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ANALYSIS OF ORAL INJURIES CAUSED BY THE BAD USE OF PROSTHESIS - A LITERATURE REVIEW

¹Dimas Novais de Araujo Júnior, ²Jefferson David Melo de Matos, ²Ítalo Kennedy Silva Santos, ³Antonio Jackson Andrade Gonzaga de Oliveira, ⁴Lucas Villaça Zogheib, ⁵Daniel Sartorelli de Castro and ⁶John Eversong Lucena de Vasconcelos

¹School of Dentistry, Department of Oral Implantology, Centro Caririense de Pós-Graduação CECAP, Juazeiro do Norte – CE, Brazil

²School of Dentistry, Centro Universitário UNILEÃO, Juazeiro do Norte – CE, Brazil

³Graduate in Letters - English Language, Universidade Regional do Cariri - URCA, Crato – CE, Brazil

⁴Professor of Dental Prosthetics, Department of Dentistry, Universidade de Fortaleza UNIFOR, Fortaleza – CE, Brazil

⁵Professor of Dental Prosthetics, Department of Dentistry, Centro Universitário Católica de Quixadá, Quixadá – CE, Brazil

⁶Professor of Oral Implantology, Department of Dentistry, Centro Caririense de Pós-Graduação CECAP, Juazeiro do Norte – CE, Brazil

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ABSTRACT

Introduction: Despite all the advances already made in public oral health policies, Brazil still has a large number of individuals with partial or total edentulism, accompanied by the need for large-scale dental prostheses. And they have several pathologies that are closely related to poorly used prostheses.

Aim: The objective of this study is to identify and analyze, according to the literature, the main oral lesions caused by the poor use of prostheses.

Methodology: This study used the main electronic databases for bibliographic cataloging of PUBMED (www.pubmed.gov), SCIELO (www.scielo.org), BVS (www.bvsalud.org), 1979 to 2017. We selected 31 articles that fit the following inclusion criteria: research papers, case reports and systematic reviews, as well as literature that were developed in the human species and therefore excluded articles that did not address oral lesions caused by maladaptive prostheses.

Results: Teeth are not only important in aesthetic and chewing functions. They are also extremely essential, contributing to the maintenance of good general and oral health. In this way, care not due to the oral cavity results in numerous oral pathologies.

Conclusion: It is concluded that the main lesions found due to the use of iatrogenic or inadequate oral prostheses are: traumatic ulcer, frictional, candidal keratosis, fibrous inflammatory hyperplasia and pyogenic granuloma; Such lesions are more prevalent when there is insufficient oral hygiene.

*Corresponding author:

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INTRODUCTION

Even with all the advances already made in public oral health policies, Brazil still has a large number of individuals with

partial or total edentulism, accompanied by the need for large-scale dental prostheses. The prostheses make possible the functional and aesthetic rehabilitation of the patients, however

they must be made properly, so that they do not interfere in the stomatognathic system. In addition to the problems of fixation of the prosthesis, some devices when badly designed and made can determine the appearance of lesions in the buccal mucosa. Such lesions are associated not only with iatrogenic prostheses, but also with inadequate hygiene, which could be avoided if, after installation, the professional advised the patient on cleaning techniques and followed up with periodic controls (Bassi, 1998). The origin of dental prostheses is old, within the history of prostheses are reports of our ancestors' attempt to replace the missing dental elements. Nowadays, the total dental prosthesis replaces, in addition to both lost dental arches, the gingival fibromucosa and returns to the patient the recomposition of the stomatognathic system, as well as the biopsychic and social well-being. Currently, in dental practice, it is common to observe oral lesions resulting from the use of iatrogenic prostheses or even from an inadequate orientation of the patient by the dental surgeon regarding the use and hygiene of the same (Brunetti, 2002). Planning and making a prosthesis, the dentist should be concerned with a number of factors, including temporomandibular joint function, musculature tone, oral mucosal health, oral hygiene and prosthesis, alveolar ridge size and shape, distribution Of masticatory forces, intermaxillary space, occlusal conditions, adaptation and extension of the prosthesis, patient's systemic conditions, cervical margin defects, presence of pointed areas (Budtz-Jorgenser, 1981). The prosthetic treatment does not eliminate the possibility that new problems may occur on the biological and prosthetic elements involved. For most dental surgeons, much of the interest for the patient ends when the treatment is completed, which compromises the prognosis of the patient's oral health (Carr, 2005). There are lesions due to incorrect planning of prostheses such as angular cheilitis and trauma of the temporomandibular joint and the musculature of the stomatognathic system, caused by errors in the establishment of vertical dimension or by insufficient occlusal adjustments. Traumatic ulcer is one of the most frequent lesions of the buccal mucosa, which presents a varied etiology, but the result of professional procedures of iatrogenic nature is the most common cause in patients with total muco supported prosthesis (Coelho, 2004). The objective of this study is to identify and analyze, according to the literature, the main oral lesions caused by the poor use of prosthesis.

MATERIALS AND METHODS

This study used the main electronic databases of bibliographic cataloging of PUBMED (www.pubmed.gov), SCIELO (www.scielo.org), BVS (www.bvsalud.org), from 1979 to 2017. It was selected 31 Articles that fit into the following inclusion criteria: research papers, case reports and systematic reviews as well as literature that were developed in the human species, and therefore excluded articles that did not deal with oral lesions caused by Poorly adapted prostheses. During the tabulation of the data the following values obtained with the respective databases were: 09 PUBMED articles (www.pubmed.gov), 14 SCIELO (www.scielo.org), 08 BVS (www.bvsalud.org); As previously reported (FIGURE 1 and GRAPH.1). The following titles of specific medical subjects and keywords were used: ((Denture Identification Marking [DeCS Terms])), Oral Manifestations ([DeCS Terms]), Pathology Oral [DeCS Terms].

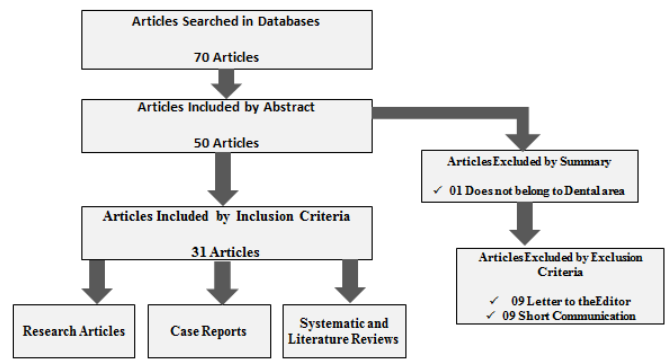
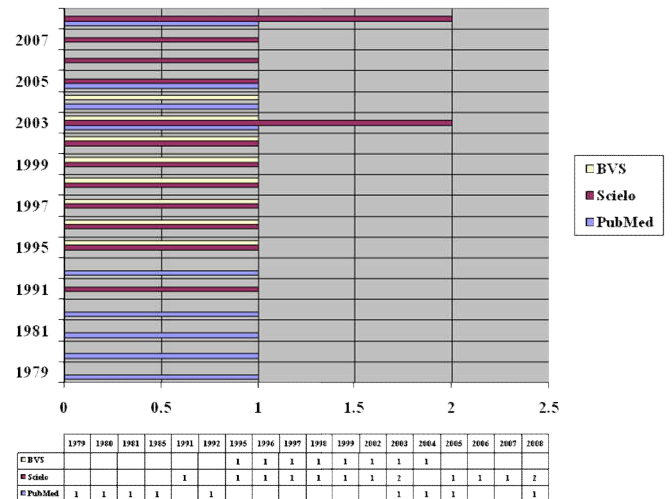


Figure 1. Flowchart of the criterion of inclusion of articles



Graph 1. Cumulative Graph

RESULTS

The studies showed that dental professionals are familiar with some injuries associated with the use of prostheses. Among these lesions, hyperplasias are involved, which have preoccupied quite a number of scholars, especially with regard to their evolution, the relationship with poorly adapted prostheses and the devices used to obtain retention, especially the so-called "suction chamber". The presence of lesions on the buccal mucosa in patients with removable partial dentures and observed that the most frequent lesions in these patients were stomatitis, inflammatory papillary hyperplasia and traumatic ulcers (Coelho, 1998). Many of the problems related to the use of prostheses appear some time after the installation, being a consequence of the destructive action of poorly made prosthetic devices. Systemic factors such as diabetes, fungal infections or nutritional vitamin deficiencies may influence the treatment with the use of prosthesis, leading to the appearance of some lesions; It is paramount importance to the professional's performance in the education and motivation of the patient emphasizing the need to perform and maintain a correct hygiene of the oral cavity, including prostheses and adjacent edentulous regions. Understanding that the care inherent in the preparation of the prostheses is essential in order to allow an adequate control of the plaque, so that these prostheses can be integrated biologically without compromising the longevity of the teeth supports (Conti, 1991). The necrotic lesions on the hard palate induced by dento-muco-surpotados apparatuses are probably necrotizing sialometaplasias of iatrogenic nature with established cause-effect relation. The lack of information on the making, use and

maintenance of removable dental prostheses is still a fact found in the dental environment. The lesions caused by the presence of accumulated microorganisms on the prosthetic surfaces or caused by traumatism generated by the poor adaptation of the prostheses on the alveolar rims are the most commonly found (Costa, 1997). In dental practice, it is common to observe oral lesions resulting from the use of iatrogenic prostheses or even from an inadequate orientation of the patient by the dental surgeon regarding the use and hygiene of these prostheses. Like the skin, the buccal mucosa plays an important role as a protective organ for adjacent and underlying tissues, but clinical experience has shown that the mucosa is much more susceptible to trauma and inflammation than the skin. Thus, it can be said that the frequency of soft tissue lesions increases according to the time the patient has been using the dental prosthesis (De Carli, 2006). Elderly patients because they present a series of peculiar buccal and systemic characteristics such as reduced alveolar ridge, less resilient mucosa, degenerating muscular tissue, require greater precision in the adaptation of their prostheses to the tissues. In addition, it is known that with the advancement of age there is a decrease in salivary secretion of the patient (xerostomia), which can cause pain or burning sensation in the mouth, making it difficult to swallow, speech and chewing. Adherence of the tongue to the base of the prosthesis, lack of retention, and also collaborate with lesions formation in the oral cavity (Fonseca, 2007). We are sure that teeth are not only important in aesthetic and chewing functions. They are also extremely essential, contributing to the maintenance of good general as well as oral health. In this way the care not due with the oral cavity results in innumerable buccal pathologies (Goiato, 2005).

DISCUSSION

The installation of a removable dental prosthesis causes a quantitative and qualitative alteration of the bacterial plaque, thus increasing the inflammatory processes of the oral cavity. When this situation is associated with the trauma caused by a poorly fitted removable prosthesis, it can trigger lesions in the buccal cavity that in combination with the trauma, poor hygiene of the prosthesis acts as a predisposing factor to candidiasis, in which the development of the parasite depends on the general conditions of Host health (Gonçalves, 1997). It is noteworthy that most users of removable dental prostheses are elderly, in this sense it is possible to perceive that with the advancement of age, there is a decrease in salivary flow that may occasionally, in users of prostheses, cause pain, tongue adhesion in the base of the prosthesis, lack of retention and contribute to the formation of lesions in the oral cavity. Such a problem is solved by the patient's abundant water intake, along with the use of artificial saliva or drugs such as pilocarpine. The literature reveals a wide range of lesions of the buccal mucosa that may appear in association with the use of removable prosthesis, with hyperplasias, stomatitis, traumatic ulcers, periodontal lesions and candidoses being the most frequent (Keng, 1979).

Traumatic Ulcer

Traumatic ulcer is one of the most frequent lesions of the buccal mucosa, which presents a varied etiology, but the result of professional procedures of iatrogenic nature is the most common cause in patients with total mucosal prosthesis supported. It is usually associated with a local irritant factor,

such as occlusal trauma, maladaptive prostheses, orthodontic appliances, electrical, thermal or chemical burns. The tongue, the jugal mucosa and the lower lip are quite susceptible, although other sites may also be affected, depending on the etiology (Leles, 1999). It is characterized by a central area of ulceration covered or not by fibrinopurulent membrane surrounded by halo erythematous. Usually the patient reports painful symptoms, especially during food intake. Treatment is based on removal of the cause and palliative measures (corticoids and topical anti-inflammatories) may also be used to relieve painful symptoms. The traumatic ulcer is usually easily identified, mainly due to the positive history of trauma in the oral mucosa measured during the anamnesis. Patients often remember and report the traumatic episode to the dentist (Mac Entte, 1992). It is important to emphasize that when the etiologic factor of traumatic ulcer is a maladaptive prosthesis, in addition to the symptomatic treatment of the injury with analgesic drugs, the prosthetic device that caused the injury should be corrected or replaced, either at its base, flanks or in the region of artificial teeth. After correcting the prosthesis by performing relief in areas that are causing trauma, the ulcer should heal within two weeks. If such a lumen does not occur, the lesion should be investigated further and an incisional biopsy may be necessary (Navarro, 1995).

Frictional Keratosis

The chronic mechanical irritation caused by a removable dental prosthesis can produce a white lesion with a rough keratotic surface called frictional keratosis. Although the problem is solved by the patient's copious intake of water along with the use of artificial saliva or drugs such as pilocarpine. Resulting is clinically similar to true leukoplakia, it is now believed that such a lesion is a hyperplastic response similar to callus in epithelial tissue. Such keratoses are readily reversible after trauma elimination and have never undergone documented malignancy, nor the presence of broken or absent teeth or dentures increases the risk for cancer (Paranhos, 2008).

Candidiasis

There are basically two varieties of this pathology: the atrophic or red form and the pseudomembranous or white form. Atrophic candidiasis, also called denture stomatitis, is a condition characterized by varying degrees of erythema located in the mucosa, being in direct contact with the edges or base of a removable prosthesis. Pseudomembranous candidiasis represents the most frequent pathological condition (98% of cases) within the group of white lesions of the buccal mucosa. *Candida* sp. Is part of the normal flora in 40-60% of the population. Predisposing local factors, such as poor oral hygiene and poorly adapted dental prosthesis; And systemic diseases, such as diabetes, pregnancy, disseminated neoplasia, corticoid therapy, radiotherapy, chemotherapy, immunodepression, antibiotic therapy, may lead to parasite proliferation (Phoenix, 2003). Usually candidoses reach the extremes of the children and elderly age group, and may present in acute and chronic atrophic forms, but pseudomembranous is the most found form. Angular cheilitis is a variant of candidosis that reaches the labial commissures. It is common in elderly patients who use dental prosthesis because of loss of vertical dimension of occlusion. It is an inflammatory process located at the angle of the mouth, uni or bilateral, characterized by mild edema, erythema,

desquamation, erosion and fissures, sometimes accompanied by pain, burning and bleeding (Rantanem, 1980). It is usually related to one or more of the following factors implicated in its etiology: infectious agents (streptococci, staphylococci and *Candida albicans*); Dermatological diseases (atopic dermatitis, involving the face, and seborrheic dermatitis); Nutritional deficiency (riboflavin, folate and iron), immunodeficiency (HIV, diabetes mellitus, cancer, transplantation), hypersalivation and mechanical factors causing loss of vertical dimension of occlusion, with fall of the upper lip over the lower one at the angle of the mouth, As occurs in the normal aging process, in the prognathism, in the absence of teeth or with the use of poorly adapted prostheses (Rebellato, 2003).

In the treatment of atrophic, pseudomenbranous and angular cheilitis candidoses it is essential to correct the triggering factors, such as dental prosthesis adequacy and correction of nutritional deficiency, basic disease therapy, as well as the application of antimycotics and topical antibiotics for a prolonged period. Commonly, patients affected by this type of lesion admit to use the dentures in a continuous way, removing them only from time to time. In addition to the correct vertical dimension of occlusion provided by removable prostheses, correct toothbrushing and disinfection of the prosthesis are effective in preventing and treating all types of oral candidoses. Disinfectant solutions such as 0.12% chlorhexidine digluconate or 5% sodium hypochlorite (5 drops in a glass of water) for at least 1 hour per day are considered effective (Reis, 1997).

Inflammatory Fibrous Hyperplasia

Inflammatory fibrous hyperplasia is the best denomination given to benign proliferative lesions arising in the oral cavity from a low intensity chronic traumatism. There is a relationship between the increased frequency of inflammatory fibrous hyperplasia and the increased period of use of the prostheses, suggesting that maladaptive and / or old removable partial or complete dentures usually cause constant trauma and inflammation of the oral tissues. Clinically, it appears as a well defined exophytic or elevated lesion, with consistency varying from firm to flaccid to palpation, smooth surface, sessile or occasionally pediculated base, color ranging from similar to the mucosa adjacent to erythematous, slow-growing and generally asymptomatic. This lesion may be small or reach a few centimeters in diameter and occasionally ulcerated on its surface²². The treatment of choice for inflammatory fibrous hyperplasia is surgical removal with a small margin of safety always after the removal of the irritant. However, other therapeutic modalities may be adopted in some cases, such as the use of laser, mucoabrasion or cryotherapy. The fragment removed should always be submitted to histopathological examination for diagnostic confirmation, since inflammatory fibrous hyperplasia has a wide differential diagnosis with lesions such as lipofibroma, neurofibroma, tumors of minor salivary glands, among others. In any therapeutic modality, the prognosis is excellent, and relapse rates are low when the traumatic agent is removed. Care of the preparation of new prostheses are adopted and guidelines on oral and prosthetic hygiene should be given (Santos, 2004).

Specifically in the case of papillary inflammatory papillary hyperplasia, the use of topical antifungal agents and correction of mouth breathing habits should be considered prior to surgical treatment, since fungal superinfection and dry mouth mucosa may be co-responsible. With prosthetic trauma, by

tissue hyperplasia. In relation to palatine hyperplasia by suction chamber, instead of surgical removal, a gradual filling of the suction chamber can be performed with materials such as zinc-eugenol paste, gutta-percha, surgical cement, chemically activated acrylic resin or tissue conditioning materials. Such treatment would be dependent on the tissue surface of the lesion, and for lesions with a smooth surface, compression is more effective, and for lesions with a rough or papillomatous surface, surgical treatment works better (Silva, 2003). With regard to the treatment of sulcus fundus and irritation fibroma, chronic mechanical trauma should be removed, preferably one or two weeks prior to surgery, in order to reduce tissue inflammation, after which excision should be performed (Excisional biopsy) of the lesion, always sending the derived material for histopathological examination (Silva, 2008).

Granuloma Pyogenic

Non-neoplastic lesion presenting as a flat or lobulated asymptomatic mass, usually pedicled. The surface may be ulcerated and coloring varies from red to purple, ranging in size from a few millimeters to several centimeters. In 75% of cases, the gingiva is the site affected, with the lips, tongue and mucosa being the other common locations. The history of dental prosthesis trauma before the development of the lesion is not uncommon, especially when the lesion is extralingival. Most cases develop in females due to the vascular effects caused by estrogen and progesterone. Treatment consists of conservative excision of the lesion and removal of the traumatic factor that caused it (Souza, 1996). It is important to note that the effect of the removable prosthesis on oral health is minimized when a program of control and periodic maintenance of the treatment is instituted, together with the motivation of the patient. Removable prostheses that have not been well adapted to the condition of the collar should be corrected or replaced. Periodic evaluation of the prosthesis base and its modification to remove sources of trauma are important to minimize any potential damage (Teófilo, 2003). The problems of lesions that occur both in the fibromucosa and in the periodontal tissues, due to the installation of the prosthesis, are commonly noticed in the clinic, when the patient makes his first return. Therefore, it is important to recommend the return of this patient twenty four hours after the installation of the new prosthesis to make adjustments in the base of the resin, relieving areas of compression that may be traumatizing the mucosa and occlusal adjustments to establish an efficient mastication. The time of use of the prostheses is another item that must be reinforced, because for most patients that new artificial dentition will be permanent. Patients should be made aware that the tissues of the mouth, like any other, undergo constant changes that must be followed by the dentist surgeon, through periodic visits (Torreão, 1999).

Oral hygiene is one of the main factors in maintaining the health of stomatognathic structures, and the dental surgeon has the task of guiding and encouraging the patient to perform hygiene. The hygiene of the mouth and the prosthesis should be explained in detail to the patient, not forgetting the importance of the hygiene of the tongue. The use of own brushes for removable prostheses, with an association of effervescent tablets containing peroxides for an efficient cleaning associated with intra-oral hygiene with the use of brushing, antiseptics, thus doing a good oral cleaning, also in the tongue avoiding the saburra (Todescan, 2002). The patient

should be advised not to sleep with the prostheses in order to promote relaxation and rest to the tissues, while the tongue, saliva, cheeks and lips exert a cleaning action. The patient should also be advised to change the prostheses in relatively short periods to reduce the presence of lesions, because the older the prosthesis, the more misfit it becomes and the greater the misfit, the more frequent the lesions (Zanetti, 1996; Wendt, 1985).

Conclusion

It can be concluded from this study that: The main lesions found due to the use of iatrogenic or inadequate oral prostheses are: traumatic ulcer, frictional keratosis, candidoses, inflammatory fibrous hyperplasias and pyogenic granuloma; Such lesions are more prevalent when there is insufficient oral hygiene. Therefore, it is important the professional orientation on hygiene of prostheses, mouth and periodic evaluations on the integrity of prostheses and oral mucosa. In this way, it is realized that in order to achieve success in a prosthetic rehabilitation treatment, it is necessary to establish an efficient treatment plan, correctly following the steps of confection and installation of the prostheses. Making appropriate adjustments, guiding and accompanying the patient.

Conflict of Interests: The authors declare they do not have any conflict of interests.

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