

ZAHNHISTOLOGIE

Zahnhalteapparat

Zementum

Periodontium

Gingiva

Alveolärknochen

Dr. Andrea D. Székely

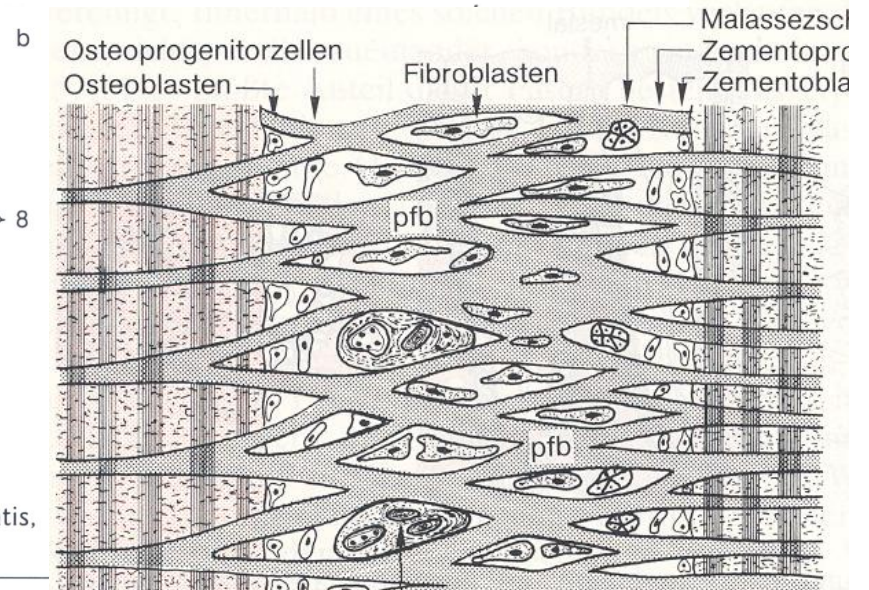
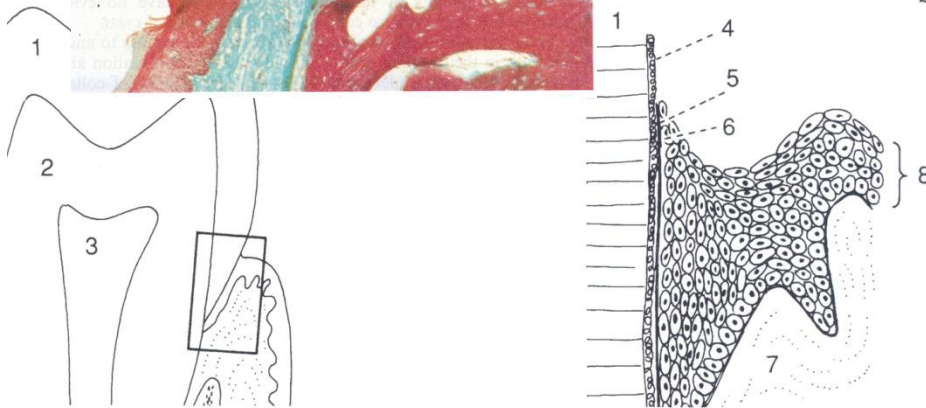
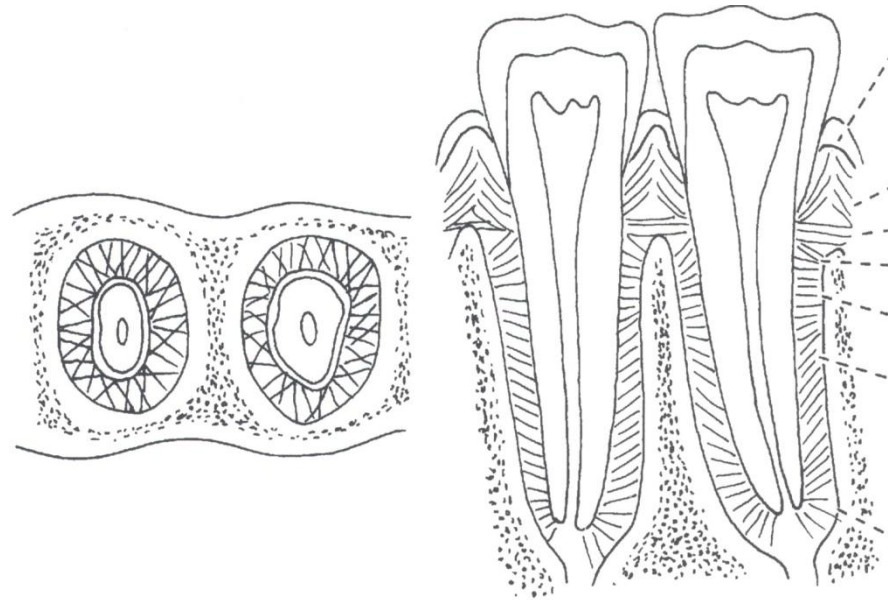
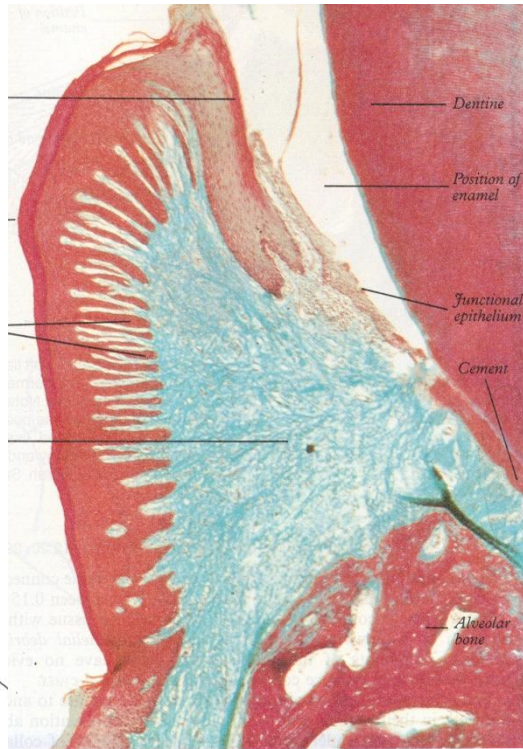
Semmelweis Universität

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Budapest

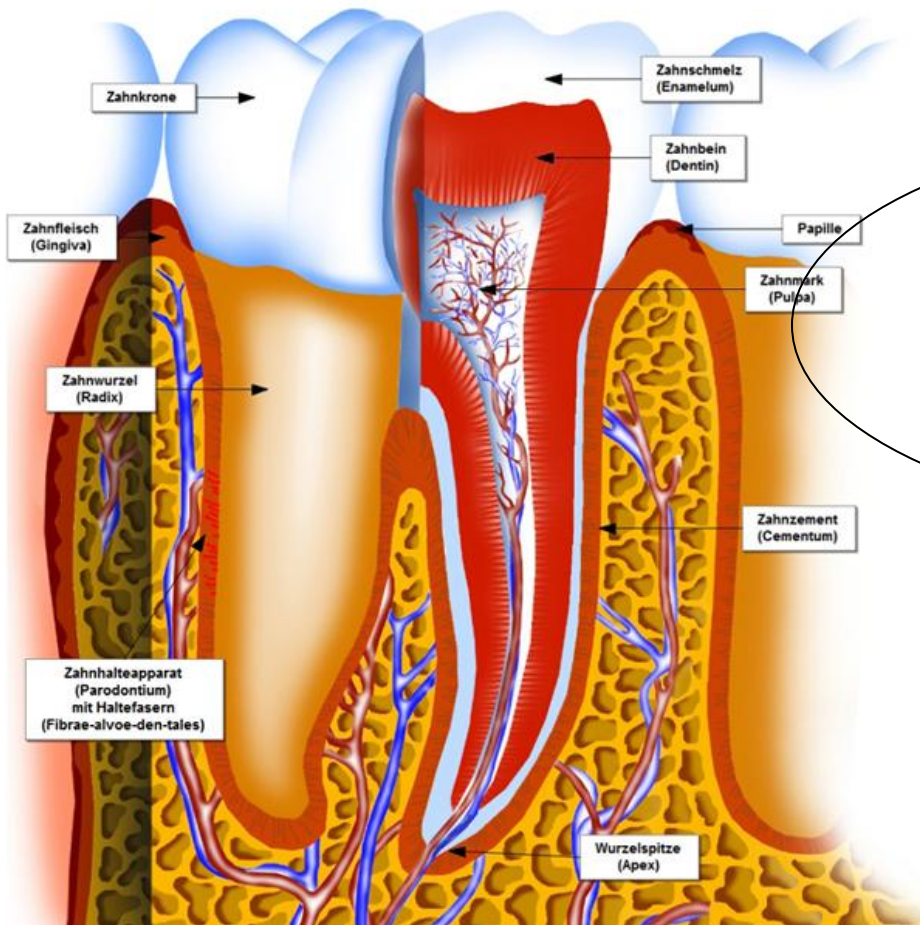


DIE DIREKTE UMGEBUNG VOM ZAHN



is gingivae szerkezete (a-b). 1. zománc, 2. dentin, 3. pulpa, 4. cuticula dentis, hámtapadás, 7. lamina propria, 8. lamina epithelialis

ZAHNHALTEAPPARAT



Alles aus Ektomesenchym

Zahnsäckchen

Zement

Wurzelhaut (Periodontium,
Desmodontium,
Lig. Periodontale)

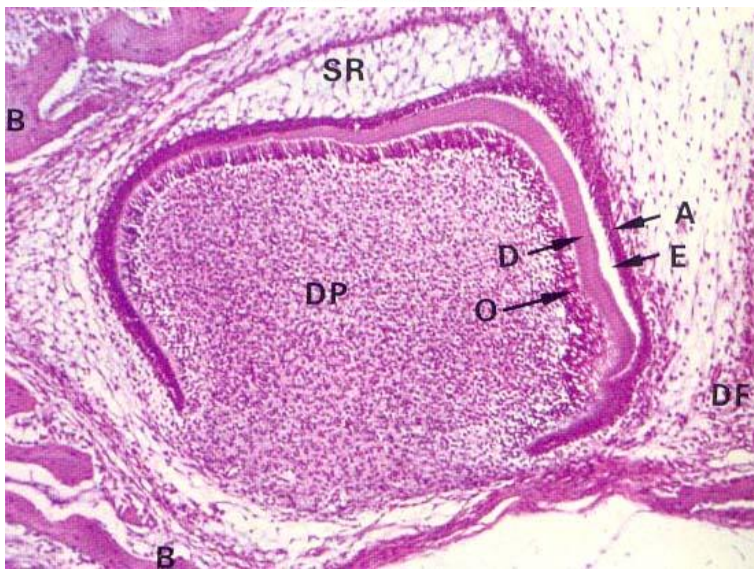
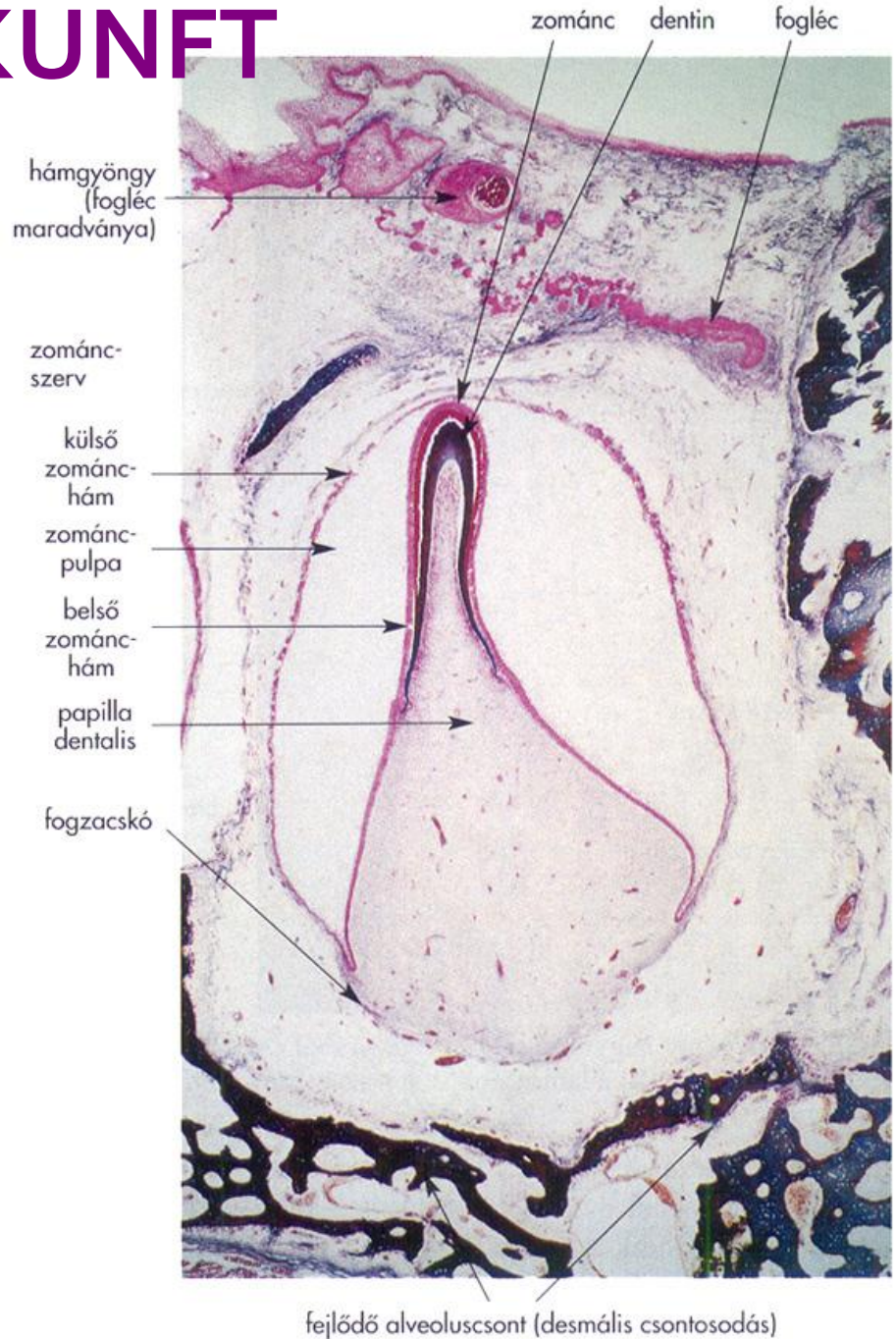
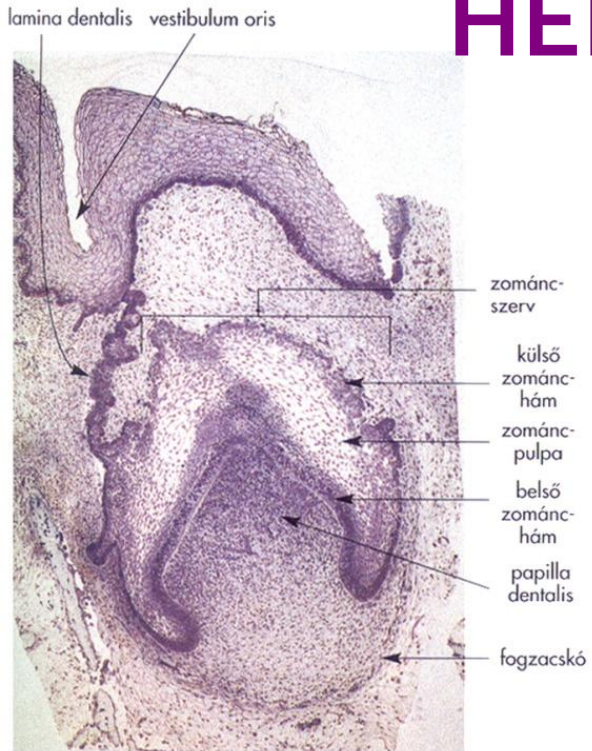
Proc. Alveolaris

Gingiva

(Parodontium marginale,
Zahnfleisch)

NUR das Epithel der Gingiva
stammt aus Mundhöhlenepithel (EKTODERM)

HERKUNFT



GINGIVA



Rollen der Gingiva

Insulierung um die Zähne, Verankerung
Kontinuität der Epithelschicht richtung junktionales Epithelium
Abwehr

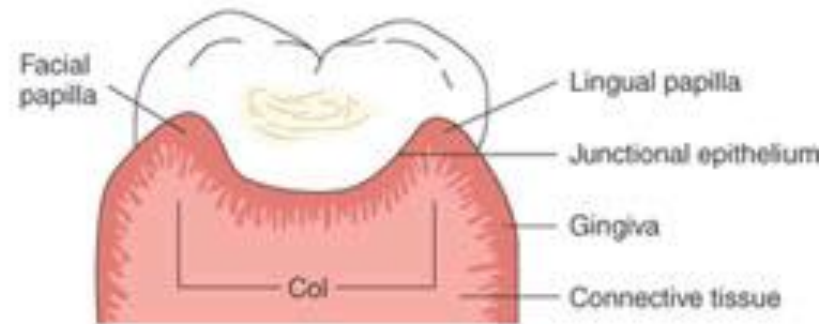
PAPILLA INTERDENTALIS



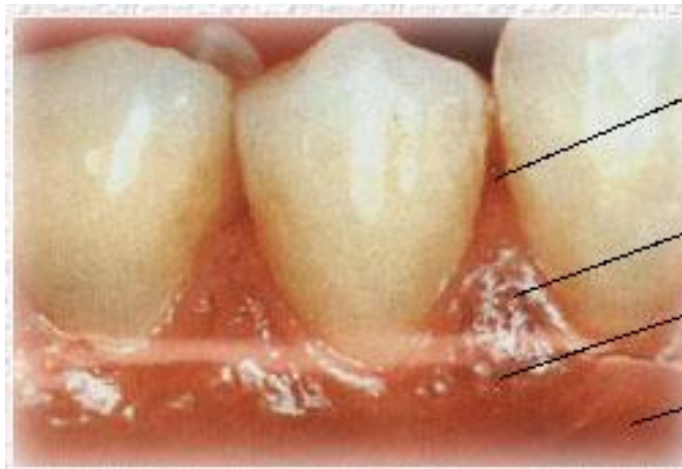
(a)

Abschnitte

Pars oralis, p. vestibularis,
Col Area



(b)

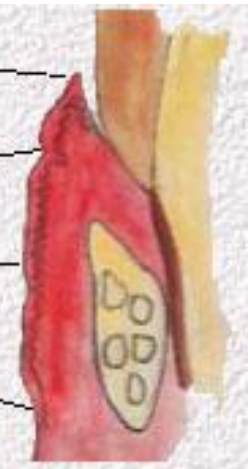


Marginal Gingiva

Free Gingival Groove

Gingiva

Mucogingival groove



ZAHNHISTOLOGIE *GINGIVA*

Mehrschichtiges Plattenepithel

ortho/parakeratinisiertes (2-300 µm)
*Keratinocyten, Melanozyten,
Merkel Zellen, Langerhans Zellen*

Lamina propria

Subepitheliale Schicht

Supraalveolare Schicht

Hohe Bindegewebspapillen

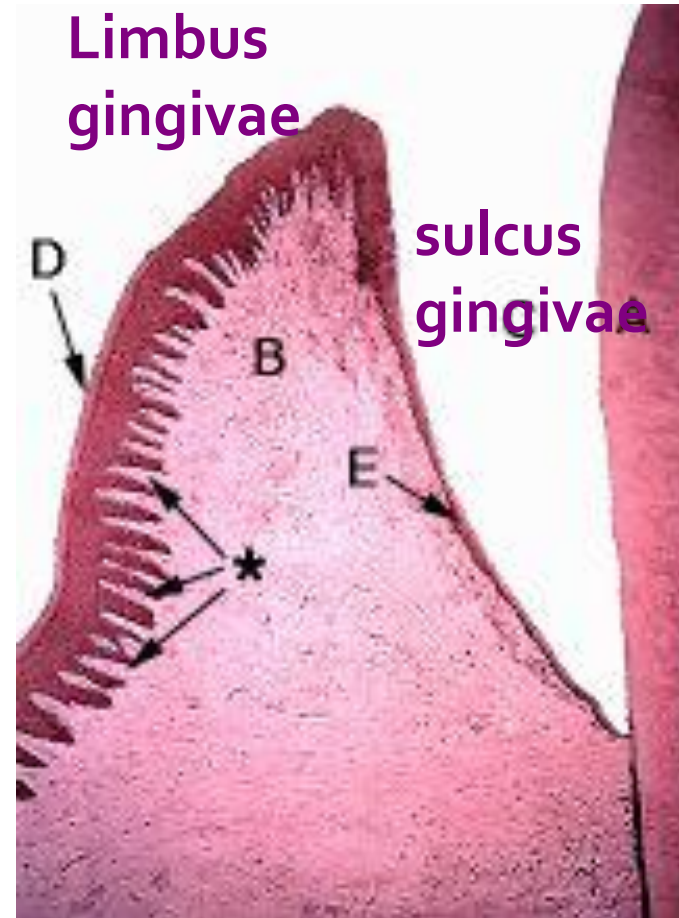
Keine Submucosa

*Fibrozyten, Mastzellen, Lymphozyten,
Makrophage, Plasmazellen*

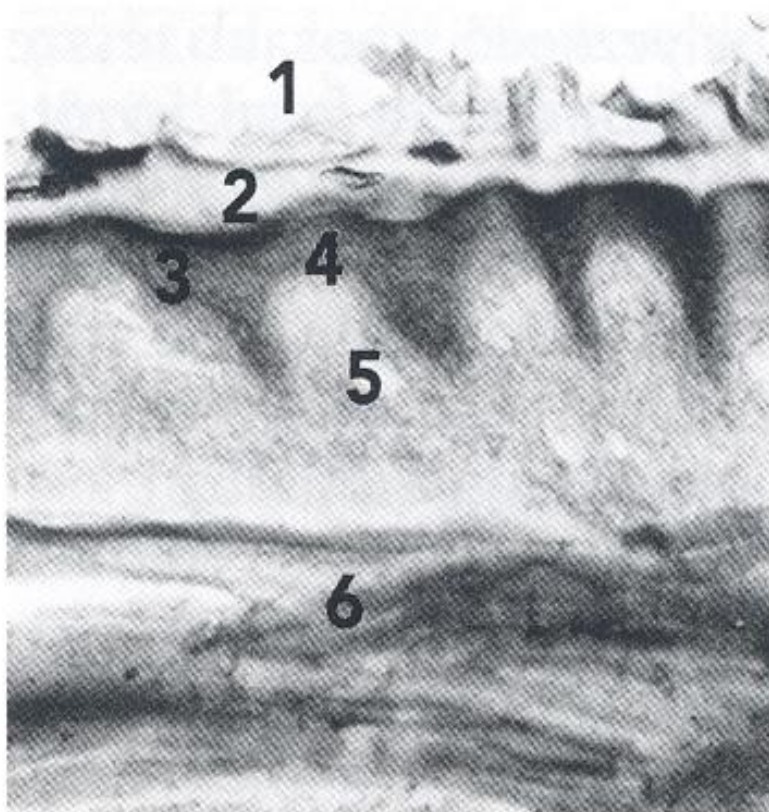
Keine elastische Fasern

Kollagen (Typ I., III., V.)

strahlen in Zement, Periost, Knochen



a



D

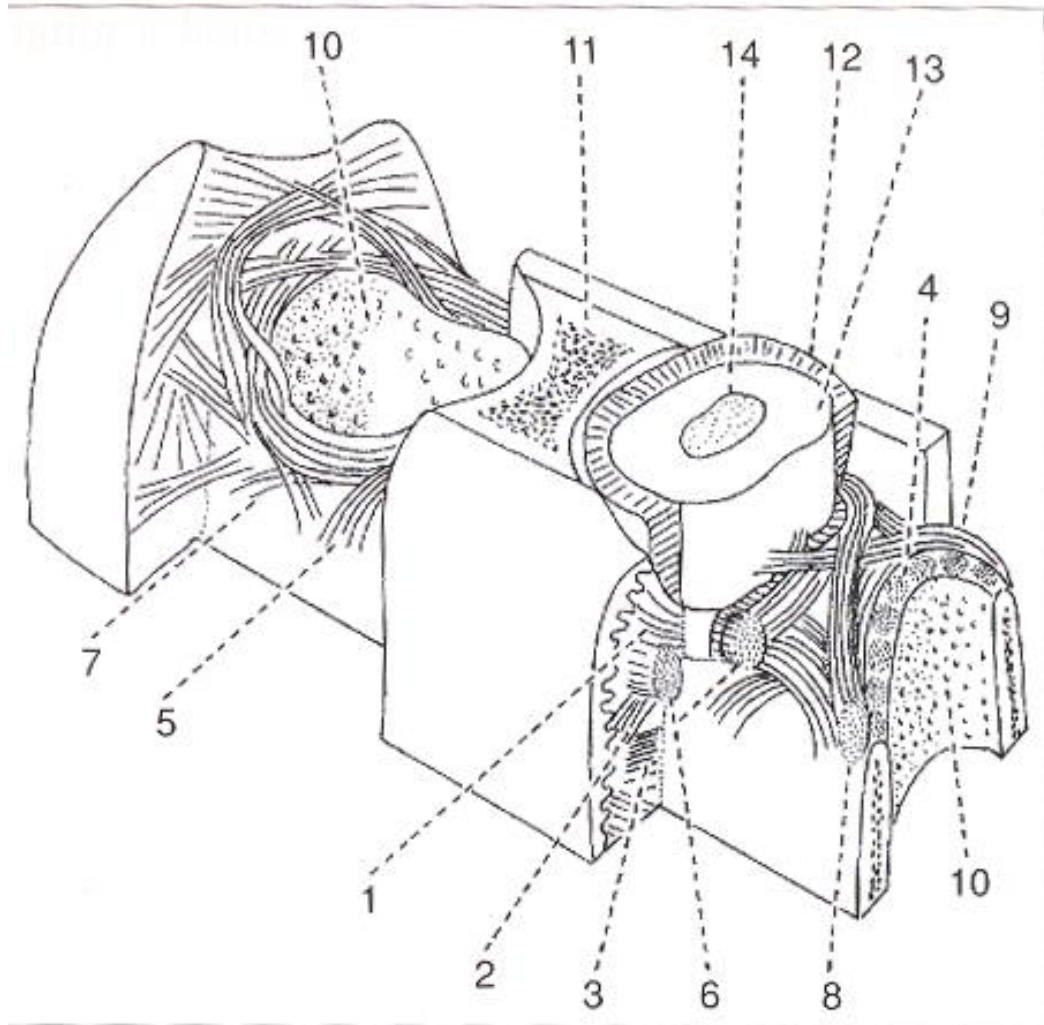


Langerhans Zellen

VI. 2. ábra. **A gingiva szöveti szerkezete** (a-b).

1. stratum corneum, 2. stratum planocellulare,
 3. stratum spinosum, 4. stratum germinativum,
 5. lamina propria, 6. gingivalis rostrendszer,
 L: Langerhans-féle sejt Griffonia simplicifolia
 lectinnel jelölve; a: ötvenszeres
 nagyítás, b: százszoros nagyítás

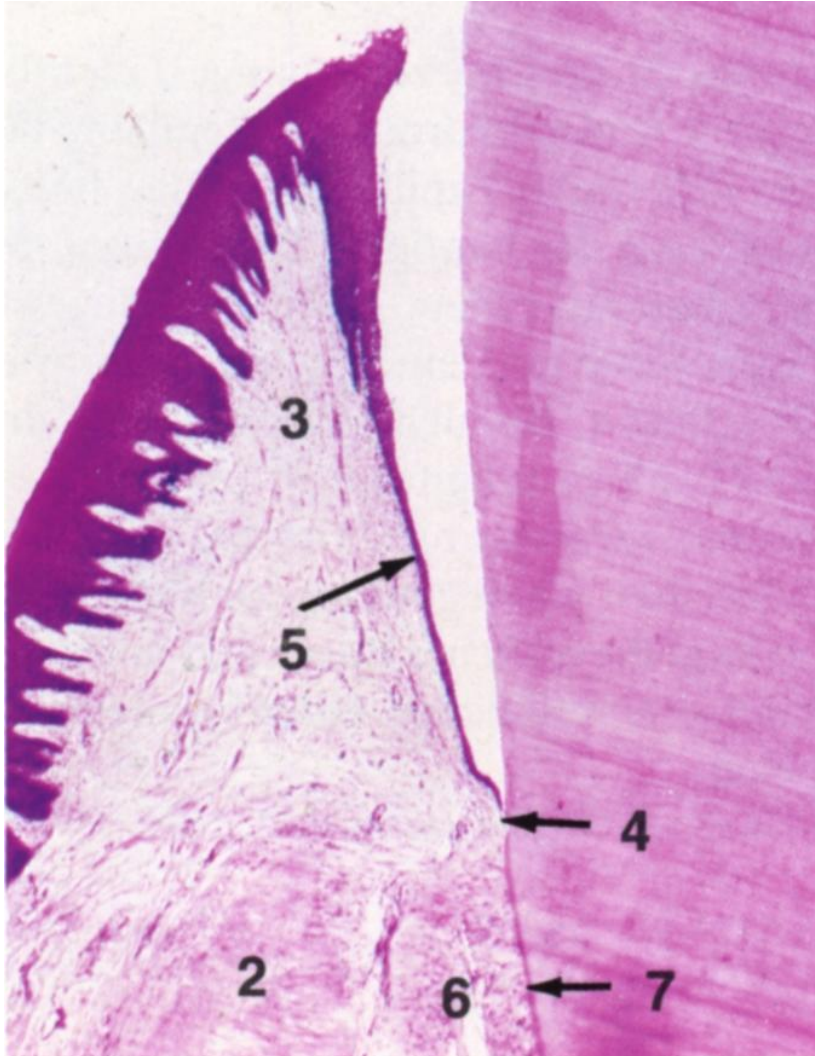
GINGIVALEN FASERGRUPPEN



- 1 Fibrae dentinogingivales
- 2 Fibrae alveologingivales
- 3 Fibrae periosteogingivales
- 4 Fibrae transseptales
- 5 Fibrae dentoperiosteales
- 6 Fibrae circulares,
semicirculares
- 7 Fibrae transgingivales,
intergingivales
- 8 Fibrae intercirculares
- 9 Fibrae interpapillares

SULCUS GINGIVAE

Dürfte nicht tiefer als 0,5-2 mm sein



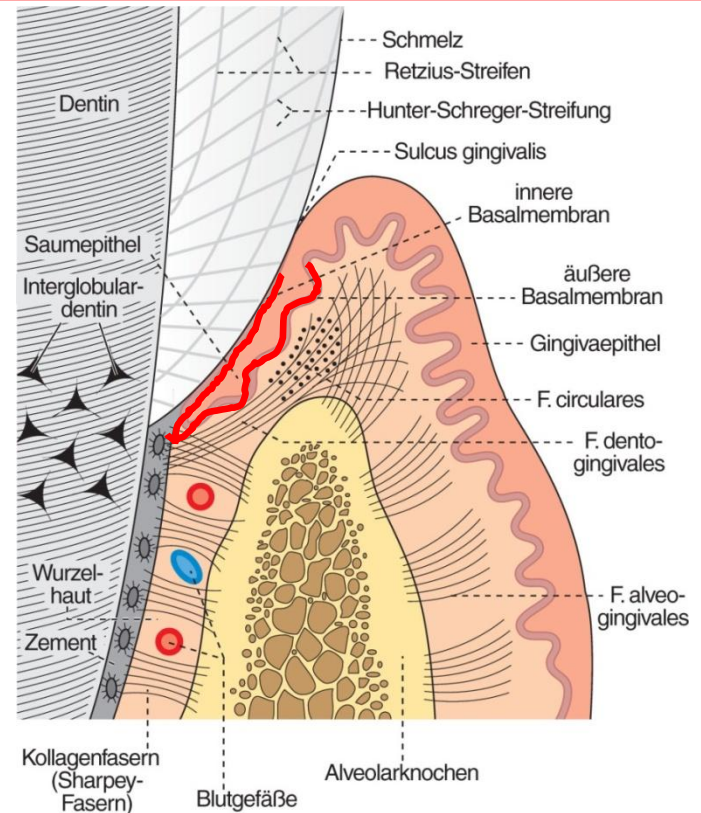
GRENZEN

Innen *Schmelz/Zement*

Außen *Saumepithel* (unverhornt)

Keine Bindegewebspapillen

**BM: schlägt um in der Tiefe,
Zwischen Schmelz und Epithel**



SULCUS GINGIVAE

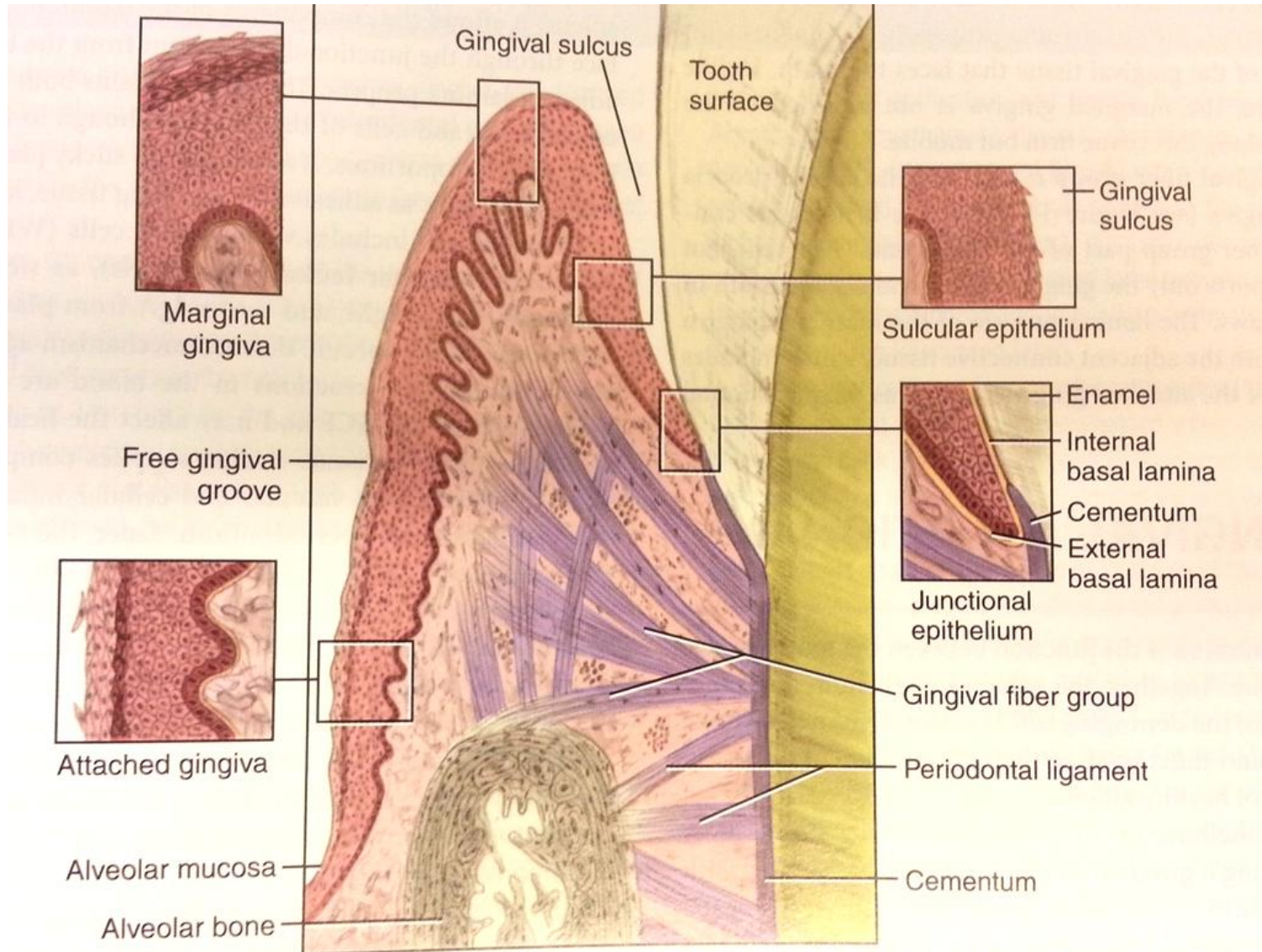
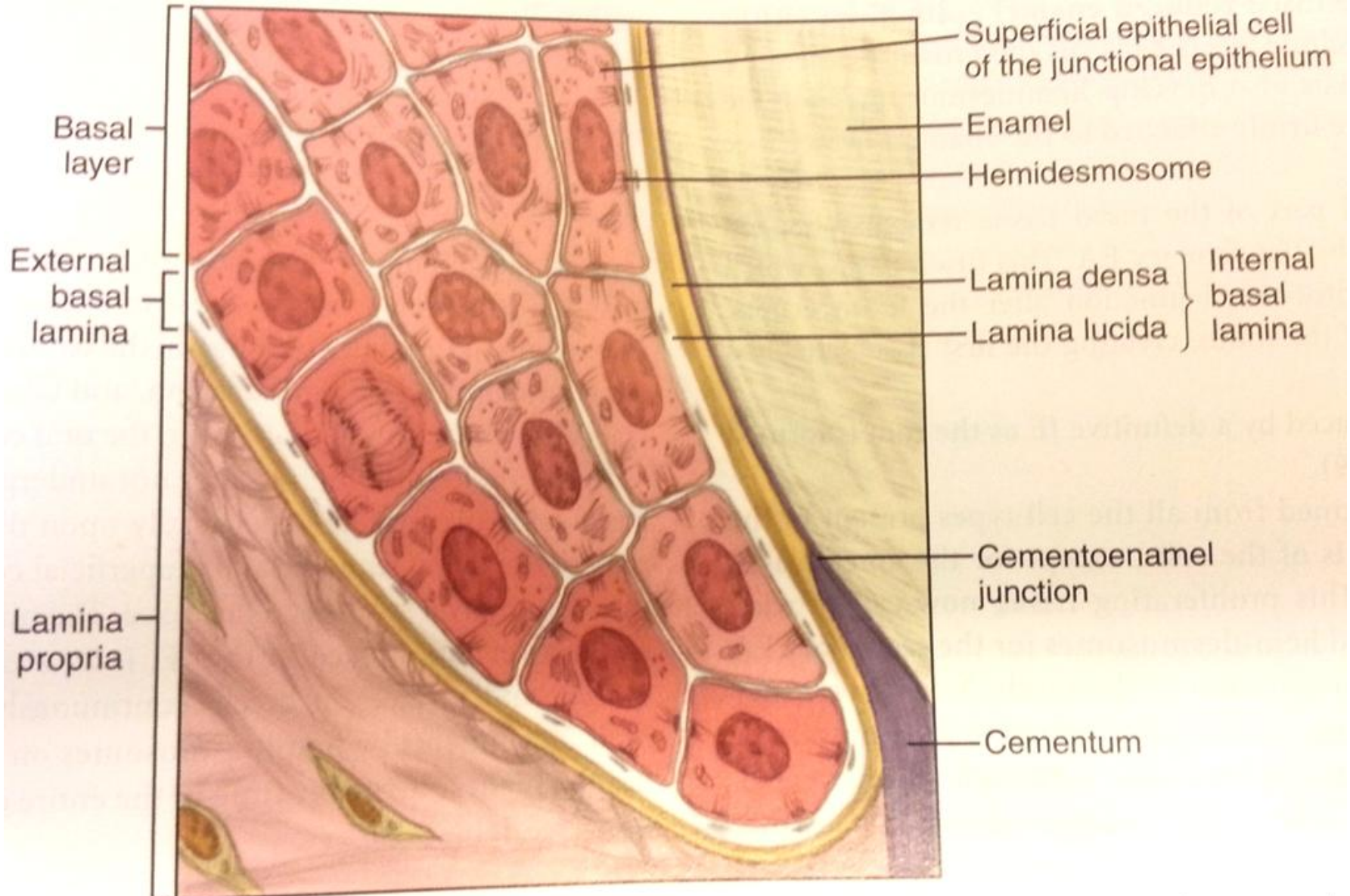


FIGURE 10-1 Gingival and dentogingival junctional tissue: marginal gingiva, attached gingiva, sulcular epithelium, and junctional epithelium.

SULCUS GINGIVAE



SULCUS GINGIVAE

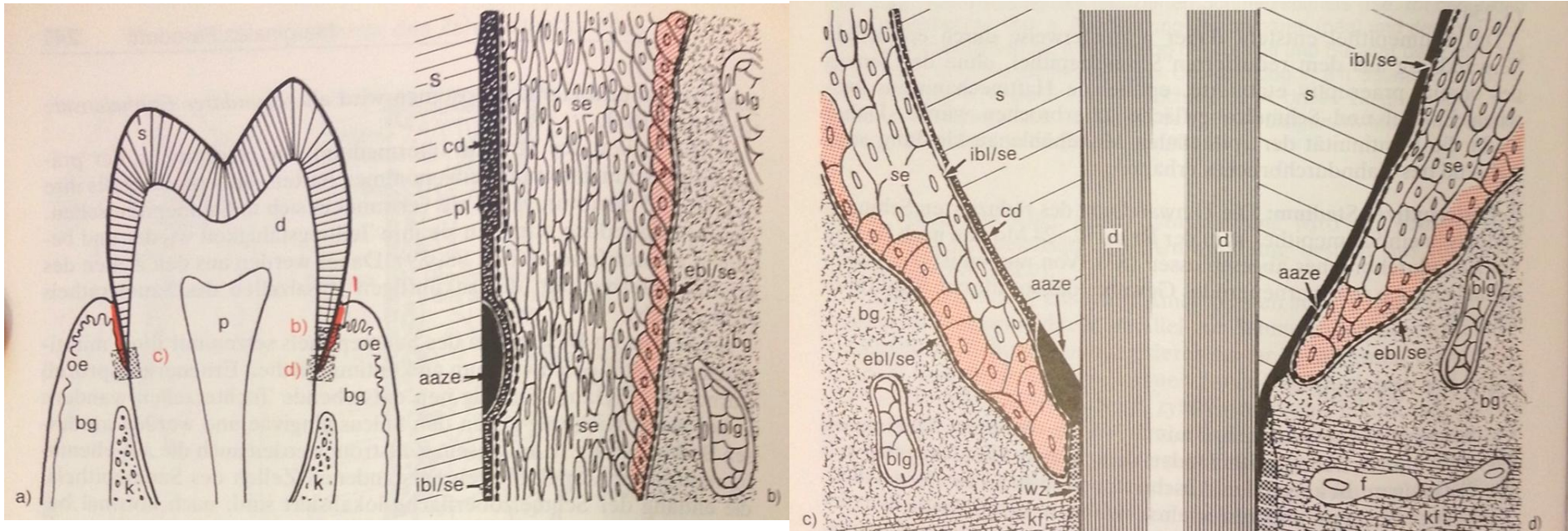


Abb. 2.23 Schematische Darstellung des Saumepithels (se) im zervikalen Bereich eines in Funktion stehenden Zahnes. Die in (a) umrissenen Ausschnitte (schwarz punktiert) sind in b, c und d vergrößert wiedergegeben. Ausschnitt 1 in a entspricht Abb. 2.26 a. aaze = azellulär-afibrilläres Zement; bg = Bindegewebe; blg = Blutgefäße; cd = Cuticula dentis; d = Dentin; ebl/se = externe Basallamina des se; f = Fibroblast; ibl/se = interne Basallamina des se; k = Knochen; kf = kollagene Faserbündel; oe = orales Gingivaepithel; p = Pulpa; pl = Pickerill-Linien; s = Schmelz; se = Saumenepithel; wz = Wurzelzement; Bazelzellen

PERIODONTIUM

GOMPHOSE

- federnde Verankerung der Zähne im Alveolarknochen
- Ernährung

KOMPONENTEN

Bindegewebszellen

Fibroblasten Faser auf- und Abbau, 3D Netzwerk durch Desmosomen

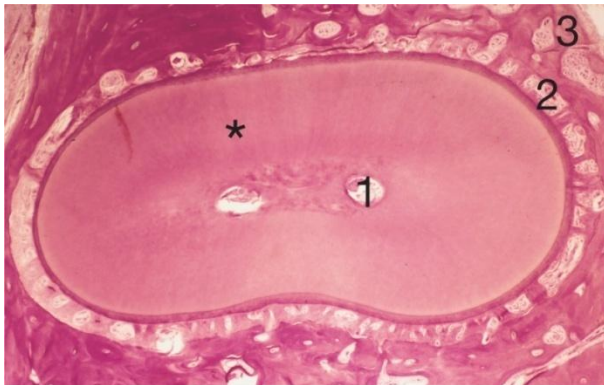
Progenitorzellen für Zement, Knochen (Osteo-, Zementoblasten)

Immunzellen Makrophagen (Osteoclasten, Dentoclasten) *Lymphozyten*

Fasern (Koll. I, III.),

Blut- und Lymphgefäße

Nerven (Propriozeptive, nozizeptive Endigungen)

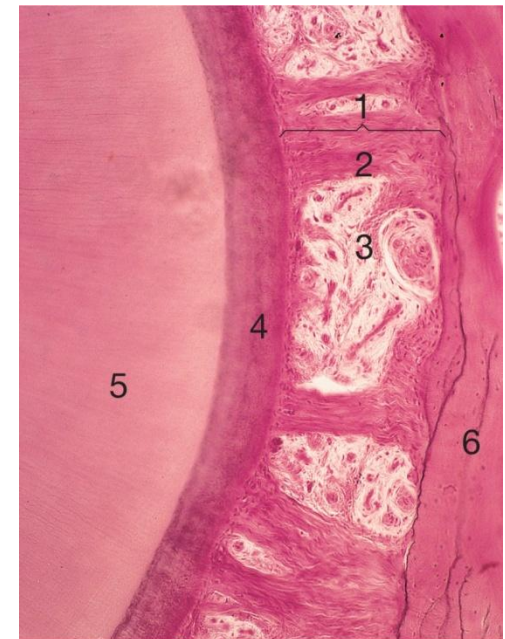


Aus Welsch: Lehrbuch Histologie. © 2006 Elsevier.

ZWEI ABSCHNITTE

a.) Sharpey-Fasern

b.) Lockeres Bindegewebe mit Gefäßplexus



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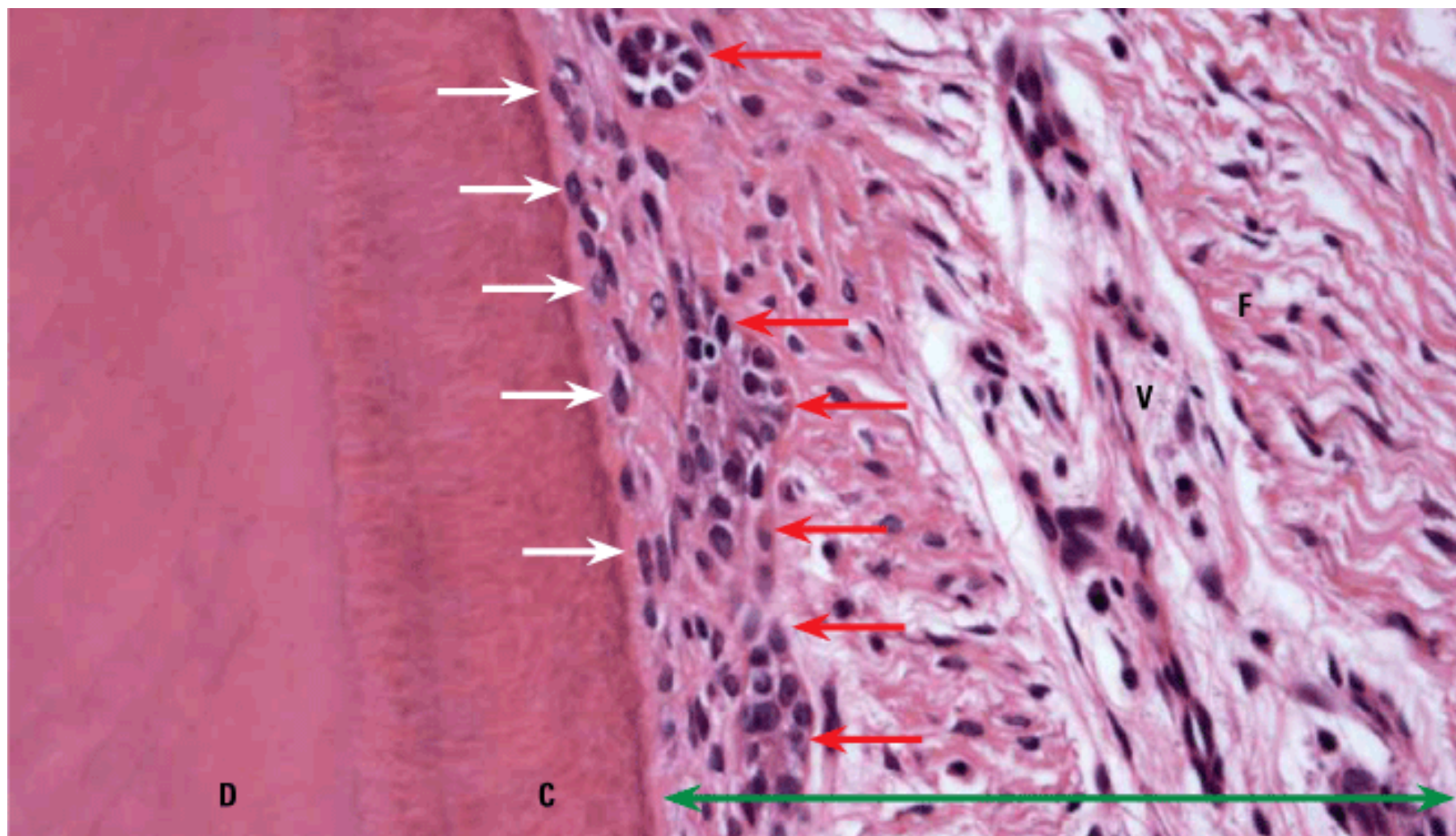
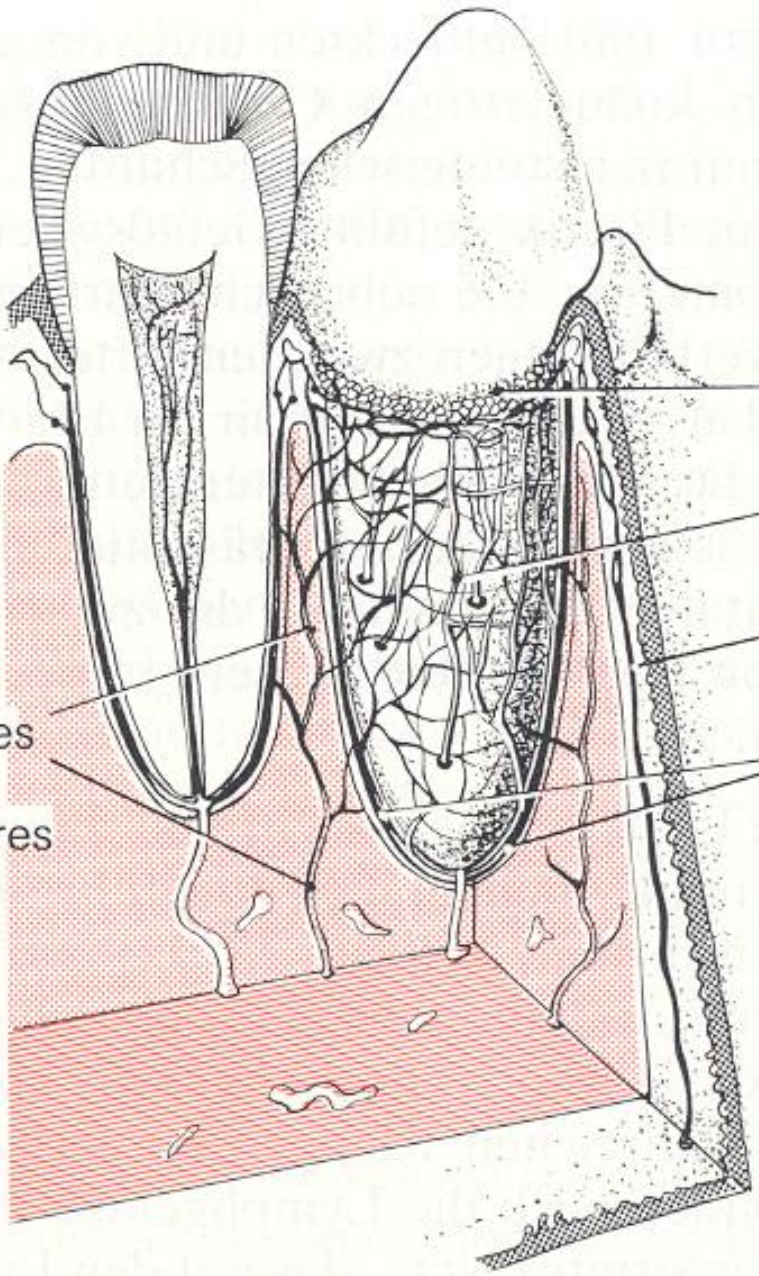


FIGURE 1 - On the root surface the cementum is covered by cementoblasts (**white arrows**). Collagen fibers—called Sharpey's fibers—penetrate amid these cells and attach themselves to the cementum (**C**). In the periodontal ligament (**green arrow**) epithelial cell islands and cords can be observed (**red arrows**) which form a three-dimensional network around the root, like a basketball hoop. This epithelial component of the periodontal ligament, called Epithelial Rests of Malassez (**red arrows**), constantly releases Epithelial (or Epidermal) Growth Factor (EGF), whose molecules diffuse through the cells in the extracellular matrix and stimulate osteoclasia on the periodontal bone surface, thereby promoting the maintenance of periodontal space (**D** = dentin; **F** = fibroblasts; **V** = blood vessels. HE; X25).

Seitenäste der
Aa. interalveolares
und
Aa. interradiculares
(b)



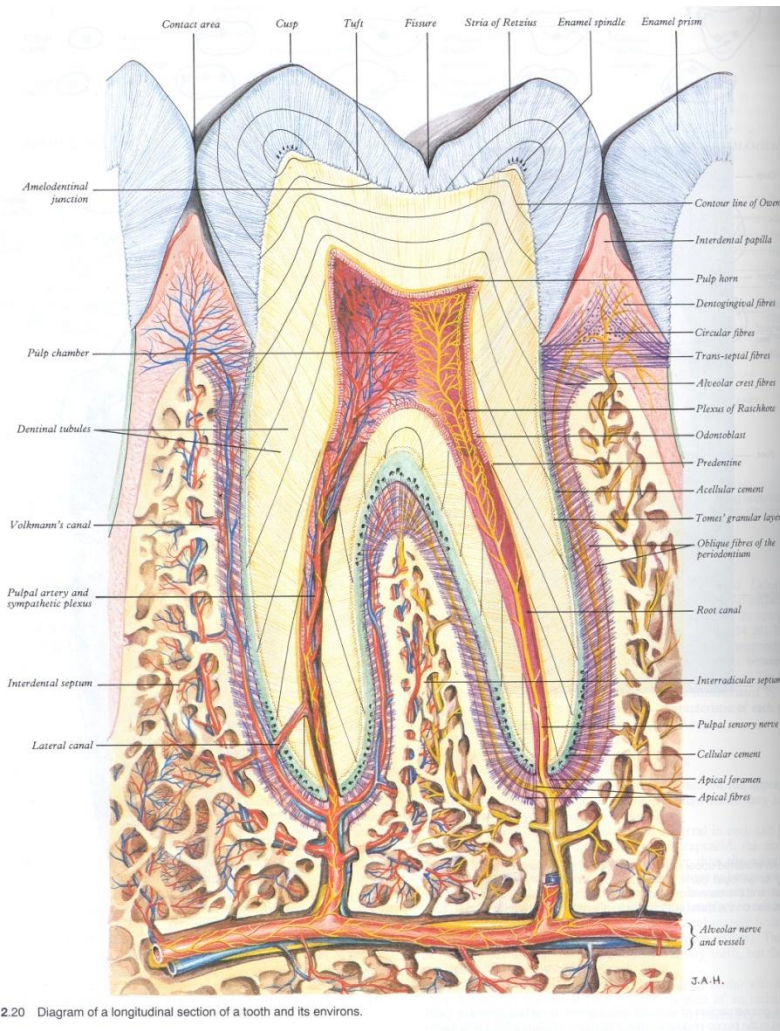
gingivaler
Venolenplexus

Gefäßkorb

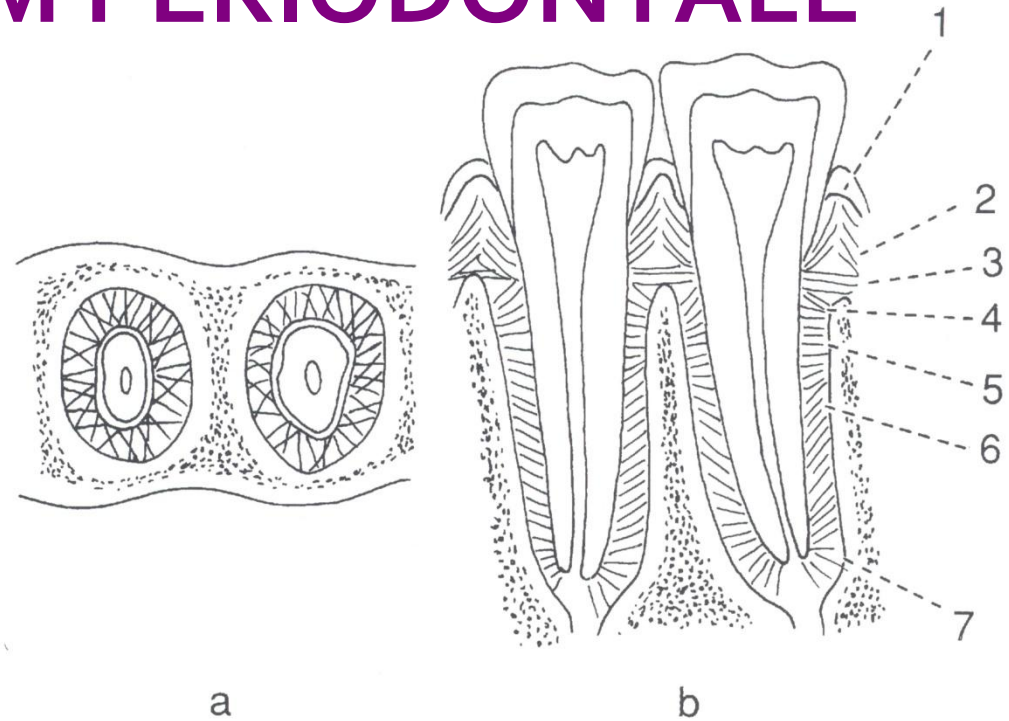
supraperiostale
Arterien (c)

Seitenäste der
Arteria dentalis
(a)

LIGAMENTUM PERIODONTALE

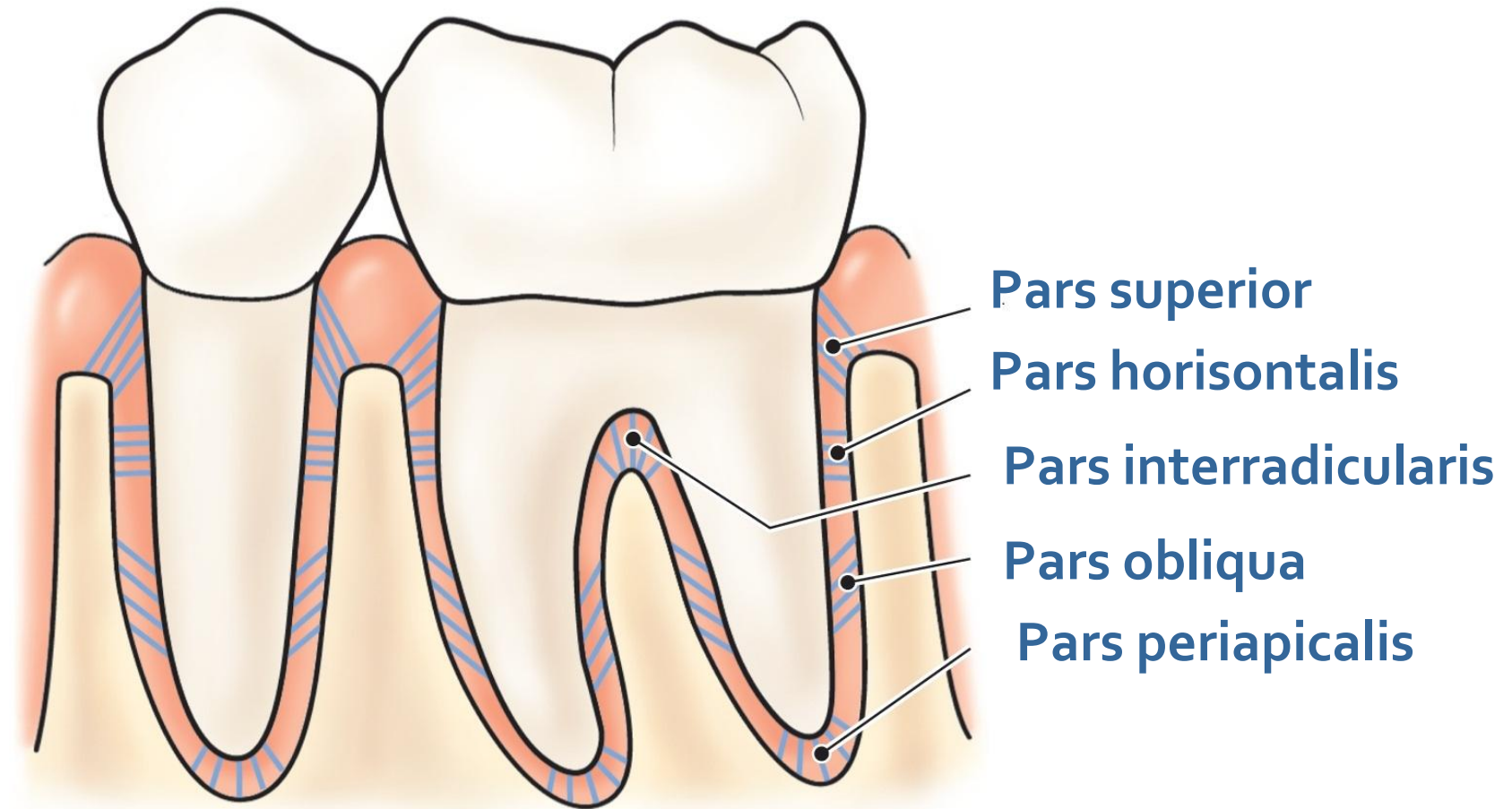


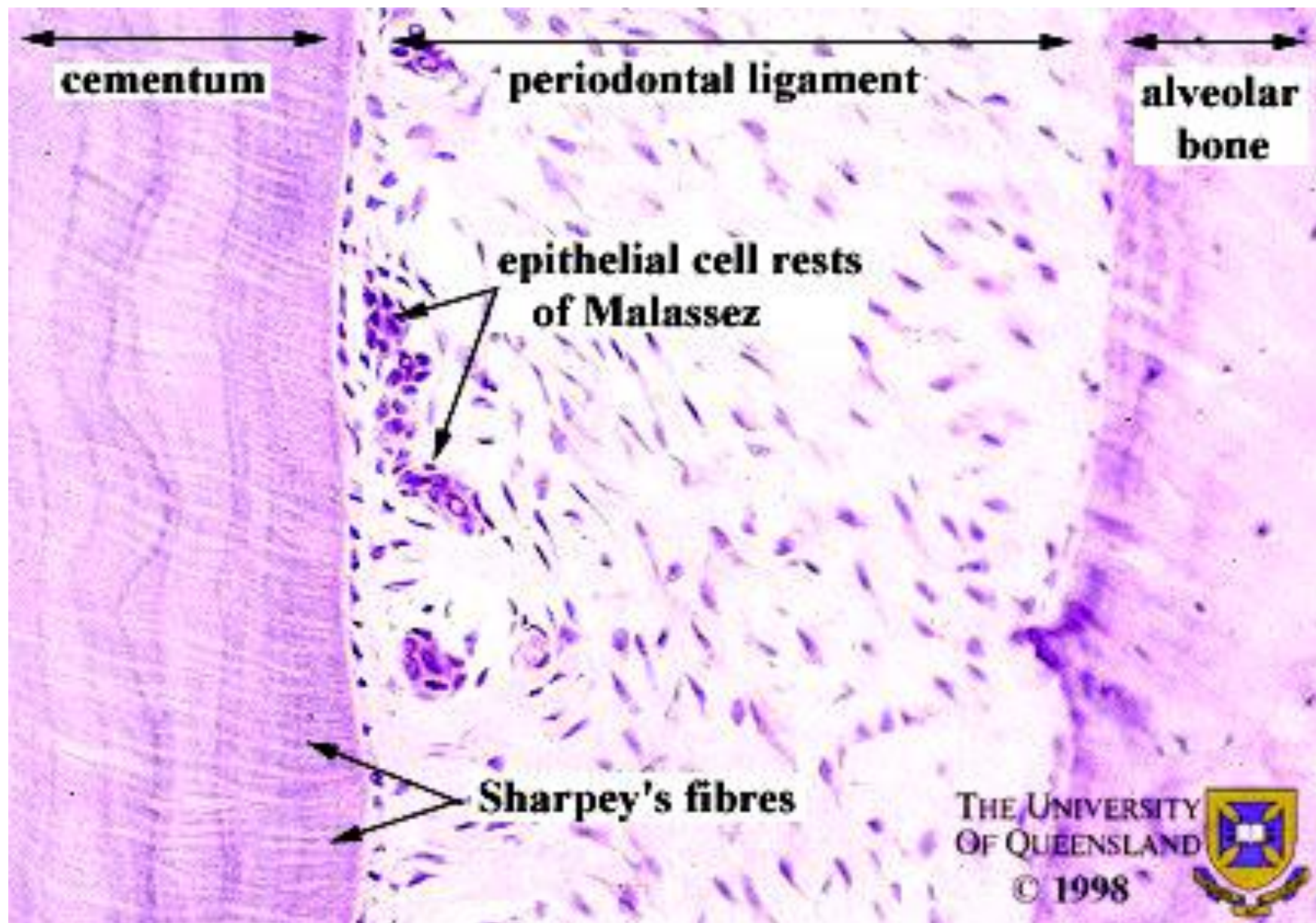
2.20 Diagram of a longitudinal section of a tooth and its environs.



VI. 5. ábra. **A ligamentum periodontale cementoalveolaris rostnyalábjaianak helyzete keresztmetszetben (a) és hosszmetsetben (b).** 1. papilla interdentalis, 2. dentogingivalis rostok, 3. transseptalis rostok, 4. pars superior, 5. pars horizontalis, 6. pars obliqua, 7. pars periapicalis

LIGAMENTUM PERIODONTALE 'SHARPEY'





ENTWICKLUNG DES PERIODONTIUM

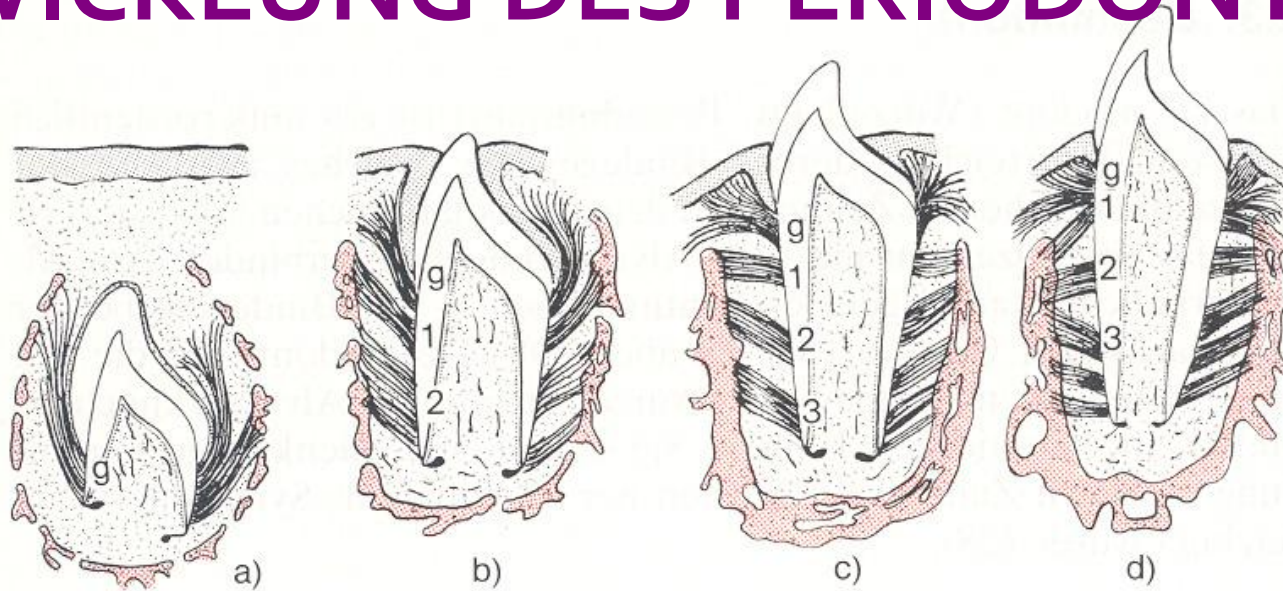
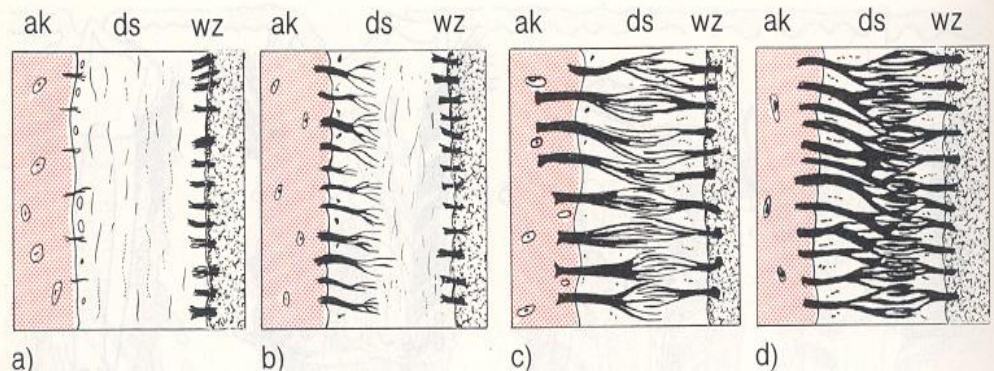
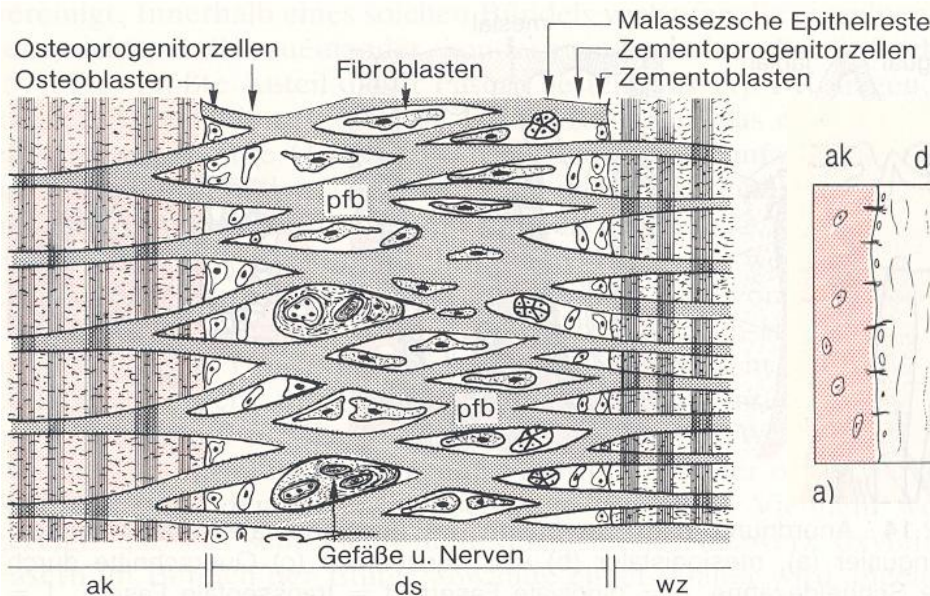
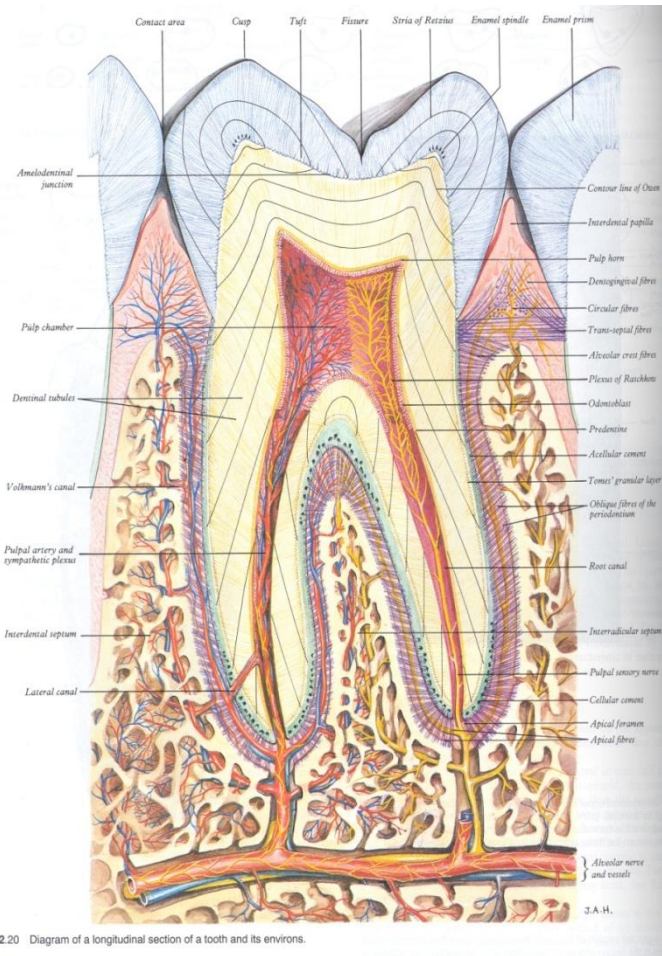


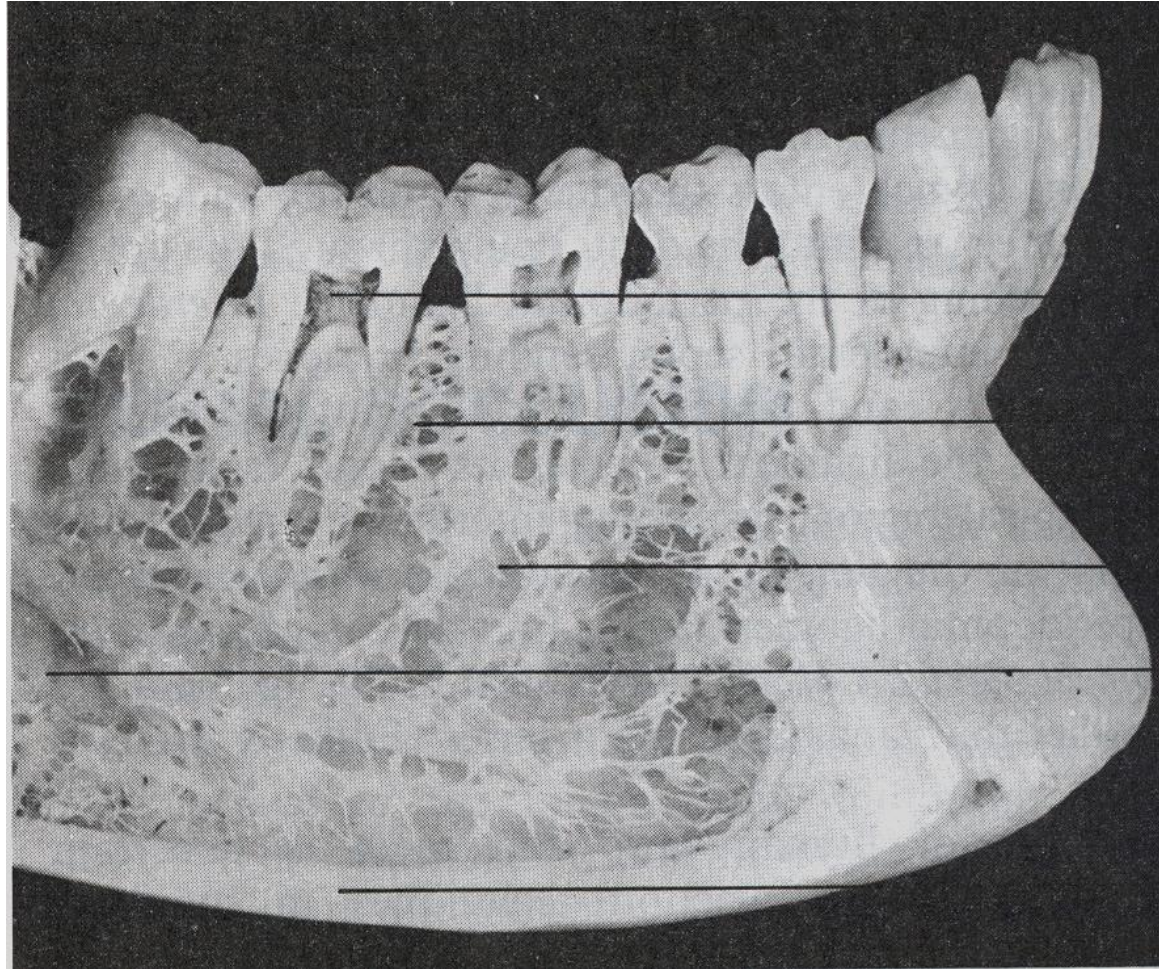
Abb. 2.10 Schematisierte Sequenz (a-d) der Entstehung und Anordnung der



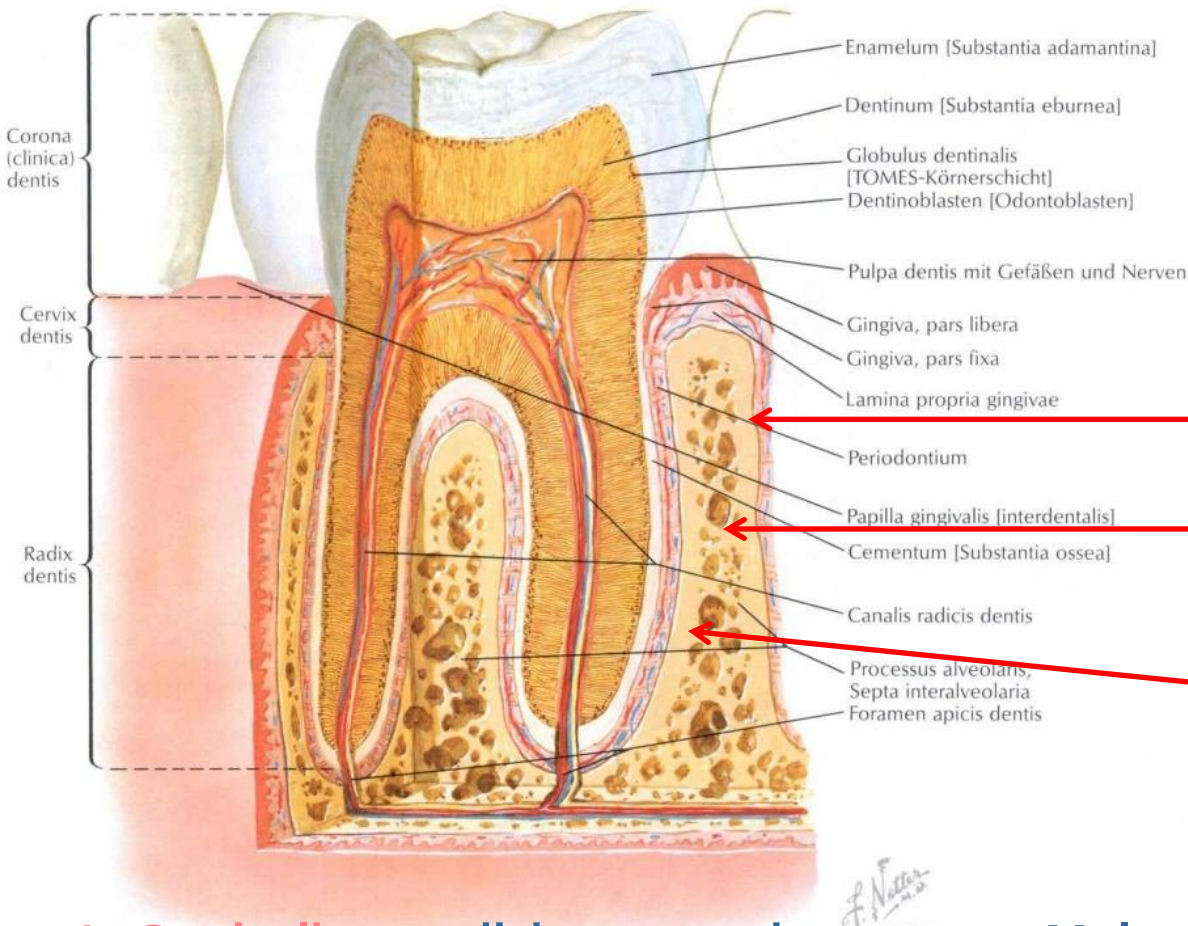
ALVEOLARKNOCHEN



2.20 Diagram of a longitudinal section of a tooth and its environs.



ALVEOLARKNOCHEN



Herkunft: Zahnsack

dehiscentia, fenestratio

Lamina corticalis

Pars spongiosa

Lamina cribriformis
(L. dura)

L. Corticalis am dicksten um den unteren Molaren

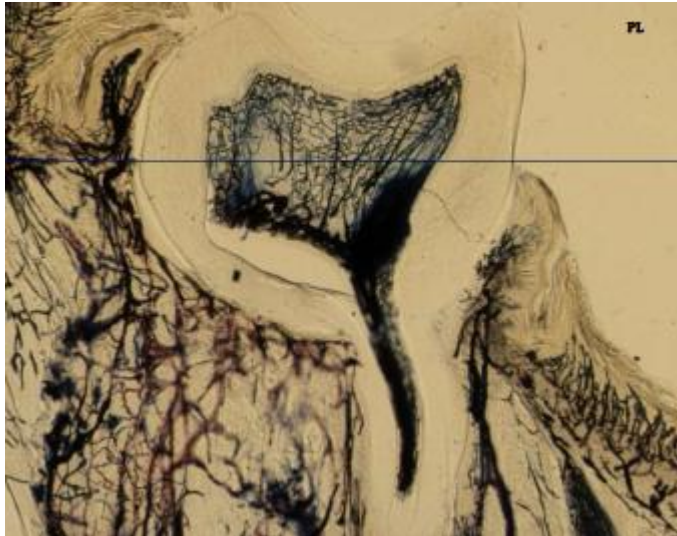
Spongiosa kann fehlen, mit gelbem Knochenmark

L. Dura Geflechtknochen

Löcher Durchtrittsstellen für Leitungsbahnen

canaliculi interdentalis *Zuckerkanndli*
canaliculi interradiculares *Hirschfeldi*

LEITUNGSBAHNEN IM PARODONTIUM

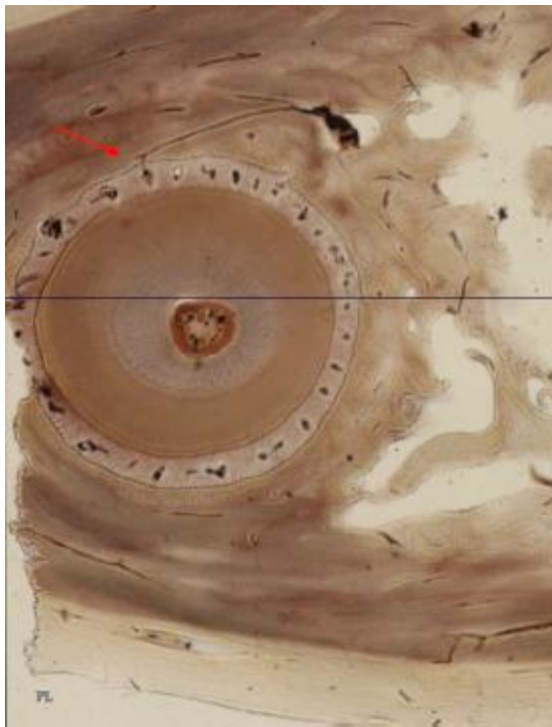


Maxilla:

- A. alveolaris sup. post.
- A. infraorbitalis
- A. palatina major
- A. incisiva

Mandibula:

- A. lingualis
- A. alveolaris inf.
- A. buccalis
- A. sublingualis
- A. mentalis



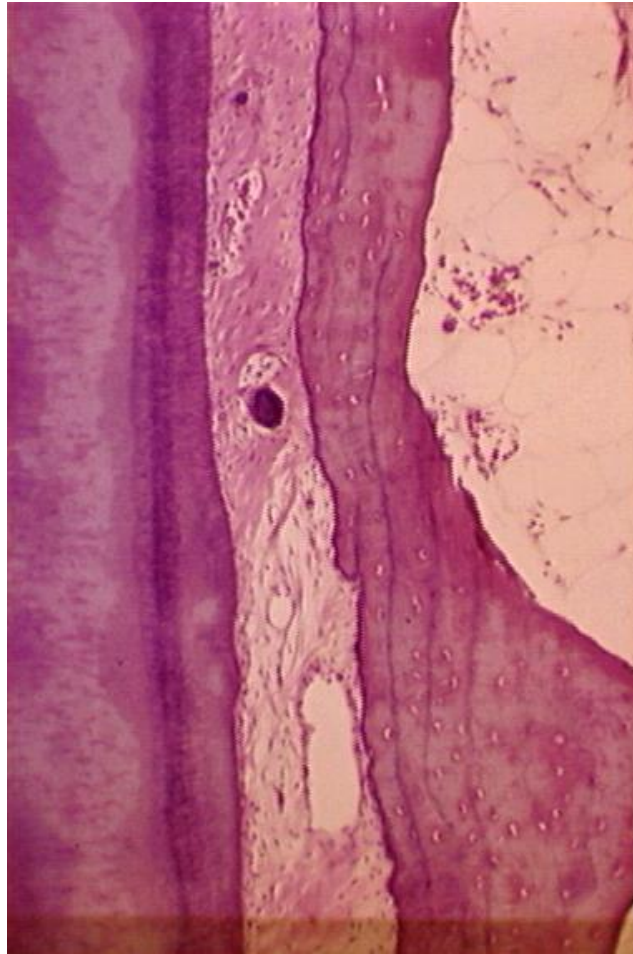
Reichlich vaskularisiert
Polsterfunktion

Feines Netzwerk aus Lymphgefäßen →
Nll. submentales, submandibulares,
tiefe Halslymphknoten

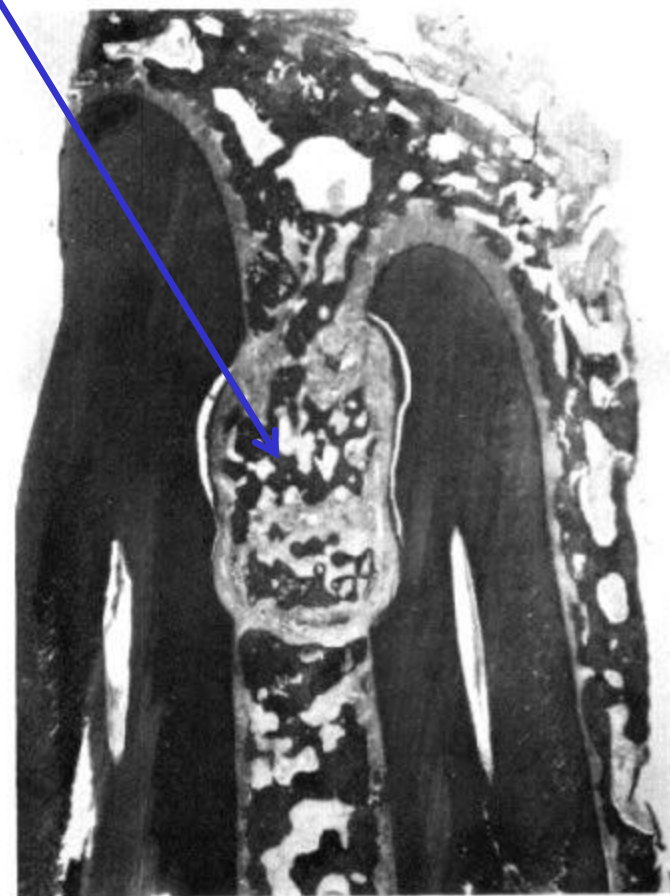
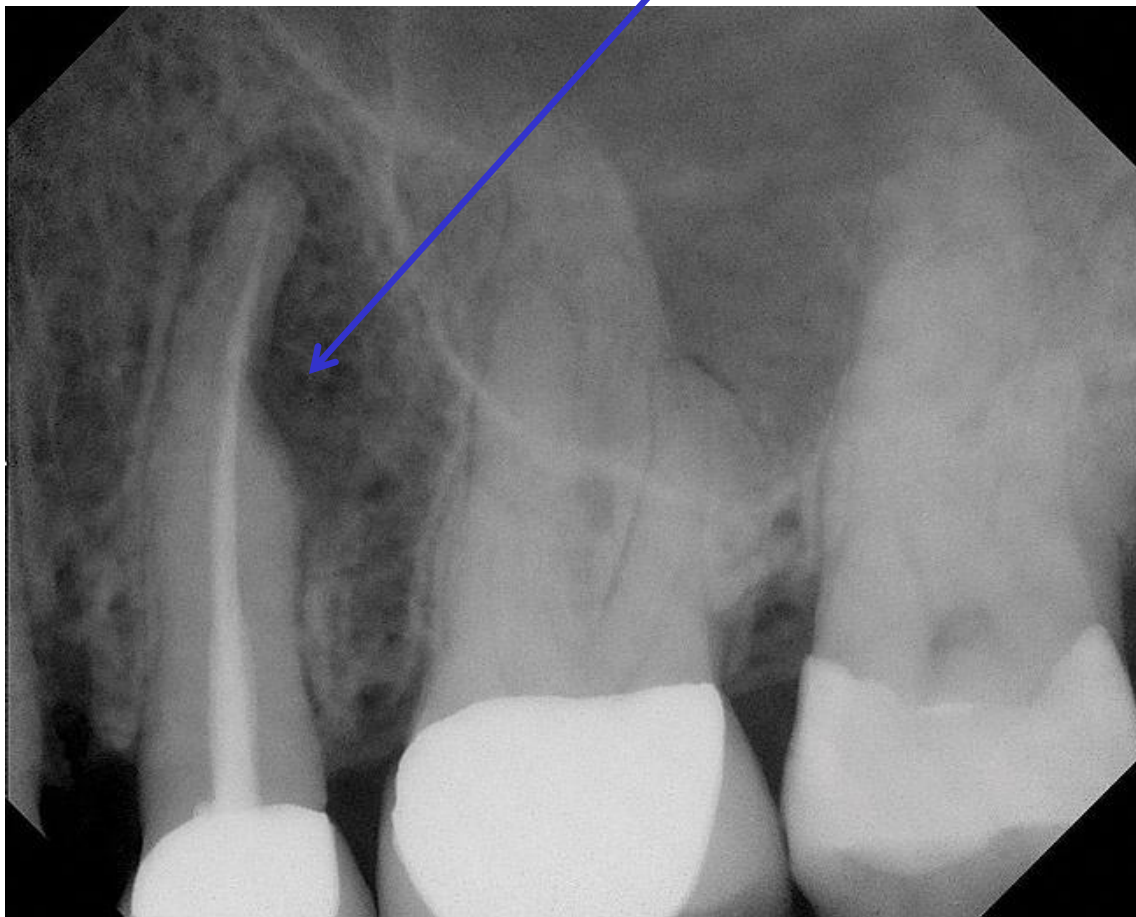
KLINISCHE RELEVANZEN



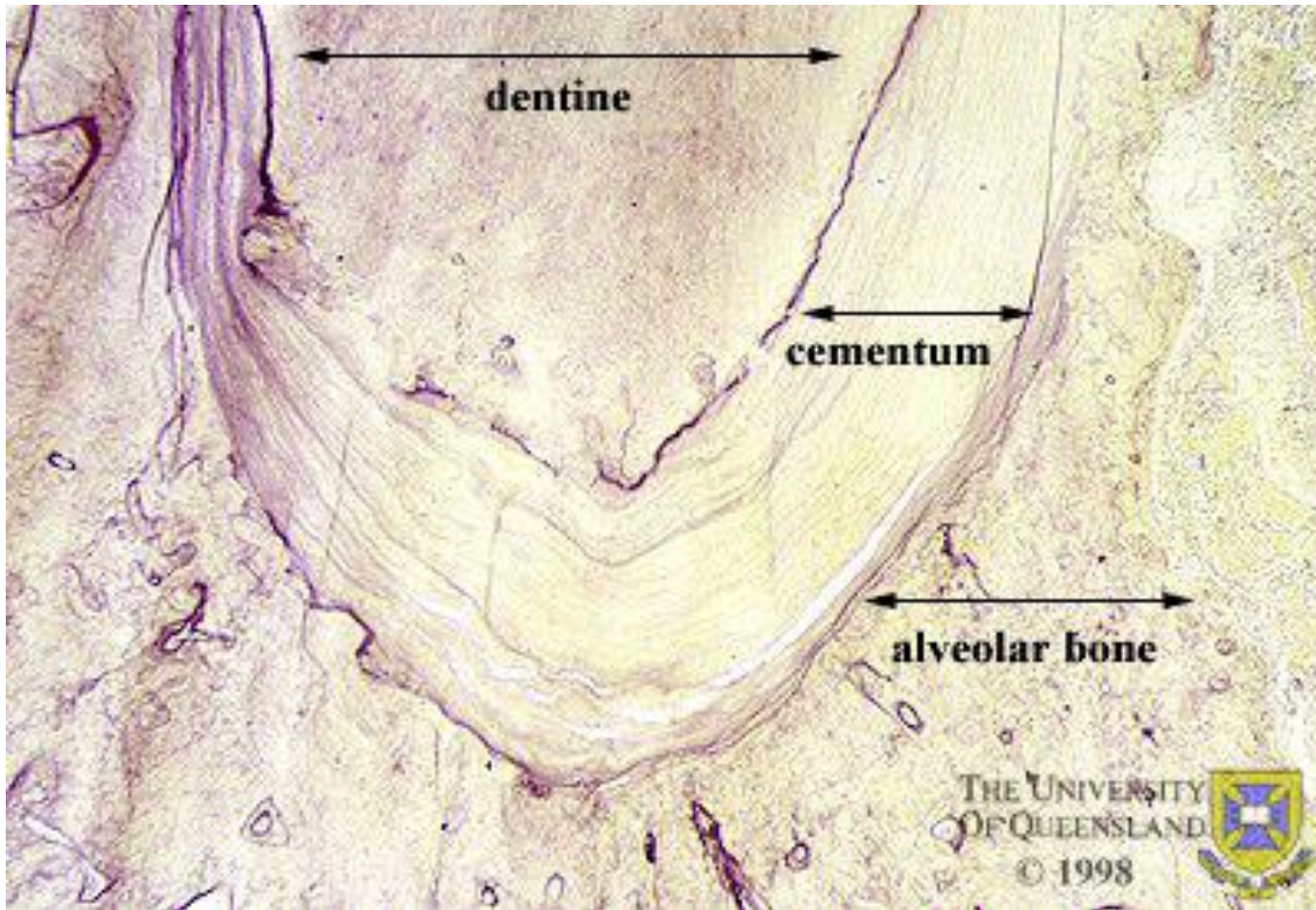
CEMENTICULUS



ANKYLOSIS



ANKYLOSIS



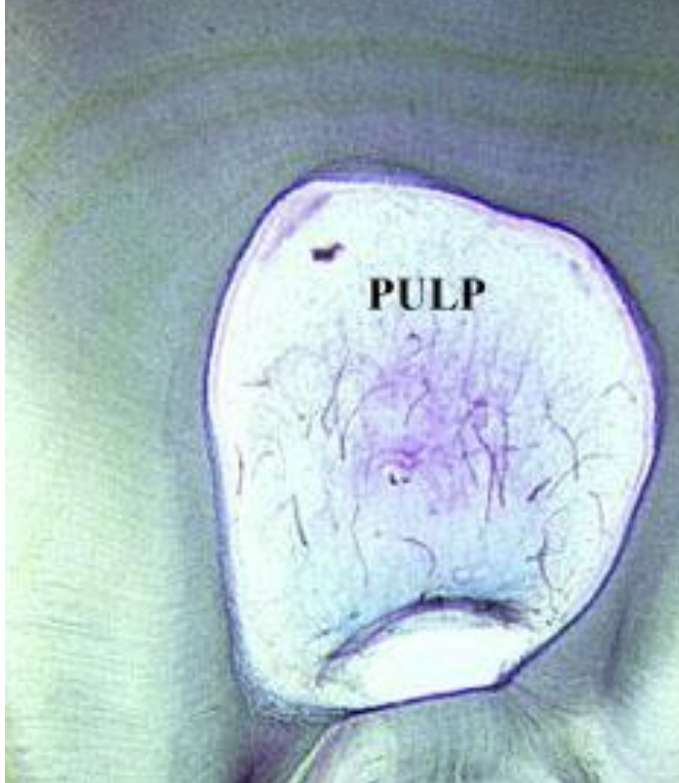
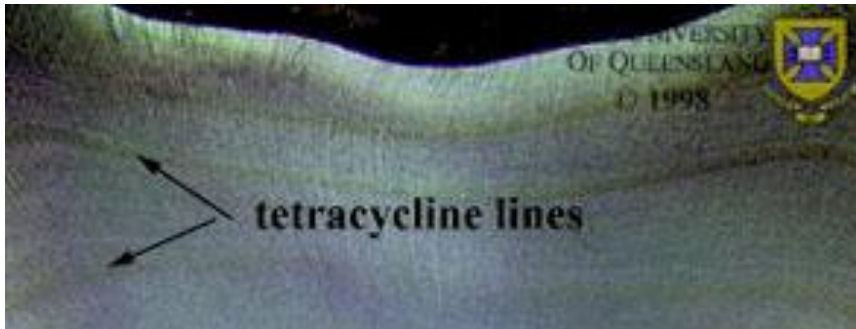
HYPERCEMENTOSIS



GUTARTIGE CEMENTOMA



TETRAZYKLIN PATHOLOGIE

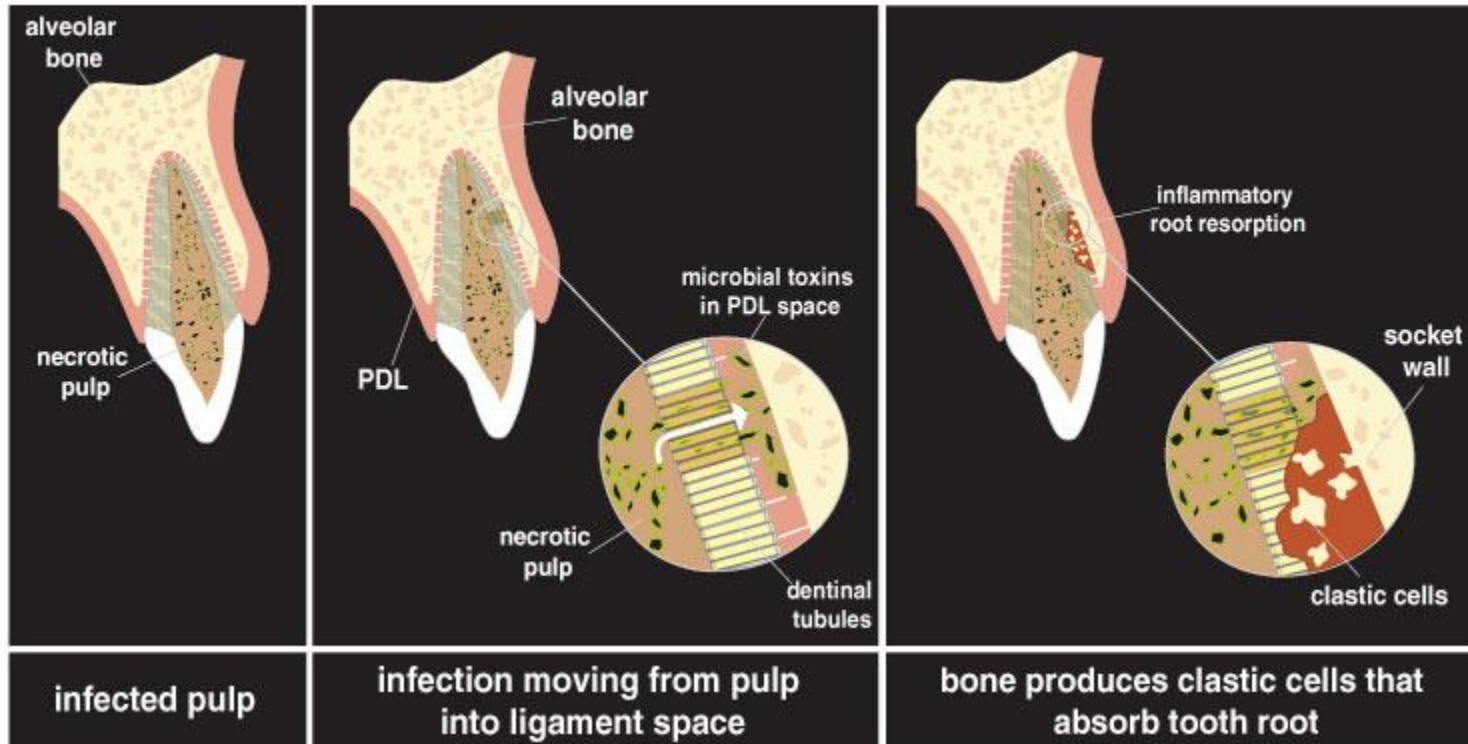


Tetracycline staining of mandibular teeth caused by the ingestion of tetracycline when the patient was aged 3 years.

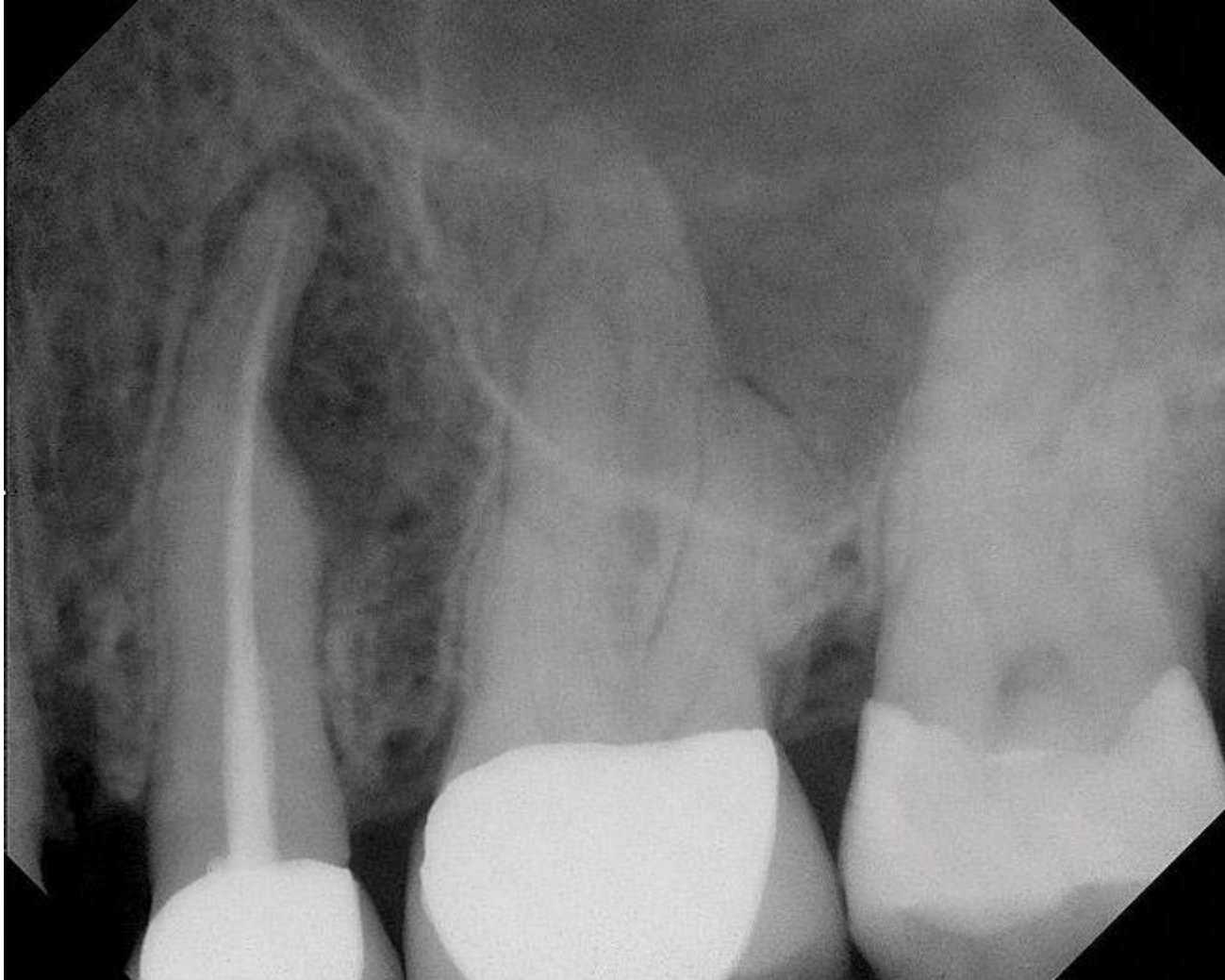


WURZELABSORBTION

progression of inflammatory root resorption



WURZELABSORBTION



GINGIVITIS



GINGIVAHYPERPLASIE



PARODONTOSE

