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PROSTHETICS OF TEETH ON IMPLANTS AND THEIR FEATURES

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Abstract:
The functionality and aesthetics of bridge prostheses based on implants are ensured by the inclusion of teeth adjacent to the defect in the prosthetic structure. Against the background of reproductive periodontitis, the connection of healthy teeth and implants with the help of multicomponent orthopedic structures stabilizes the dentition and prevents the exacerbation of inflammatory and destructive processes in periodontal tissues. The use of materials for implants with important bone-like deformation properties reduces the occurrence of stress zones at the bone-implant interface. Vestibular and intraoral displacement of implants in patients with malocclusion increases resistance to chewing lateral load.

Keywords: atrophy of the alveolar process, fixed and removable prostheses.

Introduction:

Due to the anatomical and morphological features of the jaws, it is not always easy to install dental implants in the prosthetic space. The situation is aggravated by the presence of concomitant risk factors, such as malocclusion, periodontal disease, etc. Sinus lifting, bone grafting and lower alveolar nerve transplantation are complex, traumatic, multi-stage and expensive operations, which makes them unacceptable for many patients. In such cases, the inclusion of natural teeth in the prosthesis is an effective and affordable way to ensure the necessary stability of the system. The degree of use of teeth - from inlays and occlusal overlays to prosthetics of the entire dental arch - varies greatly depending on the clinical situation .Until the 1990s, implantologists all over the world had a negative attitude to the possibility of such a combination. The attitude of implantologists all over the world to the possibility of such a combination was negative. It was believed that due to the individual mobility of natural and artificial abutments, various complications were inevitable. These include

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fracture and destruction of an artificial tooth, periimplantitis and periodontitis of the abutment tooth. However, in recent years, with the accumulation of experimental and clinical data, the possibility of joint use of dental implants and teeth is recognized by an increasing number of specialists. The individual mobility of teeth and implants, as well as the restoration capabilities of the periodontal ligament and periimplant tissues, cannot be considered in isolation from such individual characteristics as the structural and functional state of the jaw and teeth tissues (prosthesis), antagonist muscles, deforming properties of implants and prostheses, the degree of tension and development of chewing muscles, the nature of food and type of chewing. In "average" anatomical and physiological situations, the general shock-absorbing characteristics of the prosthesis, antagonist teeth, implants and jaw are considered sufficient to neutralize masticatory pressure. In addition, when eating mainly boiled and chopped food, the functional load on the dentition is far from being extreme. Therefore, the real amplitude of the functional movement of teeth in the alveolar bone is many times inferior to the width of the periodontal gap. Thus, there is reason to believe that the indicators of "functional" (physiological) mobility of teeth and implants under load are equivalent to a certain extent and that the use of composite support systems is very effective, rational and expedient. Some implantologists use composite bridges, in which the components of the implant and the tooth are connected by attachments. Such prostheses are very complex and expensive to manufacture, and their use increases the risk of overload of the implant and encapsulation of the abutment tooth. Therefore, fixed bridges are more often used. If the implants are installed against the background of systemic periodontal tissue disease, then a multicomponent prosthesis combining preserved teeth and implants is one of the most effective means of stabilizing the dentition and preventing the progression of inflammatory and destructive processes in periodontal tissues. Composite support systems are most used when installing plate implants, which are less adapted to autonomous function. Implants can be used both as final and intermediate supports, and the number of teeth included in the prosthesis is usually proportional to the complexity of the situation - from one crown (or tab) per tooth in contact with the defect to the integration of all existing teeth and implants. This technique has been used for prosthetics of more than 150 patients with dental defects of various lengths and

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topography. In 90% of cases, when implants were installed, good functional and aesthetic results were achieved during observation for 4-10 years. Some developers have developed an elastic polymer gasket between the body and the implant head in order to reduce chewing loads and bring the mobility of the prosthesis closer to the mobility of natural teeth (IMZ implants). The experience of clinical use of such implants has not provided convincing evidence of their advantages over "rigid" designs. The presence of deformable elements complicates the device of implants, increases the risk of fracture and complicates hygienic procedures. Elastic bushings require regular and frequent replacement, which creates additional inconvenience for the patient. To compensate for the absence of periodontal tissues in an artificial abutment, the use of implantation materials that are mechanically compatible with biological tissues is more promising. A functional implant should be similar in its mechanical behavior to a biological tissue. In other words, they must belong to a dissipative elastic system and have feedback. From the point of view of biomechanics, the optimal properties of the material should have stress-strain diagrams similar to biological tissue, and hysteresis values on load-unloading diagrams characteristic of biological tissue. The elastic modulus of nitinol is close to the deformation properties of biological bone tissue, which significantly reduces the risk of stress zones at the bone-implant interface and allows nickel-titanium structures to be considered one of the most successful options for artificial racks. The success of implantation is undoubtedly facilitated by high-dose ionic modification with molybdenum ions (HDIM) of the surface layer of dental devices with shape memory. The modified surface layer formed by the ion beam method is four to five times thicker than the natural oxide layer (TiO2), with the difference that the adhesion parameters at the interface "alloy-biological surface" are much higher. According to generally accepted ideas, when installing prostheses on three or more abutment teeth, it is necessary to strive to ensure that all implants are located on the same line, equidistant from the inner and outer compact plates of the jaw. However, from the point of view of biomechanics, this arrangement is not optimal. A figure with a straight line at the base is spatially undesirable. The triangular shape of the basis is much more advantageous in this respect. Depending on the width of the prosthetic jaw area, if one of the implants (preferably the central one) can be installed with a vestibular or intraoral

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displacement, the stability of the structure to lateral chewing loads is significantly increased and a significant stabilizing effect is achieved without complicating the clinical and examination stages of implant installation.

Conclusion:

Thus, the joint use of implants and support systems of healthy teeth contributes to the successful installation of implants. Manufacturing implants from biomechanically compatible materials with tissues reduces the risk of stress zones. The stability of the orthopedic structure to lateral load is significantly increased due to the spatial redistribution of the implant along the alveolar ridge with vestibular or oral displacement.

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