



First semester-classification of periodontal and peri implant conditions (2017) Lec.3.part1

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- 1999 classification
- Limitations
- 2017 classification

1. periodontal health and gingival diseases

- ✓ periodontal and gingival health.
- ✓ Gingivitis caused by biofilm (bacteria)

1999 AAP CLASSIFICATION

Gingival Diseases

- Plaque-induced gingival diseases^a
- Non-plaque-induced gingival lesions

Chronic Periodontitis^b

- Localized
- Generalized

Aggressive Periodontitis

- Localized
- Generalized

Periodontitis as a Manifestation of Systemic Diseases

Necrotizing Periodontal Diseases

- Necrotizing ulcerative gingivitis (NUG)
- Necrotizing ulcerative periodontitis (NUP)

Abscesses of the Periodontium

- Gingival abscess
- Periodontal abscess
- Pericoronal abscess

Periodontitis Associated With Endodontic Lesions

- Endodontic–periodontal lesion
- Periodontal–endodontic lesion
- Combined lesion

Developmental or Acquired Deformities and Conditions

- Localized tooth-related factors that predispose to plaque-induced gingival diseases or periodontitis
- Mucogingival deformities and conditions around teeth
- Mucogingival deformities and conditions on edentulous ridges
- Occlusal trauma

LIMITATIONS OF 1999 CLASSIFICATION

- The 1999 classification system depends upon assessing the rate of progression spread over multiple appointments in order to diagnose aggressive periodontitis. It is not possible for patient to repeat clinical visits just to place him/her under a specific disease entity such as aggressive or chronic periodontitis. So The major novelty in 2017 classification **is the introduction of staging and grading for periodontitis patients and the loss of the term “aggressive periodontitis”**.
- Implantology, there is no provision in the present classification for the diseases around implants, leaving a significant void .
- All the risk factors are not considered, e.g., smoking and diabetes (Armitage, 1999)

Classification of periodontal disease and conditions 2017

Table 1. Classification of Periodontal Diseases and Conditions

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017										
Periodontal Diseases and Conditions										
Periodontal Health, Gingival Diseases and Conditions			Periodontitis			Other Conditions Affecting the Periodontium				
Periodontal Health and Gingival Health	Gingivitis: Dental Biofilm-Induced	Gingival Diseases: Non-dental Biofilm-Induced	Necrotizing Periodontal Diseases	Periodontitis	Periodontitis as a Manifestation of Systemic Diseases	Systemic Diseases or Conditions Affecting the Periodontal Supporting Tissues	Periodontal Abscesses and Endodontic-Periodontal Lesions	Mucogingival Deformities and Conditions	Traumatic Occlusal Forces	Tooth and Prosthesis Related Factors
Peri-Implant Diseases and Conditions										
Peri-Implant Health		Peri-Implant Mucositis		Peri-Implantitis		Peri-Implant Soft and Hard Tissue Defencies				

Adapted from Caton et al. (2018) J Clin Periodontol. 45(Supl 20); S1-S8.

Periodontal and peri-implant diseases and conditions

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Periodontal diseases and conditions can be broken down into three main categories:

1. periodontal health and gingival diseases

- periodontal and gingival health.
- Gingivitis caused by biofilm (bacteria).
- Gingivitis not caused by biofilm.

2. Periodontitis

- Necrotizing diseases.
- periodontitis as a manifestation of systemic disease
- Periodontitis.

3. Other conditions affecting the periodontium

- Systemic diseases affecting the periodontium.
- Periodontal abscess or periodontal/endodontic lesions.
- Mucogingival deformities and conditions.
- Traumatic occlusal forces.
- Tooth- and prosthesis-related factors.

Peri-implant diseases and conditions can be broken down into four major categories:

- Peri-implant health.
- Peri-implant mucositis.
- Peri-implantitis.
- Peri-implant soft and hard-tissue deficiencies.

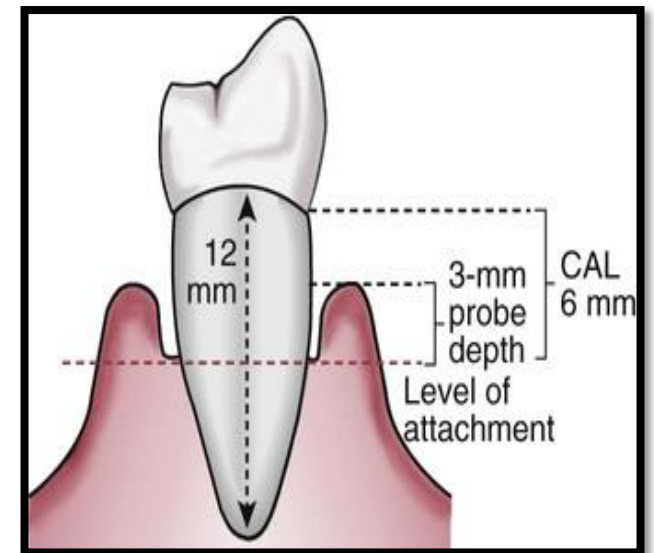
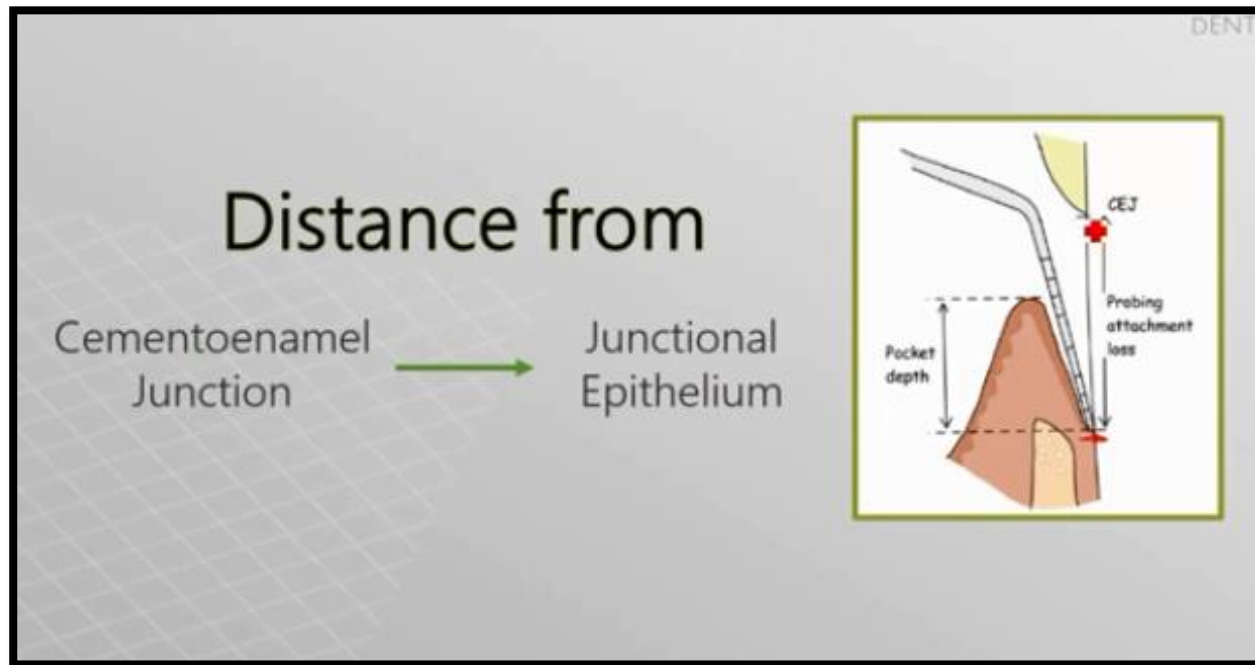
- **Gingivitis:** It is the inflammation of the gingiva in which the junctional epithelium remains attached to the tooth at its original position. Its characterized by areas of redness and swelling and there is a tendency for gingival bleeding.
- **Periodontitis:** It is the inflammation of the supporting tissues of the teeth leading to the permanent destruction of these tissue. Its characterized by clinical attachment loss, periodontal pocking and alveolar bone loss.



How to measure periodontal pocket and clinical attachment loss??

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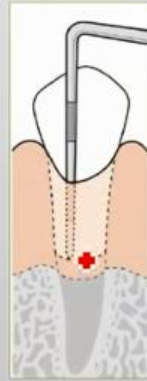
- ❖ Periodontal pocket: it's a distance to which a probe penetrates into the pocket.(i.e. from gingival margin to the base of the pocket).
- ❖ Clinical attachment loss: it's a distance from CEJ till the base of periodontal pocket.



HOW TO CALCULATE CAL

Gingival margins at the CEJ

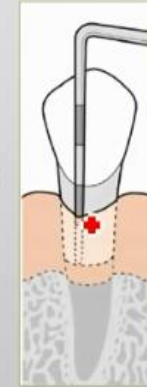
$$\text{Pocket depth} = \text{CAL}$$



HOW TO CALCULATE CAL

Gingival margins apical to the CEJ

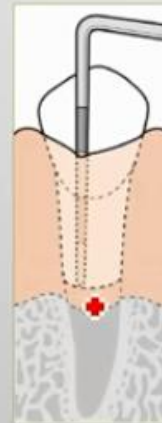
$$\text{Pocket depth} + \text{Gingival Recession (Positive Value)} = \text{CAL}$$



HOW TO CALCULATE CAL

Gingival margins on the anatomical crown

$$\text{Pocket depth} - \text{Gingival Recession} = \text{CAL}$$



1. periodontal health and gingival diseases

- periodontal and gingival health.
- Gingivitis caused by biofilm (bacteria).
- Gingivitis not caused by biofilm

TABLE 1. Periodontal Health, Gingival Diseases and Conditions⁶
1. PERIODONTAL HEALTH AND GINGIVAL HEALTH
a. Clinical gingival health on an intact periodontium
b. Clinical gingival health on a reduced periodontium
i. Stable periodontitis patient
ii. Nonperiodontitis patient
2. GINGIVITIS, DENTAL BIOFILM-INDUCED
a. Associated with dental biofilm alone
b. Mediated by systemic or local risk factors
c. Drug-influenced gingival enlargement

□ The 2017 classification system gives clear definitions of periodontal health :

- (i) Periodontal health with an intact periodontium.
- (ii) Periodontal health with a reduced periodontium due to causes other than periodontitis.
- (iii) Periodontal health with a reduced periodontium due to periodontitis.

1. Periodontal health

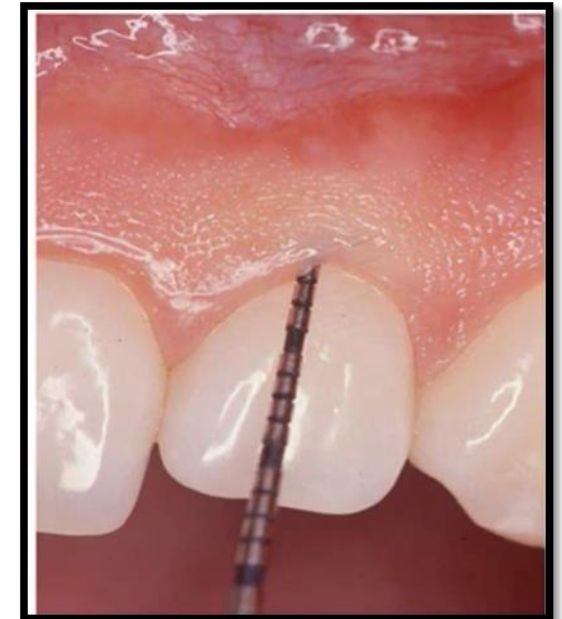
- A. Intact periodontium.
- B. Reduced periodontium.



Clinical gingival health with intact periodontium

Characterized by:

1. The absence (or minimum) bleeding on probing (less than 10%), absence of erythema and edema.
2. The absence of patient symptoms.
3. The absence of attachment loss and bone loss.
4. Probing pocket depth ≤ 3 mm.



Clinical gingival health with reduced periodontium

- Stable periodontitis patient (successfully treated periodontitis patient).
- Non periodontitis patient (recession, Crown lengthening)

Characterized by:

- The absence (or minimum) bleeding on probing (less than 10%)
- The possible presence of reduced clinical attachment and bone levels.
- Probing pocket depth ≤ 3 mm(non periodontitis patient).
- **Probing pocket depth ≤ 4 mm (no site ≥ 4 mm with BOP) (Stable periodontitis patient).**

Note: it should be recognized that successfully treated and stable periodontitis patients remain at increased risk of recurrent progression of periodontitis. In non-periodontitis patients, there is no current evidence for increased risk of periodontitis.

Clinical gingival health with reduced periodontium

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	Stable periodontitis patient	Non periodontitis patient (recession, Crown lengthening)
probing attachment loss	yes	yes
Probing pocket depth	≤4mm (no site with ≥ 4mm with Bop)	≤3mm
Bleeding on probing	<10%	<10%
Radiographical bone loss	yes	possible

Diagnostic “look up table” for clinical gingival health
in clinical practice (modified after Chapple et al. 2018)



Periodontal Health on a Reduced Periodontium in a Non-periodontitis Patient



Periodontal Health on a Reduced Periodontium in a Successfully Treated Periodontitis Patient

Gingival disease and condition

Non-dental plaque-induced gingival diseases

Dental plaque biofilm-induced gingivitis

Dental plaque biofilm-induced gingivitis

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Dental plaque biofilm-induced gingivitis is defined at the site level as “an inflammatory lesion resulting from interactions between the dental plaque biofilm and the host's immune-inflammatory response, **which remains contained within the gingiva and does not extend to the periodontal attachment** (cementum, periodontal ligament and alveolar bone). Such inflammation remains confined to the gingiva and does not extend beyond the mucogingival junction and is reversible by reducing levels of dental plaque at and apical to the gingival margin.

Localized gingivitis → **BOP $\geq 10\%$ and $\leq 30\%$**

Generalized gingivitis → **BOP $\geq 30\%$**

Depending on whether dental plaque biofilm-induced gingival inflammation occurs on an intact or reduced periodontium, gingivitis can be further classified as:

- Gingivitis on an intact periodontium.
- Gingivitis on a reduced periodontium in a non-periodontitis patient (e.g., recession, crown lengthening)
- Gingival inflammation on a reduced periodontium in a successfully treated periodontitis patient.

Gingivitis on an intact periodontium

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1. BOP score $\geq 10\%$
2. The absence of attachment loss and bone loss.
3. Probing pocket depth ≤ 3 mm.



Gingivitis on a reduced periodontium in a non-periodontitis patient (e.g., recession, crown lengthening)

1. Patient with reduced periodontium but without a history of periodontitis.
2. BOP \geq 10%.
3. Probing pocket depth \leq 3 mm.
4. Possible presence of attachment loss and radiographic bone loss.



Plaque-Induced Gingivitis on a Reduced Periodontium in a Successfully Treated Periodontitis

1. Patient with reduced periodontium with a history of periodontitis.
2. BOP $\geq 10\%$.
3. Probing pocket depth ≤ 4 mm (**no site ≥ 4 mm with BOP**).
4. The presence of attachment loss and radiographic bone loss.



Gingivitis with reduced periodontium

	Stable periodontitis patient (remission)	Non periodontitis patient (recession, Crown lengthening)
probing attachment loss	yes	yes
Probing pocket depth	≤4mm (no site with ≥ 4mm with Bop)	≤3mm
Bleeding on probing	≥10%	≥10%
Radiographical bone loss	yes	possible

Diagnostic “look up table” for dental plaque-induced gingivitis in clinical practice (modified after Chapple et al. 2018)

Diagnostic “look up table” for gingival health or dental plaque-induced gingivitis in clinical practice (modified after Chapple et al. 2018)

Intact periodontium	Health	Gingivitis
<i>Probing attachment loss</i>	No	No
<i>Probing pocket depths (assuming no pseudo pockets)</i>	≤3mm	≤3mm
<i>Bleeding on probing</i>	<10%	≥10%
<i>Radiological bone loss</i>	No	No
Reduced periodontium Non periodontitis patient	Health	Gingivitis
<i>Probing attachment loss</i>	Yes	Yes
<i>Probing pocket depths (all sites & assuming no pseudo pockets)</i>	≤3mm	≤3mm
<i>Bleeding on probing</i>	<10%	≥10%
<i>Radiological bone loss</i>	Possible	Possible
Successfully treated periodontitis patient	Health (stable)	Gingival inflammation in a patient with a history of periodontitis (remission)
<i>Probing attachment loss</i>	Yes	Yes
<i>Probing pocket depths (all sites & assuming no pseudo pockets)</i>	≤4mm (no site ≥ 4mm with BoP)*	≤4mm (no site ≥ 4mm with BoP)*
<i>Bleeding on probing</i>	<10%	≥10%
<i>Radiological bone loss</i>	Yes	Yes

Classification of plaque-induced gingivitis

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- A. Associated with bacterial dental biofilm only**
- B. Potential modifying factors of plaque-induced gingivitis**
 - 1. Systemic conditions**
 - a) Sex steroid hormones
 - 1) Puberty
 - 2) Menstrual cycle
 - 3) Pregnancy
 - 4) Oral contraceptives
 - b) Hyperglycemia
 - c) Leukemia
 - d) Smoking
 - e) Malnutrition
 - 2. Oral factors enhancing plaque accumulation**
 - a) Prominent subgingival restoration margins
 - b) Hyposalivation
- C. Drug-influenced gingival enlargements**

A. Associated with dental plaque only

It is called plaque induced gingivitis and its inflammation of the gingiva resulting from dental plaque only.



B. Mediated by systemic or local risk factor

1-Systemic condition

a)Sex steroid hormone

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



2)Oral contraceptive associated gingivitis

The increased use of oral contraceptives by premenopausal women has also been associated with a higher incidence of gingival inflammation and gingival enlargement.

3) Menstrual cycle - associated gingivitis: It is pronounced inflammatory response of the gingival to plaque and hormones immediately prior to ovulation.

4) ▲pregnancy - associated gingivitis: It is pronounced inflammatory response of the gingiva to dental plaque and hormones usually occurring during the second and third trimesters.

▲ pregnancy-associated pyogenic granuloma: It is a localized, painless, protuberant, exophytic gingival mass that is attached by a sessile or pedunculated base from the gingival margin or more commonly from an interproximal space resulting from dental plaque and hormones during pregnancy. it is more common in the maxilla and may develop as early as the first trimesters and may regress or completely disappear following parturition.



b. Hyperglycemia

It is the inflammatory response of the gingival to plaque aggravated by poorly controlled plasma glucose levels.



c. Leukemia

In blood dyscrasias (e.g., leukemia), the reduced number of immunocompetent lymphocytes in the periodontal tissues is associated with increased edema, erythema, and bleeding of the gingiva as well as gingival enlargement that may be associated with the swollen, spongy gingival tissues caused by the excessive infiltration of malignant blood cells.



d. Smoking

Is one of the major lifestyle/behavioral risk factors for periodontitis, but which also has profound effects upon the gingival tissues. Systemic circulatory uptake of components of cigarette smoke as well as local uptake are reported to induce microvascular vasoconstriction and fibrosis. This can mask clinical signs of gingivitis, such as bleeding on probing, despite a significant underlying pathological inflammatory cell infiltrate.

e. Malnutrition

- Gingival diseases modified by malnutrition have received attention because of clinical descriptions of bright red, swollen, and bleeding gingiva associated with severe ascorbic acid (vitamin C) deficiency.



2) Oral factor enhancing plaque formation

a) The local contributing factors

The local contributing factors can be defined as a local feature that may influence the presentation of the disease, such as prominent subgingival restoration margins, orthodontic appliance

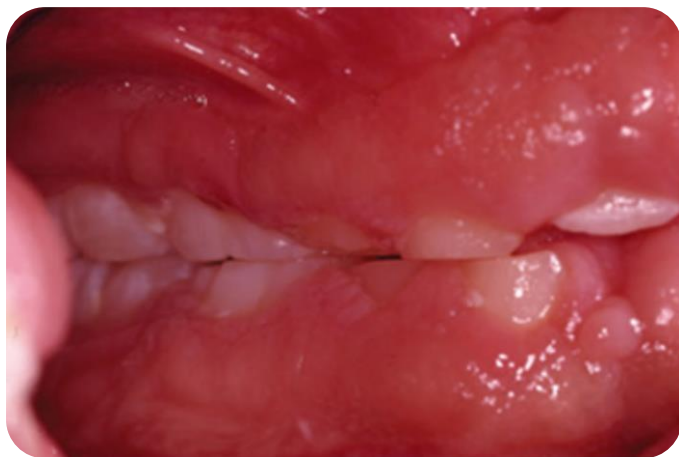


b) Hyposalivation

Oral dryness manifesting as a lack of salivary flow, availability, or changes in quality of saliva, leading to reduced cleansing of tooth surfaces is associated with reduced dental plaque biofilm removal and enhanced gingival inflammation.

C. Drug-influenced gingival enlargement

Gingival diseases that are modified by medications include gingival overgrowth due to anticonvulsant drugs such as phenytoin, immunosuppressive drugs such as cyclosporine. And calcium channel blockers such as Nifedipine, verapamil, diltiazem and sodium valproate.



gingival overgrowth due to cyclosporine therapy



gingival overgrowth following use of a calcium channel blocker

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THANK YOU