Classification Of Periodontal Diseases

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Introduction

- 1880 - "Pyorrhea alveolaris" - Gottlieb
- 1921 - "Periodontosis" - Weski
- 1935 - "Periodontopathy" - Weski
- The International Workshop for the Classification of Periodontal Disease and Conditions - AAP 1999 (Ann Periodontol 1999, 4:1-7.) - Periodontitis

Introduction

- The 1989 workshop recognized that periodontitis has several distinct clinical presentations (age, progression)
- Based on these periodontitis was categorized as prepubertal, juvenile (localized and generalized), adult and rapidly progressive
- The 1993 workshop simplified it - adult and early onset periodontitis

Introduction

- Major changes - 1999 workshop for classification - has been in use for the last 19 years.

- Periodontitis was reclassified as chronic, aggressive (localized and generalized), necrotizing and as a manifestation of systemic disease.

Diseases of the attachment apparatus - 1999 Workshop for classification

- chronic periodontitis
- aggressive periodontitis
- periodontitis as a manifestation of systemic diseases
- necrotising periodontal diseases
- abscesses of the periodontium
- periodontitis associated with endodontic lesions
- developmental or acquired deformities and conditions

Armitage GC. Development of a classification system for periodontal diseases and conditions. Ann Periodontol. 1999;4:1-6.

Introduction

- In the last 30 years the classification of periodontitis has been repeatedly modified
- In attempt to align it with emerging scientific evidence
- Over the past 2 decades clinicians, educators, researchers and epidemiologists have voiced concern about their ability to correctly differentiate between aggressive and chronic periodontitis cases, and these difficulties have been a major rationale for a new classification workshop.

CURRENT CLASSIFICATION

- American Academy of Periodontology (AAP) and European Federation of Periodontology (EFP)

2017 Chicago:

- A NEW CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS

- Focuses (in addition to 1999's classification):
  - Distinguish: healthy vs. diseased
  - Includes peri-implant diseases and conditions
  - Concern: severity, complexity and progression

G Caton J, Armitage G, Berglundh T, Chapple ILC, Jepsen S, S Kornman K, L Mealey B, Papapanou PN, Sanz M, S Tonetti M. A new classification scheme for periodontal and peri-implant diseases and conditions - Introduction and key changes from the 1999 classification. J Clin Periodontol. 2018 Jun;45 Suppl 20:S1-S8

Periodontal Diseases

- Three forms of periodontitis can be identified, consistent with current knowledge on pathophysiologie

1. necrotizing periodontitis
2. periodontitis as a manifestation of systemic disease
3. "periodontitis" - based on a multidimensional staging and grading system

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017

Periodontal Diseases and Conditions

Periodontal Health, Gingival Diseases and Conditions

Chapple, Mealey, et al. 2018 Consensus Rept link

Trombelli et al. 2018 Case Definitions link

- Periodontal Health and Gingival Health
- Gingivitis: Dental Biofilm-Induced
- Gingival Diseases: Non-Dental Biofilm-Induced

Periodontitis

Papapanou, Sanz et al. 2018 Consensus Rept link

Jepsen, Caton et al. 2018 Consensus Rept link

Tonetti, Greenwell, Kornman. 2018 Case Definitions link

- Necrotizing Periodontal Diseases
- Periodontitis
- Periodontitis as a Manifestation of Systemic Disease

Other Conditions Affecting the Periodontium

Jepsen, Caton et al. 2018 Consensus Rept link

Papapanou, Sanz et al. 2018 Consensus Rept link

- 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

Berglundh, Armitage et al. 2018 Consensus Rept link

- Peri-Implant Health
- Peri-Implant Mucositis
- Peri-Implantitis
- Peri-Implant Soft and Hard Tissue Deficiencies

Necrotizing Periodontal Diseases

- sufficient evidence to consider it as a separate disease entity
- prominent bacterial invasion and ulceration of epithelium
- rapid destruction of the marginal soft tissue
- prominent symptoms
- rapid resolution in response to specific antimicrobial treatment

Necrotising periodontal diseases

- Necrotizing gingivitis (NG)
- plaque present at gingival margin
- disease begins at the interdental papilla
- ulceration on the interdental papilla
- spontaneous bleeding
- regional lymphadenopathy
- fever
- general malaise
- foetor ex ore

Necrotising periodontal diseases

- Predisposing factors for necrotizing gingivitis (NG) – ("trench mouth disease")
  - abundent plaque
  - pre-existing gingivitis
  - smoking
  - psychological stress
  - immunsuppression

Necrotising periodontal diseases

- Necrotizing periodontitis (NP) - sequestrum formation

Necrotising periodontal diseases

- Necrotizing periodontitis (NP)
- NOMA - necrotizing stomatits

Classification of necrotizing periodontal diseases (NPD)

Category	Patients	Predisposing conditions	Clinical condition
Necrotizing periodontal diseases in chronically, severely compromised patients	In adults	HIV+/AIDS with CD4 counts < 200 and detectable viral load	NG, NP, NS, Noma. Possible progression
		Other severe systemic conditions (immunosuppression)	
	In children	Severe malnourishments[a]	
		Extreme living conditions[b]	
		Severe (viral) infections[c]	
Necrotizing periodontal diseases in temporarily and/or moderately compromised patients	In gingivitis patients	Uncontrolled factors: stress, nutrition, smoking, habits	Generalized NG. Possible progression to NP
		Previous NPD: residual craters	
		Local factors: root proximity, tooth malposition	Localized NG. Possible progression to NP
		Common predisposing factors for NPD (see paper)	NG. Infrequent progression
	In periodontitis patients		NP. Infrequent progression

Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri - Implant Diseases and ConditionsPanos N. Papapanou[1] | Mariano Sanz[2] | Nurcan Buduneli[3] | Thomas Dietrich[4] | Magda Feres[5] | Daniel H. Fine[6] | Thomas F. Flemmig[7] | Raul Garcia[8] | William V. Giannobile[9] | Filippo Graziani[10] | Henry Greenwell[11] | David Herrera[2] | Richard T. Kao[12] | Moritz Kebschull[1,13] | Denis F. Kinane[14] | Keith L. Kirkwood[15] | Thomas Kocher[16] | Kenneth S. Kornman[9] | Purnima S. Kumar[17] | Bruno G. Loos[18] | Eli Machtei[19] | Huanxin Meng[20] | Andrea Mombelli[21] | Ian Needleman[22] | Steven Offenbacher[23] | Gregory J. Seymour[24] | Ricardo Teles[14] | Maurizio S. Tonetti[7]

Periodontitis

1. There is no evidence of specific pathophysiology that enables differentiation of cases that would currently be classified as aggressive and chronic periodontitis or provides guidance for different interventions.

2. There is little consistent evidence that aggressive and chronic periodontitis are different diseases, but there is evidence of multiple factors, and interactions among them, that influence clinically observable disease outcomes (phenotypes) at the individual level. This seems to be true for both aggressive and chronic phenotypes.

3. On a population basis, the mean rates of periodontitis progression are consistent across all observed populations throughout the world.

Staging and grading of periodontitis: Framework and proposal of a new classification and case definition Maurizio S. Tonetti[1] | Henry Greenwell[2] | Kenneth S. Kornman[3]

Periodontitis

- There is evidence, however, that specific segments of the population exhibit different levels of disease progression, as indicated by greater severity of clinical attachment loss (CAL) in subsets of each age cohort relative to the majority of individuals in the age cohort.

- A classification system based only on disease severity fails to capture important dimensions of an individual's disease, including the complexity that influences approach to therapy, the risk factors that influence likely outcomes, and level of knowledge and training required for managing the individual case.

Staging and grading of periodontitis: Framework and proposal of a new classification and case definition Maurizio S. Tonetti[1] | Henry Greenwell[2] | Kenneth S. Kornman[3]

TABLE 1 Primary goals in staging and grading a patient with periodontitis

Staging a Periodontitis Patient
• **Goals** ◦ **Classify Severity and Extent** of an individual based on currently measurable extent of destroyed and damaged tissue attributable to periodontitis ◦ **Assess Complexity.** Assess specific factors that may determine complexity of controlling current disease and managing long-term function and esthetics of the patient's dentition
Grading a Periodontitis Patient
• **Goals** ◦ **Estimate Future Risk** of periodontitis progression and responsiveness to standard therapeutic principles, to guide intensity of therapy and monitoring ◦ **Estimate Potential Health Impact of Periodontitis** on systemic disease and the reverse, to guide systemic monitoring and co-therapy with medical colleagues

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Periodontitis

- Staging is dependent upon the severity of the disease

- Grading provides supplemental information about biological features

- rate of disease progression

- risk assessment for further progression

- STAGING - 4 categories
- determined after considering several variables

- clinical attachment loss (CAL)

- amount and percentage of bone loss

- probing depth (PD)

- presence of angular bony defects

- furcation involvement

- tooth mobility

- tooth loss due to periodontitis

- GRADING - includes 3 levels
- grade A - low risk
- grade B - moderate risk
- grade C - high risk for progression

- general health status, smoking, level of metabolic control in diabetes

- Thus, grading allows the clinician to incorporate individual patient factors into the diagnosis - crucial to comprehensive case management

TABLE 2 Framework for staging and grading of periodontitis

		Disease 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: Advanced periodontitis with extensive tooth loss and potential for loss of dentition
Evidence or risk of rapid progression, anticipated treatment response, and effects on systemic health	Grade A Grade B Grade C	**Individual Stage and Grade Assignment**			

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Stage I Periodontitis

- borderland between gingivitis and periodontitis and represents the early stages of attachment loss
- patients with stage I periodontitis have developed periodontitis in response to persistence of gingival inflammation and biofilm dysbiosis
- if they show a degree of clinical attachment loss at a relatively early age, these patients may have heightened susceptibility to disease onset.

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Stage II Periodontitis

- represents established periodontitis in which a carefully performed clinical periodontal examination identifies the characteristic damages that periodontitis has caused to tooth support
- management remains relatively simple for many cases as application of standard treatment principles involving regular personal and professional bacterial removal and monitoring is expected to arrest disease progression

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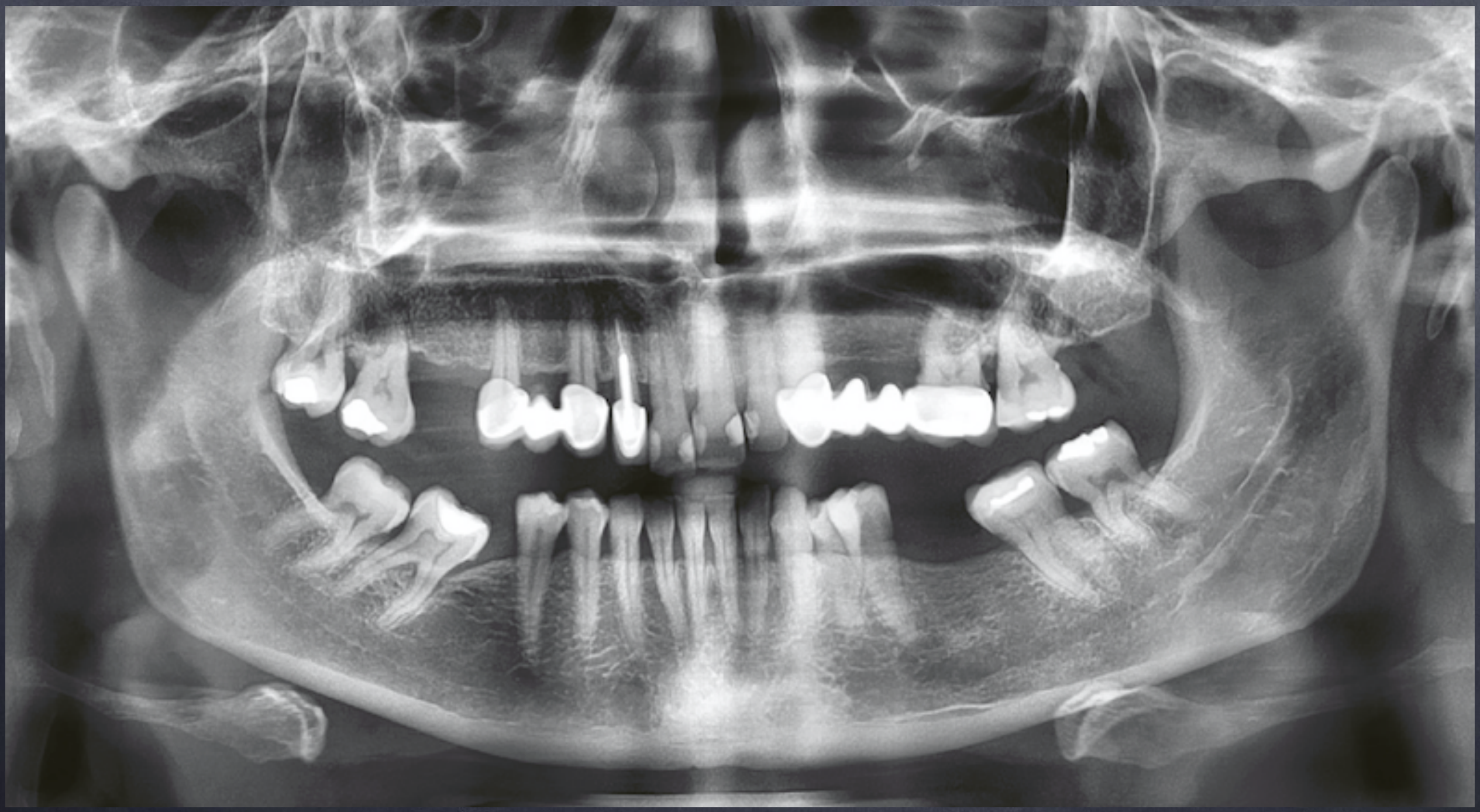

Stage III Periodontitis

- periodontitis has produced significant damage to the attachment apparatus and, in the absence of advanced treatment, tooth loss may occur
- characterized by the presence of deep periodontal lesions that extend to the middle portion of the root and whose management is complicated by the presence of deep intrabony defects, furcation involvement, history of periodontal tooth loss/exfoliation, and presence of localized ridge defects that complicate implant tooth replacement

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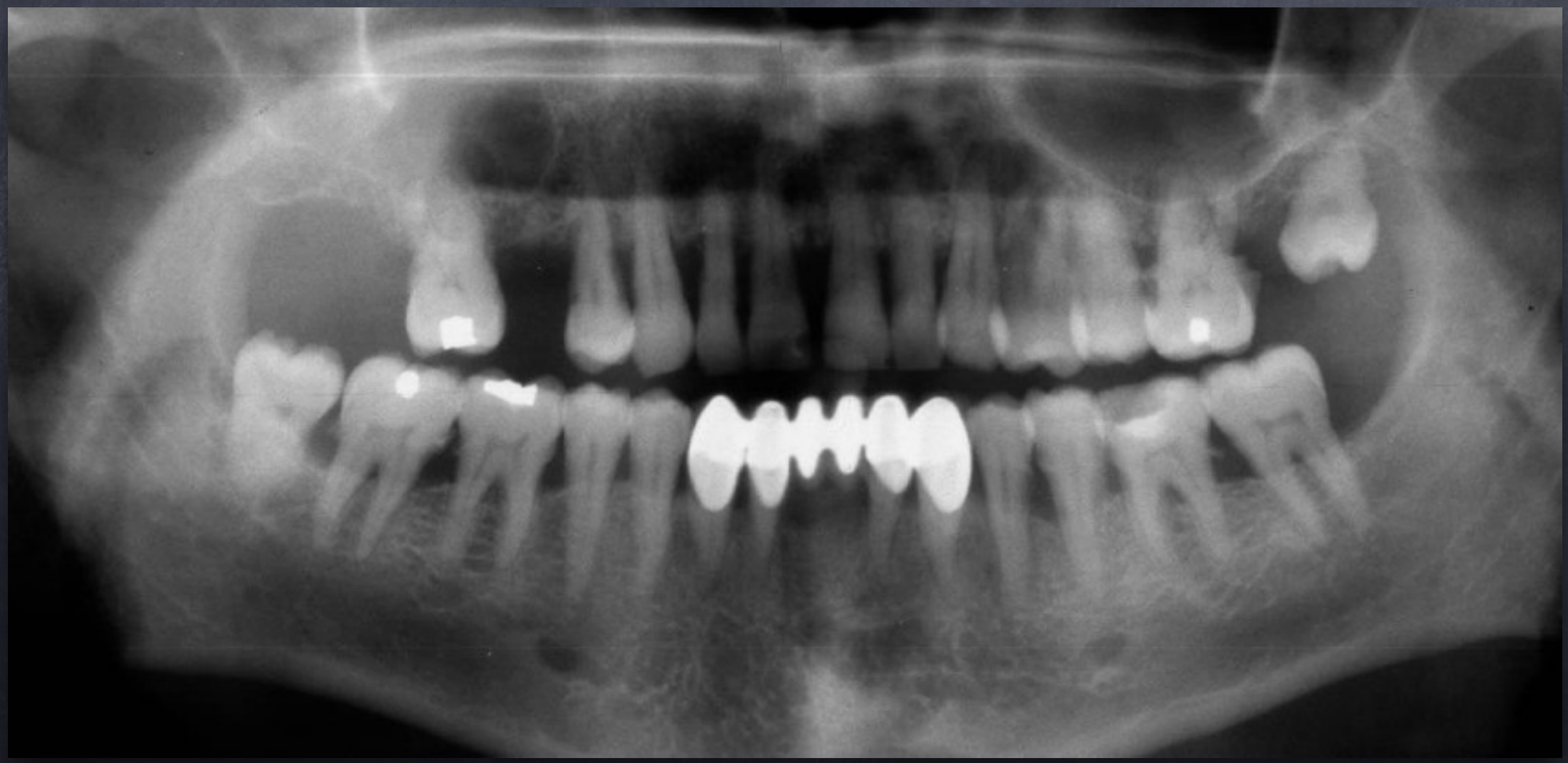

Stage IV Periodontitis

- more advanced stage, periodontitis causes considerable damage to the periodontal support and may cause significant tooth loss, and this translates to loss of masticatory function
- the dentition is at risk of being lost
- presence of deep periodontal lesions that extend to the apical portion of the root and/or history of multiple tooth loss; it is frequently complicated by tooth hypermobility due to secondary occlusal trauma
- posterior bite collapse and drifting
- frequently, case management requires stabilization/restoration of masticatory function.

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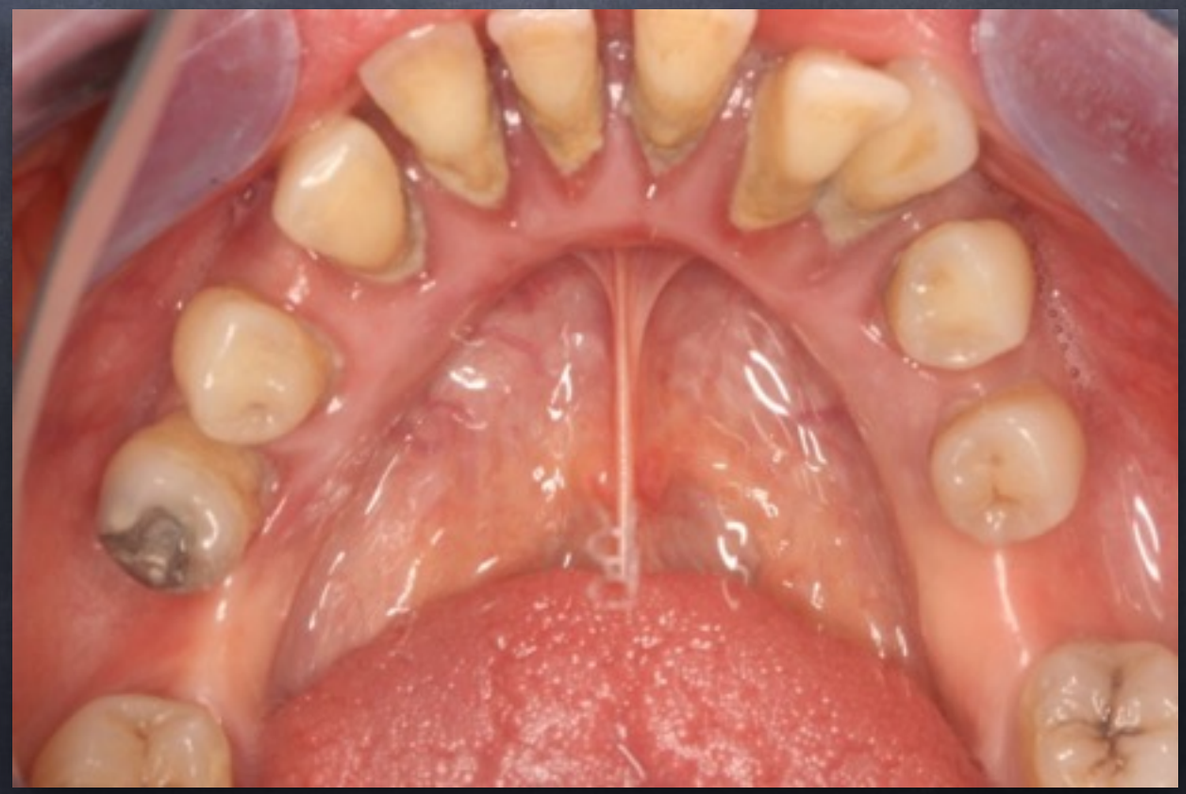

Periodontitis stage		Stage I	Stage II	Stage III	Stage IV
Severity	**Interdental CAL at site of greatest loss**	1 to 2 mm	3 to 4 mm	≥5 mm	≥5 mm
	Radiographic bone loss	Coronal third (<15%)	Coronal third (15% to 33%)	Extending to middle or apical third of the root	Extending to middle or apical third of the root
	Tooth loss	No tooth loss due to periodontitis		Tooth loss due to periodontitis of ≤4 teeth	Tooth loss due to periodontitis of ≥5 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 II complexity: Probing depth ≥6 mm Vertical bone loss ≥3 mm Furcation involvement Class II or III Moderate ridge defect	In addition to stage III 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			

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Periodontitis grade			Grade A: Slow rate of progression	Grade B: Moderate rate of progression	Grade C: Rapid rate of progression
Primary criteria	Direct evidence of progression	Longitudinal data (radiographic bone loss or CAL)	Evidence of no loss over 5 years	<2 mm over 5 years	≥2 mm over 5 years
	Indirect evidence of progression	% bone loss/age	<0.25	0.25 to 1.0	>1.0
		Case phenotype	Heavy biofilm deposits with low levels 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
Risk of systemic impact of periodontitis[a]	Inflammatory burden	High sensitivity CRP (hsCRP)	<1 mg/L	1 to 3 mg/L	>3 mg/L
Biomarkers	Indicators of CAL/bone loss	Saliva, gingival crevicular fluid, serum	?	?	?

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Summary

1. Definition of a periodontitis case based on detectable CAL loss at two non - adjacent teeth

2. Identification of the form of periodontitis: necrotizing periodontitis, periodontitis as a manifestation of systemic disease or periodontitis

3. Description of the presentation and aggressiveness of the disease by stage and grade

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Periodontitis as a manifestation of sytemic diseases

- associated with genetic disorders
- diseases associated with immunologic disorders
- diseases affecting the oral mucosa and gingival tissue
- diseases affecting the connective tissue
- metabolic and endocrine disorders - diabetes mellitus, obesity
- aquires immundeficiency diseases
- inflammatory diseases

Periodontal manifestations of systemic diseases and developmental and acquired conditions: Consensus report of workgroup 3 of the 2017 World Workshop on the Classification of Periodontal and Peri - Implant Diseases and Conditions

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Anton Sculean | Cristiano Tomasi | Nicola X. West[24] | Kazuhisa Yamazaki[25]

affect the periodontal supporting tissues (adapted from Albandar et al.[1])

Classification	Disorders	ICD-10 code
1.	**Systemic disorders that have a major impact on the loss of periodontal tissues by influencing periodontal inflammation**	
1.1.	**Genetic disorders**	
1.1.1.	**Diseases associated with immunologic disorders**	
	Down syndrome	Q90.9
	Leukocyte adhesion deficiency syndromes	D72.0
	Papillon-Lefèvre syndrome	Q82.8
	Haim-Munk syndrome	Q82.8
	Chediak-Higashi syndrome	E70.3
	Severe neutropenia	
	- Congenital neutropenia (Kostmann syndrome)	D70.0
	- Cyclic neutropenia	D70.4
	Primary immunodeficiency diseases	
	- Chronic granulomatous disease	D71.0
	- Hyperimmunoglobulin E syndromes	D82.9
	Cohen syndrome	Q87.8
1.1.2.	**Diseases affecting the oral mucosa and gingival tissue**	
	Epidermolysis bullosa	
	- Dystrophic epidermolysis bullosa	Q81.2
	- Kindler syndrome	Q81.8
	Plasminogen deficiency	D68.2
1.1.3.	**Diseases affecting the connective tissues**	
	Ehlers-Danlos syndromes (types IV, VIII)	Q79.6
	Angioedema (C1-inhibitor deficiency)	D84.1
	Systemic lupus erythematosus	M32.9
1.1.4.	**Metabolic and endocrine disorders**	
	Glycogen storage disease	E74.0
	Gaucher disease	E75.2
	Hypophosphatasia	E83.30
	Hypophosphatemic rickets	E83.31
	Hajdu-Cheney syndrome	Q78.8
1.2.	**Acquired immunodeficiency diseases**	
	Acquired neutropenia	D70.9
	HIV infection	B24
1.3.	**Inflammatory diseases**	
	Epidermolysis bullosa acquisita	L12.3
	Inflammatory bowel disease	K50, K51.9, K52.9
2.	**Other systemic disorders that influence the pathogenesis of periodontal diseases**	
	Diabetes mellitus	E10 (type 1), E11 (type 2)
	Obesity	E66.9
	Osteoporosis	M81.9
	Arthritis (rheumatoid arthritis, osteoarthritis)	M05, M06, M15-M19
	Emotional stress and depression	F32.9
	Smoking (nicotine dependence)	F17
	Medications	
3.	**Systemic disorders that can result in loss of periodontal tissues independent of periodontitis**	
3.1.	**Neoplasms**	
	Primary neoplastic diseases of the periodontal tissues	
	- Oral squamous cell carcinoma	C03.0 - 1
	- Odontogenic tumors	D48.0
	- Other primary neoplasms of the periodontal tissues	C41.0
	Secondary metastatic neoplasms of the periodontal tissues	C06.8
3.2.	**Other disorders that may affect the periodontal tissues**	
	Granulomatosis with polyangiitis	M31.3
	Langerhans cell histiocytosis	C96.6
	Giant cell granulomas	K10.1
	Hyperparathyroidism	E21.0
	Systemic sclerosis (scleroderma)	M34.9
	Vanishing bone disease (Gorham-Stout syndrome)	M89.5

Can obesity affect the course of periodontitis?

The relationship between obesity and metabolic status, including hyperglycemia, is complex and it is difficult to unravel their relative contributions to effects on periodontitis. Nevertheless, recent meta-analyses

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS 2017

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- Peri-Implant Mucositis
- Peri-Implantitis
- Peri-Implant Soft and Hard Tissue Deficiencies

Periodontal Abscesses

- rapid onset
- rapid destruction of periodontal tissues - importance of prompt treatment
- pain or discomfort - pacients seek urgent care

Periodontal Abscesses - primary symptomes

- ovoid elevation in the gingiva along the lateral part of the root
- bleeding on probing (BOP)
- suppuration on probing
- deep periodontal pocket
- increased tooth mobility

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	Systemic antimicrobials
			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	

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Endodontic -Periodontal Lesions

- the term describes a pathologic communication between the pulpal and periodontal tissues
- carious/traumatic lesion affects the pulp - secondary affects the periodontium
- periodontal destruction that secondarily affects the root canal
- concomitant presence of both
- complicates the management of the involved tooth

Classification of endo-periodontal 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	*Grade 1* – narrow deep periodontal pocket in 1 tooth surface
		Grade 2 – wide deep periodontal pocket in 1 tooth surface
		Grade 3 – deep periodontal pockets in > 1 tooth surface
	Endo-periodontal lesion in non-periodontitis patients	*Grade 1* – narrow deep periodontal pocket in 1 tooth surface
		Grade 2 – wide deep periodontal pocket in 1 tooth surface
		Grade 3 – deep periodontal pockets in > 1 tooth surface

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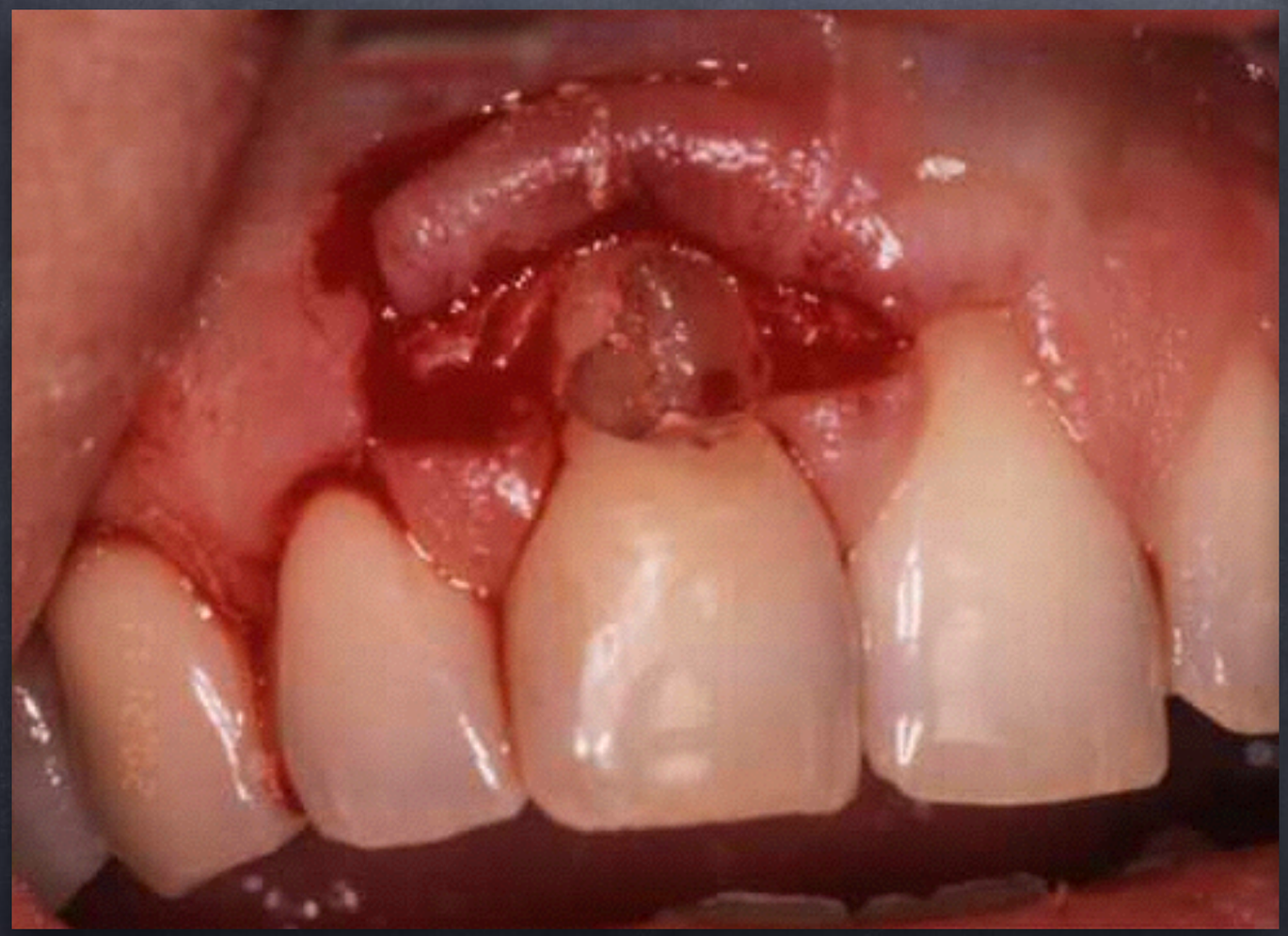


Other Conditions Affecting the Periodontium

Mucogingival deformities and conditions

- Mucogingival conditions around the natural dentition

A. Mucogingival condition with gingival recessions

- the interdental CAL
- the gingival phenotype (gingival thickness and keratinized tissue width)
- root surface condition (presence of NCCL or caries)
- detection of the CEJ
- tooth position
- aberrant frenulum
- number of adjacent recessions

Mucogingival deformities and conditions

B. Mucogingival condition without gingival recessions

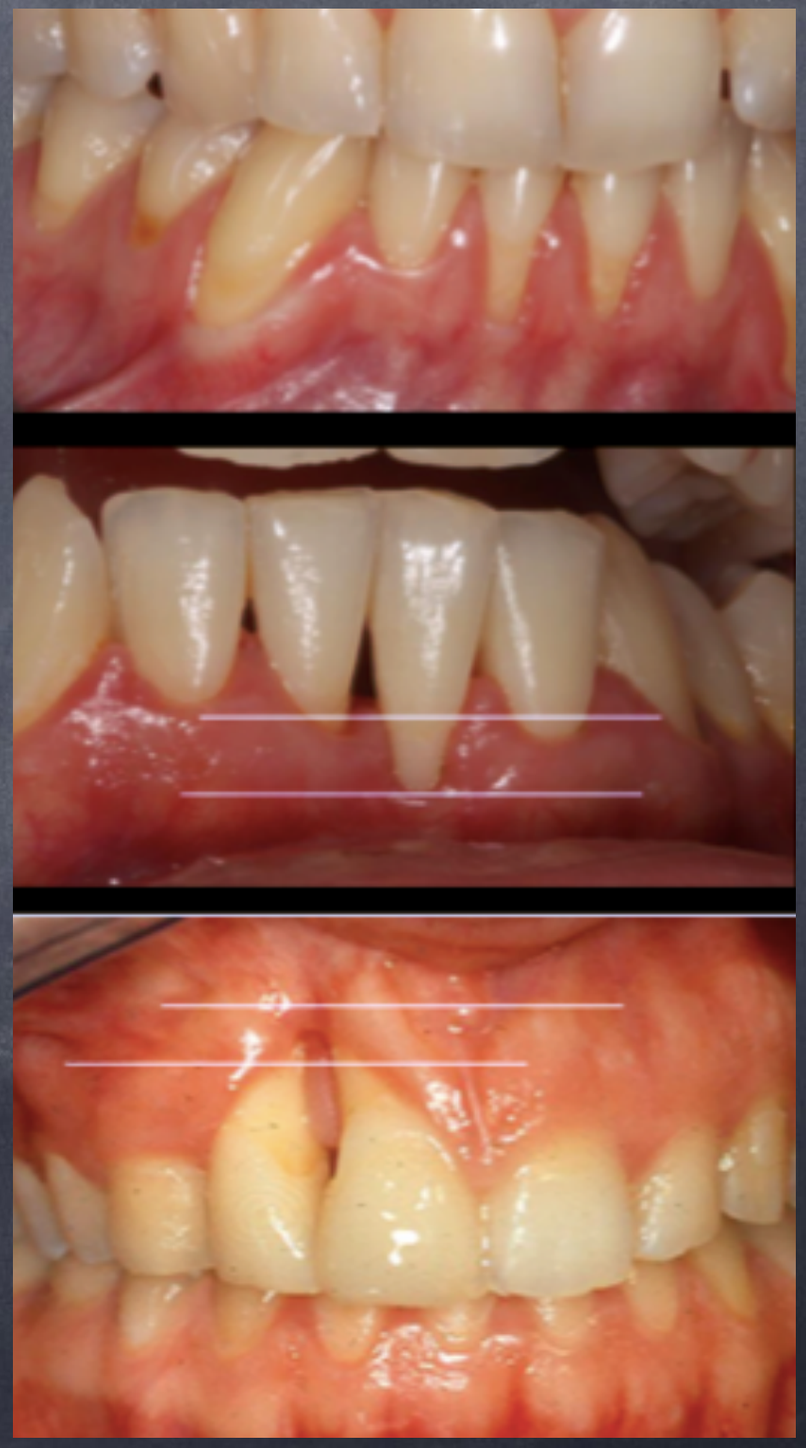
- gingival phenotype
- aberrant frenulum
- tooth position
- insufficient vestibular depth

Gingival recessions

- Recession Type 1 (RT1): with no loss of interproximal attachment. Interproximal CEJ is clinically not detectable at both mesial and distal aspects of the tooth.

- Recession Type 2 (RT2): associated with 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): 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).



Gingival site				Tooth site	
	REC Depth	GT	KTW	CEJ (A / B)	Step (+/-)
No recession					
RT1					
RT2					
RT3					

RT = recession type[33]
REC Depth = depth of the gingival recession
GT = gingival thickness
KTW = keratinized tissue width
CEJ = cemento-enamel junction (Class A = detectable CEJ, Class B = un-detectable CEJ)
Step = root surface concavity (Class + = presence of a cervical step > 0.5 mm. Class – = absence of a cervical step > 0.5 mm)[44]

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Traumatic occlusal forces

- 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

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- There is no evidence that traumatic occlusal force or occlusal trauma causes periodontal attachment loss in humans.

- There is limited evidence from human and animal studies that traumatic occlusal forces can cause inflammation in the periodontal ligament.

- orthodontic forces - there is evidence from observational studies that with good plaque control, teeth with a reduced but healthy periodontium can undergo successful tooth movement without compromising the periodontal support

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Dental prosthesis and tooth related factors

- Several conditions, associated with prostheses and teeth, may predispose to diseases of the periodontium
- Biologic width is a commonly used clinical term to describe the apico - coronal variable dimensions of the supracrestal attached tissues.
- The supracrestal attached tissues are histologically composed of the junctional epithelium and supracrestal connective tissue attachment.
- The term biologic width should be replaced by supracrestal tissue attachment.

Dental prosthesis 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

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TABLE 1.

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				
Chapple, Mealey, et al. 2018 Consensus Rept link Trombelli et al. 2018 Case Definitions link			Papapanou, Sanz et al. 2018 Consensus Rept link Jepsen, Caton et al. 2018 Consensus Rept link Tonetti, Greenwell, Kornman. 2018 Case Definitions link			Jepsen, Caton et al. 2018 Consensus Rept link Papapanou, Sanz et al. 2018 Consensus Rept link				
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 Disease	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

Berglundh, Armitage et al. 2018 Consensus Rept link

Peri-Implant Health	Peri-Implant Mucositis	Peri-Implantitis	Peri-Implant Soft and Hard Tissue Deficiencies

Peri-Implant Diseases and Conditions

Peri-Implant Health

- characterized by absence of erythema, bleeding on probing, swelling and suppuration.

- no visual differences between peri - implant and periodontal tissues. However, the probing depths are usually greater at implant versus tooth sites. The papillae at the interproximal sites of an implant may be shorter than the papillae at interproximal tooth sites.
- The clinical methods to detect the presence of inflammation should include visual inspection, probing with a periodontal probe, and digital palpation.

- It is necessary to probe peri - implant tissues to assess the presence of bleeding on probing, and to monitor probing depth changes and mucosal margin migration.
- There is evidence that probing of the peri - implant tissue using a light probing force is a safe and important component of a complete oral examination.

Peri-Implant Health

- The peri - implant tissues do not have cementum and periodontal ligament
- The peri - implant epithelium is often longer and in the connective tissue zone there are no inserting fibers into the implant surface
- The peri - implant tissues are less vascularized in the zone between the bone crest and the junctional epithelium when compared to the connective tissue zone of the periodontium.
- Peri - implant tissue health can exist around implants with reduced bone support

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Peri-Implant Mucositis

- The main clinical characteristic of peri - implant mucositis is bleeding on gentle probing. Erythema, swelling and/or suppuration may also be present.

- Plaque is the etiological factor for peri - implant mucositis.

- An increase in probing depth is often observed in the presence of peri - implant mucositis due to swelling

- Peri - implant mucositis can resolve, resolution of the clinical signs of inflammation may take more than 3 weeks following reinstitution of plaque/biofilm control.

Peri-Implantis

- Plaque - associated pathological condition occurring in tissues around dental implants, characterized by inflammation in the peri - implant mucosa and subsequent progressive loss of supporting bone.
- Bleeding on probing and/or suppuration, increased probing depths and/or recession of the mucosal margin in addition to radiographic bone loss compared to previous examinations.
- Peri - implant mucositis is assumed to precede peri-implantitis.

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Peri-Implant Soft and Hard Tissue Deficiencies

- The healing process following tooth loss leads to diminished dimensions of the alveolar process/ridge representing hard - and soft - tissue deficiencies

- The principal factors for recession of the peri - implant mucosa are malpositioning of implants, lack of buccal bone, thin soft tissue, lack of keratinized tissue, status of attachment of the adjacent teeth and surgical trauma.

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