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IMPLANTOLOGICAL SURGICAL ASPECTS IN PATIENTS WITH GASTRO-ESOPHAGEAL REFLUX DISEASE

DRĂGHICI MIRCEA STELIAN[1], FAUR ANCA MARIA[2], SABĂU DAN[3]

[1]Dentirad Hospital Ploiesti,, [2]Lucian Blaga University Sibiu, [3]Academy of Medical Sciences

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Abstract: *Some time ago it was believed that diseases or lifestyles that lower salivary pH can lead to negative influences on the viability of dental implants. From what I found in connection with the patients I monitored between three and seven years, I can firmly state that the pH changes of the saliva in the context of gastroesophageal reflux disease, do not negatively influence the viability of the implants. On the other hand, the technical surgical aspects and the rigorous observance of all specific conditions are of great importance in the success of medium and long-term interventions.*

INTRODUCTION

The number of patients with gastroesophageal reflux disease in whom I inserted implants is not high (the incidence of the disease in the general population is around 1.5-3%), but my results confirm the data from the specialty literature that places titanium and its alloys as being very resistant to corrosion, which is why the exposure of implants to increased acidity cannot singularly be a reason for their rejection. (1, 2, 3)

Some surgical technical aspects and operating times that I guided myself in my implantological interventions performed on patients at Dentirad Hospital are exposed and illustrated below.

PURPOSE

Reflux disease is the consequence of pathological associations or vicious habits that can represent, at the time of the patient's encounter with dental implant surgery, risk factors for the viability of the implant. (4)

For example, smokers (among my patients with reflux disease were all smokers), if they do not respect the smoking restrictions, can be candidates for post-implantation complications, the most formidable being the lack of osseous integration of the implant, secondary to the phenomena of poor blood circulation and bacterial colonization secondary to the change in salivary clearance. (5, 6, 7)

In these patients, we chose implants with specific features for smokers (the Zimmer implant) and I can say that I had only one case in which I lost all three implants due to the patient's non-compliance with the post-implantation indications, under the conditions that each patient assumed under his signature these norms of postoperative conduct. (8)

Anyway, the non-integration of these implants cannot be associated with reflux disease.

MATERIALS AND METHODS

Both the clinics where I work, as well as any other medical services, must have standardized conditions, with a minimum equipment: easy-to-sanitize surfaces, one or more dental units, physical dispenser, sterilization devices, UV atmospheric sterilization, possibly radiology devices dental.

The minimum equipment for the practice of dento-alveolar surgery that must exist in any office that deals with these techniques must include: periodontal probes, various scalpels, retractors, decolators, alveolar curettes, scissors of various sizes and angles, syndesmotomas, sterile compresses and isolation fields, sutures, portac forceps, suction cannulas, etc.

Materials specific to implantology include: kits specific to each type of implant, burs of different sizes for bone drilling, keys and portkeys, special devices for controlling the placement of implants, implant holders, depth control devices, healing screws, analog posts, etc. (9)

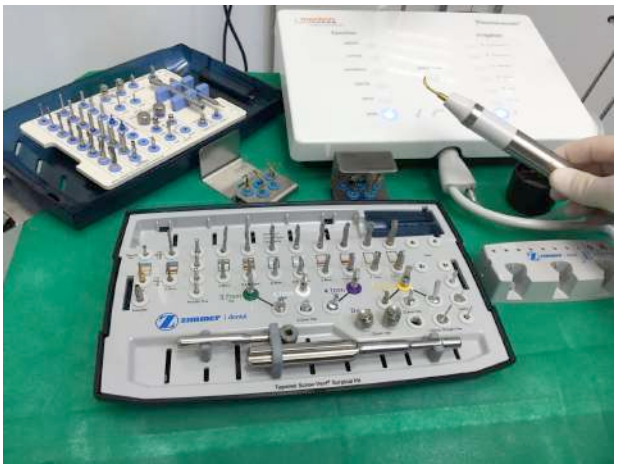

Figure no. 1. The toolkit we use

Regarding anesthesia, it should be mentioned that the bone in its depth has no pain receptors. If the interventions are not very complex, we prefer local anesthesia (vestibular and oral) associated or not with loco-regional anesthesia.

We practice local anesthesia vestibularly and lingually

[1]Corresponding author: Faur, Anca Maria, Address boulevard C. Coposu nr. 2-4, Town Sibiu, County Sibiu, E-mail: anca_dumitra@yahoo.com, Phone: +40728836507
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by instillation along the implantation area, which allows the creation of a buffer zone of approx. 1-1.5 cm on one side and the other of the incision, which ensures the preparation of a sufficient flap.

The preferred anesthetics are combinations that also contain vasoconstrictor substances (Ubistezin Forte) that ensure the persistence of a quality anesthesia, but also achieve quality hemostasis through vasospasm that gives comfort to both the patient and the doctor. Local anesthesia can sometimes be contraindicated. The mandibular canal, which contains the inferior alveolar nerve, is a delicate anatomical structure that can sometimes be damaged during local anesthesia attempts.

Local anesthesia has some advantages in this case because the nerve, having preserved sensitivity, will produce pain when approaching the canal for approx. 1-2 mm. The advantage of pain provocation is better adjustment of the implant size. In the anterior mandibular region there may be an inconstant nerve trunk that may be responsible for the painful sensitivity. It is rarely necessary to supplement the local anesthesia by infiltrations at the level of the chin holes.

General anesthesia is used, in principle, less often, the reports indicating it mainly in hospitalized and hospitalized patients, as well as in the more extensive procedures of oral implantology.

Figure no. 2. Operating room with complete equipment and sterile conditions

However, we use it in everyday implantology practice, for the physical and mental comfort of patients, as well as for the comfort of the operating team, especially in patients who require complex implantological interventions. (10)

The actual procedure begins with the incision of the mucoperiosteal structures, which is carried out farther from the implant site, both mesial and distal. This precaution allows a good exposure of the bone after flap lift-off, which facilitates the proper preparation of the neoalveoli and the insertion of the implants. The incision must be continuous and involve both the gingiva and the periosteum simultaneously, which means that the blade of the scalpel must be kept in constant contact with the bone. If there are significant bony bumps, the incision risks becoming indented by the scalpel slipping, therefore it is necessary to stabilize the surgeon's hand during this maneuver.

Irregular incisions can make it difficult to build the mucoperiosteal flap, which will have unpleasant effects on the healing process, or expose the risk of damage to nerves, vessels or salivary ducts. The detachment of the mucoperiosteum is performed gently, without traumatizing the tissues because there is a risk of excessive intraoperative bleeding, with the risk of hematomas forming between the flap and the bone that can become superinfected and compromise the surgical intervention.

The second stage of the surgical intervention is represented by marking the place where the implant will be inserted. The role of this operating time is to guide the drilling tools that intervene in the following phases as precisely as possible. For efficient drilling, spherical or cross-cut cutters are preferred.

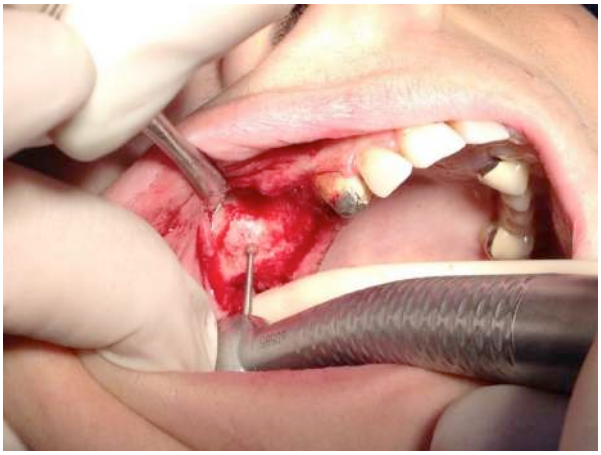

Figure no. 3. Preparation for drilling

The primary drilling in the bone tissue is done with a 1.5 mm diameter helical drill with two cutting edges. The drill with the surface covered by a titanium film uses external water jet cooling, having the advantage of being very easy to clean and sterilize.

After the primary drilling, the parallelism is checked with a parallelism pin, made of stainless steel. The parallelism is checked by inserting the pin with the 1.5 mm diameter rod into the previously drilled hole.

The opposite extremity of the parallelism pin is compared either with the neighboring teeth if they exist, or with the neighboring pins, or with a pre-existing neighboring implant.

Reaming is done with a special sword cutter equipped with internal cooling and consisting of two distinct parts.

The active part has a diameter matching the diameter of the implant to be inserted, and the second part adapts to the angle piece. The two straight channels of the active part facilitate the evacuation of the drilled bone tissue as well as the coolant.

Sword burs are of progressively increasing sizes and are used from the smallest diameter (2 mm) until the diameter adapted to the implant to be inserted is obtained.

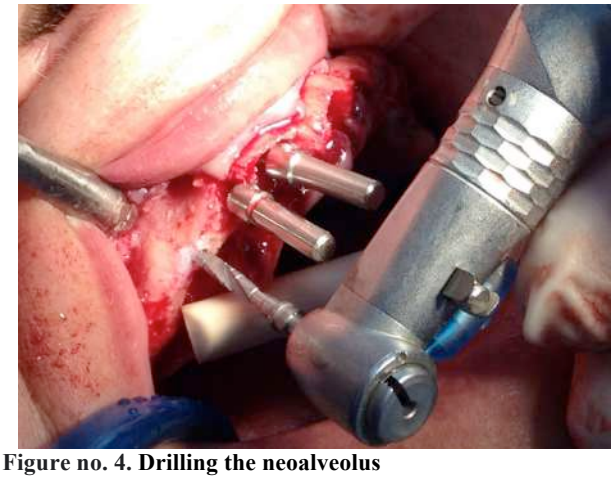

Figure no. 4. Drilling the neoalveolus

The tool used to prepare the slot where the unthreaded portion of the implanter head is fixed is the cylindrical bevel that guides the tool during processing and is equipped with internal cooling and a channel for marking the working depth.

Tapping, i.e. making the bone thread, is done before the actual insertion of the implant and is only necessary in the case of inserting the implant in bone with increased density, such as the mandible. (11)

Tapping can be done manually or mechanically, but from experience I can say that manual tapping with external cooling is safer. We use the socket wrench or the ratchet wrench depending on the topography.

Following my personal experience, I also chose to use implant models without threading, which have a self-threading function.

The alveolus is washed with a jet of liquid under pressure in order to remove all bone chips resulting from tapping.

The implant is sterile at the time of insertion into the neoalveolus, therefore we avoid direct contact with its surface during the insertion maneuvers.

A waiting period of 2-4 months is recommended for the mandible, respectively 7-9 months for the maxilla, after which the tissue covering the healing screw is removed with a circular scalpel or according to one's preference with a number 15 blade, with a straight or angled handle, which I rotate circularly, taking a fixed point in the point of insertion of the key and the prosthetic abutment is mounted by threading it onto the abutment or an intermediate screw can be used that crosses the abutment and is fixed on the implant, uniting with it.

The circular scalpel has the advantage of minimizing the working time and the surgical trauma to which the patient is subjected. In addition, a very good mucoperiosteal healing is ensured, with the advantage of obtaining a good superior peri-implant ligament.

And last but not least, contact of the implant and the bone adjacent to it with the oral septic environment is no longer allowed.

RESULTS

The viability of a dental implant depends on several factors including:

a. The use of implants made of biocompatible materials

b. Compliance with biological and mechanical principles

c. The existence of the implant within a suitable physiological and morphological environment

d. Surgical strategy and technique appropriate for each individual case

e. Respecting the stages of gingival-mucosal healing

f. Choosing an optimal prosthetic solution

g. Absence or limitation of the action of harmful factors that can interfere with the healing process (high acidity, reflux disease, smoking, alcohol, etc.)

The patient wearing dental implants is a periodontal patient, with all that treatment and dispensary means.

Peri-implantitis, which affects both soft tissues and bone structures, is a periodontal disease caused by gram-negative pathogenic microorganisms.

It is noteworthy that no spirochetes are present in the oral microbial flora of totally edentulous patients with dentures on implants.

In the case of teeth or implants with cysts of 3-4 mm compared to those of 1-2 mm, there are some changes related to the enzymatic activity that is more intense, and the number of microbial strains is increased.

To reduce the risk of peri-implantitis and to increase the efficiency of oral hygiene, the prosthetic abutment must be firmly attached to the implant (microgap type).

If it is not fixed tightly (macrogap type), the appearance of the asanumi open edge is favored, which leads to the development of microbial flora.

DISCUSSIONS

The success of oral therapy with dental implants relies in part on the quality of the perimucosal seal around the implant surface. (12)

Some authors (Schroeder) believe that the presence of fixed keratinized mucosa increases the success rate of the implant, while others (Wennstrom, Lindhe) believe that the absence of fixed keratinized mucosa does not necessarily represent a factor favoring failure. (13)

Regardless of the controversies, it was found that partially edentulous patients, prosthetics on implants, present an increased risk of developing peri-implantitis compared to those totally edentulous with exclusive prosthetics on implants. (14, 15)

The behavior of prosthetic works on implants being different from that of works on natural teeth and the attitude regarding the dispensary of the patient wearing dental implants must be different.

Poor personal hygiene of the patient favors the excessive development of bacterial colonies (Actinomycetes viscosus, Fusobacterium, Staphylococcus, Bacteroides, Candida, Actinomycetes, Porphyromonas gingivalis, etc.), which will ultimately cause the failure of the dental implant. (15, 16)

Self-care and periodic sanitization at the doctor's office meet several important goals: inhibiting the development of microbial flora, preventing early bacterial colonization of the implant surface, completely eliminating the bacterial plaque, or changing the composition of the bacterial plaque from pathogenic to non-pathogenic.

The methods of keeping the bacterial plaque under control in proportion to at least 85% involve the use of interdental brushes, previously passed through a chlorhexidine solution, dental floss soaked in chlorhexidine, staining the cervical region of the implant with chlorhexidine in the case of composite fillings.

Monitoring the patient with dentures on implants also requires periodic professional hygiene to control bacterial plaque, possible inflammatory processes and, if they exist, measuring the depth of the bag with a plastic probe, periodic supragingival descaling, observing possible descimentation or loosening.

We schedule the controls at intervals of approx. 3-4 months, we perform control radiographs every 12-18 months, and in case of the existence of a peri-implant inflammatory process, degranulation, detoxification and augmentation of the possible bone defect may be necessary.

Restoring an implant considered repaired, we do it about 10-12 weeks after the intervention, all interventions being accompanied by radiographs and the making and storage of images.

In order to degranulate and clean the surface of an implant, ultrasonic descaling can never be used. Contact antibiotics, daily manual or electric brushing, do not produce significant cleaning effects on the surface of the dental implant, if it is contaminated.

CONCLUSIONS

1. Dental restorations in patients with hyperacidity in the oral cavity must be made with materials resistant to the corrosive action of low-pH saliva.

2. The ability of patients to ensure good oral hygiene is extremely important for the long-term success of implant therapy.
3. Guided bone regeneration is useful in various clinical situations to obtain either a bone substrate suitable for the insertion of implants, or a monitoring of the atrophy of the alveolar ridges as well as the restoration of some bone defects, an aspect that we confirm from our own practice.
4. The main selection criterion of these materials is that of biocompatibility, followed by mechanical properties, not less important being corrosion resistance and last but not least, cost price.
5. Zimmer implants are addressed to certain categories of patients where other implants cannot be used, i.e. patients at high risk of implant rejection.
6. The patient wearing dental implants is a periodontal patient, with all that treatment and dispensary means.
7. Dispensing the patient with dentures on implants also requires periodic professional hygiene to control bacterial plaque, possible inflammatory processes and, if they exist, measuring the depth of the bag with a plastic probe, periodic supragingival descaling, observing possible descimentation or loosening.

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