

CASE REPORT



DOI: 10.2478/asmj-2019-0012

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

Tatiana-Maria Coman¹, Anca-Diana Mănărașan¹, Adelin-Sebastian Cîrstea¹, Dorin-Ioan Cocoș¹¹George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Targu Mures, Romania

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, Vatinee 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.
- Mendoza 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, Vittorio 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.

Corresponding author:

Tatiana-Maria Coman

George Emil Palade University of Medicine, Pharmacy, Science and Technology of Tirgu Mures, 38 Gheorghe Marinescu street, Tirgu Mures, 540139, Romania

Email: comantatiana01@gmail.com

Received: October 8, 2019 / Accepted: November 23, 2019