

## PERIODONTAL PATHOLOGY IN THE CONTEXT OF SYSTEMIC DISEASES

Madalina Nicoleta Matei<sup>1\*</sup>, Mihaela Moisei<sup>1</sup>, Kamel Earar, Mariana Ilie, Razvan Leata, Iulia Chiscop

<sup>1</sup>“Dunarea de Jos” University Galati, Romania, Department of Dental Medicine

\*Corresponding author: Mihaela Moisei, Lecturer, DMD, PhD  
“Dunarea de Jos” University Galati  
e-mail: mihaelamoisei2015@gmail.com

### Abstract

**Aim of the study:** The purpose of this study is the quantification of periodontal implications at a clinical and paraclinical level, in the context of a general complex pathology – essential aspects at the basis of current therapeutic approaches.

**Material and methods:** The study lot was represented by patients aged between 50 and 65 years old, diagnosed with various forms of periodontal disease, on a general background of a complex pathology which influences both the intraoral clinical picture and the therapeutic trajectories in the field of dental medicine.

**Results:** With regard to the correlative aspects between the incidence of gingivitis and general pathology, we notice a prevalence of gingivitis in a proportion of 44.40% at patients with cardiovascular diseases, followed by the presence of gingivitis in a proportion of 19.40% at patients with diabetes. Gingivitis is equally met in a proportion of 13.8% at patients with hepatic disorders.

**Conclusions:** There are correlative aspects between the general pathology and the presence of gingivitis of periodontitis, the clinical manifestations are in complete agreement with the type of medication and the existing odonto-periodontal status, the quality of oral hygiene being of a particular importance.

**Key words:** gingivitis, periodontitis, general status,

## INTRODUCTION

Periodontal disorders are inflammatory diseases of a microbial etiology which influence the teeth support tissues. (1) The term of periodontal disease includes two major and distinct subclasses of the disease, gingivitis and periodontitis, more commonly met in case of older patients, also constituting the main cause of tooth loss. (2) Gingivitis is characterized by the inflammation of the gums without the loss of the alveolar bone or losses of the conjunctive tissue support and may be

considered a precondition of the disease which doesn't necessarily lead to a periodontal disease, which is in turn characterized by the progressive formation of periodontal bags, as a result of the loss of the conjunctive tissue support and of the alveolar bone. (3,4)

The inflammatory disease of the tooth support system which determines rapid, unequal and deep destructions of the periodontium (bone resorption), triggering the irreversible loss of anchorage and

leading to the tooth loss in the absence of an adequate therapy. (5,6)

Adult patient, 50 - 65 years old – May show associated generalized pathology: cardiovascular disease , metabolic disease , chronic inflammatory diseases ,hepatic

disorders. (7,8)At this type of patient, the general condition is also reflected at the level of periodontal structures, thus encompassing a bidirectional relationship between the general and the local status. (9,10)

### PURPOSE

The purpose of this study is the quantification of periodontal implications at a clinical and paraclinical level, in the

context of a general complex pathology – essential aspects at the basis of current therapeutic approaches.

### MATERIAL AND METHODS

The study lot was represented by patients aged between 50 and 65 years old, diagnosed with various forms of periodontal disease, on a general background of a complex pathology which influences both the intraoral clinical picture and the therapeutic trajectories in the field of dental medicine. The working algorithm aimed at performing a thorough

clinical examination, in correlation with the paraclinical evaluation, which brought together orthopantomographies, retro-alveolar radiographies, all the data quantified in this first stage being corroborated with the results obtained following the data analysis in the general status questionnaires and in the periodontal sheet, respectively.

### RESULTS AND DISCUSSIONS

The statistic processing was made in SPSS 15.0, and we used Microsoft Excel for graphic evaluations.

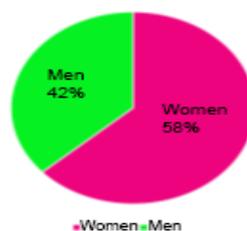


Fig. 1. Graphic representation of the study lot on genders

We assessed a prevalence of the female sex, in a proportion of 58% as compared to 42% for the male sex, an element found at the basis of therapeutic

exigencies that influence the dento-somato-facial esthetics, an aspect also correlated with the odonto – periodontal status and the general pathology, which

has particular aspects at the female sex, being a well-known fact that esthetics is an essential requirement associated to it and periodontal manifestations, through its

generated complications, influence the therapeutic approach and the final results. (Fig. 1)

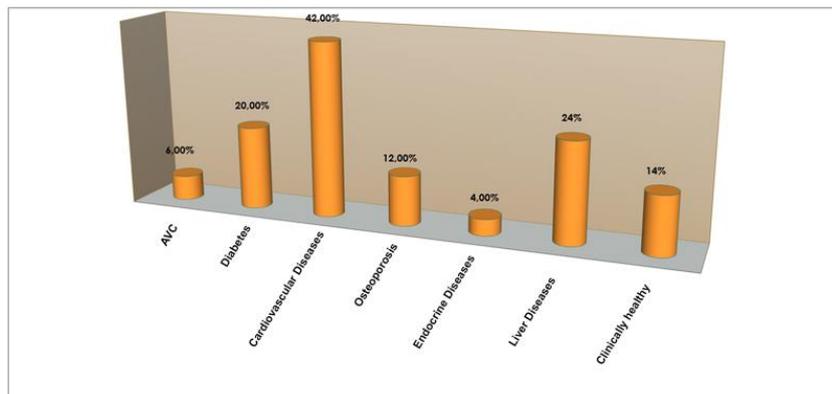


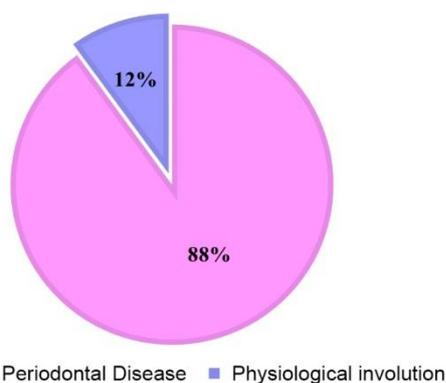
Fig. 2. Graphic representation of general condition diagnoses

With regard to the repartition of general condition diagnoses, in agreement with the age segment under analysis, we notice a prevalence of cerebral accidents, followed by diabetes, cardiovascular disease, osteoporosis, endocrine diseases and hepatic disorders.(Fig. 2)

These percentages are extremely important through the modifications induced at the level of the periodontal support and through their therapeutic implications.

The periodontal clinical status was determined visually and by sampling,

recording the following parameters at the sites of the selected teeth: gingival index (GI Loe and Silness), plaque index (IP), bleeding at sulcular incision (IS) depth of the bag at probing (PPS), and the level of attachment loss (PA), measured with a graded periodontal probe from the dento-epithelial junction to the most apical penetration of manual probing.(11,12) Bone resorption was determined based on clinical and radiographic criteria, which provided the necessary information for the inclusion or exclusion of the cases in this study. (13,14)



Periodontal disease/Physiological involution

Fig. 3 Graphic representation of periodontal disease

At the periodontal level, the process of physiological aging is accompanied by alveolar and gingival atrophy, the disappearance of inter-dental papillae, the formation of retention areas for plaque and food. (Fig. 3)

Eley and col.(1998) show that the activity of the periodontal disease involves both the deterioration of epithelial cells coating the periodontal bag and the cells of

the conjunctive tissue in the sites with degraded tissues .The compensatory response of the tissues in case of old people to forces that impact the tooth, including both cell mobilization and the conversion of collagen fibers, is much lower as compared to the young adult. This is a direct result of a reduced cellular activity and of the tissue richer in collagen.

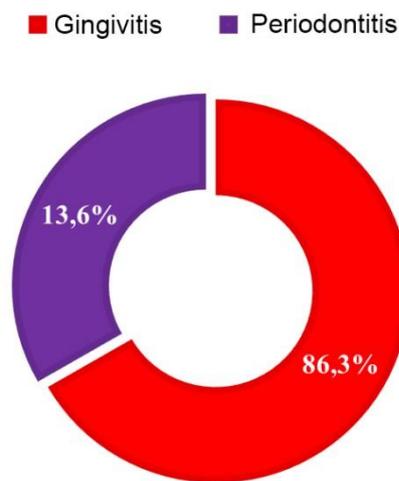


Fig. 4 Graphic representation of Gingivitis/Periodontitis

With regard to the form of periodontal disease, we notice a prevalence of gingivitis, with a proportion of 86.3 %, and of 13.9% for periodontitis, respectively. (Fig. 4).

In the category of gingivitis, chronic gingivitis was diagnosed at a number of 36

patients, these forms being associated with various forms of medication, without excluding local aspects, such as obturations or prosthetic restorations maladapted in the cervical area, and acute forms were found at 2 patients.

**Distribution of clinical forms of periodontitis**

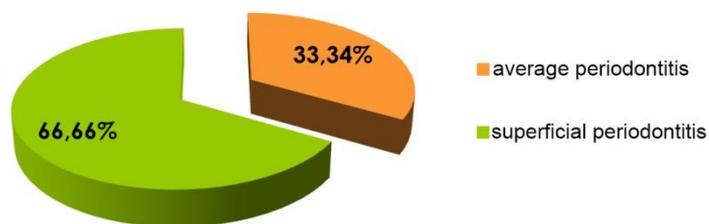


Fig. 5 Distribution of clinical forms of periodontitis

The periodontitis forms were only anchored in the chronic register, with a prevalence of superficial forms (66.66%), unlike medium ones (33.34%). (Fig. 5)

With regard to the correlative aspects between the incidence of gingivitis and general pathology, we notice a prevalence

of gingivitis in a proportion of 44.40% at patients with cardiovascular diseases, followed by the presence of gingivitis in a proportion of 19.40% at patients with diabetes. Gingivitis is equally met in a proportion of 13.8% at patients with hepatic disorders.(Fig. 6)

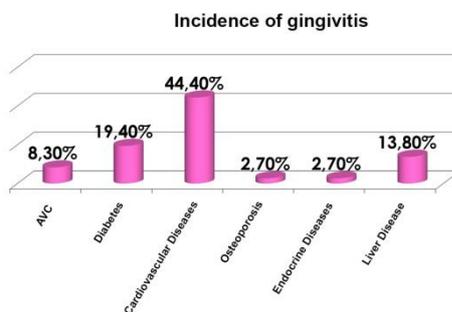


Fig. 6. Correlations between general disorders and gingivitis

Periodontal disorders, in their chronic form, are correlated in equal proportions of 50% both with cardiovascular diseases and

diabetes, followed by correlations in smaller proportions with osteoporosis and endocrine diseases.

**Incidence of periodontitis**

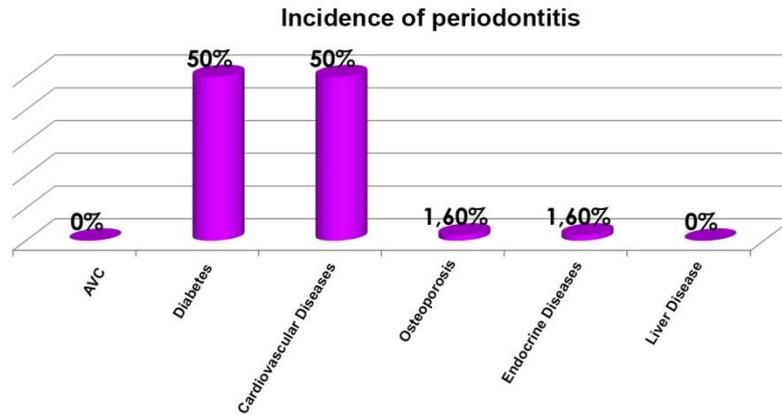


Fig. 7 Incidence of periodontitis

Representative for the theme approached is the clinical case of P.C., a 62 years old patient, with a complex general pathology that reunites medically controlled Diabetes: Diapril 2 pills/day, Lantus 16u/day, **Ischemic cardiopathy** under medication with Metoprolol 2 x 1 tablets/day respectively Aspenter 1tb/day, and **Hypercholesterolemia** under

treatment with Simvastatin 1tb/day .(Fig. 7)

Who reported to the dental medicine cabinet accusing gingival bleeding, halitosis , Mastication disorders.

The periodontal disorder started approximately 1-2 years before with bleeding when brushing, then spontaneous bleeding, pain during mastication. Having a sporadic evolution, it was not treated.



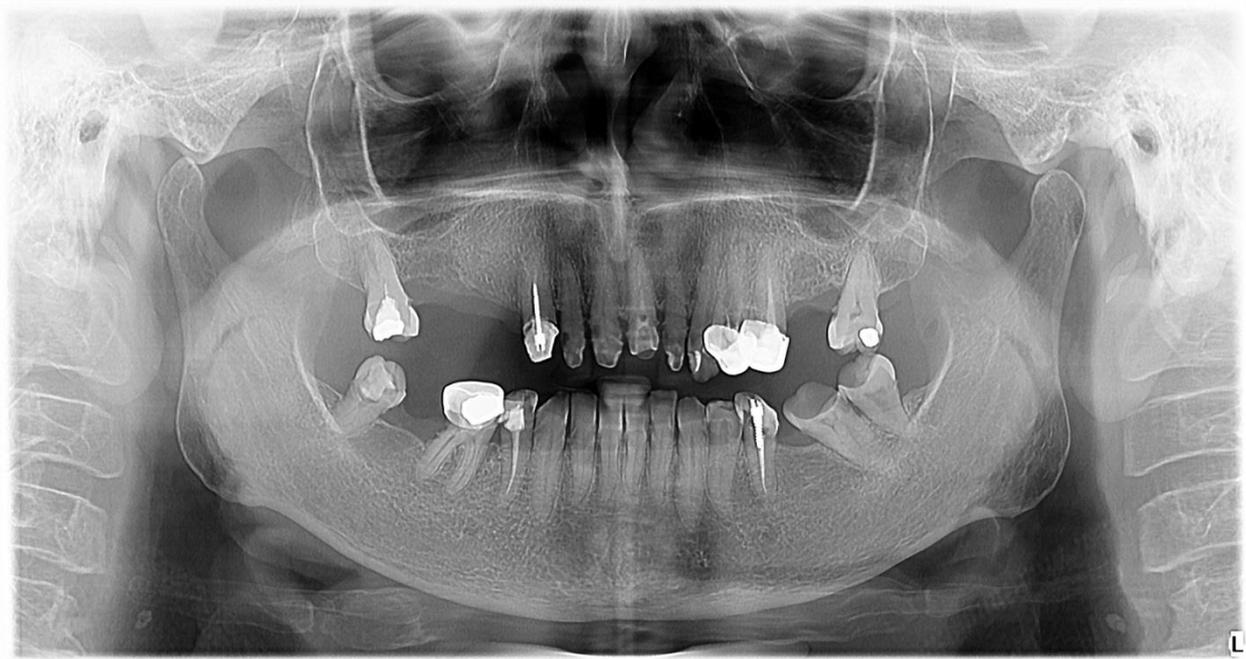


Fig. 8 Clinical and paraclinical aspects of clinical case

The evaluation of clinical-biological indices represents a decisive starting point in the elaboration of a pertinent therapeutic plan, which is also valid for the selected therapeutic variant, which may remain anchored in the sphere of social prosthesis or in the sphere of modern therapeutic solutions.

Loco-regional clinical-biological indices are characterized by the negative aspects found at the level of the temporomandibular articulation, comprising aspects of mandible dynamics, characterized by asymmetric condyle movements, accompanied by lateral deviation to the left.

With regard to the periodontium, we notice periodontal recession, accompanied by the radiologic clinical-biological index which reflects the phenomenon of bone lysis in a horizontal plane, an aspect associated to 1 degree dental mobility.

The mucous bony support is characterized by the presence of resilient mucous, irregular crests, negative indices which may become positive through specific preparation or the choice of a biomaterial with a structure adapted to these particularities.



Fig.9. Temporary aspects of therapy

The negative aspects related to occlusion reside in the modification of the static occlusion parameters, due to incorrect prosthetic restorations associated with untreated edentation, triggering

modifications of the dynamic occlusion trajectories, evaluative criteria to be taken into account in the temporary prostheses, which are essential for the rehabilitation of this clinical case.

### Conclusions

1. The complete and complex diagnosis of periodontal disorders is determined based on clinical evidence corroborated with paraclinical evaluations, aspects to be found at the basis of a correct specific therapy.
2. There are correlative aspects between the general pathology and the presence of gingivitis of periodontitis, the clinical manifestations are in complete agreement with the type of medication and the existing odonto-periodontal status, the quality of oral hygiene being of a particular importance.

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