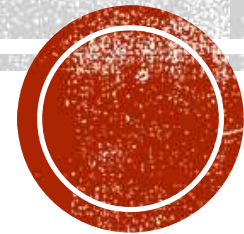


PERIODONTAL DISEASE CLASSIFICATION

**WORLD WORKSHOP ON CLASSIFICATION OF
PERIODONTAL AND PERI IMPLANT DISEASE AND
CONDITIONS - 2017**



**DR. P. MANASA
DEPARTMENT OF PERIODONTOLOGY
KARPAGA VINAYAGA INSTITUTE OF DENTAL SCIENCES**

CLASSIFICATION – OVER VIEW.

I. PERIODONTAL DISEASES & CONDITIONS

1. PERIODONTAL HEALTH AND GINGIVAL DISEASES AND CONDITIONS.

- **Periodontal health and gingival health.**
- **Gingivitis: Dental Biofilm Induced.**
- **Gingivitis: Non Dental Biofilm Induced.**

2. PERIODONTITIS.

- **Necrotizing Periodontal Diseases.**
- **Periodontitis.**
- **Periodontal manifestation of systemic diseases and conditions.**



3. OTHER CONDITIONS AFFECTING PERIODONTIUM

- **Systemic diseases or conditions affecting periodontal supporting tissues.**
- **Periodontal abscess and endodontic periodontal lesions**
- **Mucogingival deformities and conditions.**
- **Traumatic occlusal forces.**
- **Tooth and prosthesis related factors.**

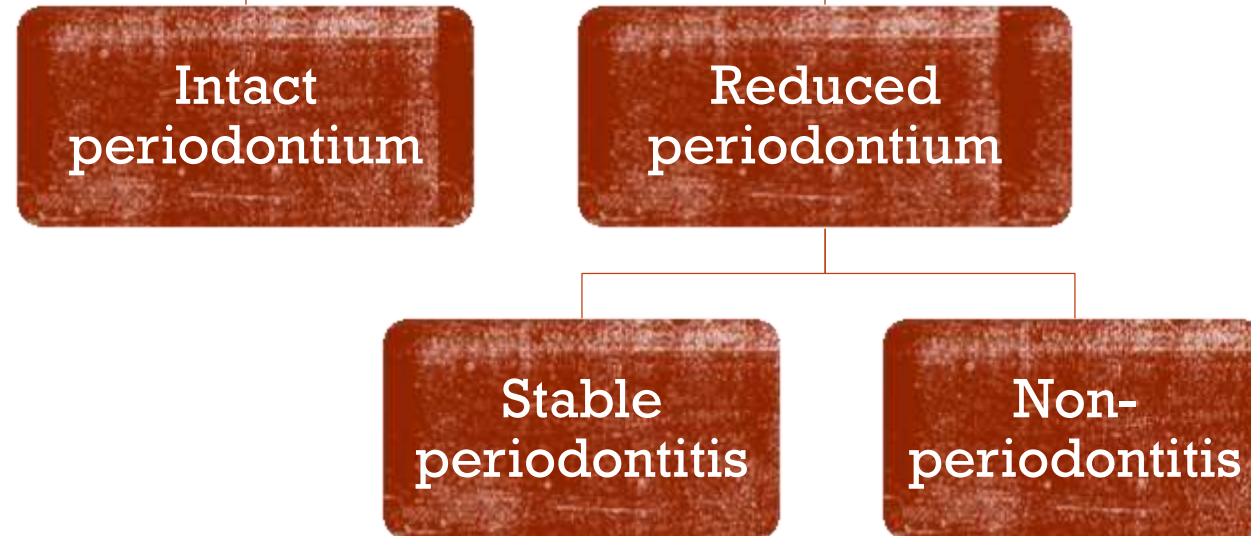
II. PERI-IMPLANT DISEASES AND CONDITIONS.

- **Peri implant health**
- **Peri implant Mucositis**
- **Peri implantitis**
- **Peri implant soft and hard tissue deficiencies**



I. PERIODONTAL HEALTH AND GINGIVAL DISEASES AND CONDITIONS

1.1. PERIODONTAL HEALTH AND GINGIVAL HEALTH:



CLINICAL FEATURES:

A. Intact periodontium:

- ❖ Absence of bleeding on probing, erythema and edema, patient symptoms.
- ❖ Absence of attachment and bone loss.
- ❖ Physiological bone levels range from 1.0 to 3.0 mm apical to the cemento-enamel junction.

B. Reduced periodontium:

- ❖ absence of bleeding on probing, erythema, edema and patient symptoms.
- ❖ presence of reduced clinical attachment and bone levels.



a) stable periodontitis:-

❖ stable periodontitis patients remain at increased risk of recurrent progression of periodontitis.

b) non-periodontitis:-

❖ non-periodontitis patients, there is no current evidence for increased risk of periodontitis.



2. GINGIVITIS- DENTAL BIOFILM INDUCED

Associated with Biofilm alone

Mediated by systemic or local risk factors

Drug influenced gingival enlargement

Systemic risk factors

Local risk factors



GINGIVITIS- DENTAL BIOFILM INDUCED

- “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 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”



CLINICAL, RADIOLOGICAL AND BIOLOGICAL SIGNS AND SYMPTOMS.

Clinical signs of gingivitis :-

- Swelling, seen as loss of knife-edged gingival margin and blunting of papillae.
- bleeding on gentle probing.
- redness.
- discomfort on gentle probing.
- Symptoms the patient may report include: bleeding gums (metallic/altered taste) pain (soreness), halitosis , difficulty in eating .
- Radiographs cannot be used to diagnose gingivitis.



MEDIATED BY SYSTEMIC OR LOCAL RISK FACTORS

- **Systemic risk factors (modifying factors):**
 - Smoking
 - Hyperglycemia
 - Nutritional factors
 - Pharmacological agents (prescription, non prescription, recreational)
 - Sex steroid hormones : Puberty, Menstrual cycle, Pregnancy, Oral contraceptive
 - Hematological conditions



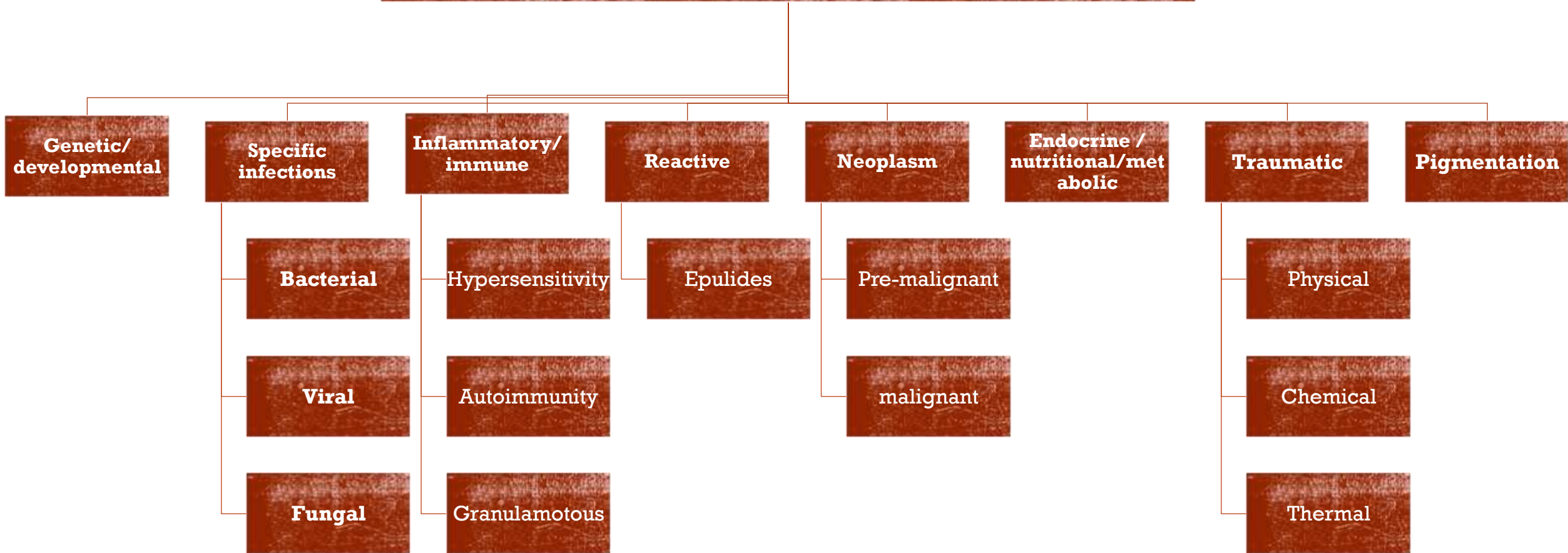
- **Local risk factors (predisposing)**

- Dental plaque biofilm retention factors (prominent restoration margins)
- Oral dryness

DRUG INFLUENCED GINGIVAL ENLARGEMENT



3. GINGIVAL DISEASES – NON PLAQUE INDUCED



GINGIVAL DISEASES – NON DENTAL PLAQUE INDUCED

- ✓ **Genetic/developmental factors** – Hereditary gingival fibromatosis.
- ✓ **Specific infections**
 - ❖ **Bacterial origin : Neisseria gonorrhoeae**
 - Treponema pallidum
 - Mycobacterium tuberculosis
 - Streptococcal gingivitis
 - ❖ **Viral origin :-**
 - Coxsackie virus (hand-foot and mouth disease), Herpes simplex I & II (primary or recurrent), Varicella zoster (chicken pox & shingle – V nerve). Human papilloma virus (squamous cell papilloma; condyloma acuminatum; verruca vulgaris; focal epithelial hyperplasia)
 - ❖ **Fungal origin : Candidosis • Other mycoses e.g., histoplasmosis, aspergillosis**



✓ Inflammatory and immune conditions

❖ Hypersensitivity reactions:

- Contact allergy
- Plasma cell gingivitis
- Erythema multiformae

❖ Autoimmune diseases of skin and mucous membranes:-

- Pemphigus vulgaris
- Pemphigoid
- Lichen planus
- Lupus erythematosus

❖ Granulomatous inflammatory lesions

- crohn's disease
- Sarcoidosis



✓ **Reactive processes**

❖ **Epulides**

❖ **Fibrous epulis**

❖ **Calcifying fibroblastic granuloma**

❖ **Vascular epulis**

❖ **Peripheral giant cell granuloma**

✓ **Neoplasms**

✓ **Endocrine / nutritional/ metabolic.**



✓ Traumatic lesions

❖ Physical/ mechanical trauma: –

- Frictional keratosis – Mechanically induced gingival ulceration – Factitious injury (self harm)

❖ Chemical (toxic):-

❖ Thermal insults:-

- Burns to gingiva

✓ Gingival pigmentation

❖ Melanoplakia

❖ Smoker's melanosis

❖ Drug induced pigmentation (antimalarials, minocycline)

❖ Amalgam tattoo



FORMS OF PERIODONTITIS

✓ 1. NECROTIZING PERIODONTAL DISEASES

- ❖ Necrotizing gingivitis
- ❖ Necrotizing periodontitis
- ❖ Necrotizing stomatitis

✓ 2. PERIODONTITIS AS MANIFESTATION OF SYSTEMIC DISEASES

- ❖ Classification of these conditions should be based on the primary systemic disease according to the international statistical classification of diseases and related health problems(ICD) codes



✓ 3. PERIODONTITIS

▪ STAGES:

Based on severity and complexity of management

- ❖ Stage I: initial periodontitis
- ❖ Stage II: Moderate periodontitis
- ❖ Stage III: Severe periodontitis with potential for additional tooth loss
- ❖ Stage IV: Severe periodontitis with potential for loss of the dentition

▪ EXTENT AND DISTRIBUTION:

- ❖ Localized
- ❖ Generalized
- ❖ Molar-Incisor distribution

▪ GRADES:

Evidence or risk of rapid progression, anticipated treatment response

- ❖ Grade A: Slow rate of progression.
- ❖ Grade B: Moderate rate of progression.
- ❖ Grade C: Rapid rate of progression.



- **Case definition:**

- ❖ **Interdental CAL - ≥ 2 non adjacent teeth.**

- ❖ **Buccal CAL ≥ 3 mm with pocketing 3mm at ≥ 2 teeth**



STAGING AND GRADING

- Staging : severity, complexity of management.
 1. CAL
 2. Bone loss
 3. PD
 4. Angular defect
 5. Furcation
 6. Mobility
 7. Tooth loss.
- Grading – feature, history, rate, risk of further progression. general health status, exposures – smoking, metabolic control.
- Allows clinician to incorporate individual patient factors into diagnosis.



Periodontitis stage		Stage 1	Stage 2	Stage 3	Stage 4
	Interdental CAL at the site of greatest loss	1 to 2mm	3 to 4mm	≥ 5mm	≥ 5mm
Severity	Radiographic bone loss	Coronal third <15%	Coronal third 15 to 33%	Extending to middle or apical third of the root	Extending to middle or apical third of the root
	Tooth loss	No tooth loss Perio	due to dontitis	Tooth losses due to periodontitis of ≤ 4 teeth	Tooth loss due to periodontitis of ≥ 5mm teeth
Complexity	Local	Maximum probing depth ≤ 4 mm Mostly horizontal bone loss	Maximum probing depth ≤ 5 mm Mostly horizontal bone loss	In addition to stage 2 complexity: Probing depth ≥ 6mm Vertical bone loss ≥ 3mm Furcation involvement of Class 2 or 3 Moderate ridge defect	In addition to stage 3 complexity: Need for complex rehabilitation due to: Masticatory dysfunction Secondary occlusal trauma (tooth mobility degree ≥ 2) Severe ridge defect Bite collapse, drifting, flaring, less than 20 remaining teeth (10 opposing pairs)
Extent and distribution	Add to stage as descriptor	For each stage, describe extent as localized (<30% of teeth involved), generalized, or molar/incisor pattern.			



Periodontitis grade			Grade A: slow rate of progression	Grade B: Moderate rate of progression	Grade C: Rapid rate of progression
	Direct evidence of progression	Longitudinal data (radiographic bone loss or CAL)	Evidence of no bone loss over 5 years	<2mm over 5 years	≥2mm over 5 years
Primary criteria	Indirect evidence of	1. % bone loss/age	<0.25	0.25 to 1.0	>1.0
	Progression	2. Case phenotype	Heavy biofilm deposits with low level of destruction	Destruction commensurate with biofilm deposits	Destruction exceeds expectation given biofilm deposits; specific clinical patterns suggestive of periods of rapid progression and /or early onset disease (e.g., molar/incisor pattern; lack of expected response to standard bacterial control therapies)
Grade modifiers	Risk factors	Smoking	Non smoker	smoker < 10 cigarettes/day	smoker ≥10 cigarettes/day
		Diabetes	Normoglycemic/no diagnosis of diabetes	HbA1c <7.0% in patients with diabetes	HbA1c ≥7.0% in patients with diabetes



PERIODONTAL MANIFESTATION OF SYSTEMIC DISEASES AND DEVELOPMENTAL AND ACQUIRED CONDITIONS

influencing periodontal inflammation

1.1.

Genetic disorders

1.1.1.

Diseases associated with immunologic disorders

Down syndrome

Leukocyte adhesion deficiency syndromes

Papillon-Lefèvre syndrome

Haim-Munk syndrome

Chediak-Higashi syndrome

Severe neutropenia

- Congenital neutropenia (Kostmann syndrome)

- Cyclic neutropenia

Primary immunodeficiency diseases

- Chronic granulomatous disease

- Hyperimmunoglobulin E syndromes

Cohen syndrome



1.1.2.

Diseases affecting the oral mucosa and gingival tissue

Epidermolysis bullosa

- Dystrophic epidermolysis bullosa

- Kindler syndrome

Plasminogen deficiency

1.1.3.

Diseases affecting connective tissues

Ehlers-Danlos syndrome (types IV, VIII)

Angioedema (C1-inhibitor deficiency)

Systemic lupus erythematosus

1.1.4.

Metabolic and endocrine disorders

Glycogen storage disease

Gaucher disease

Hypophosphatasia

Hypophosphatemic rickets

Hajdu-Cheney syndrome

Diabetes mellitus

Obesity

Osteoporosis

1.2.

Acquired immunodeficiency diseases

Acquired neutropenia

HIV infection



OTHER CONDITIONS AFFECTING PERIODONTIUM:

- **1. SYSTEMIC DISEASES OR CONDITIONS AFFECTING THE PERIODONTAL SUPPORTING TISSUES:**

- ❖ Affects the periodontal supporting tissues in the absence of dental plaque.

Eg : neoplasms



Classification	Disorders
	Medications
3.	Systemic disorders that can result in loss of periodontal tissue independent of periodontitis
3.1.	Neoplasms
	Primary neoplastic diseases of periodontal tissue
	-Oral squamous cell carcinoma
	-Odontogenic tumors
	-Other primary neoplasms of periodontal tissue
	Secondary metastatic neoplasms of periodontal tissue
3.2.	Other disorders that may affect periodontal tissue
	Granulomatosis with polyangiitis
	Langerhans cell histiocytosis
	Giant cell granulomas
	Hyperparathyroidism
	Systemic sclerosis (scleroderma)
	Vanishing bone disease (Gorham - Stout syndrome)



▪ 2. Periodontal abscesses and Endodontic periodontal lesions

Periodontal abscess in periodontitis patients (in a pre-existing periodontal pocket)	Acute exacerbation	Untreated periodontitis	
		Non-responsive to therapy periodontitis	
		Supportive periodontal therapy	
	After treatment	Post-scaling	
		Post-surgery	
		Post-medication	
		Other drugs: nifedipine	
Periodontal abscess in non-periodontitis patients (not mandatory to have a pre-existing periodontal pocket)	Impaction		Dental floss, orthodontic elastic, toothpick, rubber dam, or popcorn hulls
	Harmful habits		Wire or nail biting and clenching
	Orthodontic factors		Orthodontic forces or a cross-bite
	Gingival overgrowth		
	Alteration of root surface	Severe anatomic alterations	Invaginated tooth, dens evaginatus or odontodysplasia
		Minor anatomic alterations	Cemental tears, enamel pearls or developmental grooves
		Iatrogenic conditions	Perforations
		Severe root damage	Fissure or fracture, cracked tooth syndrome
		External root resorption	



▪ ENDO-PERIO LESIONS:

Endo-periodontal lesion with root damage	Root fracture or cracking	
	Root canal or pulp chamber perforation	
	External root resorption	
Endo-periodontal lesion without root damage	Endo-periodontal lesion in periodontitis patients	<i>Grade 1</i> – narrow deep periodontal pocket in 1 tooth surface
		<i>Grade 2</i> – wide deep periodontal pocket in 1 tooth surface
		<i>Grade 3</i> – deep periodontal pockets in more than 1 tooth surface
	Endo-periodontal lesion in non-periodontitis patients	<i>Grade 1</i> – narrow deep periodontal pocket in 1 tooth surface
		<i>Grade 2</i> – wide deep periodontal pocket in 1 tooth surface
		<i>Grade 3</i> – deep periodontal pockets in more than 1 tooth surface



▪ **3.MUCOGINGIVAL DEFORMITIES AND CONDITIONS AROUND TEETH**

- i.* **Gingival phenotypes** : - Mucogingival condition without gingival recessions - (gingival thickness, keratinized tissue width).
- ii.* **Gingival/soft tissue recession** : - *classification of gingival recession with reference to the interdental clinical attachment loss*

- **Recession Type 1 (RT1):**

no loss of inter- proximal attachment.

Interproximal CEJ is clinically not detectable at both mesial and distal aspects of the tooth.

- **Recession Type 2 (RT2):**

loss of interproximal attachment.

The amount of interproximal attachment loss (measured from the interproximal CEJ to the depth of the interproximal sulcus/pocket) is less than or equal to the buccal attachment loss (measured from the buccal CEJ to the apical end of the buccal sulcus/pocket).

- **Recession Type 3 (RT3):**

Gingival recession associated with loss of interproximal attachment.

The amount of interproximal attachment loss (measured from the interproximal CEJ to the apical end of the sulcus/pocket) is higher than the buccal attachment loss (measured from the buccal CEJ to the apical end of the buccal sulcus/pocket).



- ❑ Lack of keratinised gingiva
- ❑ Decreased vestibular depth
- ❑ Aberrant frenum/muscle position
- ❑ Gingival excess
- ❑ Abnormal colour



4. OCCLUSAL TRAUMA

- The group defined **excessive occlusal force** and renamed it ***traumatic occlusal force***. Traumatic occlusal force is defined as any occlusal force resulting in injury of the teeth and/or the periodontal attachment apparatus. These were historically defined as excessive forces to denote that the forces exceed the adaptive capacity of the individual person or site. Occlusal trauma is a term used to describe the injury to the periodontal attachment apparatus, and is a histologic term. Nevertheless, the clinical presentation of the presence of occlusal trauma can be exhibited clinically as described in the case definition.



- **Primary occlusal trauma** has been defined as injury resulting in tissue changes from traumatic occlusal forces applied to a tooth or teeth with **normal periodontal support**. This manifests itself clinically with adaptive mobility and is not progressive.
- **Secondary occlusal trauma** has been defined as injury resulting in tissue changes from normal or traumatic occlusal forces applied to a tooth or teeth with **reduced periodontal support**. Teeth with progressive mobility may also exhibit migration and pain on function.



CASE DEFINITION

- 1. Traumatic occlusal force is defined as any occlusal force resulting in injury of the teeth and/or the periodontal attachment apparatus. These were historically defined as excessive forces to denote that the forces exceed the adaptive capacity of the individual person or site. The presence of traumatic occlusal forces may be indicated by one or more of the following: fremitus, tooth mobility, thermal sensitivity, excessive occlusal wear, tooth migration, discomfort/pain on chewing, fractured teeth, radiographically widened periodontal ligament space, root resorption, and hypercementosis. Clinical management of traumatic occlusal forces is indicated to prevent and treat these signs and symptoms.
- 2. Occlusal trauma is a lesion in the periodontal ligament, cementum and adjacent bone caused by traumatic occlusal forces.
- **clinical diagnosis :**
 - i. progressive tooth mobility,
 - ii. adaptive tooth mobility (fremitus),
 - iii. radiographically widened periodontal ligament space,
 - iv. tooth migration,
 - v. discomfort/ pain on chewing,
 - vi. and root resorption.



DENTAL PROSTHESES AND TOOTH-RELATED FACTORS

- A. Localized tooth-related factors that modify or predispose to plaque-induced gingival diseases/periodontitis
 - 1. Tooth anatomic factors
 - 2. Root fractures
 - 3. Cervical root resorption, cemental tears
 - 4. Root proximity
 - 5. Altered passive eruption



- **B. Localized dental prosthesis-related factors**

1. Restoration margins placed within the supracrestal attached tissues
2. Clinical procedures related to the fabrication of indirect restorations
3. Hypersensitivity/toxicity reactions to dental materials



PERI-IMPLANT DISEASES AND CONDITION

- 1. PERI-IMPLANT HEALTH
- 2. PERI-IMPLANT MUCOSITIS
- 3. PERI-IMPLANTITIS
- 4. PERI-IMPLANT SOFT AND HARD TISSUE DEFICIENCY



PERI-IMPLANT HEALTH

- Diagnosis of peri-implant health requires:
- Absence of clinical signs of inflammation.
- Absence of bleeding and/or suppuration on gentle probing.
- No increase in probing depth compared to previous examinations.
- Absence of bone loss beyond crestal bone level changes resulting from initial bone remodeling.



PERI-IMPLANT MUCOSITIS

- Diagnosis of peri-implant mucositis requires:
- Presence of bleeding and/or suppuration on gentle probing with or without increased probing depth compared to previous examinations.
- Absence of bone loss beyond crestal bone level changes resulting from initial bone remodeling.
- It should be noted that visual signs of inflammation can vary and that peri-implant mucositis can exist around implants with variable levels of bone support.



PERI-IMPLANTITIS

- Diagnosis of peri-implantitis requires:
- Presence of bleeding and/or suppuration on gentle probing.
- Increased probing depth compared to previous examinations. (≥ 6 mm).
- Presence of bone loss beyond crestal bone level changes resulting from initial bone remodeling.



HARD- AND SOFT-TISSUE DEFICIENCIES

- Main factors associated with hard- and soft-tissue deficiencies at potential implant sites:
- The healing process following tooth loss leads to diminished dimensions of the alveolar process/ridge representing hard- and soft-tissue deficiencies.
- Larger deficiencies may occur at sites exposed to the following factors: loss of periodontal support, endodontic infections, longitudinal root fractures, thin buccal bone plates, buccal/lingual tooth position in relation to the arch, extraction with additional trauma to the tissues, injury, pneumatization of the maxillary sinus, medications, and systemic diseases reducing the amount of naturally formed bone, agenesis of teeth, pressure from soft-tissue supported removable prosthesis, and combinations



KEY CHANGES

- Identifying difference between presence of gingival inflammation at one or more sites
- Periodontal health in reduced periodontium.
- Periodontitis as a manifestation of systemic disease – primary systemic disease. Eg Papillon Lefevre Syndrome.
- Systemic diseases or conditions affecting the periodontal supporting tissues – independent of plaque induced periodontitis. (Neoplastic)
- Multidimensional staging and grading system for periodontitis.
- Uncontrolled Diabetes- modify, descriptor – severity



- Traumatic occlusal force.
- Supracrestal attached tissues (Biological width).
- A new classification system for perimplant diseases and conditions.



THANK YOU

