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THE ABILITY TO PREDICT THE EFFECTIVENESS AND LONG-TERM DURABILITY OF FIXED DENTAL PROSTHETICS USING INTRAOSSEOUS IMPLANTS.

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ABSTRACT

This scientific article emphasizes the importance of endosseous implant prostheses, the quality and long-term service of implant prostheses. A brief description of the technique for installing dental implants is considered. Scientific research has been analyzed. The stages of strengthening prostheses on implants are considered. The types of prostheses installed on implants are analyzed. The types of prostheses on implants are considered, their differences from each other, attention is paid to the stages of manufacturing prostheses. Studies on intraosseous implantation of prostheses for certain anomalies of anatomical and topographic localization of occlusion are considered.

Keywords: Intraosseous implant, fixed prosthesis, implant head, implant body, implant neck, contraindications to implant surgery, temporary prostheses for implants

In the last 30 years, intraosseous implants have been used as a support for fixed prostheses. The essence of this method is as follows; an implant is inserted into the bone through an incision in the mucous membrane along the alveolar edge, and a fixed prosthesis (one crown or bridge-like prosthesis) is attached to it. The construction of implants is different and depends on the conditions of use. Regardless of their design, the common parts are the same in all implants: 1. head for fixing the prosthesis, 2. neck with the same thickness of the mucous layer, 3. body, a part of the alveolar part inserted into the bone. The head of the implant can be cylindrical or truncated cone. There may be threaded holes for fixing with a prosthesis. The material for implantation is usually titanium, as well as in some cases titanium nickel and ceramics. The implantation operation is performed as follows. An incision is made in the mucosa, the bone is exposed and the bone is opened for implantation. A vertical channel is created with a milling cutter, into which the implant body is inserted with some force. Later, bone or dense connective tissue is formed around the implant. Therefore, the body of the implant should not be smooth. After inserting the body of the implant into the bone, the wound formed is tightly sutured and the implant is covered with a mucous membrane. No later than 4-6 months, if the healing of the wound is positive, the implant is opened with a new incision and the keying stages of implantation are carried out. The operation is recommended for people not older than 55 years. Local contraindications include general periodontitis, periodontal diseases, parafunction of chewing muscles. Positive motivation (adaptation) of the patient to the implant, as well as anatomical and topographic studies, in particular, the condition of the mandibular canal, the lower part of the maxillary sinus, the shape of the edentulous alveolar edge, bone structure, etc., are of great importance. The use of intraosseous dental implants is one of the most distinctive features of modern dentistry. The constructions of prostheses on implants are more physiological compared to traditional prosthetic methods, as they transfer chewing pressure from the straight to the alveolar bone of the straight jaw, besides, they do not require preparation of the adjacent teeth for the prosthesis by sharpening. The use of dental implants in the implementation of orthopedic treatment methods is very popular and highly appreciated among dentists and patients. Currently, the use of dental implants allows to achieve long-term

predictable results. This progress in implantology leads to new questions regarding the materials and technologies used.

The use of computed tomography (CT) and the use of computer software for dental implantology have increased significantly over the past few years. Management of patients using dental implant methods requires the use of temporary prostheses in almost all clinical stages. From the time of tooth extraction to the period of osseointegration and permanent prosthetics.

Temporary prostheses are used to determine the final shape of the future permanent restoration, to correct the occlusal relationship and determine the vertical interocclusal distance. In temporary prostheses, a progressive load of bone tissue is carried out in the area of implantation, soft tissues, including interdental papillae, are formed.

The goal of orthopedic treatment in implantation surgery:

- restoration of the anatomic integrity of tooth rows and occlusion.
- adequate distribution of pressure on the bone tissue surrounding the implants.
- for the physiological regeneration of bone tissue.
- cosmetically effective treatment.

Various types of prostheses can be used using implants, and they are divided into non-removable, conditionally removable, combined and removable dental prostheses according to the principle of fixation. Depending on the materials used, prosthesis supported by implants can be metal-ceramic, metal-acrylic and acrylic.

SUMMARY

Implants in prosthetic dentistry play a key role in providing quality orthopedics by providing effective and long-lasting solutions for restoring lost teeth. Here are a few aspects where implants play an important role:

1. Stability and functionality: Implants provide stable attachment to dentures, which allows you to restore bite functionality and chewing capabilities. This is important to maintain normal speech and improve the patient's overall comfort.

2. Preservation of bone tissue: Installation of implants helps preserve jaw bone tissue. Osseointegration is the process by which the implant integrates with the surrounding bone tissue, promoting its preservation and preventing atrophy.

3. Natural Appearance: Implants provide a foundation for dentures that closely resemble the natural appearance. This is important for the patient’s aesthetics and self-esteem.

4. Preventing teeth from shifting: Implants ensure the stable position of dentures, preventing them from shifting and ensuring an even distribution of the load during chewing.

5. Long-lasting Solution: With proper care and maintenance, implants can last for many years, providing patients with a long-lasting, reliable solution for restoring lost teeth.

Implants significantly improve the quality of life of patients, restoring their confidence in their smile and the functionality of their dentition.

Implants in prosthetic dentistry are used to replace lost teeth. These are metal structures that are inserted into the jaw bone and serve as the basis for the installation

of dental crowns. The procedure involves surgery to insert an implant and then installation of a prosthesis.

A prosthodontist who specializes in implantation diagnoses, plans the procedure, and provides postoperative care. It is important to discuss your needs and expectations with your prosthodontist before deciding to undergo an implant procedure.

Installation of implants in orthopedic dentistry is a complex procedure that includes several key steps:

1. Preliminary Assessment: The prosthodontist performs a detailed assessment of the oral cavity and bone tissue using x-rays and other diagnostic methods.
2. Planning: Based on the preliminary assessment, an individual treatment plan is developed that determines the location and number of implants, as well as the optimal method of installation.
3. Surgical placement: The implant placement process itself involves a surgical procedure in which the implant is inserted into the jaw bone. This may involve open surgery (where the gums are opened for direct access) or minimally invasive techniques such as those using transgingival conduction.
4. Recovery period: After installation of the implant, a recovery period is required. This is the time during which the implant integrates with the bone tissue in a process called osseointegration.
5. Installation of the prosthesis: After the recovery period, the prosthetic dentist installs the denture on the implant, creating a natural and stable dentition.

Each implant case is unique, and the prosthodontist develops an individual treatment plan based on the patient's needs.

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STUDY OF THE FUNCTIONAL EFFICIENCY OF FIXED BRIDGE PROSTHESES ON DENTAL IMPLANTS

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The functional efficiency of fixed bridge prostheses on dental implants is a critical factor in the long-term success and patient satisfaction with implant-supported restorations. This thesis explores the biomechanical performance, patient outcomes, and long-term durability of bridge prostheses fixed on dental implants, focusing on factors such as occlusal load distribution, prosthetic design, and the impact on surrounding tissues.

1. **Load Distribution and Biomechanics:**

o Bridge prostheses supported by dental implants must distribute occlusal forces evenly across the implants to prevent overloading, which can lead to implant failure or bone loss. Proper biomechanical design, including the number of implants used and their placement, is essential for optimal load management.

o The absence of periodontal ligament in implants means that forces are transferred directly to the bone, increasing the importance of precise occlusal adjustments to prevent complications.

2. **Prosthetic Design and Stability:**