**Controversies in periodontics**

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**Abstract**

In the general dental practice, the diagnosis is primarily interpreted from the information obtained from patients, medical and dental histories and assiduous oral examinations. At present, controversies about definitions of diseases continue in the field of Periodontology. This article highlights few cases with either the unknown etiology or controversial clinical characteristics, that reported to the Department of Periodontics, RKDF Dental College, Bhopal, Madhya Pradesh, India.

 **Keywords:** Non-Inflammatory Destructive Periodontal Disease, Localized Tooth Recession, Controversies.

**Introduction**

During the last 25 years significant success has been achieved in comprehension of the nature of periodontal disease. Periodontal diagnosis is a critically important tag that harbours categorization of periodontal diseases and conditions by specialty and general dentists. In the general dental practice, the diagnosis is primarily interpreted from the information obtained from patients, medical and dental histories and assiduous oral examinations.[1] Diagnosing any condition or disease signifies that the clinician has affirmatively excluded the other probable disease conditions. There has been a long-term point - counterpoint discussion on the diagnosis and classification of periodontal diseases since the first classification on periodontal diseases.

It is extremely substantial and an uncertain task to categorize the entire web of periodontal diseases in an orderly and well-organized format by overlooking the fear of questionable worldwide acceptance and inevitable controversy at the same time. No matter how

accurately and precisely the classification is developed, there is always a scope for unsatisfactory alternatives.[2] Despite this quandary, in the past century panel of experts have periodically reformed the classification systems for periodontal diseases, or customized the existing one.[3-9]

Ideas and views that formed the basis for the classification of periodontal diseases in the past were grouped into three dominant paradigms, they were primarily based on the clinical features of the diseases (1870–1920), the concepts of classical pathology (1920–1970), and the infectious etiology of the diseases (1970–present). The recent classification system embodies a melange of all three concepts since the newest or leading paradigm rests on groundwork of some valid components of the older or earlier paradigms, though still inconclusive.

The most accepted classification by far is AAP 1999 Classification of gingival and periodontal diseases.[10,11] But this classification too has certain shortcomings[12] that are listed below:

• The classification system is drawn out too extensive.

• The age-wise classification was discarded because it was too restrictive in the earlier classification.

• There is no provision to classify patients with periodontitis and sub-clinical systemic disease.

• There is no terminology related to the age of presentation and rate of progression of the diseases

• There is no separate category for smoking-associated gingivitis/periodontitis and diabetes associated periodontitis even though many cross-sectional and longitudinal studies indicate a strong relationship between such risk factors and increased chances of periodontal breakdown.

• The term "Aggressive" is still debatable. Many authors find it more appropriate to replace the term "aggressive" with "atypical periodontitis"

• Gingival diseases modified by medications have been included under the category "dental plaque-induced gingival diseases," though they are not dependent on dental plaque for their manifestation. They are only modified by dental plaque.

• Developmental and acquired conditions/deformities affecting the periodontium are not strictly periodontal diseases/conditions.

• There are no provisions available for category of "Historical or Previous disease", in those patients who have suffered active periodontal disease in the past and which is no longer active presently.

• Periodontal abscess has been classified in a separate category even though it is not a separate disease entity.

• "Necrotizing stomatitis" does not appear in necrotizing periodontal disease category.

• The 1999 classification lacks a category for diseases of the peri-implant mucosa e.g., "Peri-implantitis". Implants have become a key part of modern dentistry and the health of the peri-implant mucosa is very significant.

**Body**

Classifying any disease bolsters with it the ease of being able to communicate about the patient's condition, amongst the clinicians. If a periodontal condition is clinically characterized by three symptoms: loss of connective tissue attachment, loss of alveolar bone support, and presence of inflamed pathological pockets, one diagnostic name for this condition would be appropriate i.e., destructive periodontal disease. However, if other variables like age, gender, distribution of lesions, extent of gingival inflammation, rate of periodontal destruction, response to therapy, etc., are also taken into account, numerous diagnostic names are required. At present, controversies about definitions of

diseases continue in the field of Periodontology. This article highlights few cases with either the unknown etiology or controversial clinical characteristics, that reported to the Department of Periodontics, RKDF Dental College, Bhopal, Madhya Pradesh, India.

### Case 1



Figure 1a and 1b: Figure showing migration of central incisors with increasing midline diastema

A Female Patient aged 35 years (Fig 1a and Fig 1b) reported to the department with the complaint of continuously increasing space between her upper front teeth with proclined maxillary anterior teeth. Patient was systemically healthy. On examination there was no evidence of any traumatic bite. With the present classification system, the patient was diagnosed and classified into Chronic Severe Generalized periodontitis but the clinical characteristics especially distolabial migration of incisors, appeared to be a feature of aggressive periodontitis. Other observation was the first molars which were not involved to the extent for it to be categorized as aggressive. Therefore, it could not be grouped into aggressive periodontitis according to AAP

classification. This clinical picture of the patient questions the accuracy of the classification system as where to place such cases in the classification, where diagnosis is Chronic Periodontitis but clinical features represent Aggressive periodontitis.

### Case 2



Figure 2a and 2b: Figure Showing severe form of localized loss of attachment

A Male patient aged 32 years (Figure 2a and Figure 2b) reported to the department with the chief complaint of receding gums in relation to his upper front tooth. On taking the detailed case history patient was found to be systemically healthy and patient was not a tobacco user of any kind. No abnormality was detected in frenulum attachment as well as the labial vestibular depth. Patient had a normal overbite and overjet. He had a normal brushing habit with vertical strokes once daily with a medium bristled toothbrush. On clinical examination, it was found that there was severe attachment and bone loss confined to just a single tooth. A similar case is shown in the figure 2a and figure 2b. So, placing such cases with severe gingival recession and severe bone loss restricted to a localized area can be matter of

question as to what could have been the etiology? The present classification system also focuses on the etiology, the question arises as to why there are no assigned categories to such clinical conditions under the present classification.

**Case 3**



Figure 3: Figure Showing increasing midline diastema and no true pocket

A 38 years old female patient (Figure 3) reported to the department with a chief complaint of swollen gums since 3-4 months. On taking a thorough case history, patient was found to be systemically healthy and also the patient was under no medications. There was no relevant medical and dental history elicited. On clinical examination there was diffuse gingival inflammation and enlargement in relation to the mandibular labial gingiva. The bleeding on probing was present on the slightest provocation. The medical history clarified the absence of any form of allergy.

The reason was established to be abundant plaque and generalized deposits on the teeth. It was diagnosed as inflammatory gingival overgrowth.

The dilemma with such a case is that if it is diagnosed under the diagnosed category then what could have caused the enlargement which is restricted to just the lower arch? This case again raises a question firstly on its etiology and eventually its position in the present classification system.

**Case 4, 5 & 6**



Figure 4a and 4b: Figure Showing severe form of generalized loss of attachment



Figure 5 and 6: Figure Showing severe form of generalized loss of attachment

Three cases of age range 35-37 years (Figure 4, Figure 5, Figure 6) reported to the department with chief complaint of deposits on teeth. On clinical examination of all the cases, there were generalized pockets and generalized gingival recession. Clinical attachment loss was found to be in the range of 9-10 mm (Figure 4), 7-9mm (Figure 5) and 5-8 mm (Figure 6) in first, second

and third case respectively. Radiographic interpretation of the case 4 is shown in figure 4b. All were diagnosed as chronic severe generalized periodontitis based on the clinical and radiographic analysis. The extent of severity appears to be controversial in these cases as all are forms of Chronic severe periodontitis. Here the classification system is ineffective as it does not mention the extent of severity; hence the treatment plan of all the three cases is variant.

**Case 7 & 8**

Figure 7 and Figure 8: Showing non-inflammatory destructive periodontal disease.

Here are another two cases that reported to the department with chief complaint of sensitivity of teeth (Figure 7) and increasing space between upper front teeth (Figure 8). On complete clinical examination patients were found to be systemically healthy. Oral examination of both revealed few deposits (Plaque, debris and calculus) on the teeth. The only diagnosis under which this could be classified is chronic generalized periodontitis, (Figure 7) since the case presented with the generalized recession. The second case is diagnosed with localized periodontitis (Figure 8)

as it presented with the pathologic migration of maxillary anterior in the absence of traumatic occlusion. These clinical pictures pose a question on the etiological basis of the present classification system as what could have led these types of periodontitis to happen as there were minimal amounts of plaque and calculus as well as there was no trauma from occlusion which are considered to be the basic causative factor and risk factor for periodontal breakdown respectively. Can these clinical presentations be diagnosed as non-inflammatory destructive Periodontal disease[13] (NDPD)? If yes, then why has this term not considered in the present classification system which we still come across cases like this in our day-to-day practice.

**Summary**

One of the interesting historical features of classification systems has always been an intense resistance to their modification. In fact, the classification systems and criteria should be intermittently and periodically revised based on current updates, general thinking and new knowledge in order to step forward to perfection. Unfortunately, it seems that once people learn and accept a particular classification, no matter how faulty it may be, they remain extremely reluctant to accept modifications of their desired system of nomenclature.

Two concepts in context to basis of classification, were emphasized earlier - the concept of essentialism and the concept of nominalism. The essentialist idea involves the real existence of a disease or a condition caused by a class of factors. According to Scadding the concept of essentialism is mistaken and misleading because all causes for periodontitis are too complex, and these causes include the interrelationship of a number of factors. Also, many diseases remain of unknown cause and even if the causes are known, they are of diverse

types. Thus, the classification of periodontitis based on etiology can be considered inappropriate.[14-16]

In 1964 Sherp also landed into the dilemma that all patients were considered the same entity before any discussions of periodontal disease begin in them. The pretty obvious problem that he faced was that one of the most important components of periodontitis was expressed in all patients in the same way, i.e., the amount of loss of attachment. He illustrated this by the example- '2 mm loss of attachment mesial of all first molars in an 8-year child is a severe problem suggestive for an individual that is highly susceptible to periodontal disease, whereas the same condition in a 60 years old subject may suggest that the individual is rather resistant to periodontal disease.[17]

Similarly, we also had an encounter with the problems in the cases mentioned above like controversial clinical picture and the unrelated diagnosis as in case 1, the illogical clinical presentation of severe gingival recession as in case 2, the questionable clinical picture of gingival enlargement as in case 3, same diagnosis with variant clinical presentation as in case 4, 5 & 6 and unknown etiology as in case 7 & 8.

Therefore, the concept of nominalism has to be simultaneously taken into consideration as the periodontitis is a syndrome rather than a disease. It means that a disease is named just on the basis of well-defined signs and symptoms. The counterpart of essentialism is nominalism. Classifications based on this concept becomes easier and simpler to apply and less prone to multiple interpretations. Scadding also supported this concept. Unfortunately, to date there is still a lack of knowledge to classify the periodontal diseases based on this concept.

The classification which comes closest to the nominalist concept was published by Van der Velden.[18] This classification and the nomenclature were set in the following order: extent, severity, age and clinical characteristics e.g., localized minor prepubertal periodontitis, localized severe juvenile periodontitis etc. One could make the diagnosis even more detailed by including two levels of extent and severity when appropriate, e.g., localized severe, semi-generalized moderate adult periodontitis. This type of nomenclature fits best in cases 4,5 and 6 where the extent of severity is different in different subjects but still the remaining four cases are questionable.

In 2002, Armitage mentioned in a review on classification of periodontal diseases that if a classification is based on the above-mentioned concept this would represent a reversal to the supremacy of the "Clinical Characteristics paradigm (1870-1920)" when there was paucity of knowledge regarding the nature of periodontal diseases. According to him, the 1999 classification is firmly based on the "Infection Æost Response paradigm" which he strongly supported. Despite his criticism, it can be a controversial debate that at present, AAP 1999 classification somewhere falls short on the basis of etiology, regardless of the enormous increase in knowledge of periodontal diseases e.g., in cases 7 & 8, where the periodontal destruction is taking place even in the absence of so-called etiological factors. In our opinion the present classification is lacking somewhere, the result of which is our eight cases that we presented in this article. The newer classification system should be formulated in such a way that it combines some aspects of nominalism along with the concepts of essentialism and at the same time it should overcome the drawbacks of the present classification enlisted above. Also, the concept of non-inflammatory destructive periodontal disease should be revisited and should therefore be included in the classification system. This

will help in satisfying the continuously emerging need to rectify the existing classification and also in fulfilling all the doubts that is preventing the current classification to be the best one.

**What can be the futuristic approach in the classification of periodontal diseases?**

This era has emerged with a thorough understanding of genomics and proteomics. Future has arrived where it will absolutely be possible to formulate a more detailed and a newer etiological classification based on the microbiological features of these infections, or on the genetic factors that seem to control the clinical expression of these diseases can be taken into consideration. Even if these infections are polymicrobial and polygenic, it is plausible that with the detailed information and application of sophisticated genetic engineering techniques, it may eventually be possible to subclassify the multiple forms of 'Chronic Periodontitis' into discrete microorganism/host genetic polymorphism groups by including a particular set of microbes along with associated set of genetic polymorphisms in each group.

In addition, the clinical expression of the periodontal diseases is modified by environmental and host-modifying conditions such as smoking, emotional stress, diabetes and oral hygiene, so it will be necessary to overlay their effects on these 'microorganism/host genetic polymorphism' groupings. We assume that it will take years to accept this challenge as still sufficient time is needed to fill the knowledge gap as well as for the advancement of the biotechnical engineering skills and equipments.

**Conclusion**

All classification systems have inconsistencies or inaccuracies. The current classification is also not an exception. As with our increasing knowledge and understanding of the bacteria and genetic factors associated with the periodontal infection, some modifications are needed in our present classification in order to formulate a newer and a better one. The changes can be made on the grounds of nominalism and essentialism along with the basic concept of NDPD. Furthermore, there is often a holographic tunnel persisting between diagnosis and treatment plan when the etiology is unknown. As the learning process about the periodontal diseases continues, the classification ought to be revisited and revised periodically.

**References**

1. Armitage GC. Periodontal diagnoses and classification of periodontal diseases. Periodontol 2000 2004: 34: 9–21.

2. Armitage GC. Classifying periodontal diseases- a long standing dilemma. Periodontol 2000 2002: 30: 9–23.

3. American Academy of Periodontology. Committee Report and Discussion. The Etiology of Periodontal Disease. World Workshop in Periodontics (Proceedings). Chicago: American Academy of Periodontology, 1966: 167–177.

4. American Academy of Periodontology. Consensus report. Discussion section I. Eds: Nevins M, Becker W, Kornman K. Proceedings of the World Workshop in Clinical Periodontics. Chicago: American Academy of Periodontology, 1989: I–23– I-32.

5. Attström R, Van der Velden U. Consensus report (epidemiology). In: Lang, NP, Karring, T, editors. Proceedings of 1st European Workshop on Periodontics. London: Quintessence Publishing Co., 1994: 120–126.

6. Page RC, Schroeder HE. Periodontitis in Man and Other Animals. A Comparative Review. Basel: Karger, 1982.

7.  Suzuki JB. Diagnosis and classification of the periodontal diseases. Dent Clin North Am 1988: 32: 195–216.

8.  Ranney RR. Classification of periodontal diseases. Periodontol 2000 1993: 2: 13–25.

9.  van der Velden U. Diagnosis of periodontitis. J Clin Periodontol 2000: 27: 960–961.

10. Armitage GC. Development of a Classification System for Periodontal diseases and Conditions. Ann Periodontol 1999; 4: 1-6.

11. Highfield J. Diagnosis and classification of periodontal disease. Australian Dental Journal 2008; 54(1): S11-S26.

12. Prapulla Devi. V, A. R. Pradeep. Classification of Periodontal diseases- The dilemma continues. NYSDJ 2009; June/July: 30-34.

13. Page RC, Sturdivant EC. Non-inflammatory destructive periodontal disease. Periodontol 2000 2002: 30: 24–39.

14. Scadding JG. Essentialism and nominalism in medicine: logic of diagnosis in disease terminology. Lancet 1996: 348: 594–596.

15. van Der Velden U. Purpose and problems of periodontal disease classification. Periodontol 2000 2005: 39: 13–21.

16. Baelum V, Lopez R. Defining and classifying periodontitis: need for a paradigm shift. Eur J Oral Sci 2003; 111: 2-6.

17. Sherp HW. Current concepts in periodontal disease research: epidemiological contributions. J Am Dent Assoc 1964: 68: 667–675.

18. van der Velden U. Diagnosis of periodontitis. J Clin Periodontol 2000: 27: 960–961.