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## Journal

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## AIMS AND SCOPE

Acta Stomatologica Marisiensis is an official Journal of the George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Targu Mures, Romania, and is published twice a year. Acta Stomatologica Marisiensis is an international journal dedicated to publishing high-quality peer-reviewed articles about all fields of dental medicine. The important topics covered by the journal refer to the complete, complex and interdisciplinary treatment of the patient with dental problems. This involves addressing all branches of dental medicine and does not exclude research in the field of nanomaterials, biotechnology or medical engineering.

By focusing on the publication of new documents and evidence of high quality research, Acta Stomatologica Marisiensis aims to improve research and clinical practice of dental medicine at an international level.

The journal focuses on the publication of quality medical research articles that bring new insights into dental medicine from the perspective of diagnosis and treatment methods as well as the materials used. No less important are presentations of interesting clinical cases that can bring new light into diagnosis and treatment methods or interdisciplinary therapeutic approaches or

collaborations with various fields of engineering for the development of innovative new technologies.

Acta Stomatologica Marisiensis addresses the entire community of dental specialists or related specialties at national and international level and aims to provide studies and materials for a better understanding of diseases and treatments in the sphere of dental medicine.

The Journal emphasis is primarily on original high-quality medical research but also accepts manuscripts relating to the basic sciences, review articles, systemic reviews and meta-analysis, case reports, and observational studies of all types, including randomised control trials, editorial commentary and opinions covering the entire spectrum of research in dental medicine.

The role of the Journal is to inform its readers of ideas, opinions, developments and key issues concerning dental medicine, stimulating interest, debate and discussion amongst dental medicine colleagues and those of related disciplines.

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## EDITORIAL

### 2020 The year of your choice between digital and conventional dentistry.

Bogdan Oprea<sup>1</sup>

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We are at the end of 2019, and, as usual, at the end of the year, it is a time of balance and plans for the coming year (2020).

If we look back at what happened professionally, technologically in the year just ended; certainly, an essential aspect worth analyzing is the progress of digital technologies and their increasingly active presence in the various branches of dentistry.

Indeed, we are still on the upward side of the evolution of these technologies, and we cannot even dare to imagine how much and in what direction they will evolve. We can see that a level of maturity of the development of these solutions has been reached, both in terms of hardware and software that allows, today, to create and offer to our patients a complete digital workflow from the first consultation until the end of treatment.

The space allocated for this editorial is far too short to try to make a list of all the already existing and functional technologies that can be implemented in any dental office or clinic.

When analyzing a patient's path from the first consultation to the end of treatment, we can see that at every step, digital technologies are present and play a significant role.

First of all, we have at our disposal extremely robust and developed patient management programs that help us to efficiently manage not only the patient's medical information but also the activity of the office. The maturation of these programs also brought with it the introduction of modules specific to CRM programs that also allow the management of the managerial/financial activity of the firm. The electronic diary is the most powerful tool for managing daily activities based on the principles of efficiency, productivity, and profitability while offering patients a much closer and more friendly

relationship with the dental office. We are at a time when we can have a "paperless" office much more organized and efficient than by classical methods. The use of these types of software platforms will facilitate and shorten the "bureaucracy" specific to physical patient files.

Leaving the "bureaucratic" area and entering the clinical part, the first technology I would like to draw your attention to is digital radiology. Of course, we are all already familiar with the use of digital x-rays that have already become "normal" in current practice. But the "normal" that I propose to focus on in 2020 is 3D/CBCT radiology. It is a time of "revolution" in which we should take precedence over scientific publications and accept that the CBCT should become the **QUALITY STANDARD** for radiological examination at the first consultation (I would like to point out that this is a personal opinion that I assume). The information provided by 2D radiology is currently insufficient to be able to make a complete/correct diagnosis and to be able to carry out an adequate treatment plan that offers long-term dental health to patients. Although internationally, more and more specialized professional associations recommend the CBCT as the method of investigation of choice in their field of activity, there is still no common, general opinion on this type of investigation. But if we analyze coldly, we can find that a single CBCT investigation at the beginning of treatment will give us all the information we need for diagnosis and treatment. Technological developments have led to better and better performance of these devices and to greater patient safety. There are standard resolution CBCTs in which the radiation dose received by the patient is equivalent to that received during

a 3-4 hour flight. I believe that the ALARA principles are perfectly respected when we use this type of investigation. So, my first recommendation for you in 2020 is to start using CBCT investigation as much as possible to establish diagnoses and treatment plans during the first consultation.

Now that we have the digital Xray investigation performed, it is time to move on to the clinical examination. Here are two essential digital technologies: digital radiology and intraoral scanner for making the optical impression. The classic clinical examination is irreplaceable, but the two technologies will allow us to examine from perspectives and angles impossible to access in reality. With the help of these two technologies, we can create our "virtual patient" who can be analyzed and consulted indefinitely even after the real patient has left the office. Digital photography, not only is accessible for any doctor (both financially but also in terms of the learning curve), but still, it is a communication tool (both within the team and with the patient) of inestimable value. My second recommendation for 2020: start documenting your entire activity.

Regarding the optical fingerprint and the intraoral scanner, things are straightforward: it is the "must-have" tool that should be at the forefront of your growth and development plan. Virtual models for virtual clinical examination, communication with the digital laboratory, prosthetics, orthodontics, dental aesthetics, surgery/implantology, endodontics are just some of the areas where its usefulness is invaluable. Increased accuracy, time savings, and the comfort of the patient and the medical team are just some of the reasons why you should not miss the opportunity for 2020 to be the year in which this tool becomes part of your therapeutic arsenal.

Chairside CAD-CAM systems are the next technology you should focus on. The possibility of achieving, not only the optical impression but also the fabrication of the various types of prosthetic restorations on natural teeth or implants is a big step forward in terms of changing paradigms in analog dentistry. Medically speaking, chairside CAD-CAM systems open the door for the most conservative types of preparations. We will

prepare strictly the dental tissues that are affected, we will keep the limits of preparations away from periodontium, a classic crown will become the last option, and the chances of preserving the vitality of the teeth will increase when we use these types of restorations. The possibility of introducing the concept of "one session dentistry" will bring multiple benefits (medical, managerial, and financial) for both the patient and the doctor and practice. 3D printers experienced a real explosion in 2019 in terms of their use in dentistry. From quarter to quarter, there is a growing increase in both types of printers and resins with dental indications.

Of course, there are still many exciting and promising digital technologies: computerized occlusion analysis systems, digital facial arches, virtual articulators, online platforms for analysis and planning of dental aesthetics cases, facial scanners, and much more.

What is, however, extremely important is that these technologies are interconnected. They are not just stand-alone devices or software that have particular functions but can communicate with each other and integrate into digital examination or treatment workflows.

Going back to the first consultation, it is obvious that the time the patient spends with us in the office is limited and insufficient to establish all the diagnoses and build an appropriate treatment plan. The possibility of creating a virtual patient using integrated digital technologies (electronic medical record, CBCT, photo documentation, optical fingerprint, digital recordings of occlusion parameters, 3D printed models, etc.) will allow us to carefully and patiently analyze each case without the pressure of time. Digital technology will give us the information and time we need to make the best decisions. The implementation of these digital technologies in daily practice has numerous beneficial medical, epidemiological, managerial/financial effects.

Of course, the major obstacle that most of us see is related to acquisition costs. How do we overcome this obstacle? It's simple and complicated at the same time.

SIMPLE because the financial hurdle is relatively easy to overcome: there are various financing methods, and the ROI (return of



investment) is extremely fast. SIMPLE because patients will be extremely receptive to these types of treatments and will accept them very quickly once they understand the benefits.

COMPLICATED ...because... US. The blockage is at the level of our attitude. A reset of attitude and mentality is needed. Each of us needs to analyze and decide if he wants his professional future to be digital or not. If the decision is favorable, then you need to keep a permanent focus on the important objectives: "to get the technology!", "to learn about the technologies", etc.

Each of us needs to analyze and decide whether he wants his professional future to be digital or not. If the decision is positive, then we need a permanent focus on the objective and to find solutions from the obstacles that stand in the way. The most important piece of advice I can give you is: remove "No" and "Yes but..." and enter "Yes" and "I will find the solution". Don't let the defeatist approach stand in the way of your professional growth and development. Always think about the benefits that these technologies will bring you and make these positive thoughts charge you with the energy needed to travel from dream to reality.

It's easy? No. But not impossible. It takes work. But you are used to work, so don't let time pass. Decide that 2020 will be the year of your professional "digitization" and... start to work on it! Attention the work does not end at the time of purchase. Implementation is also essential. It takes work to learn to master these technologies, and it takes work to explain the benefits to each patient.

But as I said... we are not afraid of work.

If you intend for 2020 to be the year of your professional "digitalization" here are some questions you should answer:

1. Do I need it?
2. What technologies are available?
3. How to start?
4. How to choose?

5. What solutions do I have available to make the purchase?

6. How to integrate (at the office and the patient level).

The first question is essential. If the answer to this question is a positive one, then in the following, you will find support to find the right answers.

And because I don't want to ask you just questions, here are some useful tips on how to "digitize" your practice:

1. Define what kind dentistry you wish to offer to your patients and what technologies you need to do that.
2. Think of the future needs.
3. Decide which technology serves your best present and future needs.
4. Investigate and find the systems that seem to be right for your current and future needs.
5. Compare and analyze but not in terms of acquisition costs.
6. Speak with colleagues who already use this technology.
7. Ask the right questions to the sellers.
8. Ask for an office drive test.
9. Make your Business plan.
10. Learn and train before, your system will arrive.

Of course, the choice between the classic analog or the new digital is a personal one for each of you. But one thing is for sure: digital dentistry is not a "fleeting fashion" but is the present and the future.

In conclusion, I offer you for analysis and meditation the following extremely valid thoughts for our profession:

"Resolve to be a master of change rather than a victim of change" - Brian Tracy

"A goal without a plan is just a dream" - Antoine de Saint Exupery.

"A dream is just a dream until you make it a goal and set a date" - TD Jakes.

Let's see each other well in a 2020 as digital as possible.

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## ORIGINAL RESEARCH

## The role of carious lesions in the occurrence of pathological modifications in deep periodontal level – radiographic evaluation.

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### Abstract

In the etiology of periodontal disease, dental caries act as a favoring factor. The purpose of our study was to evaluate the role of untreated or incorrectly treated carious lesions in the occurrence of pathological changes in the periodontal support. Material and methods: In order to evaluate the impact of the dental caries in the appearance of destructive lesions at the periodontal level, we examined 378 X-rays. The radiographies were selected based on the presence of approximal dental cavities, untreated or incorrectly treated and we appreciated the association of these factors with the presence and the level of bone resorption of the interdental septum. Results: On the 378 radiographies we examined, it was discovered the presence of 398 approximal carious lesions, of which 146 were associated with bone resorption. The examined radiographies permitted us to evaluate 1512 fillings inserted in second class cavities, of which 1103 were correctly done, and 309 were incorrect and associated with bone resorption phenomena. Incorrectly done restorations were associated with bone resorption phenomena due to the lack of contact with the adjacent tooth for 213 of these, and because of an inaccurate adaptation at the level of the gingival threshold for 96. Conclusions: The dentist has to pay a special attention to the approximal coronary restorations because these can favor the retention of bacterial plaque and, in most cases, can lead to bone loss in the alveolar ridge area.

**Keywords:** periodontal disease, dental caries, radiography

### Introduction

In the etiology of the periodontal disease, dental caries act as a favoring factor. Due to pain in contact with food, unilateral and/or superficial chewing, self-cleaning and even artificial cleaning no longer act in the sense of removing the bacterial plaque. Therefore, the bacterial plaque accumulates in the area affected by cavities and initiates gingival inflammation.[1-5] In the case of approximal cavities, retention of food residues and bacterial plaque occur, and when the marginal ridge is interrupted a harmful impact on the interdental papilla also occurs. Proliferation of the gum may cause polypus, pediculate or sessile hyperplasia, which further accentuates the retention of debris from the cavity. This inflammation is due to fermentation phenomena or the rotten composition of food residues and it can sometimes lead to chronic gingivitis or periodontitis.[6,7] The main and circumstantial factor is the reduction of self-cleaning and even avoidance of artificial cleaning due to pain and bleeding. This alarms the patient and in order to protect the inflamed

area, thus the rules of oral hygiene are not respected.

The fillings inserted in second class cavities that were incorrectly performed, without a restoration of the contact with the neighboring tooth or by an incorrect adaptation at the level of the gingival threshold, can constitute irritating factors for the periodontal tissue.

Once the inflammatory phenomena of the periodontal layer are installed, their persistence can cause destructive phenomena to occur at the level of the deep periodontal tissue.[8]

The purpose of our study was to evaluate the role of untreated or incorrectly treated carious lesions in the occurrence of pathological changes in the periodontal support.

### Material and methods

In order to evaluate the impact of the dental caries in the appearance of destructive lesions of the periodontal tissue, we examined 378 X-rays. The radiographies were selected based on the presence of approximal dental cavities,

untreated or incorrectly treated and we appreciated the association of these factors

## Results

The examined radiographs showed pathological modifications of the periodontal



Figure 1. Alveolar bone resorption caused by mesial carious process on 4.8

On the 378 radiographies examined, it was discovered the presence of 398 approximal



Figure 3. Approximal carious process that accentuated bone resorption

The examined radiographs allowed us to evaluate 1512 fillings inserted in second class cavities, of which 1103 were correctly done, and 309 were incorrect and associated with bone resorption phenomena (figure 4).

Incorrectly done restorations were associated with bone resorption phenomena due to the lack of contact with the adjacent tooth in 213 of these, and because of an inaccurate adaptation at the level of the gingival threshold in 96 restorations.

## Discussions

Regarding Regarding the correlation between the presence of caries or approximal

with the presence and the level of bone resorption of the interdental septum.

tissue associated with the presence of caries (figure 1) or incorrect fillings (figure 2).

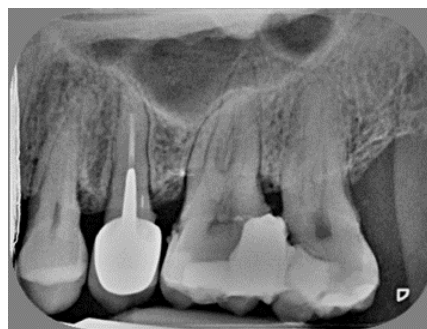


Figure 2. 2.6 incorrectly adapted restoration associated with bone resorption

carious lesions, of which 146 were associated with bone resorption (figure 3).



Figure 4. Incorrectly adapted fillings in second class cavities that accentuated bone resorption

fillings with incorrect marginal adaptation and the presence of resorption of the interdental septum and the alveolar ridge, numerous studies have been conducted. These studies confirmed that in case of presence of factors that enhance plaque retention and accumulation, the alveolar bone is predisposed to resorption.

We determined that in case of carious lesions, even more in case of marginally incorrect fillings, plaque can accumulate easily, being difficult to remove, due to patient carelessness regarding interdental spaces.

In our study, of the 398 carious lesions observed, 37% were associated with the phenomenon of bone resorption.

The 146 approximal carious lesions which led to bone resorption were extended in width and depth. The persistence of microorganisms at this level, also the repeated alimentation impact and/or unilateral mastication led to the appearance of inflammatory process of the interdental papilla. This process, in time was transmitted to the periodontal structures beneath and was observed on radiographies as bone resorption phenomena.

Carious lesions which were not associated with pathological modifications of the profound periodontal tissue, were observed in an early stage of their evolution.

The observed radiographies permitted us to evaluate 1152 fillings inserted in second class cavities. 73% of these were correctly done and 27% led to bone resorption because of incorrect adaptation.

Bone resorption phenomena associated with incorrect fillings were in 67% of cases due to the lack of interdental contact with the adjacent tooth, and in 33% of cases due to incorrect adaptation of the gingival threshold.

In another similar study conducted in the Periodontology Department of the University of Budapest [9], it was analyzed whether approximal caries or fillings could contribute to periodontal attachment loss. The study was carried out on the approximal surfaces of 884 teeth, of patients between 26-32 years. For these subjects, the depth of periodontal pockets was recorded. In case of a filling which was placed on the approximal surface of teeth before the age of 26, at 32 years old the attachment loss was greater than 3 mm.

Qvist et al. [10] monitored the alveolar bone height for a period of 8 years on 3 groups of patients with fillings placed in second class cavities. 54 extended approximal fillings were compared with less extended ones. The distance between the alveolar ridge and the apical margin of the filling, also with the distance between the enamel-cement junction were annually measured for the pilot group. As a diagnostic method bite-wing radiography were used. The rate of alveolar ridge resorption was similar at both groups (less extended in the

pilot group) and got up to 0.45 mm after 4 years of surveillance.

The purpose of a similar study, conducted in the University of Plovdiv [11], was to radiologically determine the type and degree of interdental septum resorption of teeth restored on their approximal surface in different iatrogenic clinical situations. The study was conducted on 757 amalgam restorations inserted in second class cavities. The state of the interdental septum was investigated in: correct restorations, incorrect restorations with unsatisfying marginal adaptation, and restorations which lacked contact with the adjacent tooth. Horizontal resorption of the interdental septum was predominant in every study group. Restorations with unsatisfying anatomical shape, presented a higher prevalence of vertical resorption of the interdental septum, compared to the restorations with correct shape. Similarly, restorations with incorrect marginal adaptation presented a higher incidence of resorption than in the case of correct marginal adaptation. A higher degree of resorption of the interdental septum was observed in restorations with incorrect anatomical shape, with incorrect marginal adaptation and without adjacent tooth contact.

Many of the radiographies examined revealed the presence of a periodontal disease, radiologically translated by the presence of bone resorption. In these patients, generalized bone resorption, due to the periodontal disease, was visibly more pronounced at the dento-periodontal units that presented caries or incorrectly adapted fillings.

There is a correlation between the deterioration of the quality of the dental surfaces and the deterioration of the periodontal structures, due mainly to the accumulation of bacterial plaque on teeth with coronary restorations. In a study done by Carman et al. [12] on 826 patients, the integrity of the dental surfaces was examined and also the depth of the periodontal pockets was measured. The results show that the periodontal pocket depth was higher in sites with marginally incorrectly adapted fillings and in sites with recurrent caries, compared to sites with correctly done restorations. The data confirms the fact that the periodontal

conditions tend to deteriorate once the quality of the dental surfaces deteriorates.

In another study done by Sikri [13] the loss of interproximal bone matter in 100 teeth with excess fillings was compared with the loss of interproximal bone matter in 100 teeth without fillings (pilot group). In general, the bone matter loss was found in teeth with fillings that presented higher irregularities unlike the fillings with less significant irregularities.

Brunsløt et al. [14] based on the research done, state that dental restorations with poor marginal adaptation represent a major dental health problem. These fillings are highly implicated in the etiology and progression of the periodontal disease, being alarmingly prevalent. In addition, gingival bleeding and increase of the loss of bone matter was found in tissues adjacent to incorrect restorations, as compared to homolog teeth. Eliminating the fillings increases the efficiency of the hygiene phase of the periodontal treatment. Many of these fillings are not easily detected, they can only be highlighted by using a subgingival exploratory, that is why most of them are not removed.

Many other studies have as their objective the examination of the effects of dental restorations, crowns and fillings, and carious lesions on the periodontal tissues. The results showed significantly greater pocket depth and bone loss around teeth with restorations and carious lesions. [15-22]

## Conclusions

Periodontal disease is a multicausal condition, in which untreated or incorrectly treated carious lesions act as a favoring factor.

The presence of carious lesions can conduce to accumulation of bacterial plaque, with a decisive role in the occurrence of inflammatory phenomena in the periodontal structures.

Untreated approximal carious lesions, by their persistence and evolution, can be associated with the presence of bone resorption phenomena.

Incorrectly adapted fillings can be associated with bone resorption phenomena due to the lack of contact with the neighboring tooth and to an improper adjustment at the level of the gingival threshold.

The dentist has to pay a special attention to the approximal coronary restorations because these can favor the retention of bacterial plaque and, in most cases, can lead to bone loss in the alveolar ridge area.

In some subjects, due to a periodontal condition, generalized bone resorption was more evident in dento-periodontal units that presented carious lesions or incorrectly adapted restorations.

**Conflict of interest:** None to declare.

## References

1. Arweiler NB, Netuschil L. The Oral Microbiot. *Adv Exp Med Biol.* 2016;902:45-60.
2. Harvey JD. Periodontal Microbiology. *Dent Clin North Am.* 2017 Apr;61(2):253-269.
3. Mombelli A. Microbial colonization of the periodontal pocket and its significance for periodontal therapy. *Periodontol* 2000. 2018 Feb;76(1):85-96.
4. Pinto G, Silva MD, Peddey M, Sillankorva S, Azeredo I. The Role of Bacteriophages in Periodontal Health and Disease. *Future Microbiol.* 2016 Oct;11:1359-1369.
5. Yamashita Y, Takeshita T. The Oral Microbiome and Human Health. *J Oral Sci.* 2017;59(2):201-206.
6. Kumar S. Evidence-Based Update on Diagnosis and Management of Gingivitis and Periodontitis. *Dent Clin North Am.* 2019 Jan;63(1):69-81.
7. Murakami S, Mealey BL, Mariotti A, Chapple ILC. Dental Plaque-Induced Gingival Conditions. *J Clin Periodontol.* 2018 Jun;45 Suppl 20:S17-S27.
8. Durand R, Roufegarinejad A, Chandad F, Rompré PH, Voyer R, Michalowicz BS, Emami E. Dental caries are positively associated with periodontal disease severity. *Clin Oral Investig.* 2019 Oct;23(10):3811-3819.
9. Kovács V, Tihanyi D, Gera I. The incidence of local plaque retentive factors in chronic periodontitis. *Fogorv Sz.* 2007 Dec;100(6):295-300.
10. Qvist V, Laurberg L, Poulsen A, Teglers PT. Eight-year study on conventional glass ionomer and amalgam restorations in primary teeth. *Acta Odontol Scand.* 2004 Feb;62(1):37-45.
11. Popova EV, Tsanova ST. Situational analysis of the type and degree of resorption of the interdental septum of teeth with approximal amalgam restorations. *Folia Med (Plovdiv).* 2005;47(3-4):84-91.
12. Carman J, Knapp J. Subgingival Class II amalgam restoration using a combined periodontal-restorative procedure. *Compend Contin Educ Dent.* 2005 Jun;6(6):426-8, 434-5.

13. Sikri VK, Sikri P. Overhanging interproximal silver amalgam restorations. Prevalence and side-effects. *Indian J Dent Res.* 1993 Jan-Mar;4(1):13-6.
14. Brunsvold MA, Lane JJ. The prevalence of overhanging dental restorations and their relationship to periodontal disease. *J Clin Periodontol.* 1990 Feb;17(2):67-72.
15. Tiwarri OS, Salimeno T Jr, Choksi S, Rao MS, Gupta OP. Effects of restorations and carious lesions on the periodontium in humans. *Ann Dent.* 1992 Winter;51(2):22-5.
16. Bodic F, Hamel L, Lerouxel E, Baslé MF, Chappard D. Bone loss and teeth. *Joint Bone Spine.* 2005 May;72(3):215-21.
17. Gera I, Windisch P, Keglevich T. Importance of periodic follow up of periodontal diseases for the maintenance of periodontal health and the longevity of dental restoration. *Fogorv Sz.* 1991 Sep;84(9):257-62.
18. Albandar JM, Buischi YA, Axelsson P. Caries lesions and dental restorations as predisposing factors in the progression of periodontal diseases in adolescents. A 3-year longitudinal study. *J Periodontol.* 1995 Apr;66(4):249-54.
19. Broadbent JM, Williams KB, Thomson WM, Williams SM. Dental restorations: a risk factor for periodontal attachment loss? *J Clin Periodontol.* 2006 Nov;33(11):803-10.
20. Schatzle M, Land NP, Anerud A, Boysen H, Burgin W, Loe H. The influence of margins of restorations of the periodontal tissues over 26 years. *Journal of Clinical Periodontology.* 2001;28:57-64.
21. Thomson WM, Williams SM. Partial- or full-mouth approaches to assessing the prevalence of and risk factors for periodontal disease in young adults. *Journal of Periodontology.* 2002;73:1010-1014.
22. Lopez R, Retamales C, Contreras C, et al. Reliability of clinical attachment level recordings: effects on prevalence, extent, and severity estimates. *Journal of Periodontology.* 2003;74:512-520.

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## ORIGINAL RESEARCH

## Taking dental impressions of dental medicine students: with and without vomiting reflex.

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### Abstract

Introduction: It is a well-known fact that during a dental impression, some patients suffer from the gag reflexes.

Aim of the study: Even if the main tendency is to use medication, our goal is to find a way to combat it.

Material and methods: With the help of our 155 volunteering students, from UMFST Târgu Mureș, who agreed on having their dental impression taken, using alginate material, we tried to combat the gag reflex, using the following techniques: the high-leg method, salt crystals, as well as using a special impression tray.

Results: When we applied all of these methods, great attention was paid, as we diligently wrote everything down. After all the work was done, we obtained the following results: 130 did not show any vomiting signs, 17 of them presented moderate vomiting reflex and only 8 of them have shown extreme vomiting reflex, leading to the point where the impression could not be performed.

Conclusions: On the one hand, for the less informed people, these techniques present a better outcome; on the other hand, however, we wish to highlight one thing: the skills of the doctor are of utmost importance.

**Keywords:** gag-reflex, students, dental-impression, non-medical method

### Introduction

The vomiting reflex is a reflex act, which consists in the sudden evacuation of the gastric content through the oral cavity, outwards. As a dentist, you may find yourself in this situation often and confront this recurring problem.

This makes it very difficult to perform some therapeutic acts or maneuvers or may even make the treatment impossible, although nowadays various methods by which the vomiting reflex can be controlled exist, especially the administration of an anti-emetic medication. There are also non-drug methods that can be effective to patients with vomiting reflex. Our goal was to demonstrate the effectiveness of these non-drug methods by which we could combat the vomiting reflex that occurs during dental impression [1].

### Material and methods

On a group of 155 volunteer students from the Faculty of Dental Medicine of University of Medicine and Pharmacy, Science and Technology, UMFST from Tg-Mureș, we performed a study to highlight the frequency of gag reflex that appears during dental impression of the dental arches and the

efficiency of the non-medicinal methods used to combat the vomiting reflex.

The study group included 155 students from Faculty of Dental Medicine, University of Medicine and Pharmacy, Science and Technology, UMFST from Tg-Mureș (n = 155) of which 90 were female subjects and 65 male subjects with the age between 19 and 25 years. All the participants agreed to be part of this study, without remuneration or any other reward that may influence their decision [2].

Inclusion criteria: students from Dental Medicine, clinically healthy, without diseases in the oral-maxillofacial area.

Exclusion criteria: students who had general or local clinical conditions, students who had orthodontic devices [3], students undergoing drug treatment, students who had recently dental bleaching or student who had nausea due to other causes.

This study was unfolded over four weeks, each student being subjected to the same conditions when their impression was taken: the same material was used and the same impression method. Also, all the dental impressions were taken by the same doctor.

The material used for the impressions was an elastic material based on irreversible hydrocolloids, respectively an alginate (Tropicalgin from Zhermack, Italy) with a fast setting time. We chose to take this dental impression with an alginate for the following reasons: alginate is most commonly used for dental impressions in the making of documentation models, dental impression with alginate runs really fast, due to its viscosity and the thicker layer of material, compared with other elastic materials the alginate can cause more nausea so the gag reflex [4] appears more often. The impression trays used were the basic ones with holes and spaces, as retentions and ergonomic handle. The size of the impression tray was carefully and specifically chosen for each student in the study. The impression trays made of plastic material have as a means of retention 2 mm diameter holes, spaces and positive retention forms, as well as side fins/wings for easier removal.

The same protocol was followed during all of the dental impressions. The volunteers were not informed about the subject of this study precisely because we did not want to induce them on a subconscious level that fact and idea that they might throw up; also, any discussions related to the possibility of the gag reflex and vomiting was avoided. All the maneuvers were done calmly, safely, with safe and firm movements, inducing a feeling of confidence and control, trying to produce less discomfort as possible to the patients. Given that the entire lot of volunteers was represented by students in Dental Medicine, this means all of them knew about dental impression with alginate and how a dental impression is taken.

The dental impression itself: after informing the participants about the process we were about to perform as well as their position, we invited them to take a sit in the dental chair, with the headrest in the right place [5]. The right size of the impression tray was chosen and the impression process started. Each patient rinsed their mouth before each dental impression.

First, we took the impression of the mandible after that, the impression of the maxilla.

For the preparation of alginate, we used water and powder dispensers, we used distilled

water at room temperature, the alginate package being agitated before preparation. We used the special rubber bowl for alginates and a wide spatula.

For the upper arch, we used 2 measures (doses) of alginate and the volume of distilled water correspondingly measured with the cylinder in the kit; for the lower arch we used a measure and a half of alginate.

The alginate has been manually prepared in a rubber bowl. First of all, the alginate dust was added, which was previously shaken, over which we poured the distilled water, at room temperature. Using a wide plastic spatula, the alginate dust was first mixed with the water until a homogenous and smooth texture was obtained. After that, we started the mixing process itself, with circular moves, holding the spatula as parallel as possible to the walls of the bowl. The moves were energetic and quick. The mixing process continued until the desired consistency of our alginate paste has been reached.

This group of moves needs to be performed quickly, in order to avoid the premature hardening of the material. With one single move, the impression material was gathered on the spatula, followed by the immediate loading, from the posterior area to the front of the impression tray. The correct way of loading the impression tray is with a scraping move on the side of it, instead of simply adding it.

One key aspect of a correct impression is the way the tray is inserted in the oral cavity, and applied on the prosthodontic field: it needs to be introduced distally, with gentle force to move it anteriorly, in order to reduce the chances of the material flowing posteriorly, towards the soft palatal tissue and the pharynx.

As far as lower maxilla is concerned, we followed the same rules as for the upper maxilla, with less material.

We need to let the patient know about the correct way of holding his tongue. This is important, because the tongue's position needs to facilitate the dental impression, to make the lower frenulum visible.

After all the impression maneuvers have been completed, the trays have been maintained on the prosthodontic field, without applying pressure, until the surface of the



alginate tends to lose its initial shine and it does not stick anymore.

Because of the fact that the patient has rinsed his mouth with room temperature water and because the doctor allowed air to get in between the impression and the gingiva, the detachment happens really quick and easy, without any distortions or traction marks.

If the volunteers had an obvious vomiting reflex, the following drug-free methods have been applied in order to combat this reflex [6],[7].

The first applied method was: "The high leg method".

We asked the patient to raise his leg, mentioning that it should be the left leg, describing how it should be done, at which height and which angulation the knee should be. We also asked the patient to mention through a hand sign, the moment when he feels muscular fatigue at a leg level. The patient continues to keep his leg up and we ask him to concentrate towards the leg and keeping the right leg position.

This method works because the patient is busy holding his leg in the air and he is not paying attention to what the doctor does, that is why this is an efficient method to distract the patient [8].

If this technique doesn't work, we could also try the "Salt Crystal" technique. This technique, tends to reduce the vomiting sensation due to the salt crystals applied on the tip of the patient tongue [9].

To help dentists, custom made impression trays have been invented, with perforations and wide palatal spaces, created to reduce the vomiting sensation by guiding the excess material to overflow through those special spaces [10].

Another relatively easy technique, is positioning the patient as vertical as possible in the chair, so that the occlusion plane of the superior molars are parallel to the ground.

What's more, if the patient shows really severe vomiting reflexes, it is best to position him leaning forward; that way the material can overflow anteriorly more than distally towards the palate. Together with the placement of the patient vertically, we tell the patient to breathe through his nose, rarely and keeping his gazing on a certain point [11].

In the case of really intense and severe vomiting reflexes, it is best to use the saliva vacuum. With the help of it, the assistant can easily control the quantity of saliva in the patient's oral cavity.

As an alternative, we also had one fast setting type of alginate (Orthoprint). What's more, alginate can be prepared using a semiautomatic method, with the Algamix. Therefore, the material is smoother, and sets faster, compared to the usual alginate [12].

Patients with vomiting reflex (n=25 of the volunteers) have received a questionnaire (figure 1) which addressed the vomiting reflex during the dental impression. It consists in 5 questions, each one with 5 different answers.

The questions and answers of the questionnaire, were realized, in a manner to offer a general image, more detailed, exact and focused on the intensity of the vomiting reflex, it's characteristics and particularities [13].

We have carefully analyzed the behavior of each volunteer during the impression taking process, at the moment the impression tray was inserted in the oral cavity, especially during the setting reaction as well as at disinsertion.

## Results and discussion

From the initial lot of 155 volunteer students, from the Dentistry Faculty of Târgu Mureș, 25 of them manifested vomiting sensations. The answers from the questionnaire were conclusive for finding out details regarding the intensity and the way this reflex manifested (figure 2).

### The questionnaire gives to the students with vomiting reflex

1. **How do you feel when you brush your back teeth?**
  - a. I experience no nausea whatsoever
  - b. I feel slightly nauseated
  - c. I am afraid I will vomit
  - d. I can't do it because I immediately feel nauseated and fell like vomiting
  - e. I experience actual spasms in my throat and sometimes actually vomit
2. **How do you feel when you are waiting in the dentist's waiting room and thinking about the anticipated dental treatment?**
  - a. I experience no nausea whatsoever
  - b. I feel slightly nauseated
  - c. I am afraid I will vomit
  - d. I can't do it because I immediately feel nauseated and fell like vomiting
  - e. I experience actual spasms in my throat and sometimes actually vomit
3. **How do you feel when you are sitting in the dental chair and the dentist is checking your teeth with a mirror and other instruments?**
  - a. I experience no nausea whatsoever
  - b. I feel slightly nauseated
  - c. I am afraid I will vomit
  - d. I can't do it because I immediately feel nauseated and fell like vomiting
  - e. I experience actual spasms in my throat and sometimes actually vomit
4. **How do you feel when the dentist is working on your back teeth?**
  - a. I experience no nausea whatsoever
  - b. I feel slightly nauseated
  - c. I am afraid I will vomit
  - d. I can't do it because I immediately feel nauseated and fell like vomiting
  - e. I experience actual spasms in my throat and sometimes actually vomit
5. **The vomiting sensation appeared when taking wick impression?**
  - a. Upper maxilla
  - b. Lower maxilla
  - c. Both maxilla
  - d. When checking if the size of impression tray is correct
  - e. Even at anterior impression trials, using combat methods

Figure 1. Questionnaire [quoted after 14]

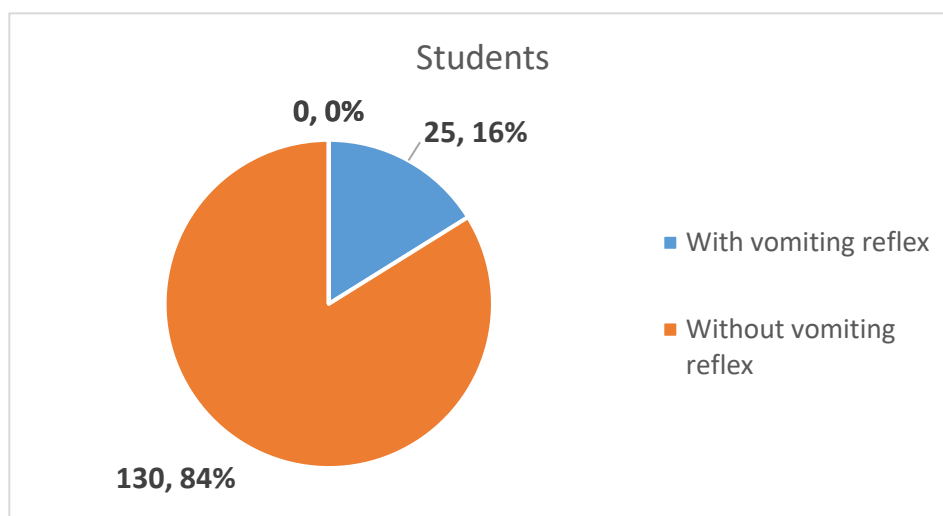


Figure 2. Graphic representation of all the volunteers

At the first question, “How do you feel when you brush your back teeth?” a number of 12 students affirmed that they don’t feel anything wrong when they brush their back teeth; 6 of them said they have minimum vomiting sensation and 5 of them are afraid that they might throw up. Only 2 of them stated that in the second they reach the posterior part of the oral cavity, they

immediately throw up. Answers: B:24%; C:20% D:8% (figure 3).

At the second question: „How do you feel when you are waiting in the dentist’s waiting room and thinking about the anticipated dental treatment?”: 17 students (68%) did not manifest any vomiting sensation while seated in the waiting room and 8 students (32%) feel a slight vomiting sensation (figure 4).

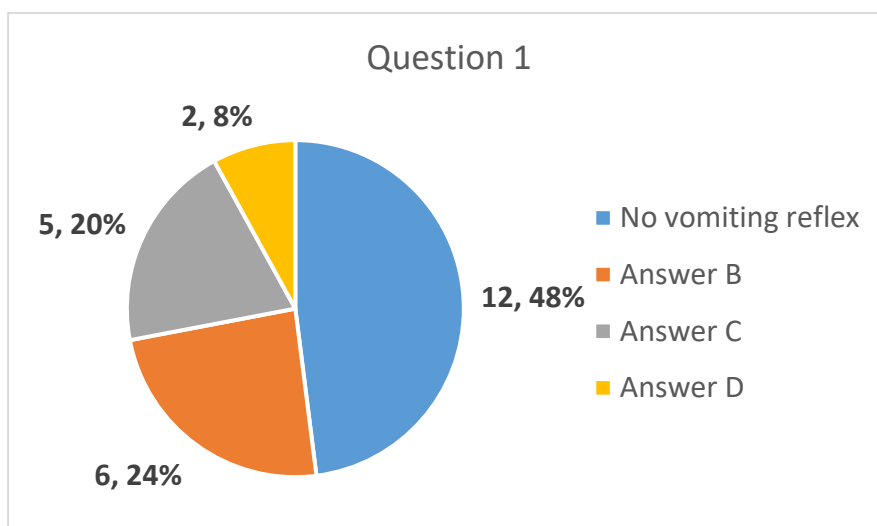


Figure 3. Graphic representation of question 1

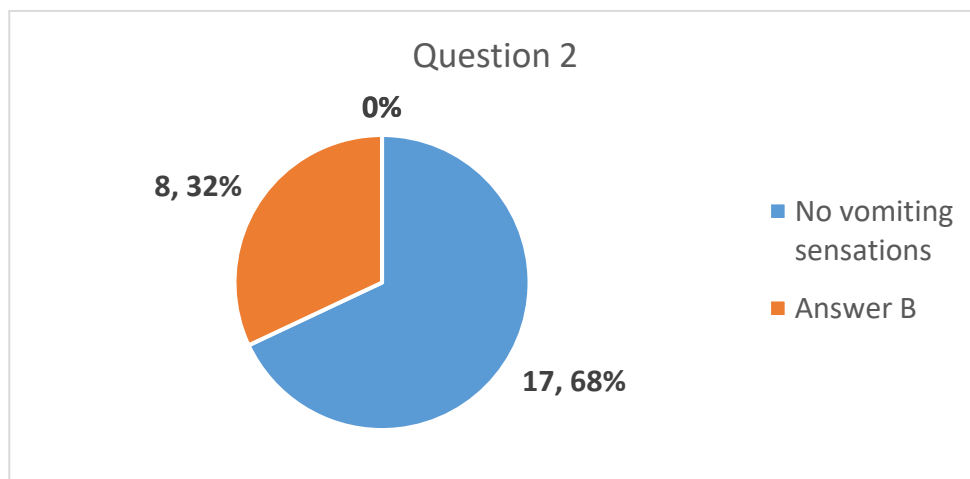


Figure 4. Graphic representation of question 2

Question number three: „How do you feel when you are sitting in the dental chair and the dentist is checking your teeth with a mirror and other instruments?”, 10 students (40%) said they do not have any vomiting reflex, 8 students (32%) stated they have minimal vomiting reflex and only 7 of them (28%) said they are afraid they might throw up (figure 5).

Question number 4: „How do you feel when the dentist is working on you back

teeth?”. A number of 7 students (28%) stated they do not have a problem with the specific dental maneuvers in the posterior part of the oral cavity. 8 students (32%) have minimum vomiting reflex and only 10 of them (40%) feel nauseated (figure 6).

Question number 5: “The vomiting sensation, appeared when taking which impression?” was a really important question, at which the answers were balanced. 13

students out of 25 (52%) do manifest vomiting reflexes especially when taking the impression at the upper maxilla, 4 students (16%) at the

lower maxilla, and only 8 (32%) feel this sensation at both maxillae, upper and lower (figure 7).

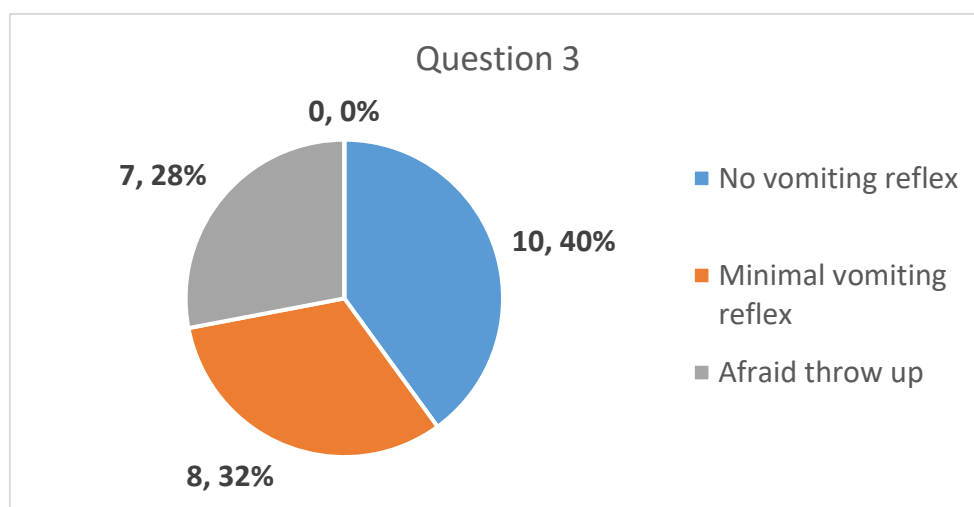


Figure 5. Graphic representation of question 3

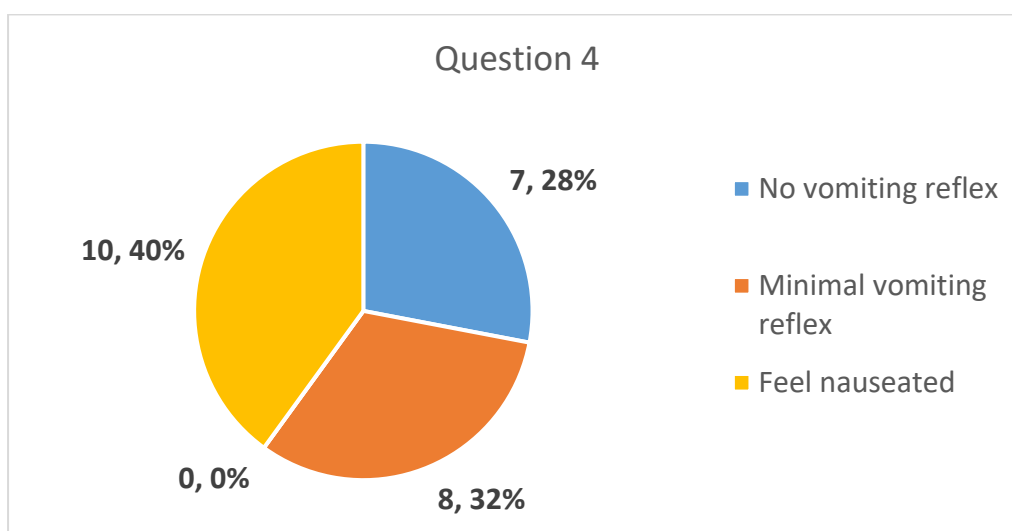


Figure 6. Graphic representation of question 4

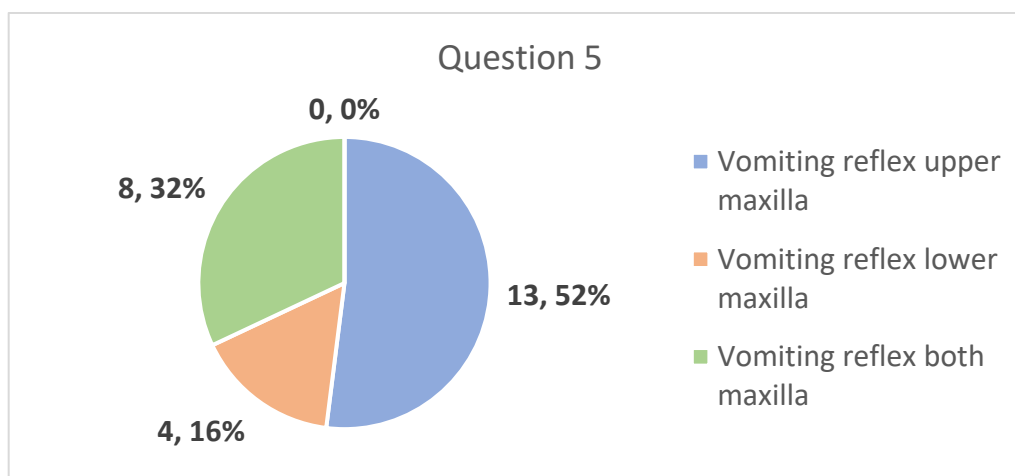


Figure 7. Graphic representation of question 5

Nine students with extreme vomiting reflex at the moment of the impression being taken, we tried to realize the impression with conventional type silicone, with minty flavor and fast setting. From the total of nine students with extreme vomiting sensation, where the alginate impression was almost impossible to take, we have redone the process using conventional type silicone, and succeed in realizing two correct impressions, and in the same time, the patient managed to stay calm until the impression was done.

According to specialty literature, another drug-free method, which has shown positive effects among the patients with vomiting reflex, is acupuncture [15]. „Exploring alternative methods of gag reflex control Part 2: Acupuncture” states „One of the most commonly investigated points is cheng jiang, also known as CV-24, which is located in the labio-mental fold. A blinded, randomized, controlled study (RCT) on transesophageal echocardiography (TEE) patients has demonstrated the efficacy of this point. TEE reportedly causes nausea or gagging in approximately 60% of people. Participants underwent this procedure with either acupuncture, sham acupuncture or no acupuncture. Statistical analysis demonstrated significant differences, with the acupuncture group experiencing considerably less gagging than the sham group ( $p = 0.037$ ), and even less so than the non-acupuncture group ( $p = 0.013$ )”. It has been proven that next to acupuncture, another really effective drug-free method, with a great success rate, is Pressopuncture. [2] “The results showed a significant ( $p < 0.05$ ) reduction in the gag reflex scores after acupuncture. For upper impressions, they fell from 6.8 (1.1) to 1.1 (1.1); and for lower impressions, from 5.45 (1.0) to 0.4 (0.7) (mean (SD))”. [16],[17],[18],[19]

## Conclusions

The vomiting reflex is a reflex act which represents one of the most common problems in the dental practice, being considered by some of the clinicians a caprice of the patient. However, along the years, different combat methods have been tested, to ease the impression taking process as well as other dental procedures.

Out of all volunteers we have taken impressions of, in this project on behalf of the Faculty of Dentistry from Targu Mures, the ones with moderate vomiting reflex, could not be helped by the different drug-free combat methods.

The volunteers who manifested medium vomiting sensation while taking the impression, were able to be impressed with the help of the same method, without the need of any medicine, in order to ease the process.

Patients with high vomiting sensation, were not eligible of an impression being taken of them, only using these drug-free methods.

Counting on the fact that all the volunteers are students at the Faculty of Dentistry, which means that they have knowledge in the field of the vomiting reflex as well as different combat methods, we consider that in this category, the combat method of the vomit reflex, will not work by distracting them, exactly because of this.

**Conflict of interest:** None to declare

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## References

1. Molnar-Varlam Cristina, Ghid Practic de Utilizare a Materialelor Dentare, Ed. University Press, 2011, pp. 61-79
2. Moldovan Iunia-Beatrice, Boiti Kinga, Molnar-Varlam Cristina. Fighting the gag reflex during dental impression: limitation, Acta Medica Marisiensis, Volume 65, Supplement 1, 2019, pp.45
3. Rohmetra A, Tandon R, Singh K, Jaiswal A. Acupressure therapy in orthodontics: A review. Int J Orthod Rehabil 2017;8:26-30
4. Sakamoto T, Fukuda K, Saita N, et al. Autonomic nervous activity of patients with gagging problems during dental mirror insertion. Spec Care Dentist. 2016;36(2):80-84
5. L. Cox & J. Brindley. Exploring alternative methods of gag reflex control Part 2: Acupuncture, September 2017

6. Debs, Nahla, Samia Aboujaoude. Effectiveness of intellectual distraction on gagging and anxiety management in children: A prospective clinical study. *Journal of International Society of Preventiv and Community Dentistry*, 2017; 7; 315-20
7. Mi-Ju Park, Jin-Seok Byun, Jae-Kwang Jung, Jae-Kap Choi, The correlation of gagging threshold with intra-oral tactile and psychometric profiles in healthy subjects: A pilot study, *Journal of Oral Rehabilitation*, 10.1111/joor.12940, 2020, 47, 5, (591-598)
8. Al-Khotani A, Bello LA, Christidis N. Effects of audiovisual distraction on children's behaviour during dental treatment: A randomized controlled clinical trial. *Acta Odontol Scand* 2016;74:494-501
9. van Linden van den Heuvell GF, de Boer B, Ter Pelkwijk BJ, Bildt MM, Stegenga B. Gagging Problem Assessment: a re-evaluation. *J Oral Rehabil*. 2015;42(7):495-502
10. Van Linden van den Heuvell GF, Ter Pelkwijk BJ, Stegenga B. Development of the Gagging Problem Assessment: a pilot study. *J Oral Rehabil*. 2008;35(3):196-202
11. Al-Khotani A, Bello LA, Christidis N. Effects of audiovisual distraction on children's behaviour during dental treatment: A randomized controlled clinical trial. *Acta Odontol Scand* 2016;74:494-501
12. Burzynski JA, Firestone AR, Beck FM, Fields HW Jr, Deguchi T. Comparison of digital intraoral scanners and alginate impressions: Time and patient satisfaction. *American Journal of Orthodontics and Dentofacial Orthopedics: Official Publication of the American Association of Orthodontists, its Constituent Societies, and the American Board of Orthodontics*. 2018 Apr;153(4):534-541
13. Karibe H, Okamoto A, Kato Y, Shimazu K, Goddard G. Reliability, validity, and sex differences in a quantitative gag reflex measurement method. *J Oral Rehabil*. 2018;45(10):798-804.
14. Akarslan Z. GAG REFLEX IN DENTISTRY: WHAT CAN WE DO? ; *Journal of Dental Faculty Atatürk*, 2016, pp. 503-510
15. Bilello G, Fregapane A. Gag reflex control through acupuncture: a case series. 2014 Feb;32(1):24-7. doi: 10.1136/acupmed-2013-010377. Epub 2013 Nov 5.
16. Bilello, Giuseppa, and Antonella Fregapane. "Gag Reflex Control Through Acupuncture: a Case Series." *Acupuncture in Medicine: Journal of the British Medical Acupuncture Society*, vol. 32, no. 1, 2014, pp. 24-7.
17. Daneshkazemi A, Daneshkazemi P, Davoudi A, Badrian H, Firouzabadi VP. Is acupuncturing effective in controlling the gag reflex during dental procedures? A review of literature. *Anesth Essays Res*. 2016;10(2):173-177.
18. Haghighat A, Kaviani N, Jokar S, Soltani P, Ahmadi A. Evaluation of the effects of acupuncture on P6 and anti-gagging acupoints on the gag reflex. *Dent Hypotheses* 2015;6;19-2

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## CASE REPORT

# Comparative study of the comfort in patients rehabilitated with three types of partial dentures.

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### Abstract

**Introduction:** At present, the researchers are targeted to improve and increase the biocompatibility of dental materials that are in direct contact with biological tissues. The biocompatibility of the dental materials that contact the tissues of the oral cavity present relevance for the patient, clinician, dental technician, and manufacturer.

**Aim of the study:** The aim of this study was represented by the comparative research regarding the comfort of the patients wearing removable partial prostheses with clasps made of wire and flexible polymers.

**Material and Methods.** Patients wearing partial dentures from Meliodent heat-cured acrylic resins with wipla wire clasps, flexible partial dentures made from Valplast and dentures with clasps of CuSil silicone rubber participated in this study. The research was performed on 3 groups, of 8 patients each, in which comfort levels (according to 5 criteria) were determined, after 6, 12, 18, respectively 24 months of the partial removable prostheses insertion in the oral cavity.

**Results.** Presence of decubitus lesions of the oral mucosa in the clasps areas was noticed mostly in the Valplast polyamide dentures (37.5%), existence of color changes at the base of prostheses and of clasps area appeared in 37.5% of the third group (CuSil PAD) patients, no patient included in the study presented allergic reactions and at the third and fourth recall, only 1 patient of all groups complained of unpleasant taste in the oral cavity.

**Conclusion.** The removable prosthetic restorations with clasps made of flexible polymers and CuSil gaskets of silicone rubber, although initially much more comfortable and therefore much better accepted by patients, after two years were no longer active, could not be activated and necessitated technical restorations, compared to those made of wipla wire clasps, which were activated with pliers, or, in the case of fracture, were replaced by the technician in the dental laboratory.

**Keywords:** partial edentations, dentures, wipla wire, flexible polyamide, CuSil, patient comfort

### Introduction

The assimilation of synthetic macromolecular compounds in chemistry and human health should respond to the complexity of the using problems that arise from the temporarily or long-term contact of that polymeric materials with the oro-facial system tissues. For this reason, polymeric biomaterials are those polymers or those polymeric composites, which are certified as biocompatible in contact with biological structures [1].

The development of knowledge in the field of chemistry has led to the use in dentistry of flexible nylon polymers, represented by dental materials such as Valplast, Pro-Flex, SunFlex, Lucitone FRS, BioDentaplast, a.s. [2, 3].

Valplast is a thermoplastic polyamide that does not present in its composition methyl-methacrylate monomer, than represent a

choice for patients that are allergic to acrylic and metallic dental materials (figure 1.A) [4].

CuSil denture is a partial acrylic denture (PAD) with apertures surrounding the natural teeth, which are used as maintenance and stabilization means for the denture. CuSil is an alternative to the wire clasps of the PAD. CuSil is bonded to the acrylic base of the partial dentures, forming gaskets around the natural teeth of the patients, and so the retention of the partial dentures is realized [5, 6]. The apertures present gaskets of silicone rubber, which surround the cervical region of natural teeth, forming a suction phenomenon under the partial dentures (figure 1.B) [7-9].

The manufacture of the optimum restoration for the partially edentation is in concordance with the clinicians' skills in the selection of the type of the required restorations for the characteristics of each

patient. The practitioner encounter specific challenges by the multiple intercessions, the different placement paths, the migrated teeth, and the disturbed occlusion, that can hinder the correct treatment plan. Partial dentures with flexible base represent an option for the restoration of edentulous dental arches when the patients are preoccupied with aesthetics. Flexible dentures were not often used previously, but nowadays are becoming, in many cases, the correct treatment options [10].

The clasps are extensions to the undercut zones realized for the maintenance and the stability of removable partial dentures. At the acrylic partial dentures, the clasps are modeled with pliers from wire, while in the case of a flexible denture base; the clasps represent extensions of the flexible denture bases. The clasps can be adjusted by bending with the plier, in order to increase or decrease the retention (figure 1.C) [11, 12]. Flexible partial

dentures processed with the pressing procedure provides good retention and good aesthetic [13].

The manufacturing procedures of the flexible partial denture and the acrylic rigid denture present differences in their technology. The flexible partial dentures are obtained by injecting the molten nylon polymer into special flasks, under pressure, while the acrylic partial dentures are realized by heat-curing of the polymethylmethacrylate [10, 13, 14].

The aim of this study was represented by the comparative research regarding the comfort of the patients wearing removable partial prostheses in which the means of maintenance and stability were represented by clasps made of wipla wire, Valplast flexible polyamide and partial dentures with CuSil gaskets of silicone rubber.



Figure 1. Aspects of the three partial dentures studied in research: A. Meliodent PAD with wire clasps; B. Valplast partial denture (VPD); C. PAD with CuSil gaskets of silicone rubber

## Material and methods

The study was conducted between 2016-2019.

The patients were selected after a detailed anamnesis, participating only those who expressed their desire to participate voluntarily in the study and signed the informed consent statement at the start of the study. The study phases were explained to each recruited patient, including the need for monitoring at baseline and then at every 6 months, for two years. The selection criteria consisted of patients free of any major general or local disease, and with intraoral and extraoral conditions within normal limits and each selected patient presented the needs of prosthetic restoration through partial denture.

Out of more than 50, we selected 24 patients who had extended partial edentation, but with healthy remaining teeth. The distribution by age was relatively close, between 56-65 years (mean age 60.5,  $\pm$  4.5 years). According to the distribution by gender, 14 patients were women and 10 men. The comparative clinical study was performed on 3 groups of patients.

The first group was represented by 8 patients for which were manufactured removable partial acrylic prostheses (PAD) (8), with the base made of Meliodent acrylic resin by heat-curing technology, with 0.7 mm diameter wipla wire clasps.

To the second group (VPD) of partially edentulous patients (8), the removable prostheses (8) were made by the injection technology, of Valplast polyamide, where the



clasps were represented by the extension of Valplast base on the undercut area of abutments.

The third group (CuSil PAD) of patients (8) benefited from 8 partial dentures with CuSil gaskets of silicone rubber.

The study was conducted by monitoring at 6 months, 12 months, 18 months, respectively 24 months after the insertion of the removable partial prostheses in the oral cavity. Dental practitioners completed the examination of dentures functionality with the criteria used in this study, at 6 months after the accommodation of patients with the partial denture, at 12, 18 and 24 months, 4 recalls in total. The criteria used in this study were the following:

- Criterion 1: presence of decubitus lesions of the oral mucosa in the clasps areas;
- Criterion 2: existence of color changes at the base of prostheses and of clasps area;

- Criterion 3: appearance of allergic reactions of the oral mucosa in contact with the base of prostheses and of clasps area;
- Criterion 4: existence of an unpleasant taste in the oral cavity;
- Criterion 5: patients without objective and subjective symptoms mentioned above.

In all four recalls, if it was necessary, we realized adaptations of removable denture base and, where was possible, activation of the clasps.

## Results

In two years we effectuated four records of data (initial determination, after 6 months) and other 3 recalls, at 12, 18 and 24 months.

Table 1 summarizes the recorded results after the type of partial dentures in percentages, after processing of data, in reference to the criteria set, and after the evaluation period of two years.

Table 1. Results after the type of partial dentures in percentages, in reference to the criteria set

Recall	Group	Criterion				
		1	2	3	4	5
First recall (after 6 months)	PAD	0	0	0	0	8 (100%)
	VPD	0	0	0	0	8 (100%)
	CuSil PAD	0	0	0	0	8 (100%)
Second recall (after 12 months)	PAD	1 (12.5%)	0	0	0	7 (87.5%)
	VPD	1 (12.5%)	1 (12.5%)	0	0	6 (75.0%)
	CuSil PAD	0	0	0	0	6 (75.0%)
Third recall (after 18 months)	PAD	2 (25%)	1 (12.5%)	0	1 (12.5%)	5 (62.5%)
	VPD	3 (37.5%)	2 (25%)	0	1 (12.5%)	3 (37.5%)
	CuSil PAD	1 (12.5%)	2 (25%)	0	1 (12.5%)	3 (37.5%)
Fourth recall (after 24 months)	PAD	3 (37.5%)	2 (25%)	0	1 (12.5%)	5 (62.5%)
	VPD	3 (37.5%)	2 (25%)	0	1 (12.5%)	5 (62.5%)
	CuSil PAD	1 (12.5%)	3 (37.5%)	0	1 (12.5%)	4 (50%)

- Criterion 1 (presence of decubitus lesions of the oral mucosa in the clasps areas):
  - At 6 months: no patient included in the study presented decubitus lesions under their partial removable prostheses or in the area of clasps.
  - At second recall, after 12 months: only 1 patient of all groups presented soft tissue lesions (at level of interdental papilla) and 1 patient belonging to the second group (VPD) presented lesions in the clasp area.

- At the third recall, after 18 months, 2 patients of first group (PAD) presented soft tissue lesions and at level of wire clast in their intermediate segment, 3 patients of second group (VPD) presented soft tissue lesions of the oral mucosa in the clasps areas, respectively 1 patient of third group (CuSil PAD) presented soft tissue lesions of the oral mucosa in the clasps areas.
- At the fourth recall, after 24 months, 3 patients of first group (PAD) presented soft tissue lesions and at level of wire

clast in their intermediate segment, 3 patients of second group (VPD) presented soft tissue lesions of the oral mucosa in the clasps areas, respectively 1 patient of third group (CuSil PAD) soft tissue lesions of the oral mucosa in the clasps areas.

■ Criterion 2 (existence of color changes at the base of prostheses and of clasps area):

- At 6 months: no patient included in the study presented color changes.
- At second recall, after 12 months: only 1 patient belonging to the second group (VPD) presented color changes of the base of prostheses base and of clasp area.
- At the third recall, after 18 months, 1 patient of first group (PAD) presented color changes of the prostheses, 2 patients of second group (VPD) presented color changes of the base of prostheses and of clasp area, and respectively 2 patients of third group (CuSil PAD) presented color changes of CuSil and of the base of prostheses at area of CuSil.
- At the fourth recall, after 24 months, 2 patients of the first group (PAD) presented color changes of the prostheses, 2 patients of the second group (VPD) presented color changes of the prostheses, and respectively 3 patients of the third group (CuSil PAD) presented color changes of CuSil and of the base of prostheses at area of CuSil.

■ Criterion 3 (existence of allergic reactions): no patient included in the study presented allergic reactions.

■ Criterion 4 (existence of an unpleasant taste in the oral cavity):

- At first and second recall, no patient included in the study accused unpleasant taste in the oral cavity.
- At the third and fourth recall (after 18 and 24 months), only 1 patient of all groups (PAD, VPD, CuSil PAD) complained of unpleasant taste in the oral cavity.

■ Criterion 5 (patients without objective and subjective symptoms mentioned above):

- At 6 months: all patient included in all 3 groups were patients without objective

and subjective symptoms mentioned above.

- At second recall, after 12 months: 7 patients of first group (PAD) did not present objective and subjective symptoms mentioned above, 6 patients of second group (VPD) did not present objective and subjective symptoms mentioned above, and 6 patients belonging to the third group (CuSil PAD) did not present the symptoms mentioned above.
- At the third recall, after 18 months, 5 patients of first group (PAD), 3 patients of second group (VPD), and respectively 3 patients of third group (CuSil PAD) did not present any symptoms mentioned above.
- At the four recall, after 24 months, 5 patients of first group (PAD), 5 patients of second group (VPD), and respectively 4 patients of third group (CuSil PAD) did not present any symptoms mentioned above.

We mention the fact that some patients presented not only one criterion, but several criteria.

## Discussion

The incorrect thermal regime of polymerization of the heat-cured resins negatively influences the mechanical resistance, and optical qualities of prosthetic restorations. Heat-curing is a reaction that requires, for the initiation, an external caloric intake. The required temperature depends on the decomposition temperature of the initiator and the existing free radicals. The heat-curing reaction is strongly exothermic, and heat is being added to the heat provided by the water to increase the temperature of the flask, mold, and acrylic resin complex to the polymerization value of the resin. If the temperature is raised too abruptly, a multitude of polymerization centers will appear, with the formation of numerous short polymer chains, which determine a structure with a high degree of crosslinking, so a polymer with low hardness. The slow heat-curing offers the advantage of a more complete diffusion of the monomer into the polymer [15].

The plasticization of Valplast polyamide is realized in a special apparatus. The mold contained by a special metallic flask was heated, and then, the cartridges comprising the thermoplastic grains were seated in the injecting apparatus for plasticizing the nylon resin, that is forced to fulfill the mold at a 6-8 bars pressure, and is injected at a temperature of 274° to 300°C without any chemical reactions. The injection of the thermoplastic polymers as Valplast into molds need expensive equipment and this could be a disadvantage. Polyapress (Bredent) was the special injection apparatus that was used in our study [16]. The polyamide thermoplastic dental materials present predictable long-term efficiency. They are stable in nature and provide resistance to polymer unzipping. It also has a high creep resistance and fatigue endurance along with the excellent wear characteristics and solvent resistance. It provides high dimensional stability, has no porosity, no biological material build-up, and stains [17, 18].

Flexible dentures fulfill the demands of patients in the treatment needs, regarding the achievements of retentive and physiognomic partial dentures, but is necessary a proper care of VPD in order to minimize the staining of the prostheses materials, that affects the aesthetics [10, 12]. The polyamide Valplast material is lightweight, heat resistant, ductile, matches with the tissue shade of color in reasonably way, has the flexibility to disengage forces, prevents the transfer of forces to remaining natural teeth and to the other side of the arch [14,19]. Polyamides for partial dentures as Valplast present a higher susceptibility in discoloration than polymethylmethacrylate [20, 21]. After the research of Polychronakis et al [22], thermocycling had an unfavorable effect on the flexural strength of polyamide and polymethylmethacrylate base materials denture. Polyamide base materials denture have rougher surface than other resins, causing more bacterial and fungal colonization than thermocured resins [21].

CuSil denture is not very usually used, but represents an option for treatment alternative in few clinical cases, such as patients with a few

remaining teeth with healthy tooth structures [7].

The elastic gasket which seals around the cervical area of each remaining tooth offer and develop a stable and healthy fit of CuSil dentures, respectively a healthy stimulation of alveolar bone. The factors that should be taken into account during treatment planning contain the number of remaining teeth, their distribution on the dental arch, the periodontal status, and the degree of undercuts [9, 24].

At present, the researchers are targeted to improve and increase the biocompatibility of dental materials that are in direct contact with biological tissues. The biocompatibility of the dental materials which contact the tissues of the oral cavity present relevance for the patient, clinician, dental technician, and manufacturer [4, 24].

## Conclusion

The heat-cured resins used for the classic acrylic partial dentures with wire clasps present medium rigidity, low tear resistance, potential allergens and exhibit the early aging phenomenon in a shorter time than Valplast material, but CuSil gaskets of silicone rubber, situated around the cervical area of the natural teeth of the patients, had the less resistance at discoloration, smell, and taste.

The flexible dentures of Valplast were more comfortable than the conventional methyl methacrylate dentures, while PAD with CuSil was considered most comfortable by patients. Partial prostheses with CuSil gaskets of silicone rubber presented the major disadvantage in their reduced functional life of the soft material in the cervical area of the remaining teeth, requiring frequent rebuilding of the material in this area.

**Conflict of interest:** None to declare.

## References

1. Ciavoi G, Bechir A, Bechir ES, Curt-Mola F, Pribac V, Dascalu IT, Long Term Trial of Two Dental Resins Used in the Manufacture of the Aesthetic Component of Fixed Restorations. *Rev Mat. Plast*, 2017, 54 (2):265-268
2. Xu X, He L, Zhu B, Li J, Li J, Advances in polymeric materials for dental applications, *Polym. Chem.*,

- 2017;8(5), 807-823
3. Gupta SK, Saxena P, Pant VA, Pant AB. Release and toxicity of dental resin composite. *Toxicol Int.* 2012; 19(3):225-234.
  4. Ciavoi G, Bechir A, Tig I, Dalai C, Manu R, Aspects regarding the use of three types of polymers as denture base materials. *Rev Mat. Plast.*, 2016, 53(2):247-251
  5. <http://www.udelldental.com/partial-dentures.htm>
  6. Jain AR, Cu-Sil denture for patients with few remaining teeth - A case report, *Journal of Advanced Pharmacy Education & Research*, 2017, 7(3):332-334
  7. Jain JK, Prabhu CR, Zahrane MA, Esawy MS, Ajagannavar SL, Pal KS. Cu-Sil dentures - a novel approach to conserve few remaining teeth: Case reports. *J Int Oral Health.* 2015;7(8):138-140
  8. Shah RJ, Lagdive S, Barajod P, Verma V, Diwan F, Shah S. Technique to Fabricate Transitional Partial Dentures for Patients with Few Remaining Teeth: Cu-Sil Dentures- A Case Report. *IOSR-JDMS.* 2016;15(4):36-40
  9. Khandelwal M, Punia V, Saving one is better than none-technique for CuSil like denture: a case report, *Annals and Essences of Dentistry*, 2011, Vol. III, Issue 1, pp. 41-45
  10. Singh K, Aeran H, Kumar N, Gupta N. Flexible thermoplastic denture base materials for aesthetical removable partial denture framework. *J Clin Diagn Res.* 2013;7(10):2372-2373.
  11. Thumati P, Padmaja S, Raghavendra Reddy K, Flexible Dentures in Prosthodontics - An overview, *Indian J Dent Adv* 2013; 5(4): 1380-1385
  12. Jain AR, Flexible denture for partially edentulous arches - case reports, *International Journal of Recent Advances in Multidisciplinary Research*, 2(1):182-186
  13. Alfahdawi IH, Study of Flexible and Rigid Removable Partial Prostheses Indications in Iraq *RRJDS*, 2018, 6(3):33-37
  14. Singh JP, Dhiman RK, Bedi RP, Girish SH. Flexible denture base material: A viable alternative to conventional acrylic denture base material. *Contemp Clin Dent.* 2011;2(4):313-317
  15. Bechir A, Ghergic DL, Bechir ES, Barbu HM, Coman C, Biomateriale specifice utilizate în laboratorul de tehnică dentară, Ed. Printech, București, 2014, p. 276-292
  16. Ardelean L, Bortun CM, Podariu AC, Rusu LC. Thermoplastic Resins used in Dentistry, In Chapal Kumar Das, *Thermoplastic Elastomers - Synthesis and Applications*, IntechOpen, 2015, pp. 25-47
  17. Col DRK, Chowdhury RSK. Midline Fracture in Single Complete Acrylic vs Flexible Dentures. *MJAFI.* 2009;65:141-5.
  18. Nandal S, Ghalaut P, Shekhawat H, Singh Gulati M, New Era in Denture Base Resins: A Review, *DJAS*, 2013;1(III):136-143
  19. Rickman LJ, Padipatvuthikul P, Satterthwaite JD. Contemporary Denture Base Resins: Part 1, *Dent Update.* 2012; 39(1):25-8, 30
  20. Wieckiewicz M, Opitz V, Richter G, Boening KW. [Physical properties of polyamide-12 versus PMMA denture base material.](#) *Biomed Res Int.* 2014;2014:150298
  21. Vojdani M, Giti R. Polyamide as a Denture Base Material: A Literature Review. *J Dent (Shiraz).* 2015;16(1):1-9
  22. Polychronakis N, Sarafianou A, Zissis A, Papadopoulos T. The Influence of Thermocycling on the Flexural Strength of a Polyamide Denture Base Material. *Acta Stomatol Croat.* 2017;51(4):309-315
  23. Horie N, Ouchi T, Nishiyama R, Usuda S, Morikawa S, Asoda S, Nakagawa T, Vertical Displacement in Unilateral Extension Base Flexible Removable Dentures, *Bull Tokyo Dent Coll*, 2019;60(4):233-239
  24. Hancu V, Comaneanu RM, Coman C, Tarcolea M, Barbu HM, Bechir A, Miculescu F, Lorean A, Microstructure and Chemical Homogeneity of Cast Dental Crowns Made from CoCrMoW Alloy and Ceramic Mass, *Rev. Chim. (Bucharest)*, 2015, 66(9): 1327- 1330

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## CASE REPORT

# The importance of implant-supported overdentures in a bimaxillary complete edentulous patient – case report.

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### Abstract

**Introduction.** Complete edentulism is escorted by various comorbidities, which affect an individual. The management of edentulous patients was approached since the early days of dentistry.

The aim of this case report was to present the implanto-prosthetic rehabilitation of a bimaxillary complete edentulous patient with implant-supported overdentures, by using Straumann dental implants.

**Case presentation.** This case report presents the applied treatment to a bimaxillary complete edentulous patient, where the predictable osseointegration and implant stability after the placement of implants was possible, with the purpose to support the overdentures.

**Conclusions.** The oral rehabilitation of complete bimaxillary edentulism through implant-supported overdentures is a procedure with a predictive treatment that presents beneficial aspects in the quality of life of the patients.

**Keywords:** bimaxillary complete edentulism, treatment planning, implant insertion, implant supported overdentures

### Introduction

The aging process determines the apparition of physiological changes associated with the functional modifications of the oro-facial system [1]. Complete edentulism, a phenomenon with worldwide prevalence, represents the biologic aging disease processes, induced by dental decays, periodontal diseases, trauma, oral cancer, a.s. Edentulism is escorted by various comorbidities, which affect an individual. From the public health perspective, edentulism influenced the general and systemic health degree, and the life quality of patients, including psychological aspects, the function of the oro-facial system, nutrition, morbidity, and mortality [2].

The management of edentulous patients was approached since the early days of dentistry [3]. Complete denture wearers present a reduced masticatory efficiency compared to the individuals that have natural teeth. The chewing cycles are significantly lower, the bite force and the activity of masticatory muscles are significantly lower than in dentate patients [4, 5].

Dental therapy of extended and complete edentation necessitates new approaches in obtaining these purposes that cannot be achieved by traditional dentistry. Dental

implantology, which represents the anchoring of different type of biomaterials into the jawbones, offers the way to remake the support and retention for the prosthetic rehabilitation in the case of the lost teeth [6, 7]. The advanced results in the researchers about implant designs, biomaterials, and techniques induced predictable success [7]. Many implant types are used today in the rehabilitation of different edentulism cases, for the support through the dental implants of fixed or movable prosthetic restorations [6, 8].

The surgical interventions in implantology require performance in conditions of detailed knowledge of the present and the future clinical situation, which can appear on the prosthetic field after the insertion of the implant/implants and of the implant-supported overdentures. For this reason, the knowledge regarding the oro-facial anatomy, and the surgical techniques applied to implants insertion, does not compensate the lack of knowledge of the functionality in the oro-facial system [6, 9].

Straumann Bone Level Tapered (BLT) implants characteristics are clinically recognized by their Straumann Bone Control Design and the CrossFit connection together with their correspondent prosthetic CrossFit

component elements of Bone Level Implant (BLI) products. These implants present a tapered apex with 3 cutting notches, especially appropriate in cases with soft bone or fresh extraction sockets, where the primary stability is very important [10]. Straumann implants present a sandblasted surface followed by acid etching, so they exhibit moderate roughness, necessary to increase interface contact between the osseous tissue and the implant surface, for better osseointegration of the implants. The Straumann BLT implants are supplied with the Loxim Transfer Piece that is connected by a snap-in mounting to the implant. The 15° conical-cylindrical CrossFit® connection presents 4 internal grooves, which offer a mechanical locking friction fit, with long-term stability under loading conditions and minimization of screw loosening [11-16].

According to the manufacturing company, the postoperative healing period is reduced from 3-6 months to 1 month and a half, and after this time, the implant-supported prosthetic restoration can be inserted on the implant-abutment [14].

The aim of this case report was to present the implanto-prosthetic rehabilitation of a bimaxillary complete edentulous patient with implant-supported overdentures, by using Straumann dental implants.

### Case presentation

Patient B. H., age 53, went to the office for the prosthetic rehabilitation of the masticatory function. During the anamnesis, it was found that the patient is an "old wearer" of partial and then complete acrylic, maxillary and mandibular, dentures. His main complaint was the reduced masticatory efficiency with fatigue in the masticatory muscles. The patient's medical history revealed no systemic conditions that may contraindicate the implant-prosthetic treatment.

At the clinical examination complete bimaxillary edentulism was observed, with atrophy in the maxillary arch.

The OPG radiological examination disclosed severe bone atrophy at level of the maxillary jaw.

At the mandible, the OPG examination revealed the presence of a residual granuloma next to the apex of the extracted tooth 4.5. In addition, the alveolus of the extracted tooth 4.5 was partially mineralized and its buccal cortical plate was missing. In the position of tooth 4.6, the edentulous ridge was almost sufficient for implant insertion (Figure 1).

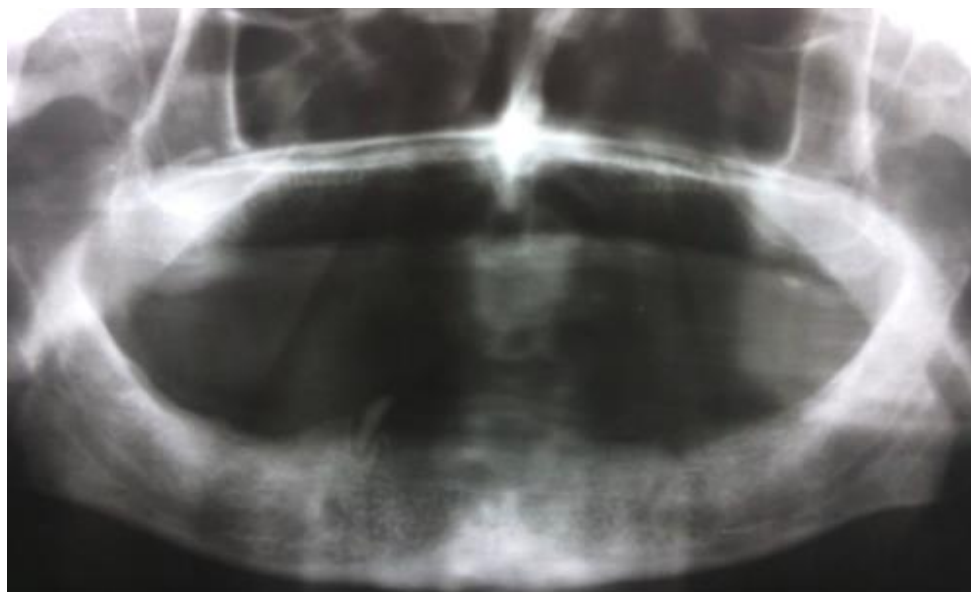


Figure 1. OPG at the presentation of patient

Because of the insufficient bone length and width in the maxillary osseous tissue at the level of the surgical site, the treatment plan included a bone augmentation technique. The surgery phase included simultaneous implant placement. The patient signed the informed consent.

The applied working protocol included establishing the treatment plan, the acquirement by the patient of the knowledge necessary for correct dental hygiene at home, the mental training of patient, rehabilitation of the oral cavity functions with preprosthetic and proprosthetic treatments, the surgery phase of the implants insertion, realization of the overdentures with implant support, insertion of overdentures in the oral cavity, and monitoring.

The implant treatment plan was to insert 8 implants, on which telescopic removable prostheses with implant aggregation would be made.

The 8 selected implants, which were inserted under local anesthesia, had the following dimensions, according to the chosen implant area:

- 1.4 Straumann ITI BoneLevel NC 12 mm long and 3.3 mm in diameter;
- 1.6 Straumann ITI BoneLevel NC 10 mm long and 3.3 mm in diameter;
- 2.4 Straumann ITI BoneLevel NC 12 mm long and 3.3 mm in diameter;
- 2.6 Straumann ITI BoneLevel NC 10 mm long and 3.3 mm in diameter;
- 3.3 Straumann ITI BoneLevel RC 12 mm long and 4.1 mm in diameter;
- 3.6 Straumann ITI BoneLevel RC 10 mm long and 4.1 mm in diameter;
- 4.3 Straumann ITI BoneLevel RC 12 mm long and 4.1 mm in diameter;
- 4.6 Straumann ITI BoneLevel NC 10 mm long and 4.1 mm in diameter.

The medication in the preoperative phase consisted of amoxicillin and clavulanic acid 2 g and dexamethasone 8 mg i.v., in order to reduce the postoperative edema.

#### Surgical phase

Because a minimum of 5 mm of vertical bone was present between the antral floor and the crest, the approach to the maxillary

posterior edentulous area was indicated. The osteotomy in maxillary jaw was realized with high precautions for preserving the integrity of the Schneiderian sinus membrane. The lateral approach for the sinus augmentation was associated with grafting, because of the narrow width of the ridge.

In the treatment stages were included: posterior superior alveolar and greater palatine nerve block anesthesia; the incision of the soft-tissue to afford adequate space for the achievement of the lateral window; the lateral window antrostomy should be realized without sharp edges because these can determine membrane perforation; the sinus membrane elevation was effectuated after the detaching of the sinus membrane with a blunt instrument, careful elevation of the membrane starting on the sinus floor and then extending to anterior and posterior walls with sinus curettes; preparation of implant site by the protection of the sinus membrane with periosteal elevator to avoid damaging with drills; graft placement after the protection of the sinus membrane with a collagen membrane; bone grafts placed in the least accessible area first; implants placement in the prepared implant sites; collagen membrane placement over the created window; suture of the flap with nonresorbable monofilament sutures and horizontal mattress sutures.

At the mandible, after opening the gingival mucosa, the preparation of the implant bed commences with the preparation of the alveolar ridge and with the marking of the implantation site with round burs, followed by the preparation of the implant bed with the BLT pilot drill and the BLT drills, according to the diameter of the endosteal implant. The implant bed is broadened in the cortical layer with the BLT profile drill. The insertion of the implants requires the following steps: attaching the adapter in their correct position; removing the implant from the carrier; placing the implant; correcting the implant orientation oro-facially; removing instruments with Loxim (counter-clockwise turns); after insertion, detach the Loxim with the Adapter.





Figure 2. OPG 4 months after implant insertion

#### Post-surgical phase

The impression abutments were screwed in the implants and with polyether, an open tray impression was used. After the setting of the impression material, the excess was removed by the aid of a scalpel in order to allow rigid fixation of the impression abutments to the composite tray.

The dental materials used for the realization of the superstructure with implant support were represented by W-Gold-W-Gold BSG

(tungsten alloy) for the primary/patrix component, Straumann alloy (having gold alloy content) for the secondary component (matrix), respectively Begosil L as packaging and Futura jet for polishing, RST polymer (3 M-Espe).

The artificial teeth mounted on the acrylic basis of mobilizable prostheses with implant aggregation were acrylic.

The time interval of the treatment took place between 07.2017 - 04.2018.



Figure 5. Prosthetic abutments fixed on implants at the upper jaw



Figure 4. Prosthetic abutments fixed on mandibular implants





Figure 5. Intraoral aspect of the implant-supported removable overdentures in occlusion

The results of this case presentation confirmed the benefit of the applied implant-prosthetic therapy in time.

### Discussions

The purpose of actual dentistry is the rehabilitation of the normal masticatory function of the oro-facial system, with the restoration of the physiognomy, phonation, and health regardless of the atrophy degree, disease form or lesion [17, 18].

The oral implant should not be turned into a "panacea" solution, but the use of this method should not be avoided in cases where, if the treatment plan is properly designed and applied, the success rate is very high. Currently, the innovations in the field of biomaterials, respectively in the field of dental implantology are in accordance with the biocompatibility requirements [19], which required the emergence of new implantological architectural models, with updated design and modern insertion techniques [7, 20].

Therapeutic success is conditioned by anatomical conditions in the prosthetic field of dental implant sites and frequently demands additional interventions to ameliorate it [21, 22].

Achieving prosthetic rehabilitations with dental implants therapy is a combination of talent and knowledge both of the dentist and dental technician.

### Conclusions

- The functional rehabilitation with complex prosthetic restorations represented by implant support overdentures in complete

edentations always represents a clinical challenge.

- The establishment of dental implant therapy, followed by prosthetic rehabilitation should be preceded by profound clinical and paraclinical evaluations, performed with great rigor, in full agreement with the specificity and individuality of each clinical case.
- The functional predictability of future prosthetic restorations with implant support is correlated with a good knowledge of the indications and contraindications of this treatment method, as well as of the factors that contribute to the success or failure of dental implant therapy.

**Conflict of interest:** None to declare.

### References

1. Yoshida FS, Mituuti CT, Totta T, Berretin-Felix G, Influence of the masticatory function on the swallowing in the healthy elderly. *Audiol., Commun. Res.* [online]. 2015, vol.20, n.2, pp.161-166
2. Vaishnavi R, ariga P, Dhanraj M, Jain AR, Effect of edentulism on general health and quality of life. *Drug Invention Today*, Vol 10, Issue 4, 2018, p. 549-553
3. Lee DJ, Saponaro PC, Management of Edentulous Patients, *Dent Clin N Am*, 2019, Volume 63, Issue 2, Pages 249–261
4. Abd El Aziz O, Saba EKA, Mesallati SA, Masticatory Efficiency of Complete Dentures Constructed by different Denture Base Materials, *IJSR*, Vol. 5, Issue 6, 2016, p. 1292- 1299
5. Fayad MI, Alruwaili HHT, Khan MS, Baig MN. Bite Force Evaluation in Complete Denture Wearer

- with Different Denture Base Materials: A Randomized Controlled Clinical Trial. *J Int Soc Prev Community Dent.* 2018;8(5):416-419
6. Gowd MS, Shankar T, Ranjan R, Singh A. Prosthetic Consideration in Implant-supported Prosthesis: A Review of Literature. *J Int Soc Prev Community Dent.* 2017;7 (Suppl 1):S1-S7
  7. Mittal Y, Jindal G, Garg S. Bone manipulation procedures in dental implants. *Indian J Dent.* 2016;7(2):86-94
  8. Mahesh V, Aditi N, Abhinav S, Principles of occlusion in implant dentistry, *Journal of ICDRO*, 2015, Vol. 7, Issue 3, p. 27-33
  9. Prosthetic considerations during implant treatment planning. In: Hupp JR, ed. *Introduction to Implant Dentistry: A Student Guide.* *J Oral Maxillofac Surg.* 2017;75 (suppl 2) :21. <https://www.ioms.org/pb/assets/raw/Health%20Advance/journals/yjoms/YJOMS752S.pdf>
  10. [https://www.straumann.com/content/dam/medial-center/straumann/en/documents/brochure/technical-information/490.038-en\\_low.pdf](https://www.straumann.com/content/dam/medial-center/straumann/en/documents/brochure/technical-information/490.038-en_low.pdf)
  11. <https://www.straumann.com/content/dam/medial-center/straumann/en/documents/smart/490.19-2-SmartM-Bone-Level-Tapered-Implant-en.pdf>
  12. Kofron MD, Carstens M, Fu C, Wen HB, In vitro assessment of connection strength and stability of internal implantabutment connections, *Clinical Biomechanics*, 65(2019): 92–99
  13. <https://www.straumann.com/content/dam/medial-center/straumann/en-us/documents/brochure/product-information/NAMLIT.1043.V2%20-%20BLT%20basic%20information.pdf>
  14. <https://www.straumann.com/us/en/dental-professionals/products-and-solutions/implant-borne-prosthetics/abutment-connections.html>
  15. [https://straumann.implantdivision.ro/download/490.038-en\\_low\\_procedura\\_chir\\_BLT.pdf](https://straumann.implantdivision.ro/download/490.038-en_low_procedura_chir_BLT.pdf)
  16. [http://www.schmidt-dental.pl/wp-content/uploads/2016/11/Straumann\\_Bone\\_Level\\_Tapered\\_Implant\\_2\\_9mm\\_SC.pdf](http://www.schmidt-dental.pl/wp-content/uploads/2016/11/Straumann_Bone_Level_Tapered_Implant_2_9mm_SC.pdf)
  17. Dewan SK, Arora A, Sehgal M, Khullar A. Implant failures: A broader perspective. *J Dent Implant.* 2015;5:53–9
  18. Mangano C, Mangano F, Piatelli A, Iezzi G, Mangano A, La Colla L. Prospective clinical evaluation of 307 single-tooth morse taper connection implants: a multicenter study. *Int J Oral Maxillofac Implants* 2010;25(2):394-400
  19. Duraccio D, Mussano F, Faga MG, Biomaterials for dental implants: current and future trends, *J Mater Sci* (2015) 50:4779–4812
  20. Gaviria L, Salcido JP, Guda T, Ong JL. Current trends in dental implants. *J Korean Assoc Oral Maxillofac Surg.* 2014;40(2):50-60. doi:10.5125/jkaoms.2014.40.2.50
  21. Colombo M, Mangano C, Mijiritsky E, Krebs M, Hauschild U, Fortin T. Clinical applications and effectiveness of guided implant surgery: a critical review based on randomized controlled trials. *BMC Oral Health.* 2017;17(1):150
  22. Mish C., Resnik R., Misch's Avoiding Complications in Oral Implantology, 1st Edition, Mosby, 2017

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## CASE REPORT

### The multidisciplinary approach of a patient with Sjögren's Syndrome in the dental office - case report.

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#### Abstract

**Introduction:** Oral rehabilitation is based on establishing a correct diagnosis and designing a plan to give appropriate treatment to each clinical case. Patients' aesthetic requirements show an increasing trend in current practice. Sjögren's syndrome and obesity can have a negative impact on a person's quality of life, and it is therefore imperative to identify and reduce these significant barriers to paving the way for better oral health and the overall well-being of the individual. Hypertension NYHA II type patients may present oral manifestations like ageusia, burning sensation, xerostomia, lichenoid reactions or gingival hyperplasia. **Case presentation:** This time, at our clinic, a 71-year-old man requested a complex oral rehabilitation. He presented partial edentulism at both arches. We are talking about a non-smoking patient, with chronical medication treatment for the mentioned pathology. **Conclusions:** A well-controlled hypertensive patient is not a risk in clinical practice. When choosing an implant based therapy, the old age of the patient can be considered a negative factor for successful results, but it is not a strict contraindication. This case report shows the most suitable treatment solution, regarding all the advantages and disadvantages of other treatment options, represented by implant supported fixed prosthetic restorations.

**Keywords:** Sjögren syndrome; obesity, dental Implants, hypertension, All-on-Six concept.

#### Introduction

The main purpose of the dental team was to achieve patient satisfaction, by ensuring an easy adaptation to the new denture, an efficient mastication, comfortable speech and good aesthetics. This case report deals with diagnosis and treatment planning for making a fixed denture supported by dental implants, using the all-on-six concept.

The specific cause of Sjögren's syndrome (SS) is unknown and currently has no cure. The cellular and humoral resistance are involved, and there are two types of Sjögren's syndrome. Primary Sjögren's syndrome is when the person only has one autoimmune disease, and secondary Sjögren's syndrome is when the patient has a combination of another autoimmune disease.

Patients suffering from SS may accuse dry eyes and mouth (xerostomia) sensations, burnings of oral mucosa that can be painful, candidiasis on the atrophic tongue, photophobia, gastritis, grittiness and eye burnings, peripheral nervous system lesions and Raynaud's phenomenon. Those people also get tired faster, at small effort activities. The management of dental treatments must

focus on combating and treating caries and oral candidiasis, increasing of the salivary production, saliva replacement, as well as patient's hydration and monitorization.[1] Unfortunately, it is very common to pay too much attention on symptomatic treatment, and on the other hand to neglect the rehabilitation scheme, aspect that lead to a reduced quality of personal and social life for the treated person.[2-3]

The obesity prevalence is constantly rising, occupying a leading position as a morbidity contributor worldwide. One of this consequence might be the increase of periodontal disease prevalence. Also the periodontal inflammation, sometimes, exacerbate the metabolic syndrome, of which obesity is a part of.

The marginal periodontium can be affected by an inflammatory condition, called chronic periodontal disease; which affects both the gums and the deep structures of the periodontium: the periodontal ligaments and the alveolar bone. Periodontitis, as a destructive disease causes loss of gingival attachment followed by progressive resorption of periodontal ligaments and alveolar bone.

Untreated, periodontitis will lead to tooth mobility and subsequent tooth loss. [4-6]

Another probable mechanism associating obesity and periodontal disease is insulin resistance. Dietary-free fatty acids accord not alone to obesity but as well as to insulin resistance, by acceptable abolition of beta cells of the pancreas. In turn, insulin resistance also contributes to a hyperinflammatory state which is generalized, including periodontal tissue.[7-8]

To guarantee a successful implant, several authors has been considered as a prognostic factor, the individual's age. The older someone is, the more systemic health factors will have, a longer healing process and more likely a not very bidder bone structure.[9]

When it comes to older patient's treatment possibilities, dental implants, along with implant-supported prostheses are quite feasible; however, they present general health problems, which are not often encountered in younger patients and might contraindicate surgery.[10]

As we age, the implant treatment may be affected by several changes such as physical, metabolic and endocrine.[11-12] Between the age of 25-30 years, the bone mineral density (BMD) reaches its peak.[13] A consequence of increasing age is linked with a reduced amount of bone tissue. A disconnection of osteoblastic and osteoclastic activity in favor of

osteoclastic is linked with age-associated bone loss.[14]

### Case report

A 71-year-old male patient came to the clinic for a complex oral rehabilitation, both aesthetic and functional. The patient's dental history reveals an upper and lower partial edentation. We are talking about a non-smoking, cooperative patient, but with a poor oral hygiene. The general history reveals numerous diseases, among which we enumerate hypertension NYHA II from the age of 45, Sjögren Syndrome and grade II obesity. The extra oral clinical examination revealed: OVD collapsed posteriorly, with facial asymmetry, deepening of the perioral grooves, prolapse of the lower lip and chronic angular stomatitis. On intra oral clinical examination, the periodontal bleeding occurred and ulcerative lesions of the oral mucosa were observed.

The patient was under chronic medication treatment for the mentioned pathology, with the following drugs: Cevimelineum 30 mg, 3x1/day, Ibuprofen 200 mg 3x1/day, Amlodipine 5 mg 2-0-1, Perindopril + Indapamide 10 mg + 2.5 mg 1/day, Acetyl salicylic acid 100 mg 1/day, Omeprazol 40 mg/day and artificial tears.



Figure 1. OPG at the presentation of patient

Blood tests confirm Sjögren's syndrome. No other parameters have been changed. We performed a CBCT for the three-dimensional evaluation of bone supply, volume and density. The investigation showed that the bone volume is sufficient for the insertion of 3.75 mm implants in diameter with 11.5 mm in length, and the average bone density is evaluated at D4. The patient was trained on the means of hygiene by mastering a primary hygiene system represented by brushing and a secondary system by using auxiliary means. Only after fulfilling this desideratum did we institute the following stages of treatment.

We started the rehabilitation of the oral cavity by performing a supragingival scaling to decrease the microbial load and create an

optimal environment for performing dental extractions.

We extracted all dental units under antibiotic protection, amoxicillin + clavulanic acid 2g / day, recommended by the internist. Extraction was associated with leveling of the alveolar ridge of the bone by osteoplasty and gingivoplasty by filling the postextractional sockets with bone grafting material. At the same time, dental implants were inserted, which were protected by an autologous membrane obtained by the PRF technique. Subsequently, within 7 days, the provisional prosthetic works were carried out (figure 2).



Figure 2. OPG 6 months after implant insertion

After the osseointegration of the dental implants (6 months), we restored the continuity of the dental arches through dental bridges with implant support made of a metal structure and ceramic esthetic layers for the teeth, fixed by cementation, using Cem Implant cement.

## Discussions

Xerostomia, causes all these mechanisms to brake, leading to complications for the patient, such as an unhealthy oral environment and even extremely painful local conditions.

Xerostomy will increase the probability of infections in the oral cavity with *candida albicans*, described as inflamed fissures at the corners of the mouth, an erythematous oral mucosa and White patches. [15] Therefore, dentures may cause ulcerations of the mucosa and exorbitant pain. In this situation we choose implants as an option to the patient, to get a proper solution and to avoid the complications that complete dentures may cause.

Saliva substitutes may be given to improve the lubricating effect. Many clinical cases have been treated with different types of reservoirs.[16]



In this type of situation, the relief of symptoms and the prevention of complication have to take part of our treatment management. Using hyaluronic acid mouth washes, gels or having frequently sips of water can improve dry mouth. The parasympathomimetic medication (cevimeline and pilocarpine) may also be indicated, but we have to inform the patient that he may have side effects like headaches, sweating vasodilatation and urinary frequency.[17]

Sjögren's syndrome is a widely underdiagnosed disease. When stratifying evaluating patients based on primary or secondary Sjögren's syndrome, researchers found that those with primary disease — when the condition happens on its own — had a lower failure rate of implants (2.5%) compared to patients with secondary Sjögren's syndrome — when the disease is caused by pre-existing conditions. They had a failure rate of 6.5%. [18]

A positive association was repeatedly demonstrated between prevalent periodontal disease and obesity across multiple studies from around the world.

Microradiographic and histomorphometric studies revealed that over the age of 50 there can be seen a marked increase in the cortical porosity of the mandible, greater in the alveolar bone than in the mandibular body. The bone mass decreasing resulted by the increasing in porosity is more pronounced in females than in males, with bone mineral loss estimate to be 1.5% per year in females and 0.9% in males. A significant amount of variations can be demonstrated by these studies, in the amounts of cortical and trabecular bone within and amid individuals. [19]

The osseointegration is influenced by the bone mass and soft tissue. Associated pathologies, such as osteoporosis or diabetes, that can affect the quantity and quality of local bone at the implant site influence the success of the treatment of dental implant more than the age itself.

Counseling with an internist is recommended for having a good control of hypertension and medication treatment plan. The patient should be requested to take the medication as usual, on each dental treatment session. Prior starting the treatment, the patient's blood pressure should be registered in

order to decide if the procedures can be performed in safety conditions or the visit need to be rescheduled due to high blood pressure values. It is preferable to have short visits in the morning as well. [24-26]

For dental anesthesia, an anesthetic without vasoconstrictor (e. mepivacaine) should be administered, and if the vasoconstrictor is required, the maximum dose should be respected. Anesthesia is influenced by general ailments, which disrupt liver function [27], so the metabolism of the anesthetic may be prolonged, and the clotting time altered, interfering with both post-surgical healing and the comfort of surgery.

This case can be approached from two perspectives. First of all, choosing total prostheses, in the case of a patient with xerostomia, we do not benefit from the salivary factor, the adhesion and the suction being compromised. Dental implants solve this desideratum, ensuring optimal stability, but on the other hand the possibility of ensuring dental hygiene is inferior to the first option.

Nowadays, good hygiene can be provided by using alternative cleaning methods such as water floss, super floss, mouth wash solutions and respecting the periodical dental follow-ups.

## Conclusions

The treatment that we choose reported a significant improvement in the patient's quality of life after dental implants, regarding satisfaction, appearance and functionality.

Though the patient was successfully rehabilitated Sjögren's syndrome is still underdiagnosed, although it is a common inflammatory disease of the exocrine glands that has a major impact on oral health. It is very likely for dentists, among other health care providers, to be the ones to encounter first signs of Sjögren's syndrome. With all those impediments the patient rehabilitation had a successfully result, represented by all-on-six concept that ensures the fixing of dental bridges, offering a viable alternative to removable partial dentures.

Obese patients are more likely affected by periodontal disease, but there is no evidence to plan different treatments.

Regarding the elderly, age is not a contraindication of dental implants but only a

risk factor, due to the frequency of associated pathologies (like in our case: hypertension, cardiovascular disease).

The treatment that we choose reported a significant improvement in the patient's quality of life after dental implants, regarding satisfaction, appearance and functionality.

Today, at the beginning of the 21st century, modern dentistry offers spectacular technical, clinical and laboratory possibilities. Painless, conservative, untimely treatment must govern the principles of oral rehabilitation. Applying dental implants is a solution to solve any edentation at the moment, but it must be judiciously selected and well prepared to have successful results.

**Conflict of interest:** None to declare.

## References

- Frederick B Vivino, Vatinée Y Bunya, Gacomina Massaro-Giardo, Chadwick R Joher, Jing He, Julian L Ambrus Jr. Sjögren's syndrome: an update on disease pathogenesis, clinical manifestations and treatment. *Clin Immunol*. 2019; 203:81-121.
- Stewart CM, Berg KM, et al. Salivary dysfunction and quality of life in Sjögren's syndrome: a critical oral-systemic connection. *J Am Dent Assoc*. 2008;139:291-299.
- Wei Wei, Syed Sayeed Ahmad, Shuang Chi, Yu Xie, Jiang Li. From molecular mechanism to the etiology of Sjögren syndrome. *Curr Phar Des*. 2018; 24(25):4177-4185.
- Socransky SS, Haffajee AD. The bacterial etiology of destructive periodontal disease: Current concepts. *J Periodontol*. 1992; 63 Suppl.4:322-331.
- Ira B Lamster, Michel Pagan. Periodontal disease and the metabolic syndrome. *Int Dent J*. 2017; 67(2):67-77.
- Marsh PD. Microbial ecology of dental plaque and its significance in health and disease. *Adv Dent Res*. 1994; 8:263-271.
- Pihlstrom BL, Michalowicz BS, Johnson NW. Periodontal diseases. *Lancet*. 2005; 66:1809-1820.
- Singh MP, Chopra R, Bansal P, Dhuria S. Association between obesity & periodontitis – A clinical and biochemical study. *Indian J Dent Sci*. 2013; 2:6-8.
- Wood MR, Vermilyea SG. A review of selected dental literature on evidence-based treatment planning for dental implants: report of the Committee on Research in Fixed Prosthodontics of the Academy of Fixed Prosthodontics. *J Prosthet Dent*. 2004; 92:447-462.
- Narin H F Wilson, Igor R Blum. Performance of zirconia implants. *Evid Based Dent*. 2019; 20(3):92-93.
- Schimmel M, Muller F, Suter V, Buser D. Implants for elderly patients. *Periodontol*. 2000. 2017; 73:228-240.
- Garg AK, Winkler S, Bakaeen LG, Mekayarajjananonth T. Dental implants and the geriatric patient. *Implant Dent*. 1997; 6:168-173.
- Warming L, Hassager C, Christiansen C. Changes in bone mineral density with age in men and women: a longitudinal study. *Osteoporos Int*. 2002; 13:105-112.
- Freemont AJ, Hoyland JA. Morphology, mechanisms and pathology of musculoskeletal ageing. *J Pathol*. 2007; 201:252-259.
- Rossie K, Guggenheimer J. Oral candidiasis: clinical manifestations, diagnosis, and treatment. *Pract Periodontics Aesthet Dent*. 1997; 9:635-642.
- Sinclair GF, Frost PM, Walter JD. New design for an artificial saliva reservoir for the mandibular complete denture. *J Prosthet Dent*. 1996; 75:276-280.
- Al-Hashimi I. The management of Sjögren's syndrome in dental practice. *J Am Dent Assoc*. 2001; 132:1409-1417.
- Mendosa AR, Tomlinson MJ. The split denture: a new technique for artificial saliva reservoirs in mandibular dentures. *Aust Dent J*. 2003; 48:190-194.
- Hildebolt CF. Osteoporosis and oral bone loss. *Dentomaxillofac Radiol*. 1997; 26:3-15.
- Deborah L Cartee, Shannon Maker, Debra Dalonges, Marion C Manski. Sjögren's Syndrome: oral manifestations and treatment, a dental perspective. *J Dent Hyg*. 2015; 89(6):365-71.
- Daniel Almeida, Katia Vianna, Patricia Arriga, Vittprio Mopraschini. Dental implants in Sjögren's syndrome patients: a systematic review. *PLoS One*. 2017; 12(12):507.
- Lucchese A, Portelli M, Marcolina M, Nocini PF, Carldara G. Effect of dental care on the oral health of Sjögren's syndrome patient. *J Biol Regul Homeost Agents*. 2018; 32:37-43.
- Vanchit John, Hawra Alqallaf, Tatiana De Bedout. Periodontal disease and systemic diseases: an update for the clinician. *J Indiana Dent Assoc*. 2016; 95(1):16-23.
- Martinez-Herrera M, Silvestre-Rangil J, Silvestre FJ. Association Between Obesity and Periodontal Disease. A Systematic Review of Epidemiological Studies and Controlled Clinical Trials. *Med Oral Patol Oral Cir Bucal*. 2017; 22(6):708-715.
- Dursun E, Alev AF, Gens T, Cinar N, Erel O, Okan YB. Oxidative stress and periodontal disease in obesity. *Medicine(Baltimore)*. 2016; 95:3136.



26. Srinivasan M, Meyer S, Mombelli S, Muller F. Dental implants in the elderly population: a systemic review and meta-analysis. Clin Oral Implants Res. 2017; 28(8):920-930

27. Compton SM, Clark D, Chan S, Kuc I, Wubie BA, Levin L. Dental implants in the elderly population: a long-term follow-up. Int J Oral Maxillofac Implants. 2017; 32(1):164-170.

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