



# **STOMATOLOGY**

**MEDICAL STUDENTS IV YEAR**

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# Dentistry

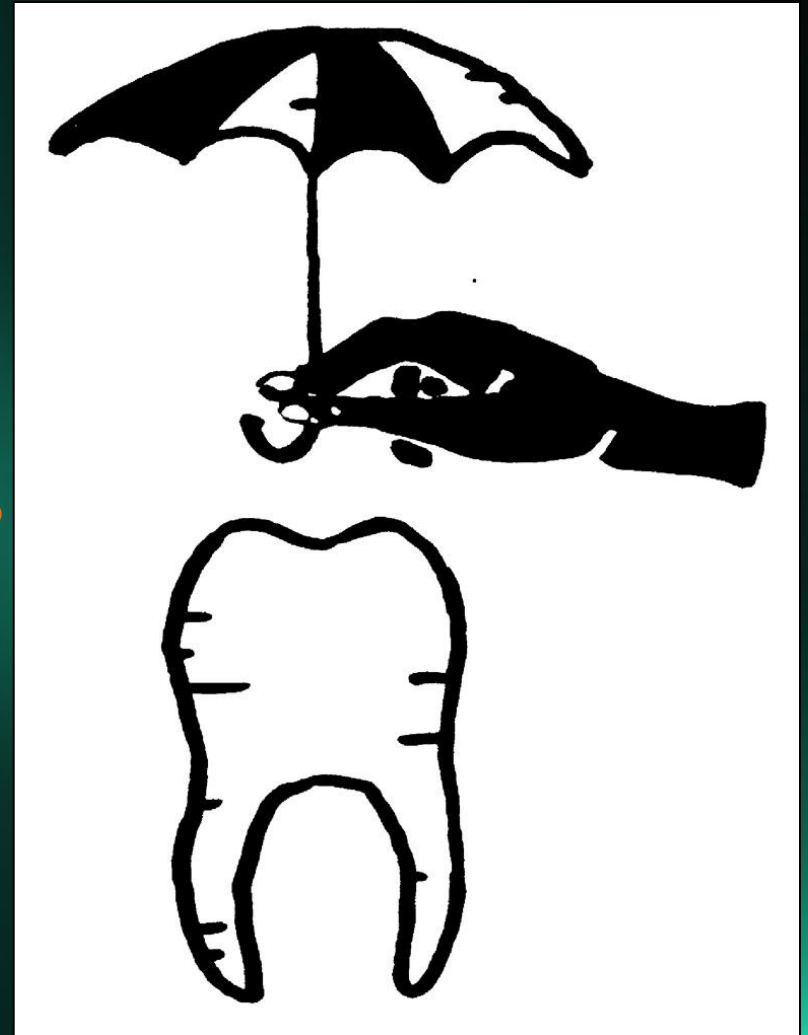
- Preventive dentistry
- Restorative dentistry
- Prosthetics
- Surgery
- Periodontics
- Orthodontics
  
- Pedodontics

# Pedodontics

- Preventive dentistry
  - Restorative dentistry
  - Prosthetics
  - Surgery
  - Periodontics
- 
- Adapted to the age 0 – 18 years
  - Collaboration with orthodontics – diagnosis of anomalies

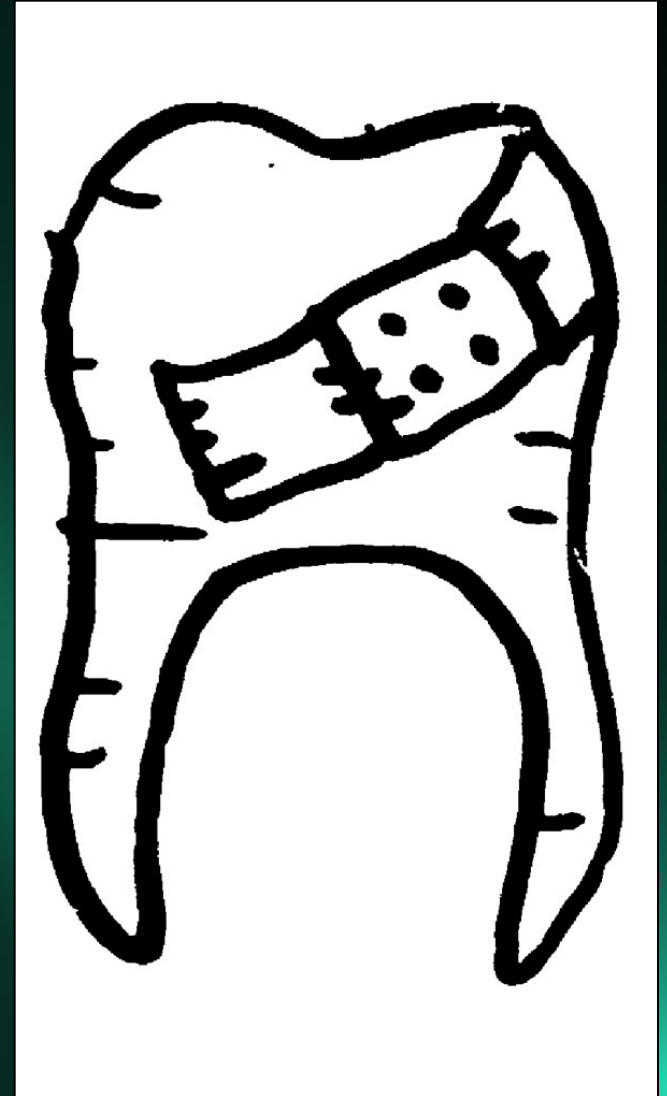
# Preventive dentistry

- Methods to prevent
- Dental caries
- Periodontal diseases



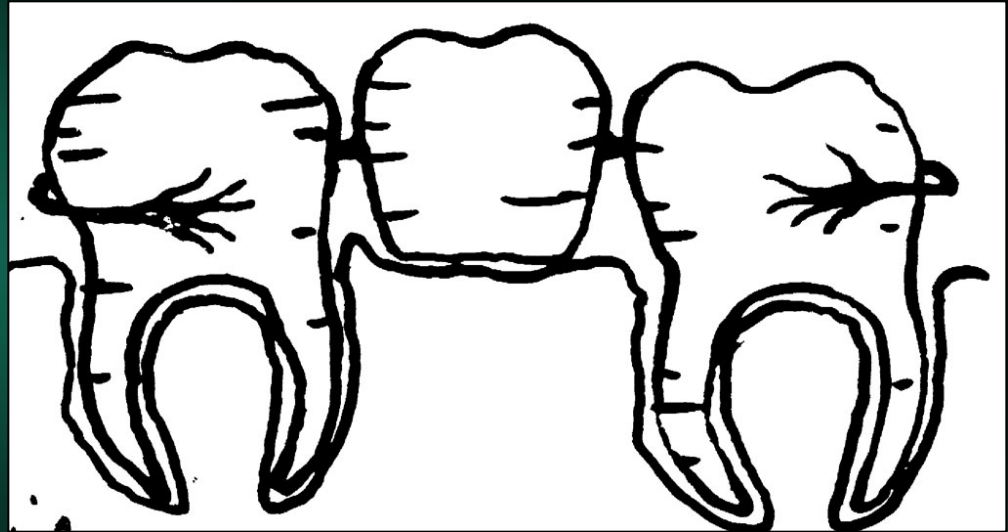
# Restorative dentistry (Operative dentistry)

- Caries therapy
- Esthetic dentistry
- Endodontics
- Endodontic surgery
- Materials



# Prosthetic dentistry

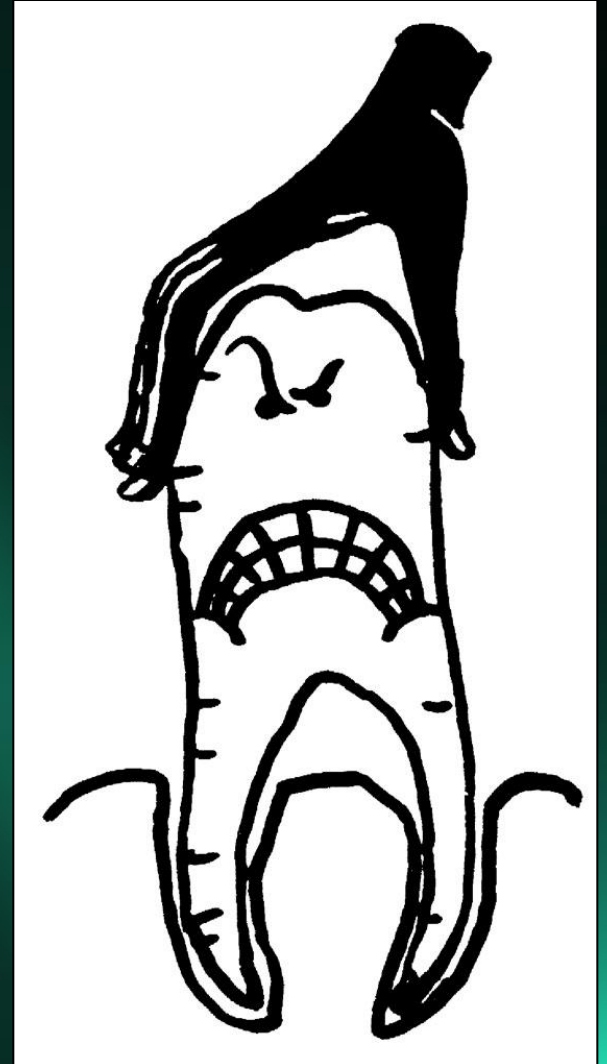
- Restoration of dentition
- Severely damaged teeth, missing teeth



- Fixed dentures
- Removable dentures
- Materials
- Laboratory technology

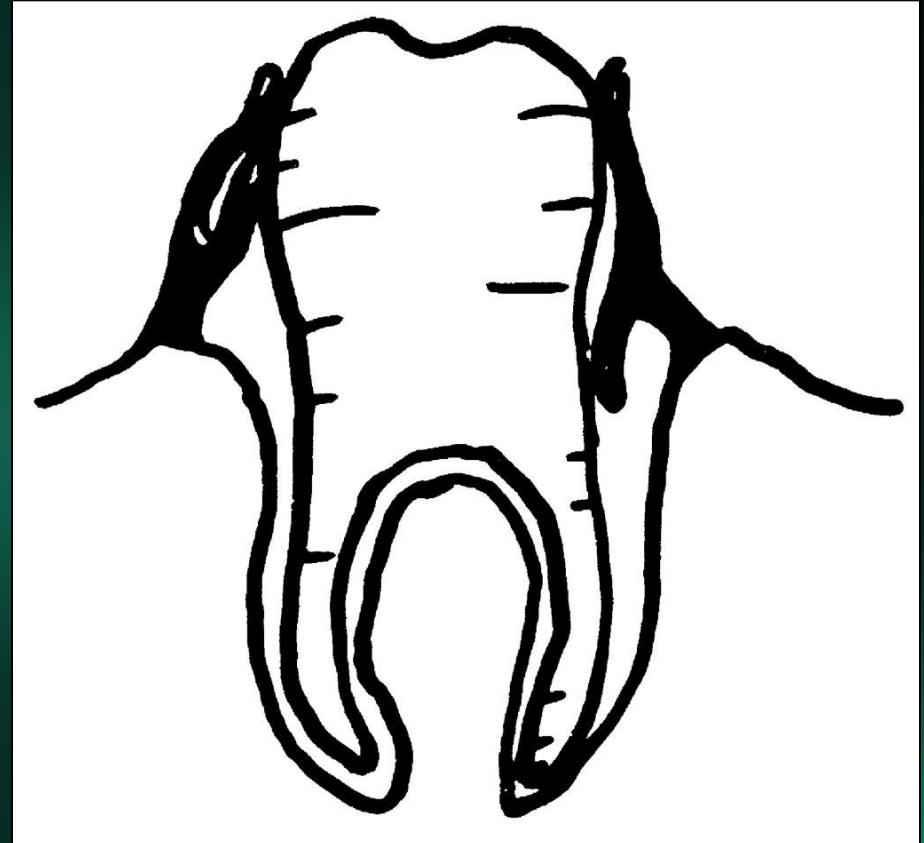
# Oral surgery

- Surgical intervention in the mouth
- Tooth extraction
- Incision
- Surgical extraction
- Apicoectomy
- Treatment of fractures, inflammations, tumors e.t.c.



# Periodontics

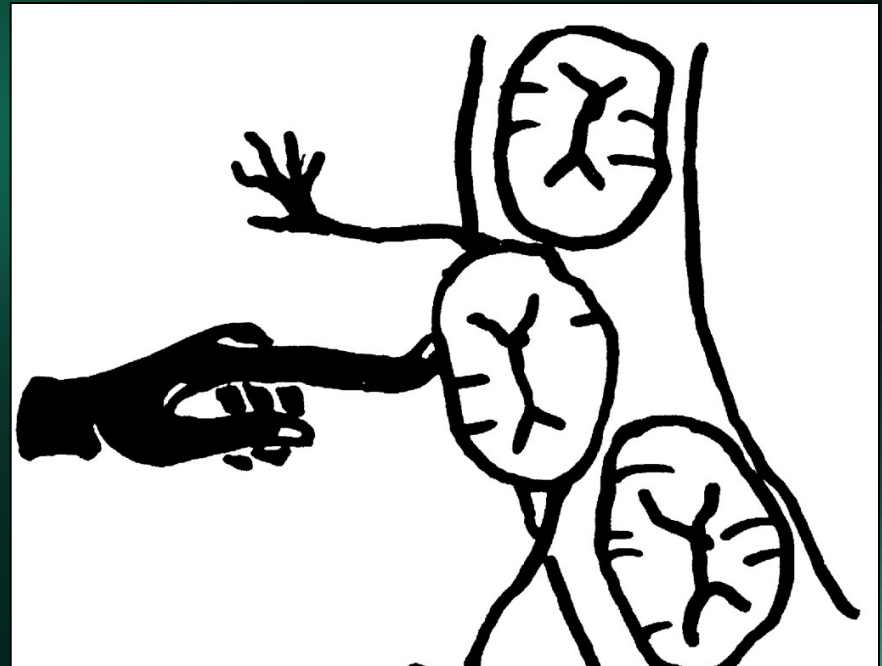
- Treatment of periodontal diseases
- Gingiva
- Periodontal membrane
- Bone
- Cement
  
- Treatment of oral mucous membrane diseases (Oral medicine)
  
- Injuries
- Local lesions (bad habits)
- Infection
- Immune system
- Systemic diseases
- Tumors





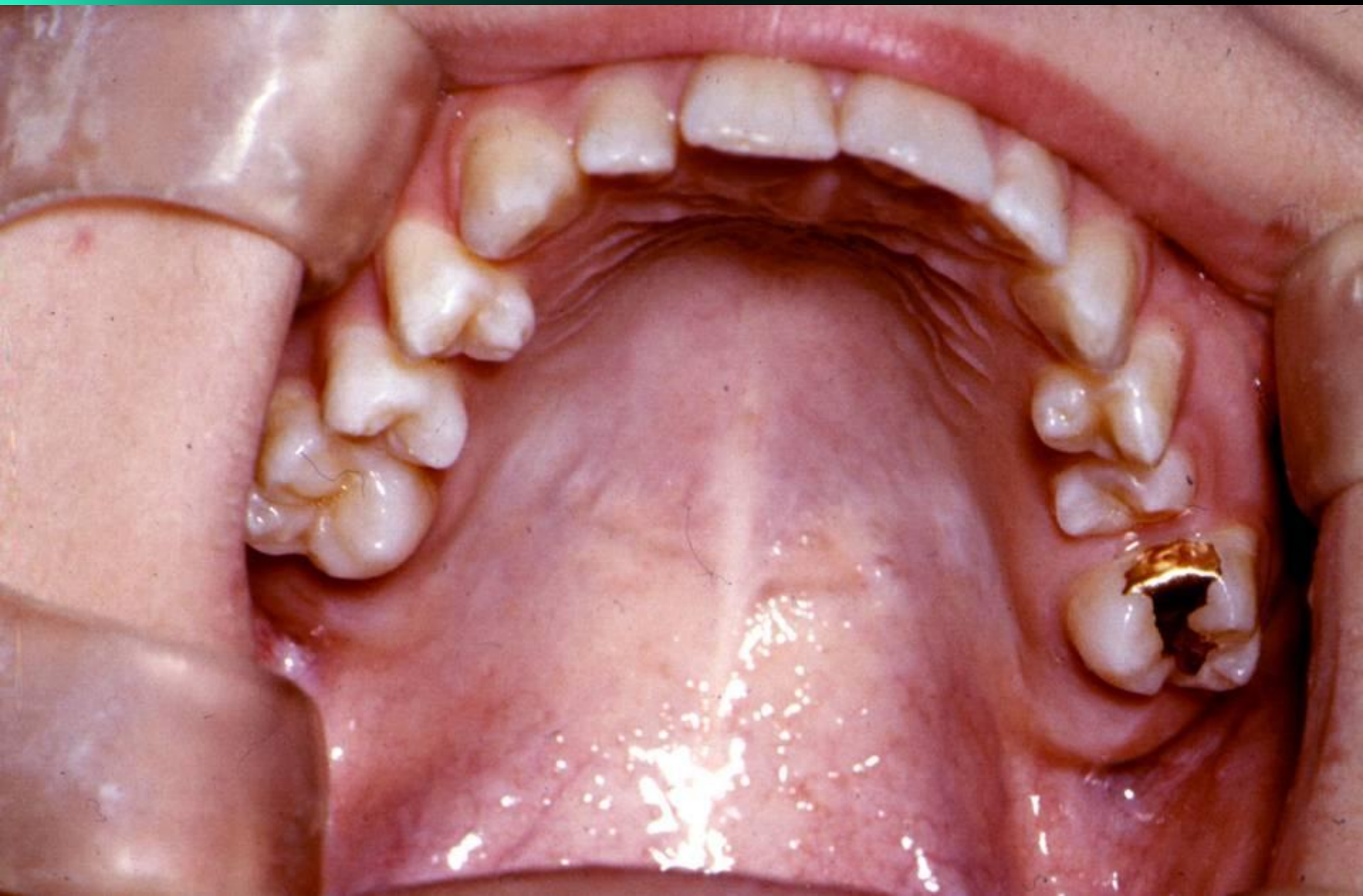
# Orthodontics

- Treatment of anomalies
- Tooth position
- Intermaxillary relations























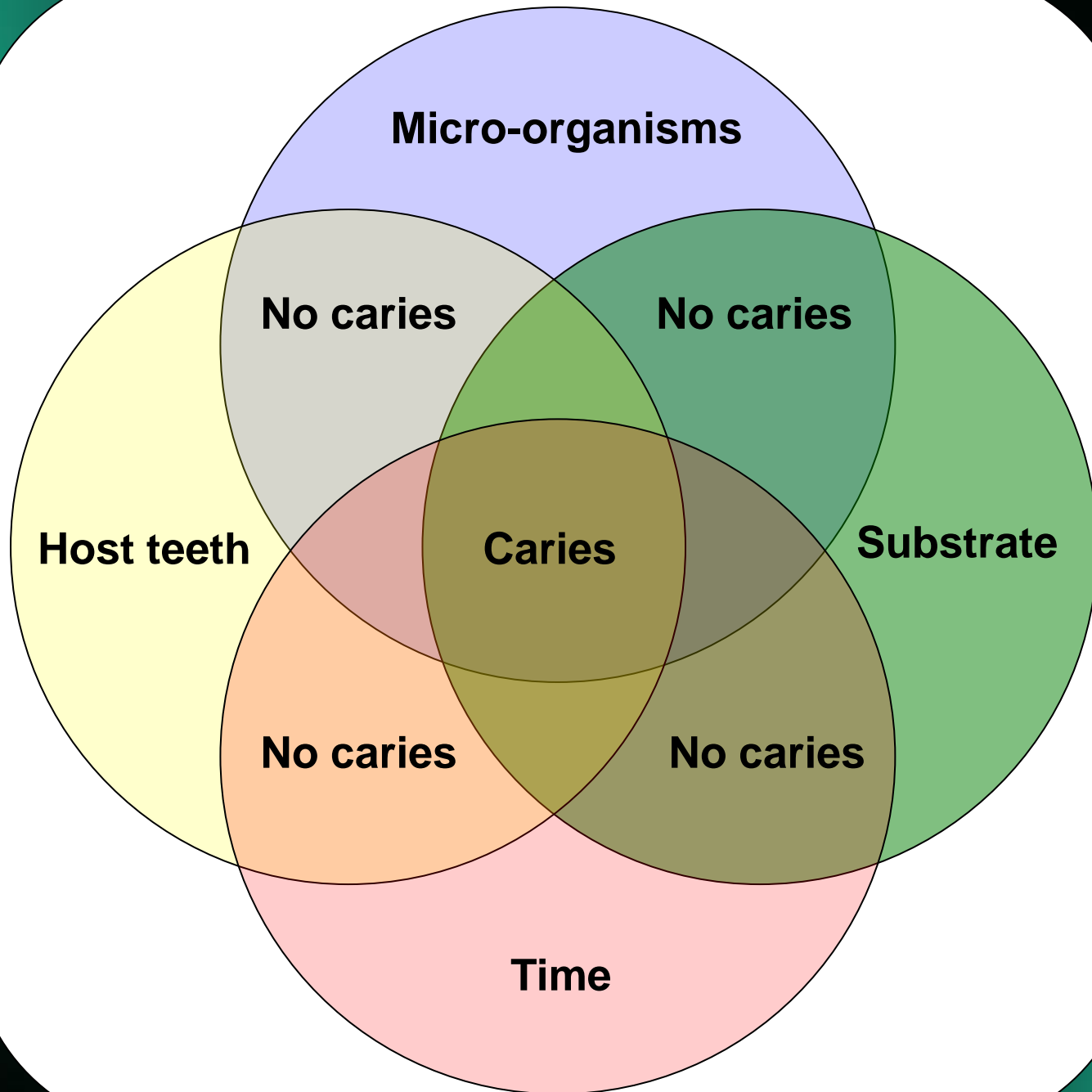


# DENTAL CARIES

- Wide - spread disease - affecting 80-90 % of population
- Multifactorial disease
- Now
- Infectious disease - microbial plaque

# FACTORS INFLUENCING CARIES DEVELOPMENT

1. Microbial plaque
2. Saliva (quantity, quality)
3. Composition of food
4. Hereditary factors
5. Orthodontic anomalies



# 1. MICROBIAL PLAQUE

- Glycoproteins from saliva - pellicle, covers the tooth surface
- **Microbs**
  - cocci (streptococcus mutans, lactobacilli)
  - short rods
  - aerobic, anaerobic
- Intermicrobial substance
- **Materia alba**
  - epithelial cells
  - leucocytes
  - remnants of food

## 2. SALIVA

- Water 99 %
- Organic substance - 0,2%
  - mucoids
  - albumins
  - globulins
  - Peptides
- Enzyme
  - amylase
  - esterase
  - lipase
  - peroxidase
- Lysosyme
- Anorganic substances 0,5 %
- Calcium
  - phosphate
  - carbonate
- K, Mg
  - chlorides
  - Sulphates
- Iodine
- Carbon dioxide = buffer buffering the pH of saliva



### 3. FOOD INTAKE (DIETARY HABITS)

Sugar intake - frequency, not quantity

Glucose, saccharose

The most dangerous - sweets sticking on the teeth, chocolate, honey

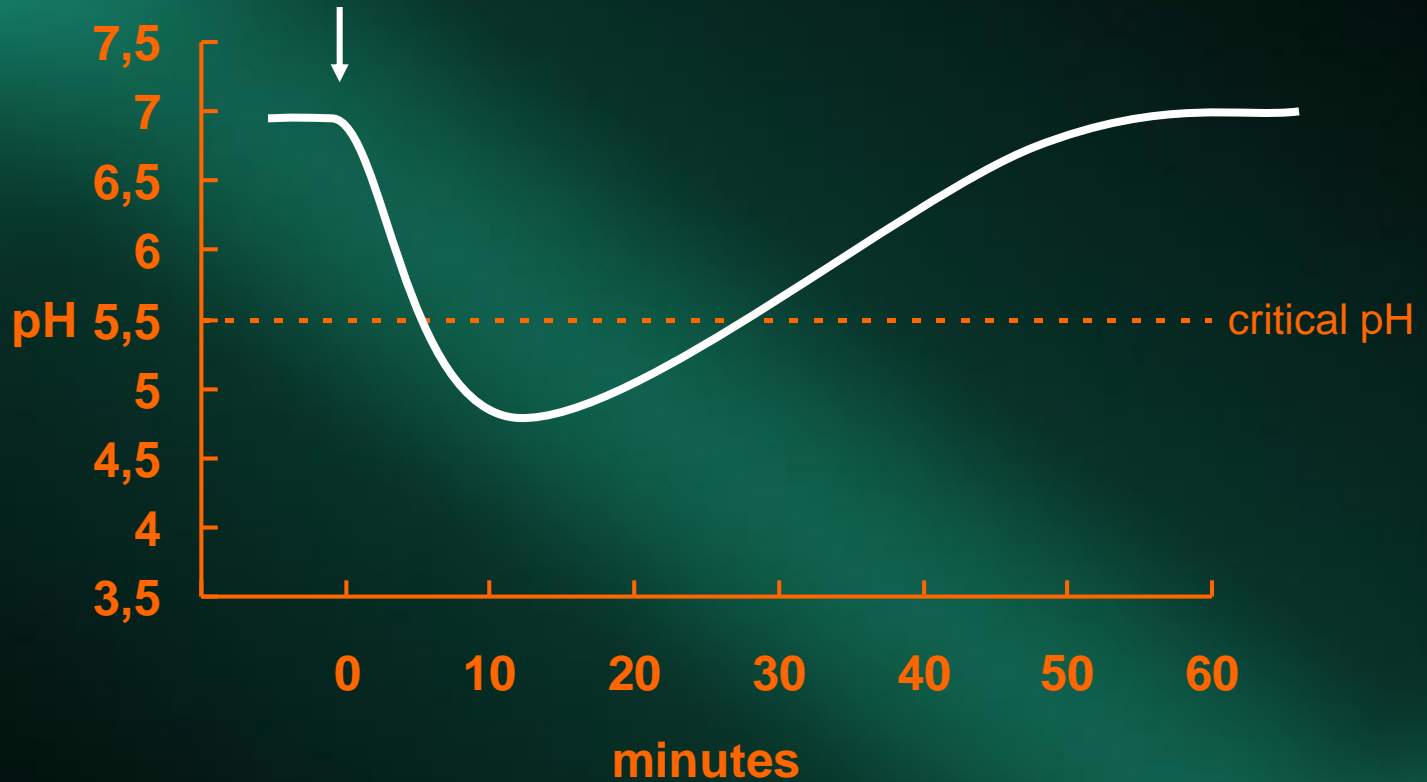
Sugars - fermented by microbial plaque to organic acids - then demineralization

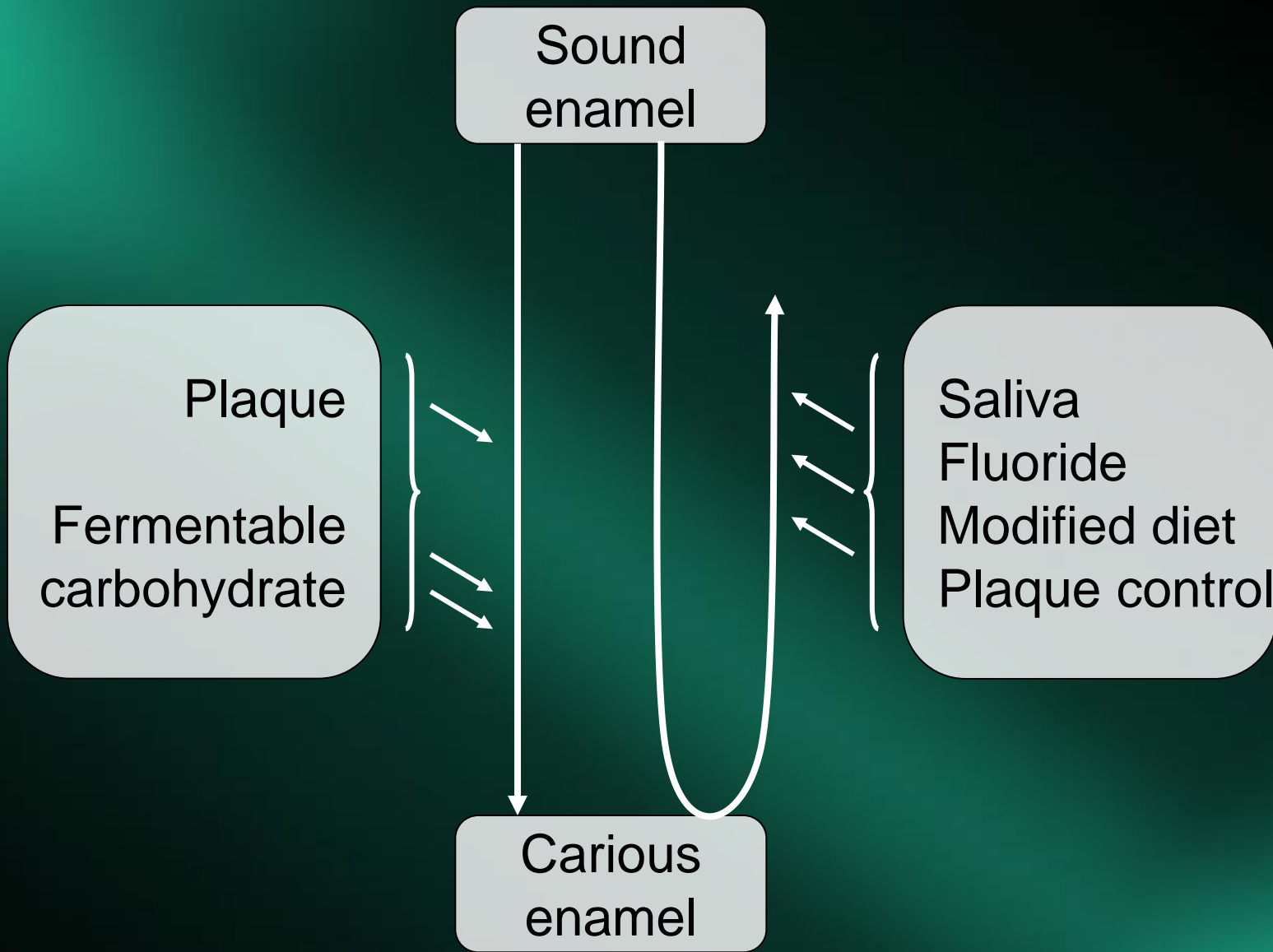
Stephen's curve

Sugars -bacteria- polysaccharides (storage of sugars)

Metabolized - lack of sugars in the food

# The Stephan curve





## 4. HEREDITARY FACTORS

No direct influence

- anatomy of the teeth - shape of the crown
- thickness of the enamel
- mineralization of the enamel
- orthodontic anomalies (crowding)

# LOCALIZATION OF CARIES

Habitually unclean areas, susceptible sites (retention of plaque)

- pits and fissures, approximal surfaces of molars and premolars
- cervical parts
  - oral
  - vestibular

Primary caries

Secondary caries (along margins of fillings)  
(recurrent)

Acute caries - conical shape

Chronic caries - undermining the enamel

# CLASSIFICATION OF CARIES (BLACK – 5 CLASSES)

- I. class - molars, premolar, occlusal surfaces - fissures, foramina (pits)
- II. class - molars, premolars - approximal surfaces
- III. class - frontal teeth - approximal surfaces
- IV. class - frontal teeth - incisal corners lost
- V. class - cervical region - oral, vestibular

# CLINICAL SYMPTOMS

Incipient caries / no pain - (affecting enamel) - white spots or brown pigmentation

Caries affecting dentine / no pain

Soft on probing :

- caries superficials
- caries media

Pain may be evoked by a direct irritation of the tooth by mechanical, chemical, thermal stimuli

Pain disappears when irritant is removed

Clinical signs - irregular, rough surface, cavitation with sharp edges (retention of food)

# CARIES PULPAE PROXIMA - SPREADING OF THE CARIOUS PROCESS

Defense reaction of the dental pulp - tertiary dentine (irregular, irritation)

Dentine tubules - irregular course , lower number

Histologically - no inflammation of the dental pulp

Clinically - no signs of pulpitis

Pain evoked by cold, sweet ,salty , sour stimuli

Pain disappears with disappearance of stimuli



# TREATMENT

- superficial caries,
- caries media

Caries excavation, cavity preparation, basis, filling.

- caries p.p. \ indirect pulp capping (no exposure of the dental pulp)

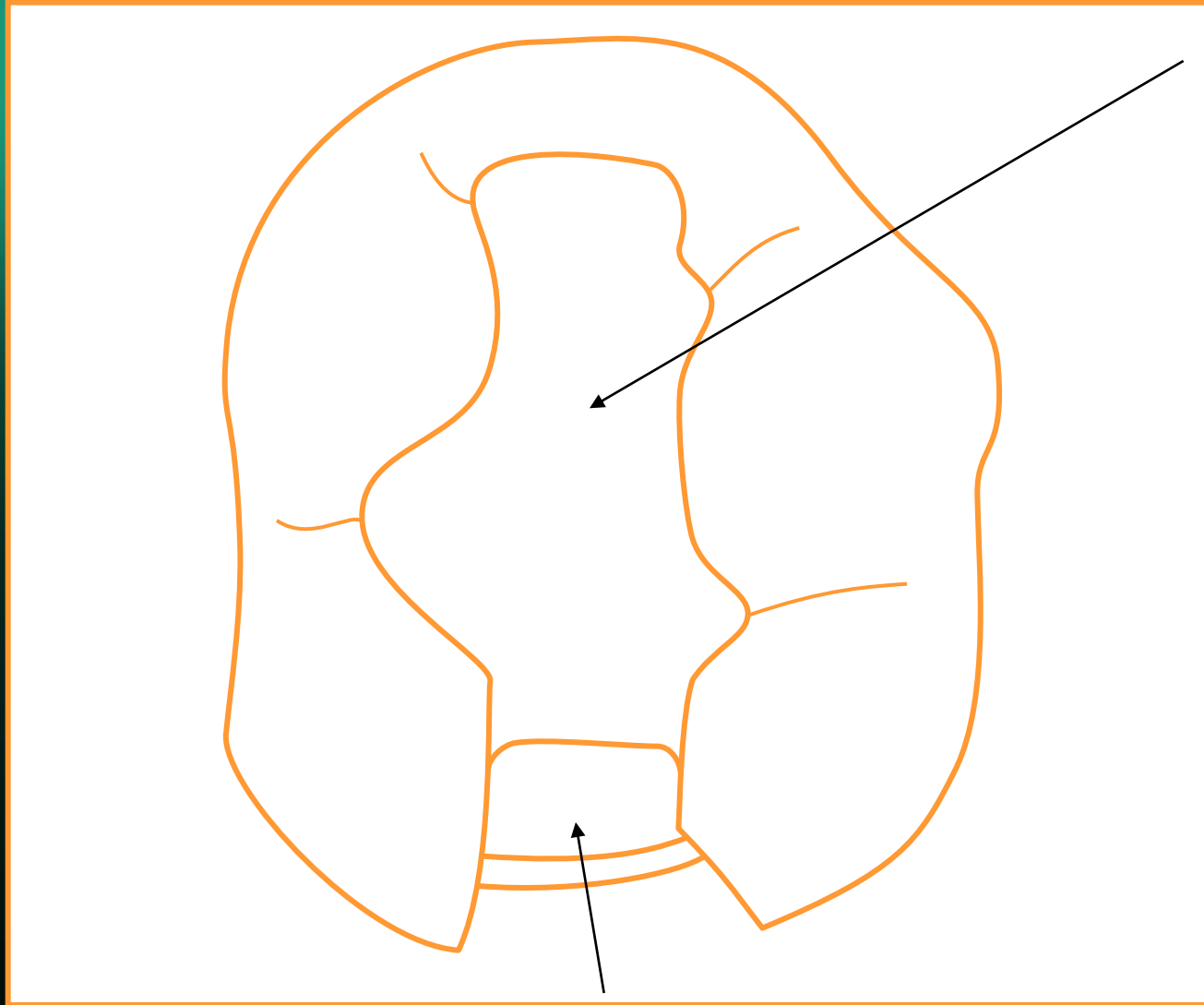
direct pulp capping (exposure of the dental pulp)

# MATERIALS USED FOR THE TREATMENT OF THE DENTAL CARIES

- carious structures must be carefully removed (undermined enamel, soft dentine, soft cement)
- cavity must be shaped to provide good
  - retention of the filling
  - resistance of the filling (to withstand masticatory forces)
  - resistance of the tooth (not to fracture , to be resistant enough)

All caries susceptible sites must be involved in the cavity (fissure system)

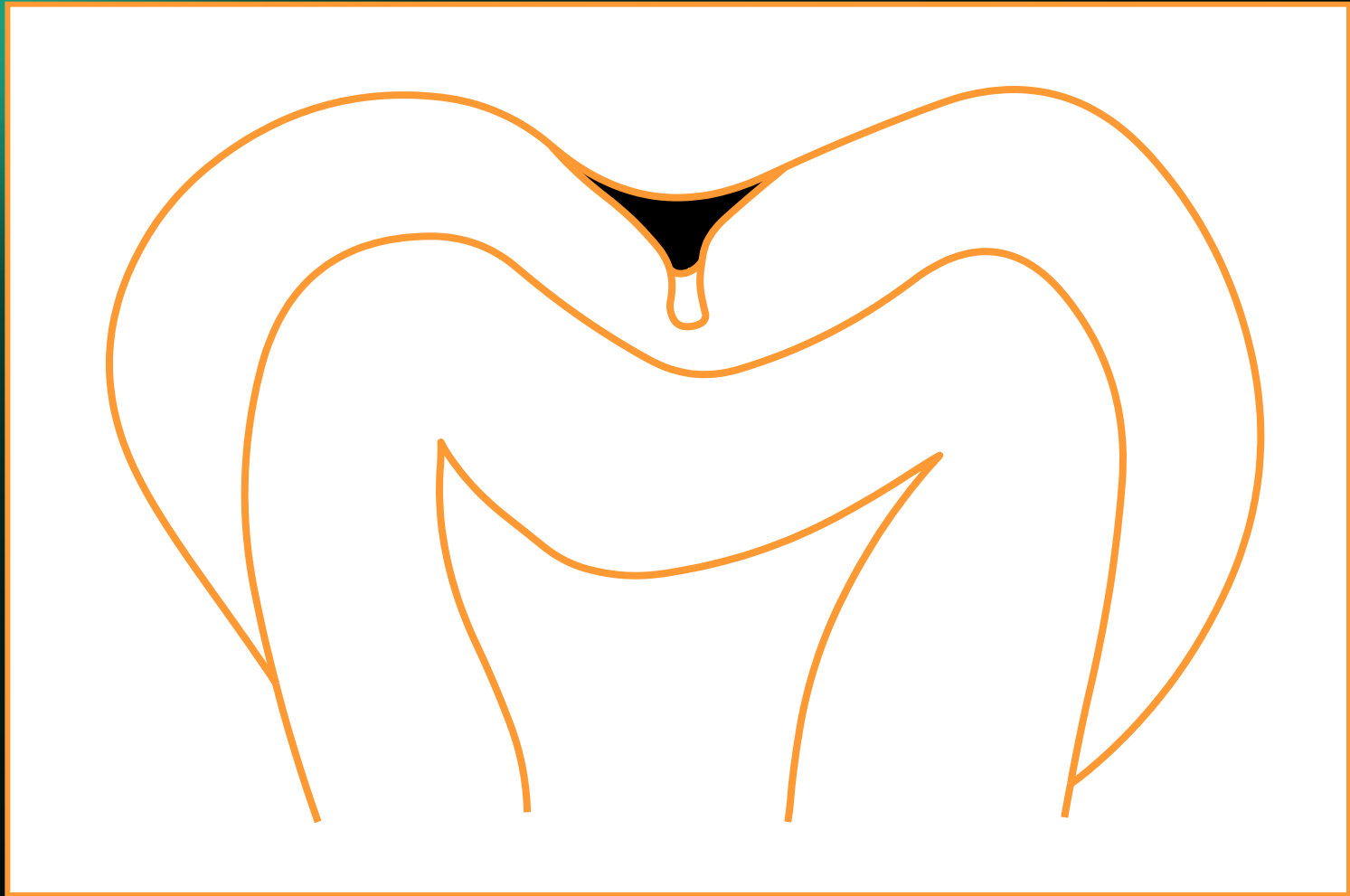
# occlusal outline



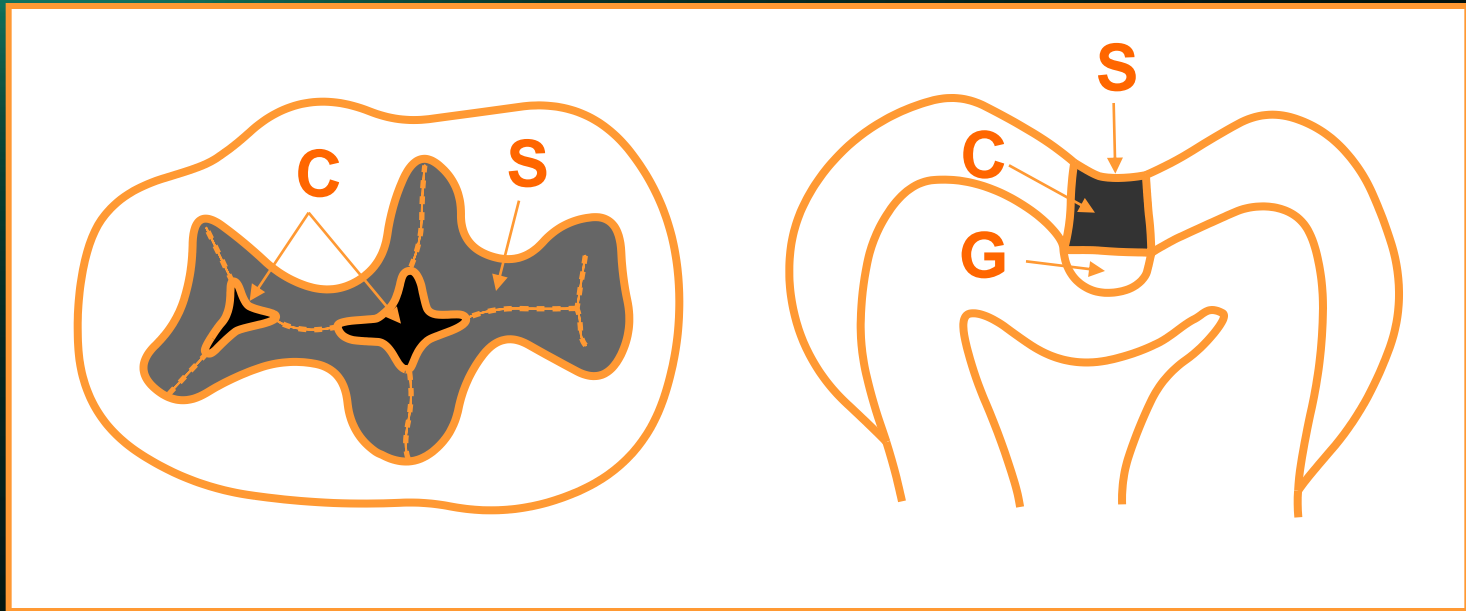
pulpal floor of the occlusal box

gingival floor of the approximal box

Fissure sealing blockades the entrance to the underlying fissure



# Preventive resin restoration



C = composite resin

G = glass ionomer cement

S = sealant

# MATERIALS USED FOR THE TREATMENT OF THE DENTAL CARRIES

## Materials

- permanent
- temporary

## Insulating base (to protect dental pulp against irritation)

- zincoxyd phosphate cement
- carboxyl cement
- zincoxy- eugenol cement

# DISEASES OF THE DENTAL PULP

## Causes:

- infection
  - chemical
  - physical
  - combined
  - mechanical
- } irritation

# DISEASES OF THE DENTAL PULP

## Bacterial infection

- caries - dentine tubuli - dental pulp
- foramen apicale - less frequently (deep periodontal pocket)
- hematogenic way
- chemical irritation - filling materials without bases (composite resins, glass ionomers)
- dental pulp involvement

Acute trauma

Chronic traumatic irritation



# DISEASES OF THE DENTAL PULP

## Inflammation - pulpitis

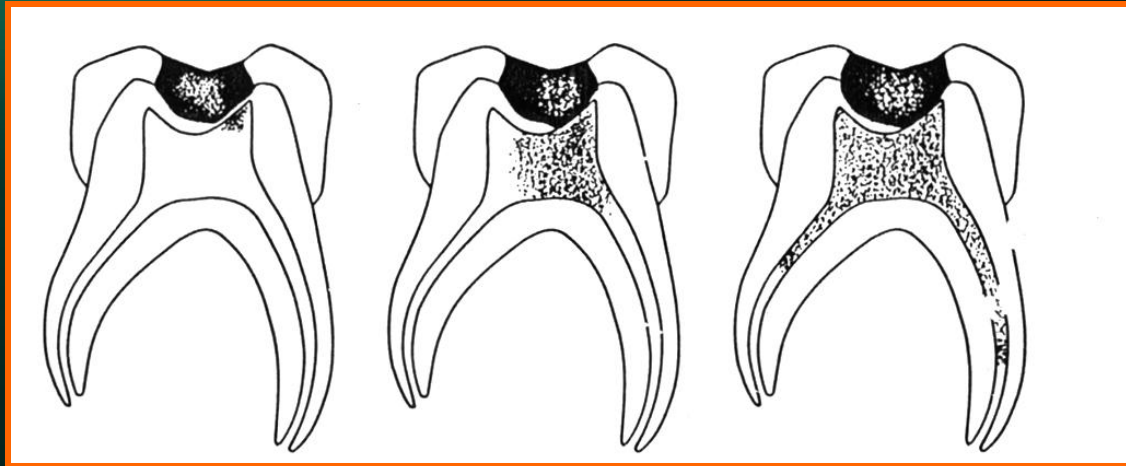
Hyperemia - reversible state

Pain (short, well localized) - cold, hot, sweet, biting  
disappears when the cause of irritation is removed

## Treatment

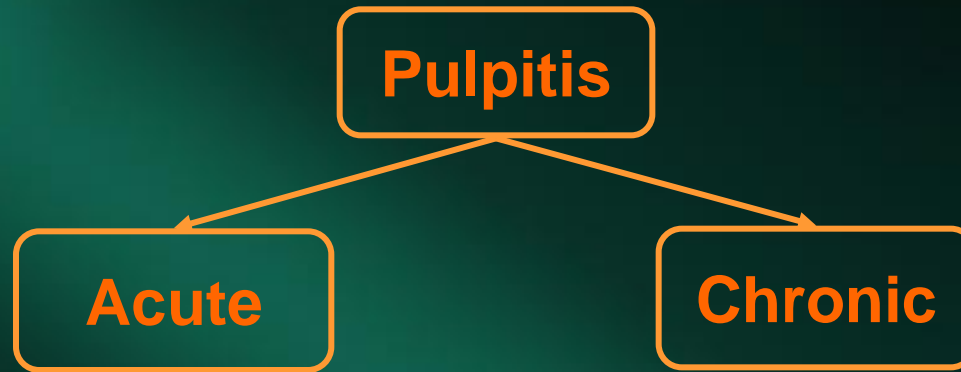
- caries removal
- indirect dental pulp capping  $\text{Ca}(\text{OH})_2$  application
- temporary filling

Permanent filling - 6-8 weeks later



Extent of chronic inflammation in the pulp of deep carious lesions (left), in partial chronic pulpitis (centre) and in total chronic pulpitis

# DISEASES OF THE DENTAL PULP



## Acute

serous (partial, total)

suppurative (partial, total)

## Chronic

open, closed

open - ulcerative, hyperplastic (polyp)

closed - internal resorption (pink spot), retrograde

# DISEASES OF THE DENTAL PULP

## CLINICAL SYMPTOMS

### Serous pulpitis

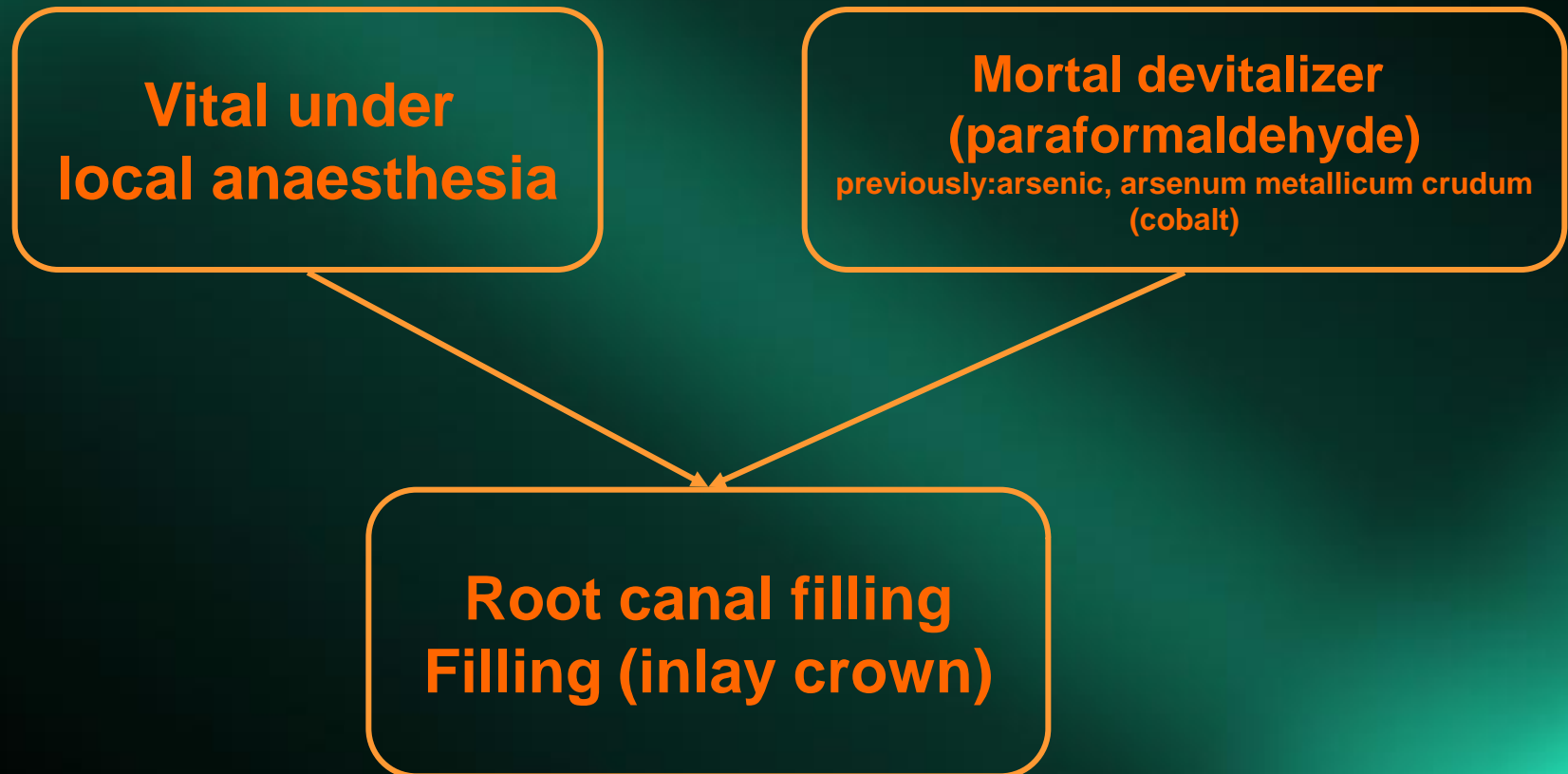
- pain starts spontaneously (on its own accord) in the evening, in the night
- sharp, throbbing
- intensity reaches crescendo and diminishes
- cold stimuli increase the pain
- hot stimuli calm the pain

### Suppurative pulpitis

- symptoms similar, more pronounced
- cold stimuli ease the pain
- hot stimuli increase the pain
- in severe case - the raise of temperature

# DISEASES OF THE DENTAL PULP

Exstirpation - removal of the entire dental pulp



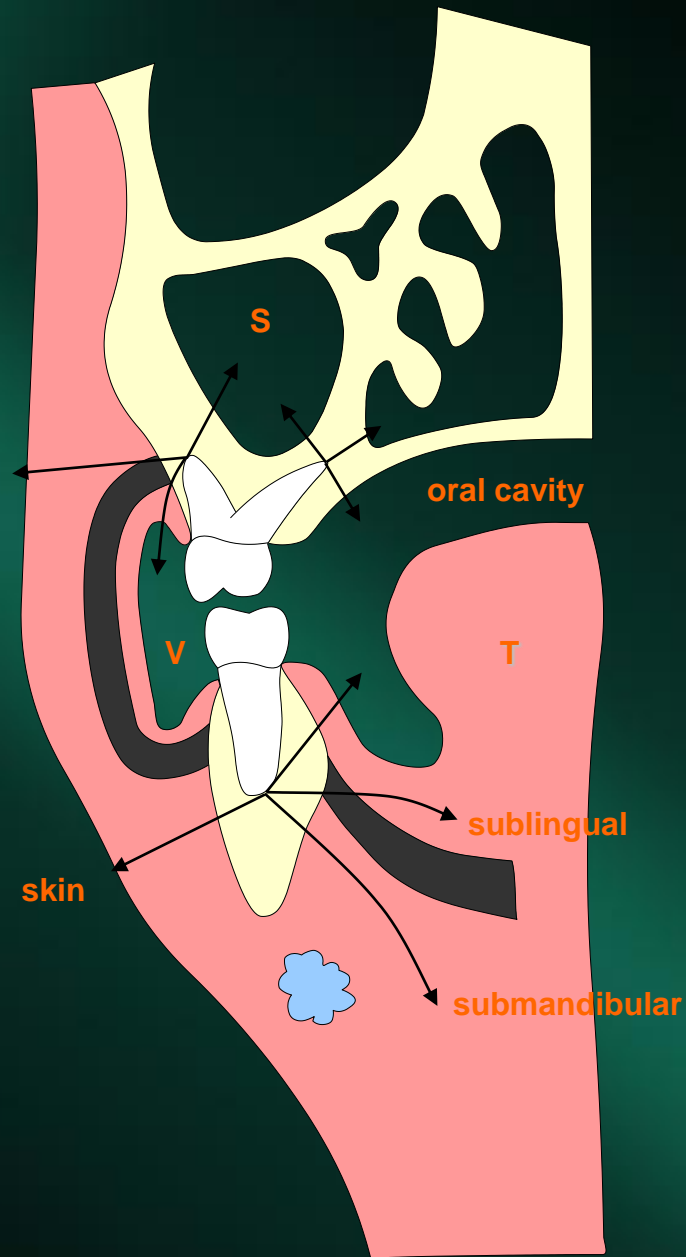
# DISEASES OF THE DENTAL PULP

## PERIODONTITIS

Inflammatory changes - transfer from the root canal into the apical periodontium.

infection - untreated caries

Less frequently - trauma, chemical agents



This coronal section shows the directions that may be taken by pus from an apical abscess.

# DISEASES OF THE DENTAL PULP

## ACUTE PERIODONTITIS

Extent of inflammatory changes - 4 phases

- periodontal phase - surrounding of the apex
- intraosseal phase - serous exsudation, pus formation in the bone
- subperiosteal phase inflammatory changes reach the periosteum
- submucous phase - inflammatory exudate

cortical plate + periosteum perforated

a- penetrates into soft tissues - abscess

b- spreading without abscess formation - phlegmone (cellulitis)



# DISEASES OF THE DENTAL PULP

## CLINICAL FEATURES

Tenderness of the affected tooth, throbbing pain, pain on pressing, biting, percussion, touch.

Sensitivity in the periapical region, infiltration of submucosa, swelling, redness, fluctuation.

Pain is increased by hot stimuli, no response to cold, the affected tooth can be localized.

Lymphadenopathy, fever, headache, chills, malaise

The most severe pain - subperiosteal abscess

Submucous phase (fistula - vestibule channelizing through soft tissue)= relief



# DISEASES OF THE DENTAL PULP

## CHRONIC PERIODONTITIS

Formation of granulation tissue

Diffuse periodontitis

Localized periodontitis

granuloma

cystogranuloma

cyst (radicular)

## Diagnostics

- no pain
- X-ray : radiolucency diffuse- localized
- fistule

Change - from chronic to acute periodontitis (exacerbation, phoenix abscess)

Clinical signs - correspond to those of acute periodontitis

X- ray - radiolucency

# DISEASES OF THE DENTAL PULP

## TREATMENT

- a) conservative
- b) surgical

### a) Conservative treatment

Removal of the gangrenous tissue

Shaping, enlargement of the root canal

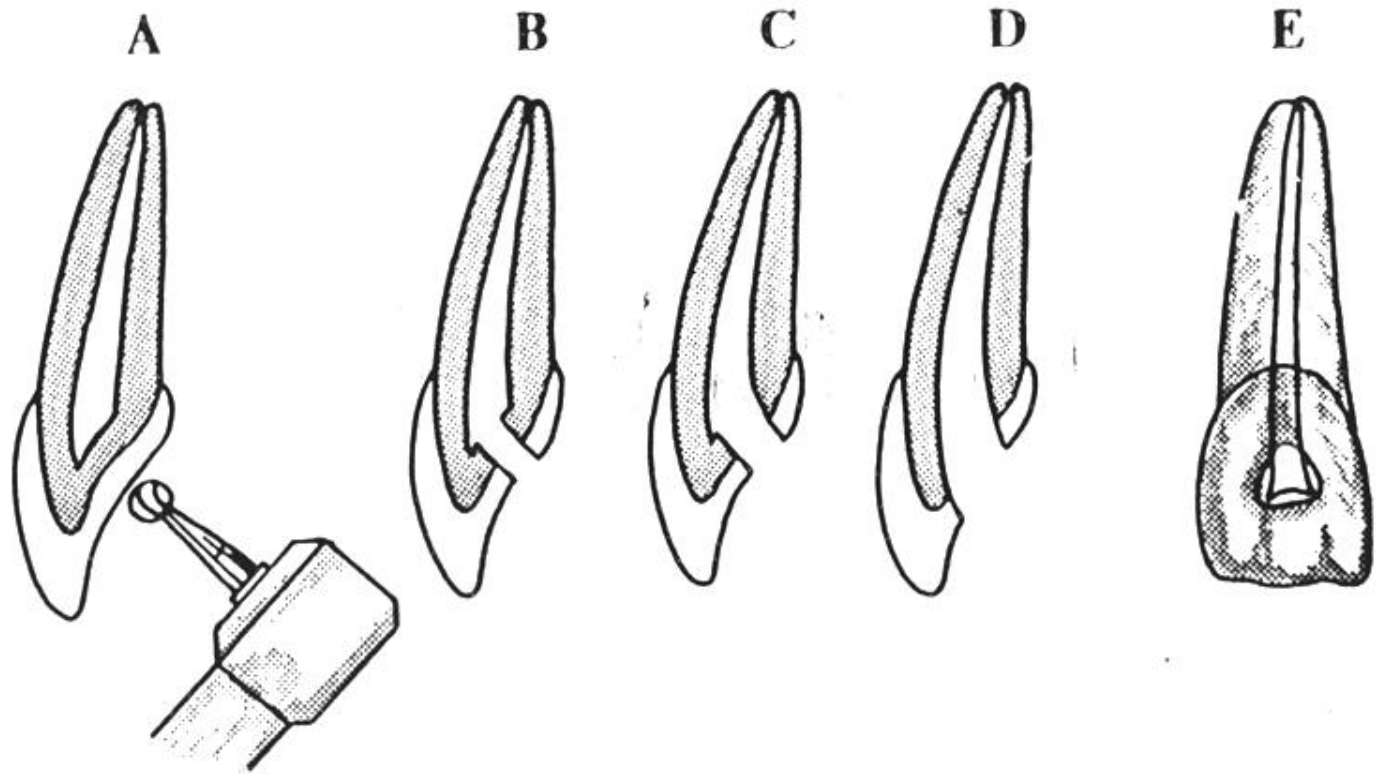
Disinfection of the root canal (sodium hypochloride)

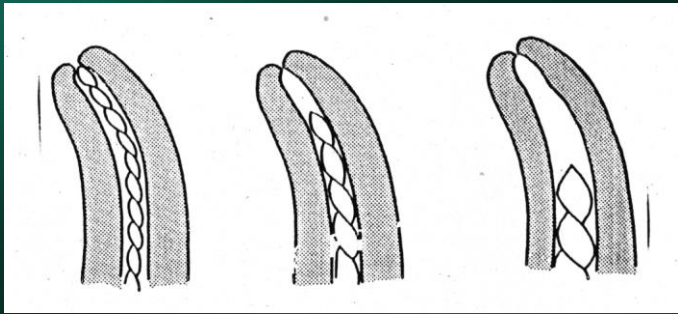
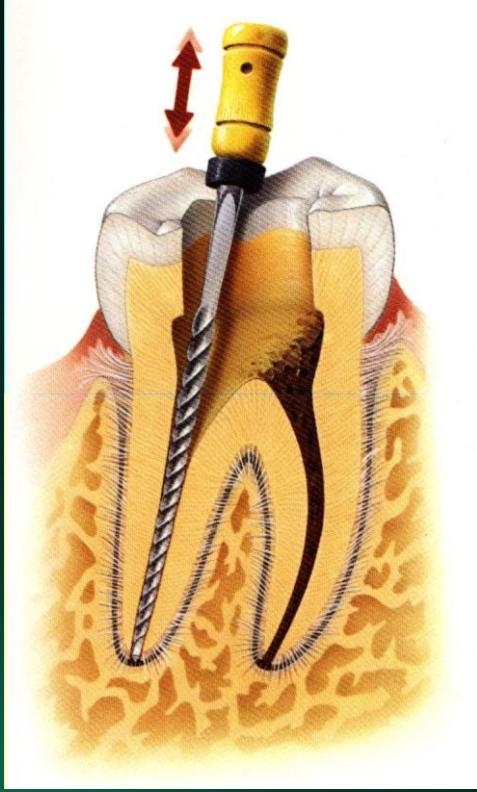
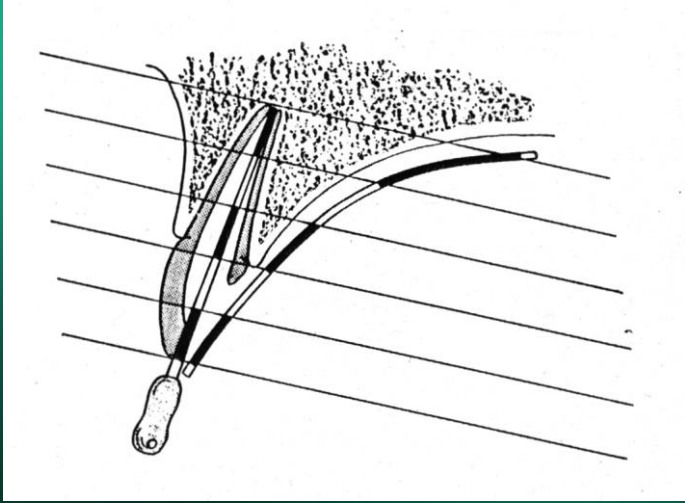
Root canal filling

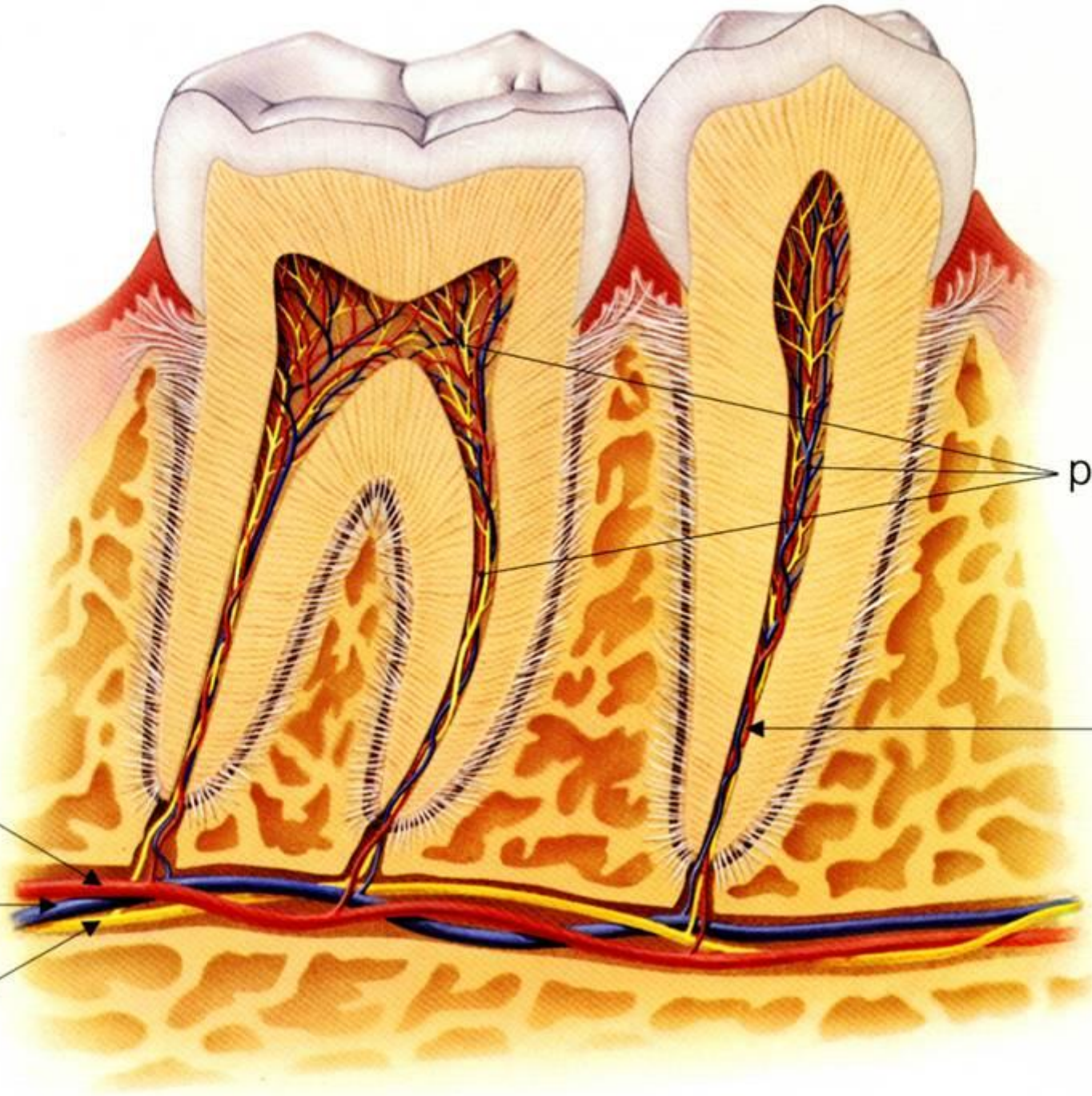
### b) Surgical treatment

1 - conservative treatment followed by apicoectomy

2 - extraction







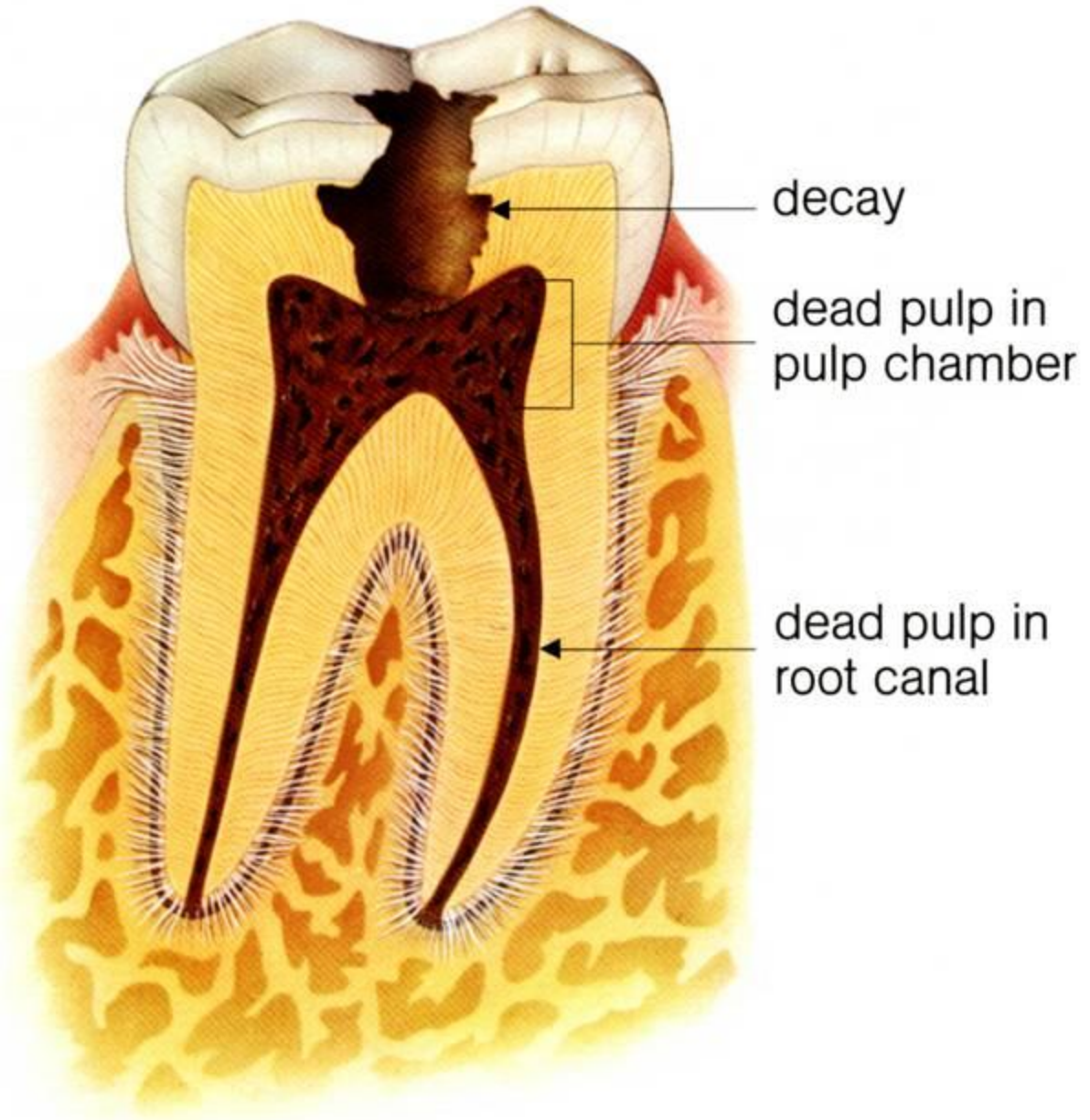
pulp

branches  
of artery,  
vein,  
and nerve  
in pulp

artery

vein

nerve

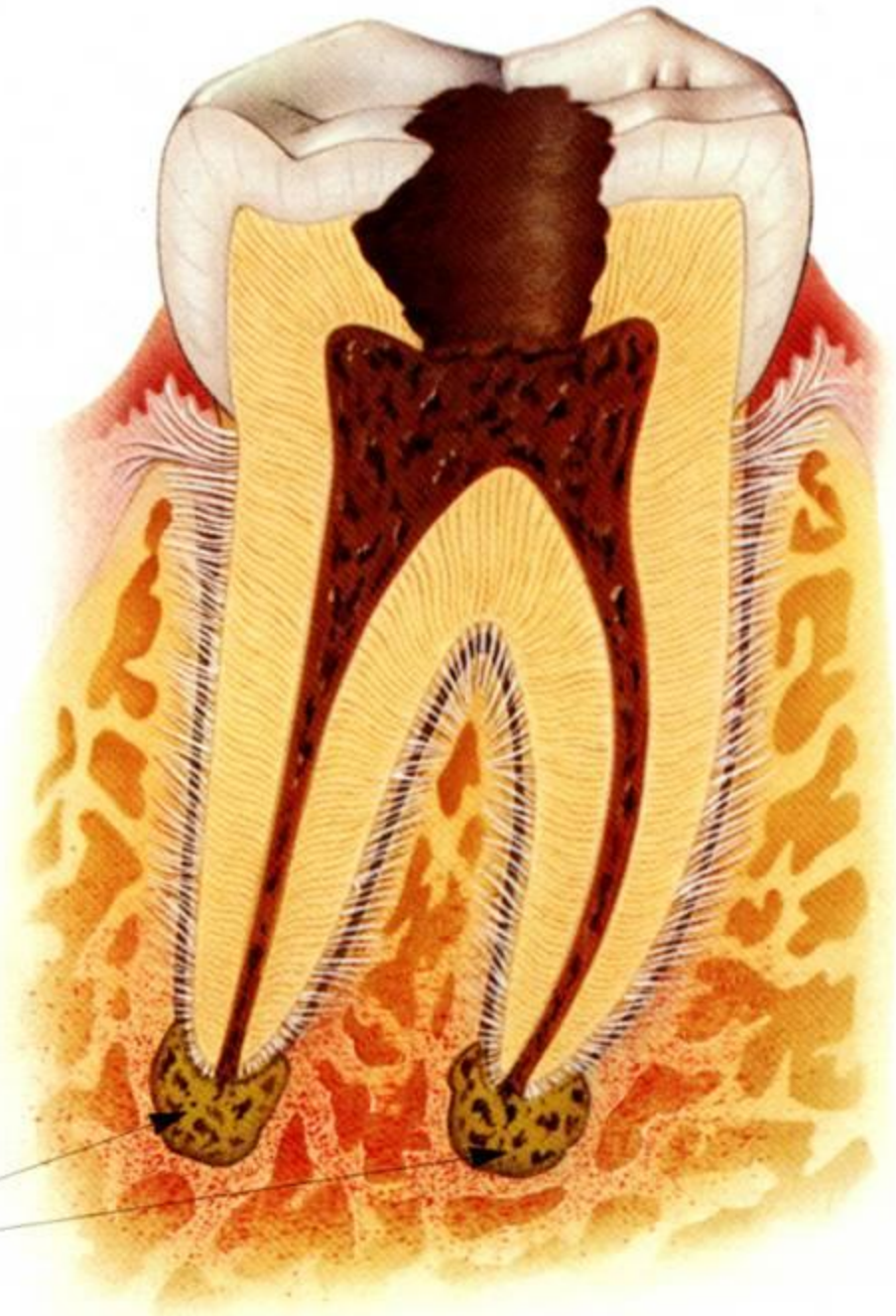


decay

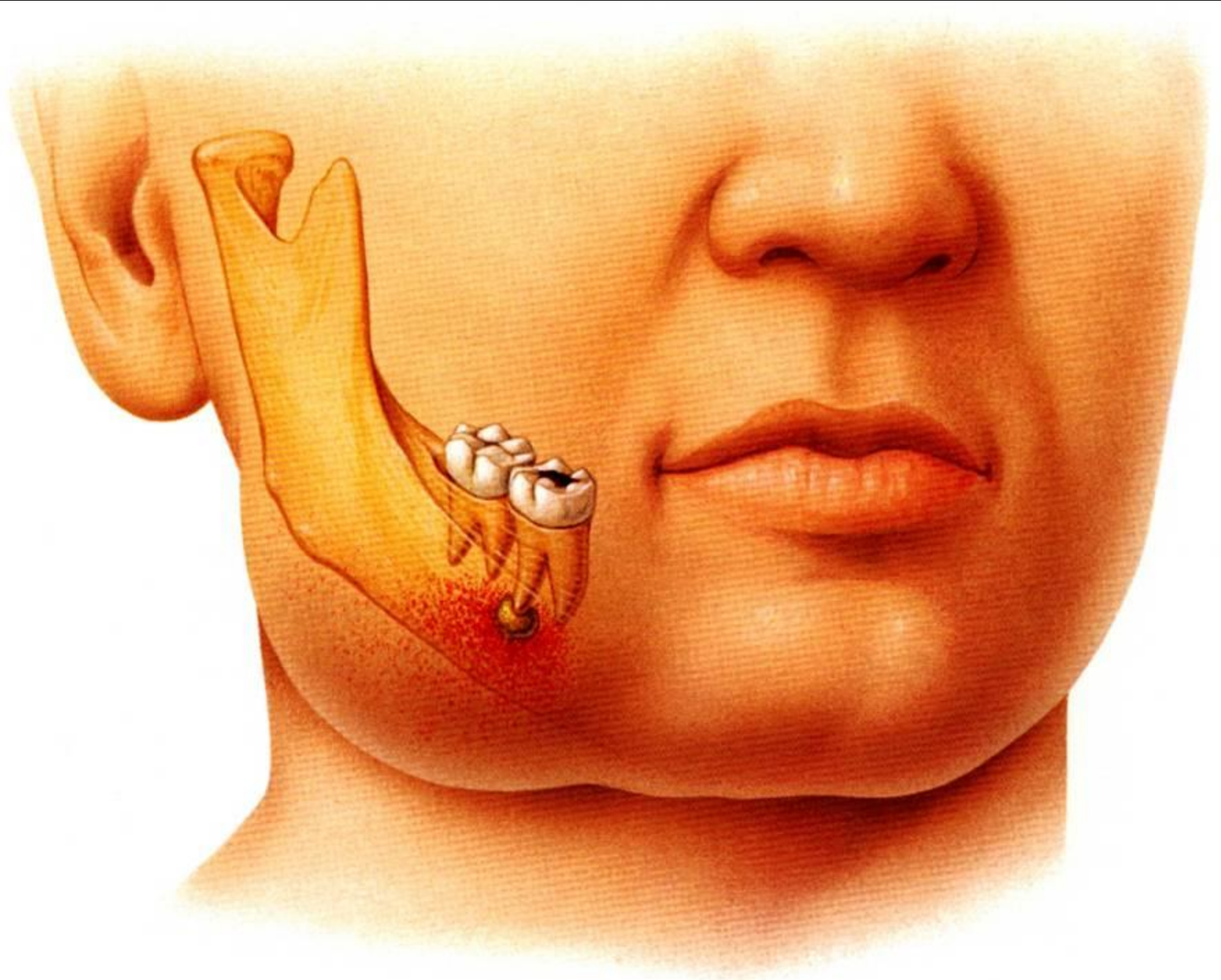
dead pulp in  
pulp chamber

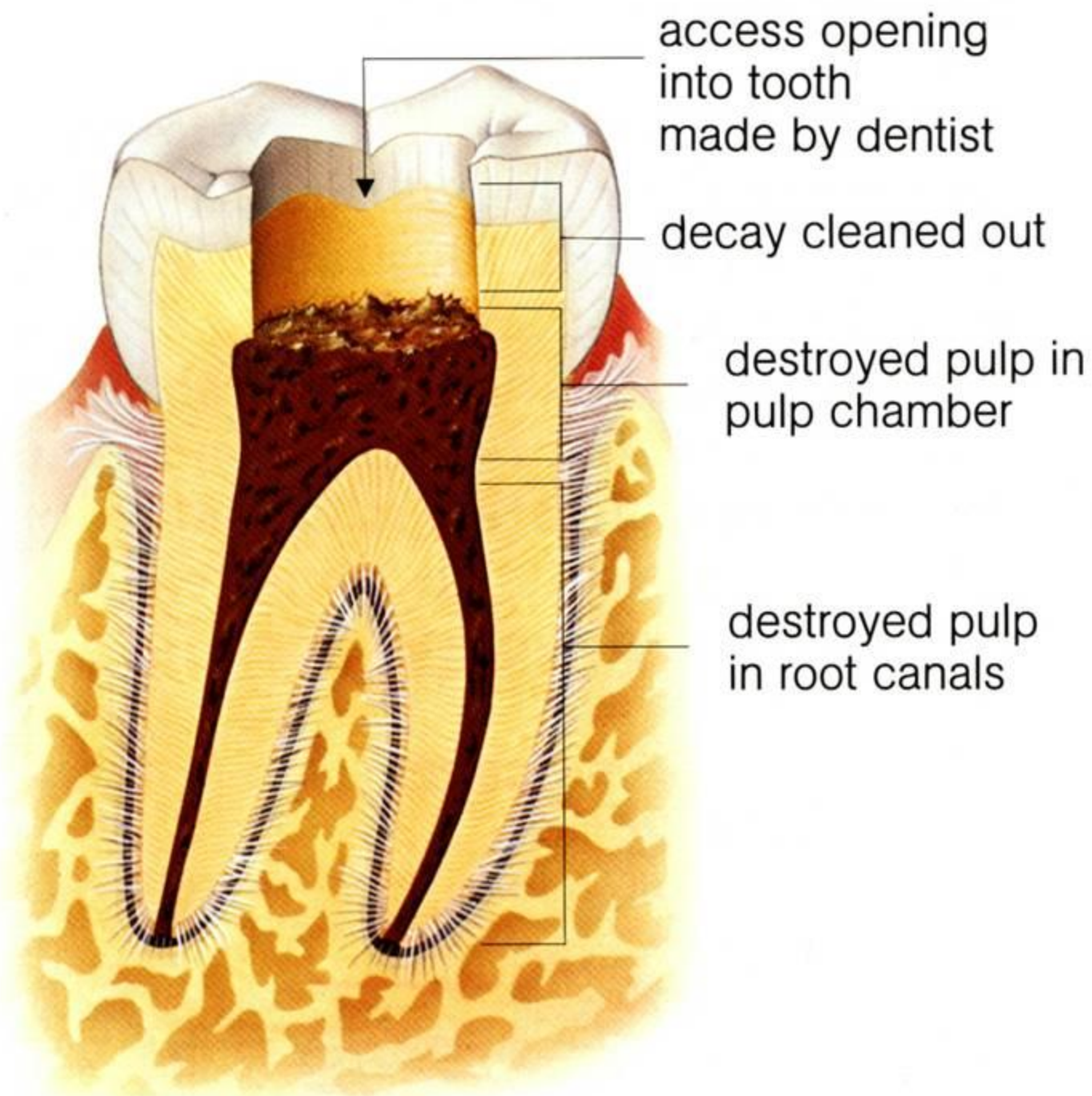
dead pulp in  
root canal





Inflammation  
in the  
jawbone





access opening  
into tooth  
made by dentist

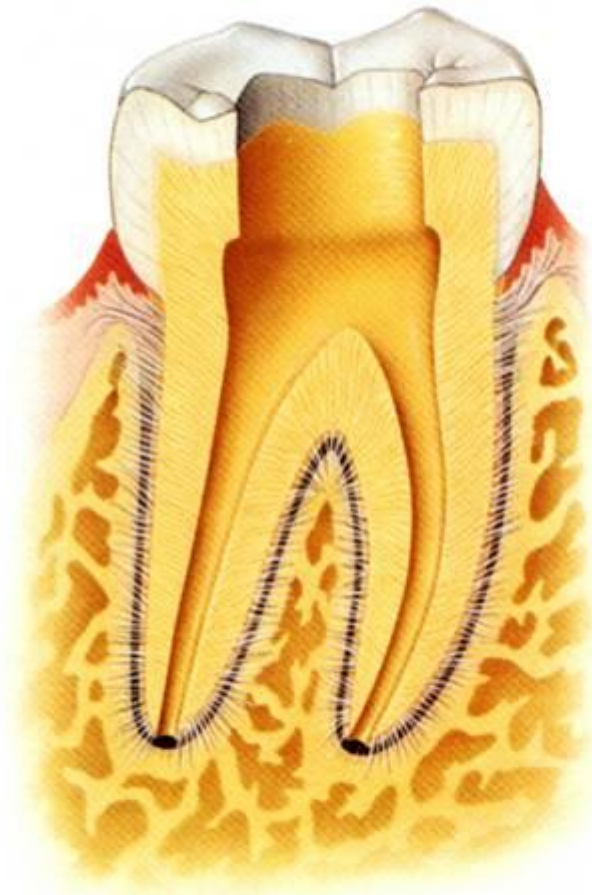
decay cleaned out

destroyed pulp in  
pulp chamber

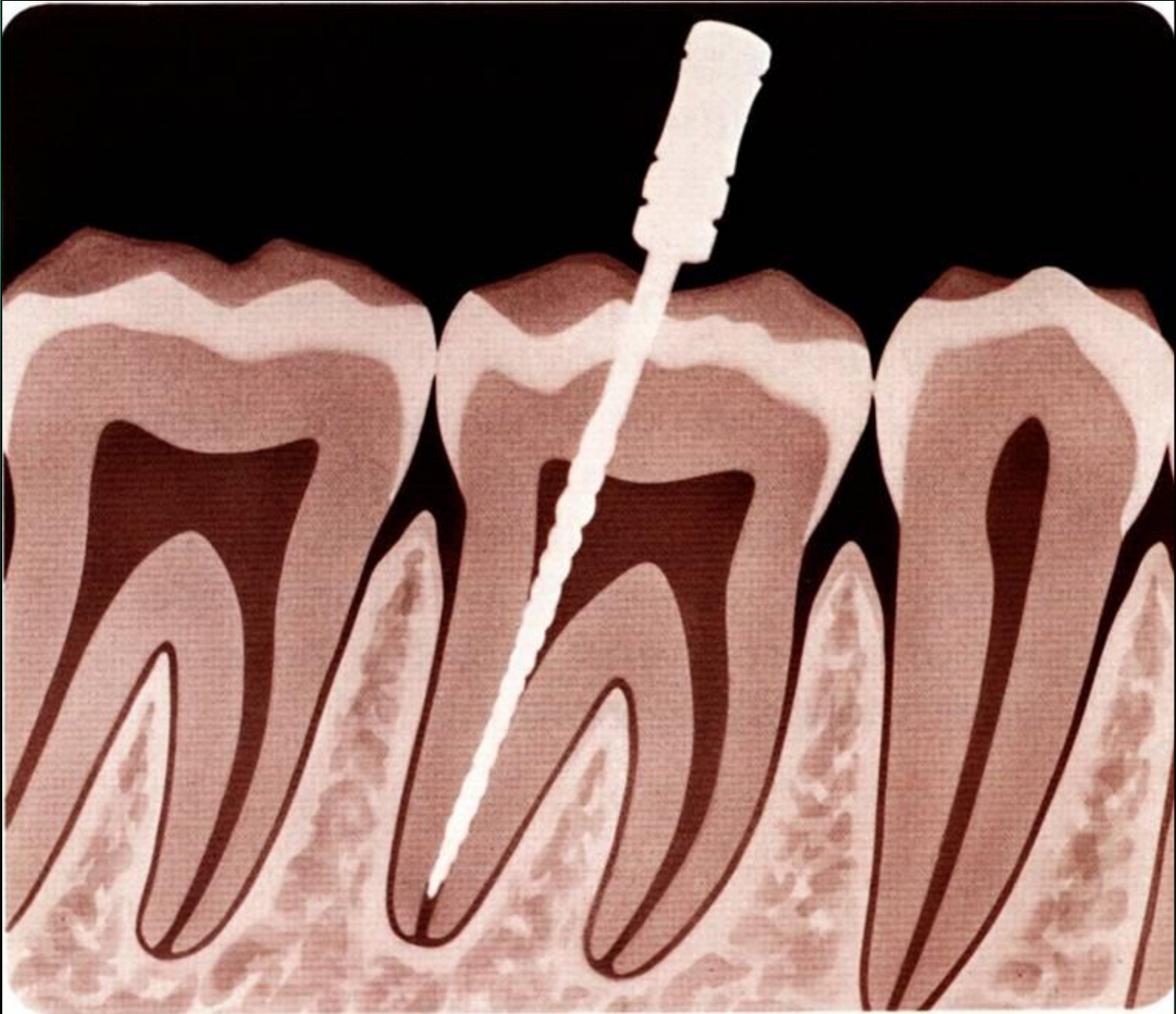
destroyed pulp  
in root canals



A file is used to clean and then shape the canals.



The canals are now prepared (shaped) to receive the root canal filling.



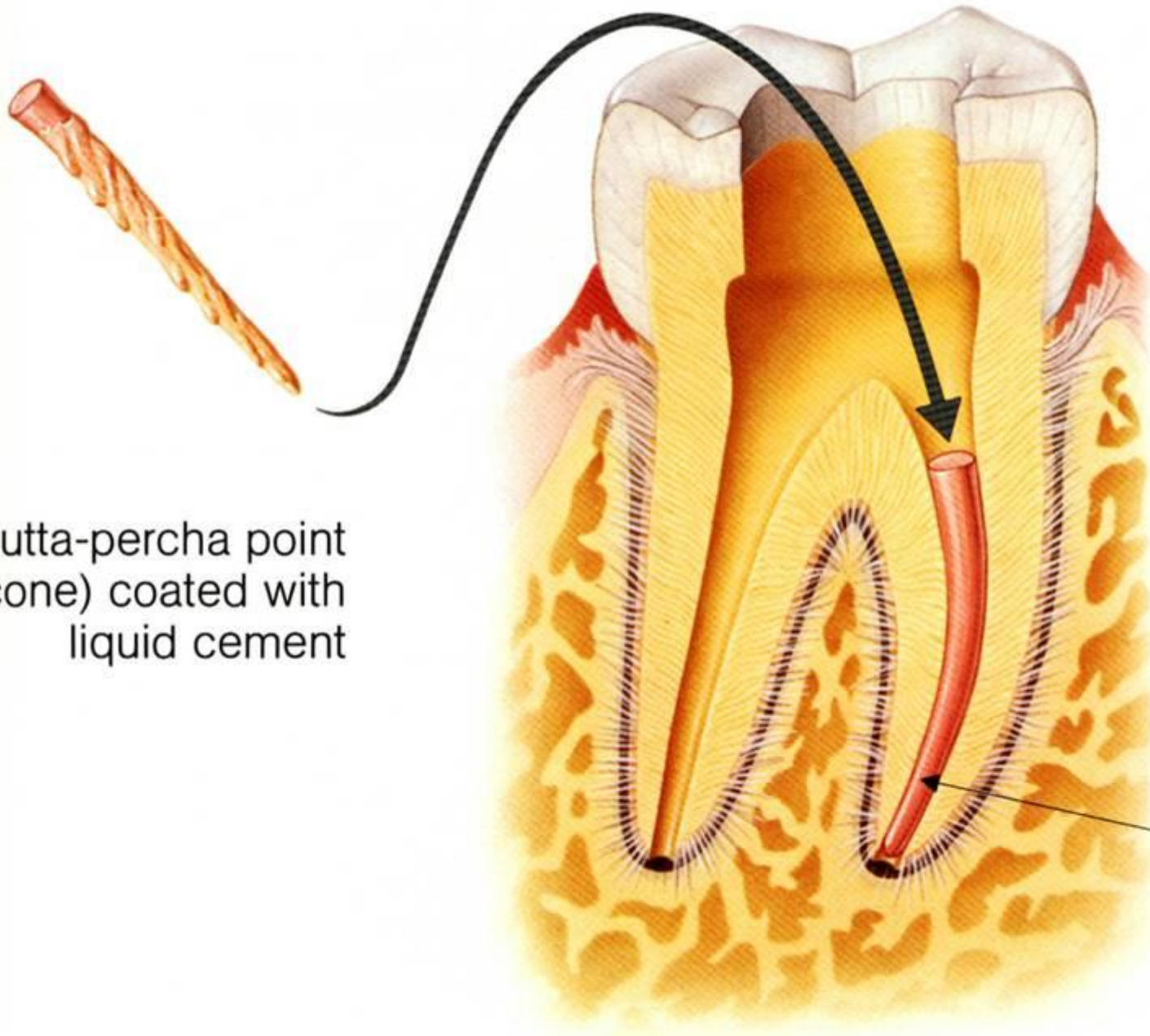
X-ray showing the file is not yet to the end of the root.



last and largest  
file used

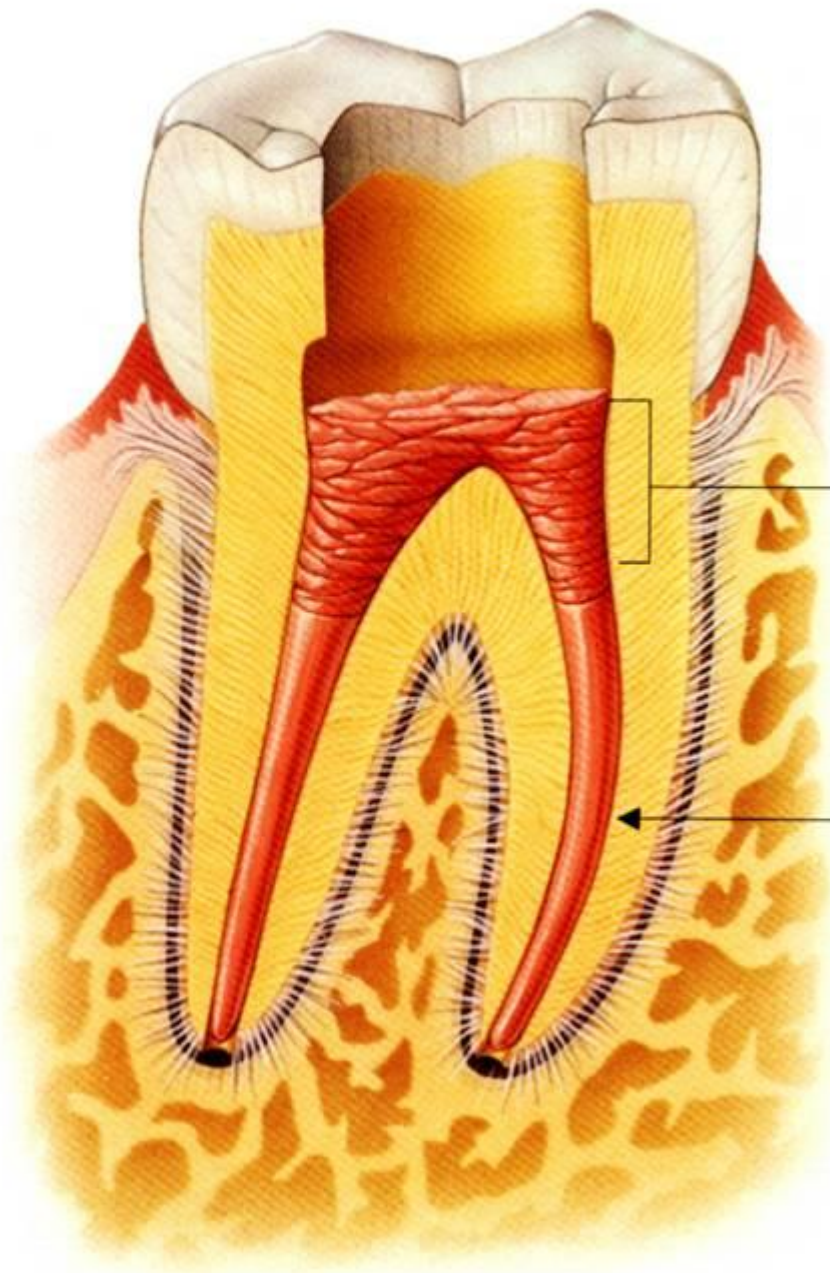


gutta-percha point of  
the same size



gutta-percha point  
(cone) coated with  
liquid cement

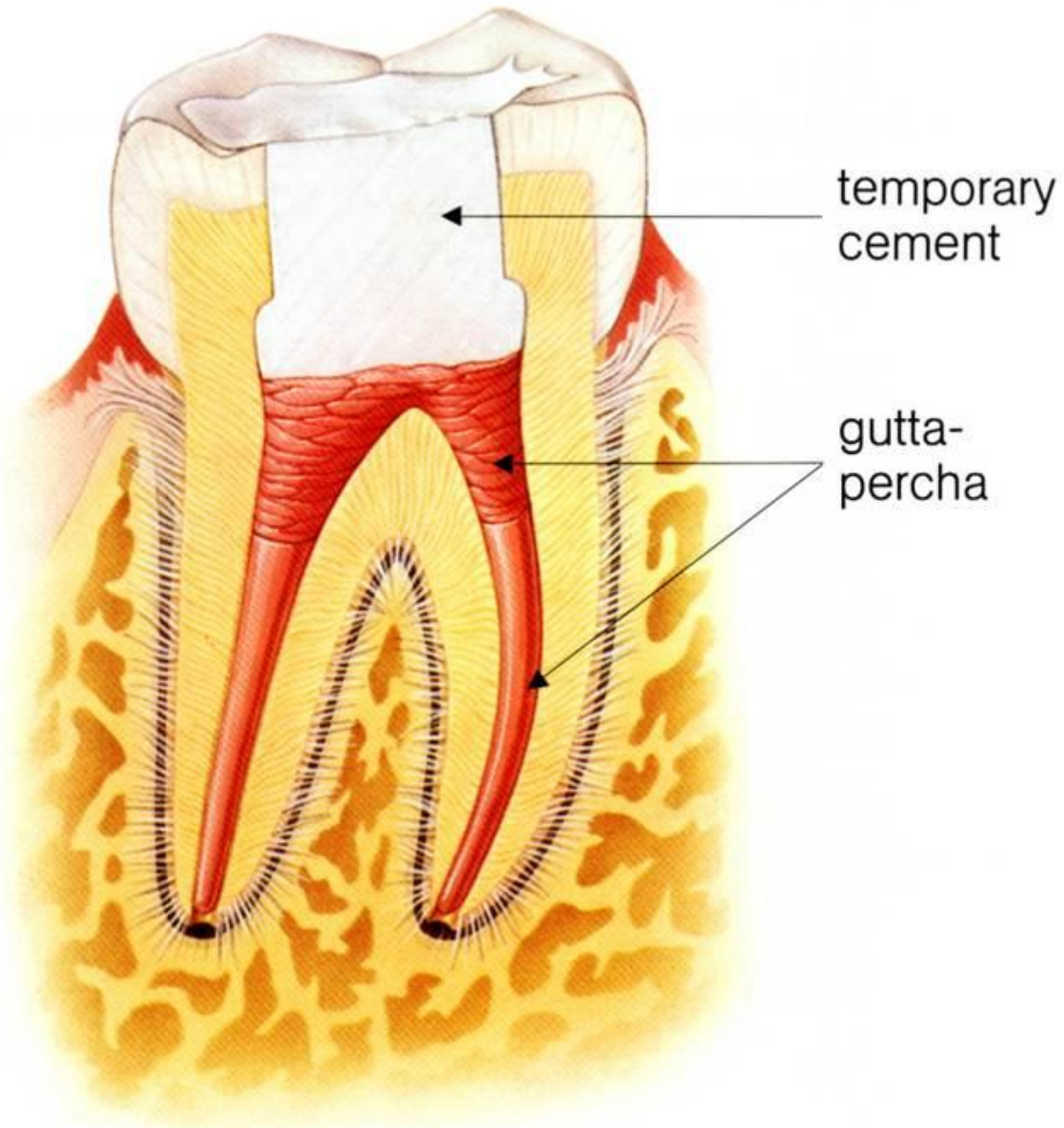
gutta-percha  
point firmly  
wedged to the  
end of the root  
canal



packed with  
gutta-percha  
pieces

original gutta-  
percha point





temporary  
cement

gutta-  
percha