

# Periodontology

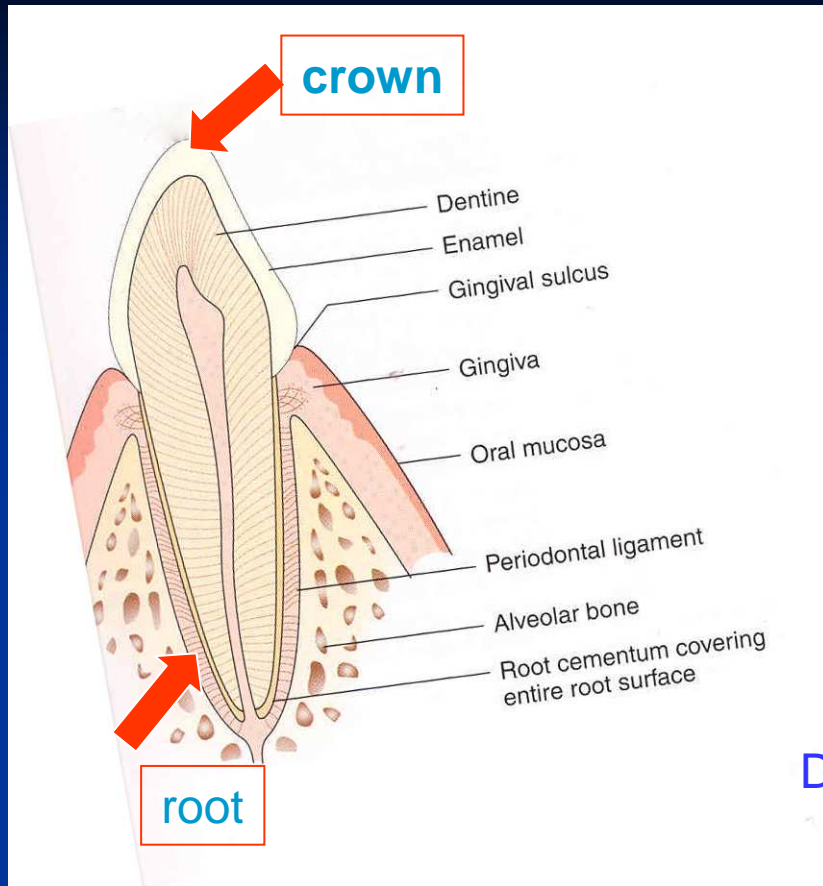
IV. year medical students

Ass. Prof. Lenka Roubalíková

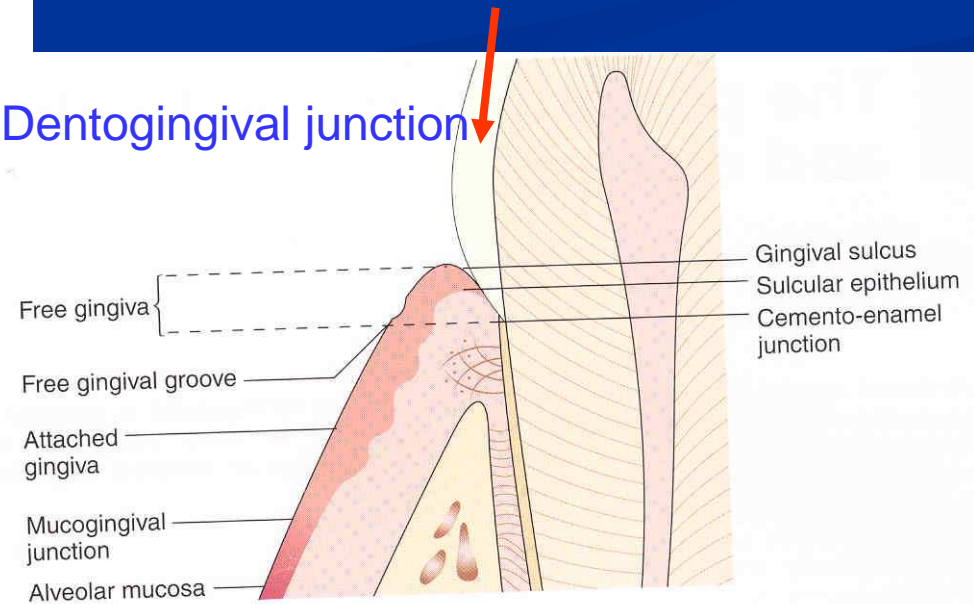
# Periodontology

- Periodontal tissues
  - alveolar bone
  - cementum
  - periodontal ligament
  - gingiva

# Morphology



## Dentogingival junction



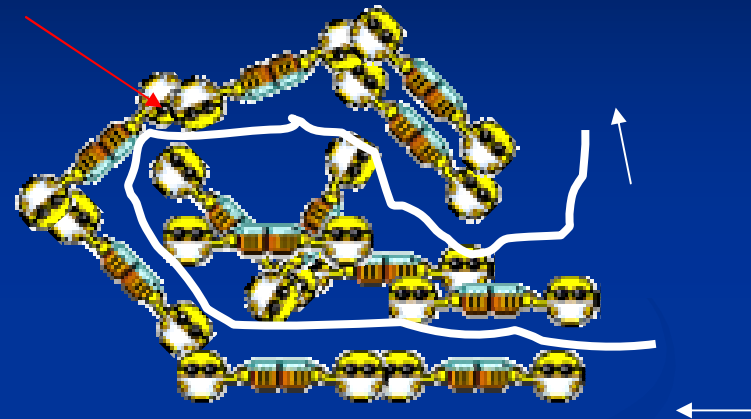
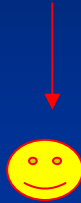
# Periodontal diseases

- Inflammation at most!!!!
- The most important ethiological factor?

 **Dental plaque!!!!**   
BIOFILM

# Dental plaque = biofilm

## ■ Community



## ■ Primitive circulation

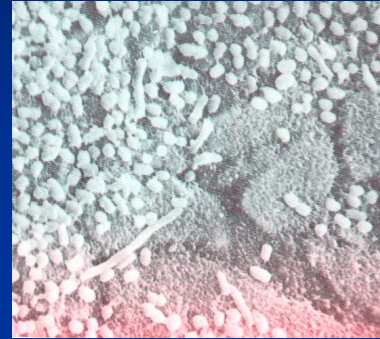


More species  
Higher metabolic activity  
Higher resistance  
(*S. sobrinus* CHX 300x, AF 75x)

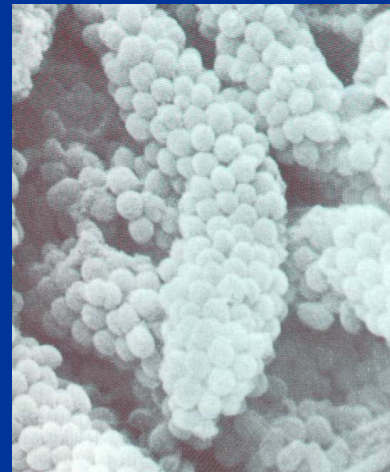
} better conditions to survive  
higher virulence

# Biofilm

- Adherence



- Colonisation



- Maturation

## Microorganisms worth noting in periodontology

- *Porphyromonas gingivalis* Obligate anaerobe associated with chronic periodontitis and aggressive periodontitis.
- *Prevotella intermedia* Found in chronic periodontitis, localized aggressive periodontitis, (juvenile periodontitis), necrotizing periodontal disease, and areas of severe gingival inflammation without attachment loss.
- *Prevotella nigrescens* New, possibly more virulent.
- *Fusobacterium* Obligate anaerobes. Originally thought to be principal pathogens in necrotizing periodontal disease. Remain a significant periodontal pathogen.
- *Borrelia vincenti* (*refringens*) Large oral spirochaete; probably only a co-pathogen.
- *Actinobacillus actinomycetemcomitans* Microaerophilic, capnophilic, Gram -ve rod. Particular pathogen in juvenile periodontitis and rapidly progressive periodontitis.
- *Actinomyces israelii* Filamentous organism; major cause of actinomycosis. A persistent rare infection which occurs predominantly in the mouth and jaws and the female reproductive tract. Implicated in root caries.

# Other aetiological factors

- Calcified deposit on teeth, plaque on the surface
- Overhangs, crowns, dentures
- Genetic factors – gen polymorphism

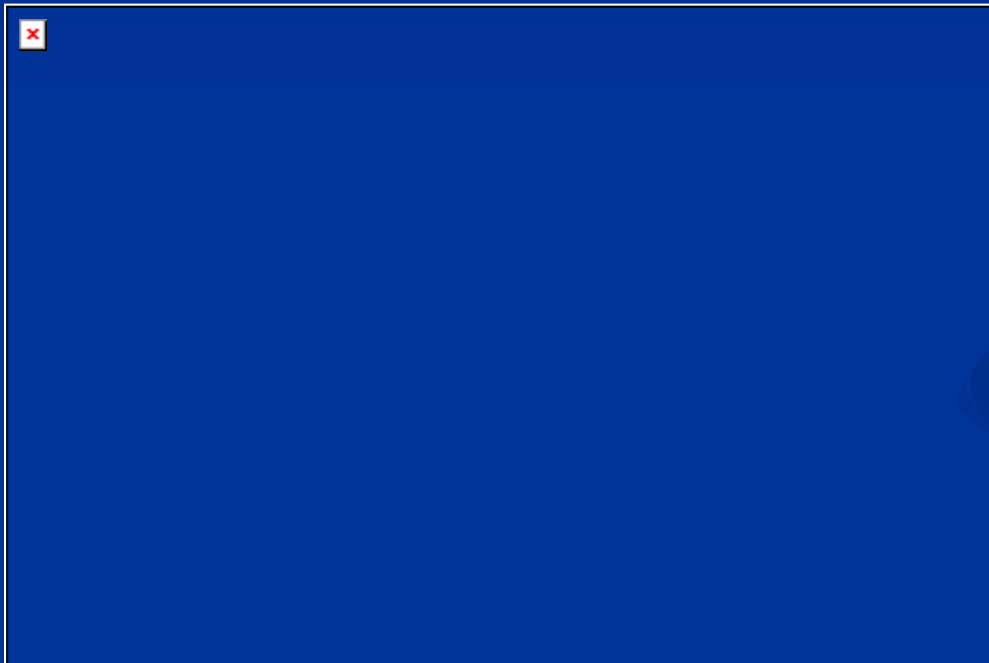




# Parodontopathies

## *Gingivitis*

### ■ Plaque associated gingivitis



Chronic form

Erythema

No pain

Easy bleeding

Plaque on the tooth

Acute form

Erythema

Pain

Easy bleeding

Plaque on the  
tooth

# Acute necrotising gingivitis - ANUG

- Necrotizing ulcerative gingivitis

## Aetiology

= an alteration in the dynamics between the host response and a number of specific bacterial species

*Treponema denticola*, *Treponema*

*Vincenti*, *Fusobacterium nucleatum*,

*Prevotella intermedia*

# What predispose the ANUG?

- Poor oral hygiene
- Smoking
- Emotional stress
- Nutritional deficiency (*noma*)
- Systemic disease (*HIV, leukaemia*)

# The clinical picture

- Gingival inflammation and destruction



Severe pain, bleeding gums, halitosis



# Treatment

- Chlorhexidin mouthwash
- Oxygenic agents
- Systemic antimicrobials in severe cases  
(metronidazol 3x 200 mg, penicilin 250 mg 4x denně)
- Gingivoplasty in some cases

# Diferential diagnosis

- Herpetic gingivostomatitis
  - Young people
  - Prodroms
  - Pyrexia
  - Lymphadenopathy
  - Lesions more widespread and diffuse

# Diferential diagnosis

- If ANUG does not tend to recover in 10 days – check the blood picture!





# Atrophic or desquamative gingivitis

## *symptoms*

- Erythema on free gingiva – loss of the epithelium
- Variety of symptoms: itching, tenderness of eating, burning.



# Aetiology

- Xerostomia
- Mouth breathing
- Mucocutaneous disorders (lichen planus, pemphigoid)
- Other factors (postmenopausal women, stress)

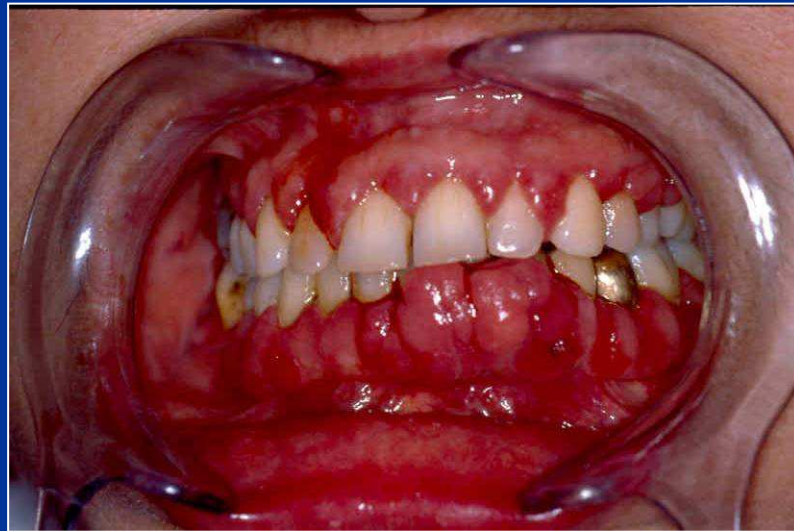
# Gingival hyperplasia

## Gingivitis hyperplastica

- ❑ Hormonal changes
  - pregnancy, puberty, contraceptive pills
- ❑ Pharmacologically induced changes
  - Cyclosporin A (an immunosuppressive agent)
  - Phenytoin (control of epilepsy)
  - Nifedipin (calcium – channel blocker)

# Therapy

- High standard of oral hygiene must be achieved!
- Gingivectomy (drugs induced)



# Parodontopathies

## *Periodontitis*

- Chronic periodontitis.
- Aggressive periodontitis.
- Periodontitis as a manifestation of systemic disease.
- Necrotizing periodontal diseases.
- Abscesses of the periodontium.
- Periodontitis associated with endodontic lesions.
- Development or acquired deformities and conditions.

# Chronic adult periodontitis

- Gingivitis
- Pocketing
- Loss of alveolar bone
- Drifting and mobility
- Furcation exposures
- Recession

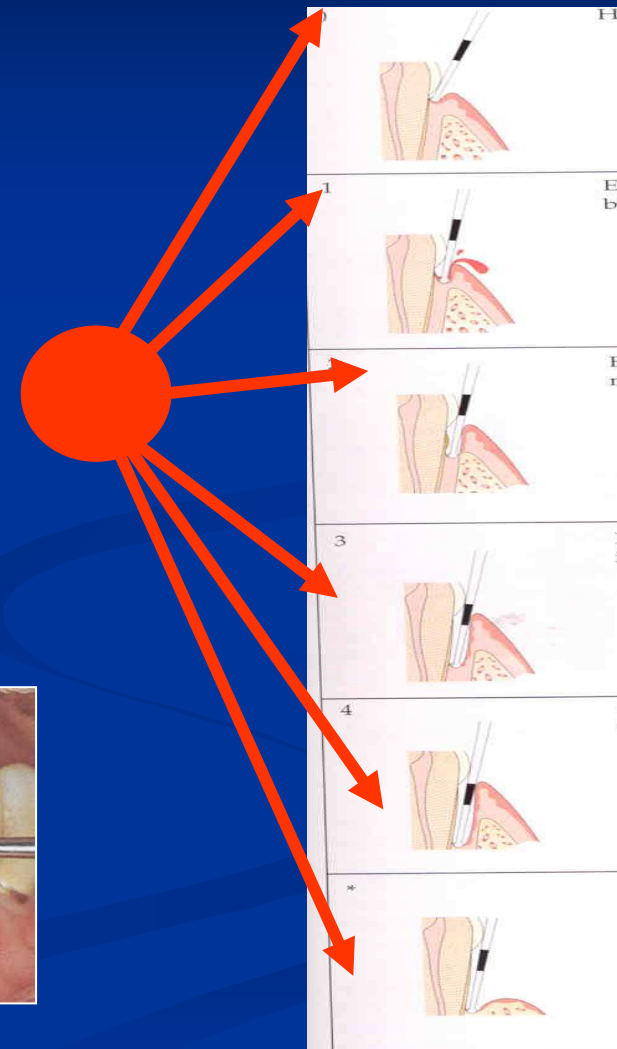


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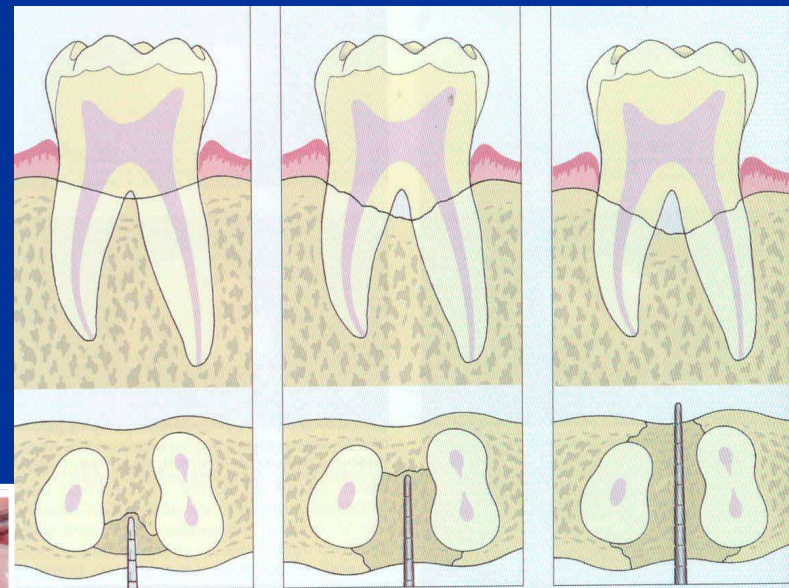
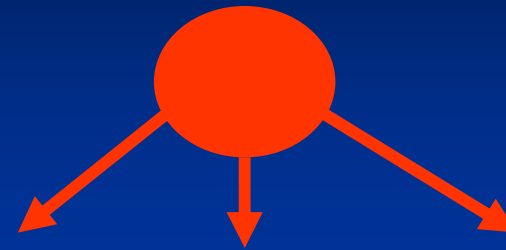
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# Periodontitis

- Chronic adult periodontitis
- Aggressive periodontitis
- Early onset periodontitis

# Therapy

- 1. Oral hygiene - professional, home care  
**INDIVIDUAL**



# Therapy

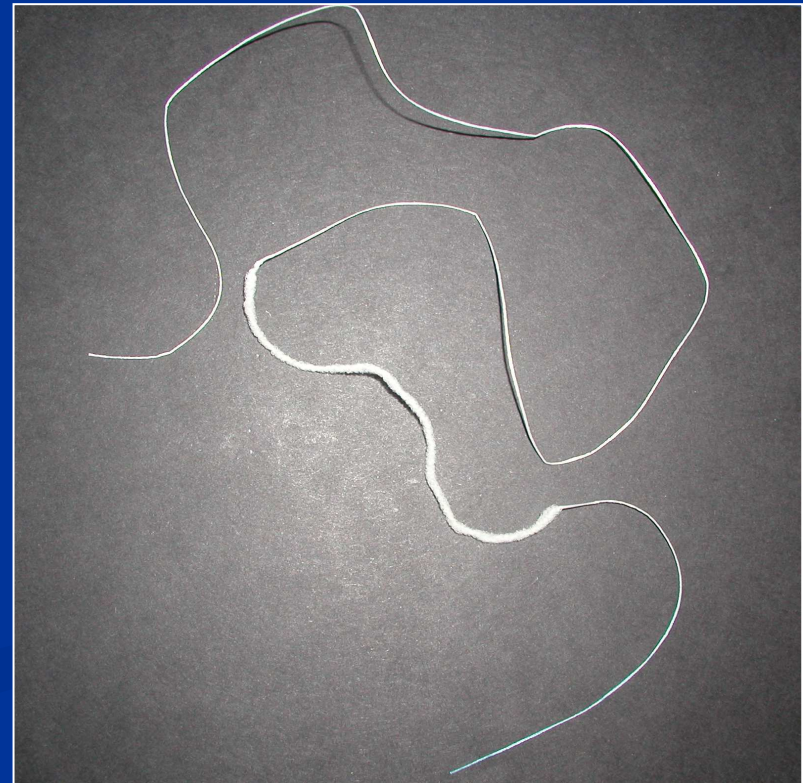
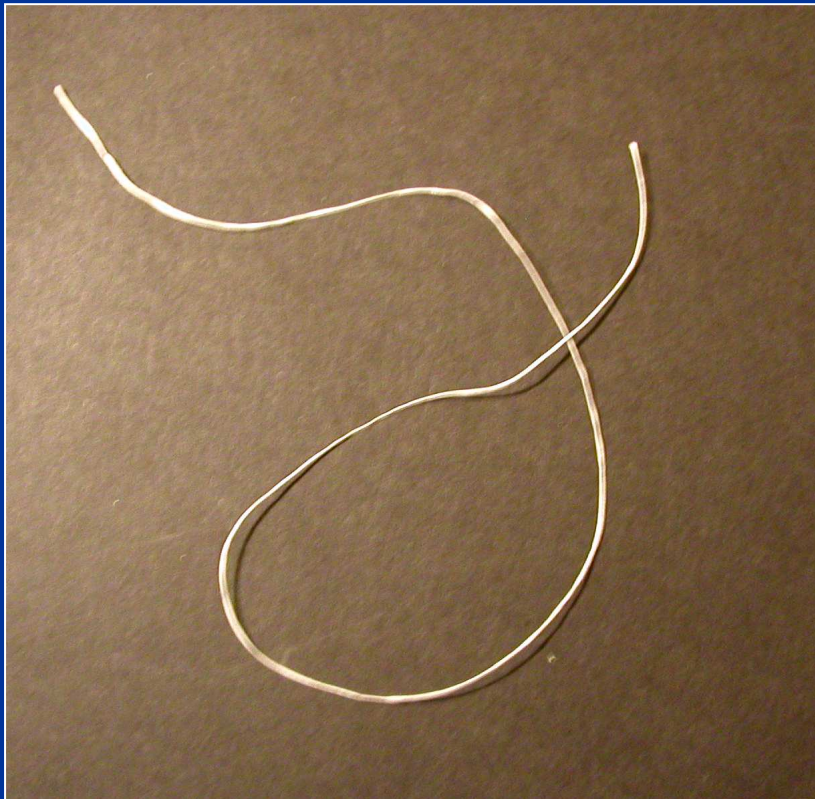
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# Therapy

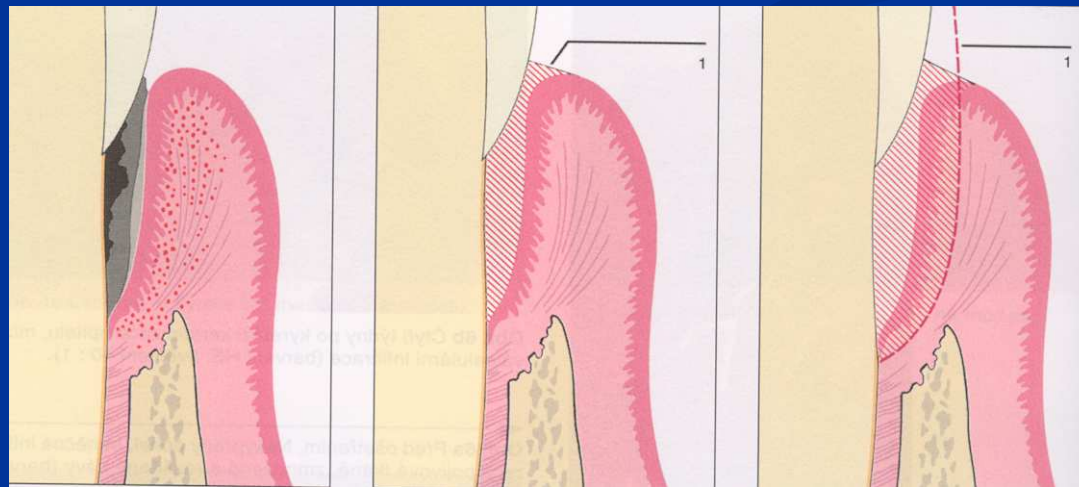
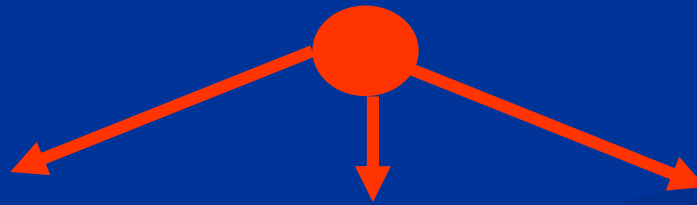
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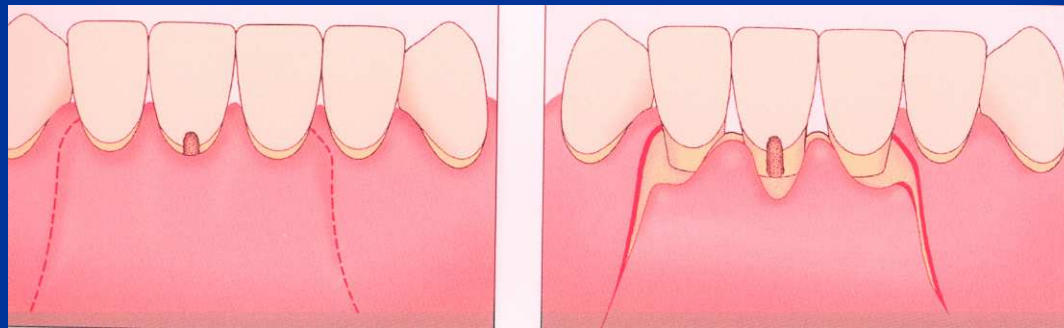
# Therapy

- 2. Subgingival treatment – scaling root planing, curettage



# Therapy

- 3. Periodontal surgery



# Periodontal surgery

- Curretage (closed)
- Gingivectomy, gingivoplastic, frenulectomy, vestibuloplastic (Mucogingival surgery)
- Flap operations – open curretage.  
*Elimination of inflammation, achievement of better conditions for oral hygiene, bone and tissue regeneration.*

# Periodontal surgery goals

Elimination of periodontal pockets (2 -3mm  
without bleeding – BOP 0)

Better gingival configuration

Better conditions of oral hygiene

Periodontal tissue regeneration (esp. bone  
regeneration)

# Periodontal surgery - limitations

## Systemic diseases:

Immunodeficiency, severe ischemic heart diseases, leukaemia.

After preparation, premedication and anaesthesiologic supervision can be done:

Haemophilia, thrombocytopathia, trombasthenia. Heart diseases, diabetes.

Pregnancy?

# Periodontal surgery - limitations

## Local factors:

Bad oral hygiene

Smoking (?)

# Periodontal surgery - when?

After the initial phase!

4 - 8 weeks

Information

# Periodontal surgery -anaesthesia

Local anaesthesia

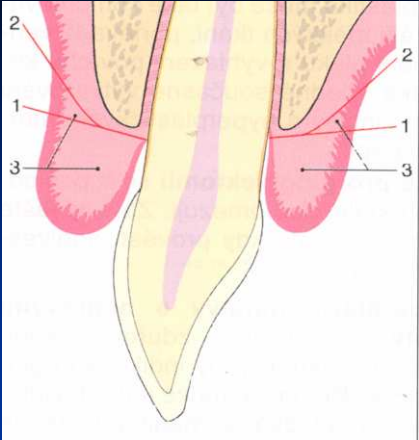


# Gingivectomy, gingivoplastic

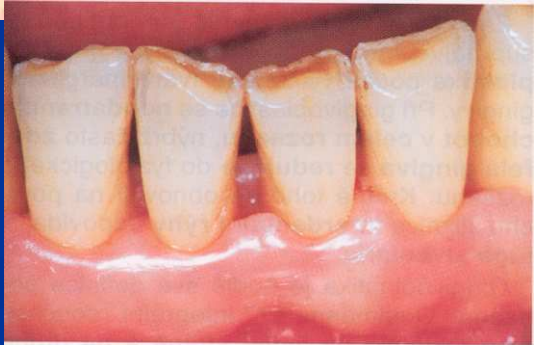
## Indications of gingivectomy

- Hyperplasia gingivae (pseudopockets)
- Supraalveolar periodontal pockets with the horizontal bone resorption
- - Bad configuration of the gingival margin or papilla fol. ANUG or extraction.

Gingivectomy



Gingivoplastic

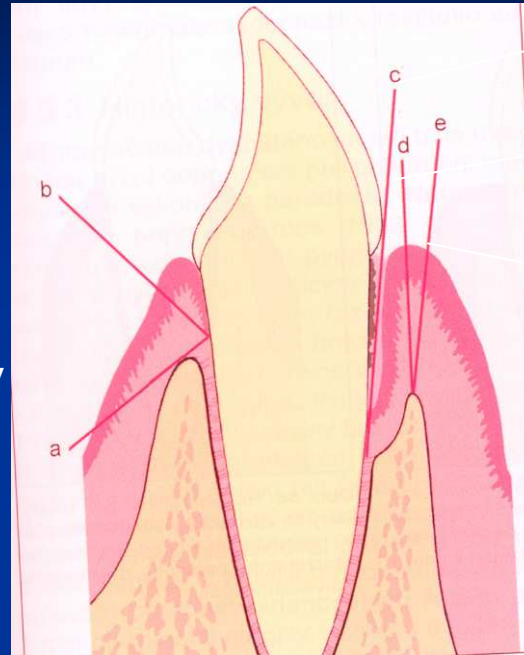


# Flap operation

- Open operation field – the flap is raised
- Cut
  - Marginal
    - External
    - Internal
  - Vertical (save the papilla!!)

Internal gingivectomy

External gingivectomy



Intrasulcular

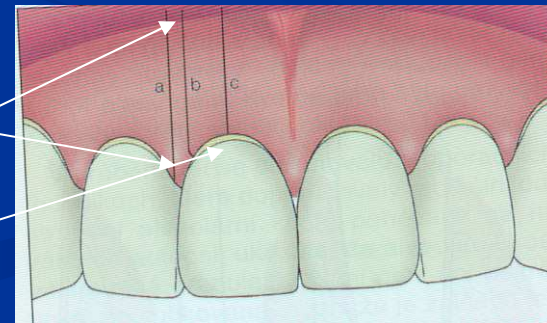
Marginal

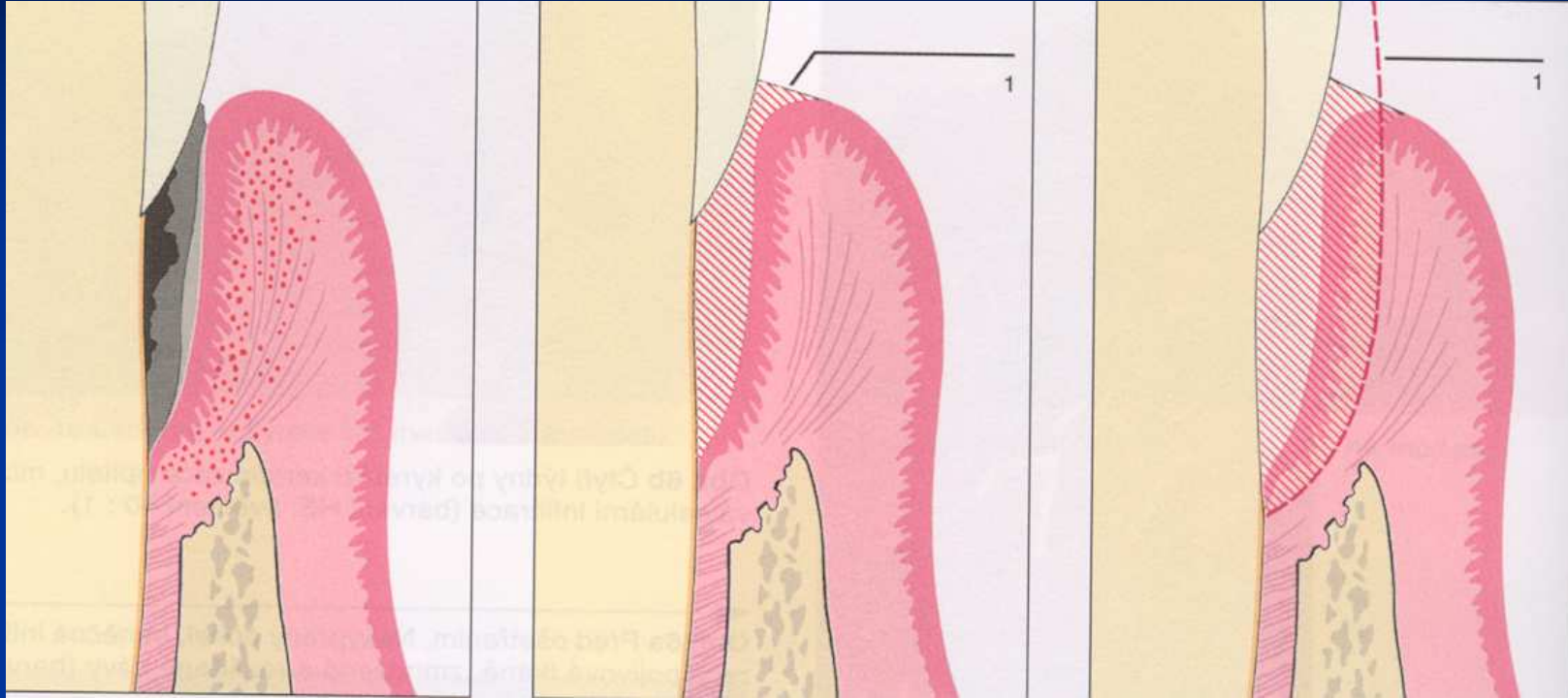
Paramarginal

Papilar

Paramedial

Medial





Closed curettage

# Flap operation

Modified Widman flap

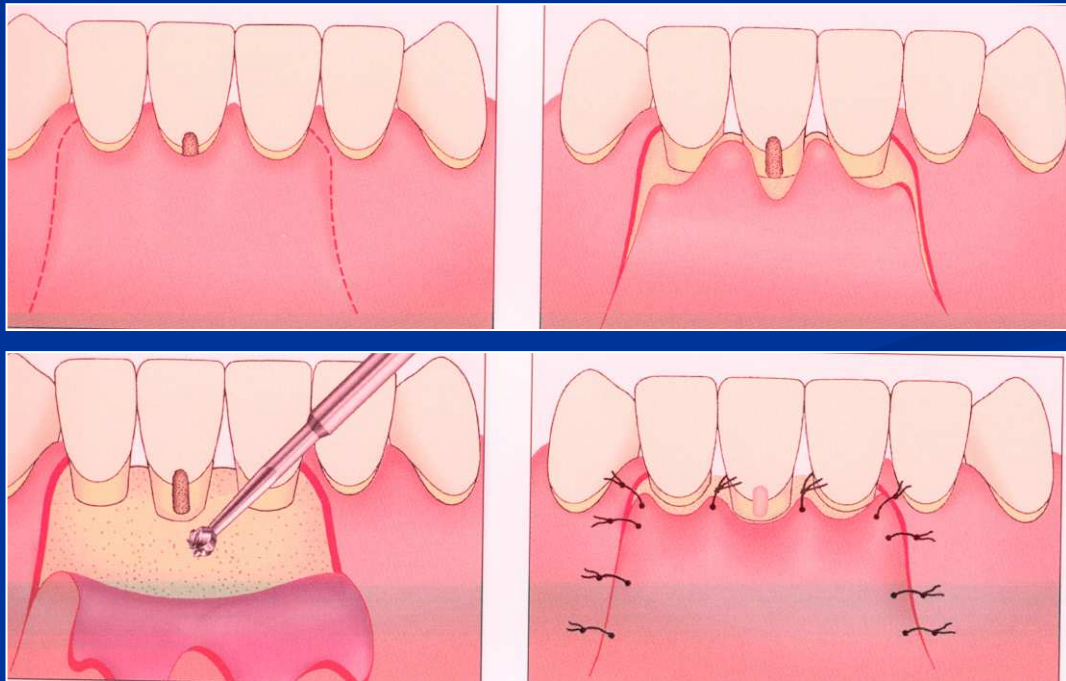
Apical flap, replaced flap

Papilla preservation technique

Wedge excision

Apical flap

Replaced flap



# Surgery of furcations – special cases

- Tunnelisation
- Hemiextraction
- Extraction



# Guided tissue regeneration

- Membranes

- Resorbable
- Non-resorbable

- In combination with bone, alloplastic mineral ( $\beta$  – tricalciumphosphat, hydroxylapatit), bone morphogenetic protein, growth factors – tissue engineering.

# Mucogingival surgery

- Enlargement of attached gingiva
  - Frenulectomy
  - Vestibuloplastic
  
- Plastic of recessus
  - Lateral flap
  - Bridge flap
  - Mucous or mesenchymal grafts

