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TOTAL REHABILITATION OF TEETH AND PERIODONTAL TISSUES IN THE ORAL CAVITY

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Abstract: Total rehabilitation of teeth and periodontal tissues is a comprehensive approach aimed at restoring oral health, function, aesthetics, and long-term stability in patients with extensive dental and periodontal disorders. Treatment includes the assessment and management of periodontal disease, dental caries, endodontic lesions, missing teeth, occlusal disturbances, and alveolar bone defects. Modern rehabilitation combines periodontal therapy, restorative dentistry, prosthodontics, implantology, and digital diagnostic methods. An individualized and multidisciplinary approach is essential for achieving predictable functional and aesthetic outcomes.

Keywords: total oral rehabilitation, periodontal tissues, periodontitis, dental implants, prosthodontics, occlusion, restorative dentistry.

Total rehabilitation of the oral cavity represents a complex and multidisciplinary approach to the treatment of patients with extensive damage to teeth, periodontal tissues, and supporting structures. Such patients may present with multiple carious lesions, periodontal inflammation, tooth mobility, partial tooth loss, defective restorations, endodontic pathology, occlusal disturbances, and aesthetic problems. These conditions can significantly reduce masticatory efficiency, impair speech and aesthetics, and negatively influence the patient's quality of life.

Periodontal tissues are particularly important in maintaining the stability and function of the dentition. Chronic periodontal inflammation may result in destruction of the periodontal ligament and alveolar bone, development of periodontal pockets, gingival recession, tooth migration, and eventual tooth loss. Therefore, periodontal health should be stabilized before definitive restorative, prosthetic, or implant treatment is performed.Modern total oral rehabilitation aims not only to replace missing teeth but also to eliminate active disease, preserve remaining teeth and supporting tissues, restore normal occlusion, and create conditions for long-term oral health. Successful rehabilitation requires careful diagnosis, appropriate sequencing of treatment procedures, and cooperation between different dental specialties.

Comprehensive treatment begins with a detailed examination of the patient's general and oral health. A complete medical and dental history should be collected, with particular attention to systemic diseases, medications, smoking, previous dental treatment, and oral hygiene habits. Clinical examination includes assessment of dental caries, periodontal tissues, tooth mobility, gingival recession, bleeding on probing, periodontal pocket depth, occlusion, and condition of existing restorations.Radiographic examination is an important component of diagnosis. Intraoral radiographs and panoramic radiography help identify periodontal bone loss, periapical lesions, root pathology, and the condition of remaining teeth. Cone-beam computed tomography may be used when more detailed three-dimensional information about alveolar bone or anatomical structures is required, particularly before implant placement or regenerative procedures.

The periodontal condition should be stabilized before definitive rehabilitation. Initial periodontal treatment includes professional removal of dental plaque and calculus, scaling and root surface instrumentation, improvement of individual oral hygiene, and elimination of local factors contributing to inflammation. After this stage, the periodontal tissues should be reassessed. Reduction in bleeding, inflammation, and periodontal pocket depth indicates a positive response to treatment.

In advanced cases, periodontal surgical treatment may be required. Surgical procedures can improve access to deep periodontal defects, facilitate debridement, and allow regenerative treatment of selected bone defects. Bone grafting, guided tissue regeneration, and mucogingival surgery may be considered according to the clinical condition. The purpose of periodontal therapy is to create a stable biological foundation for further restorative and prosthetic treatment.

Dental caries and endodontic infections should also be eliminated. Teeth with reversible structural damage may be restored using direct or indirect restorative materials. Teeth affected by irreversible pulpal inflammation, pulp necrosis, or apical periodontitis may require endodontic treatment. Following successful root canal therapy, the coronal portion of the tooth should be adequately restored to prevent fracture and reinfection.

The prognosis of each tooth should be carefully evaluated. Teeth with severe periodontal destruction, extensive root fracture, uncontrolled infection, or insufficient remaining tooth structure may require extraction. Decisions regarding extraction should be made in accordance with the overall rehabilitation plan, particularly when future implant placement is anticipated.

Replacement of missing teeth can be carried out using fixed dental prostheses, removable prostheses, or implant-supported restorations. The choice depends on the condition of the remaining teeth, periodontal support, bone volume, occlusal relationships, aesthetic requirements, and the patient's preferences. Dental implants are widely used in complex oral rehabilitation because they allow restoration of missing teeth without necessarily involving adjacent healthy teeth.

Before implant placement, the volume and quality of alveolar bone should be assessed. If bone deficiency is present, additional procedures such as guided bone regeneration, bone augmentation, or sinus floor elevation may be necessary. Implant placement should be performed only after active periodontal disease has been controlled. Patients with a history of periodontitis require particularly careful long-term monitoring because they may have a higher risk of peri-implant inflammatory complications.Occlusal rehabilitation is another important aspect of comprehensive treatment. Loss of teeth, tooth migration, excessive wear, and periodontal damage can lead to changes in vertical dimension and abnormal distribution of occlusal forces. Restoration of stable and balanced occlusal contacts helps improve chewing efficiency and protects both natural teeth and prosthetic restorations from excessive functional loading.

Aesthetic rehabilitation should be integrated with functional treatment. The shape, size, color, and position of teeth, as well as the contour and appearance of gingival tissues, influence the final aesthetic result. Modern restorative materials and digital technologies allow clinicians to reproduce natural dental morphology and improve smile aesthetics while maintaining periodontal health.Digital dentistry has significantly expanded the possibilities of comprehensive oral rehabilitation. Intraoral scanners, CBCT, computer-assisted design and manufacturing, digital smile design, and virtual implant planning allow more accurate diagnosis and treatment planning. Digital models can be used to evaluate occlusion, design restorations, and simulate the expected treatment outcome before definitive procedures are performed.

An essential condition for the long-term success of total oral rehabilitation is supportive periodontal care. Following active treatment, patients should attend regular professional examinations and oral hygiene sessions. Periodontal pocket depth, bleeding, plaque accumulation, tooth mobility, implant condition, and prosthetic restorations should be monitored periodically. The interval between follow-up visits should be individualized according to the patient's periodontal and systemic risk factors.Patient cooperation also plays a decisive role. Even technically successful restorative and

implant treatment may fail if oral hygiene is inadequate.Therefore, the patient should be educated about daily plaque control, interdental cleaning, care of prosthetic constructions, and the importance of regular professional maintenance.

Total rehabilitation of teeth and periodontal tissues is a complex process aimed at restoring both function and aesthetics while preserving long-term oral health. Treatment should begin with a comprehensive diagnostic assessment and elimination of active periodontal, carious, and endodontic diseases. Periodontal stabilization provides the biological basis for successful restorative, prosthetic, and implant rehabilitation.The integration of periodontal therapy, restorative dentistry, prosthodontics, implantology, occlusal correction, and modern digital technologies makes it possible to achieve predictable clinical outcomes. At the same time, long-term success depends greatly on effective oral hygiene, patient cooperation, and regular supportive periodontal care. Therefore, an individualized and multidisciplinary approach remains the fundamental principle of total rehabilitation of teeth and periodontal tissues.

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