricial changes of soft tissues near the defect;
- 2) with cicatricial changes (of the mucous membrane of the palate, with defects of the soft tissues of the perioral region).

According to the size of the defect:

- 1) small (up to 1 cm);
- 2) medium (from 1 to 2 cm);
- 3) larger (from 2 cm or more).

By form:

- 1) oval;
- 2) rounded;
- 3) unspecified defects.

Classification of acquired defects of the upper jaw (according to L.V. Gorbanyova, with additions by B.K. Kostur and V.A. Minyaeva).

According to this classification, acquired defects of the upper jaw are divided into 7 classes:

1. Defects of the alveolar part without penetration into the maxillary sinus;
2. Defects of the alveolar part with penetration into the maxillary sinus;
3. Defects of the bony palate: front, middle, side sections that do not enter the alveolar part of the jaw;
4. Defects of the bony palate with capture of the lateral part of the alveolar part

of the jaw on one side, with capture of the alveolar part on both sides, with capture of the front part of the jaw;

5. Defects of bony palate and soft or only soft palate;

6. A defect formed after resection of the right or left upper jaw;

7. A defect formed after resection of both upper jaws.

The class of the defect determines the type of prosthetics.

In the presence of acquired defects of the upper jaw and defects of the dentition without violation of sealing of the oral cavity (1st class), replacement dental prostheses are made. If the defect of the upper jaw and the defect of the dentition penetrates into the maxillary sinus or nasal cavity (2nd and 4th classes of defects), then the replacement prosthesis also performs the role of an obturating device, disconnecting the oral cavity from the maxillary sinus or nasal cavity. In those cases, when there are no defects of the tooth rows, but there are only defects of the upper jaw (3rd and 5th class), obturator prostheses are made to separate the oral cavity from the nasal cavity and maxillary sinus. Prostheses made in connection with resection of the upper jaw (one or both) - 6th and 7th class defects are called resection prostheses.

Prosthetics after unilateral resection of the upper jaw

Direct prosthetics after unilateral resection of the upper jaw according to I.M. Oksman.

The prosthesis can be fixed using a system of clasps and crowns with retention points. The outer surface replacing the parts of the prosthesis in the area of the lateral teeth should be convex in the form of a 4-5 mm thick roller going in the anteroposterior direction. In the postoperative period, the roller forms a bed in the mucous membrane of the cheek, which will be a point of anatomical retention.

To reduce the removal of the resection prosthesis in the vertical direction due to its own weight, it is made hollow (methodology of Y.M. Zbarzh, I.M., Oksman, E.Ya. Vares, Kiselyov-Pinsky).

Direct prosthetics after unilateral resection of the upper jaw with a hollow prosthesis according to Kiselyov-Pinsky.

Correction of the obtuse part is carried out with the help of cold hardening plastic.

Prosthetics after bilateral resection of the upper jaw.

Direct prosthetics after bilateral resection of the upper jaw (according to V. Yu. Kurlyandskiy).

It is also used for defects of the hard palate and complete absence of teeth on the upper jaw.

The prosthesis can be fixed with the help of springs resting on metal crowns or a prosthesis that can be removed on the lower jaw.

Direct prosthetics in case of bilateral resection of the upper jaw (Z. Ya. Shura).

It is also used for plastic surgery of significant defects of the upper jaw, lips and mouth. For finger-like processes in the thickness of the cheeks, a recess is surgically created with a skin graft. The external rod is attached to the rods protruding from under the main plaster cap with the help of a wire ligature or a flattened thin-walled metal tube.

Direct prosthetics after bilateral resection of the upper jaw (According to M.Z. Mirgazizova).

The front support of the prosthesis is the left skin-cartilage part of the nasal passage, and the back part is the soft palate. In the lateral sections, the maxillary sinus cavity can be the supporting zone. In such cases, the soft part obturating the prosthesis is made in the form of a mushroom-like process. Sometimes these processes can be connected to each other with the help of a hinge, which facilitates installation in the bed. In addition, spiral springs or other devices can be used to fix the prosthesis.

Facial prostheses (ectoprostheses).

Facial defects can be caused by a number of factors, such as the removal of tumors, especially malignant ones, injuries to various parts of the face, burns (thermal, electrical, chemical), congenital defects and deformations of the facial area, consequences of diseases (tuberculous lupus, syphilis), etc. faces can be isolated and combined. Their elimination is possible through plastic surgery and prosthetics. Prosthetics is indicated for large and complex defects of the face (auricle, nose). If the patient refuses the operation, facial defects, which are small in size, are also prosthetics.

Plastic operations give positive results, but they cannot always be performed due to the traumatic nature and duration of treatment, which requires a number of repeated surgical interventions before a satisfactory aesthetic effect is obtained, which is often the reason why patients refuse this method of treatment.

Contraindications to plastic surgery:

1. Weakened general condition of the body;
2. Unfavorable conditions for tissue engraftment created after the removal of a malignant tumor and a course of radiation and chemotherapy;
3. Danger of tumor recurrence;
4. The extent of the facial defect and its complex shape (auricle, nose);
5. Elderly patient.
6. Small facial defects in case the patient refuses the operation.

In these cases, preference should be given to the orthopedic method of treatment. Prosthetics is aimed at restoring the patient's appearance and speech,

protecting tissues from the influence of the external environment, eliminating salivation and food loss, and preventing mental disorders. Ectoprostheses complete the set of measures for the rehabilitation of patients with facial damage.

Facial prostheses are made of soft (orthoplast) or hard plastic based on polymethyl methacrylate - PMMA (AKR-7,-9, -10, EGMASS-12), sometimes a combination of plastics is used. Modern ectoprostheses are made of materials based on silicone and PMMA. In order to obtain the best aesthetic effect, soft plastics are painted with special dyes, which are selected according to the coloring. A facial prosthesis made of hard plastic is painted in two ways. The best result is given by painting the prosthesis with oil paints. The second method consists in adding dyes to the polymer (ultramarine, lead crown, red cadmium, etc.). The required color of the prosthesis is obtained experimentally.

Mechanical fixation.

Ectoprostheses are fixed with the help of eyeglass frames, which are either monolithically connected to the facial prosthesis using reinforcement or fast-hardening plastic, or made removable and connected to the ectoprosthesis using locking devices, for example, magnets. For fastening ectoprostheses, special fasteners are also used, which are inserted into natural or specially created surgical retention points, clamps (as in a hearing aid), a rubber band that passes under the hair from one earring of the eyeglass frame to the other. In some cases, the ectoprosthesis is fixed using a screw-shaped implant with a rough surface, which provides the best connection with the bone.

Chemical fixation. As an additional method of fixing ectoprostheses, special adhesives or theatrical glue are also used, which are the main method of fixation in the case of small facial prostheses (for example, when replacing a defect of a wing or the tip of the nose), where other methods of fastening cannot be used.

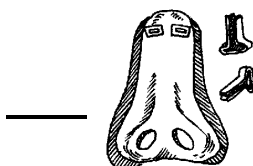
Physical fixation. The combination of the implant with magnetic elements simplifies the construction of the ectoprosthesis without reducing the quality of fixation and allows you to completely avoid the risk of infection of the implant due to the preservation of the integrity of the skin.

All facial prostheses are prepared on a face model (plaster mask). When modeling the ectoprosthesis, the patient's photographs are checked, the shape of the face, anthropometric data, symmetry of the paired organ are taken into account, facial claims and wishes are taken into account.

Facial ectoprostheses:



1) prosthesis of the orbit and nose with fixation on the glasses frame.

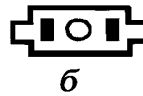


2) nasal prosthesis (made of hard plastic with a gasket and inserts in the nasal passages made of soft plastic)

3) nose prosthesis with fixation on the glasses frame



Ear prosthesis, fixed on philatelic stems:



- a) philatelic stems harvested from skin;
- b) metal plate;
- c) ear prosthesis with magnets.



Combined maxillofacial prosthesis (according to I.M. Oksman).

The facial prosthesis is fixed with the help of an eyeglass frame and rods inserted into the sockets of the replacement prosthesis of the upper jaw.

The method of obtaining a face mask.

To make a facial prosthesis, it is necessary to take an impression of the entire face. The patient is placed in a horizontal position, rubber tubes are inserted into the nasal passages for breathing during the impression removal. If this is not possible, a flat tube is inserted between the lips into the mouth. The hairy parts of the face (eyebrows, eyelashes, mustache, beard) are smeared with petroleum jelly, the head and neck are covered with a towel, leaving the face and chin area exposed. The face is covered with a layer of plaster 1.5 cm thick, pouring first the forehead, eyes (eyelids must be closed), nose, cheeks and lower part of the face. The patient is warned not to be frightened or make any facial movements during the impression removal, as this may lead to inaccuracy of the impression. When the gypsum crystallizes, the impression is carefully removed from the bottom forward, placed in a soapy solution for 10-15 minutes, then the model is cast. We receive a face mask. V.A. Minyaeva developed a complex device - a hard spoon (form) for removing facial impressions with elastic materials. There is also a combined method of obtaining a facial impression: in the area of the defect, the

impression is removed with elastic materials, and the rest - with plaster.

3.2. recommendations (instructions) for performing tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.);

3.3. requirements for work results, including registration;

1. What causes lead to defects of the maxillofacial area?

2. What is the stage of treatment of patients with jaw defects facial area?

Q. What are the peculiarities of providing orthopedic care patients after resection of the upper jaw?

4. What are the features of providing orthopedic care to patients after resection

lower jaw?

5. Name the methods of complex treatment of patients after jaw resection.

6. What are the etiology and pathogenesis of facial defects?

7. What are the features and methods of obtaining prints and making them face models?

8. What are the methods of fixing ectoprostheses?

9. Tell us about the orthopedic treatment of congenital and acquired defects palate, its meaning, time of implementation, effectiveness.

10. What are the methods of treatment of patients with defects of the soft palate?

11. What methods of manufacturing obturators are used in this case palate defects?

12. What is the role and place of therapeutic gymnastics in the rehabilitation of patients with

lesions of the maxillofacial area?

3.4. control materials for the final stage of the lesson: assignments, tasks, tests, etc. (if necessary).

1. A 27-year-old patient received an injury to the lower jaw. After an X-ray examination, a unilateral open fracture of the lower jaw at the level of the mental foramen with displacement was diagnosed. The patient has all his teeth. The fracture line passes between 34-35 teeth. Which tire should I use?

A. Double jaw tire with hook loops

B. A tire with an inclined plane

C. A tire with an adjustable loop

D. Double jaw tire with spacer bend

E. Smooth tire clamp

2. A 21-year-old patient suffered a fracture of the alveolar process of the upper

jaw in the range of 13, 12, 11, 21, 22, 23 teeth after a domestic injury. Objectively: the dentition is intact. What tire should be used for the indicated fracture?

- A. A smooth tire clamp
- B. With spacer bend
- C. With an inclined plane
- D. With a reference plane
- E. With hook loops

3. A 40-year-old patient was admitted to the hospital with a diagnosis: fracture of the lower jaw with limited mobility of fragments. The radiograph shows a bone defect in the frontal area. There are 3 permanent teeth on each fragment. What device should be used in this case?

- A. Katz's apparatus
- B. Weber tire
- C. Shina Zbarzh
- D. Tire of Tigerstedt
- E. Shina Vankevich

4. A 70-year-old patient with complete loss of teeth on the upper jaw and a defect in the hard palate complains of difficulty in eating food, pouring of liquid food through the nose, frequent chronic diseases of the mucous membrane of the nasal cavity. Objectively: the alveolar process of the upper jaw is atrophied - I type according to Schroeder, the compliance of the mucous membrane - I class according to Suple. On the hard palate - a cicatricial defect measuring 2x3 cm. Which prosthesis design is most appropriate in this case?

- A. Complete removable prosthesis with a system of internal and peripheral valves
- B. Complete removable prosthesis with placement of teeth on artificial gums
- C. Soft obturator and complete removable prosthesis
- D. Complete removable prosthesis with thickening in the area of the defect
- E. Complete removable prosthesis with metal base and soft obturator

5. A 52-year-old patient was made a direct prosthesis after unilateral resection of the upper jaw. What is the term of its use?

- A. 1-3 months
- B. 1-2 months
- C. 7-12 months
- D. 2-3 years
- E. 4-5 years

6. During the hostilities, when deploying a dental prosthesis laboratory in a specialized hospital for the manufacture of dental prostheses, there was a need to replace the broken "Samson" device. In which set is it located?

- A. ZT-1
-

- B. ZT-2
- C. ZT-3
- D. ZP
- E. ZV

7. A 60-year-old patient needs a Hippocrates face mask to make an ectoprosthesis. What impression material should be used?

- A. Plaster
- B. Dentafol
- C. Stomalgin
- D. Stens
- E. Stomaflex

8. During the medical examination of the personnel of the motorized rifle regiment stationed 110 km from the military hospital, 19 servicemen were found to be in need of dental prosthetics. How many should there be for the departure of a mobile dental office?

- A. 25 and more
- B. Until 10
- C. Until 15
- D. Up to 20
- E. Until the 24th

9. A patient in his 40s developed an open bite after a bilateral fracture of the upper jaw and improper fusion of the fragments. Bite height is maintained only by molars. There is a gap of about 1-1.5 mm between the rest of the teeth. Tooth rows are continuous. Which of the treatment methods is most appropriate to apply in this situation?

- A. Grind molars, cover with crowns
- B. Orthodontic treatment
- C. Hardware-surgical method
- D. Bloody reposition
- E. Prosthetics with combined crowns

10. The patient has a gunshot fracture of the lower jaw. Before the injury, he used removable prostheses (partial lamellar for the upper jaw and full for the lower jaw). What means of transport immobilization can be used in this case?

- A. The patient's dentures
- B. Zbarzh apparatus
- C. Shina Entin
- D. Shina Vasilieva
- E. Tire Tigerstedt

11. A 28-year-old man came to the clinic on the 2nd day after a facial injury with complaints of pain in the lower jaw on both sides, difficulty swallowing and

breathing. Objectively: slight swelling in the area of the molars on both sides, the tooth rows are intact, but the jaw fragment 43, 42, 41, 31, 32, 33 is shifted downward and backward. Manual repositioning does not give the desired result. What device should be used for treatment?

- A. Fasting
- B. Monojab Katza
- C. One-jaw Courlandsky
- D. Bruna
- E. Betelman

12. A 55-year-old woman complains of discharge of liquid through the nose when consuming liquid food. Objectively: in the lateral part of the upper jaw, at the level of the removed 16, there is a perforation defect of the alveolar process measuring 3x2.8 cm. The patient categorically refused surgical intervention. What construction should be offered to her?

- A. Small saddle-shaped prosthesis with clasp fixation
- B. Bügel prosthesis with obturating part made of elastic plastic
- C. Conventional partial removable plate prosthesis
- D. Conventional non-removable bridge-like prosthesis
- E. Protective palatal plate made of celluloid

13. A 69-year-old patient underwent an operation to completely remove the lower jaw. Before the operation, impressions were taken from the upper and lower jaws and a replacement prosthesis of the lower jaw was made. What is the fixation of this prosthesis in the oral cavity?

- A. Fochard spiral springs
- B. Hook loops
- C. Clamps
- D. Magnets
- E. Attachmen

14. A 65-year-old patient applied to the Orthopedic Dentistry Clinic for the manufacture of an orbital ectoprosthesis lost as a result of an injury. What is the fixation of the orbital prosthesis?

- A. Spectacle frame
- B. Clock spring
- C. Hinged devices
- D. Clamps
- E. Magnets

15. A 60-year-old patient complains of difficulty chewing food as a result of displacement of the lower jaw after an untreated fracture. Objectively: 35, 36, 38, 45, 46 are missing. The rest of the teeth are intact. 43, 44, 47, 48 out of contact with the upper laterals and with an oral deviation of up to 1 cm. What optimal

design of the prosthesis for the lower jaw is shown?

- A. Prosthesis with a double row of teeth
- B. One-piece bridge prosthesis
- C. Arch prosthesis
- D. Adhesive prosthesis
- E. Shina Vankevich

16. A 50-year-old patient complained of pain in the area of the left TMJ when opening his mouth. Dental formula: 14, 13, 12, 11, 21, 22, 23, 24, 33, 32, 31, 41, 42, 43, 44. When opening the mouth, the lower jaw shifts in a zigzag fashion towards the diseased joint. For which pathological condition are these symptoms most typical?

- A. Musculoskeletal dysfunction
- B. Common TMJ dislocation
- C. Sclerosing arthrosis of TMJ
- D. Chronic TMJ arthritis
- E. Deforming arthrosis of TMJ

17. A 45-year-old man complains of discharge from the nose, inability to blow his nose, puff out his cheeks. Objectively: in the lateral part of the upper jaw, at the level of the removed 26, there is a perforation defect of the alveolar process measuring 1x1.5 cm. When exhaling air through the nose with pinched nostrils, blisters appear in the area of the perforation. What design of the prosthesis should be offered to the patient?

- A. Small saddle-shaped prosthesis with clasp fixation
- B. Bügel prosthesis with obturating part
- C. Conventional partial removable prosthesis
- D. Conventional bridge prosthesis
- E. Protective palatal plate

18. A 68-year-old patient has a defect in the lower third of the nose as a result of removal of a malignant tumor. Objectively: the back of the nose up to the middle third and the external contours of the nostrils are preserved. The skin at the base of the nose is thin, eroded. The patient categorically refused plastic surgery. What method of ectoprosthesis fixation is acceptable in this case?

- A. On the frame of the glasses
- B. Using a braid
- C. Transparent sticky tape
- D. Use of anatomical retention
- E. Head cap

19. A 23-year-old military serviceman needs orthopedic treatment in a specialized hospital. A false joint of the lower jaw in the frontal department was diagnosed. The teeth are intact, stable, 3 on each side. Orthopedic treatment with

the help of a bridge prosthesis can be performed in this patient, if the jaw defect is no more:

- A. 1 cm
- B. 2 cm
- C. 3 cm
- D. 3.5 cm
- E. 4 cm

20. A 36-year-old patient consulted a dentist 1.5 months after an injury to the lower jaw with complaints of difficulty in chewing food, an aesthetic facial defect. Objectively: the face is proportional, asymmetric due to the oral displacement of the lateral fragment of the lower jaw to the left. When closing the jaws 34, 35, 36, 37 are out of contact with the antagonists. Surgical intervention is categorically refused. What orthopedic treatment should be prescribed?

- A. Prosthesis with a double row of teeth
- B. Mechanotherapy
- C. Intermaxillary traction
- D. Crowns with occlusal overlays
- E. Alignment of the occlusal surface

21. A 48-year-old patient complained of post-traumatic pain in the area of the chin. During the examination, it was determined: a median fracture of the lower jaw due to the presence of a defect of the tooth row of the I class according to Kennedy. The patient was shown the manufacture of a Vankevich splint in Stepanov's modification. What will determine the height of the guiding planes of this tire?

- A. Degree of mouth opening
- B. Arbitrary
- C. The height of the central ratio of the jaws
- D. Form of toothless alveolar ridges on the lower jaw
- E. Height of molars on the upper jaw

22. Partial removable plate prostheses are made for the patient. Anatomical impressions were removed from both jaws with the elastic alginate material "Ipin", which were sent for disinfection. Specify the means for disinfection of these prints:

- A. Glutaraldehyde 2.5% pH 7.0-8.7
- B. Sodium hypochlorite 0.5%
- C. Desoxone 0.1%
- D. 6% hydrogen peroxide solution
- E. 70% alcohol solution

23. A 40-year-old patient complains of difficulty chewing due to displacement of the lower jaw. There is a history of a mental breakdown 2 months ago. Objectively: missing 35, 36, 38 ... 45, 46. The rest of the teeth are intact. 43, 44,

47, 48 out of contact with antagonists with an oral deviation of 1 cm. Surgical intervention is refused. Specify the optimal type of construction of the lower jaw prosthesis:

- A. Prosthesis with a double row of teeth
- B. Metal-ceramic bridge prosthesis
- C. Soldered tire on rings
- D. Removable lamellar prosthesis
- E. Adhesive prosthesis

24. A 26-year-old woman complains of a cosmetic defect in the front part of the upper jaw. Objectively: crown 23 is destroyed almost to the ash edge, the walls of the stump are of sufficient thickness. The stump is slightly discolored, painless on percussion. On the X-ray, the root canal is straight, wide, sealed along its entire length. Name the design of a prosthesis that can be used to replace a defect?

- A. Pin tooth
- B. Immediate prosthesis
- C. Metal-ceramic crown
- D. Brazed bridge prosthesis
- E. Tab

4. Summary:

- Classification of defects of the lower jaw.
- Classification of defects of the upper jaw.
- Direct prosthetics after chin resection of the lower jaw
- Direct prosthetics during resection of half of the lower jaw with ascending branch and articular head.
- Direct prosthetics after resection of half of the lower jaw.
- Prosthetics after complete resection of the lower jaw.
- Prosthetics after resection of the upper jaw.
- Direct prosthetics after unilateral resection of the upper jaw according to

I.M. Oksman.

- Causes of facial defects, methods of their elimination.
- The concept of "ectoprosthesis". Ways of fixing ectoprostheses.
- The technique of manufacturing facial prostheses.
- Rules for modeling a nose prosthesis.
- Rules for modeling an eye prosthesis
- Obtaining a face print
- Making a face model (mask).

5. List of recommended literature (main, additional, electronic information resources):

Main:

- Yerys, L. B. Modern technologies for manufacturing maxillofacial prostheses: [teaching manual for students of higher medical schools. education institutions of the IV level of accreditation and dentists, orthopedists and surgeons] / L. B. Yerys, V. M. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p. Dvornyk; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Astraya, 2016. – 71 p.

- Orthopedic dentistry: textbook / Rozhko M.M., Nespryadko V.P., I.V. Paliychuk and others; under the editorship M.M. Rozhka, V.P. Nespryadka.- K.: Medical University "Medicine"; 2020. - 720 p.

- Rozhko M.M., Nespryadko V.P., Mykhaylenko T.M. and others. Dentoprosthetic technique. K.: Book plus; 2016. 604 p.

- Rozhko M.M., Popovych Z.B., Kuroyedova V.D. Dentistry. Textbook. K.: Medical University "Medicine"; 2018. 872 p.

Additional:

- Belikov, O. B. Maxillofacial orthopedics: a study guide. Part 1. Subject of maxillofacial orthopedics. Maxillofacial traumatology / O. B. Belikov; Ministry of Health of Ukraine, Central Medical Center, UMSA. – Poltava: Dexy Print, 2002. – 207 p

- Dentistry: in 2 books. : textbook. Book 2 / M.M. Rozhko, I.I. Kirylenko, O.G. Denisenko and others. ; under the editorship M.M. Horn — 2nd edition. — K.: VSV "Medicine", 2018. — 992 p. ; color kind.

- Material science in dentistry: a study guide / [Korol D.M., Korol M.D., Ojubeiska O.D. etc.]; in general ed. King D.M. – Vinnytsia: New book, 2019. – 400 p.

Electronic information resources:

- State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>

- National Scientific Medical Library of Ukraine <http://library.gov.ua/>

- National Library of Ukraine named after V.I. Vernadsky <http://www.nbu.gov.ua/>
