

Generalized Periodontal Disease Treated with Conservative Periodontal Therapy – Case Report and Literature Review

Doença Periodontal Generalizada Tratada com Terapia Periodontal Conservadora – Relato de Caso e Revisão da Literatura

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Abstract

Periodontal disease is an infectious-inflammatory disease caused by the presence of bacteria in the dental biofilm, leading in many cases to tooth loss. The objective of this work is to report a clinical case of generalized periodontal disease. Female patient, sought the Dental Clinic of the University of Passo Fundo, complaining that her upper dental arch was increasingly “crooked” and felt a little “mobility”. , being diagnosed with stage II periodontitis, due to the pandemic, the patient was only able to return to the Dental Clinic after 5 months, when new exams were carried out, with an increase in the probing depth reaching 7mm in some sites, having a new diagnosis periodontal disease, periodontitis stage III of the disease. The patient’s treatment plan consisted of adapting the oral environment, through oral hygiene guidance, prophylaxis, supragingival and subgingival scaling. After 6 months of follow-up, it can be noted that the proposed treatment it was not satisfactory, because, after doing a new periogram, there was no regression of the disease. as for oral hygiene, the patient did not cooperate with the treatment and the installation of orthodontic appliances was not recommended. Periodontal maintenance along with the patient’s cooperation is essential to achieve successful periodontal treatment, but in the following case report there was no success in periodontal therapy, and the patient’s lack of cooperation could be one of the reasons.

Keywords: Dentistry. Periodontics. Conservative Treatment.

Resumo

A doença periodontal é uma doença infecto-inflamatória, causada pela presença de bactérias do biofilme dentário, levando em muitos casos a perda dentária. O objetivo do trabalho é relatar um caso clínico de doença periodontal generalizada. Paciente do sexo feminino, procurou a Clínica Odontológica da Universidade de Passo Fundo, reclamando que sua arcada dentária superior estava cada vez mais “torta” e sentia uma pequena “mobilidade”. No exame clínico, a sondagem periodontal foi superior de 3mm chegando até 5mm, sendo diagnosticada com periodontite estágio II, por motivos da pandemia a paciente só conseguiu retornar a Clínica Odontológica depois de 5 meses, quando novos exames foram realizados, sendo verificado um aumento da profundidade de sondagem chegando até 7mm em alguns sítios, tendo um novo diagnóstico periodontal, periodontite estágio III da doença. O plano de tratamento da paciente consistia em adequação do meio bucal, por meio de orientação de higiene oral, profilaxia, raspagem supragengival e subgingival. Após 6 meses de acompanhamento, pode-se destacar que o tratamento proposto não foi satisfatório, pois, após fazer um novo periograma, não houve regressão da doença. Com intuito de motivar a paciente com hábitos de higiene bucal, a paciente não colaborou com o tratamento e não sendo indicado a realização a instalação de aparelho ortodôntico. A manutenção periodontal junto com a cooperação do paciente é essencial para alcançar o êxito do tratamento periodontal, mas no seguinte relato de caso não houve sucesso da terapia periodontal, podendo ser um dos motivos a falta de colaboração da paciente.

Palavras-chave: Odontologia. Periodontite. Tratamento Conservador.

1 Introduction

Periodontal disease is an inflammatory disease, caused by the presence of biofilm bacteria, which affects periodontal ligaments and the surrounding bone of teeth and can cause irreversible damage to the dental element¹⁻³. Being one of the greatest public health problems, and resulting in oral health costs, if not adequately treated, may lead to loss of dental support tissues and, consequently, of teeth, causing chewing dysfunction⁴.

Periodontal disease was related to some systemic conditions, such as: cardiovascular diseases, respiratory diseases, cancer, lupus, rheumatoid arthritis, premature delivery, diabetes mellitus, halitosis and also chronic renal

disease^{5,6}. Therefore, it is a problem of oral health that persists all over the world, with the hypothesis of an increase in the coming years due to the growth of the world’s elderly population and also to an increase in the retention of natural teeth, with prevalence ranging from 20% to 50% of the population⁷, the sixth most prevalent disease in the world⁸.

There is currently a new classification of periodontal diseases that identifies them in stages and degrees, from which a more precise prognosis and treatment plan can be established, since this classification is not based only on the measurements of depth of probing and the level of insertion of the host, but also in susceptibility and risk factors of the patient⁹. Periodontitis can be classified in four stages I, II,

III and IV and three degrees A, B and C depending on the severity of the disease¹⁰.

To perform the clinical examination of gingivitis, plaque index, gingival index and retention are evaluated, where deposits of dental biofilm and gingival margin bleeding are observed on the four surfaces of each tooth¹¹. For the diagnosis of periodontal disease, it is necessary to evaluate the depth of probing, clinical level of insertion and bleeding at the probing, and the six sites of each tooth are evaluated¹¹.

This study aims to report a clinical case of an active periodontal disease of a patient, who sought care at the School of Dentistry of the University of Passo Fundo (FOUPF).

2 Clinical Case Report

The present study is a case report on generalized periodontal disease in a retrospective and descriptive way. Based on the patient's permission by means of the Free and Informed Consent Term in sharing her image for due purpose, the study was carried out by direct data collection through access to medical records, interviews with the patient and results of complementary exams.

A 47-year-old female patient sought the Dental Clinic of the Universidade de Passo Fundo (UPF), RS, Brazil, complaining that her upper dental arcade was increasingly "crooked" and felt a small "mobility" in the teeth. During the anamnesis, the patient reported having hepatitis, but she did not remember what type, and used contraceptive in a continuous manner, and the patient reported that she was a smoker in the three-year period, but chose to cease smoking a short time ago (Figure 1).

Figure 1 - Panoramic X-ray



Source: authors.

After performing the clinical examination, the first step was the dental biofilm index where the patient obtained 20.4% of visible biofilm. Then, the gingival index was performed, with 50% of the faces bleeding, and the patient presented a retention index in 55.5% of the faces.

For the correct diagnosis of periodontal disease, the periogram was performed, which during clinical probing, it was possible to observe the presence of several sites with a higher probing depth of 3mm up to 5mm. A panoramic radiographic examination was also performed, showing horizontal bone loss, and also mobility degree I. The patient was diagnosed with periodontitis stage II moderate phase of the disease (Figure 2). The clinical conduct performed in this case was supra and subgingival scraping of the hemi-arcades, followed by oral hygiene instruction, evaluating the patient's brushing and guiding the brushing after each meal, emphasizing the importance of dental floss.

Figure 2 - Initial Periogram, held on 11/10/2020

V	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
BP		●						●●●●	●●●●	●●●●	●●●●			●		
GL		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
DD		3 4 3	3 1 4	4 1 3		4 1 3	4 1 4	1 2 4	4 1 4	4 1 4	4 1 4		4 1 4	4 2 4	4 2 4	
IL		3 4 3	3 1 4	4 1 3		4 1 3	4 1 4	1 2 4	4 1 4	4 1 4	4 1 4		4 1 4	4 2 4	4 2 4	
Mob									Degree I							
Fur																
V	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	D P M	D P M	D P M	D P M	D P M	D P M	D P M	M P D	M P D	M P D	M P D	M P D	M P D	M P D	M P D	M P D
BP									●							
GL		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
DD		5 3 4	4 3 4	4 4 4		4 3 4	4 3 4	5 4 4	4 4 3	3 4 4	4 3 4		3 3 3	3 1 3	3 3 4	
IL		5 3 4	4 3 4	4 4 4		4 3 4	4 3 4	5 4 4	4 4 3	3 4 4	4 3 4		3 3 3	3 1 3	3 3 4	

BP: Bleeding on probing GL: Gingival Level DD: Drilling Depth IL: Insertion Level Mob: Mobility Fur: Furca

V	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38	
	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	
BP								●					●			
GL		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0			
DD		3 1 4	4 2 4	4 1 5		4 1 4	3 1 3	3 3 3	3 1 4	3 1 3	4 1 4		3 1 4	4 2 2		
IL		3 1 4	4 2 4	4 1 5		4 1 4	3 1 3	3 3 3	3 1 4	3 1 3	4 1 4		3 1 4	4 2 2		
Mob				Degree I			Degree I	Degree I								
Fur																
V	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	D L M	D L M	D L M	D L M	D L M	D L M	M L D	M L D	M L D	M L D	M L D	M L D	M L D	M L D	M L D	M L D
BP						●										
GL		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0		
DD		5 3 4	4 3 4	3 2 3		3 2 3	3 3 2	3 2 3	3 2 3	3 2 3	3 1 2		3 2 3	4 2 4		
IL		5 3 4	4 3 4	3 2 3		3 2 3	3 3 2	3 2 3	3 2 3	3 2 3	3 1 2		3 2 3	4 2 4		

Source: research data.

For reasons of the pandemic, the patient was only able to return to the Dental Clinic after 5 months, in which new examinations were performed. During the survey, it was possible to observe a large increase in the depth of the sampling and insertion level reaching 7mm, where a new

clinical periodontal diagnosis was made, and diagnosed as periodontitis stage III severe stage of the disease, the reason for the increase in its severity may be due to the increase in the colonization of dental biofilm and unsatisfactory oral hygiene (Figure 3).

Figure 3 - Periogram, performed on 05/13/2021

V	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
Sang		●●●	●●●	●●●		●●●	●●●	●●●			●			●		
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
PS		7 5 5	5 2 3	4 2 3		5 2 3	5 2 6	7 3 7		7 2 5	3 2 5		3 1 4	4 2 7	3 2 4	3 4 7
NI		7 5 5	5 2 3	4 2 3		5 2 3	5 2 6	7 3 7		7 2 5	3 2 5		3 1 4	4 2 7	3 2 4	3 4 7
Mob									Grau I							
Fur																
P	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	D P M	D P M	D P M	D P M	D P M	D P M	D P M	M P D	M P D	M P D	M P D	M P D	M P D	M P D	M P D	M P D
Sang									●							
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
PS		7 4 3	6 3 3	6 4 1		5 3 6	4 3 6	7 3 7	5 3 6	6 3 4	4 4 5		7 5 5	3 3 3	4 6 4	
NI		7 4 3	6 3 3	6 4 1		5 3 6	4 3 6	7 3 7	5 3 6	6 3 4	4 4 5		7 5 5	3 3 3	4 6 4	

Sang: Sangramento a sondagem NG: Nível Gengival PS: Profundidade de Sondagem NI: Nível de Inserção Mob: Mobilidade Fur: Furca

V	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
Sang									●					●		
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
PS		3 3 4	2 2 3	2 2 3		2 2 3	3 1 3	3 3 4	4 2 4	4 2 4	4 2 4		5 2 5	4 2 5		
NI		3 3 4	2 2 3	2 2 3		2 2 3	3 1 3	3 3 4	4 2 4	4 2 4	4 2 4		5 2 5	4 2 5		
Mob					Grau I				Grau I							
Fur																
L	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	D L M	D L M	D L M	D L M	D L M	D L M	D L M	M L D	M L D	M L D	M L D	M L D	M L D	M L D	M L D	M L D
Sang								●●	●●	●●	●●		●●	●●		
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0		
PS		4 2 7	5 2 4	5 3 5		3 2 3	2 2 3	3 2 2	4 3 3	3 2 3	3 1 2		2 3 2	2 2 3		
NI		4 2 7	5 2 4	5 3 5		3 2 3	2 2 3	3 2 2	4 3 3	3 2 3	3 1 2		2 3 2	2 2 3		

Source: research data.

Then, a treatment plan consisted of oral adequacy, initially by means of oral hygiene guidance, prophylaxis, supragingival scraping, followed by subgingival scraping of the hemi arcades. The treatment was performed during the semester, the supragingival and subgingival scraping were divided into quadrants, the patient attended the office weekly in a three-month period.

After 6 months of the clinical treatment proposed to the patient, it is noteworthy that the subgingival scraping performed was not satisfactory, because after a new periogram (Figure 4), no improvement was observed in the depth of the sample, in addition, the presence of biofilm and gingival inflammation was observed.

Figure 4 - Periogram, performed on 04/07/2022

V	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
Sang		●●	●●	●●		●●	●●	●●	●●	●●	●●			●●	●●	●●
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
PS		4 4 3	4 3 2	4 3 3		3 1 3	4 2 5	7 2 7	7 2 6	4 1 4	4 2 5		5 2 7	4 3 4	4 3 3	
NI		4 4 3	4 3 2	4 3 3		3 1 3	4 2 5	7 2 7	7 2 6	4 1 4	4 2 5		5 2 7	4 3 4	4 3 3	
Mob									Grau II							
Fur																
P	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
Sang		●●	●●	●●		●●	●●	●●	●●	●●	●●		●●	●●	●●	●●
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
PS		7 3 3	3 2 4	5 2 3		5 3 3	3 3 6	6 6 7	5 5 5	5 2 3	4 3 5		4 5 7	3 2 2	3 2 3	
NI		7 3 3	3 2 4	5 2 3		5 3 3	3 3 6	6 6 7	5 5 5	5 2 3	4 3 5		4 5 7	3 2 2	3 2 3	

Sang: Sangramento a sondagem NG: Nível Gengival PS: Profundidade de Sondagem NI: Nível de Inserção Mob: Mobilidade Fur: Furca

V	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
Sang		●●	●●	●●		●●	●●	●●	●●	●●	●●		●●	●●		
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0		
PS		8 3 3	6 3 5	4 2 5		3 2 3	3 2 4	6 2 4	3 3 3	3 2 3	3 2 5		5 2 4	3 3 3		
NI		8 3 3	6 3 5	4 2 5		3 2 3	3 2 4	6 2 4	3 3 3	3 2 3	3 2 5		5 2 4	3 3 3		
Mob					Grau I			Grau I		Grau II		Grau II		Grau I		
Fur																
P	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
	D V M	D V M	D V M	D V M	D V M	D V M	D V M	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D	M V D
Sang		●●	●●	●●		●●	●●	●●	●●	●●	●●		●●	●●	●●	●●
NG		0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0		0 0 0	0 0 0	0 0 0	
PS		7 4 4	3 2 3	5 3 7		3 2 3	3 2 3	2 2 3	4 3 3	2 1 2	2 3 3		4 3 3	3 3 3		
NI		7 4 4	3 2 3	5 3 7		3 2 3	3 2 3	2 2 3	4 3 3	2 1 2	2 3 3		4 3 3	3 3 3		

Source: research data..

Even with the aim of motivating and encouraging the patient to have good oral hygiene habits, by following oral hygiene guidelines directed to the patient's needs at each visit, unfortunately the patient did not cooperate with the treatment, and even if not indicated, she performed the installation of the orthodontic apparatus, where a new oral hygiene instruction was carried out to alert the care of the orthodontic apparatus using interdental brushes, dental floss and make more frequent visits. This may be one of the clinical factors that have impaired good hygiene, which are fundamental to the success of the treatment.

2.1 Discussion

Periodontal disease is the consequence of a complex interaction between subgingival biofilm and immunoinflammatory events of gingival and periodontal tissues in response to the challenges presented by bacteria. Damage to periodontal tissues resulting in destruction of tooth support tissues, dental mobility and even dental loss.

Its main characteristics include loss of support of periodontal tissue manifested by loss of clinical insertion, radiographically assessed alveolar bone loss, presence of periodontal pocket and gingival bleeding, and if not properly treated, may lead to tooth loss, although it can be successfully treated in most cases⁴.

Despite the multifactorial character, periodontitis presents as primary etiological factor the accumulation of bacterial dental biofilm. Its progression may be influenced by risk factors, such as individual characteristics, behavioral, social, systemic and genetic factors, and the microbial composition of dental biofilm¹³. The same, if not diagnosed and treated, can lead to loss of dental element and even systemic health problems¹⁴.

According to Highfield¹⁵, the diagnosis of periodontal diseases is assessed by signs and symptoms and can be supported by radiographic examinations. The correct diagnosis of periodontal disease allows us to make the appropriate planning for each case, thus ensuring the best treatment¹⁵.

The classification of stages is related to the severity of the disease. Periodontitis stages should be primarily defined by the loss of clinical insertion, which in this context is "determinant characteristic". In its absence, radiographic bone loss is used. Complexity factors, such as furcation lesions or advanced dental mobilities, if present, induce the stage to the worst scenario found¹⁶.

Stage II of periodontal disease is characterized by 3-4 mm loss of interproximal insertion in the worst site or radiographic loss in the coronal third (15-33%), and factors that modify the stage, the probing depth of up to 5mm, no dental loss due to periodontitis and horizontal bone loss pattern. In stage III, the disease is characterized by 5 mm or more of loss of interproximal insertion at the worst site or radiographic bone loss extending to half or third of the root, the factor that modifies the stage being the probe depth of 6 mm or more,

with dental loss due to periodontitis in up to 4 teeth. It may have vertical bone loss of up to 3 mm, punctured injuries grade II or III and moderate edge defect¹⁶.

The main objective of the treatment of periodontitis patients is to establish adequate control of infection, that is, to reduce bacterial load below individual levels of inflammation/disease. In addition, good plaque control is crucial to maintain periodontal health, and data related to tooth brushing behavior confirm this statement⁵. Root scraping and smoothing is considered the gold standard non-surgical treatment for periodontitis⁵.

The treatment of stage III periodontitis should be performed first by obtaining adequate oral hygiene practices for the patient and controlling risk factors during the first phase of the therapy, and then, during the second stage of therapy by the elimination of biofilm and supra and subgingival calculation, with or without adjuvant therapies⁴.

The presence of the orthodontic apparatus facilitates the accumulation of biofilm due to the difficulty in adequate brushing, especially in the interproximal areas. Brackets, bands and elastic bands will serve as a retention factor for biofilm, being favorable to microbiological aggregation and inflammatory process in local tissues, favoring the quantity and quality of biofilm¹⁸.

One of the main challenges in periodontal treatment is to encourage compliance with oral hygiene instructions, which depends on the patient's behavior, in terms of maintenance and good oral hygiene, and is a primary factor in the treatment of the disease. Interventions such as self-monitoring, goals and planning are effective methods for better oral hygiene behavior¹⁹.

3 Conclusion

The control of patient-professional plaque, the correct diagnosis, prognosis and treatment plan for periodontal disease are the main factors for the maintenance of periodontal health. However, in the present clinical case, no clinical success was observed with periodontal therapy and patient cooperation was lower than expected. Thus, it is emphasized that adequate interaction and maintenance are essential to achieve success in the treatment.

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