DOI: 10.12957/demetra.2018.31360

Oral manifestations of eating disorders: literature review

Manifestações orais dos transtornos alimentares: revisão de literatura

Kassya Corts Alves[1]
Pâmela Naiara Rodrigues de Paula[1]
Alfredo Júlio Fernandes Neto[2]
Paulo Cézar Simamoto Júnior[2]
Luana Cardoso Cabral[1,2]

[1] Faculdade Morgana Potrich, Faculdade de Odontologia. Mineiros, GO, Brasil.

[2] Universidade Federal de Uberlândia, Faculdade de Odontologia. Uberlândia, MG, Brasil.

Correspondence
Luana Cardoso Cabral
E-mail: luanacardoso29@yahoo.com.br

Abstract

The pressure of the media on the population causes some people to change their food intake by adhering to inadequate diets, thus increasing the risk of triggering eating disorders. Several signs of these disorders may affect the oral cavity and it is the role of the dental surgeon to diagnose them early through detailed anamnesis and thorough clinical examination. In this context, the study aimed to analyze the different oral manifestations of eating disorders, in order to confirm the hypothesis that the dental surgeon can diagnose such disorders early. The search strategies were performed in the Pubmed and Virtual Health Library databases. The following descriptors were obtained through the Decs / Mesh dictionary: bulimia, anorexia and oral cavity. The evaluation of the studies was performed in two stages by independent reviewers. In the first step, the titles and abstracts were investigated and those that presented the eligibility criteria were selected. In the second step, the articles were read in full and selected according to the inclusion and exclusion criteria. Seventy-nine citations were identified and 40 were read in full; six articles met the inclusion criteria. The oral manifestations cited in the literature were dental erosion, increase parotid glands, caries, dentin hypersensitivity and soft tissue alterations. Studies indicate that anorexic and bulimic individuals present changes associated with oral health and it is the dental surgeon's duty to diagnose these clinical signs early.

Keywords: Bulimia. Anorexia. Oral Cavity.

Resumo

A pressão da mídia sobre a população faz com que algumas pessoas alterem o consumo alimentar, introduzindo dietas inadequadas e aumentando o risco de desencadear desordens alimentares. Diversos sinais desses distúrbios podem afetar a cavidade oral, e é papel do cirurgião-dentista diagnosticar precocemente, por meio da anamnese detalhada e do minucioso exame clínico. Nesse contexto, o estudo objetivou analisar as diferentes manifestações bucais dos transtornos alimentares, a fim de confirmar a hipótese de que o cirurgião dentista pode diagnosticar precocemente tais distúrbios. As estratégias de busca foram realizadas nas bases de dados do Pubmed e Biblioteca Virtual da Saúde (BVS). Os seguintes descritores foram obtidos por meio do dicionário Decs/Mesh: *bulimia*, *anorexia* e *oral cavity*. A avaliação dos estudos foi realizada em duas etapas por revisores independentes. Na primeira etapa, os títulos e resumos foram investigados, e aqueles que apresentassem os critérios de elegibilidade eram selecionados. Na segunda, os artigos foram lidos na íntegra e selecionados conforme os critérios de inclusão e exclusão. Identificaram-se 79 citações e 40 foram lidas na íntegra; seis artigos reuniram os critérios de inclusão. As manifestações orais citadas na literatura foram erosão dentária, aumento das glândulas parótidas, cárie, hipersensibilidade dentinária e alterações dos tecidos moles. Os estudos apontam que indivíduos anoréxicos e bulímicos apresentam alterações associadas à saúde bucal, e compete ao cirurgião dentista diagnosticar precocemente esses sinais clínicos.

Palavras-chave: Bulimia. Anorexia. Cavidade Oral.

Introduction

In search for an ideal body aesthetic imposed by contemporary society, which associates thinness with youth and beauty, bulimia nervosa (BN) and anorexia nervosa (AN) are presented as a response to the search for the perfect body.[1]

BN is characterized by uncontrolled food intake in a single moment, accompanied by improper acts of compensation such as induced vomiting, abusive use of laxatives, diuretics, appetite suppressants, in addition to inadequate diets and excessive physical exercise.[2] The disorder can cause psychological and social damage, as well as significant and important levels of morbidity and mortality.[3,4]

AN is a disease characterized by the systematic rejection of food intake in the liquid or solid form, resulting in consequent weight loss, which may be progressive or sudden.[5,6] In addition, psychological and emotional changes are observed, and the inability to maintain normal body weight.[5] Furthermore, it can be classified in a restrictive type, in which the individual makes use of diets, fasts and excessive exercises, or periodic / purgative compulsion type, in which a period of periodic compulsions and purges occurs, or both.[7]

The dental surgeon plays a fundamental role in the early diagnosis of these eating disorders, since he/she is usually the first health agent to observe the signs and symptoms that indicate some of the characteristics of eating disorders that affect the oral cavity.[8-10] Following a thorough anamnesis, adequate physical examination, extra and intraoral examination, this professional will be able to lead the patients to a multidisciplinary treatment, as well as to perform the necessary procedures for the restoration of oral health, and also to sensitize them about the risks and problems that this disease can cause.[11-13]

In this context, the study aimed to analyze the different oral manifestations of eating disorders, in order to confirm the hypothesis that the dental surgeon can early diagnose these disorders.

Materials and Methods

Study Design

Review of studies evaluating the presence of oral alterations in individuals with bulimia nervosa or anorexia nervosa.

Eligibility Criteria

Articles addressing the different oral clinical findings associated with bulimia and anorexia, in Portuguese and English, were selected. Clinical case reports, case series, and book chapters were excluded from the review.

Selection of Studies

The search strategies were obtained through the DeCs/Mesh dictionary and were used in the databases of the Pubmed and Virtual Health Library (VHL), with the following descriptors: "Bulimia" [*Mesh*] OR "Bulimias" OR "Binge Eating" OR "Eating, Binge" OR "Bulimia Nervosa" [*Mesh*] OR "Nervosa, Bulimia" AND "Anorexia" [*Mesh*] OR "Anorexias" OR "Anorexia Nervosa" [*Mesh*] OR "Anorexia Nervosas" OR "Nervosa, Anorexia" OR "Nervosas, Anorexia" AND "Mouth"

[*Mesh*] OR "Oral Cavity" OR "Cavity, Oral" OR "Cavitas Oris" OR "Vestibule of the Mouth" OR "Vestibule Oris" OR "Oral Cavity Proper" OR "Mouth Cavity Proper" OR "Cavitas oris propria".

The study was carried out in two phases. In phase 1, the two independent reviewers evaluated the title and summary of all citations recorded in the databases. The studies that did not present the established inclusion criteria were discarded. In phase 2, the articles selected through the same eligibility criteria were fully evaluated. The two independent reviewers participated in phase 2. In cases where there was disagreement, a third reviewer evaluated the case for the tiebreaker.

Registered Items

For the included studies, the following information was recorded: author, year of publication, and oral manifestations observed.

Results

In the initial research, 115 articles were identified in the databases. After removing the duplicates, 79 different citations were considered. In the evaluation of abstracts, 39 were excluded. Therefore, only 40 were selected for evaluation in phase 2. Thirty-four of the remaining studies were excluded, therefore six of them were considered for quantitative synthesis. The flowchart of the process of identification, inclusion and exclusion of studies is presented in figure 1.

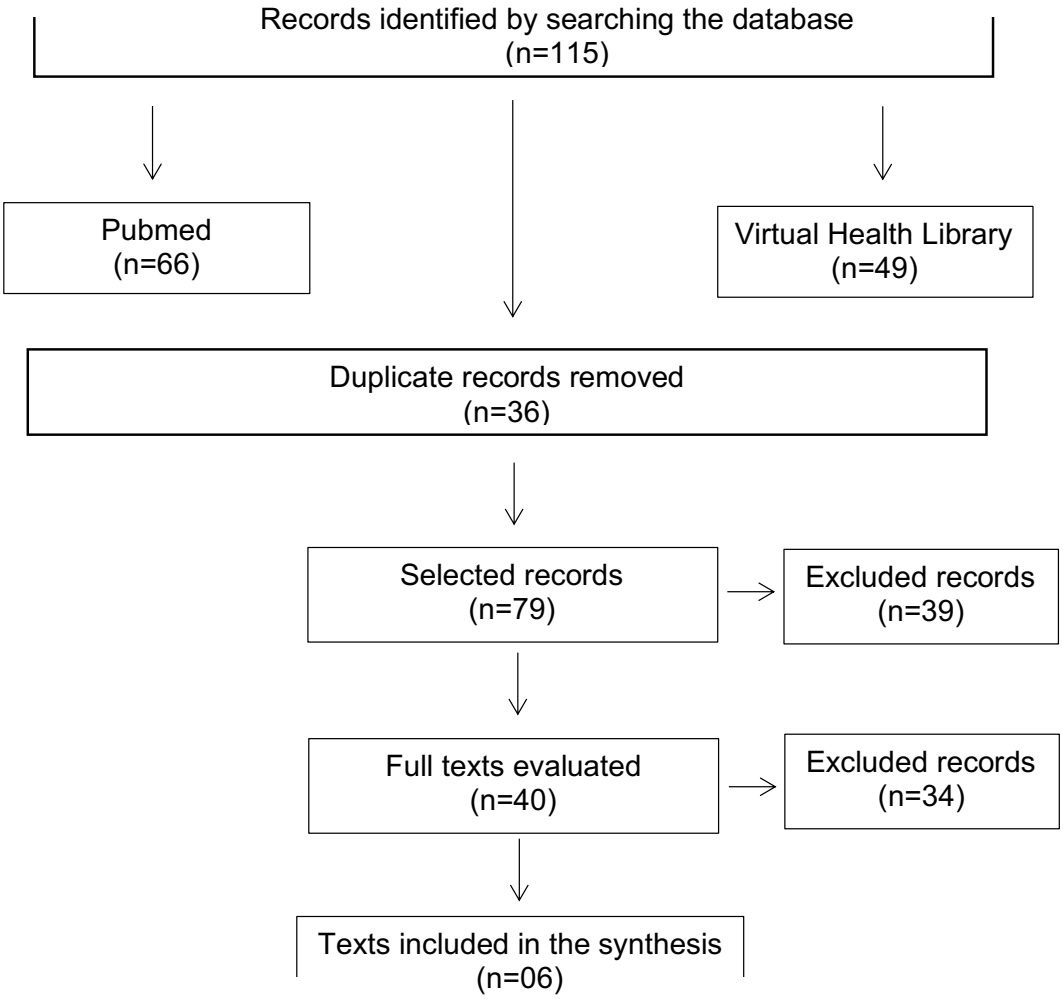

Figure 1. Literature research flowchart and selection criteria.

The board 1 presents the different selected studies, as well as the clinical findings.

Board 1. Articles selected after application of eligibility criteria.

Author and year	Clinical signs observed
Milosevic, 1999[26]	Dental erosion, caries, salivary changes and soft tissue injuries.
Debate et al., 2006[15]	Presence of clinical signs associated with eating disorders, but the types of signs were not mentioned.
Antunes, Do Amaral e Balbinot, 2007[20]	Dental erosion, changes in salivary flow, xerostomia, caries and soft tissue alterations.
Aranha, Eduardo e Cordás, 2008[3]	Dental erosion, xerostomia, enlargement of the parotid glands and caries.
Toledo, Oliveira e Capote, 2013[14]	Dental erosion, caries, xerostomia, enlargement of the parotid and salivary glands, soft tissue changes.
Morimoto et al, 2014[30]	Dental erosion.

Discussion

According to the researched literature, both anorexia nervosa and bulimia nervosa can lead to oral alterations. Clinical signs often associated with individuals who have eating disorders include: dental erosion, xerostomia, parotid gland enlargement, caries, dentin hypersensitivity, and soft tissue abnormalities.[3,16] The main oral alteration associated with eating disorders is erosion.[30] The demineralization of dental tissue is caused by frequent contact of the gastric acid with the dental element, several times a week,[17] disfavoring the remineralization process when the pH falls below the critical level.[18] The severity of this condition is related to the duration of the disease, the frequency of episodes of vomiting and the amount of salivary flow.[19] Studies suggest that the risk of dental erosion quadruples when the signs are of weekly regurgitation.[20] Patients with bulimia demonstrate erosive concave depressions on the palatal and occlusal surfaces of the upper teeth, as well as on the vestibular and occlusal surfaces of the posterior lower teeth. The lingual faces of the lower teeth do not normally present these lesions, due to the protection provided by the tongue and saliva, from the sublingual and submandibular glands.[21] Another clinical finding is the decrease in the vertical dimension of occlusion caused by progressive tooth enamel wear.[22]

However, there are cases in which bulimic individuals do not present this alteration in the dental element, and other types of manifestations are able to be observed. Saliva reduces the acidity of vomiting and, consequently, hypertrophy of the salivary glands is noted in anorexic and bulimic patients as they produce higher levels of fluid and, therefore, neutralize the acid present in the oral cavity. In patients with low salivary flow, the acidity remains mainly on the back of the tongue, proving that the palatine faces of the anterior teeth are the most affected.[23] In this condition, it is possible to observe a uni- or bilateral edema of the parotid glands and, in more rare cases, it can affect submandibular glands. The edema degree and pain at palpation are directly proportional to the frequency of vomiting self-induction, and these can be reversed through the cessation of vomiting and food re-education.[11,12,24]

Another dysfunction of the salivary glands is xerostomia, a deficiency in the production of saliva and the buffer capacity, causing constant complaints of dry mouth sensation. The dysfunction of the salivary glands is often linked to the frequency of vomiting and the excessive use of laxatives or diuretics, which cause a decrease in the total volume of fluids in some patients.[12,24] In anorexic patients, hyposalivation may occur during prolonged periods of fasting; in the case of bulimic patients, this decrease is observed due to the rapid swallowing of food during the bouts of hyperphagia.[25]

The high amount of gastric acid in the oral cavity, decreasing the oral pH, is a predisposing factor to the increase of the index of caries and hypersensitivity in patients with eating disorders. In addition to the diet which during feeding outbreaks is extremely caloric and cariogenic, in some cases, brushing deficiency is also important in the evolution of the caries process due to the sensitivity and presence of xerostomia.[26] Yet, dentin hypersensitivity is characterized by an acute, short-lived and localized pain that originates in the dentin exposed to stimuli that may be chemical or thermal.[27] It is more frequently located at the cervical level, because the enamel layer is thinner in this area, being easier to expose the dentin and, consequently, the dentinal tubules.[28]

The presence of tumefaction with alteration in the coloring of the gingival tissue is another type of manifestation. It occurs due to the irritation caused by the acids and medicines used by these patients. In addition, soft tissue lesions are often found, caused by the habit of inserting the finger and/or pointed objects into the buccal cavity, to induce vomiting.[12,24,26]

In this context, the participation of dental surgeons in the diagnosis of eating disorders is fundamental, since they are usually the first professionals to observe the clinical signs associated with these disorders.[3,14,15] The differential diagnosis of AN and BN is based on the observation of the dental signs associated to the detailed anamnesis with information that aims to know the eating habits, self-esteem and other factors related to the disorders. Thus, based on the diagnosis, the treatment must be performed by a multiprofessional team, made up of doctors, nutritionists, dentists and psychologists.[29]

Conclusion

The studies indicate that anorexic and bulimic individuals present alterations associated with oral health, and it is the responsibility of the dental surgeon to diagnose these clinical signs early.

Contributors

Simamoto-Júnior PC, Fernandes-Neto AJ participated in the study design, editing and revision of the manuscript. Alves KC and De Paula PNR participated in the definition of intellectual content, literary search, acquisition and analysis of the studies, preparation and editing of the manuscript. Cabral LC participated in the study design, definition of intellectual content, literary search, editing and revision of the manuscript and referral of the article.

Conflict of interests: The authors declare no conflict of interest.

Referências

1. Vale AMO, Kerr LRS, Bosi MLM. Comportamento de risco para transtornos do comportamento alimentar entre adolescentes do sexo feminino de diferentes estratos sociais do Nordeste do Brasil. Ciênc Saúde Coletiva. 2011; 16(1):121-132.
2. Diniz MAM. Transtornos alimentares: epidemiologia, etiologia e classificação. Nutrição Profissional. 2007; 11(1):12-20.
3. Aranha ACC, Eduardo CP, Cordas, TA. Eating disorders part I: psychiatric diagnosis and dental implications. J Contemp Dent Pract. 2008; 9(6): 73-81.
4. Cordás TA. Transtornos alimentares: classificação e diagnóstico. Rev Psiq Clínica. 2012; 31(4):154-157.
5. Bloss CS, Berrettini W, Bergen AW, Magistretti P, Duvvuri V, Strober M, et al. Genetic Association of Recovery from Eating Disorders: the role of GABA Receptor SNPs. American College of Neuropsychopharmacology. 2011; 36:2222-2232.
6. Gunilla PK, Lauri N. Anorexia nervosa: treatment expectations: a qualitative study. J Multidiscip Health. 2012; 5:169-177.
7. Farah MHS, Mate CH. Uma discussão sobre as práticas de anorexia e bulimia como estéticas de existência. Educ Pesqui. 2015; 41(4):883-898.
8. Lo Russo L, Campisi G, Di Fede O, Ki Liberto C, Panzarella V. Oral manifestations of eating disorders: a critical review. Oral Dis. 2008; 14:479-484.
9. Achkar VNRE, Brito GNB, Ito CYK. Saúde bucal de pacientes com transtornos alimentares: o marcante papel do cirurgião-dentista. Rev Odontol Univ. 2012; 24(1):51-56.

10. Hague AL Eating disorders: screening in the dental disorders. J Am Dent Assoc. 2010; 141(6):675-678.

11. Popoff DAV, Paula ACF, Biondi CMF, Domingos MA, Oliveira AS, Santa-Rosa TTA. Bulimia: manifestações bucais e atenção odontológica. Rev Gaúcha Odontol. 2010; 58(3):381-385.

12. Navarro VP, Matoba Junior F, Tedeschi Filho W, Queirós AM. Desordens alimentares: aspectos de interesse na odontologia. Rev Gaúcha Odontol. 2011; 59:15-18.

13. Cordás TA, Claudino AM. Transtornos alimentares: fundamentos históricos. Rev Bras Psiq. 2002; 24(3):3-6.

14. Toledo BAS, Oliveira AS, Capote TSO. O papel do cirurgião dentista nas desordens alimentares: uma revisão de literatura. Investigação. 2013; 13:48-51.

15. Debate RD, Vogel E, Tedesco L, Neff JA. Sex differences among dentists regarding eating disorders and secondary prevention practices. J Am Dent Assoc. 2006; 137(6):773-781.

16. Amoras DR, Messias DCF, Ribeiro RPP, Turssi CP, Serra MC. Caracterização dos transtornos alimentares e suas implicações na cavidade bucal. Rev Odontol UNESP. 2010; 39(4):241-245.

17. Scheutzel P. Etiology of dental erosion-intrinsic factors. Eur J Oral Sci. 1996; 104(2 Pt 2):178-190.

18. Sobral MAP, Luz MAAC, Gama-Teixeira A, Garone Netto N. Influência da dieta líquida ácida no desenvolvimento de erosão dental. Pesqui Odontol Bras. 2000; 14(4):406-410.

19. Rytömaa I, Järvinen V, Kanerva R, Heinonen OP. Bulimia and tooth erosion. Acta Odontol Scand. 1998; 56(1):36-40.

20. Antunes KT, Amaral CF, Balbinot CEA. Anorexia e bulimia nervosa: complicações bucais e o papel do cirurgião-dentista frente a transtornos alimentares. Disc. Scientia. Série: Ciências da Saúde, Santa Maria. 2007; 8(1):159-167.

21. Alves MSC, Lucena SC, Araujo SG, Carvalho ALA. Diagnóstico clínico e protocolo de tratamento do desgaste dental não fisiológico na sociedade contemporânea. Odontologia Clínico-Científica. 2012; 11(3):247-251.

22. Burkhart N, Roberts M, Alexander M, Dodds A. Communicating effectively with patients suspected of having bulimia nervosa. The Journal of the American Dental Association. 2005; 136(8):1130-1137.

23. Burke FJ, Bell TJ, Ismail N, Hartley P. Bulimia: implications of the practicing dentist. Brit Dent J. 1996; 180(11):421-426.

24. Lima KM, Portugal RP, Veloso KMM. Bulimia: seus reflexos na cavidade bucal e a sua importância do cirurgião dentista na equipe de tratamento multiprofissional. Florence em Revista. 2011.

25. Barboza CAG, Morais PD, Alves MVA, Carneiro DTO, Moura SAB. Participação do cirurgião-dentista no diagnóstico e tratamento interdisciplinar dos transtornos alimentares. Int J Dent. 2011; 10(1):32-37.

26. Milosevic A. Tooth surface loss: eating disorders and the dentist. British Dental Jornal. 1999; 186(3):109-113.

27. Amarasena N, Spencer J, Ou Y, Brennan D. Dentine hypersensitivity: australian dentists' perspective. Aust Dent J. 2010; 55(2):181-187.

28. Vasconcelos F, Vieira SCM, Colares V. Erosão dental: diagnóstico prevenção e tratamento no âmbito da saúde bucal. Rev Bras Ciênc Saúde. 2010; 14(1):59-64.

29. Barboza CAG, Morais PD, Alves MVA, Carneiro DTO, Moura SAB. Participação do cirurgião-dentista no diagnóstico e tratamento interdisciplinar dos transtornos alimentares. Int J Dent. 2011; 10(1):32-37.

30. Morimoto S, Sesma N, Agra CM, Guedes-Pinto AC, Hojo KY. Erosão dentária: etiologia, mecanismos e implicações. Journal of Biodentistry and Biomaterials - Universidade Ibirapuera. 2014; 4(1):6-23.

Received: November 30, 2017
Reviewed: July 3, 2018
Accepted: October 16, 2018