

ANALYSIS OF THE QUALITY OF REMOVABLE DENTURES ON IMPLANTS

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Restoring chewing function with various types of prostheses in case of partial loss of teeth remains an important task in orthopedic dentistry. The presence of defects in the dental arch leads to a violation of the integrity of the dentition and the appearance of morphofunctional changes in the dentoalveolar system, occurring first near the defect and then spreading to the entire dentition. This leads to vertical movement and inclination of teeth that limit the defect, devoid of antagonists, as well as overload of the remaining teeth, disruption of occlusion, and changes in the mandibular joint[1]

Keywords: complete absence of teeth; dental implantation; the quality of life; removable prosthetics.

Changed conditions for the functioning of teeth cause a restructuring of metabolic processes, which depend on the force of the chewing load. With partial adentia, tissue hemodynamics are disrupted in the area of the dentition defect, the intensity of blood circulation decreases, and vasoconstriction of blood vessels is observed. New opportunities have opened up thanks to the introduction into clinical practice of implantation of artificial supports for dentures, expanding the conditions for removable dentures. Modern dental implantology with subsequent prosthetics has proven itself as an effective method for restoring defects in the dentition[2]. Removable dentures supported by implants, unlike other types of orthopedic treatment, provide a more complete restoration of the chewing function of the dental system and rapid adaptation to them[3]. However, despite the successes of implantology, reducing the number of complications and increasing the life of prosthetic structures using intraosseous implants remains an urgent problem. Literature data devoted to the study of the role of functional load in prosthetics using intraosseous implants allow us to conclude that, despite the large number of clinical and experimental works, the physiological direction in the study of the state of the dentoalveolar system has not been sufficiently developed. To solve the problem of preventing complications in implantology using orthopedic methods, a comprehensive study of a number of issues related to metabolic processes in the tissues of the area of the dentition defect is required. In this regard, the study of dosed loads, an objective assessment of the functional state of supporting tissues before and after treatment is the basis for the development of therapeutic and preventive measures to prevent the development of pathological changes in the tissues surrounding natural teeth and intraosseous implants. The majority of patients who need to restore the integrity of their dentition have formed a negative opinion about prosthetics with removable types of dentures, due to problems of insufficient resto-

ration of chewing function and aesthetics, and unreliable fixation of dentures [3]. The majority of patients with partial loss of teeth (86.1%) prefer fixed dentures, which are more functional, durable, and aesthetic. It is known that the effectiveness of orthopedic treatment methods with bridges is significantly higher than with removable structures [8,9]. In case of untimely prosthetics in patients with partial loss of teeth, the body's adaptive capabilities are disrupted, which leads to the emergence of pathological processes in all components of the dental system, preventing adaptation to dentures and disrupting the harmony of interaction of all its elements [1–3,5,6]. Currently, there are various methods of fixing removable dentures used in the treatment of patients with partial loss of teeth. In recent years, interest in prostheses that do not have clasps in their design has increased significantly. Such fixation methods include beam fixation of prostheses, using magnetic elements, using telescopic systems and, finally, locking fixation methods [1,3,6,7]. The method of using prostheses with locking fixation is not a simple repetition of prosthetics with removable plate or clasp dentures. There are special algorithms for planning and manufacturing prostheses with locking fixation systems, ignorance of which can lead to serious errors and thereby discredit the method as a whole [10]. Of considerable importance when choosing a method of fixing a removable denture is the possibility of restoration, repairing it in the event of the loss of one or more supporting teeth, as well as the possibility of replacing or activating retaining elements. Known methods of fixing removable dentures are not equivalent according to the above criteria [3,9,10]. Removable dentures with a locking fixation system splint the abutment teeth well and redistribute the chewing load to all supporting tissues of the prosthetic bed [2,8,9]. Good fixation, stabilization and high functional efficiency have increased interest in these structures in recent years [4,5,7]. The emergence of modern, durable alloys, indifferent to the tissues of the prosthetic bed, high-precision casting and milling

methods have expanded the technological capabilities of their manufacture. Insufficient theoretically justified use of removable dentures with locking fixation, calculated on the basis of empirical data, often leads to unsatisfactory results of prosthetics [2,3]. When choosing an orthopedic design that optimally distributes the load between the existing supporting elements, a preliminary theoretical justification for the choice is of great importance [1,4]. This allows us to predict the successful functioning of the entire system and avoid complications [7,8]. There are publications devoted to locking and telescopic fixation of removable dentures [5,6], but they, as a rule, discuss to a greater extent the technological aspects of the issue or state certain negative clinical manifestations without touching on the mechanism of their origin. An analysis of domestic and foreign literature has shown that, despite significant progress, the issue of orthopedic treatment of patients with dentition defects using removable dentures with locking fixation has not been sufficiently studied and requires further consideration. Purpose of the study: Clinical and biomechanical assessment of the effectiveness of removable prosthetics in dental prosthetics using implants.

Material and methods

A comprehensive examination and treatment of 38 patients with limited dentition defects was carried out using intraosseous implants with locking fixation (attachments). There were 10 men (26.3%), 28 women (73.7%), the age of the patients was from 21 to 60 years, without concomitant diseases. At the prosthetic stage, 248 implants were used in patients of the study group, including 213 screw (91.0%), 29 short porous (7.9%) and 4 flat implants (1.1%). The average number of implants per patient in the study group was 4.0. It was these implants that were subsequently observed to evaluate the clinical effectiveness of various types of prosthetics in patients with complete absence of teeth (PED). In 12 (16.4%) of the 73 patients in the study group, implantological treatment using bridges and removable dentures was performed on two completely edentulous jaws, so dental prosthetics supported by implants was carried out on a total of 25 edentulous jaws (6 upper and 19 lower jaws). In patients of the 1st and 2nd control groups, the implants were considered sound and were involved in the process of prosthetics with single artificial crowns. At the time of admission to the orthopedic stage of treatment, the average value of objective stability of the implants was -3.2 ± 2.4 in patients of the study group and -3.4 ± 2.4 in the control group.

Results

Analysis of the results of treatment of patients 1 year after completion of prosthetics showed that there were no rejections of any of the implants included in the prosthetics in patients of the study group. At the same time, in patients in the control group, rejection of the 1st implant, which served as a support for a single crown, was revealed. Total implant preservation index: the clinical effectiveness of prosthetics in patients of the study group was 100%, and the same indicators in the control group were 98.9%. Thus, there are no significant differences in treatment results in the study and control groups, but, in any case, with bridge and removable prosthetics supported by implants in patients with

POP, the number of favorable outcomes is no less than with implantological treatment with single crowns. When examining the condition of the gums 1 year after completion of prosthetics, no pronounced inflammation was found in any patient of the compared groups. At the same time, minor signs of inflammation in the form of mild hyperemia and bleeding during probing were observed in the area of 35 implants in patients in the study group and in 7 of the remaining implants in the control group. The difference in treatment results on this basis is not statistically significant. Gum recession of 1 mm or less 1 year after completion of prosthetics was found in the area of 16 (4.3%) implants in patients of the study group and in the area of 6 (6.9%) implants in the control group. Consequently, gum recession in patients in the study group occurs significantly less frequently than in patients in the control group. There was no gingival recession of more than 1 mm. An assessment of the condition of the bone tissue surrounding the implant showed that at the time of fixation of the prostheses in the oral cavity in the area of 2 implants at the level of the apical and middle third of the intraosseous part, foci of resorption with a diameter of 2 to 5 mm with uneven and unclear contours appeared, but upon study bone tissue 1 year after completion of the prosthetics, these phenomena disappeared, and an organotypical bone pattern of normal density was observed. The loss of the marginal bone level 1 year after fixation of the dentures in the oral cavity in patients of both the study and control groups turned out to be identical and averaged 0.3 ± 0.2 mm. The levels of satisfaction with the prosthesis and the quality of life after prosthetics, determined using a questionnaire, 1 year after its completion, were determined not only in patients with dental implants, but also in patients in the control group with complete removable laminar dentures of a conventional design. Satisfaction with the prosthesis of patients in the study group was 4.2 ± 0.4 points, in patients in the control group with implants - 4.5 ± 0.5 points, in patients in the control group with conventional removable dentures - 2.3 ± 0.6 points. The difference in the degree of satisfaction with the prosthesis in patients of the study and control groups with implants is not statistically significant, at the same time, satisfaction with the results of bridge and removable prosthetics supported by implants in patients with POP is significantly higher than with prosthetics with conventional complete removable dentures.

Conclusion.

Thus, the assessment of the quality of life performed by patients 1 year after fixation of prostheses in the oral cavity showed the following results: out of a possible 70 points, patients in the study group had 62.7 ± 5.2 points, patients in the control group with implants - 65.7 ± 3.7 points, in patients of the control group with conventional removable dentures - 47.8 ± 6.6 points.

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