

Classification of periodontal disease

- Classification of disease is necessary to try to separate conditions into distinct categories in order to aid clinical and laboratory diagnosis and specific treatment
- The idea of separating diseases in this way should ideally be based on aetiology, histopathology and where appropriate, genetics rather than age of onset and rates of disease progression
- Over the last three decades there have been three major attempts to classify periodontal disease

1- **First World Workshop in Clinical Periodontics in 1989** (American Academy of Periodontology 1989)

2- **Second, First European Workshop in Periodontics in 1993** (Attstrom & van der Velden 1994)

Those classification had many shortcomings including

- 1) Considerable overlap in disease categories
- 2) Absence of gingival disease component
- 3) The age of onset of disease& rates of progression are not clear
- 4) Unclear classification criteria

3- The third attempt was started by the American Academy of Periodontology in 1997, who organised the International Workshop for a Classification of Periodontal Diseases and Conditions in 1999

- At this workshop, a new classification was agreed upon (Armitage 1999)
- This attempted to develop a comprehensive classification of gingival diseases, periodontal diseases, necrotizing ulcerative gingivitis/periodontitis, periodontal abscesses, periodontitis associated with an endodontic lesion, developmental or acquired deformities and conditions mucogingival deformities and conditions in addition to occlusal trauma
- This classification includes both separate conditions and a number of other factors which may affect their severity or clinical presentation and is shown in tables 1 and 2

The main changes in this classification are:

1- The addition of a comprehensive section on **gingival diseases**

2- Replacement the term of **adult periodontitis** with **chronic periodontitis**, since epidemiological evidence suggests that chronic periodontitis may also be seen in some adolescents

3- The term **refractory periodontitis** is no longer considered as a separate disease entity and has been excluded from the classification. This term can be applied to any disease that proves non response to treatment

The old term **recurrent periodontitis** denotes the return of the disease and is not a separate disease entity and has been excluded from the classification

- Elimination of these separate categories because of the lack of evidence that they represent separate conditions but rather describe the response to treatment that result from differences in patient susceptibility

4- Replacement of the term **early onset periodontitis** (includes: 1) prepuberty, 2) juvenile and 3) rapidly progressive periodontitis with **aggressive periodontitis**, largely because of the clinical difficulties in determining the age of onset in many of these cases

5- A new classification group of periodontitis **as a manifestation of systemic disease** has been created and this includes those cases of prepubertal periodontitis directly resulting from known systemic disease

6- There are also new group categories on periodontal abscesses, periodontic-endodontic lesions and developmental or acquired deformities or conditions

In summary the classification of periodontal disease include the following 8 categories:

- I) Gingival diseases
- II) Chronic periodontitis
 - A. Localized (< 30% involved sites)
 - B. Generalised (>30% involved sites)
- III) Aggressive periodontitis
 - A. Localized
 - B. Generalised
- IV) Periodontitis associated with systemic disease
- V) Necrotising periodontal diseases
 - A. Necrotizing ulcerative gingivitis
 - B. Necrotizing ulcerative periodontitis
- VI) Abscess of the periodontium
- VII) Periodontitis associated with endodontic lesions
- VIII) Developmental or acquired deformities & conditions

Table 1 Classification of gingival diseases:

<p>A <u>Plaque induced gingival disease</u></p> <p>1. Gingivitis associated with dental plaque only</p> <p>a) without other locally contributing factors</p> <p>b) with locally contributing factors</p> <p>2. Gingival disease modified by systemic factors</p> <p>a) associated with endocrine system</p> <p>i) puberty-associated gingivitis</p> <p>ii) menstrual cycle-associated gingivitis</p> <p>iii) pregnancy-associated gingivitis or pyogenic granuloma</p> <p>iv) diabetes mellitus-associated gingivitis</p> <p>b) associated with blood dyscrasias</p> <p>i) leukaemia-associated gingivitis</p> <p>ii) other</p> <p>3. Gingival disease modified by drugs</p> <p>a) drug-influenced gingival diseases</p> <p>1) drug-influenced gingival enlargement</p> <p>2) drug-influenced gingivitis</p> <p>a) oral contraceptive-associated gingivitis</p> <p>b) other</p> <p>4. Gingival disease modified by malnutrition</p> <p>a) ascorbic acid-deficiency gingivitis</p> <p>b) other</p> <p>B <u>Non plaque-induced gingival lesion</u></p> <p>1. Gingival disease of specific bacterial origin</p> <p>a) Neisseria gonorrhoea-associated lesions</p> <p>b) Treponema pallidum-associated lesions</p> <p>c) Streptococcal species-associated lesions</p> <p>d) other</p> <p>2. Gingival diseases of viral origin</p> <p>a) Herpes virus infections</p> <p>1) primary herpetic gingivostomatitis</p> <p>2) recurrent oral herpes</p> <p>b) oral Epstein-Barr virus lesions</p> <p>c) Varicella-Zoster infections</p> <p>d) others</p>	<p>3. Gingival disease of fungal origin</p> <p>a) Candida species infections</p> <p>i) generalized gingival candidiasis</p> <p>b) linear gingival erythema</p> <p>c) Histoplasmosis</p> <p>d) other</p> <p>4. Gingival diseases of genetic origin</p> <p>a) hereditary gingival fibromatosis</p> <p>b) other</p> <p>5. Gingival manifestations of systemic conditions</p> <p>a) mucocutaneous conditions</p> <p>1) lichen planus</p> <p>2) pemphigoid</p> <p>3) pemphigus vulgaris</p> <p>4) erythema multiformi</p> <p>5) lupus erythematosus</p> <p>6) drug-induced</p> <p>7) other</p> <p>b) allergic reactions</p> <p>1) dental restorative materials</p> <p>a) mercury</p> <p>b) nickel</p> <p>c) acrylic</p> <p>d) other</p> <p>2) reactions attributable to:</p> <p>a) toothpastes/dentifrices</p> <p>b) mouthrinses/mouthwashes</p> <p>c) chewing gum additives</p> <p>d) foods and food additives</p> <p>6. Traumatic lesions (factitious, iatrogenic, accidental)</p> <p>a) physical injury</p> <p>b) chemical injury</p> <p>c) thermal injury</p> <p>7. Foreign body reactions</p> <p>8. Not otherwise specified (NOS)</p>
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Classification of Gingival diseases

A. Dental plaque induced gingival diseases

There are four main types of plaque-associated gingival diseases

1. Gingivitis associated with **dental plaque only**
2. Gingivitis modified by **systemic factors**
3. Gingivitis modified by **medications**
4. Gingivitis modified by **malnutrition**

There are common characteristics to all gingival diseases associated with plaque, modified by systemic diseases, medications and malnutrition:

- 1- Signs and symptoms that are confined to the gingiva
- 2- The presence of dental plaque to initiate and /or exacerbate the severity of the lesion
- 3- Clinical signs of inflammation (enlarged gingival contours due to oedema or fibrosis, colour transition to a red and or bluish-red, elevated sulcular temperature, bleeding upon stimulation, increased gingival exudate)
- 4- No loss of attachment
- 5- Reversibility of the disease by removing the etiological factors

1. Gingivitis associated with dental plaque only

It is called plaque induced gingivitis and it is inflammation of the gingiva resulting from dental plaque only, it is either

- With or without local contributing factor
- The local contributing factors can be defined as a local feature that may influence the presentation of the disease, such as:
 - Overhanging restoration
 - Dental calculus
 - Prosthetic and orthodontic appliances

Characteristics of plaque-induced gingivitis:

- 1- Plaque presents at a gingival margin
- 2- Disease begins at the gingival margin
- 3- Change in gingival contour
- 4- Change in gingival colour
- 5- Change in sulcular temperature
- 6- Increased gingival exudation
- 7- Bleeding upon probing
- 8- Absence of bone loss
- 9- Absence of attachment loss
- 10- Histological changes
- 11- Reversible with plaque removal

2. Gingival diseases modified by systemic factors

A. Associated with the endocrine system:

- 1- Puberty-associated gingivitis
- 2- Menstrual cycle-associated gingivitis
- 3- Pregnancy-associated **gingivitis** and **pyogenic granuloma**
- 4- Diabetes mellitus-associated gingivitis

1- Puberty-associated gingivitis is pronounced inflammatory response of the gingiva to the dental plaque and hormones during the circumpubertal period (11-16) years

2- Menstrual cycle-associated gingivitis is a pronounced inflammatory response of the gingiva to the plaque and hormones immediately prior to ovulation

3- Pregnancy-associated gingivitis is pronounced inflammatory response of the gingiva to the dental plaque and hormones usually occurring during the second and third trimesters

4- Pregnancy-associated pyogenic granuloma is a localised, painless, protuberant, exophytic genial mass that is attached by a sessile or pedunculated base from the gingival margin or more commonly from interproximal pregnancy. It is more common in maxilla and may develop as early as the first trimesters and may regress or completely disappear following parturition (delivery)

4- Diabetes mellitus-associated gingivitis: is an inflammatory response of the gingiva to plaque aggravated by poorly controlled blood glucose levels

B. Associated with blood dyscrasia: is associated with abnormal function or number of blood cells

- Leukaemia-associated gingivitis is pronounced inflammatory response of the gingiva to the dental plaque, resulting in increased bleeding and enlargement subsequent to leukaemia
- Gingival bleeding is a common sign in patients with leukaemia, which is considered as the initial oral sign and or symptoms in 17.7 % and 4.4% of patients with acute and chronic leukaemia respectively
- Gingival enlargement initially begin at the interdental papilla followed by marginal and attached gingiva