

Oral Changes Related to Bariatric Surgery

Michelle Miranda Lopes Falcão

Feira de Santana State University, Feira de Santana, Bahia,
Brazil

Ellen Karla Nobre dos Santos-Lima¹, Rachel Oitaven Neto², Soraya Castro Trindade³ and Michelle Miranda Lopes Falcão^{3*}

¹Dentistry Course, Faculty of Technology of Alagoas, Maceió, Alagoas, Brazil

²Dentist, Feira de Santana, Bahia, Brazil

³Department of Health, Feira de Santana State University, Feira de Santana, Bahia, Brazil

COLUMN ARTICLE

Abstract

Obesity is a chronic worldwide disease. Among the treatment options, the Bariatric Surgery (BS) is well established, in despite of possible postoperative complications which may be associated with oral cavity pathologies. So, the inclusion of the dentist in the BS managing multidisciplinary team is necessary to identifying injuries, prevent diseases and assist the patient rehabilitation. Thus, the aim of this article is to discuss the consequences of BS in the oral cavity, suggesting the creation of a standard Preventive Dentistry Protocol for BS patients in order to contribute to better quality of life.

Keywords: Bariatric Surgery; Oral Health

Obesity is a chronic disease characterized by excessive accumulation of adipose tissue in the body, which can lead to comorbidities and aggravates the patient's health status [1-4]. Such comorbidities may be represented by arterial hypertension, dyslipidemia, type 2 diabetes and sleep apnea [4-7]. The treatment of obesity is a process that aims to eliminate excess weight, prevent weight gain, control factors

of comorbidities and modify lifestyle. For this, nutritional care, regular physical activities, behavior modification, pharmacotherapy and bariatric surgery (BS) are available [8-12]. For patients with a Body Mass Index (BMI) greater than 40 kg/m² or patients with a BMI greater than 35 kg/m² in the presence of comorbidities, BS has been considered a procedure that results in significant weight loss [13-16].

Among the possible complications related to BS, there are nausea, vomiting, impaired absorption of vitamins/minerals and anemias [13,17]. According to the literature, some of the complications may be associated with the onset of dental erosions, caries lesions, periodontal disease and xerostomia [18-22]. Thus, the implementation of a standard oral care protocol has the aim of favoring the integral care of the BS patient, treating the pre-existing or consequent to BS oral diseases and promoting a change of habits in the oral health care.

Orientation and motivation for oral hygiene and control of bacterial biofilms are essential for the prevention of caries and periodontal disease, since such procedures promote the equilibrium (symbiosis) between the microbiome and the host [23-27]. In this way, the importance of the oral health education work directed to BS individuals is empha-

sized, considering that the satisfactory result of the preventive and curative caries /periodontal disease procedures is linked to the individual's awareness of his/her responsibility in the treatment.

The use of chlorhexidine mouthrinse as an adjuvant in the control of oral biofilm, however, is not recommended for a prolonged time, due to its adverse effects such as taste disturbance; inflammation, desquamation and ulceration of oral mucosa; oral/ tongue burning sensation [28]; and interference in the oral microbiome [29]; which is especially relevant for BS patients due to the possibility of decreased salivary flow and taste alteration in these individuals.

In the prevention of caries, dietary counseling has been proposed and it must prioritize the reduction of the carbohydrate intake, since this nutrient is a substrate for fermentation by microorganisms of the biofilm, leading to the production of organic acids capable of demineralizing the dental surface [24,30,31]. In a Preventive Dentistry Protocol for BS patients, dietary counseling is essential to the prevention of caries due to the consequent modification of dietary habits, with the increase in the intake of high-calorie, often cariogenic, liquid/paste foods. Regarding periodontal disease, it is important to emphasize the dentist's dialogue with the multidisciplinary team, specially when the periodontal disease is associated with nutritional deficiency.

The use of fluorides to prevent caries is substantiated on the formation of calcium fluoride on the surface of enamel and dentin, acting in the remineralization process [24,30-32]. However, remineralizing treatment can only be effective in patients who change their habits of oral hygiene and diet [33]. The use of fluoride in BS individuals has the purpose of assisting in the balance of the demineralization - remineralization process, since the frequent episodes of vomiting provoke constant alteration of the oral pH.

Due to acid oral pH of BS patients, its important to prevent the dental erosion (perimolysis). The use of fluoride is effective to prevent perimolysis since it increases the dental resistance to acid oral pH [34-36], When detecting the erosion process, the dentist must conduce the patient for di-

agnosis and treatment of the systemic pathologies involved [17,36,37], since the success of the health rehabilitation depends on the interaction between the multidisciplinary team.

Considering the oral changes that may be associated with bariatric surgery; such as caries, periodontal disease, xerostomia, perimolysis/hypersensitivity; it is important to adopt a Preventive Dentistry Protocol for BS patients and to encourage the presence of the dentist in the BS managing multidisciplinary team in order to provide integral health care. Prospective studies are needed to analyze the association between bariatric surgery and oral changes, to clarify the involved etiological factors and to justify the presence of the dentist in the multidisciplinary team.

CONFLICT OF INTEREST

There are no financial interest or conflict of interest.

BIBLIOGRAPHY

1. World Health Organisation (WHO). "Obesity: preventing and managing the global epidemic: A report of a WHO consultation". WHO technical report series: 894 World Health Organisation, Geneva (2000): 252.
2. Kopelman PG. "Obesity as a medical problem." *Nature* 404.6778 (2000): 635-643.
3. Pischon N., et al. "Obesity, Inflammation, and Periodontal Disease". *Journal of Dental Research* 86.5 (2007): 400-409.
4. Malik Z. "Special Needs Dental Management of the Class 3 Obese Patient". *Case Reports in Dentistry* 2019 (2019): 7976531.
5. Francischi RPP., et al. "Obesidade: atualização sobre sua etiologia, morbidade e tratamento". *Revista de Nutrição* 13.1 (2000).
6. Repetto G., et al. "Prevalência, Riscos e Soluções na Obesidade e Sobrepeso: Here, There, and Everywhere". *Arquivos Brasileiros de Endocrinologia and Metabologia* 47.6 (2003).

7. Ferreira, S.R.G. "A obesidade como epidemia: o que pode ser feito em termos de saúde pública?" *Einstein* 1 (2006): S1-S6.
8. Segal A and Fandiño J. "Indicações e contra-indicações para realização das operações bariátricas". *Revista Brasileira de Psiquiatria* 24.3 (2002).
9. Kral JG and Näslund E. "Surgical treatment of obesity". *Nature clinical practice* 3.8 (2007): 574-583.
10. Chávez JV. "Tratamiento médico de la obesidad". *Diagnostico* 46.2 (2007).
11. Silva BBF. "Condição de saúde bucal em pacientes submetidos à cirurgia bariátrica". Piracicaba: Universidade Estadual de Campinas (2008).
12. Logue J., et al. "SurgiCal Obesity Treatment Study (SCOTS): protocol for a national prospective cohort study of patients undergoing bariatric surgery in Scotland". *BMJ Open* 5 (2015): e008106.
13. Fandiño J., et al. "Cirurgia Bariátrica: aspectos clínico-cirúrgicos e psiquiátricos". *Revista de Psiquiatria do Rio Grande do Sul* 26.1 (2004): 47-51.
14. Pareja JC., et al. "Gastroplastia redutora com bypass gastrojejunal em Y-de-Roux: conversão para bypass gastrointestinal distal por perda insuficiente de peso - experiência em 41 pacientes". *Arquivos de Gastroenterologia* 42.4 (2005).
15. Carvalho PS., et al. "Cirurgia bariátrica cura síndrome metabólica?". *Arquivos Brasileiros de Endocrinologia and Metabologia* 51.1 (2007).
16. Francisco MC., et al. "Análise radiológica das alterações gastrintestinais após cirurgia de Fobi-Capella". *Radiologia Brasileira* 40.4 (2007).
17. Heling I., et al. "Dental Complications Following Gastric Restrictive Bariatric Surgery". *Obesity Surgery* 16.9 (2006): 1131-1134.
18. Corrêa MCCSF, et al. "Estudo de alterações na cavidade oral em pacientes com doença do refluxo gastroesofágico". *Arquivos de Gastroenterologia* 45.2 (2008).
19. Barbosa CS., et al. "Dental manifestations in bariatric patients: review of literature". *Journal of Applied Oral Science* 17 (2009): 1-4.
20. Marsicano JA., et al. "Interfaces between bariatric surgery and oral health. A longitudinal survey". *Acta Cirúrgica Brasileira* 26.2 (2011): 79-83.
21. Fontanille I., et al. "Bariatric surgery and periodontal status: A systematic review with meta-analysis". *Surgery for Obesity and Related Diseases* 14.10 (2018): 1618-1631.
22. Weinberg G., et al. "Oral health status of patients before and after bariatric surgery". *Dentistry and Oral Health Care* 1.1 (2018): 1-8.
23. Hickmann M., et al. "Programa Educativo - Preventivo de higiene oral em estudantes da Escola Municipal Adelmo Simas Genro de Santa Maria-RS". *Disc Scientia: Ciências da Saúde* 7.1 (2006): 127-138.
24. Lima JEO. "Cárie dentária: um novo conceito". *Revista Dental Press de Ortodontia e Ortopedia Facial* 12.6 (2007): 119-130.
25. Lima JEO. "Programa preventivo da cárie dentária baseado no controle mecânico da placa bacteriana em crianças, por meio da profilaxia profissional periódica. Resultados após 25 anos de acompanhamento". *Revista Dental Press de Ortodontia e Ortopedia Facial* 12.6 (2009): 119-130.
26. Kilian M., et al. "The oral microbiome - an update for oral healthcare professionals". *British Dental Journal* 221.10 (2016): 657-666.
27. Lamont RJ., et al. "The oral microbiota: dynamic communities and host interactions". *Nature Reviews Microbiology* 16.12 (2018): 745-759.
28. James P., et al. "Chlorhexidine mouthrinse as an adjunctive treatment for gingival health". *Cochrane Database of Systematic Reviews* 3 (2017): CD008676.
29. Cieplik F., et al. "Resistance Toward Chlorhexidine in Oral Bacteria - Is There Cause for Concern?". *Frontiers in Microbiology* 10.587 (2019).

30. Atta MT, *et al.* "Controle do ecossistema bucal previamente ao tratamento restaurador definitivo". *RGO* 56.2 (2008): 219-224.
31. Anderson CA, *et al.* "Sucrose and dental caries: a review of the evidence". *Obesity Reviews* 10.1 (2009): 41-54.
32. Rompante P. "Mecanismos preventivos do flúor e cárie dentária". *Acta Pediátrica Portuguesa* 40.5 (2009): 223-228.
33. Soares JMP and Valença AMG. "Avaliação Clínica do Potencial Terapêutico do Gel e Verniz Fluoretados na Remineralização de Lesões Cariosas Incipientes". *Pesq Bras Odontoped Clin Integr* 3.2 (2003): 35-41.
34. Bartlett DW. "O papel da erosão no desgaste dentário: etiologia, prevenção e controle". *International Dental Journal* 55 (2005): 277-284.
35. Zero DT and Lussi A. "Erosion - chemical and biological factors of importance to the dental practitioner". *International Dental Journal* 55.4-1 (2005): 285-290.
36. Branco CA, *et al.* "Erosão dental: diagnóstico e opções de tratamento". *Revista de Odontologia da UNESP*. 37. 3 (2008): 235-242.
37. Traebert J and Moreira EAM. "Transtornos alimentares de ordem comportamental e seus efeitos sobre a saúde bucal na adolescência". *Pesquisa Odontológica Brasileira* 15.4 (2001): 359-363.

©All rights reserved by Michelle Miranda Lopes Falcão., et al.