

# CLASSIFICATION OF PERIODONTAL DISEASES

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# PERIODONTIUM

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The periodontium consist of the investing & supporting tissues of the teeth which include gingiva, periodontal ligament, cementum & alveolar bone

# DISEASE

A pathological condition of a part, organ, or system of an organism resulting from various causes, such as infection, genetic defect, or environmental stress, and characterized by an identifiable group of signs or symptoms

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## Disease classification helpful to:

- ▶ distinguish various conditions,
- ▶ To establish diagnosis,
- ▶ Determining prognosis,
- ▶ Facilitate treatment planning.



# Classification of Periodontal Diseases and Conditions

AAP 1999

## **1. Gingival Diseases**

- ❖ Plaque-induced gingival diseases
- ❖ Non-plaque-induced gingival lesions

## **2. Chronic Periodontitis**

- ❖ Localized
- ❖ Generalized

## **3. Aggressive Periodontitis**

- ❖ Localized
- ❖ Generalized

## **4. Periodontitis as a Manifestation of Systemic Diseases**



## 5. Necrotizing Periodontal Diseases

- ❖ Necrotizing ulcerative gingivitis (NUG)
- ❖ Necrotizing ulcerative Periodontitis (NUP)

## 6. Abscesses of the Periodontium

- ❖ Gingival abscess
- ❖ Periodontal abscess
- ❖ Pericoronal abscess

## 7. Periodontitis associated with Endodontic Lesions

- ❖ Endodontic-periodontal lesion
- ❖ Periodontal-endodontic lesion
- ❖ Combined lesion



## 8. Developmental or Acquired Deformities and Conditions

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



# *Gingival Diseases*

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## Dental Plaque –Induced Gingival Diseases

- These diseases may occur on a periodontium with no attachment loss or on one with attachment loss that is stable and not progressing.

### I. Gingivitis associated with dental plaque only

- A. Without local contributing factors
- B. With local contributing factors



## II. Gingival diseases modified by systemic factors

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### A. Associated with the endocrine system:

1. Puberty-associated gingivitis.
2. Menstrual cycle-associated gingivitis
3. Pregnancy associated
  - a. Gingivitis
  - b. Pyogenic granuloma
4. Diabetes mellitus-associated gingivitis



## B. Associated with blood dyscrasias

1. Leukemia-associated gingivitis.

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2. Other

## III. Gingival diseases modified by medications

### A. Drug-influenced gingival diseases

1. Drug-influenced gingival enlargements

2. Drug-influenced gingivitis

A. Oral contraceptive-associated gingivitis.

B. Other.

## IV. Gingival diseases modified by malnutrition

A. Ascorbic acid deficiency,

B. others.

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➤ Non-plaque-induced gingival lesions

I. Gingival diseases of specific bacterial origin

- A. Neisseria gonorrhoea
- B. Treponema pallidum
- C. Streptococcal species
- D. Other.

II. Gingival diseases of viral origin

- A. Herpes virus infections
  - 1. Primary herpetic gingivostomatitis
  - 2. Recurrent oral herpes
  - 3. Varicella zoster.
- B. Other



### III. Gingival diseases of fungal origin

#### A. Candida-species infections :

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Generalized gingival candidiasis

B. Linear gingival erythema

C. Histoplasmosis

D. Other

### IV. Gingival lesions of genetic origin

A. Hereditary gingival fibromatosis

B. Other

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## V. Gingival manifestations of systemic conditions

### A. Mucocutaneous lesions

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1. Lichen planus,
2. Pemphigoid,
3. Pemphigus vulgaris,
4. Erythema multiforme,
5. Lupus erythematosus,
6. Drug induced,
7. Other.



## B. Allergic reactions

### I. Dental restorative materials

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- a. Mercury,
- b. Nickel,
- c. Acrylic,
- d. Other.

### 2. Reactions attributable to

- a. Toothpastes or dentifrices,
- b. Mouth rinses or mouthwashes,
- c. Chewing gum additives,
- d. Foods and additives.

### 3. Other

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## VI. Traumatic lesions (Factitious, iatrogenic, or accidental)

A. Chemical injury,

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B. Physical injury,

C. Thermal injury.

## VII. Foreign body reactions


## VIII. Not otherwise specified




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*Classification of the Various Forms*  
*of*  
*Periodontitis*

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- Although many classifications of the different clinical manifestations of the periodontitis have been presented over the past 20 years , consensus workshop in north america in 1989 & in europe 1993 identified that periodontitis may be present in early onset , adult onset , & necrotizing forms.
  - In addition AAP consensus conducted that periodontitis may be associated with systemic condition such as diabetes , HIV infections , & that some form of periodontitis may be refractory to conventional therapy.
  - Classification system in periodontology is based on topography , morphology , pathology , & etiology.
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# According to AAP World Workshop in Clinical Periodontics, 1989

1. Adult Periodontitis
2. Early onset Periodontitis (may be prepubertal, juvenile, or rapidly progressive)
3. Periodontitis associated with systemic disease
4. Necrotizing ulcerative Periodontitis
5. Refractory Periodontitis



# Disease Characteristics

## 1. Adult Periodontitis

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- ▶ Age of onset > 35 years ,
- Slow rate of disease progression,
- No defects in host defenses.

## 2. Early onset Periodontitis

- Age of onset < 35 years,
- Rapid rate of disease progression,
- Defects in host defenses,
- Associated with specific micro flora.



### 3. Periodontitis associated with systemic disease

- ▶ Systemic diseases that predispose to rapid rates of periodontitis are Diabetes, Down syndrome, HIV Infection, and Papillon-Lefevre syndrome.

### 4. Necrotizing ulcerative periodontitis

- ▶ Similar to acute necrotizing ulcerative gingivitis but with associated clinical attachment loss.

### 5. Refractory periodontitis

- ▶ Recurrent periodontitis that does not respond to treatment.



# According to European Workshop on Periodontology, 1993

1. Adult periodontitis,
2. Early onset periodontitis,
3. Necrotizing periodontitis.



## Disease Characteristics

### 1. Adult periodontitis

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- ▶ Age of onset : fourth decade of life,
- ▶ Slow rate of disease progression,
- ▶ No defects in host response.

### 2. Early onset periodontitis

- ▶ Age of onset : prior to fourth decade of life,
- ▶ Rapid rate of disease progression,
- ▶ Defects in host defenses.

### 3. Necrotizing periodontitis

- ▶ Tissue necrosis with attachment and bone loss.



# According to AAP International Workshop for Classification of Periodontal Diseases, 1999.

1. Chronic periodontitis,
2. Aggressive periodontitis,
3. Periodontitis as a manifestation of systemic diseases.



## Disease Characteristics

### I. Chronic periodontitis

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- ▶ Prevalent in adults but can occur in children,
  - ▶ Amount of destruction consistent with local factors,
  - ▶ Associated with a variable microbial pattern,
  - ▶ Sub gingival calculus frequently found,
  - ▶ Slow to moderate rate of progression with possible periods of rapid progression,
  - ▶ Possibly modified by or associated with the following :
    - ❖ Systemic diseases such as diabetes mellitus and HIV infection,
    - ❖ Local factors predisposing to periodontitis,
    - ❖ Environmental factors such as cigarette smoking and emotional stress.
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- ▶ Chronic periodontitis → sub classified into localized and generalized forms



- ▶ Characterized as slight, moderate, or severe based on the common features described above and the following specific features:
  - ▶ Localized form :  $< 30\%$  of sites involved
  - ▶ Generalized form:  $> 30\%$  of sites involved
  - ▶ Slight : 1 to 2 mm of clinical attachment loss
  - ▶ Moderate : 3 to 4 mm of clinical attachment loss
  - ▶ Severe :  $\geq 5$  mm of clinical attachment loss



## 2. Aggressive Periodontitis

↪ The following characteristics are common to patients with aggressive periodontitis:

- ▶ Otherwise clinically healthy patient,
- ▶ Rapid attachment loss and bone destruction,
- ▶ Amount of microbial deposits inconsistent with disease severity,
- ▶ Familial aggregation of diseased individuals.

↪ The following characteristics are common but not universal

- ▶ Diseased sites infected with *Actinobacillus actinomycetemcomitans*,
- ▶ Abnormalities in phagocyte function,
- ▶ Hyper responsive macrophages, producing increased PGE<sub>2</sub> and IL-1β,

- ▶ In some cases, self-arresting disease progression,
  - ▶ Aggressive periodontitis may be further classified into localized and generalized forms based on the common features described here and the following specific features:
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### ↳ Localized form:

- ▶ Circumpubertal onset of disease,
  - ▶ Localized first molar or incisor disease with proximal attachment loss on at least two permanent teeth, one of which is a first molar,
  - ▶ Robust serum antibody response to infecting agents,
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## ↳ Generalized form:

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- Usually affecting persons under 30 years of age (how ever, may be older ),
- Generalized proximal attachment loss affecting at least three teeth other than first molars and incisors,
- Pronounced episodic nature of periodontal destruction,
- Poor serum antibody response to infecting agents.



# 3. Periodontitis as a Manifestation of Systemic Diseases

## 1. Hematologic disorders

- a. Acquired neutropenia,
- b. Leukemias,
- c. Other.

## 2. Genetic disorders

- a. Familial and cyclic neutropenia,
- b. Down syndrome,
- c. Leukocyte adhesion deficiency syndromes,
- d. Papillon-Lefevre syndrome,
- e. Chediak-Higashi syndrome,
- f. Histiocytosis syndromes,
- G. Glycogen storage disease,
- h. Infantile genetic agranulocytosis,
- i. Cohen syndrome,
- j. Ehlers-Danlos syndrome,
- k. Hypophosphatasia,
- i. Other.

## 3. Not otherwise specified




# Necrotizing periodontal disease

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1] NECROTIZING ULCERATIVE GINGIVITIS,

2] NECROTIZING ULCERATIVE PERIODONTITIS.

- ❖ NUG has previously classified under “gingival disease” or “gingivitis” because clinical attachment loss is not a consistent feature, whereas NUP has been classified as a form of “periodontitis” because attachment loss is present.
  - ❖ Recent reviews of the etiologic & clinical characteristics of NUG & NUP have suggested that:
  - ❖ The 2 disease represent clinical manifestation of the same disease , except that distinct feature of NUP are clinical attachment loss & bone loss.
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- ❖ As a result , both NUG & NUP have been determined as a separate group of disease that have tissue necrosis as a primary clinical feature.

## I.NECROTISING ULCERATIVE GINGIVITIS

Bacterial etiology

- ▶ Necrotic lesion
- ▶ Predisposing factors like stress, smoking, immunosuppression.
- ▶ Contributing factors like malnutrition



## 2. NECROTIZING ULCERATIVE PERIODONTITIS

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- ▶ Loss of CLINICAL ATTACHMENT and ALVEOLAR BONE is a consistent feature.
- ▶ Deep interdental osseous craters typify periodontal lesions.
- ▶ Patients present with oral malodour, fever, malaise or lymphadenopathy.



- ▶ Periodontitis associated with Endodontic lesion.

## I.ENDO-PERIO LESION

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Pulpal necrosis precedes periodontal changes.

- ▶ A periapical lesion → Pulpal infection and necrosis → drains to the oral cavity through the periodontal ligament. Clinically → localized deep periodontal pocket extending to the apex of the tooth.
- ▶ Through the Accessory canals in furcation → leads to furcation involvement.



## 2.PERIO—ENDO LESION

- ▶ Bacterial infection from a periodontal pocket associated with loss of attachment and root exposure → spread through accessory canals to the pulp → pulpal necrosis.
- ▶ Advanced periodontal lesion → Infection may reach through the apical foramen.
- ▶ Scaling and root planing removes cementum and underlying dentin → lead to chronic pulpitis through bacterial penetration of dentinal tubules.

## 3.COMBINED LESION

- ▶ Occur when pulpal necrosis & a periapical lesion occur on a tooth that is also periodontally involved.



▶ DEVELOPMENTAL OR ACQUIRED DEFORMITIES AND CONDITIONS

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I. Localised tooth related factors that modify or predispose to plaque induced gingival diseases or periodontitis.

A. Tooth Anatomic Factors

- ▶ Cervical enamel projections and Enamel pearls associated with calculus in furcation areas. 15 to 24% mandibular molars and 9 to 25% on maxillary molars.
- ▶ Palatogingival grooves → 8.5 Maxillary molars.



## B.Dental restorations or Appliances

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- ▶ Surgically placed restorations , onlays, crowns,and orthodontic bands.
- ▶ Restorations impinge on the biologic width by placing it deep in the sulcus or within the junctional epithelium →promotes inflammation and loss of clinical attachment and bone with apical migration of the junctional epithelium and reestablishment of the attachment apparatus at a more apical level.



## C. Root Fractures

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- ▶ By traumatic forces or restorative or endodontic procedures lead apical migration of plaque along with the fracture when it is coronal to the clinical attachment and is exposed to the oral environment leads to periodontal involvement.

## D. Cervical root resorption and Cemental Tears.

Leads to periodontal destruction when the lesion communicates with the oral cavity and allows bacterias to migrate subgingivally.



## 2. Mucogingival Deformities and conditions around the teeth:-----

- A. Gingival or soft tissue recession,
- B. Lack of Keratinized gingiva,
- C. Decreased vestibular depth,
- D. Aberrant frenum position or muscle position,
- E. Gingival excess- Pseudopocket, enlargement.



### 3. mucogingival deformities & conditions on edentulous ridges:

A. Vertical or horizontal ridge deficiency,

B. Lack of gingiva or keratinised tissue,

C. Gingival or soft tissue enlargements,

D. Aberrant frenum or muscle position,

E. Decreased vestibular depth,

F. Abnormal color.



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### 3. Occlusal Trauma

- ▶ 1. Primary TFO: as a result of alteration of occlusal force on a normal periodontium.
- ▶ 2. Secondary TFO: as a result of reduced ability of the tissues to resist the occlusal forces.



# 2017 Classification of Periodontal Disease

## Periodontal Health, Gingival Diseases and Conditions

- ❖ Periodontal health and Gingival Health
- ❖ Gingivitis: Dental biofilm induced
- ❖ Gingival diseases: Non dental biofilm Induced

## Other Conditions Affecting the Periodontium

- ❖ 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

## Periodontitis

- ❖ Necrotizing periodontal Diseases
- ❖ Periodontitis
- ❖ Periodontitis as a manifestation of systemic disease

## Peri-Implant Diseases and Conditions

- ❖ Peri implant health
- ❖ Peri implant mucositis
- ❖ Peri implantitis
- ❖ Peri implant soft and hard tissue deficiency

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***THANK YOU***

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