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# ANALYSIS OF THE EFFECTIVENESS OF METHODS FOR FIXING ARTIFICIAL CROWNS AND BRIDGES ON DENTAL IMPLANTS

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**Abstract:** Prosthetics of small and medium dentition defects using dental implants have become commonplace today. Fixation of artificial crowns on dental implants are mainly of two types: cement and screw fixation. In our opinion, the doctor's preferences come from the clinical situation, namely, the condition of the bone base in the area of dentition defect, the type of occlusion, the size of the remaining teeth, the general condition of the patient's immune system, aesthetic needs, etc.

**Keywords:** prosthetics, screw fixation, dental implants, artificial crowns

Prosthetics of small and medium dentition defects using dental implants has become common practice today. Extensive experience in restoring missing teeth using dental implants has revealed that the fixation of artificial crowns on dental implants is mainly of two types: cement and screw fixation. The choice of methods for such prosthetics depends on the preferences of the doctor and the patient. The doctor's preferences, in our opinion, come from the clinical situation, namely, the state of the bone base in the area of the dentition defect, the type of bite, the size of the remaining teeth, the general state of the patient's immune system, aesthetic requests, etc. The specialized literature describes in detail two types of fixation, their advantages and disadvantages. Analysis of literary sources, in our opinion, dictates an adequate choice of fixation method. The main advantage of cementation is considered to be an aesthetic effect and, accordingly, it is used in most cases in the anterior part of the dental arch. The use of screw fixation of artificial crowns in the area of the patient's visible "smile" zone cannot meet the high aesthetic requirements of today. Researchers have detailed the benefits of screw fixation in the posterior dental arch. With a successful, namely, parallel arrangement of dental implants, screw fixation, according to the authors, is most effective. Screw fixation is also indicated when the bone base of the implantation zone is sufficiently rich, when fairly massive and long implants are installed. This is due to the fact that the screw fixation firmly fixing the dental implant places an accentuated load on the latter. argue that it is the above clinical prerequisites that are the main indication for screw fixation. According to a number of authors, the main disadvantage of screw fixation is the frequent chipping of the ceramic mass of artificial crowns. This is due to the fact that with strong screw fixation in artificial crowns, internal stress may develop in the material of artificial crowns. To avoid this drawback, the authors recommend appropriate modeling of artificial crowns, namely, the artificial crown should not have premature contacts, the masticatory cusps on artificial crowns should not be very pronounced, and artificial crowns should not block the movement of the lower jaw. To avoid frequent chipping of the ceramic mass on screw-retained crowns, the functional state of the antagonist teeth and, in general, the degree and severity of occlusal contacts are of particular importance. Often, the functional state of

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antagonist teeth refers to the pathological abrasion of the crown part of the teeth, the degree of their destruction, violation of the position of the tooth, secondary deformations, Hodon's phenomenon, etc. The effectiveness of aesthetic prosthetics in these clinical situations is achieved by premature correction of the above pathological conditions. The main parameter for the success of screw-retained prosthetics is achieving the correct occlusal relationship and preventing traumatic occlusion in the prosthetic area. In this regard, it should be noted that artificial crowns must be manufactured in accordance with the technical parameters of the selected ceramic mass. Thus, the production of screw-retained artificial crowns implies the well-coordinated work of the doctor-dental technician tandem.

Numerous studies have been devoted to the problem of cement fixation. According to the authors, the main obstacle to high-quality fixation of artificial crowns is two factors: the first factor is inadequate space between the abutments and artificial crowns. An unjustified small space, and conversely, a large space significantly worsens the fixation of crowns. In addition, this circumstance noticeably worsens the microbiological picture of the implant-gingival area, up to the development of pronounced dysbiosis. Often in such cases, patients exhibit clinical symptoms of peri-implantitis. A number of authors state another complication. The second factor is that when cementing a crown on dental implants, a sufficiently thorough removal of excess cement in the area of the crown edges is often impossible in practice. This leads in many cases to the development of mucositis and subsequently to peri-implantitis . Some authors reported various biological complications in the implant-gingival area: gingival swelling, severe redness, bleeding. In addition, radiographically, such patients showed a sharp and uniform recession of the bone base in the area of the osseointegrated dental implant. It should be noted that such complications increased in patients with low hygienic motivation.

Today, in the practice of orthopedic dentistry, two types of fixation of crowns on dental implants are actively used: screw and cement. A number of authors prefer screw fixation of crowns on dental implants, believing that it provides the rigid fastening necessary for the full functioning of artificial crowns. The authors consider the main advantage of such fastening to be the ability to remove artificial crowns if necessary to prevent and treat inflammatory processes in the gum area. An analysis of specialized literature has revealed the effectiveness of screw fixation with parallel installed dental implants, with an orthognathic straight bite, with natural teeth well defined in height and volume.

According to a number of authors , the use of cement fixation is effective when there is insufficient amount of bone around the dental implant during sinus lifts, as well as when dental implants are installed in the jaw with bone augmentation surgery. Adherents of the second direction state the effect of fixing artificial crowns with cement, believing that cement fixation effectively absorbs the chewing load, preventing overload of dental implants. In such cases, cement fixation has shock-absorbing properties, is effective and long-lasting.

**Conclusions :** Thus , analysis of specialized literature on this topic allows us to systematize the pathogenetic approach to methods of fixing artificial crowns on dental

implants. Effective and long-term fixation of crowns on dental implants is achieved by taking into account the clinical picture of each patient individually.

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