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Comprehensive Approach to Patient Preparation for Complete Removable Prosthetics

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Abstract: Complete edentulism remains one of the most frequently encountered clinical problems in orthopedic dentistry, particularly among elderly and geriatric patients. A key factor in successful prosthetics is quality preparation of the oral cavity, which helps prevent complications, improves orthopedic treatment outcomes, and extends the service life of removable constructions. Conducting comprehensive therapeutic and surgical sanitation at an appropriate level significantly facilitates patient adaptation to complete removable dentures. This study, conducted in 2024–2025, was aimed at evaluating the effectiveness of an interdisciplinary approach in preparing for complete removable prosthetics. Despite the active implementation of digital technologies and improvement of orthopedic techniques, the problem of adequate pre-orthopedic preparation remains relevant. The work presents results of analysis of psychoemotional, surgical, and orthopedic preparation of patients for manufacturing complete plate dentures, which confirmed the necessity of a comprehensive approach at this stage of treatment.

Keywords: removable prosthetics, surgery, comprehensive approach.

Introduction. Complete edentulism remains one of the most serious problems in orthopedic dentistry, especially among elderly and geriatric individuals. Tooth loss leads to a wide spectrum of functional and aesthetic disorders that significantly reduce patients' quality of life. Among the most pronounced consequences are difficulties in articulation and pronunciation, reduced effectiveness of chewing function, which can provoke digestive disorders and deficiency of necessary nutrients. Along with this, absence of teeth causes significant changes in appearance: the height of the lower third of the face decreases, lip retraction is noted, chin sharpening occurs, and deep wrinkles form, giving the face pronounced signs of premature aging. These changes are often accompanied by decreased self-esteem, disruption of social activity, and development of depressive states that worsen the patient's psychoemotional discomfort.

Thus, orthopedic treatment for complete edentulism should be directed not only toward restoring lost functions of the chewing apparatus but also toward returning aesthetic attractiveness and psychological well-being to the patient. Solving these tasks is possible exclusively within a comprehensive approach that presupposes preliminary therapeutic and surgical preparation, as well as close interaction between specialists of related disciplines. Quality oral cavity sanitation and rational preparation of maxillofacial region tissues are essential conditions for successful prosthetics, ensuring rapid adaptation to prostheses and extending their service life.

Study Objective: To analyze modern methods of oral tissue preparation for orthopedic treatment of patients with complete edentulism, paying particular attention to interdisciplinary approaches and technologies that increase prosthetic effectiveness.

Materials and Methods. The study was performed at the clinic of Tashkent State Medical University. The sample included 73 patients with complete edentulism. Among the examined individuals, 37.8% required primary complete removable prosthetics; 41.6% had previously used complete removable prostheses; 39.1% had a history of using partial removable constructions, and in 19.3%, the need for manufacturing complete prostheses arose for the first time.

For objective characterization of patient conditions, standardized examination cards were used, including history taking, clinical examination, radiological diagnostic methods, and functional tests. All patients underwent preliminary therapeutic and surgical preparation, including oral cavity sanitation, correction of anatomical defects, and treatment of concomitant diseases, which ensured optimal conditions for further prosthetics.

Surgical sanitation was required for 73% of patients; positive clinical results were recorded in 92% of them. In 8% of cases, additional correction of the prosthetic bed was necessary to achieve optimal fixation and prosthesis stability.

Hypersensitivity to individual components of prosthetic materials was identified in 2% of examined patients, manifesting as allergic reactions. Exclusion of potentially allergenic substances from the construction composition allowed elimination of undesirable manifestations and continuation of treatment without complications.

Complete adaptation to prostheses was achieved in 95% of patients after conducting a series of corrections. In 5% of patients, difficulties in adapting to removable constructions persisted, which was probably due to individual anatomical features, psychoemotional factors, or insufficient motivation to use prostheses.

Psychological preparation of patients, especially in older age groups, was of particular importance at the pre-orthopedic stage. Elderly individuals more often demonstrated increased sensitivity to inattention and pronounced anxiety before dental manipulations. To establish trusting relationships, detailed questioning was conducted, including questions about health status, presence of complaints, previous prosthetic experience, and preferences regarding new constructions. This approach allowed reduction of anxiety levels and increased patient readiness for treatment.

Primary examination included evaluation of facial configuration, analysis of causes of tooth loss, study of articulation and speech pronunciation features. The history of using removable constructions and possible individual material intolerance were also clarified. Based on the totality of obtained data, a decision was made to begin orthopedic treatment or about the necessity of conducting additional oral cavity sanitation.

Creating optimal condition of prosthetic bed tissues, free from pathological changes, is a key condition for successful oral cavity preparation of patients with complete edentulism. Achieving this goal is possible with comprehensive diagnostics, individualized approach to each clinical case, and close interaction between specialists of different profiles, which collectively increases the effectiveness of orthopedic treatment and contributes to improving patients' quality of life.

Indications for tooth and root removal are determined by their degree of mobility, level of crown destruction, presence of inflammatory processes, severity of periodontitis, pronounced bone tissue atrophy (up to 2/3 of root length in periodontosis), subgingival defects, and root fractures. With the presence of these factors, extraction is a necessary stage of pre-orthopedic preparation.

After tooth extraction, exostoses—bony protrusions of the alveolar process—often form. Their palpation causes unpleasant sensations in the patient, and prosthesis placement is accompanied by pain syndrome. To eliminate such complications, alveolotomy is used, consisting of surgical removal of protruding alveolar edges.

However, with certain forms of exostoses, achieving satisfactory results is possible without surgical intervention. When planning treatment, it is necessary to consider features of the anatomical relief of the prosthetic bed, especially on the lower jaw, where conditions for prosthetics are traditionally more

complex. In some cases, limiting the volume of surgical manipulations is preferable to maximally preserve supporting tissues.

A promising direction is the use of bone autoplasty, which allows restoration of alveolar process tissue volume and improvement of anatomical conditions of the prosthetic bed. The choice of a specific intervention method should be made considering the patient's age, general somatic status, concomitant diseases, and individual clinical-anatomical features.

Some anatomical structures of the oral cavity can have a negative influence on the stability and fixation of removable prostheses. Thus, the presence of scar bands, pronounced buccal-alveolar folds, and shortened lip frenula often leads to insufficient adherence of prosthetic constructions. These formations can be traumatized during chewing and speech, provoking chronic mucosal damage. In such cases, surgical correction allows optimization of prosthetic bed conditions and increased prosthesis stability. In some clinical situations, an alternative to surgical intervention is the application of special functional impression techniques.

A prolonged period of edentulism causes significant biomechanical changes in the lower jaw, accompanied by reduced interalveolar height and deformation of the lower third of the face. Absence of adequate chewing load leads to formation of pathological reflexes, dysfunction of temporomandibular joints, development of muscular-articular dysfunction, and muscle contraction discoordination. These processes determine formation of pathological jaw relationships, which significantly complicates restoration of central occlusion and reduces adaptive potential for prosthetics.

To eliminate such disorders, a staged methodology for restoring the necessary height of the lower third of the face is used. At the initial stage, temporary prostheses are used, which are subject to replacement every three months. After 9–12 months, following stabilization of functional parameters, permanent complete removable prostheses are manufactured. This approach ensures gradual adaptation of the organism to changed conditions and reduces the probability of complications.

Interdisciplinary preparation of patients for prosthetics in complete edentulism represents a multi-stage process, including elimination of inflammatory foci, correction of anatomical defects, removal of teeth with unfavorable prognosis, and soft tissue healing. A qualitatively performed preparatory stage is the foundation of successful orthopedic treatment, allowing achievement of restoration not only of chewing and speech function but also aesthetics, which ultimately improves the patient's quality of life.

Making the decision to use complete removable prostheses is a responsible stage in orthopedic treatment, especially in complete edentulism. Such constructions often become a permanent means of functional and aesthetic rehabilitation for the patient throughout life. Despite the fact that restoration of chewing ability in the absence of teeth is accomplished relatively quickly, the effectiveness of this process is largely determined by the quality of the preparatory stage. Careful preparation of the oral cavity and prosthetic bed tissues ensures not only successful restoration of chewing and speech function but also minimization of complication risks, including inflammatory reactions and discomfort when using prostheses.

Comprehensive therapeutic and surgical preparation, performed at an appropriate level, forms the foundation for complete adaptation to prostheses and increases their service life. The psychological component is also important: providing patient support and forming trusting relationships with the dentist contributes to anxiety reduction, increased motivation, and more favorable course of the adaptation period.

Conclusions. Thus, successful orthopedic treatment of patients with complete edentulism is impossible without a systematic approach that includes adequate oral cavity preparation, professionally performed prosthetics, and psychoemotional support. Adherence to these conditions allows achievement of high clinical effectiveness, restoration of lost functions, and significant improvement in patients' quality of life.

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