


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 **Medical practice in orthopedic stomatology**

Approved:
Meeting of the Department of Orthopedic
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Protocol № 11 of "30" June 2023 year.
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PRACTICAL LESSON No. 1

Topic: Acquaintance with the orthopedic dentistry clinic. Familiarity with the dental laboratory.

Goal: Acquaintance with the orthopedic dentistry clinic. Requirements for a dental office. Documentation of the orthopedic office. Rules for its filling. Tools and materials used in the clinic of orthopedic dentistry. Methods of asepsis and antiseptics in the dental office. Familiarity with the dental laboratory. Special premises of the dental laboratory (gypsum, polishing, lithium rooms). Dental laboratory equipment. Basic provisions of safety equipment.

Basic concepts: examination, history, defects of teeth and tooth rows, treatment, oral cavity

Equipment:

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:

- defects of teeth and dental rows
- clinical examination methods
- oral cavity preparation for prosthetics

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

According to the "Fundamentals of the Legislation of Ukraine on Health Care" (1992), orthopedic departments of city, district, regional polyclinics have the right to use funds voluntarily transferred by enterprises, institutions, organizations and individual citizens, as well as with the owner's permission, to improve the quality of their work or a body authorized by him to establish fees for services in the field of health care. The list of such paid services is approved by the Cabinet of Ministers at the request of the Ministry of Health of Ukraine. Extra-budgetary sources of funding, as already mentioned earlier, are the main ones in the organization of the work of orthopedic departments.

The realities of our time have shown that along with state health care institutions, alternative institutions for the provision of dental services are being formed on the basis of various forms of entrepreneurial activity and private and collective forms of ownership. In order to get permission to open them, you should go through state registration with local authorities and obtain a license for the right to practice medicine from the Ministry of Health of Ukraine in accordance with the procedure established by current legislation.

A big step forward in providing highly effective orthopedic care to the population of Ukraine and strengthening the material and technical base of dental polyclinics (orthopedic departments) will be the introduction of the population health

insurance system, which is declared in the "Basics of Ukrainian legislation on health care" (1992). Insurance of citizens is supposed to be carried out at the expense of the State Budget of Ukraine, funds of enterprises, institutions, organizations and their own contributions.

A special feature of the orthopedic dental service is that it is maintained at the expense of self-supporting or special funds. In addition to the budgetary orthopedic unit, there is a dental inpatient department of the hospital, where assistance is provided to patients with lesions of the maxillofacial area. Orthopedic care for the city population is provided by the orthopedic department of the city dental polyclinic. The flow of patients for orthopedic treatment is formed due to self-referral to the polyclinic, as well as by referral of patients, including dispensary patients, by dentists of other specialties.

The right to free and discounted treatment and prosthetics is enjoyed by liquidators of the accident at the Chernobyl nuclear power plant, disabled people of the Second World War, laborers and persons equal to them, pensioners, children, etc.

Orthopedic treatment of employees of industrial enterprises is carried out in dental offices (departments) of medical and sanitary units organized there or in dental institutions at the place of residence. In addition, the provision of orthopedic care can be organized at the expense of visiting teams of dentists-orthopaedists of the city dental polyclinic to industrial enterprises. Patients are admitted directly in the medical and sanitary department, and dental work is performed centrally in the dental laboratory of the dental polyclinic. Industrial enterprises pay the dental polyclinic for orthopedic treatment of employees. The center for providing orthopedic medical care to the rural population is the central district hospital, which includes an orthopedic department with a dental laboratory. Mobile dental offices are equipped at the Central Medical Center to provide dental care to the population of the district. Such an office must include a dentist-orthopedic doctor. First of all, such offices provide assistance to the population of medical districts where there are no dentists, as well as to organized collectives during the period of mass agricultural work.

ORGANIZATIONAL STRUCTURE OF THE DENTAL POLYCLINIC AND ORTHOPEDIC DEPARTMENT

A dental polyclinic is a medical and preventive institution, the activity of which is aimed at the prevention of dental diseases, timely identification and treatment of patients with diseases of the maxillofacial area.

The structure of the dental polyclinic

The organizational structure of the polyclinic includes: administrative department, registry office, primary examination office and department of therapeutic, surgical, and orthopedic stomatology. In addition, the polyclinic usually has an X-ray room, a physiotherapy room, a laboratory, a workshop for repairing equipment and tools, and an organizational and methodical room. The specific structure of the polyclinic is determined by the health care authorities by subordination.

The registry is part of the dental polyclinic and occupies a special place in its work. Persons with secondary education who have undergone special training must

work in the registry office. The number of medical registrars is established in accordance with staffing standards developed by the Ministry of Health of Ukraine at the rate of 1 post of registrar for 10 positions of dentists of all specialties. In independent dental polyclinics, as well as at large dental departments of medical and preventive institutions, a primary reception office is organized. Emergency dental care is provided here, and the scope and type of specialized dental care is determined for primary patients.

The main structural division of the dental polyclinic is the therapeutic department. The surgical stomatological department is a special structural division of the polyclinic, the purpose of which is to provide surgical assistance to patients.

The orthopedic department of the dental polyclinic provides assistance to both adults and children in cases where this assistance is not available at children's dental institutions.

The orthopedic department includes offices for receiving patients, a dental laboratory and a foundry

Registration of primary patients to orthopedic doctors is carried out in the polyclinic registry, where appropriate medical documentation is created, as in the case of a regular visit to the polyclinic. The doctor on duty examines the patient, chooses the design of the necessary prosthesis. If during the examination the need for rehabilitation of the oral cavity is revealed, the patient is sent to a therapeutic or surgical department, where treatment and preparation for prosthetics are carried out. After that, the nurse issues a ticket for an appointment with an orthopedic doctor.

The patient issues an order at the registry office for the manufacture of orthopedic structures of dental prostheses. After preparing the necessary teeth for the specified structure, the orthopedist takes impressions. The nurse gives the impression to the production manager, who distributes all the work among the dental technicians. The head of production determines the terms of the intermediate stage of the prosthesis production, when the patient must appear to the doctor.

Depending on the robotic dental technicians, orthopedic assistance is provided in three forms: individual, team, and staged. In the case of individual work, the dental technician completely manufactures a dental prosthesis himself, in the case of team work - there is a division according to the type of prostheses, staged - according to the type of operations in one prosthesis.

The planned workload of a dentist-orthopedic doctor is 18 conditional work capacity units (CPU). It takes 35-40 minutes to complete one unit. On average, the workload of an orthopedic doctor per year, provided that he works with an examining doctor, depending on the length of work, ranges from 1,950 to 2,300 UOP, if he works without an examining doctor - 1,750 to 2,100 UOP.

The dental polyclinic is headed by a chief doctor who has experience in medical and organizational work and is highly qualified.

Depending on the category of the polyclinic, the head doctor may have a deputy from the medical department, as well as from administrative and economic work. The head doctor manages all medical and preventive, organizational and methodological, economic and financial activities of the polyclinic and is responsible for the organization, level and quality of dental care for the population.

For this purpose, it conducts an analysis of the qualitative and quantitative indicators of the work of polyclinic doctors, the dental morbidity of the population, evaluates the effectiveness of preventive and curative work, and ensures the improvement of the professional training of doctors and secondary medical personnel. The chief physician is responsible for the development of the material and technical base of the institution, the use of medical personnel, dental equipment and medicines, the timeliness and reliability of dental records and reporting, their implementation and presentation according to the reporting forms and in the amount established by the Ministry of Health of Ukraine.

The first assistant to the chief physician is his deputy from the medical department. Like the head doctor, he is appointed from among doctors who have the necessary experience of working in the specialty and organization of polyclinic service. In his work, he is subordinate to the chief doctor and organizes the work of the departments in accordance with the "Regulations on the Dental Polyclinic", orders and instructions of health care authorities, current legislative acts, orders and instructions of higher organizations.

Each department is headed by a manager. This is usually a doctor with at least 5 years of practical experience. He directly supervises the activities of the department's staff, bears full responsibility for the quality and culture of patient care. The head of the department consults patients.

Depending on the number of the population served and medical positions, there are five categories of dental polyclinics: Category I — 30-40 medical positions; II category - 25-29; III - 20-24; IV - 15-19 and V - 10-14 full-time positions.

The staff of medical personnel (dentist-orthopedic doctors) is maintained at the expense of earned or special funds. Norm: one position per 10,000 adult population of this settlement, 0.7 positions to serve 10,000 adult rural population, and 0.8 positions per 10,000 adult population of other settlements.

The position of the head of the orthopedic department (held at the expense of the state or at the expense of special funds) is established in the polyclinic, where according to the current staffing standards, there are at least 4 positions of dentists-orthopedics.

The position of deputy chief physician from the medical department is established if there are 40 or more medical positions in the polyclinic staff, including the position of chief physician.

The positions of radiologists are established at the rate of 1 position per 15,000 x-rays per year, and the positions of physiotherapists are established by the decision of the health care authority at the rate of 0.1 position per 15,000 attached population.

The positions of dental technicians of the dental laboratory, which are maintained at the expense of the state or at the expense of special funds, are established depending on the volume of work on dental prosthetics, determined according to the current standards of time for dental work. For every 10 positions of dental technicians, 1 position of senior dental technician is established.

In each polyclinic, the position of the head of the dental laboratory (head of production) is also established, and in polyclinics with at least 15 positions of dental

technicians and senior dental technicians, this position is introduced instead of the position of senior dental technician.

The position of medical statistician is introduced at the rate of 1 position for 40 positions of dentists of all specialties.

The number of positions of junior nurses also depends on the number of positions of doctors. According to staff regulations, 1 position of a junior nurse is provided for 3 positions of dentists-orthopedics and 20 positions of dental technicians.

4. Summary of results:

- Acquaintance with the orthopedic dentistry clinic.
- Requirements for a dental office.
- Documentation of the orthopedic office.
- Rules for its filling.
- Tools and materials used in the clinic of orthopedic dentistry.
- Methods of asepsis and antiseptics in the dental office.
- Familiarity with the dental laboratory.
- Special premises of the dental laboratory (gypsum, polishing, lithium rooms).
- Dental laboratory equipment.
- Basic provisions of safety equipment.

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

Main:

1. Orthopedic dentistry: textbook / M.M. Rozhko, V.P. Nespryadko, I.V. Paliichuk and others.
2. M.M. Rozhko, V.P. Nespryadko, I.V. Paliychuk et al. Prosthetic technique: textbook - Kyiv, "Knyga-plus", 2016. - 604 p.
3. Ishchenko P.V., Klyomin V.A., Kachalov R.H., Likhota A.M. Military orthopedic stomatology. - K.: Medical University "Medicine". -2018. -312 p.
4. Hasyuk P.A., Kostenko E.Ya., Shcherba V.V., Savchyn V.Ya. Prosthetics for complete loss of teeth. – Uzhhorod, 2013. Zakarpattia publishing house. - 222 p.

Additional:

1. Dentistry: in 2 books. — Book 1: textbook (University III-IV years) / M.M. Rozhko, Z.B. Popovych, V.D. Kuroyedova .. -K.: VSV "Medicine", 2012. - 872 p.
2. Chulak L.D., Shuturminskyi V.G. Clinical and laboratory stages of manufacturing dental prostheses. Odesa. Odesa honey. University, 2009, 318 p
3. Makeev V.F., Stupnytskyi R.M. Theoretical foundations of orthopedic stomatology (educational manual). –Lviv: LNMU named after Danylo Halytskyi, 2010, -394 p.
4. Flis P.S., Bannyk T.M. Technique of manufacturing removable prostheses.-K.: Medicine. - 2008. - 254.

5. Gitlan E.M., Krot M.K. Manual on bygel prosthetics. - K.: Zdorovya, 2001. - 140p.
6. Humetskyi R.A., Rozhko M.M., Zavadka O.E., Skrypnikov P.M. Complications of local anesthesia in the maxillofacial region: Manual in 3 volumes - Lviv: Ivano-Frankivsk: Poltava: Nautilus Publishing House, 2002. - 231 p.
7. Korol M.D., Korobeynikov L.S., Kindiy D.D., Yarkovy V.V. Ojubeiska O.D. Tactics of curation of patients in the clinic of orthopedic dentistry. Poltava: Astraya, 2003 – 52 p.
8. Nidzelskyi M.Ya. Mechanisms of adaptation to dental prostheses. – Poltava: Techservice Company LLC, 2003. – 116 p.
9. Bida V.I. Replacement of dentition defects with fixed denture structures. Lecture. - Kyiv, 2001. - 26 p.

Electronic information resources

1. State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>
2. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
3. National Library of Ukraine named after V.I. Vernadskyi <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 2

Topic: Examination of a patient in a clinic of orthopedic dentistry. Clinical and additional (special) examination methods. Preliminary and final diagnosis.

Patient examination algorithm in orthopedic dentistry.

Basic clinical methods of examination of dental patients. Functional and graphical methods of studying air pollution. Laboratory-instrumental methods of research of SHLD. A method of describing a target radiograph. Types of lesions of the maxillofacial system that are subject to orthopedic treatment. Peculiarities of diagnosis in the clinic of orthopedic dentistry. Drawing up an orthopedic treatment plan and studying methods of preparing the patient for prosthetics. Rules for filling out medical history. Quality assessment criteria, orthopedic structures.

Goal: Acquaint applicants with the algorithm of patient examination in orthopedic stomatology. Basic clinical methods of examination of dental patients. By functional and graphic methods of research of air pollutants. Laboratory-instrumental methods of research of SLD. By the method of describing the aiming radiograph. Types of lesions of the maxillofacial system that are subject to orthopedic treatment. Peculiarities of diagnosis in the clinic of orthopedic dentistry. Drawing up a plan of orthopedic treatment and studying methods of preparing the patient for prosthetics. Rules for filling out medical history. Quality assessment criteria, orthopedic structures.

Basic concepts: Examination, diagnosis, medical history, radiography.

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:

- Examination in the clinic of orthopedic dentistry
- Radiography
- Lesions of SHLD
- Medical history

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

OBJECTIVE METHODS OF SURVEY

The next important stage of the diagnostic process is an objective examination of the organs and tissues of the oral cavity. These include the dentition, the mucous membrane of the oral cavity, the bony base, namely the cellular process and part, the body of the jaw bones, and the hard palate.

External examination of the patient and examination of the face. All patients who have applied to the clinic of orthopedic dentistry must have an external examination of the face. Usually, the examination is carried out inconspicuously for the patient during the first visit to the orthopedic office and during the collection of anamnesis. Pay attention to the symmetry of the halves of the face, the height of its lower third, the protrusion of the chin, the line of closing the lips, the prominence of the chin and nasolabial folds, the position of the corners of the mouth. All this allows you to make the necessary optimum. It is customary to divide the face of an adult into 4 types:

1. Cerebral, characterized by significant development of the bones of the cerebral skull. It is characterized by a high and wide frontal part of the face, which significantly prevails over other parts, as a result of which it resembles the shape of a pyramid with the base directed upwards.

2. Digestive, characterized by significant development of the lower third of the face. Its characteristic features are extremely large sizes of the upper and lower jaws, significant development of the chewing muscles. Due to the relative narrowness of the frontal part, it resembles the shape of a trapezoid.

3. Respiratory — characterized by predominant development of the middle part of the face. Well-developed maxillary sinuses, zygomatic arches protrude forward in relief, as a result of which it resembles the shape of a rhombus.

4. The muscular type is characterized by approximately the same size of the upper and lower parts of the face, the border of the hair in the forehead is usually straight, which gives the face a square shape.

The division of the face into three parts: the upper, middle and lower thirds is of special importance for the orthopedic dentistry clinic.

EXAMINATION OF THE ORAL CAVITY

Examination of the mouth begins with determining the degree of its opening.

Limited opening of the mouth can be caused both by the narrowing of the opening itself and by difficulty in the movements of the lower jaw, which may be associated with muscle or joint contracture. Difficult opening of the mouth indicates the presence of pathology in this area, which prevents manipulations related to orthopedic treatment. It is important to determine the degree of opening of the tooth rows when opening the mouth. At the same time as studying the state of opening the mouth, attention is paid to the nature of the movements of the lower jaw, their smoothness, interruption, displacement of the lower jaw from the median line to the right or left. Then the condition of the mucous membrane of the oral cavity is studied, in particular, the condition of the gums, transitional fold, cheeks, tongue, hard and soft palate, Pirogov's lymphatic ring (lymphatic ring of the pharynx) is examined in detail.

EXAMINATION OF DENTURES

Examination of the condition of the upper and lower jaws is carried out separately, determining the shape of the arches, the nature of the closure (bite). Examination of the teeth is carried out in a certain order, starting from the upper jaw and successively examining each tooth - from the wisdom tooth on one side to the tooth of the same name - on the other. During the examination of each tooth, attention is paid to the following features:

- 1) the position of the tooth in the dental arch;
- 2) its form;
- 3) color;
- 4) state of hard tissues;
- 5) stability of the tooth;
- 6) ratio of extracellular and intracellular parts;
- 7) the position of the tooth in relation to the occlusal surface of the dentition;
- 8) presence of seals and their condition.

The dental arches of the upper and lower jaws have a unique shape and individual features that determine the type of bite. The shape of the upper tooth row resembles a semi-ellipse, and the lower - a parabola. The maxillo-dental system, formed without pathological changes, is a single entity both morphologically and functionally. The unity of the tooth row is ensured by interdental contacts, the cellular process and part of it, the periodontium. In the case of diagnosing defects of the dentition, data on the continuity and topography of the defects and the presence of natural teeth next to them are of great importance. According to continuity, they are distinguished: small defects - the absence of no more than three teeth, medium - the absence of four to six teeth; large defects — absence of more than six teeth.

In addition, defects are divided by location: located in the front, side or antero-lateral parts of the tooth row; by the presence of adjacent teeth: limited by teeth on both sides (included) or only on one side (terminal).

The condition of the tissues of the marginal periodontium should also be assessed, namely the presence of inflammation, atrophy, suppuration, and the depth of the pockets. At the same time, it is necessary to study the pathological mobility of teeth in the case of periodontal tissue diseases. Physiological and pathological tooth mobility are distinguished. Physiological mobility is natural and imperceptible to the

eye. The fact that it exists is evidenced by the presence of contact points and the formation of contact areas. Pathological mobility is manifested by a significant displacement of teeth during minor force impact. It is necessary to distinguish between degrees of pathological tooth mobility. Under the conditions of the I degree of mobility, the tooth moves in the parietal direction, II degree — in the parietal-oral and sagittal direction; if the mobility is of the III degree, then, in addition to the mentioned, the tooth also moves in the vertical direction. III-degree mobility characterizes the state of the periodontal tissues as very severe and advanced with irreversible processes.

INSTRUMENTAL AND HARDWARE METHODS EXAMINATION

Among the instrumental methods of examining an orthopedic patient, percussion, sounding are widely used, and the commonly available method of palpation of the oral cavity has not lost its importance.

PERCUSSION

The percussion method is most often used during the diagnosis of acute and chronic periodontitis. Most often, the handle of a probe, tweezers, mirror or other dental instrument is used for percussion, which is easily tapped on the examined tooth. Pain during percussion in the horizontal direction is a sign of damage to the tissues of the periodontal (marginal) periodontium of traumatic origin. Pronounced soreness during percussion in the vertical direction gives reason to talk about the presence of a chronic inflammatory process in the apical area or its exacerbation.

PROBING

The method of clinical research is widely used in the case of studying the condition of the tissues of the marginal periodontium, namely the condition of the gingival groove or pocket. Pathological processes that occur in the tissues of the marginal periodontium cause inflammation, the formation of periodontal pockets, and retraction of the gingival margin. The presence and depth of periodontal pockets are measured using a dental probe, which must have a blunt end and notches on its surface at a distance of 0.5-1 mm from each other.

The probe is effortlessly inserted into the gingival groove alternately from four sides — parietal, oral and two proximal.

Palpation— a simple and affordable clinical method. It is widely used in the clinic of orthopedic dentistry mainly to clarify the diagnosis. The palpation method is especially valuable during the examination of lymph nodes and salivary glands. It makes it possible to judge their density, pain, mobility and allows to differentiate inflammatory processes from blastomatous ones. By palpating the muscles, you can determine their tone and painful points. The muscles subject to palpation are: masticatory, temporal, medial pterygoid, floor of the oral cavity and sternoclavicular-mammary.

Thermometry and electrothermy.Electrodiagnostics can be used to obtain accurate data on the state of the pulp. The reaction of the pulp to an electric current of more than 6 μ A indicates a pathological process in it, and more than 50 μ A indicates its necrosis. If during the examination of the abutment teeth for fixed prosthetics,

electrodiagnostics revealed a decrease in the excitability threshold of the pulp, then radiography is used to clarify the diagnosis.

X-RAY METHODS OF RESEARCH

X-ray research methods are widely used in dental practice, as they are generally available, simple, relatively inexpensive, and highly informative.

Methods of X-ray research are divided into basic (intra-oral and extra-oral X-ray) and additional (tomography, computer tomo X-ray, teleradiography, electroradiography).

Radiography allows to determine the nature and severity of the process in the periodontal tissues, the form of bone tissue resorption — horizontal, vertical, mixed, the presence of bone pockets, etc. The method helps in choosing an orthopedic design of a dental prosthesis and abutment teeth.

Intraoral contact radiography. This X-ray examination can be carried out with special dental devices 5D-1 and 5D-2, "Siemens".

Obtaining X-rays of the teeth and maxillofacial area has its own characteristics related to the anatomical structure of the bones of this area. It is necessary to take into account the possibility of overlapping bones on radiographs. To prevent this from happening, it is necessary to direct the tube of the X-ray tube at a certain angle to the teeth of the upper and lower jaws, using the rule of isometry.

Intraoral X-ray in bite. This type of X-ray examination is used mainly in children, in the case of an increased vomiting reflex, during examinations of large areas of the cellular process and part. A film measuring 5x6 cm or 6x8 cm is inserted into the mouth and held with clenched teeth. Bite X-rays are used to examine all teeth and all parts of the upper jaw, the front group of teeth of the upper and lower jaws.

Intraoral X-ray. The method of extraoral, or extraoral, radiography is rarely used when it is impossible to obtain intraoral radiographs - in the case of an increased vomiting reflex, trismus of the masticatory muscles.

With the help of extraoral radiography, it is possible to study the upper and lower jaw, temporomandibular joint, facial bones, but the quality of radiographs obtained by the extraoral method is lower compared to the intraoral method.

Tomography— a layer-by-layer survey that allows you to get an image of a certain layer of the studied area. Special devices are used — tomographs or tomographic attachments. The essence of tomography consists in the fact that during the examination the patient is in a stationary state, and the X-ray tube and cassette with film move in opposite directions. With the help of tomography, you can get an image of the area being studied at a certain depth. The method is indispensable when examining the pathology of the temporomandibular joint and other areas of the head and neck. Tomograms can be obtained in three projections: sagittal, frontal and axial. Research is carried out layer by layer with a "step" of 0.5-1 cm.

Computed tomography. The method makes it possible to reveal the position, shape, size and structure of various organs, to determine their topographical-anatomical relationship with the organs and tissues located nearby. The method is based on computer processing of information that comes from the surveyed areas. The machine spatially determines the location of areas that absorb X-rays in different ways. As a result, a synthetic image of the area being examined is displayed on the

monitor. The resulting image is not a direct X-ray or tomogram, but is a synthesized image compiled by a computer based on an analysis of the degree of tissue absorption of X-rays at individual points. The method of computer tomography is very valuable in the case of examination of the upper jaw.

Radiography with the use of contrast agents.In dentistry, the method is used during sialography, examination of the ducts of the salivary glands, which are filled with iodine-containing preparations.

ABSOLUTE STRENGTH OF MASTICATORY MUSCLES, MASTICATORY PRESSURE AND METHODS OF THEIR DETERMINATION

Before characterizing the methods of determining the absolute force of masticatory muscles and masticatory pressure, it is necessary to define these terms.

Absolute chewing force in physiology, they call the force that the chewing muscles can develop under the condition of maximum contraction.

Chewing pressure (according to Gelman) is that part of the masticatory force that can be realized in some part of the dento-maxillary system.

The absolute strength of the masticatory muscles, according to Weber, equals an average of 390-400 kg. According to Weber, a muscle in a cross section of 1 cm² can develop a force during its contraction of 10 kg. The physiological diameter of all three pairs of masticatory muscles that raise the lower jaw is 39 cm²

(*m. temporalis* - 8 cm², *m. masseter* = 7.5 cm², *m. pterygoideus medialis* = 6 cm²). The given absolute numbers have been repeatedly questioned, because the masticatory muscles contain fibers placed at an angle to each other, that is, we are not talking about an arithmetic sum, but about the sum of net forces that are directed at an angle to each other.

STATIC METHODS OF DETERMINING CHewing EFFICIENCY

The essence of the concepts of absolute force of masticatory muscles and masticatory pressure is described above. It is necessary to dwell on the concept «masticatory efficiency». The result of the masticatory apparatus per unit of time, which is expressed as a percentage, is called masticatory efficiency. Chewing efficiency is measured as a percentage of the efficiency of the intact dentition-maxillary system, which is taken as 100.

Many scientists began to work on determining constant values for calculating the chewing pressure of individual teeth. The basis of the calculations was the chewing pressure of the weakest tooth of the maxillofacial system — the lateral incisor. In addition, the size of the chewing and cutting surfaces, the number of roots, the thickness and length of these roots, the number of tubercles, etc., were taken into account.

M.I. Agapov (1927) took into account all these indicators, taking the masticatory efficiency of the entire apparatus as 100%, and calculated the masticatory pressure of each tooth in percent, thereby obtaining the masticatory efficiency by adding the masticatory coefficients of all teeth.

FUNCTIONAL METHODS OF DETERMINING MASTICATORY EFFICIENCY

The performance of the main function of the masticatory system depends on a number of factors — the presence of teeth, the number of opposing tooth pairs, caries

damage, the state of periodontal tissues and masticatory muscles, nerve-reflex connections, the composition of saliva, the amount and consistency of food, and is expressed by chewing efficiency.

Chewing samples. Dynamic methods are necessary for a reliable assessment of the functional capacity of the chewing apparatus, which would take into account the state of all its elements and all movements of the lower jaw.

Chewing test according to Christiansen. Christiansen in 1923 made the first attempt to study the masticatory efficiency of the maxillofacial system, the essence of which is reduced to chewing three identical cylinders cut from a coconut.

After 50 chewing movements, the patient spits out the ground nuts into the tray. They are washed, dried at a temperature of 100 °C for 1 hour and sifted through sieves with holes of different diameters. Based on the number of nut particles that do not pass through the sieves, a conclusion is drawn about the chewing efficiency.

Gelman's chewing test. In 1932, S.E. Gelman modified the Christiansen chewing test. According to Gelman's method, chewing efficiency is determined by time, namely, 50 seconds are given to the patient to chew 5 almond kernels.

After 50 s. he spits out the chewed almonds into a prepared cup, rinses his mouth with boiled water. Add 8-10 drops of 5% brine solution to the same cup and filter through gauze napkins. The remains of almonds on napkins are placed in a water bath for drying, after which the dried particles are removed from the napkin and sifted through sieves. If there is a residue in the sieve, it is weighed and, using a proportion, the percentage of chewing efficiency violation is determined, that is, the determination of the residue to the entire mass of the chewing sample.

Chewing test according to Rubinov. The test proposed by I.S. Rubinov (1957) is also called a physiological chewing test, since chewing is continued until the swallowing reflex appears. According to the method of I. S. Rubinov, chewing efficiency is judged by the time it takes to chew 0.8 g of hazelnut. The proposed technique does not have the disadvantages inherent in Christiansen's and Gelman's tests.

GRAPHIC METHODS OF REGISTERING THE MOVEMENTS OF THE LOWER JAW AND THE FUNCTIONAL STATE OF THE MASTICATORY MUSCLES

The study of graphic records of the movements of the lower jaw and its biomechanics became possible thanks to fundamental research using mastication and electromyography.

Mastication. Mastication is a graphic method of recording reflex movements of the lower jaw (from the Greek *masticatio* - chewing, *grapho* - writing).

Electromyography is a method of functional research of the muscle system, which allows to graphically register their biopotentials. Registration of biopotentials allows you to determine the state and functionality of various tissues.

For these needs, a multi-channel electromyograph and special sensors - skin electrodes are used. Electromyography is performed to study the activity of the perioral muscles, in case of suspicion of a disease of the temporomandibular joint, etc.

DIAGNOSIS

After the examination of the patient, based on the obtained data, a diagnosis is formulated, which reflects both morphological and functional disorders that occurred in the maxillofacial system.

Diagnosis in orthopedic dentistry has its own characteristics, which are that the main disease for which the patient consults a doctor is usually a consequence of other diseases, such as caries, periodontal tissue diseases, injuries, etc. The essence of the diagnosis is a violation of the integrity or shape of the teeth, dental rows or other organs of the dental and jaw system and their function. Additionally, data on complications of the condition and associated diseases are entered. When formulating a diagnosis, it is necessary to show the cause of the disease, i.e. etiology and pathogenesis, to give an idea of the patho-anatomical basis and localization, to indicate the degree and nature of functional disorders, to specify the features of the course and form of the disease. Therefore, the diagnosis should consist of two parts: 1) the main disease and its complications; 2) concomitant diseases — dental and general. The question arises: which disease is considered the main one? The majority of clinicians recommend that the disease that can lead to loss of work capacity, health and life, which prompted the patient to turn to the doctor at the present time and to the treatment of which the main attention is directed, is considered the main one.

The main diseases include those that can be treated with orthopedic methods, and the complications are those that are pathogenetically related to the main disease.

4. Summary of results:

- Patient examination algorithm in orthopedic dentistry.
- Basic clinical methods of examination of dental patients.
- Functional and graphical methods of studying air pollution.
- Laboratory-instrumental methods of research of SHLD.
- A method of describing a target radiograph.
- Types of lesions of the dental and jaw system, which are subject to orthopedic treatment.
- Peculiarities of diagnosis in the clinic of orthopedic dentistry.
- Drawing up an orthopedic treatment plan and studying methods of preparing the patient for prosthetics.
- Rules for filling out medical history.
- Quality assessment criteria, orthopedic structures.

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

Main:

1. Orthopedic dentistry: textbook / M.M. Rozhko, V.P. Nespryadko, I.V. Paliichuk and others.
2. M.M. Rozhko, V.P. Nespryadko, I.V. Paliychuk et al. Prosthetic technique: textbook - Kyiv, "Knyga-plus", 2016. - 604 p.
3. Ishchenko P.V., Klyomin V.A., Kachalov R.H., Likhota A.M. Military orthopedic stomatology. - K.: Medical University "Medicine". -2018. -312 p.

4. Hasyuk P.A., Kostenko E.Ya., Shcherba V.V., Savchyn V.Ya. Prosthetics for complete loss of teeth. – Uzhhorod, 2013. Zakarpattia publishing house. - 222 p.

Additional:

1. Dentistry: in 2 books. — Book 1: textbook (University III-IV years) / M.M. Rozhko, Z.B. Popovych, V.D. Kuroyedova .. -K.: VSV "Medicine", 2012. - 872 p.
2. Chulak L.D., Shuturminskyi V.G. Clinical and laboratory stages of manufacturing dental prostheses. Odesa. Odesa honey. University, 2009, 318 p
3. Makeev V.F., Stupnytskyi R.M. Theoretical foundations of orthopedic stomatology (educational manual). –Lviv: LNMU named after Danylo Halytskyi, 2010, -394 p.
4. Flis P.S., Bannyk T.M. Technique of manufacturing removable prostheses.-K.: Medicine. - 2008. - 254.
5. Gitlan E.M., Krot M.K. Manual on bygel prosthetics. - K.: Zdorovya, 2001. - 140p.
6. Humetskyi R.A., Rozhko M.M., Zavadka O.E., Skrypnikov P.M. Complications of local anesthesia in the maxillofacial region: Manual in 3 volumes - Lviv: Ivano-Frankivsk: Poltava: Nautilus Publishing House, 2002. - 231 p.
7. Korol M.D., Korobeynikov L.S., Kindiy D.D., Yarkovy V.V. Ojubeiska O.D. Tactics of curation of patients in the clinic of orthopedic dentistry. Poltava: Astraya, 2003 – 52 p.
8. Nidzelskyi M.Ya. Mechanisms of adaptation to dental prostheses. – Poltava: Techservice Company LLC, 2003. – 116 p.
9. Bida V.I. Replacement of dentition defects with fixed denture structures. Lecture. - Kyiv, 2001. - 26 p.

Electronic information resources

1. State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>
2. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
3. National Library of Ukraine named after V.I. Vernadskyi <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 3

Topic: Indications and clinical and laboratory stages of manufacturing various types of fixed prostheses.

Goal: Acquaint applicants with the indications and clinical and laboratory stages of making tabs. Indications and clinical and laboratory stages of manufacturing pin structures. Indications and clinical and laboratory stages of manufacturing stamped metal, plastic and combined crowns. Indications and clinical and laboratory stages of production of solid-cast, metal-plastic and metal-ceramic crowns. Indications and clinical and laboratory stages of manufacturing stamped-soldered bridge-like

prostheses. Indications and clinical and laboratory stages of production of one-piece, metal-plastic and metal-ceramic bridge prostheses.

Basic concepts: pin structures, crowns, bridge-like prostheses

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 fixed structures

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

Tab called fixed orthopedic structures designed to restore the aesthetic, anatomical and functional integrity of tooth crowns by replacing hard tissue defects. Tabs are used in cases where the seal is ineffective and the production of an artificial crown is premature.

The first definition of the term "Inlay" is presented in French as "blokmetaliguecoule" - cast metal block.

Later, in the USA and other English-speaking countries, the term "inlay" spread, which means "located inside".

In German, this construction is called "gussfulung" - cast seal, insert.

In domestic specialized literature, the term "Tab" is most often used.

Indications for making tabs:

1. To replace defects of hard tissues of vital and devitalized teeth, which arose as a result of the carious process, non-carious lesions, injuries and pathological wear.

2. Opposite prosthetics of antagonistic teeth of the masticatory group with metal inserts allows to stabilize and prevent a decrease in the interalveolar height in the case of generalized pathological wear of the hard tissues of the teeth.

3. Inlays with overlapping ridges (overlay) can be an organ-preserving alternative to the use of full crowns in the restoration of significant defects of the occlusal surface of the tooth.

4. They are used as supporting elements of adhesive bridge-like prostheses in the prosthetics of included defects of small dentitions.

5. For splinting movable teeth as insert (beam) splints.

Contraindications to making tabs:

1. Circular caries.

2. Medial-occlusal-distal cavities in combination with cervical caries or a wedge-shaped defect.

3. Persons who have increased acidity of gastric juice.

4. In persons who work in acid shops of harmful enterprises.

5. The presence of changes in the apical periodontium in depulped teeth.

General clinical and laboratory stages of making tabs

When making tabs from different materials, the clinical and laboratory stages can differ significantly both qualitatively and quantitatively, which is due to the peculiarities of the technological process.

The basic clinical and laboratory stages are considered on the example of the production of a cast metal insert by the indirect method.

Artificial crown- a removable orthopedic construction that covers the clinical crown of a natural tooth and restores its anatomical shape, size and function.

Classification of artificial crowns

1. Purpose: - restorative - used to restore the anatomical shape of natural teeth; - supporting - used for resistance-like prostheses; - fixing - for fixing temporary and permanent appliances and prostheses (partial removable plate, buckle prostheses or special appliances (orthodontic, maxillofacial, etc.).

2. By construction: - full - covering the entire surface of the clinical crown of the tooth (including hip crowns, pin crowns and telescopic crowns); - cover only part of the clinical crown of the tooth (half-crowns, three-quarter crowns, equatorial crowns).

3. Production method: - stamped; - cast (seamless); - milled; - soldered (sewn).

4. Material: - metal (gold, steel, silver-palladium, etc.); - non-metallic (plastic, photopolymer, porcelain); - combined (metal + plastic, metal + photopolymer, metal + porcelain).

5. Duration of action: - temporary - to protect the repaired teeth from the influence of the external environment, prevent the development of inflammatory changes in the pulp, retain medicinal substances and fix various devices for the period of carrying out special preparatory measures before prosthetics); - permanent - used for resistance-like prostheses or covering of abutment teeth before making a partial removable prosthesis with staple fixation).

General indications for the manufacture of artificial crowns:

1. To restore the anatomical shape and color of the crowns of natural teeth, disturbed as a result of various pathological conditions: congenital (hereditary lesions of the hard tissues of the teeth, increased wear, anomalies of the shape, color and position of the teeth) or acquired (caries and its complications, trauma, wedge-shaped defects, increased wear, changes in color after fillings).

2. As supporting elements of prostheses (when using bridge-like prostheses, removable prostheses with a beam attachment, removable and non-removable prostheses with a lock attachment on a supporting crown of the Poitachman type, as well as for creating a bed for an occlusive overlay in an artificial crown).

3. For fixation of prostheses and various medical devices (improving the fixation of prostheses is achieved by keeping a more pronounced equator of the tooth on the artificial crown).

4. Prior to orthopedic treatment of periodontal diseases - for the construction of splints consisting of several artificial crowns.

5. In the case of deformation of the dental rows, when the teeth have shifted after shortening or correcting the shape, it is necessary to cover them with artificial crowns.

General contraindications for the manufacture of artificial crowns:

1. The presence of untreated foci of chronic inflammation in the marginal or apical periodontium in the cavities of teeth.
2. Significant mobility of teeth.
3. Covering intact teeth with crowns, if this is not related to the structural features of dental prostheses.
4. Diseases of the cardiovascular system in the stage of exacerbation.
5. Mental diseases and diseases of the nervous system in the period of exacerbation.

Pin designs

Indications for the use of pin structures is the complete destruction of the natural crowns of the teeth while preserving the root part of the tooth suitable for prosthetics.

In order to determine the degree of destruction of the occlusal surface of chewing teeth with I-II class defects and the choice of the prosthesis design, the index of destruction of the occlusal surface of chewing teeth - IROPZ, proposed by V.Yu. Milikevich (1984). The index is the ratio of the dimensions of the cavity area to the chewing surface of the tooth. The entire area of the occlusal surface of the lower teeth is accepted as a unit. The destruction index (surface area of the cavity) is calculated relative to the unit (of the entire occlusion surface):

If the IROPZ is less than 0.55, therapeutic treatment of the teeth by filling is recommended.

With an IROPZ of 0.55 - 0.6, i.e., the destruction of the surface of the bottom is more than 50%, in order to prevent further destruction, the application of the tab is indicated.

At IROPZ 0.6-0.8, filling and application of artificial crowns are indicated.

With an IROPZ of 0.8, the manufacture of pin structures is indicated.

Indications for the application of pin structures:

- replacement of defects of upper frontal teeth, as well as upper and lower premolars (provided that the root canals of the upper first premolar are parallel);
- when placing the front teeth outside the arch with preliminary depulping and tooth preparation to the level necessary for this design;
- pin tooth as a resistance-like prosthesis;
- pin constructions for splinting teeth in case of periodontal tissue disease;
- a pin-shaped insert with subsequent production of a crown; - pins for replanted teeth.

When preparing any pin structure, it is necessary to prepare the gingival part below the root canal expansion. Preparation is carried out using fissure and semi-flame-like burs. In order to ensure the reliability of the pin restoration and the prevention of secondary caries, the preparation is carried out to healthy tissues.

Selection of pin construction depends on the position of the periodontal tissue roots, namely:

- the root must be equal to the height in order to protrude above it;
- the circular bond of the mouth must be preserved;
- root-resistant in the hole;
- the root canal must be covered with filling material to the tip;

- the preserved gingival crown part of the tooth should not interfere with the removal of wax reproduction or impression material;
- absence of pathological changes in periapical and surrounding tissues;
- root canal 2/3 of its length must be straight
- the thickness of the walls of the root canal should not be less than 1.5 mm. Pin requirements:

1. The length of the pin part of the structure should be equal to 1/2 to 2/3 of the length of the root,
2. The internal root part of the pin tooth should be slightly longer or equal to its supra-root part.

Classification of pin structures

1. Pin constructions, in which the supra-rooted part only adheres to the stump of the tooth: - plastic pin tooth; - standard pin construction (Logan) - soldered pin tooth; - cast pin tooth.

2. Pin teeth, in which the mouth of the root canal is covered with an inlay: - for Ilyina - Markosyan; - by Citrine; - pin-and-stick insert; - according to Steinberg; - according to Konstantinov.

3. Pin constructions that hermetically close the stump of the tooth not only with a root plate, but with an additional ring or half-ring: - according to Richmond; - by Katsom; - according to Akhmedov; - ZaSharova with co-authors; - by Orton.

A bridge-like prosthesis called, as a rule, a non-removable orthopedic construction, which replaces small inclusions of defects of the dentition and restores functioning, speech and aesthetic optimum.

The structure consists of supporting elements and an intermediate part (body). Supporting elements can be half-crowns, equatorial crowns, crowns, tabs, pin teeth, supporting and holding clamps, attachments. Different supporting elements can be combined in one bridge-like prosthesis, depending on the specific clinical situation. The bridge-like prosthesis, due to its dimensions, does not go beyond the tooth row, relies on the natural teeth and transmits chewing pressure to the periodontal supporting teeth, the function of which, in turn, is regulated by the periodontal-muscular reflex.

The positive features of the construction include complete preservation of speech, tactile tape sensitivity, reliable fixation and stabilization, and preservation of conditions for normal thermoregulation of the oral cavity. Due to the use of modern materials and technologies, it fully satisfies aesthetic requirements and restores the full value of user efficiency. The process of adaptation to such a prosthesis takes place within 2 to 10 days.

Despite a number of positive properties, the bridge-like construction has certain negative features, among which are: the need for deep preparation of hard tissue-bearing teeth, their potential functional overload in the future, and the harmful effect of marginal periodontal disease is also possible. When using a stamped-soldered, non-similar design, there is no possibility of yellowing, and there is an allergy to galvanization. In addition to prosthetics of partial defects of dental rows, bridge-like prostheses are also used in other pathological conditions of the maxillofacial system.

Classification of bridge-like prostheses

1. Materials of manufacture: - metal; - plastic; - combined.
2. The method of connecting the prosthesis body with supporting elements: - stamped-soldered; - welded; - joining with the help of flow casting; - solid cast.
3. By construction of the intermediate part: - hanging (washable); - saddle-shaped; - tangents.
4. For the construction of the supporting part: - on the crowns; - linings; - on combined crowns; - on equatorial crowns; - semi-crowns; - on pin teeth; - naklamerakh; - on lock fasteners.
5. Depending on fixation: - non-removable; - removable; - adhesive; - collapsible.
6. Number of support elements: - with two-sided support; - with one-sided support (cantilever); - polygonal.

Indications for the manufacture of bridge-like prostheses:

The presence of small and medium defects of the tooth row, limited by teeth on both sides (defect of the tooth row of class II according to Betelman, class III and IV according to Kennedy), is a condition that the coupling coefficients of supporting teeth should be greater than or equal to the coupling coefficients of artificial (missing) teeth.

Contraindications to the use of bone-like prostheses:

1. Dentition defect of class I according to Betelman, class I and II according to Kennedy.
2. Large defects limited to teeth with different functional orientation.
3. Defects, distally limited by a tooth with pathological mobility.
4. Defects limited to teeth with low clinical crowns.
5. The presence of secondary deformations that interfere with the modeling of the bridge-like structure.
6. The presence of chronic inflammatory processes in periodontal tissues of abutment teeth.
7. Presence of marginal gingivitis
8. Unsatisfactory voiding hygiene.

When choosing a structure of a bridge-like prosthesis, it is necessary to take into account biomechanical regularities that affect the nature and amount of chewing pressure transmitted to the body of the structure and its supporting teeth. Since the load distribution mechanism primarily depends on the place of application of the load, the length and width of the body of the prosthesis, the features of its design, it is necessary to adopt the recommendations of E.M. Zhulov (1995), who recommends observing the following principles when designing a bridge-like prosthesis:

1. The supporting elements of the prosthesis and its intermediate parts must be on the same line. The polygonal shape of the intermediate part of the similar prosthesis leads to the transformation of vertical and horizontal loads in the rotary chamber. The load applied to the most protruding part of the body of the bridge-like prosthesis acts as a lever, the value of which is directly dependent on the curvature of the body of the prosthesis. Reducing the curvature of the intermediate part of the prosthesis will contribute to the reduction of the rotational action of the transformed masticatory load.

2. When choosing bearing teeth for a bridge-like prosthesis, it is necessary to avoid the use of teeth with very high clinical crowns, especially if such teeth have a shortened root. At the same time, teeth with very low clinical crowns should not be used, which do not provide an opportunity to reliably connect the abutment and intermediate part of the bridge-like prosthesis, because the area of attachment of the body of the prosthesis to the supporting elements is reduced.

3. The width of the chewing surface of the bridge-like prosthesis should be smaller than the width of the chewing surface of the natural teeth being replaced, which will reduce the load on the abutment teeth.

4. The masticatory load on the abutment tooth is inversely proportional to the distance from the application of the abutment tooth. Thus, the closer the load is applied to the abutment tooth, the greater the pressure is transmitted to this tooth, and vice versa. When designing a bridge-like prosthesis with one-sided support - on the contrary, the farther from the supporting tooth the force is applied, the greater the load on this tooth.

5. It is necessary to observe the principle of contact points between the supporting elements of a tooth-like prosthesis with teeth located next to each other. This procedure allows you to preserve the continuity of the dental arch and contributes to a more even distribution of pressure.

6. A bridge-like prosthesis should not block the movement of the lower jaw, increase the height of the bite due to supercontacts, lower it if the height of the bite was fixed before the prosthesis.

7. The bridge-like construction should meet the maximum aesthetic requirements, for which it is necessary to provide for the possibility of cosmetic cladding.

4. Summary of results:

- Indications and clinical and laboratory stages of making tabs.
- Indications and clinical and laboratory stages of manufacturing pin structures.
- Indications and clinical and laboratory stages of manufacturing stamped metal, plastic and combined crowns.
- Indications and clinical and laboratory stages of production of one-piece, metal-plastic and metal-ceramic crowns.
- Indications and clinical and laboratory stages of manufacturing stamped-soldered bridge-like prostheses.
- Indications and clinical and laboratory stages of production of one-piece, metal-plastic and metal-ceramic bridge prostheses.

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

Main:

5. Orthopedic dentistry: textbook / M.M. Rozhko, V.P. Nespryadko, I.V. Paliichuk and others.
6. M.M. Rozhko, V.P. Nespryadko, I.V. Paliychuk et al. Prosthetic technique: textbook - Kyiv, "Knyga-plus", 2016. - 604 p.

7. Ishchenko P.V., Klyomin V.A., Kachalov R.H., Likhota A.M. Military orthopedic stomatology. - K.: Medical University "Medicine". -2018. -312 p.
8. Hasyuk P.A., Kostenko E.Ya., Shcherba V.V., Savchyn V.Ya. Prosthetics for complete loss of teeth. – Uzhhorod, 2013. Zakarpattia publishing house. - 222 p.

Additional:

10. Dentistry: in 2 books. — Book 1: textbook (University III-IV years) / M.M. Rozhko, Z.B. Popovych, V.D. Kuroyedova .. -K.: VSV "Medicine", 2012. - 872 p.
11. Chulak L.D., Shuturminskyi V.G. Clinical and laboratory stages of manufacturing dental prostheses. Odesa. Odesa honey. University, 2009, 318 p
12. Makeev V.F., Stupnytskyi R.M. Theoretical foundations of orthopedic stomatology (educational manual). –Lviv: LNMU named after Danylo Halytskyi, 2010, -394 p.
13. Flis P.S., Bannyk T.M. Technique of manufacturing removable prostheses.-K.: Medicine. - 2008. - 254.
14. Gitlan E.M., Krot M.K. Manual on bygel prosthetics. - K.: Zdorovya, 2001. - 140p.
15. Humetskyi R.A., Rozhko M.M., Zavadka O.E., Skrypnykov P.M. Complications of local anesthesia in the maxillofacial region: Manual in 3 volumes - Lviv: Ivano-Frankivsk: Poltava: Nautilus Publishing House, 2002. - 231 p.
16. Korol M.D., Korobeynikov L.S., Kindiy D.D., Yarkovy V.V. Ojubeiska O.D. Tactics of curation of patients in the clinic of orthopedic dentistry. Poltava: Astraya, 2003 – 52 p.
17. Nidzelskyi M.Ya. Mechanisms of adaptation to dental prostheses. – Poltava: Techservice Company LLC, 2003. – 116 p.
18. Bida V.I. Replacement of dentition defects with fixed denture structures. Lecture. - Kyiv, 2001. - 26 p.

Electronic information resources

4. State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>
5. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
6. National Library of Ukraine named after V.I. Vernadskyi <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 4

Topic: Indications and clinical and laboratory stages of manufacturing various types of partial removable prostheses.

Goal:To acquaint applicants with the indications and choice of construction of partial removable prostheses. Selection of supporting teeth. Methods of fixing partial removable prostheses. Clinical and laboratory stages of manufacturing partial removable lamellar prostheses. Clinical and laboratory stages of the production of

brace prostheses. Clinical and laboratory stages of manufacturing acrylic-free partial removable plate prostheses. Clinical and laboratory stages of manufacturing removable prostheses with locking fasteners. Indications and clinical and laboratory stages of manufacturing immediate prostheses. Methods of repairing partial removable prostheses.

Basic concepts:partial removable prosthesis, fixed prosthesis, immediate 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:

- Types of partial removable prostheses.
- Types of fixed removable prostheses

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

Despite the variety of clinical situations and factors (position and size of the defect, the number of remaining teeth, the condition of the mucous membrane of the denture bed, the degree of preservation of cellular processes, the severity of the hard palate and other anatomical features), partial removable plate prostheses have elements that are repeated in all similar designs. These include the base, retaining elements, and artificial teeth.

Indications for the preparation of the CZPPthere are partial defects of dental rows of various etiology and topography. A feature of the biomechanics of this design is that the chewing pressure from the artificial teeth is transmitted through the prosthesis to the mucous membrane of the prosthetic bed.

General medical contraindications create certain restrictions on the use of plastic bases.

Such contraindications include:

- allergy to plastic;
- bruxism;
- epilepsy;
- unfavorable anatomical features of the tissues of the prosthetic bed;
- peculiarities of the profession.

The choice of using the metal base of the CZPP is made in the case of:

- repeated previous breakdowns of plastic structures;
- multiple inclusions and large defects of tooth rows;
- deep bite, complicated by a decrease in the intercellular height.

It should be noted that the metal base occupies a relatively smaller volume of the oral cavity, which contributes to the improvement of the chewing and speaking processes.

Bügel prosthesis

A special place among all removable constructions is occupied by a brace prosthesis. The character of the transmission of chewing pressure, the effect on the periodontal tissue and prosthetic bed, the restoration of chewing efficiency, the system and method of fixation on the abutment teeth - all this makes the Bügel construction unique in its kind.

Determination of indications for the use of braced prostheses take into account the following factors:

- the number of teeth in the dental row should not be less than 6-8, it is important, moreover, not only the number of teeth, but also their placement;
- absence of foci of pathological processes in the periapical tissue of supporting teeth;
- sufficient height and a well-defined equator of the crown of the canine teeth;
- the presence of well-expressed fissure-porous teeth;
- mobility of supporting teeth;
- bite character;
- the elasticity of the mucous membrane of the cellular process in the area of missing teeth;
- the size and characteristics of the atrophy of cellular appendages;
- previous experience of using removable structures; Contraindications to the use of braces are:
 - high attachment of the bridle of the tongue, which interferes with the placement of the bugle arch;
 - low clinical crowns of teeth;
 - deep or deep traumatic bite;
 - significant atrophy of the cellular upper process in combination with a flat palate;
 - insufficient number of supporting teeth;
 - diseases of periodontal tissues and pathological mobility of abutment teeth.

The general condition of the patient's body (presence of general somatic diseases) must be taken into account when determining the indications and contraindications for hip prosthesis.

The main difference of this design of a partial removable plate prosthesis is the presence of a metal frame that combines the arch, saddle and supporting and retaining elements. The arch is one of the main elements of the arch prosthesis, which connects the individual parts of the structure into a single one and performs stabilizing and supporting functions. The dimensions and position of the arch depend on the jaw on which the prosthesis is performed, the localization of defects in the dentition, the shape and depth of the palatal vault, the shape of the cellular process, and the degree of anatomical retention.

In addition to the above-mentioned elements, the design may provide for the presence of elements of connection and fixation, leveling elements and elements that resist the shift and reset of the structure.

The connecting elements perform the function of fixing the removable brace construction to the natural teeth. According to the method of connection with the base

of the bulging prosthesis, the fixing elements can be rigid, semi-movable (elastic) and movable (hinged).

Leveling elements perform the function of combining individual parts of the prosthesis into a single structure, ensure redistribution of mechanical load and ensure comfortable conditions for using the prosthesis. These elements include saddles, lingual, palatal, and vestibular arches.

The elements that prevent the prosthesis from shifting perform the function of counteraction in the horizontal plane against possible displacement of the brace prosthesis in the anterior-posterior or lateral directions.

Such elements include the fixing elements of the construction. In addition, in the case of periodontal periodontal tissue disease, splinting elements (claw-like hooks, continuous multi-link clasps, Elbrecht splint, etc.) may be included in the composition of the dental prosthesis. Crowns and bridge-like prostheses are mediating elements - safeguards against possible displacement of the stirrup structure.

Among the elements that stand in the way of the arbitrary reset of the brace prosthesis, it is possible to conventionally refer to the almost ossifying elements. The main condition for its anti-throwing action is peripheral location, as far as possible from the axis of rotation of the prosthesis. An example of this can be independent occlusive pads and a reverse action clasp.

Indirect fixators (keep-minders), located on the periphery of the structure in such a way that they do not fall in the direction of action from the axis of rotation of the prosthesis, prevent spontaneous overturning of the structure. Similar structures include occlusive overlays, appendages, and continuous staples.

4. Summary of results:

- Indications and selection of the construction of partial removable prostheses.
- Selection of supporting teeth. Methods of fixing partial removable prostheses.
- Clinical and laboratory stages of manufacturing partial removable lamellar prostheses.
- Clinical and laboratory stages of the production of brace prostheses.
- Clinical and laboratory stages of manufacturing acrylic-free partial removable plate prostheses.
- Clinical and laboratory stages of manufacturing removable prostheses with locking fasteners.
- Indications and clinical and laboratory stages of manufacturing immediate prostheses.
- Methods of repairing partial removable prostheses.

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

Main:

9. Orthopedic dentistry: textbook / M.M. Rozhko, V.P. Nespryadko, I.V. Paliichuk and others.
10. M.M. Rozhko, V.P. Nespryadko, I.V. Paliychuk et al. Prosthetic technique: textbook - Kyiv, "Knyga-plus", 2016. - 604 p.
11. Ishchenko P.V., Klyomin V.A., Kachalov R.H., Likhota A.M. Military orthopedic stomatology. - K.: Medical University "Medicine". -2018. -312 p.
12. Hasyuk P.A., Kostenko E.Ya., Shcherba V.V., Savchyn V.Ya. Prosthetics for complete loss of teeth. – Uzhhorod, 2013. Zakarpattia publishing house. - 222 p.

Additional:

19. Dentistry: in 2 books. — Book 1: textbook (University III-IV years) / M.M. Rozhko, Z.B. Popovych, V.D. Kuroyedova .. -K.: VSV "Medicine", 2012. - 872 p.
20. Chulak L.D., Shuturminskyi V.G. Clinical and laboratory stages of manufacturing dental prostheses. Odesa. Odesa honey. University, 2009, 318 p
21. Makeev V.F., Stupnytskyi R.M. Theoretical foundations of orthopedic stomatology (educational manual). –Lviv: LNMU named after Danylo Halytskyi, 2010, -394 p.
22. Flis P.S., Bannyk T.M. Technique of manufacturing removable prostheses.-K.: Medicine. - 2008. - 254.
23. Gitlan E.M., Krot M.K. Manual on bygel prosthetics. - K.: Zdorovya, 2001. - 140p.
24. Humetskyi R.A., Rozhko M.M., Zavadka O.E., Skrypnikov P.M. Complications of local anesthesia in the maxillofacial region: Manual in 3 volumes - Lviv: Ivano-Frankivsk: Poltava: Nautilus Publishing House, 2002. - 231 p.
25. Korol M.D., Korobeynikov L.S., Kindiy D.D., Yarkovy V.V. Ojubeiska O.D. Tactics of curation of patients in the clinic of orthopedic dentistry. Poltava: Astraya, 2003 – 52 p.
26. Nidzelskyi M.Ya. Mechanisms of adaptation to dental prostheses. – Poltava: Techservice Company LLC, 2003. – 116 p.
27. Bida V.I. Replacement of dentition defects with fixed denture structures. Lecture. - Kyiv, 2001. - 26 p.

Electronic information resources

7. State Expert Center of the Ministry of Health of Ukraine <http://www.dec.gov.ua/index.php/ua/>
8. National Scientific Medical Library of Ukraine <http://library.gov.ua/>
9. National Library of Ukraine named after V.I. Vernadskyi <http://www.nbuv.gov.ua/>

PRACTICAL LESSON No. 5

Topic: Clinical and laboratory stages of manufacturing complete removable prostheses. The influence of the bases of lamellar prostheses on the tissues of the oral cavity.

Goal: Acquaint applicants with the clinical and laboratory stages of manufacturing complete removable prostheses. Methods of manufacturing complete removable prostheses. The concept of fixation, stabilization and equilibrium of the PZP. Fixation methods (mechanical, biomechanical, physical and biophysical) of PZP. Principles of correction. PZP repair methods. Causes of PZP failure. Etiology, clinic of diseases of the mucous membrane of the oral cavity arising under the influence of removable prostheses, classification of prosthetic stomatitis, Z.S. Vasylenko. and Gavrilova E.H. The principles of differential diagnosis and treatment of diseases of the mucous membrane of the oral cavity arising under the influence of complete removable prostheses.

Basic concepts: complete denture, fixation, stabilization, balance, adaptation, stomatitis.

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 complete removable prostheses.
- Allergy
- Adaptation

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

The most common causes of complete tooth loss are caries and its complications, periodontal disease, trauma and other diseases. As a result, the lack of functional load on the underlying tissue deepens functional disorders, and also contributes to the acceleration of atrophy of the facial skeleton and any tissues that cover it. That is why prosthetics of toothless jaws with full removable plate prostheses is a method of restorative treatment, which is worth preventing further atrophy.

The height of the alveolar process, its shape, relief, the steepness of the vestibular slope, the prominence of the alveolar humps of the upper jaw, the depth of the hard palate, the presence of a torus, the prominence of the maxillo-hyoid lines, and the height of the attachment of the bridles and ligaments are of great importance for the fixation of the edentulous jaw prosthesis. The area of the prosthetic bed and supporting 94 properties are directly dependent on the degree of volume preservation and the height of the alveolar process.

Treatment of complete adentity is carried out by prosthetics with complete removable plate prostheses consisting of a base and artificial teeth. Materials for the

manufacture of the base can be: plastics, nylon, cobalt-chromium alloy in a possible combination with plastic, ceramic or metal beautiful teeth.

The tissues of the prosthetic bed are the first to react to the action of the bases of the prostheses, because the mucous membrane is not adapted to the transmission of chewing pressure, self-cleaning, etc. Allocate:

- side,
- toxic
- traumatic effect of the base of the prosthesis.

Lateral the action of a removable prosthesis consists in: the transmission of chewing pressure on the tissues of the prosthetic bed, which is an inadequate stimulus for the mucous membrane, in the violation of self-cleaning, thermoregulation, speech, taste perception. The "greenhouse effect" should be attributed to the results of the side effect.

The "greenhouse effect" is a consequence of the side effect of the removable plastic base as a result of a violation of thermoregulation of the mucous membrane of the oral cavity. The mechanism of occurrence of this phenomenon has the following explanation.

Acrylic plastics have poor thermal conductivity. For this reason, a higher temperature occurs under the plastic base than in the oral cavity, which is close to the temperature of the human body. The phenomenon of a thermostat appears, which is an ideal condition for the reproduction of microorganisms and fungal microflora. The clinical picture of the mucous membrane is manifested by widespread or local hyperemia, and if poor hygienic care of prostheses is added to this, then the condition of the mucous membrane worsens even more.

An alternative in the fight against the "greenhouse effect" is the choice of materials with good thermal conductivity. Therefore, the best bases are metal, but the complexity of their manufacture and, accordingly, the high cost of such a denture nullify this advantage.

Toxic stomatitis is one of the toxic effects of acrylic bases of removable prostheses. They can be of two types. The first is caused by a significant amount of residual monomer that did not enter into the polymerization reaction, the second is caused by toxins released by microorganisms and is observed in case of poor oral hygiene.

The main component of acrylic toxic stomatitis is the monomer. According to its chemical structure, it is a methyl ester of methacrylic acid. In high concentrations, the monomer is a protoplasmic poison. Its effect on the mucous membrane of the oral cavity is extremely negative, and its effect on the whole body is negative. The cause of toxic stomatitis can be the free monomer released during plastic aging, that is, during depolymerization processes.

Another mechanism explains the occurrence of toxic bacterial stomatitis. In the case of poor care of the oral cavity and the bases of removable prostheses, conditions are created for the reproduction of bacterial microflora, and the number of fungal forms increases.

Diagnosis of this condition is quite easy, it is evidenced by the condition of the prostheses - the presence of pores, frequent adjustments, poor polishing. The patient must know the terms of using prostheses and the need to replace them.

The largest group of complications in the case of using complete removable prostheses is associated with inflammation of the mucous membrane of the oral cavity. Inflammation caused by removable prostheses is called prosthetic stomatitis.

Traumatic prosthetic stomatitis is observed often, especially in the first days of using removable prostheses. Traumatic lesions can be detected at the border of the prosthetic bed and the cause of their occurrence is trauma to the mucous membrane by the edge of the prosthesis. The clinical picture in the case of a minor injury can be characterized by inflammation, if the lesion is deep, there are swollen wounds with a bottom that bleeds.

In case of mechanical trauma to the mucous membrane of the tongue or cheeks, most often by the sharp edge of the prosthesis, an ulcer occurs. Patients complain of pain in the affected area, during the examination, an ulcer of various shapes, depths and sizes is revealed. The edges of the wound are usually swollen, the mucous membrane is hyperemic. Eliminating the traumatic factor and prescribing disinfectant rinses and applications gives a good effect.

Acute ulcers quickly disappear if the edges of the prosthesis are corrected; if this is not done, then the acute ulcer turns into a chronic one. The doctor should think about it if the treatment of the ulcer does not bring results within 2 weeks - in this case, the patient should be consulted by an oncologist.

In order to prevent traumatic stomatitis, it is necessary for the doctor to observe the patient until he is convinced that there is no danger of trauma to the mucous membrane and adaptation to complete removable prostheses has occurred.

4. Summary of results:

- Clinical and laboratory stages of manufacturing complete removable prostheses.
- Methods of manufacturing complete removable prostheses.
- The concept of fixation, stabilization and equilibrium of the PZP.
- Fixation methods (mechanical, biomechanical, physical and biophysical) of PZP.
- Principles of correction.
- Methods of repairing PZP.
- Causes of PZP failure.
- Etiology, clinic of diseases of the mucous membrane of the oral cavity arising under the influence of removable prostheses, classification of prosthetic stomatitis Vasylenko Z.S. and Gavrilova E.H.
- Principles of differential diagnosis and treatment of diseases of the mucous membrane of the oral cavity arising under the influence of complete removable prostheses.

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

Main:

13. Orthopedic dentistry: textbook / M.M. Rozhko, V.P. Nespriyadko, I.V. Paliichuk and others.
14. M.M. Rozhko, V.P. Nespriyadko, I.V. Paliychuk et al. Prosthetic technique: textbook - Kyiv, "Knyga-plus", 2016. - 604 p.
15. Ishchenko P.V., Klyomin V.A., Kachalov R.H., Likhota A.M. Military orthopedic stomatology. - K.: Medical University "Medicine". -2018. -312 p.
16. Hasyuk P.A., Kostenko E.Ya., Shcherba V.V., Savchyn V.Ya. Prosthetics for complete loss of teeth. – Uzhhorod, 2013. Zakarpattia publishing house. - 222 p.

Additional:

28. Dentistry: in 2 books. — Book 1: textbook (University III-IV years) / M.M. Rozhko, Z.B. Popovych, V.D. Kuroyedova .. -K.: VSV "Medicine", 2012. - 872 p.
29. Chulak L.D., Shuturminskyi V.G. Clinical and laboratory stages of manufacturing dental prostheses. Odesa. Odesa honey. University, 2009, 318 p
30. Makeev V.F., Stupnytskyi R.M. Theoretical foundations of orthopedic stomatology (educational manual). –Lviv: LNMU named after Danylo Halytskyi, 2010, -394 p.
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