بِسْمِ ٱللَّهِ ٱلرَّحْمَٰنِ ٱلرَّحِيمِ

Review Of periodontics

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Outlines:

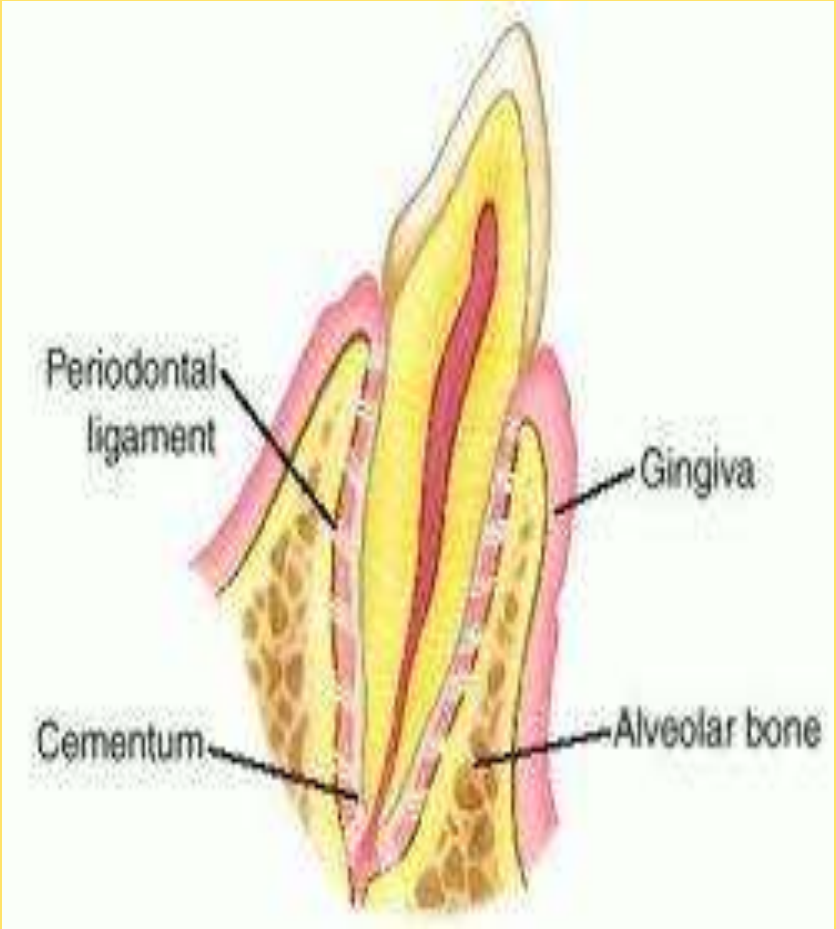
- Periodontium Anatomy
- History and examination
- Gingival Diseases
- Periodontal diseases

oral mucosa

- Masticatory mucosa
- Specilized mucosa
- Lining mucosa

COMPONENT OF PERIODONTIUM

- The Gingivae
- The Alveolar Bone
- The periodontal ligament
- The cementum



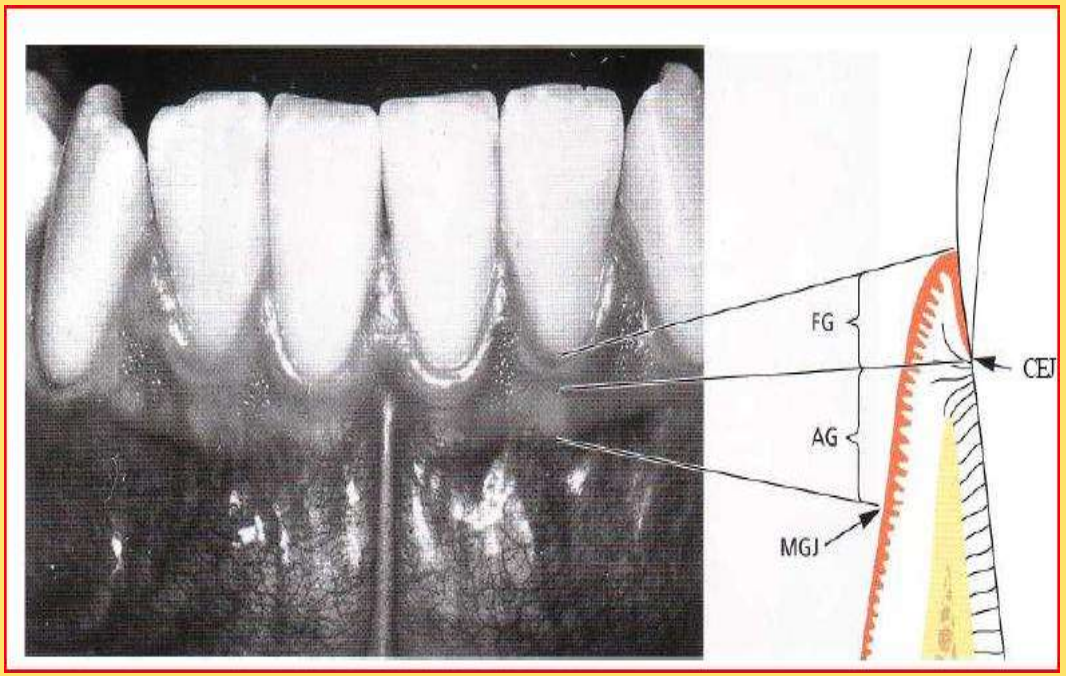
THE GINGIVAE

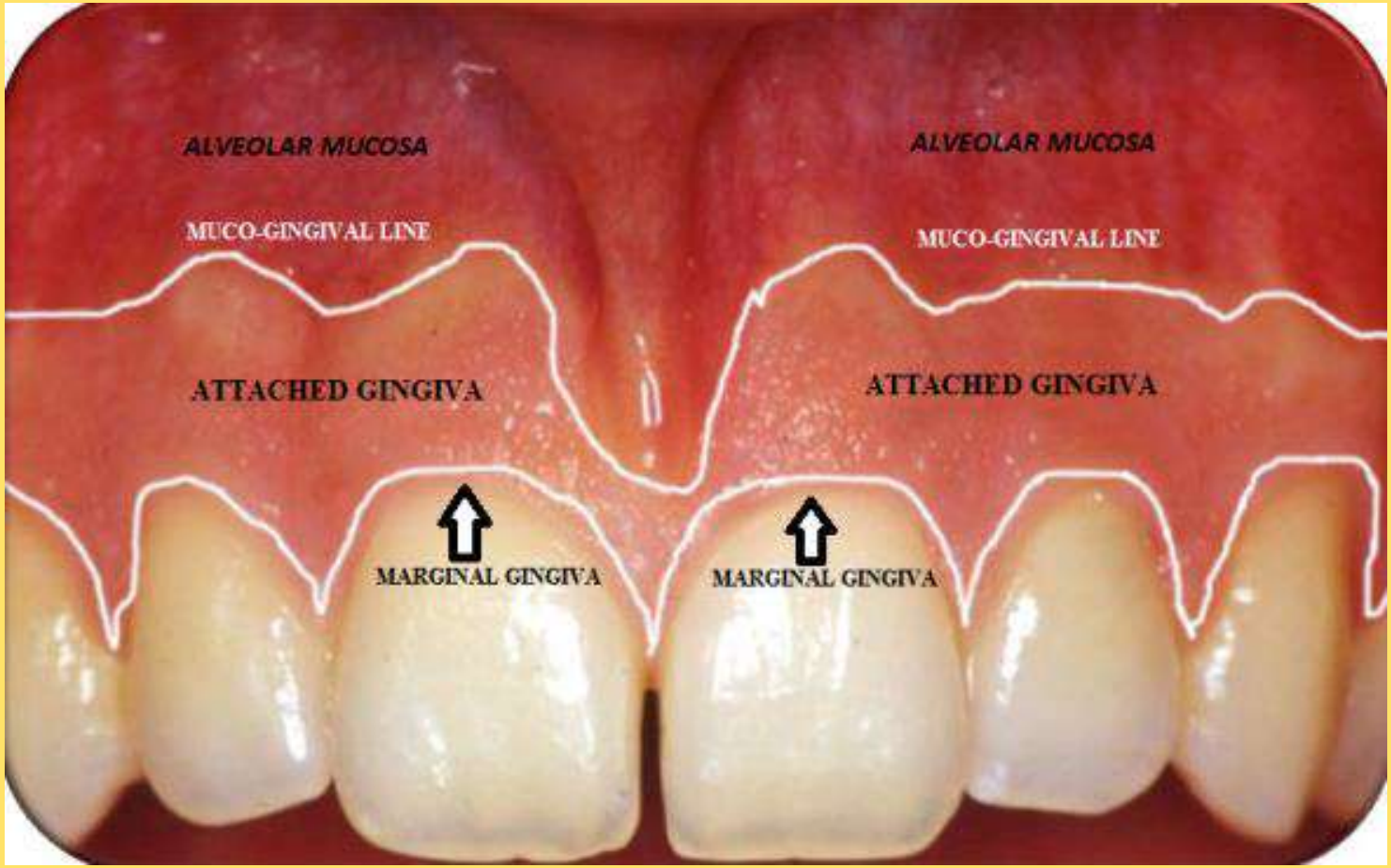
Clinical features

- Pink color
- Firm texture
- Pyramidal papilla
- Stippeled
- Consist of:

1. Free Gingiva
2. Attached Gingiva
3. Interdental papilla

(gingival groove, MGJ)

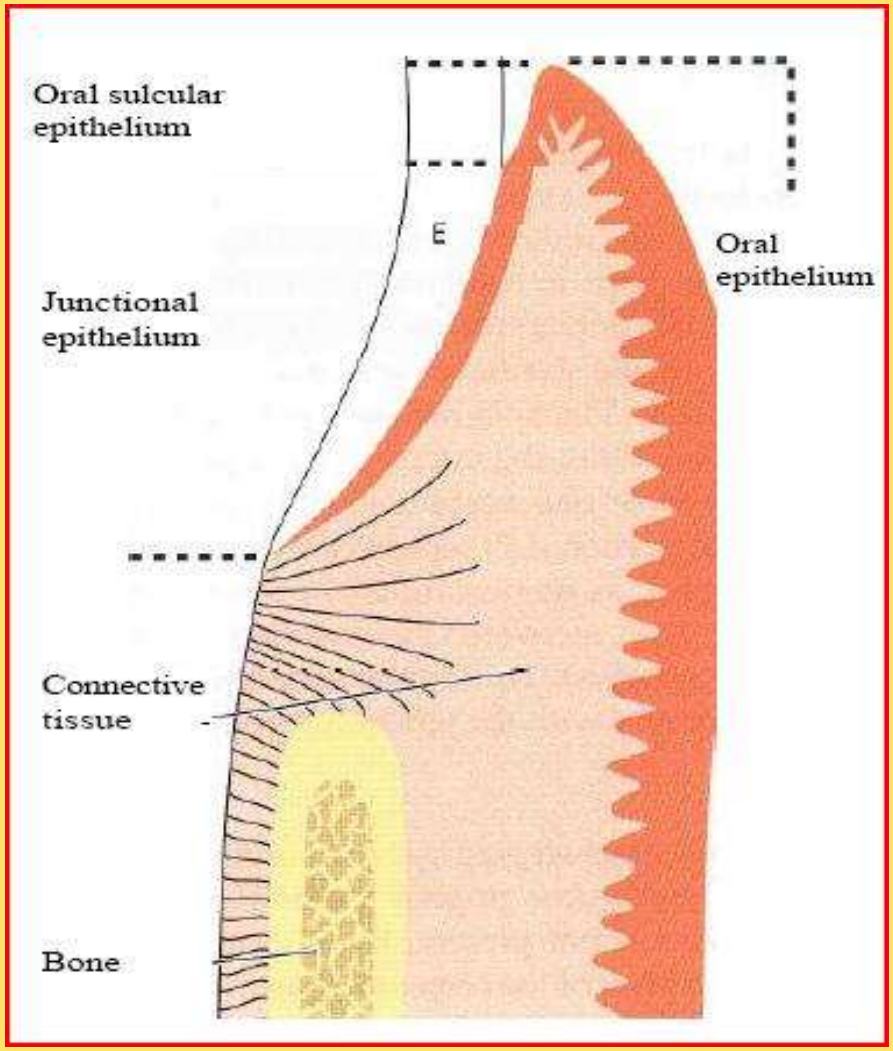


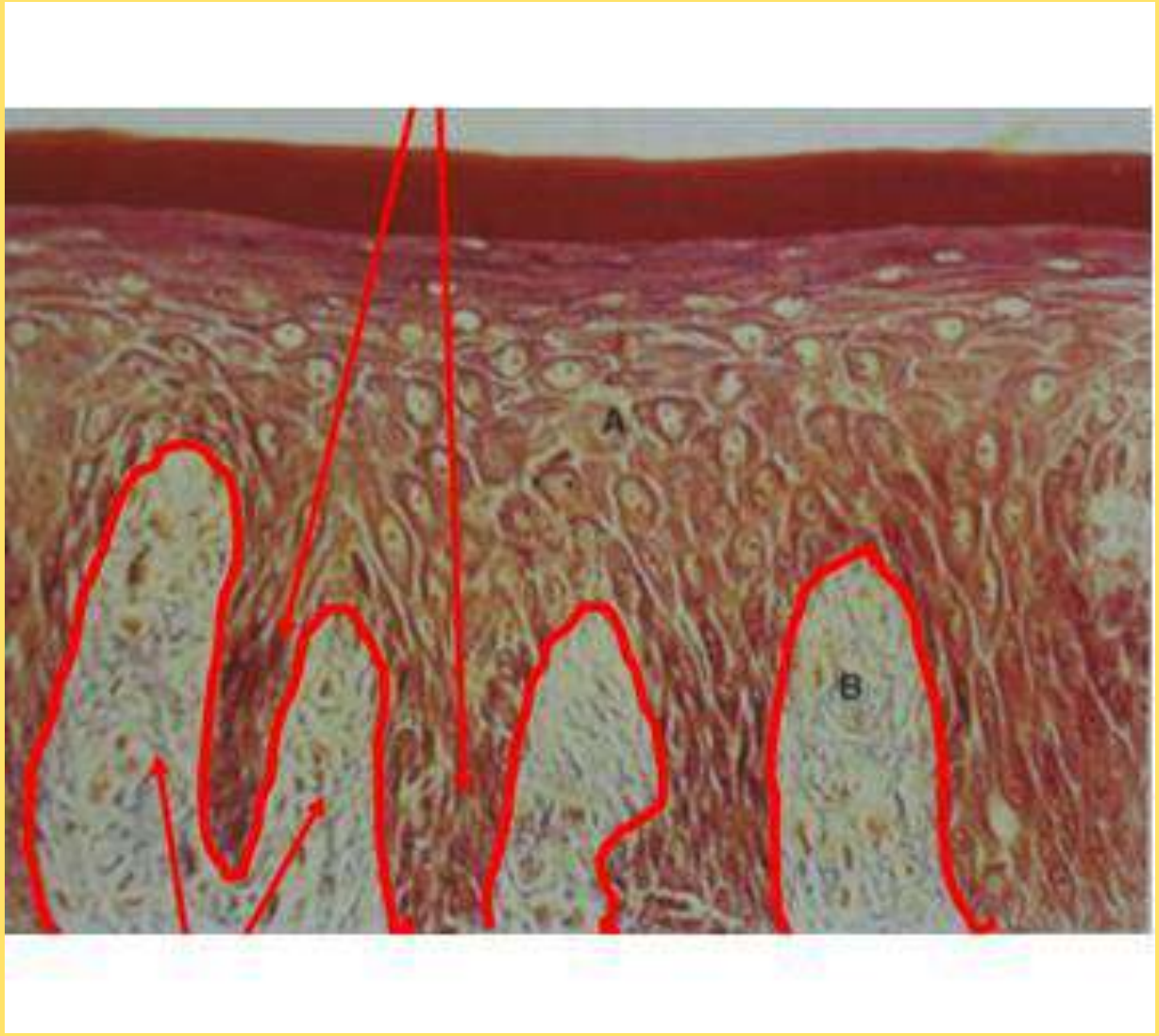

ALVEOLAR MUCOSA
MUCO-GINGIVAL LINE
ATTACHED GINGIVA
MARGINAL GINGIVA
ALVEOLAR MUCOSA
MUCO-GINGIVAL LINE
ATTACHED GINGIVA
MARGINAL GINGIVA

Histology

Epithelial components :

1. junctional epithelium
   - non-keratinised
2. sulcular epithelium
   - non-keratinised
3. oral epithelium
   - Keratinised




A
B

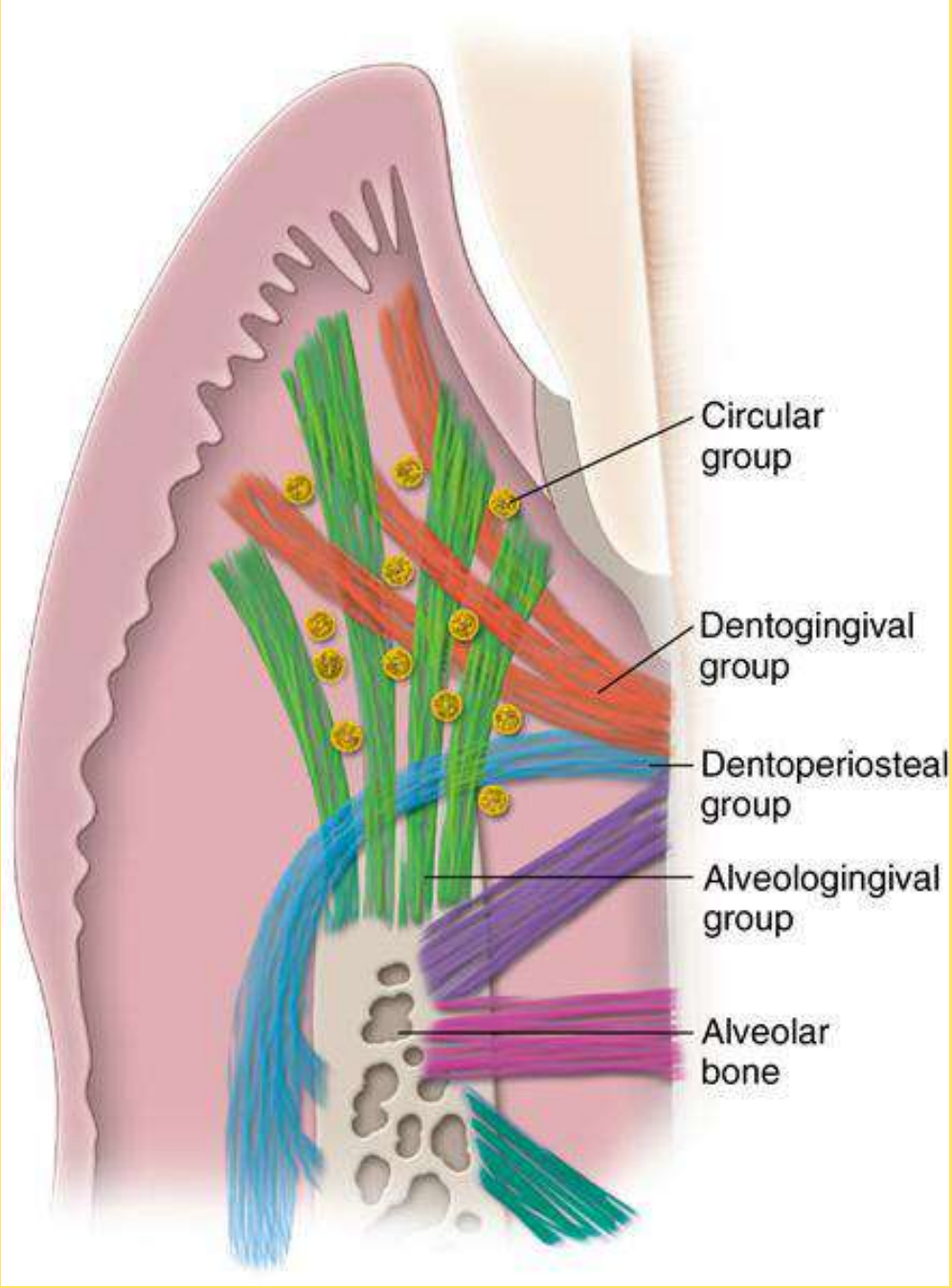
Epith. Cells

- 90% keratinocytes
- 10% other cells:

1. Melanocytes : melanin
2. Langerhans cell : immunity
3. Merckle cells: sensory

Gingival fibers

- Dentogingival fibers
- Transseptal fibers
- Dentoperiosteal fibers
- Circular fibers


Circular group
Dentogingival group
Dentoperiosteal group
Alveologingival group
Alveolar bone

Histology

connective tissue:

- ground substance
- blood vessels,Lymphatics
- Nerves, Fibroblasts
- gingival collagen fibres:

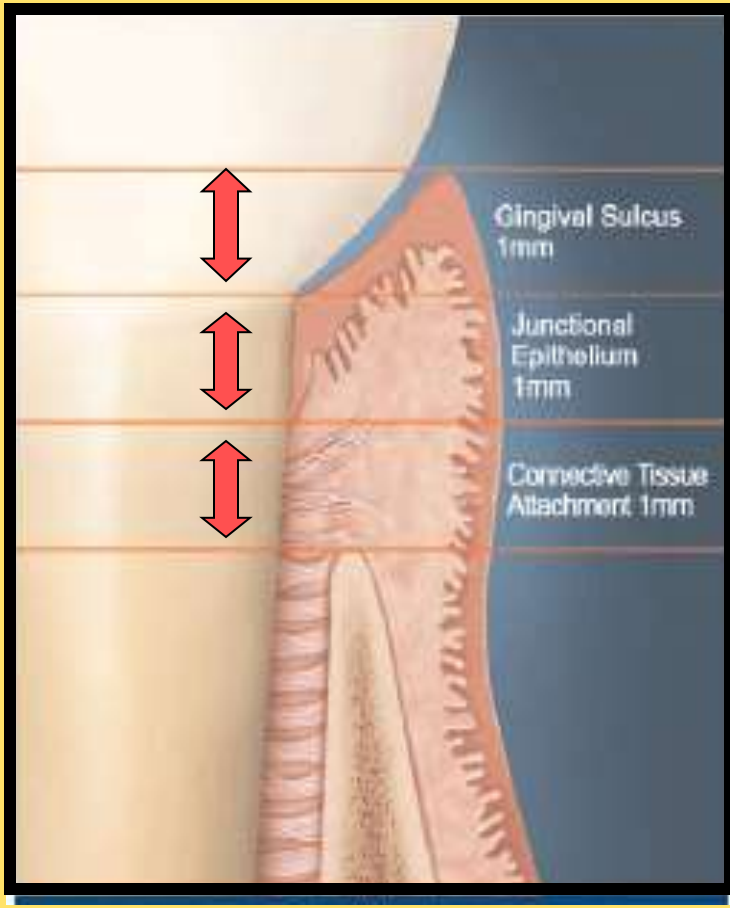
1. dentogingival
2. Alveologingival
3. Circular
4. trans-septal

Biologic width

Biologic width is the dimension of soft tissue **(epithelium + connective tissue)** attached to the tooth coronal to the crest of the alveolar bone.

It is commonly stated to be **2.04mm.**

Violating the biologic width will lead to chronic pain, chronic gingival inflammation and unpredictable loss of alveolar bone.



J Clin Periodontal 2003; 30: 379-385.

Cementum

- calcified connective tissue covering the dentine of the root
- give attachment to the collagen fibres of the periodontal ligament
- It is pale yellowish in colour , Softer than enamel and dentine
- It is thickest at the apex
- Permeability decreases with age
- It contain cells, Fibres and matrix.

Cementum – components

- **CELLS**
  - Cementoblasts
  - Cementocytes
  - Cementoclasts
- **MATRIX**
  - Water – 12%
  - Inorganic minerals – 61%
  - Organic materials – 27%

  Though, cementum is the least mineralized of the hard dental tissues, it is more mineralized than bone which is just 45% mineralized
- **FIBRES**
  - Extrinsic fibres(periodontal ligament)
  - Intrinsic fibres(cementoblast)

Types of Cementum

(1) **Acellular:** covers the root adjacent to the dentine

(2) **Cellular :** found mainly in the apical area and overlying the acellular cementum

Alveolar bone

- The alveolar process is that part of the maxilla and mandible that form and support the tooth socket

- It forms when the tooth erupts in other to provide the osseous attachment to the formed periodontal ligament

Alveolar bone component

- 1. An external plate of cortical bone
- 2. The ***inner socket wall*** of ***thin,compact bone*** called alveolar bone proper(which is seen as ***the lamina dura*** in radiographs)
- 3. ***Cancellous trabeculae***, between these two compact layers.

Periodontal ligament

- Connective tissue around and attach teeth to the alveolar bone.

- The ends of the princible fibers are embeded in cementum on the tooth side and in the alveolar bone proper on the opposite side. The embeded portions of the princible fibers are the Sharpey’s fibers

PDL Functions

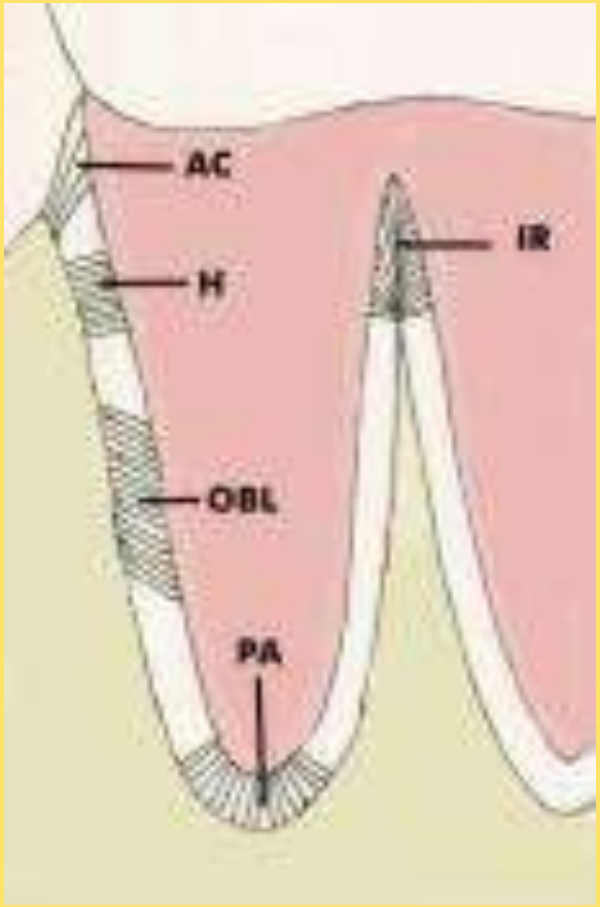
- Physical (mechanical)
- Formative
- Nutritional
- Sensory

Physical functions of PDL

- Transmission of occlusal forces
- Attachment of the teeth to the bone.
- Maintainance of the gingival tissues in their relationship to the teeth.
- Resistence to the impact of occlusal forces(shock obsorption).

Fiber content of PDL

1. Alveolar crest fibers **-AC**
2. Horizontal fibers –**H**
3. Oblique fibers –**OBL**
4. Periapical fibers – **PA**
5. Interradicular fibers –**IR**
6. Transceptal ligament



History and examination

- Presenting complaint
- **Dental history**
- **Social history**
- **Medical history**
- *Extraoral examination*
- *Intraoral examination*
- **Diagnostic investigations**

Presenting complaint

- *Gingival bleeding*
- *Drifting of teeth*
- *Loose teeth*
- *Bad taste and halitosis*
- *Pain*

Intraoral examination

- local factors that predispose to the accumulation of plaque (overhanging margins, poorly contoured, deficient restorations, and partial dentures)
- assessing the level of oral hygiene

Plaque index (Silness and Löe, 1964)

- 0 : no plaque
- 1 : film of plaque seen with disclosing solution or by running probe along surface
- 2 :moderate accumulation seen with naked eye
- 3 : abundance of plaque in pocket and on tooth surface

Gingiva

- Colour changes, gingival swelling, ulceration, suppuration and gingival recession.
- consistency and texture (Oedematous or fibrous)
- width of attached gingiva
- prominent labial frenum

Periodontal probing

- probing depth, bleeding after probing and the extent of attachment loss.
- A force of approximately 0.25 N is recommended

Furcation involvement

- *Class I :* not exceed more than 3 mm (<1/3 of the tooth width) into the furcation.
- *Class II : includes cul-de-sac involvement more* than 3 mm (>1/3of the tooth width) but does not completely pass through the furcation.
- *Class III : has through-and-through involvement.*

Tooth mobility

- 0 : normal, physiological mobility (<0.3 mm)
- 1 : horizontal mobility >0.3 to 1.0 mm
- 2 : moderate horizontal mobility exceeding 1.0 mm
- 3 : severe mobility exceeding 2.0 mm in horizontal plane or vertical movements.

Classification of Periodontal Diseases

- **The two major categories are *Gingivitis* and *Periodontitis*.**
- **Within each category there are specific types of diseases identified**

Gingival Diseases

A. Dental plaque-induced gingival diseases

B. Non-plaque-induced gingival lesions

Periodontal Diseases.

A. Chronic periodontitis

B. Aggressive periodontitis

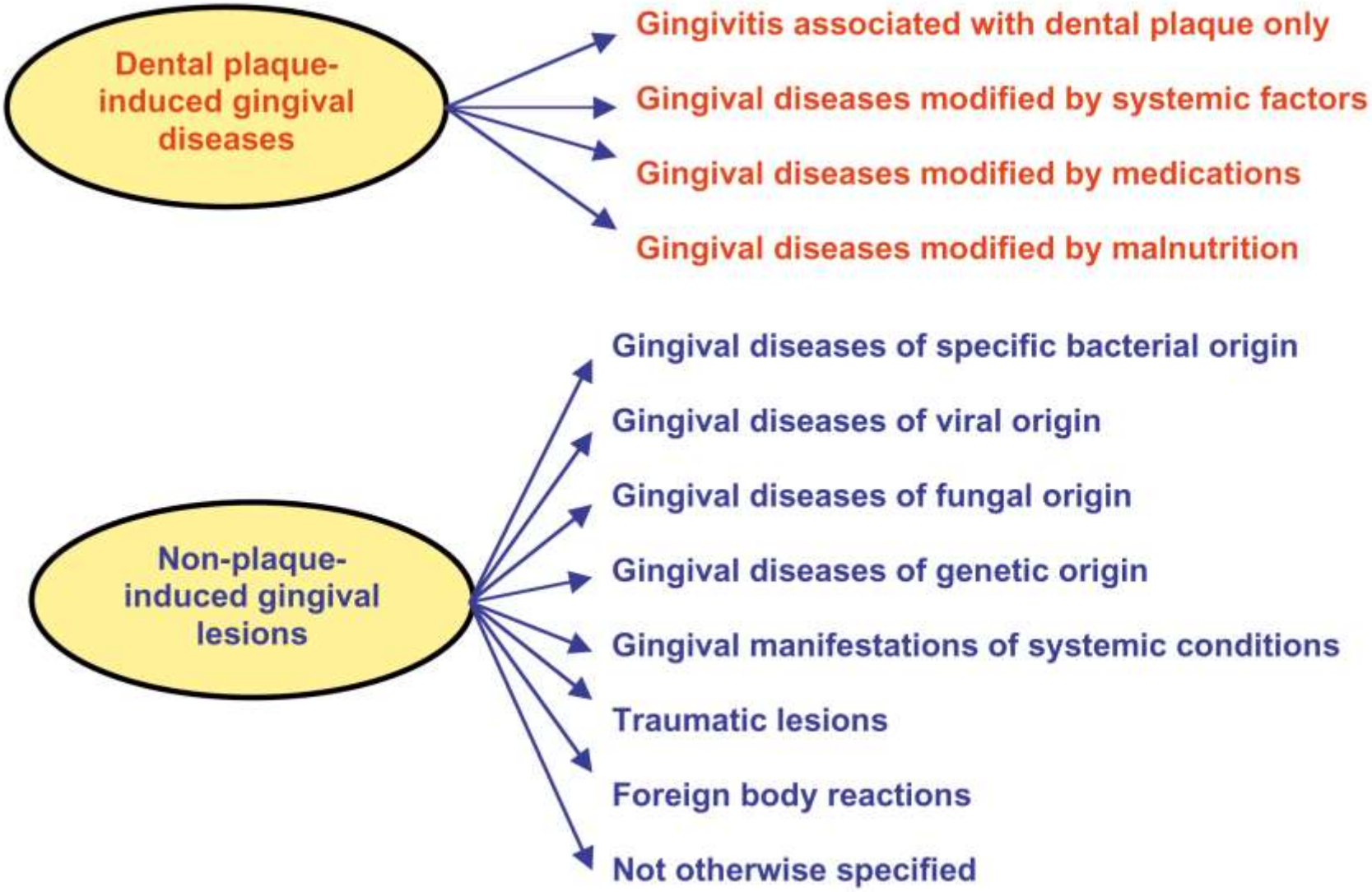
C. Periodontitis as a manifestation of systemic diseases

D. Necrotizing periodontal diseases

E. Abscesses of the periodontium

F. Periodontitis associated with endodontic lesions

G. Developmental or acquired deformities and conditions


Dental plaque-induced gingival diseases
Gingivitis associated with dental plaque only
Gingival diseases modified by systemic factors
Gingival diseases modified by medications
Gingival diseases modified by malnutrition
Non-plaque-induced gingival lesions
Gingival diseases of specific bacterial origin
Gingival diseases of viral origin
Gingival diseases of fungal origin
Gingival diseases of genetic origin
Gingival manifestations of systemic conditions
Traumatic lesions
Foreign body reactions
Not otherwise specified

Gingivitis associated with dental plaque only

a. Without other local contributing factors

BOP

Gingivitis associated with dental plaque only

b. With local contributing factors

Restorations

Gingivitis associated with dental plaque only

- b. With local contributing factors

Example: mouth breathing

2. Gingival diseases modified by systemic factors

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

- The gingival tissues may have a modified reaction to dental plaque with changes in circulating estrogen and progesterone levels. These changes result in the inflammation having more vascular components

Example:

pregnancy gingivitis

- Pyogenic granuloma:

  clinical appearance is similar to that seen in pregnancy gingivitis but generally confined to a single area.

  also bleed easily

- Periodontal disease in diabetic patients

1) increased incidence of periodontal abscesses
2) increase gingival inflammatory reaction to plaque
3) increase risk of periodontal disease 2.8 to 3.4 increase
4) increase severity and rate of destruction.

There is a greater increase risk for diabetic patients to develop periodontal abscesses due to increased gingival reaction to plaque and increased risk of periodontal disease.

- Poor diabetic control and length of time increase risk of periodontal breakdown and increase chances of poor response to therapy.

2. Gingival diseases modified by systemic factors

b. associated with blood dyscrasias

1) leukaemia-associated gingivitis

3. Gingival diseases modified by medications

A) drug-influenced gingival enlargements

e.g

Phenytoin gingival hypertrophy

- It may have increased expression of platelet derived growth factor.

3. Gingival diseases modified by medications

A) drug-influenced gingival enlargements

e.g

CALCIUM CHANNEL BLOCKERS – NIFEDIPINE

- used for coronary artery disease and hypertension
- induces gingival hypertrophy, in 25% - 50% of patients..

3. Gingival diseases modified by medications

A) drug-influenced gingival enlargements

e.g

IMMUNOSUPPRESANT

CYCLOSPORINE

- Cyclosporin A is an immunosuppressant used in organ transplant
- produces gingival enlargement in at least 30% of pts.

4. Gingival diseases modified by malnutrition

ASCORBIC ACID GINGIVITIS

- vitamin C deficiency induces absence of intracellular oxidation, abnormal collagen formation, gingival hypertrophy with hemorrhage

Non-plaque-induced gingival lesions

1. Gingival diseases of specific bacterial origin

a. *Neisseria gonorrhoea-associated lesions*

b. *Treponema pallidum-associated lesions*

c. streptococcal species-associated lesions

d. other

2. Gingival diseases of viral origin

a. *Herpes virus infections*
   1) primary herpetic gingivostomatitis
   2) recurrent oral herpes
   3) *varicella-zoster infections*

b. other

2. Gingival diseases of viral origin

- **primary herpetic gingivostomatitis**

gingival bleeding and ulcerations which were preceded by vesicles. Also note sero-purulent exudate

2. Gingival diseases of viral origin

- **RECURRENT INTRAORAL HERPES SIMPLEX**

characterized by small linear vesicles that rupture and leave small areas of ulceration.

3. Gingival diseases of fungal origin

a. candidal infections

1) generalized gingival candidosis

b. linear gingival erythema

c. histoplasmosis

d. other

4. Gingival lesions of genetic origin

a. hereditary gingival fibromatosis

b. other

4. Gingival lesions of genetic origin

hereditary gingival fibromatosis

Seen early affecting even the deciduous dentition.

The teeth are partially covered and eruption is retarded

5. Gingival manifestations of systemic conditions

a. mucocutaneous disorders

1) *lichen planus*
2) pemphigoid
3) *pemphigus vulgaris*
4) *erythema multiforme*
5) *lupus erythematosus*
6) drug-induced
7) other

5. Gingival manifestations of systemic conditions

Lichen planus

- Striations and erosion
- may be an autoimmune response
- Vesicles may be present

5. Gingival manifestations of systemic conditions

pemphigoid

- gingival erythema and desquamation
- the vesicle formation beginning at the Basement Membrane

5. Gingival manifestations of systemic conditions

pemphigus vulgaris

- desquamation, ulcers, erythema, vesicle formation
- intraepithelial vesicle formation

5. Gingival manifestations of systemic conditions

erythema multiforme

5. Gingival manifestations of systemic conditions

b. allergic reactions

1) dental restorative materials

a) mercury

b) nickel

c) acrylic

d) other

- b. allergic reactions

2) reactions attributable to

a)toothpastes/dentifric

b)mouthwashes

c) chewing gum additives

d) foods and additives

5. Gingival manifestations of systemic conditions

Toothpaste allergy

6. Traumatic lesions (factitious, iatrogenic, accidental)
    a. chemical injury
    b. physical injury
    c. thermal injury

7. Foreign body reactions

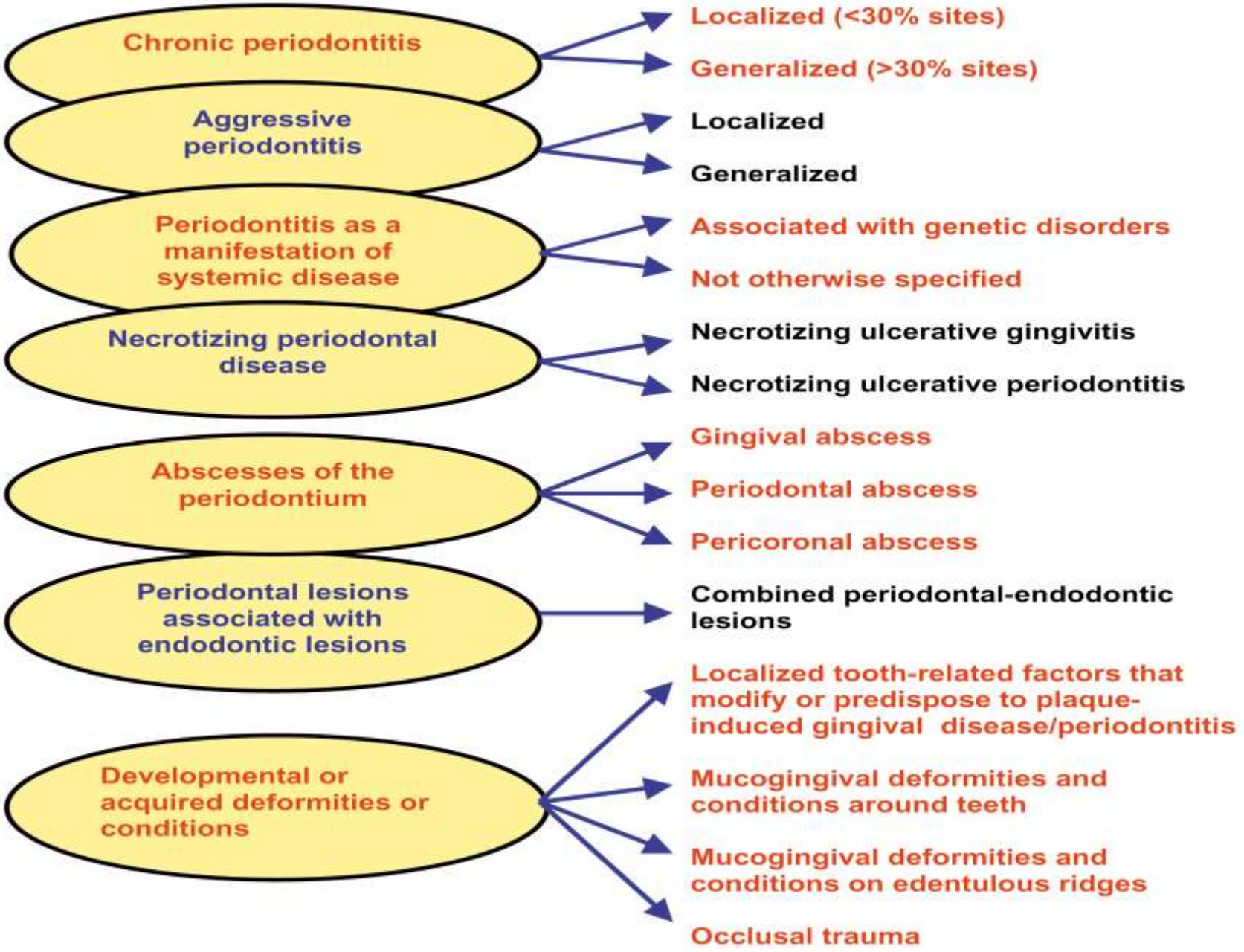
8. Not otherwise specified (NOS)

6. Traumatic lesions (factitious, iatrogenic, accidental)

- ***Chemical injury - HYDROGEN PEROXIDE***

6. Traumatic lesions (factitious, iatrogenic, accidental)

- ***Chemical injury - ASPIRIN BURN***


Chronic periodontitis
Localized (<30% sites)
Generalized (>30% sites)
Aggressive periodontitis
Localized
Generalized
Periodontitis as a manifestation of systemic disease
Associated with genetic disorders
Not otherwise specified
Necrotizing periodontal disease
Necrotizing ulcerative gingivitis
Necrotizing ulcerative periodontitis
Abscesses of the periodontium
Gingival abscess
Periodontal abscess
Pericoronal abscess
Periodontal lesions associated with endodontic lesions
Combined periodontal-endodontic lesions
Developmental or acquired deformities or conditions
Localized tooth-related factors that modify or predispose to plaque-induced gingival disease/periodontitis
Mucogingival deformities and conditions around teeth
Mucogingival deformities and conditions on edentulous ridges
Occlusal trauma

Chronic Periodontitis

Chronic Periodontitis

- Most prevalent in adults (but can occur in children and adolescents).
- Amount of destruction of the periodontium is consistent with the presence of local risk factors.
- Subgingival calculus is a frequent finding.
- Slow to moderate rate of progression (but can have periods of rapid attachment loss).
- May be modified by systemic disease.
- Can be modified by factors such as smoking and stress.

Chronic Periodontitis

a. **Localized :** up to 30% of sites

b. **Generalized:** more than 30% of sites

Aggressive Periodontitis

- **Comprises a group of rare, often severe, rapidly progressive forms of periodontitis**

Characterised by :

- rapid rate of progression
- a distinctive tendency for cases to aggregate in families

Aggressive Periodontitis

- Primary Features:

1. Except for the presence of periodontitis, patients are otherwise clinically healthy.
2. Rapid attachment loss and bone destruction.
3. Familial aggregation.

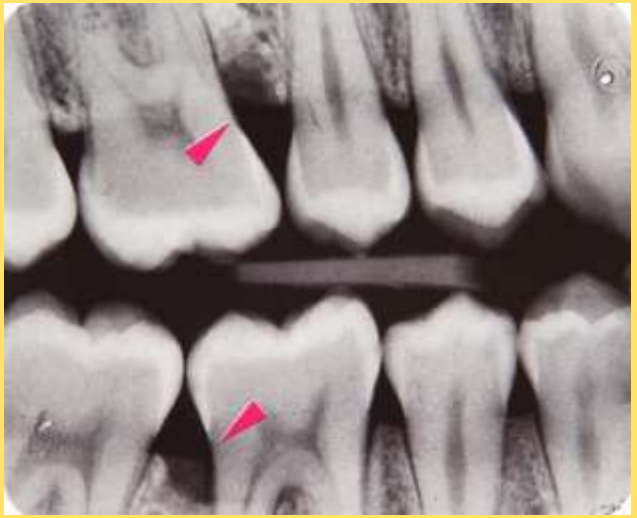
Aggressive Periodontitis

- Secondary features:

1. Amounts of microbial deposits are inconsistent with the severity of periodontal tissue destruction;
2. Elevated proportions of Actinobacillus actinomycetemcomitans and, in some Far East populations, Porphyromonas gingivalis may be elevated;
3. Phagocyte abnormalities;
4. Hyper-responsive macrophage phenotype, including elevated levels of PGE2 and IL-1b in response to bacterial endotoxins;
5. Progression of attachment loss and bone loss may be self-arresting.

Localized Aggressive Periodontitis

- 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.



Generalized Aggressive Periodontitis

- Usually affecting persons under 30 years of age, but patients may be older

- Generalized interproximal attachment loss affecting at least three permanent teeth other than first molars and incisors.

Management of Aggressive Periodontitis

-Oral hygiene instructions and reinforcement.

-Scaling and root planing and control of local factors.

-A general medical evaluation may determine if systemic disease is present in children and young adults.

- Adjunctive antimicrobial therapy:

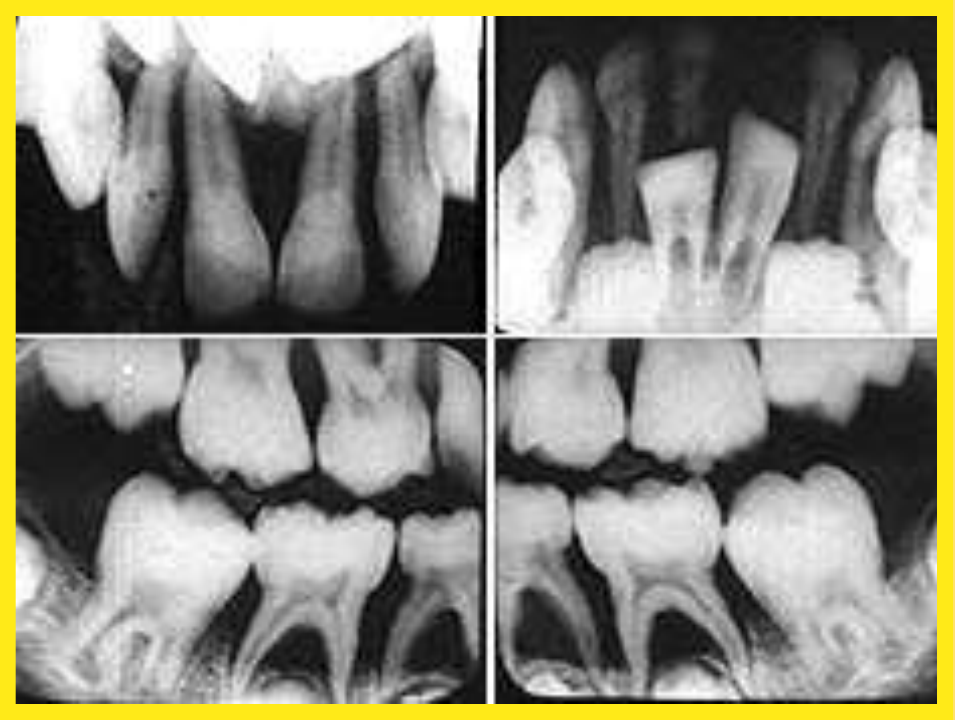
Tetracyclins(avoid in children),

Metronidazole+ amoxycillin

Periodontitis as a Manifestation of Systemic Disease

- Associated with genetic disorders

CYCLIC NEUTROPENIA



Periodontitis as a Manifestation of Systemic Disease

- Associated with genetic disorders

PAPILLON-LEFEVRE SYNDROME

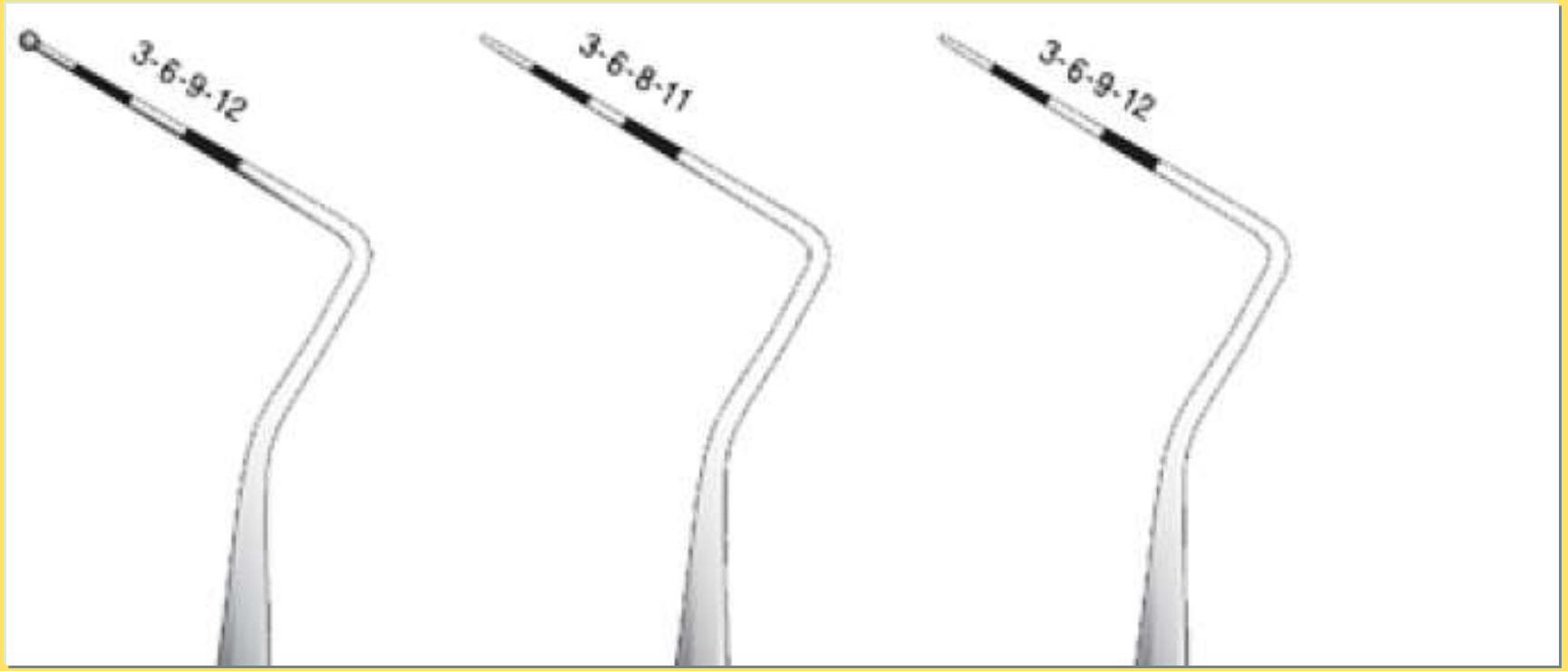
Periodontal instruments

- Examination and periodontal probes
- Scalind & Root planing instruments

Examination instruments

periodontal probes

- CP probes:
- UNC-15
- Williams probe
- WHO probe
- Nabers probe



CP 12 s **CP 11** **CP 12**

UNC 15

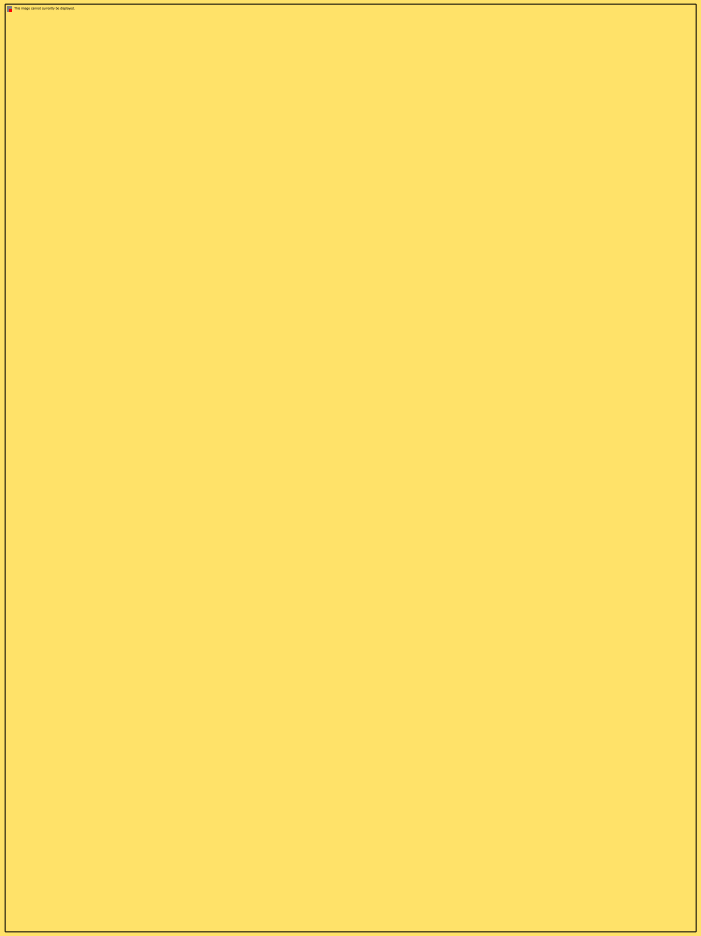
- From 1 to 15
- Dark color between:

  4-5

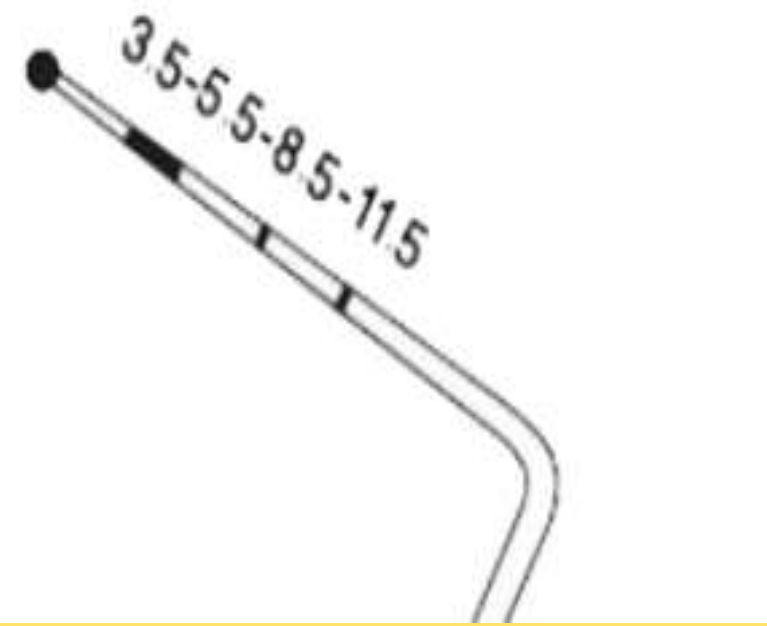
  9-10

  14-15

William probe



WHO probe



- Dark between 3.5 an 5.5
- Ball at the end (diameter 0.5 mm)

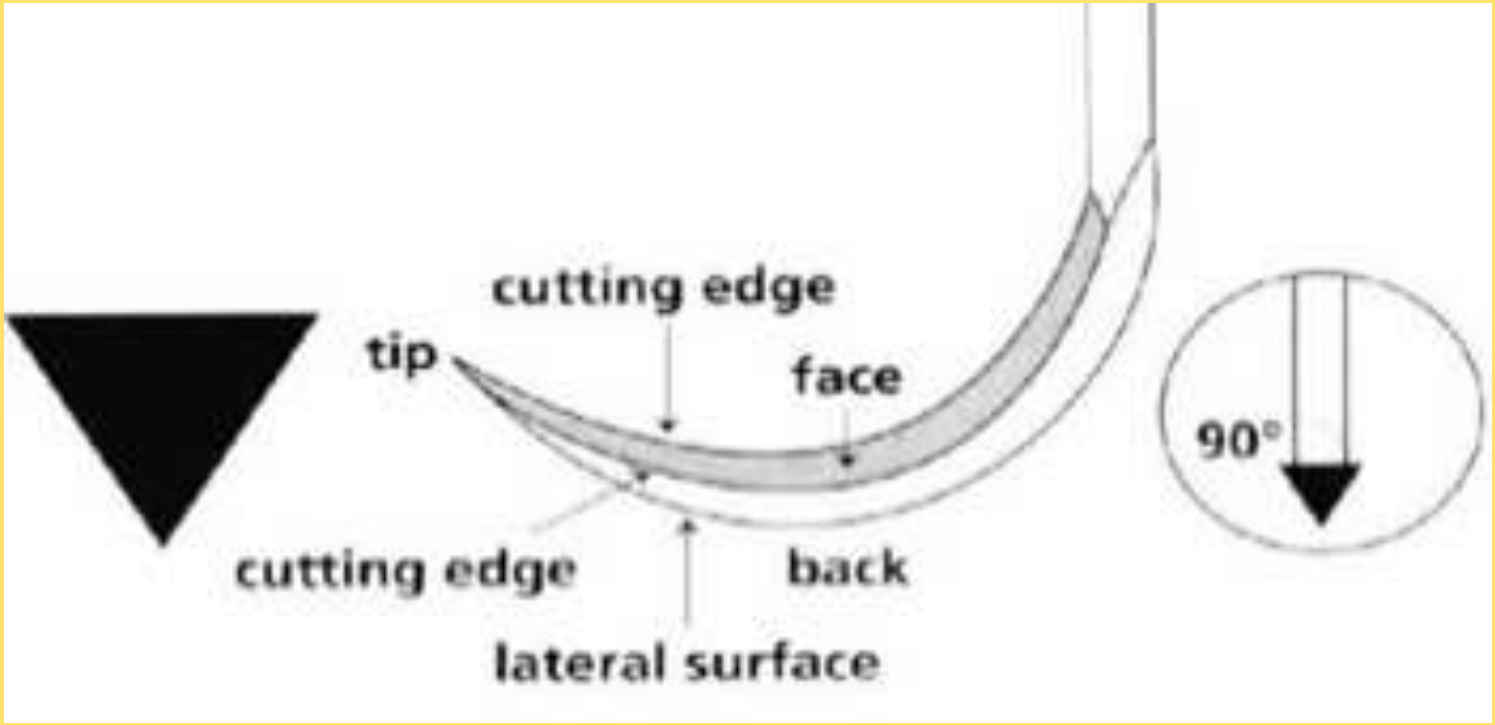
Nabers probe

- Furcation assesment
- 3 mm

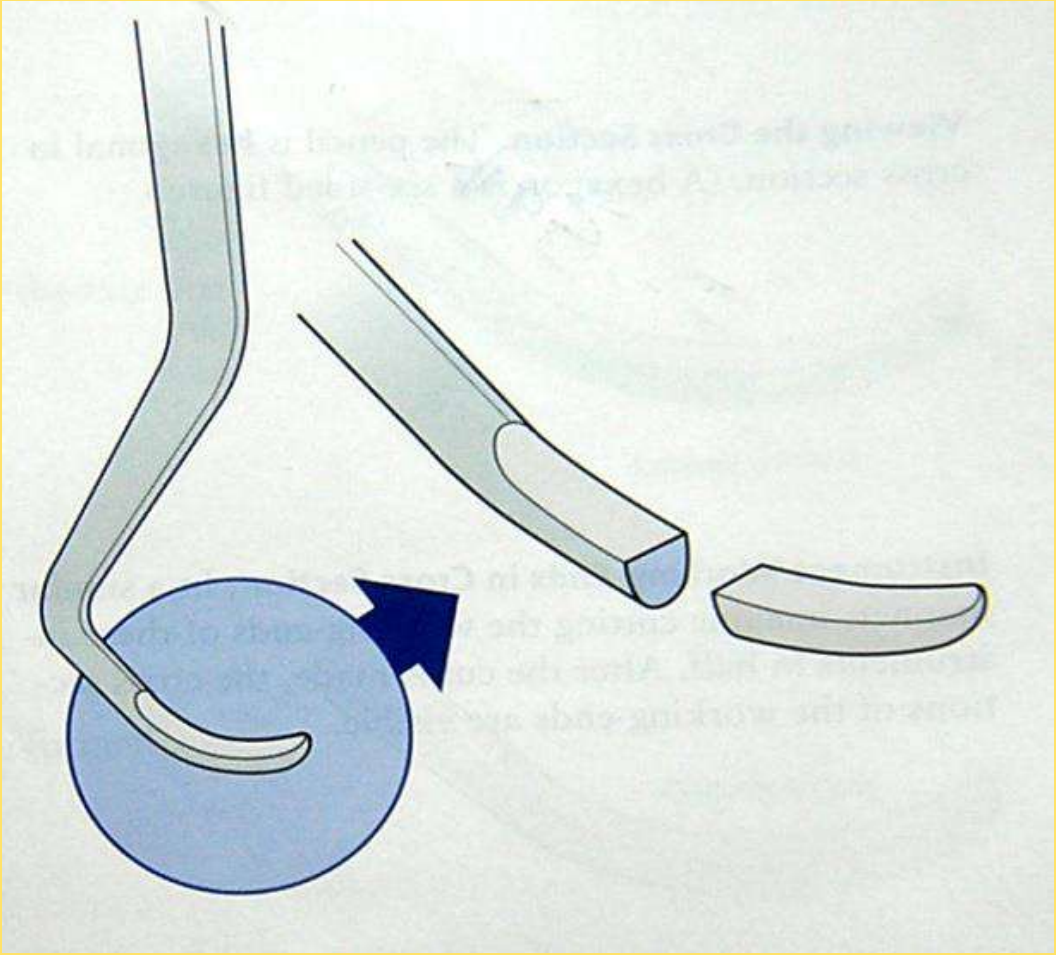
Scaling and root planning

- Sickle scaler
- Curettes
- Chisels
- Hoes
- Interproximal files

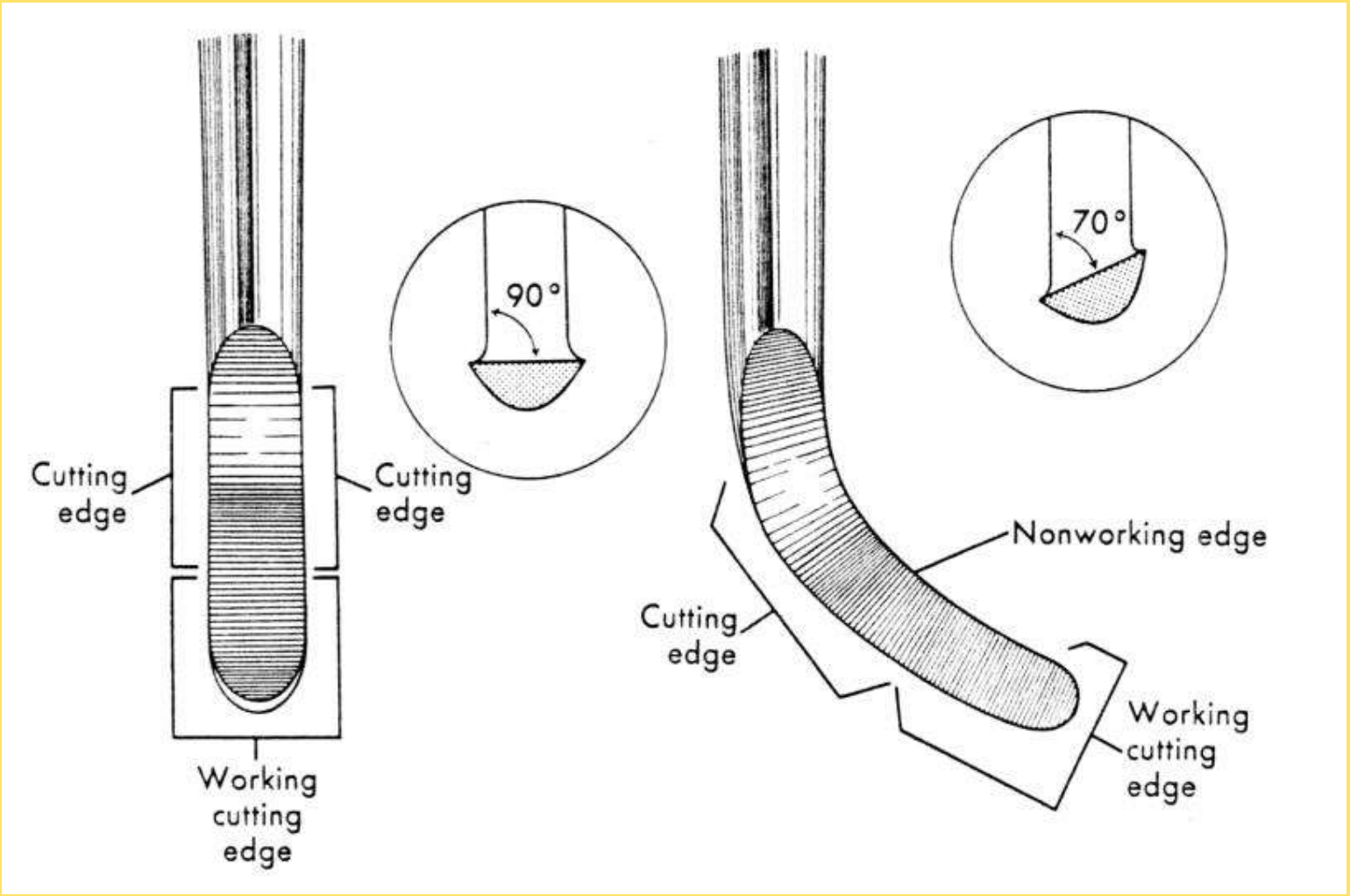
Sickle scaler



curettes



- Universal
- Site specific


90°
Cutting edge
Cutting edge
Working cutting edge
70°
Nonworking edge
Cutting edge
Working cutting edge

Standard Gracey Curette

- 1-2, 3-4 : anterior teeth
- 5-6: ant. & premolars
- 7-8, 9-10: buccal and lingual post.
- 11-12: mesial post.
- 13-14: distal post.

Kirkland knife

Orban

Thank you for Listening