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Aspects of Replacement of Mandibular Defects in Orthopedic Dentistry Using Dentures

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Annotation: The effectiveness of prosthetic methods for restoring mandibular defects is directly dependent on the size and topography of the defect, the number of missing teeth and the condition of the remaining teeth, and the presence and nature of previous reconstructive and restorative surgical treatment. Prosthetics for patients with defects in the alveolar process and mandible with preserved bone continuity may be performed with either removable or fixed prostheses. In clinical cases involving defects up to four teeth in length, bridges with two or more abutments are used at the margins of the defect, with the intermediate portion in the form of a gingival mask made of pink plastic or ceramic and mandated to preserve flush space. Large-area defects are restored with a removable structure featuring a larger artificial gingival size in the alveolar defect area and a supportive retention device splinted to the remaining teeth.

Materials and Methods: In the case of improperly connected fractures of the mandible, a double row of dentures is fabricated with a reduced volume of the lingual base, especially in small fragments of the mandible, in order to align the occlusal plane. In this case, the dentition is often narrowed and the oral volume is reduced, thus improving conditions for tongue function and speech rehabilitation. Orthognathic treatment of patients with mandibular defects associated with maxillary soft tissue scarring changes presents special difficulties. In this situation, the problem of convenience of preliminary surgical procedures using orthopedic plastic instruments to form an optimal prosthetic floor, deepen the oral vestibule, and remove scar tissue is solved. Under microstomy conditions, partial impressions are taken separately of the left and right sides of the mandible, and plaster casts and corresponding base parts with clasps are fabricated and placed alternately in the mouth. Then, an impression is taken of the frontal region, a plaster model of the entire jaw is made, and the base parts are joined with acrylic plastic according to the type of denture repair. The boundaries of the denture are shortened, scar tissue is bypassed, the height of the prosthesis is lowered, and hinges and locks are used to make the denture collapsible so that the structure can be easily moved in and out of the oral cavity, according to A.S. Scherbakov, in the clinical situation of a combination of olstomia and complete edentulism, folding dentures are unacceptable. The author recommends the use of removable prostheses with a narrow dental arch, flat prosthesis, short basal margins, and ease of loading and unloading into the mouth. After reconstructive surgery of the mandible, the condition of the denture base is difficult, characterized by insufficient or complete absence of volume in the alveolar portion, the oral vestibule, and the presence of numerous longitudinal mucocutaneous junctions and bony projections. Alveolar bone prostheses for patients with reconstructed mandibular body and mandibular branch defects should be initiated with direct construction to ensure functional loading of the reconstructed portion of the jaw while maximizing the remaining tooth splint and prosthetic floor area [1]. Contrary to this view, some believe that prosthetic treatment should begin 2 to 3 months after surgery with the fabrication of a hollow two-layer prosthesis with an expanded base. Once the adaptation is complete, the prosthesis should be replaced by a permanent hollow denture with an edge formed of elastic plastic at least 3-5 mm high to distribute the masticatory pressure; data from an experimental study of 41 patients and clinical observations by P.G. Sysolyatin et al. shows the convenience of using nickelated titanium dental implants with permeable porosity in bone reconstruction procedures in free autoplasty and autoplasty of mandibular defects, which can increase the efficiency of orthopedic rehabilitation and improve aesthetic and functional outcomes for patients This can increase the efficiency of orthopedic rehabilitation and improve aesthetic and functional outcomes for patients. Dental implants in regenerated bone formed in place of bone grafts have many peculiarities. The absence of the inferior lunate in the regenerated area allows the implant body to be placed in the entire thickness of the newly formed bone tissue, creating more favorable conditions for implant body function. After bone grafting, there is usually a thicker layer of soft tissue over the regenerated bone, so the supporting head of the implant must be lengthened to accommodate the thickness of the mucosa and soft tissue. Dental implant placement in such patients can only be done after the graft has been completely replaced with newly formed bone tissue. Placing an implant in an "unreconstructed" graft will result in resorption of the donor bone area. The primary treatment for patients with unintegrated mandibular bone fragments is surgical treatment. Alveolar bone prostheses performed prior to reconstruction of the defect are temporary and contribute to the prosthesis of the defect and maintain the fragment in its normal position. A removable prosthesis with a movable connection to the defect is used. A design feature of the prosthesis according to B.R. Weinstein (1948) is the placement on both sawtooth sides of a 10 mm long sleeve with an internal diameter of up to 2 mm connected to them by a spiral spring, which guarantees the mobility of the fragment in all directions [2] I.M. Oxman. For the manufacture of a one- or two-joint joint according to I.M. Oxman opens a cavity with a diameter of 6-8 mm on the lingual side of one or both parts of the prosthesis, 1-2 mm from the notch line, filled with an amalgam and a rod with a spherical thickening at both ends. The prosthesis is fixed in the tissues of the prosthetic bottom and given a functional load for 20-30 minutes. After solidification of the amalgam, a hinge joint is formed taking into account the displacement characteristics of each bone fragment; E.I. Gavrilov proposed a wire hinge in the form of two intersecting loops. By changing the size of the loop, it is possible to adjust the amplitude of the movement of the parts in the desired direction [4]. V.P. Panchokha and co-authors (1970) consider the disadvantage of this technique to be the infringement of the mucous membrane of the bottom of the oral cavity and tongue by the diverging edges of the prosthesis in the defect. To eliminate this phenomenon, the authors recommend connecting the parts of the prosthesis with two hinges of this type at two different levels - 0.5 mm above the lingual edge of the neck of the tooth and the base of the prosthesis. This excludes the rotation of the parts of the structure around the horizontal axis, which is the main traumatic moment According to Z.Ya. Shurr, occlusive prostheses are shown only in cases when fragments move only in the vertical plane, which is a very rare case. This is a very rare case. Horizontal displacement in the lingual plane is more common. B.K. Kostur et al. it is recommended to use conventional removable dentures for fractures of the anterior mandible, which allow the fragment to be displaced both with and

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without a prosthesis due to the design of the functional basal inner surface that relieves pressure at the site of the defect. It is recommended to use conventional removable dentures. If the fracture is limited to the body of the jaw, the protruding part of the molar, especially distal to the second or third molar, then the installation of a removable prosthesis within both fragments is irrational, since a small fragment is displaced medially and upward under the action of muscle traction. In such cases, prostheses are installed only on molars [15]. There are some peculiarities in the manufacture of maxillary prostheses for patients with defects in the body and abutment of the mandible, in which the continuity of bone tissue is disrupted. After resection of the lower jaw, movable fragments are formed. In this situation, in addition to the loss of a large number of teeth, the conditions for muscle traction change, as the coordinated interaction of various muscle groups is disrupted. After resection of the branch, the lower jaw shifts towards the defect due to contraction of the lateral pterygoid muscle and downwards due to contraction of the submandibular control muscle. As a result of the resection of the mandible branch, the contraction of the medial pterygoid muscle shifts the lateral fragment of the mandible in the direction of the defect. In addition, the contraction of the masticatory muscles and the muscles of the bottom of the oral cavity leads to a rotational displacement of the alveolar process inward, and the basal process outward [16]. The severity of masticatory dysfunction depends on the size of the preserved fragments and the nature of the defect of the lower jaw. During resection of the anterior part of the lower jaw, two movable fragments are formed, which are equally involved in the chewing function. When removing half of the lower jaw, the chewing function is disrupted especially strongly, since all the chewing muscles completely stop on one side. Studies of the biomechanics of the mandible in the clinical situation described above have shown that sideways and forward movement to the healthy side is impossible due to dysfunction of the lateral pterygoid muscle on the affected side. The partially compensatory function of these movements is provided by the contraction of the pterygoid and temporal muscles on the intact side, which provide rotational movement of the retained articular head. In cases where the primary elimination of the defect has not been carried out, it is advisable to manufacture an upper jaw prosthesis directly in order to keep the lower jaw in the correct position. The classical method is I.M. Oxman, in which, before the operation, a base is made with a fastener to hold the support, placed in the oral cavity, an impression and a plaster model are made, then, in accordance with the surgical intervention plan, phantom resection is performed to form a replacement part of the prosthesis. After surgery, the prosthesis is fixed intraorally on the operating table [23]. Then hinge splints are installed on the upper and lower jaws to align the occlusal relationships. In some cases, maxillary plates with a palatal inclined surface at an angle of 10-15 ° to the occlusal plane are used to align the interproximal relationships of the dentition rows. In more difficult situations, a two-component wing-shaped prosthesis consisting of the upper and lower jaws is made to support, stabilize and fix the device. The height of the guide wing is determined by the depth of the vestibule of the oral cavity, and the displacement when opening is prevented by hooks in the upper part [18]. The fragments of the lower jaw are constantly affected by large internal forces that overload the lateral supporting teeth, since the guiding wings act as a powerful lever, which leads to pathological mobility. A three-point support with a large transverse arc close to an equilateral triangle, provided by preserved teeth, contributes to the stability of the prosthesis [13, 18]. If

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the teeth are aligned, then to stabilize the prosthesis, you can use a design with a locking mechanism (swing-lock) and use as many buccal and lingual undercuts as possible S. S. H. Nakamura et al. They also noted the vestibular position of the dental arch with this type of prosthetics and pointed out the advantages of the vestibular position of the arch with this type of prosthetics. Orthognathic treatment of patients after removal of the entire body of the jaw or lower jaw is the most difficult, since the prosthesis is not suitable for chewing due to the lack of a bone basis, which leads to unsatisfactory fixation and low functional effectiveness of the prosthesis. Despite this situation, they must be manufactured because they retain food masses in the oral cavity, facilitate the ingestion of liquid food and reduce saliva loss. In such cases, the purpose of direct prosthetics is to restore the contours of the face and speech function. After removing the preoperative casts of the upper and lower jaws, a plaster model is made, the central ratio of the jaws is determined and the model is fixed on the articulator. Then all the teeth of the mandibular model are ground at the level of the alveolar process, a wax base is prepared, and artificial teeth are occluded with the teeth of the maxillary model. Loops of fixing spiral springs are attached to the outer surface of the base. The lower side of the prosthesis is rounded. On the lingual side of the prosthesis, a recess with sublingual protrusions (wings) is formed in the area of the chewing teeth, the tongue is located above the wings to facilitate the fixation of the structure. On both sides of the canines and premolars, inter-jaw retention loops are installed. After surgery, the excision prosthesis is placed in the oral cavity for 2-3 weeks and fixed with rubber rings to the maxillary aluminum wire splint using hook and loop fasteners. After removal of the interdigital attachment, the prosthesis is fixed by the surrounding scar [23]. With multiple or complete absence of maxillary teeth, the mandibular prosthesis is fixed to the maxillary removable prosthesis using a sling bandage (type Z.N. Pomerantseva-Urbanskaya). It should be noted the peculiarities of taking impressions in patients with missing mandible. B.K. Kostur et al. propose to take a preliminary impression of an alginate or hydrocolloid mass without using a spoon in a position close to the state of physiological rest, as when removing occlusive impressions, followed by the production of a plaster model, the formation of a solid base of acrylic plastic, fixing an artificial tooth on it and removing the final impression with a thermoplastic impression mass. The authors propose to take the final impression with a thermoplastic impression block. According to the authors, the absence of a standard spoon in the oral cavity allows them to perform this operation in the position of the tongue convenient for the patient and form the basis of the prosthesis accordingly [15]. At the same time, we believe that a significant role in the functional effectiveness of the prosthesis is played by determining the ratio of the centers of the jaws, taking into account the postoperative myodynamic balance of the masticatory muscles, as well as the design of prostheses that deviate from the generally accepted anatomy of the prosthesis, without changing the position of the lower jaw. The disadvantages of the methods of designing and manufacturing prostheses of the lower alveolar process described above are: a large thickness of the base (> 2.5 mm), which creates inconvenience for the patient due to its considerable weight and lengthens the adaptation period; the perception of temperature stimuli worsens, since the base of the prosthesis is made of materials with poor thermal conductivity; the fragility of plastic leads to insufficient strength. fragility leads to insufficient strength of the prosthesis, as a result of which the term of its use is shortened, as well as to insufficient biocompatibility of the base plastic with biological tissues. In addition, the porosity of acrylic plastics contributes to the accumulation of food residues, microorganisms and their waste products, changes the biochemical and trace element composition of saliva, disrupts metabolic processes in the tissues of the prosthetic bed and reduces the hygienic properties of the prosthesis [9, 11, 14]. New injection-molded basic dental materials based on dimensionless thermoplastic polymers are also not without these disadvantages [22, 32]. The use of precious and base metal alloys in the manufacture of removable prostheses increases the strength and functional properties of the prosthetic structure and enhances the therapeutic effect. These materials do not possess biochemical and biomechanical compatibility with biological tissues, which leads to incongruent interactions between the prosthesis and the prosthetic bed, macro-mobility on the surface of the prosthesis, concentration of traumatic loads on bone structures and general progressive atrophy of supporting tissues [20]. Electrochemical processes (corrosion) in the oral cavity when using these alloys lead to the release of metal ions into the oral fluid, the thickness of the mucous membrane, blood and lymph, altering enzyme systems, disrupting metabolic processes and exerting a general and local chemical toxic and sensitizing effect on the body [5, 6, 17]. The negative aspects of prosthetics described above are even more aggravated in the elderly. With age, elastic fibers disappear in the submucosa, the mucosa becomes more sensitive to external influences, the wound healing process is disrupted, the vascularization of soft tissues and bone matrix of the prosthetic bed worsens, the calcium balance changes, the atrophic process progresses.

Conclusion: In connection with the above, the problem of rehabilitation of patients with mandibular defects currently remains unresolved. In particular, in clinical practice, it is difficult to fully restore the masticatory function without achieving a therapeutic effect due to the lack of manufacturing technologies for mandibular prostheses that allow the prosthesis to function harmoniously in vivo and minimize the reaction and atrophy of the supporting tissues of the prosthetic bed.

Literature:

1. Ахмедов А. А. Иммунологические аспекты патогенеза гингивита и пародонтита //IQRO. – 2023. – Т. 3. – №. 2. – С. 121-123.
2. Astanovich A. D. A. et al. The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports //Annals of the Romanian Society for Cell Biology. – 2021. – С. 235-241.
3. Astanovich A. A. Comparative Analysis of the Stress-Strain State of the Lower Jaw with Different Splinting Systems in Localized Periodontitis of Middle Gravity by Finite Element Modeling //Scholastic: Journal of Natural and Medical Education. – 2023. – Т. 2. – №. 5. – С. 181-187.
4. Ortikova N., Rizaev J. THE PREVALENCE AND REASONS OF STOMATOPHOBIA IN CHILDREN //E-Conference Globe. – 2021. – С. 339-341.
5. Alimdjanovich R. J., Khairullaevna O. N., Normuratovich N. A. Correction of psychological stress in children with non-pharmacological methods of dental admission //Archive of Conferences. – 2021. – С. 108-114.

6. Xairullaevna O. N., Alimjanovich R. J. Improving the effectiveness of therapeutic and preventive measures by correcting psychoemotional stress in children at a dental appointment. – 2022.
7. Qobilovna B. Z. GENERAL CHARACTERISTICS OF RECURRENT HERPETIC STOMATITIS IN THE MOUTH //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 12. – С. 162-168.
8. Zarafruz B., Hekmat K. H. A. S. MANIFESTATION OF HERPETIC INFECTION IN THE ORAL CAVITY AND THEIR TIMELY ELIMINATION //Spectrum Journal of Innovation, Reforms and Development. – 2022. – Т. 10. – С. 47-52.
9. Shoxrux S., Shoxrux I., Faxriddin C. PREVENTION AND TREATMENT OF ORAL INFECTIONS IN DENTURE WEARERS //International Journal of Early Childhood Special Education. – 2022. – Т. 14. – №. 4.
10. Fakhriddin C., Shokhruh S., Nilufar I. ENDOKANAL PIN-KONSTRUKSIYALARNI ISHLATISHDA ASORATLAR VA XATOLAR TAHLILI //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – Т. 7. – №. 1.
11. Qobilovna B. Z. MODERN ASPECTS OF ETIOLOGY AND PATHOGENESIS OF HERPES ZOSTER //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 12. – С. 152-156.
12. Qobilovna B. Z., Maxzuna U. Improvement of Providing Therapeutic Dental Care to Pregnant Women. Therapeutic and Preventive Measures //Eurasian Research Bulletin. – 2023. – Т. 16. – С. 146-150.
13. Qobilovna B. Z., Azamatovich B. M. MANIFESTATION OF SYMPTOMS IN THE ORAL CAVITY IN PATIENTS WITH TUBERCULOSIS INFECTION //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 11. – С. 402-407.
14. Nizomitdin A. I. Modern Methods of Odontopreparation for MetalCeramic for Beginner Prosthodontists //Eurasian Medical Research Periodical. – 2023. – Т. 18. – С. 98-102.
15. МЕЛИБАЕВ Б. А., МАХМУДОВА У. Б. ЭФФЕКТИВНОСТЬ ПРИМЕНЕНИЯ ПАРАПУЛЬПАРНЫХ ШТИФТОВ (ППШ) ПРИ ВОССТАНОВЛЕНИИ ДЕФЕКТОВ КОРОНКОВОЙ ЧАСТИ ФРОНТАЛЬНЫХ ЗУБОВ //ЖУРНАЛ БИОМЕДИЦИНЫ И ПРАКТИКИ. – 2022. – Т. 7. – №. 1.
16. Ruziyeva K. A., Burhonova Z. K. K. Complex Application Of Magnetic Laser Therapy And Propolis Tincture For The Prevention And Treatment Of Chronic Recurrent Aphthous Stomatitis //The American Journal of Medical Sciences and Pharmaceutical Research. – 2021. – Т. 3. – №. 06. – С. 127-130.
17. Maxzuna U., Zarafruz B. IMPROVING THE PROVISION OF THERAPEUTIC DENTAL CARE TO PREGNANT WOMEN //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 11. – С. 618-623.
18. Qobilovna B. Z. INTEGRATIVE APPROACH TO THE TREATMENT OF DISEASES OF THE ORAL MUCOSA USING LASER THERAPY //Web of Scientist: International Scientific Research Journal. – 2022. – Т. 3. – №. 11. – С. 408-412.
19. Makhmudova U. B. THE EFFECTIVENESS OF THE USE OF PARAPULPAR PINS (PPP) WHEN RESTORING DEFECTS IN THE CROWN PART OF THE FRONTAL

TEETH //Asian journal of pharmaceutical and biological research. – 2022. – T. 11. – №. 2.

20. Bakhtiyorovna M. U. CAUSES OF REMOVABLE DENTURE BREAKS AND ALLERGIC REACTIONS //Spectrum Journal of Innovation, Reforms and Development. – 2022. – T. 10. – C. 374-377.
21. Sadriev N. N. Optimization of orthopedic treatment of dentition defects in patients with chronic diseases of the gastrointestinal tract //Science and Education. – 2022. – T. 3. – №. 10. – C. 63-67.
22. Jamshed S. PREVALENCE OF PHYSIOLOGICAL BITE FORMS IN PEOPLE WITH DIFFERENT FACE TYPES //Web of Scientist: International Scientific Research Journal. – 2022. – T. 3. – №. 11. – C. 451-454.
23. Nizomitdin A. I. THERAPEUTIC EFFECT OF IMPROVED ENAMEL SURFACE PREPARATION TECHNIQUE IN THE TREATMENT OF ACUTE INITIAL CARIES OF TEMPORARY TEETH IN CHILDREN //Web of Scientist: International Scientific Research Journal. – 2022. – T. 3. – №. 11. – C. 440-445.
24. Shavkatovich O. R., Nizomitdin A. I. EFFECTIVENESS OF THE USE OF OSTEOPLASTIC MATERIAL" STIMUL-OSS" IN SAMARKAND //Web of Scientist: International Scientific Research Journal. – 2022. – T. 3. – №. 11. – C. 612-617.
25. Ахмадов И. Н. Нарушения в системе перекисного окисления липидов при парадантозе //IQRO. – 2023. – Т. 3. – №. 2. – С. 124-127.
26. Khusanovich K. B. R. C. F. TYPES AND APPLICATIONS OF DENTAL COMPLIMENTS //Journal of Modern Educational Achievements. – 2023. – T. 5. – №. 5. – C. 95-99.