Lec. 13 Dr. Suzan Ali

**Classification of periodontitis**

I. Chronic periodontitis:

1. Localized
2. Generalized

The term chronic periodontitis replaced the previous name (adult periodontitis) since this form of periodontal disease can occur over a wide range of ages and can be found in both primary and secondary dentitions.

Chronic periodontitis: Is an infectious disease resulting in inflammation within the supporting tissue of the teeth, progressive attachment, and bone loss. It is characterized clinically by pocket formation and/or gingival recession. It is recognized as the most frequently occurring form of periodontitis. Its onset may be at any age but is most commonly detected in adults. The prevalence and severity of the disease increases with age. It may affect a variable number of teeth and it has variable rates of progression. Chronic periodontitis is initiated and sustained by bacterial plaque, but host defense mechanisms play an integral role in its pathogenesis. The progressive nature of the disease can only be confirmed by repeated examination. It is reasonable to assume that the disease will progress further if treatment is not provided. Chronic periodontitis can be further characterized by extent and severity. Extent is the number of the sites involved and can be described as localized or generalized. As a general guide, extent can be characterized as localized if ≤30% of the sites are affected and generalized if >30% of the sites are affected. Severity can be described for the entire dentition or for individual teeth and sites. As a general guide, severity can be categorized on the basis of the amount of clinical attachment loss (CAL) as follows:

 Slight =1-2 mm CAL , moderate =3 - 4 mm CAL, and severe = ≥5 mm CAL.

The clinical features and characteristics of chronic periodontitis can be summarized as follows:

* Most prevalent in adults, but can occur in children and adolescents;
* Amount of destruction is consistent with the presence of local factors;
* Subgingival calculus is a frequent finding;
* Associated with variable microbial pattern;
* Slow to moderate rate of progression, but may have periods of rapid progression;
* Can be further classified on the basis of extent and severity;
* Can be associated with local predisposing factors (e.g. tooth-related or iatrogenic factors);
* May be modified by and/or associated with systemic diseases (e.g. , diabetes mellitus)
* Can be modified by factors other than systemic diseases such as cigarette smoking and emotional stress.

There are recurrent and refractory (non-responsive) cases of periodontitis that is not considered as separate disease entity since any type of periodontitis can be recur and a small percentage of cases can be non-responsive to therapy.

Recurrent periodontitis represents a return of periodontitis.

Refractory periodontitis represents some cases of periodontitis that do not have successful treatment outcome. Both these conditions are not separate disease entity.

II. Aggressive periodontitis: ( A.P.)

1. Localized
2. Generalized

 (A.P) The term aggressive periodontitis replaced the previous name early-onset periodontitis (prepubertal, juvenile periodontitis & rapidly progressive periodontitis) because this term is too restrictive & features of this form of periodontitis can occur at any age and the classification for various forms of periodontitis should not base on the age of the patient at the time of presentation, but should base on clinical, radiographical, historical and laboratory findings.

The term localized aggressive periodontitis (LAP) replaces the older term localized juvenile periodontitis (L JP). Also generalized aggressive periodontitis (GAP) replaces generalized juvenile periodontitis (GJP).Rapidly progressive periodontitis replaced by either generalized aggressive periodontitis or chronic periodontitis. Prepubertal periodontitis replaced by localized or generalized aggressive periodontitis or periodontitis as a manifestation of systemic diseases.

The common features of localized and generalized forms of aggressive periodontitis:

* Except for the presence of periodontitis, patients are otherwise clinically healthy;
* Rapid attachment loss and bone destruction;
* Familial aggregation;
* Amounts of microbial deposits are inconsistent with the severity of periodontal tissue destruction;
* Elevated proportion of *aggregatibacter actinomycetemcomitans* and, in some populations, *porphyromonas gingivalis*, may be elevated;
* Phagocyte abnormalities
* Hyper-responsive macrophage phenotype, including elevated levels of PGE2 and IL-1β;
* Progression of attachment loss and bone loss may be self-arresting.

The specific features of localized aggressive periodontitis (LAP):

* Circumpubertal onset
* Robust serum antibody response to infecting agents
* Localized first molar/incisor presentation with interproximal attachment loss on at least two permanent teeth, one of which is a first molar, and involving no more than two teeth other than first molars and incisors.

While the specific features of generalized aggressive periodontitis:

* Usually affecting persons under 30 years of age, but patients may be older;
* Poor serum antibody response to infecting agents;
* Pronounced episodic nature of the destruction of attachment and alveolar bone;
* Generalized interproximal attachment loss affecting at least three permanent teeth other than first molars and incisors.

III. Periodontitis as a manifestation of systemic diseases:

Systemic factors modify all forms of periodontitis through their effects on the normal immune and inflammatory defenses when there is reduction in number or function of polymorphonuclear leukocytes (PMNs) that may result in an increased rates and severity of periodontal destruction.

A. Associated with hematological disorders:

1. Acquired neutropenia
2. Leukemias
3. Other

B. Associated with genetic disorders:

1. Familial and cyclic neutropenia
2. Down syndrome
3. Leukocyte adhesion deficiency syndrome
4. Papillon-lefèvre syndromes
5. Chediak-higashi syndrome
6. Other.
7. Not otherwise specified (NOS)

IV. Necrotizing periodontal diseases:

1. Necrotizing ulcerative gingivitis
2. Necrotizing ulcerative periodontitis
* Necrotizing ulcerative gingivitis: This is an infection characterized by gingival necrosis presenting as 'punched-out' papillae, with gingival bleeding, and pain. Fetid breath and pseudomembrane formation may be secondary diagnostic features. *Fusiform bacteria*, *prevotella intermedia*, and *spirochetes* have been associated with gingival lesions. Predisposing factors may include: emotional stress, poor diet, cigarette smoking, and HIV infection.
* Necrotizing ulcerative periodontitis: This is an infection characterized by necrosis of gingival tissues, periodontal ligament, and alveolar bone. These lesions are most commonly observed in individual with systemic conditions including HIV infection, severe malnutrition, and immunosuppression.

V. Abscesses of the periodontium:

1. Gingival abscess: A localized purulent infection that involves the marginal gingiva or interdental papilla.
2. Periodontal abscess: A localized purulent infection within the tissue adjacent to the periodontal pocket that may lead to the destruction of periodontal ligament and alveolar bone.
3. Pericoronal abscess: A localized purulent infection within the tissue surrounding the crown of a partially erupted tooth.

Abscesses of the periodontium may be associated with various combinations of the following clinical features:

* Pain, swelling, color change, tooth mobility, extrusion of teeth, purulence, sinus tract formation, fever, lymphadenopathy, and radiolucency of the affected alveolar bone.

Gingival abscess is usually an acute inflammatory response to foreign substances forced into the gingiva. It starts as red painful swelling with smooth shiny surface. Within 24-48 hours, the lesion become fluctuant and pointed with a surface orifice from which a purulent exudate may be expressed.

Periodontal abscess is usually associated with more advanced destruction of periodontal structures and it is located along the lateral surface of the root. The lesion may be acute or chronic. Acute abscess may progress to chronic if the purulent contents drain through a fistula into outer gingival surface.

The acute periodontal abscess characterized by slight discomfort to severe pain and swelling. Chronic periodontal abscess is usually a symptomatic or with dull pain with a history of intermittent exudate.

A common cause for periodontal abscess formation is the incomplete removal of the calculus from periodontal pocket, shrinkage of the gingival wall will occur causing occluding of the pocket orifice and formation of the abscess. The periodontal abscess need to be differentiated from the periapical abscess in the followings:

|  |  |
| --- | --- |
| Periodontal abscess | Periapical abscess |
| 1. | The tooth is vital. | Tooth is not vital. |
| 2. | The lesion lateral to the root surface. | The lesion is most likely periapical. |
| 3. | X-ray finding shows area of radiolucency along the lateral surface of the root. | X-ray finding shows apical radiolucency. |
| 4. | The tooth is tender to lateral percussion. | Tooth tender to vertical percussion.  |

VI. periodontitis-associated endodontic lesion:

 Combined periodontic-endodontic lesion:

Lesions of the periodontal ligament and adjacent alveolar bone may originate from infections of the periodontium or tissues of the dental pulp. Pulpal infection may cause tissue destructive process that proceeds from the apical region of the tooth toward the gingival margin and this is called retrograde periodontitis to differentiate this from marginal periodontitis in which the infection spreads from the gingival margin toward the root apex. The periodontium communicates with pulp tissues through many lateral and accessory canals and foramina, so these channels will participates in extending pulpal infections to the periodontium and vice versa. Some periodontal-endodontic lesions are primarily of endodontic origin and in other cases, bacteria from chronic or aggressive periodontitis, gain access to the pulpal tissues through accessory canals and lead to pulpal infection. So in those cases where there is any coalescence of endodontic and periodontal lesions, the condition was termed combined periodontal-endodontic lesions and this term is not based on the initial etiology of the lesion.

VII. Developmental or Acquired Deformities and Conditions

1. Localized tooth related factors that modify or predispose to plaque-induced gingival diseases & periodontitis:
2. Tooth anatomic factors
3. Dental restorations/appliances
4. Root fractures
5. Cervical root resorption and cemental tears.

Several conditions exist in teeth that may predispose the periodontium to disease. In certain cases these tooth-related factors may contribute to the initiation of periodontal disease. While the etiology of periodontal disease is bacterial, factors that enhance bacterial accumulation or allow ingress of bacteria into the periodontium should be considered in the classification of periodontal diseases. It should be emphasized that these tooth-related conditions are not separate disease entities, but may serve as localized predisposing and/or modifying factors in the onset or progression of plaque-induced gingival diseases and periodontitis.

* Tooth anatomic factors as cervical enamel projection and enamel pearls, palato-gingival grooves, open contacts ------ ect.
* Dental restorations and appliances as incorrect subgingival margin of restorations, crowns, orthodontic bands ------ ect.
* Cervical root resorption: the lesion located coronally on the root and this allows a communication between the area of resorption and the oral environment and bacteria can penetrate these areas and cause inflammation.
1. Mucogingival deformities or conditions around teeth:
2. Gingival/soft tissue recession
3. Facial or lingual surfaces
4. Interproximal (papillary)
5. Lack of keratinized gingiva
6. Decreased vestibular depth
7. Aberrant frenum/muscle position
8. Gingival excess
9. Pseudopocket
10. Inconsistent gingival margin
11. Excessive gingival display
12. Gingival enlargement
13. Abnormal color
14. Mucogingival deformities and conditions on edentulous ridges:
15. Vertical and/or horizontal ridge deficiency
16. Lack of keratinized tissue
17. Soft tissue enlargement
18. Aberrant frenum/muscle position
19. Decreased vestibular depth
20. Abnormal color

Mucogingival: Term used to describe that portion of the oral mucosa that covers the alveolar process including the gingiva (keratinized tissue) and the adjacent alveolar mucosa.

Gingival recession: Is location of the gingival margin apical to the cemento-enamel junction.

The causes of gingival recession:

* Plaque accumulation will cause destruction of the junctional epithelia as a result of the inflammatory process.
* Traumatic gingival recession:
* Fault tooth brushing
* Tooth malposition
* High frenal attachment
* Excessive occlusal force
* Overhanging fillings
* Prosthetic appliances
* Habits as nail biting.
1. Occlusal trauma
2. Primary occlusal trauma
3. Secondary occlusal trauma

Occlusal trauma: Injury resulting in tissue changes within the attachment apparatus as a result of occlusal force(s).

Primary occlusal trauma: Injury resulting in tissue changes from excessive occlusal forces applied to tooth or teeth with normal support. It occurs in the presence of:

1) Normal bone levels, 2) Normal attachment levels, and 3) Excessive occlusal force(s).

Secondary occlusal trauma: Injury resulting in tissue changes from normal or excessive occlusal forces applied to a tooth or teeth with reduced support. It occurs in the presence of:

1) Bone loss, 2) Attachment loss, And 3) "Normal"/excessive occlusal force(s).

Table 2 classification of periodontitis:

I) Chronic periodontitis

 a) Localized

 b) Generalized

Can be further divided according to severity on a tooth by tooth basis into:-

 Early (mild) 1-2 mm CAL

 Moderate 3-4 mm CAL

 Advanced (severe) > or = 5 mm CAL

II) Aggressive periodontitis

 a) Localized

 b) Generalized

III) Periodontitis as a manifestation of systemic disease

 a) Associated with haematological disorders

 1) Acquired neutropenia

 2) Leukaemias

 3) Other

 b) Associated with genetic disorders

 1) Familial and cyclic neutropenia

 2) Down's syndrome

 3) Leukocyte adhesive deficiency syndrome

 4) Papillon-Lefevre syndrome

 5) Chediak-Higashi syndrome

 6) Histiocytosis syndrome

 7) Glycogen storage disease

 8) Infantile genetic agranulocytosis

 9) Cohen syndrome

 10) Ehlers-Danlos syndrome (types IV and VIII)

 11) Hypophosphatasia

 12) Other

 c) Not otherwise specified

IV) Necrotizing periodontal diseases

 a) Necrotizing ulcerative gingivitis

 b) Necrotizing ulcerative periodontitis

V) Abscesses of periodontium

 a) Gingival abscess

 b) Periodontal abscess

 c) Pericoronal abscess

VI) Periodontitis-associated endodontic lesion

 a) Combined periodontic-endodontic lesion

VII) Developmental or acquired deformities or conditions

 A. Localized tooth-related factors that modify or predispose to gingivitis/periodontitis

 1) Tooth anatomic factors

 2) Dental restorations or appliances

 3) Root fractures

 4) Cervical root resorption or cemental tears

 B. Mucogingival deformities or conditions around teeth

 1) Gingival recession

 a) Facial or lingual surface

 b) Interproximal (papillary)

 2) Lack of keratinized gingiva

 3) Decreased vestibular depth

 4) Aberrant fraenal or muscle position

 5) Gingival excess

1. Pseudopocket
2. Inconsistent gingival margin
3. Excessive gingival display
4. Gingival enlargement

 6) Abnormal color

C. Mucogingival deformities and conditions on edentulous ridges:

1. Vertical and/or horizontal ridge deficiency
2. Lack of gingiva/keratinized tissue
3. Gingival/soft tissue enlargement
4. Aberrant frenum/muscle position
5. Decreased vestibular depth
6. Abnormal color

D. Occlusal trauma

1. Primary occlusal trauma
2. Secondary occlusal trauma