

Operational techniques in periodontology

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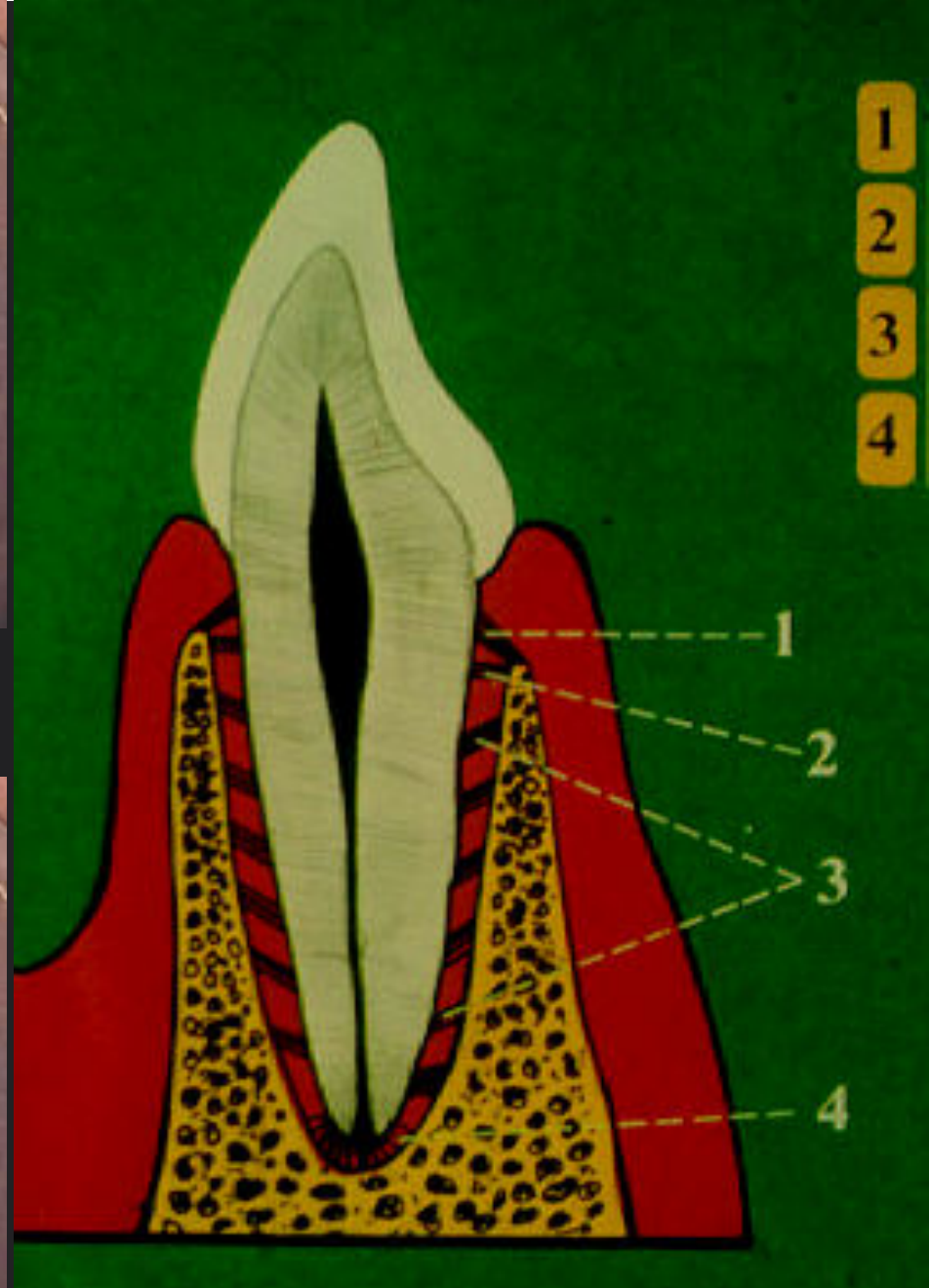




PERIODONTIUM

SUPPORTING TISSUES OF THE TEETH

- 1 . GINGIVA
2. CEMENTUM
3. PERIDONTAL (SHARPEY'S)
LIGAMENTS
4. ALVEOLAR BONE



DENTAL PLAQUE - CAUSATIVE FACTOR OF MOST PERIODONTAL DISEASES





**MASSIVE
SUPRAGINGIVAL
DENTAL CALCULUS**



QUITE GOOD ORAL
HYGIENE, BUT HUGE
QUANTITY
SUBGINGIVAL
CALCULUS
FORMATION



Dental plaque



Gingivitis



Periodontitis



GINGIVITIS:

**DISEASE OF THE FREE
GINGIVAL MARGIN**

**DEFENSIVE MECHANISMS
AGAINST DENTAL PLAQUE**



TOOTH MOBILITY

ATTACHEMENT-LOSS

PERIODONTITIS:

**IRREVERSIBLE
DERANGEMENT OF THE
ATTACHING APPARATUS**

**RESULT OF THE INSUFFICIENT
GINGIVAL IMMUN-DEFENSE**

Dental plaque

WHY DOES NOT

EVERYBODY WITH

POOR ORAL

Gingivitis

HYGIENE SUFFER

FROM

PERIODONTITIS???

Periodontitis

Dental plaque

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graph TD; A[Dental plaque] --> B[Gingivitis]; B --> C[Periodontitis]; C --> D[Severe periodontitis]; E[Risk factors] --> B; E --> C;
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The diagram illustrates the progression of periodontal disease. It starts with 'Dental plaque' in a light green box, which leads to 'Gingivitis' in a blue box. From 'Gingivitis', the progression continues to 'Periodontitis' in a red box, and finally to 'Severe periodontitis' in another red box. On the left, a green box lists 'Risk factors' which include Genetics, Behavioural, Systemic conditions, and Local factors. Green arrows point from this box to the transitions between Gingivitis and Periodontitis, and between Periodontitis and Severe periodontitis.

Gingivitis

Periodontitis

Severe periodontitis

Risk factors:

- Genetics
- Behavioural
- Systemic conditions
- Local factors

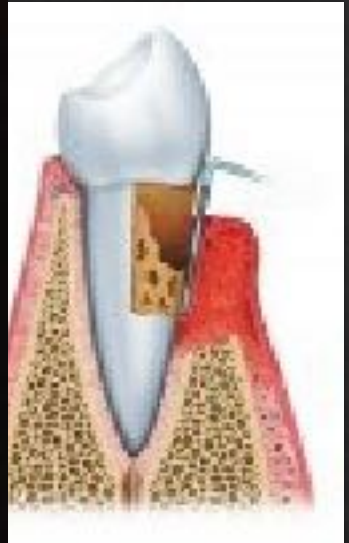


ROBUST SUPRA- AND SUBGINGIVAL PLAQUE AND CALCULUS

**THE SUBGINGIVAL PLAQUE EXISTS
INDEPENDENTLY, CREATES A MASSIVE
BIOFILM, WHICH CAN BE ELIMINATED
ONLY BY MECHANICAL MEANS OF
PROFESSIONAL CLEANING**



Progression: pocket formation, bone- and attachment loss





**SEVERE ALVEOLAR
BONELOSS**

Cause related periodontal treatment: forgo the surgical therapy



Types of periodontal surgical therapy, aims

1. *Resective period. surgery*
2. *Regenerative surgery*
3. *Mucogingival (perio plastic) surgery*

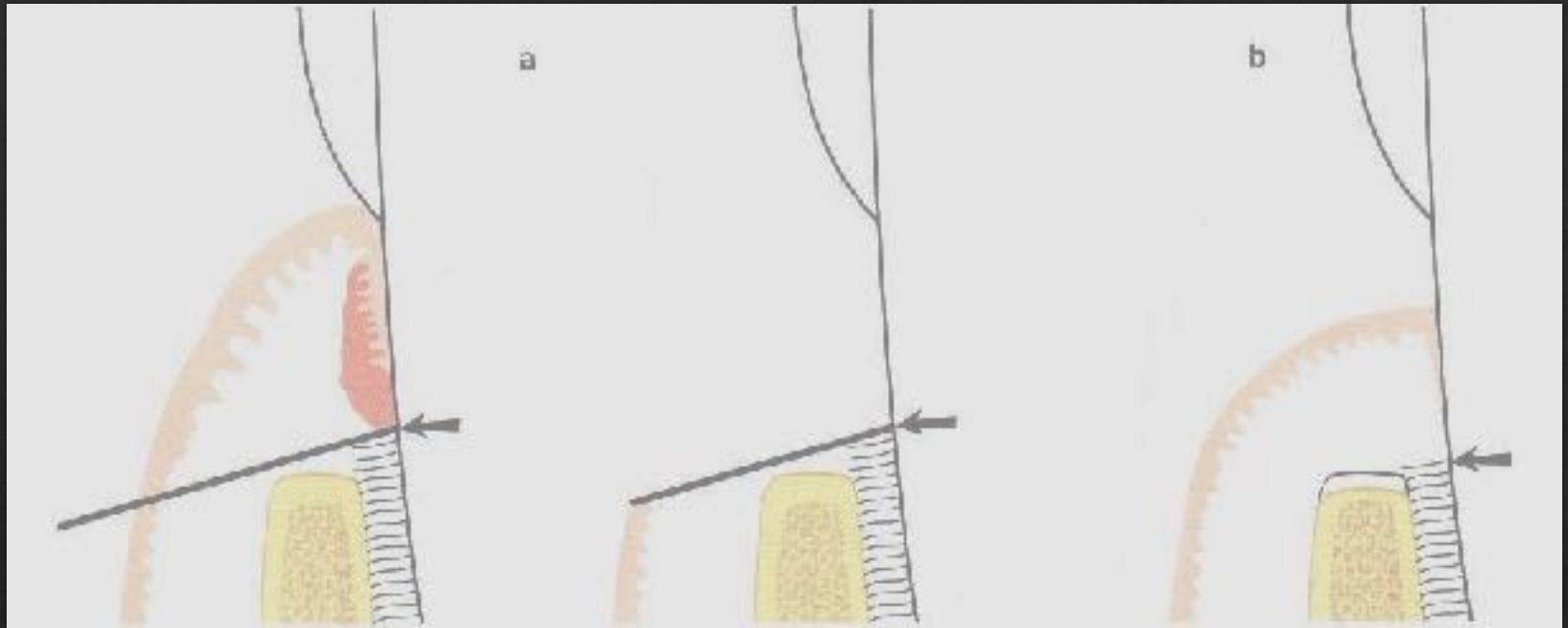
Aims:

- support cause related period. treatment, thorough root surface debridement with visual control
- pocket depth reduction (establish complete inflammation-free state)
- regain attachment, improve prognosis of the teeth
- gain a marginal gingiva and bone contour, which functions and looks like as the original one
- improve esthetics, (reduce cervical hypersensitivity)

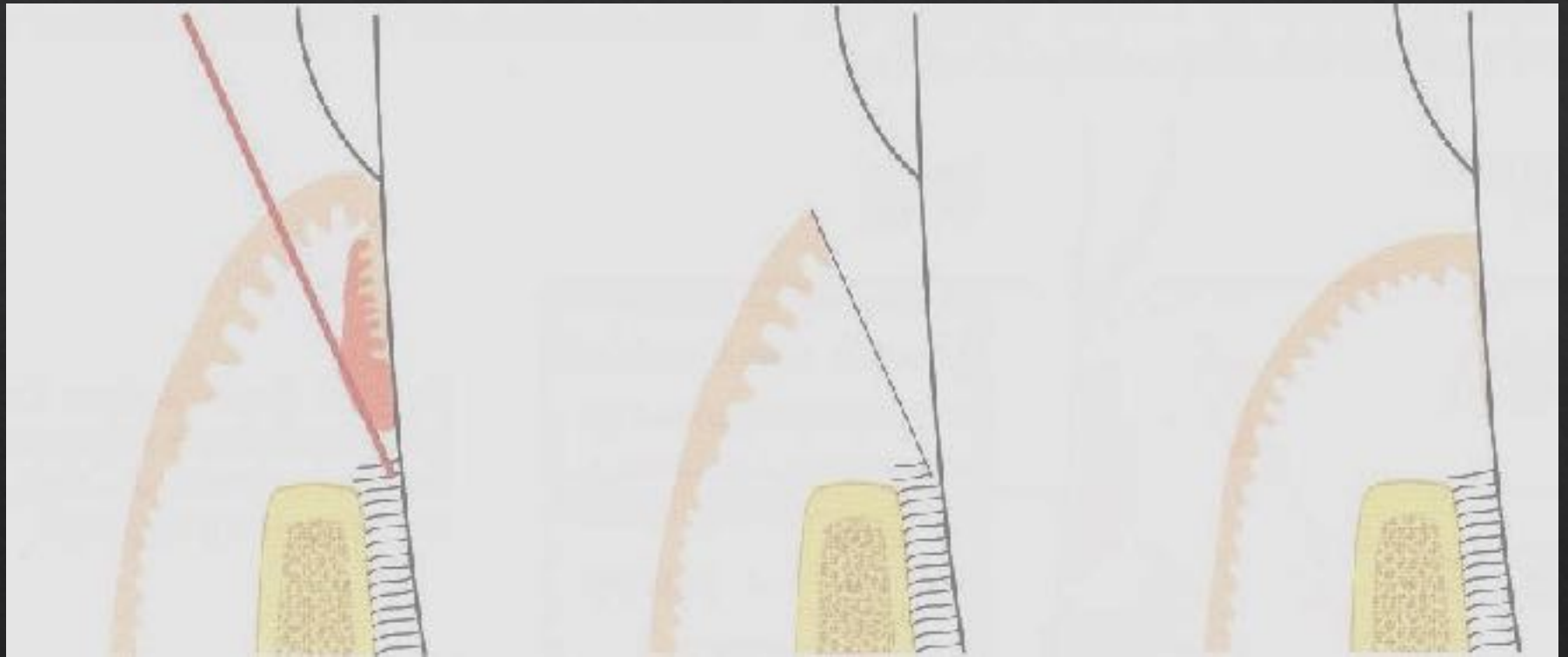
I. Resective period. surgical techniques

- ◇ *Gingivectomy (conventional, internal bevelled reversed)*
- ◇ *Apically transpositioned flap*
- ◇ *Modified- Widman flap*

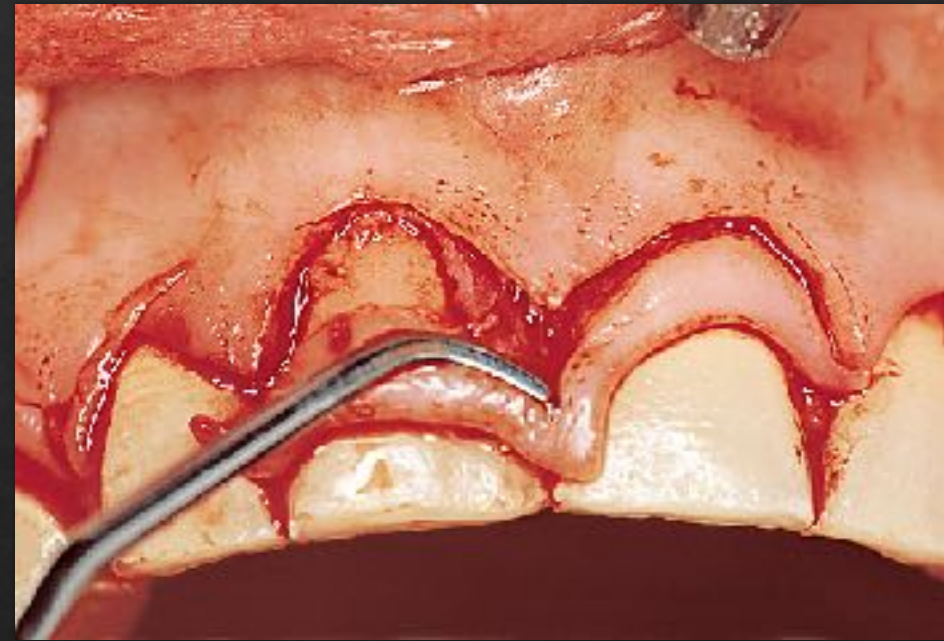
I. Resective: Gingivectomy



Internal bevelled reversed incision



1. Resective: internal bevelled reversed gingivectomy

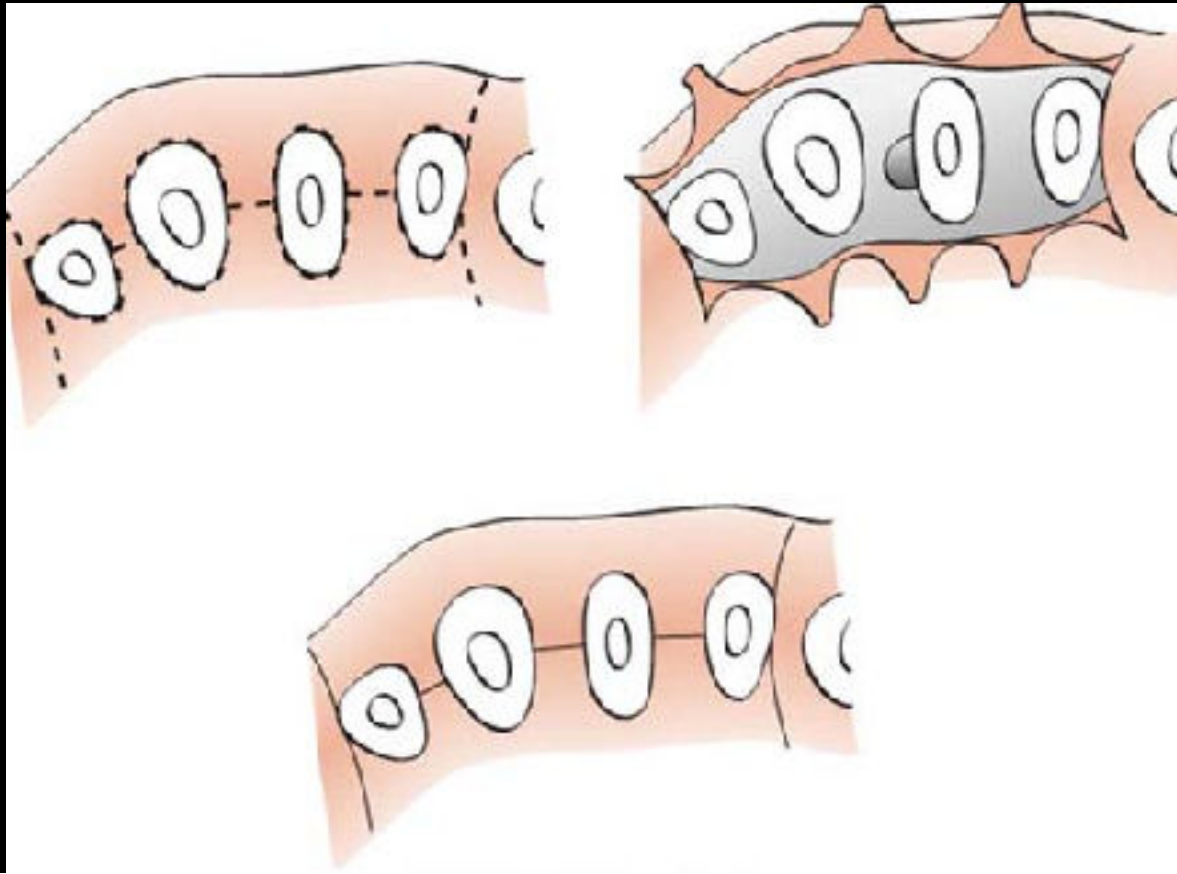


I. Resective: internal bevelled reversed gingivectomy

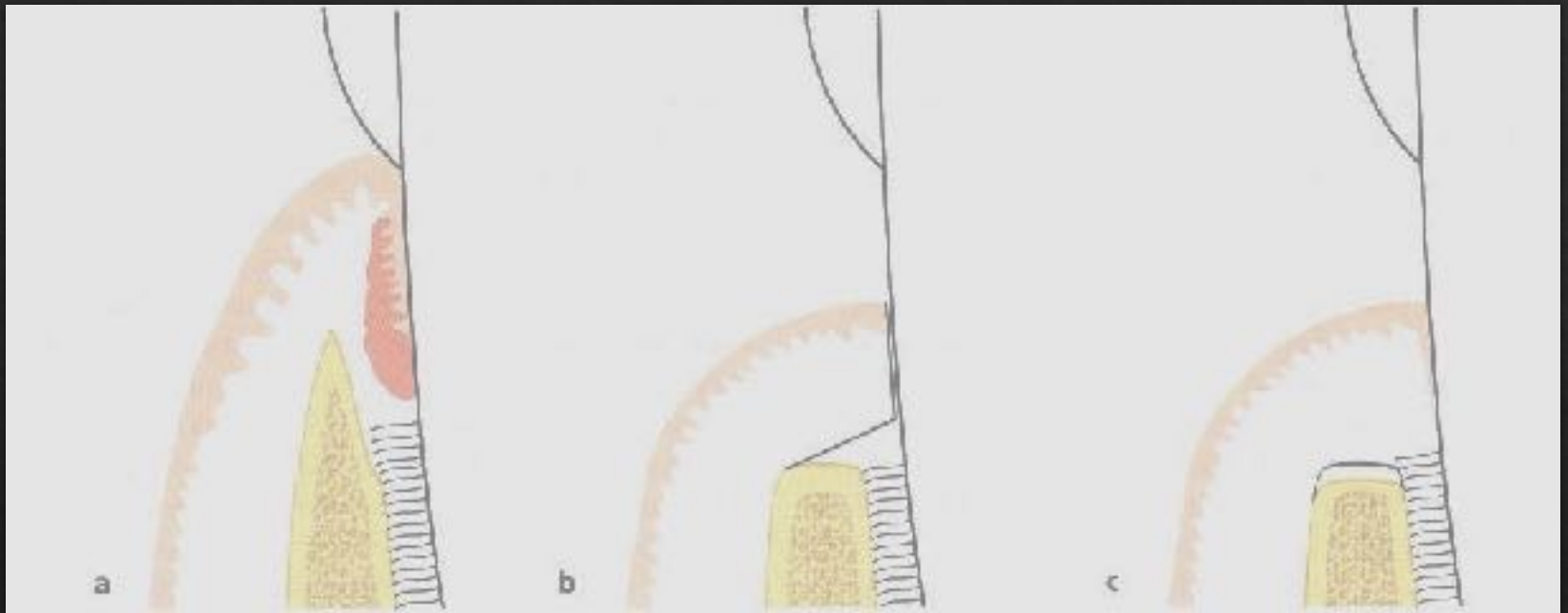


I. Resective: pocket surgery with flaps!!

THE INCISION FOLLOWS THE ORIGINAL GINGIVAL CONTOUR AND WE CUT THROUGH THE PAPILLA INTERDENTALLY IN THE MIDDLE, TRY TO PRESERVE AS MUCH GINGIVAL TISSUES AS POSSIBLE TO GAIN A BETTER INTERDENTAL FLAP CLOSURE



I. Resective: apically transpositioned flap





APICALLY TRANSPOSITIONED FLAP AIMING POCKET DEPTH REDUCTION

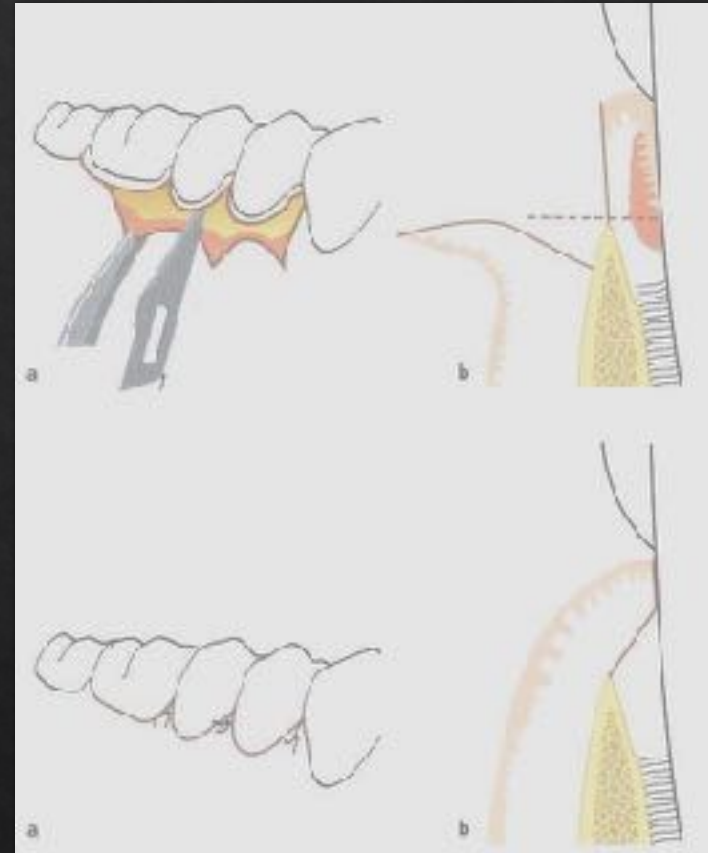
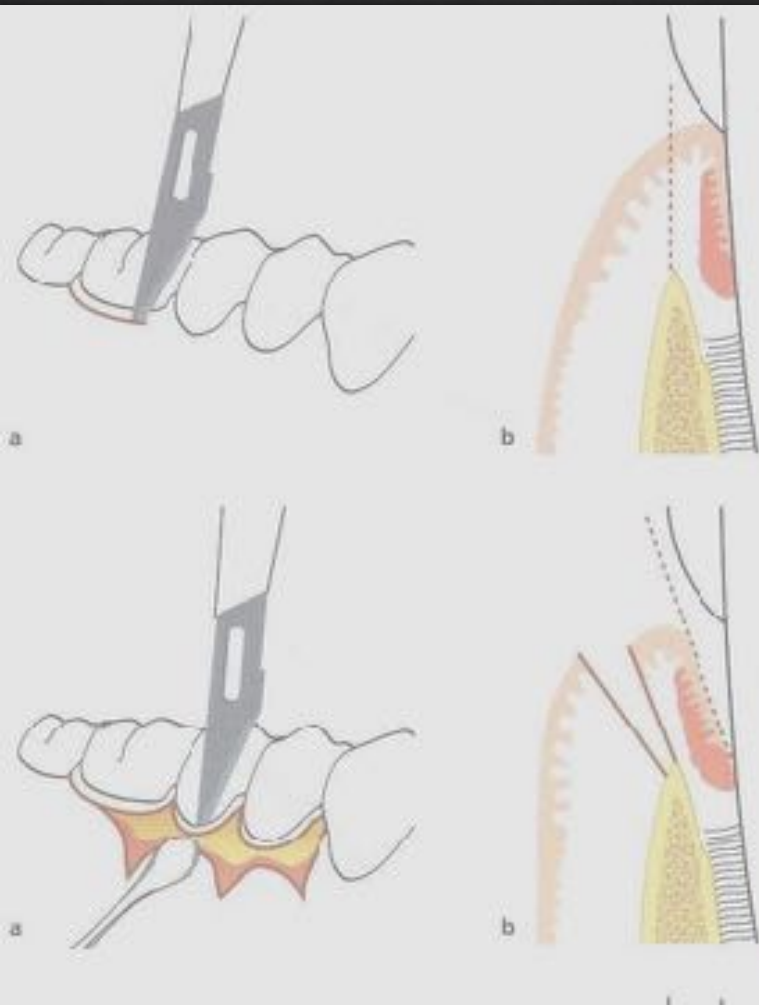




APICALLY TRANSPOSITIONED FLAP + OSTEOTOMY



I. Resective: modified-Widman flap



I. Rezekatív: modified-Widman flap



I. Resective: modified-Widman flap



II. Regenerative surgical techniques:

- GTR (guided tissue regeneration)= MEMBRANES
- Biological modifiers (ENAMEL MATRIX PROTEIN=Emdogain)
- Bone fillers
- Combined techniques

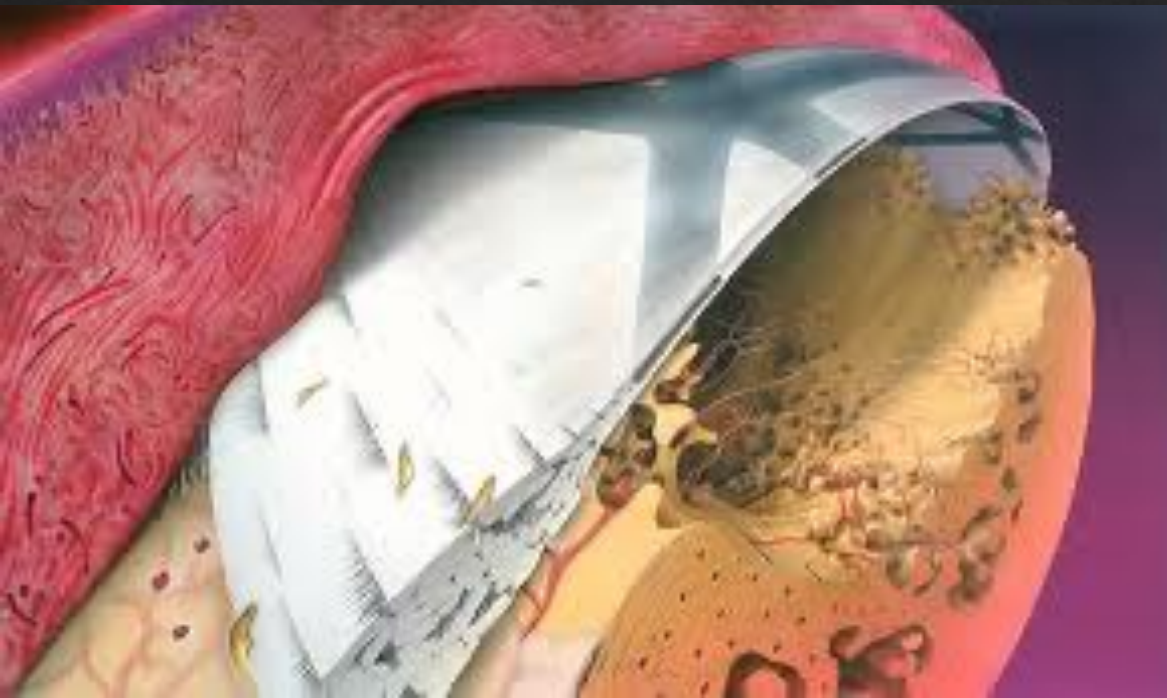
II. Regenerative: GTR



After cleaning, a special membrane is inserted between the gum and bone.



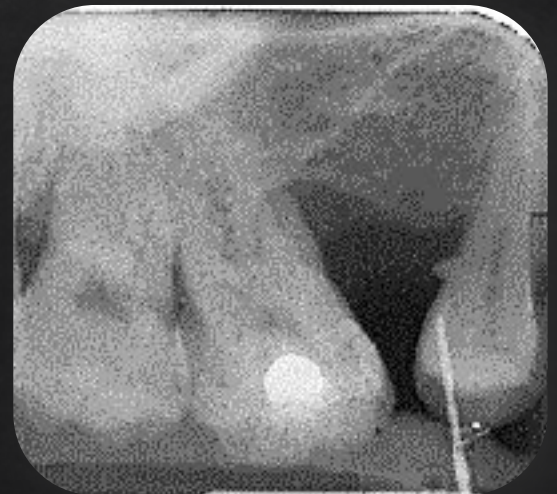
The membrane blocks unwanted tissue, allowing ligament fibers and bone to grow. Once strong ligament fibers attach root to bone, the membrane dissolves or is removed.



Needleman IG, Worthington HV, Giedrys-Leeper E, Tucker RJ. Guided tissue regeneration for periodontal infra-bony defects. *Cochrane Database Syst Rev.* 2006 Apr 19;(2):CD001724. Review.

II. Regenerative: GTR

Initial state



II. Regenerative: GTR

Incision, flap elevation



II. Regenerative: GTR

Flap releasing, membrane shaping



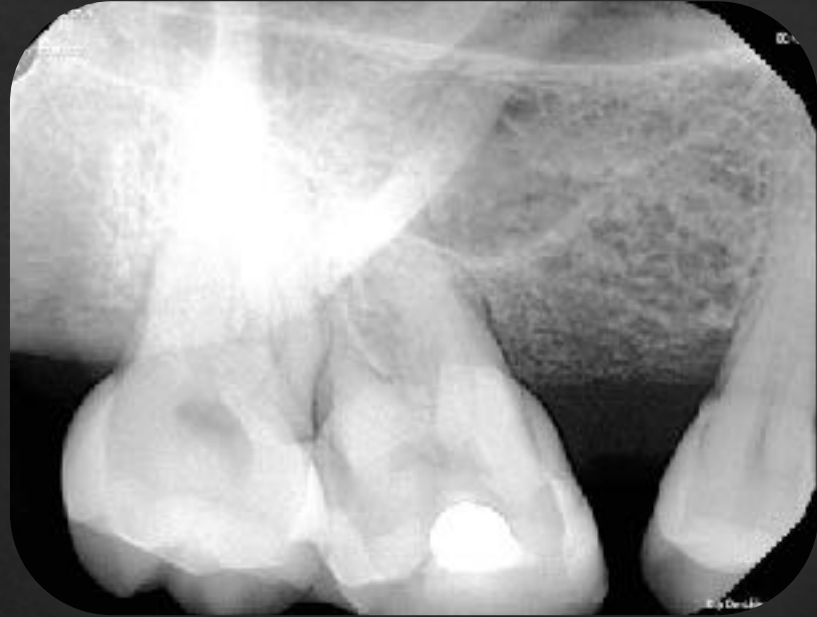
II. Regenerative: GTR

Defect filling with bone substitute, covering it with the membrane



II. Regenerative: GTR

Wound closure, control X-ray



II. Regenerative: GTR

1 week postoperative



2 weeks postoperative

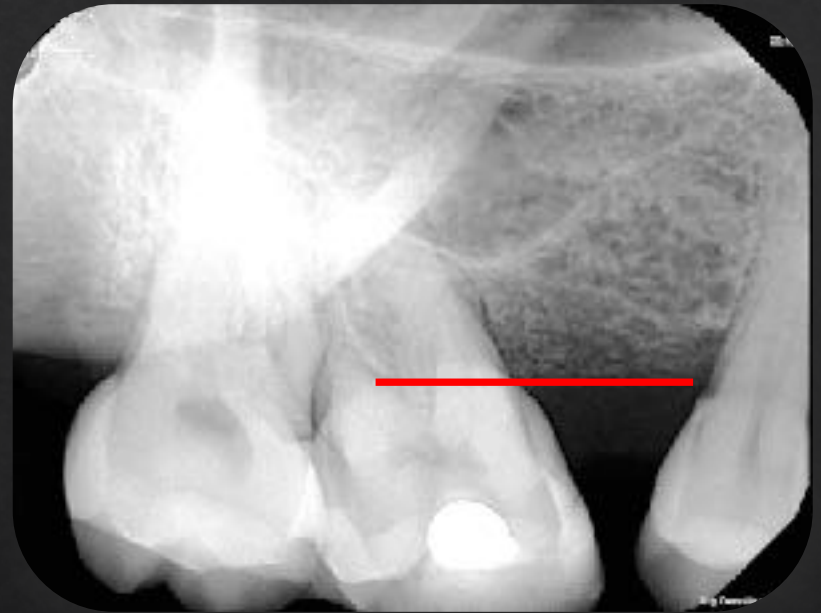
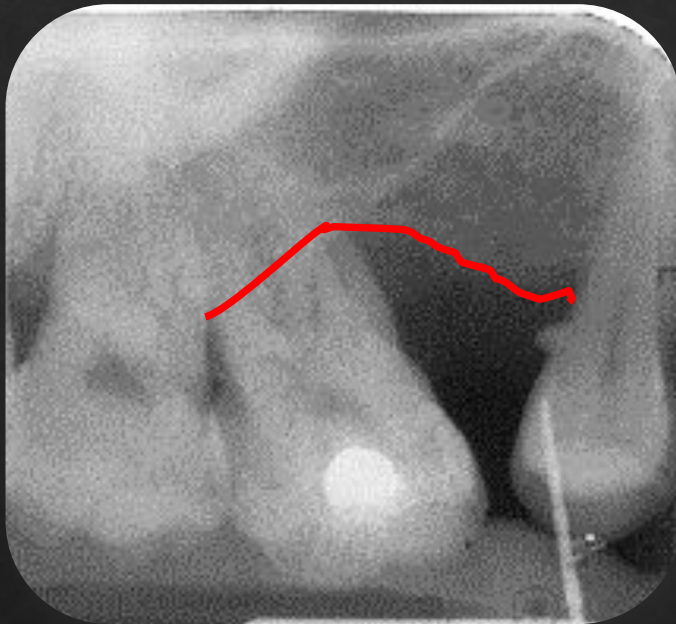


II. Regenerative: GTR



Initial

II. Regenerative: GTR Half year postoperative



II. Regenerative: Emdogain (enamel matrix protein)



1 When Straumann Emdogain is applied the enamel matrix derived proteins penetrate on the defect surface to form a matrix layer.



2 The matrix induces the attraction and proliferation of epithelial cells from the healthy part of the root surface.



3 The cells become oriented and specific cytokines and growth factors stimulate the secondary proliferation.



4 Supporting cells are attracted and differentiate into cementoblasts which start the formation of a cement matrix in which the periodontal fibers will be fixed.



5 The newly formed cement layer increases in thickness, anchoring the periodontal ligament.



6 Within months, the defect fills with newly formed periodontal ligament.



7 As the periodontal ligament is formed, more bone continues to develop.



8 Success of Emdogain in facilitating regeneration of a complete dental structure of the periodontium, leading to new functional attachment.

Tonetti MS, Lang NP, Cortellini P, et al. Enamel matrix proteins in the regenerative therapy of deep intrabony defects. J Clin Periodontol 2002;29:317-325.

II. Regeneratív: Emdogain (zománemártix protein)

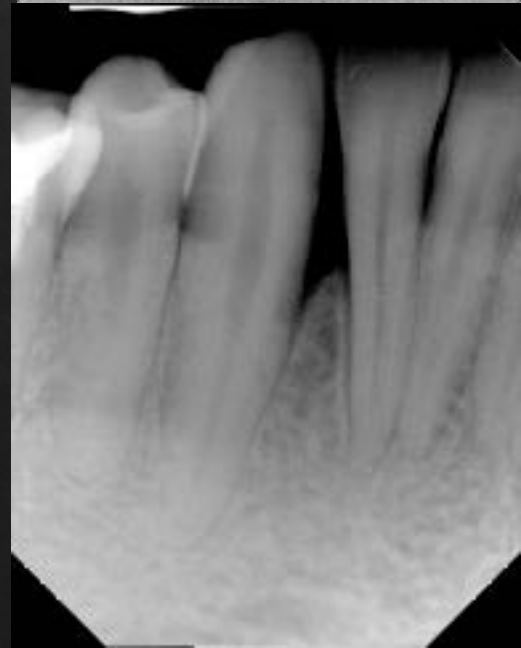
Preoperative clinical and radiological pictures



II. Regenerative: Emdogain (enamelmatrix protein)



II. Regeneratív: Emdogain (zománemártix protein) 9th month result



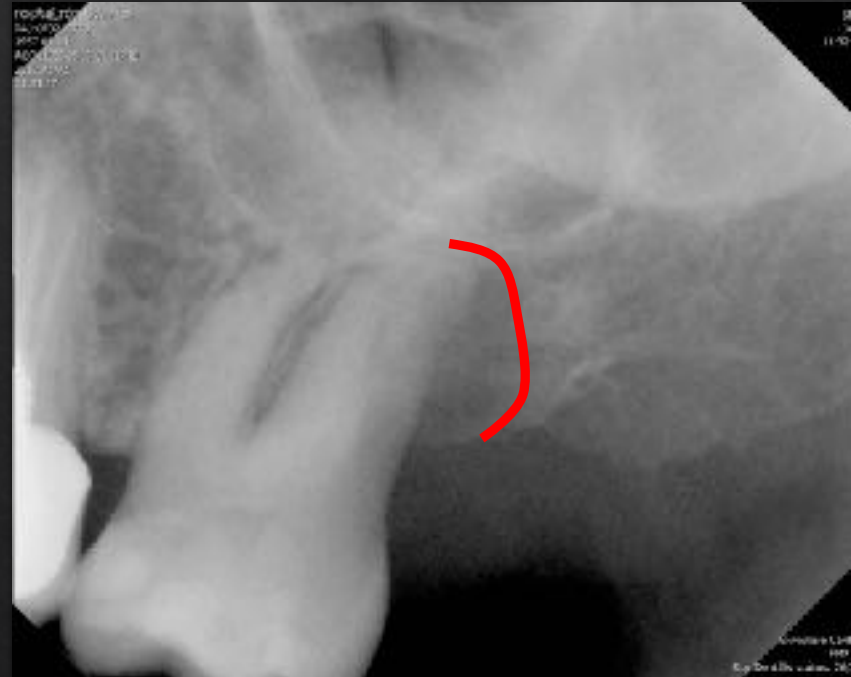
II. Regenerative: Bone fillers

Granule type



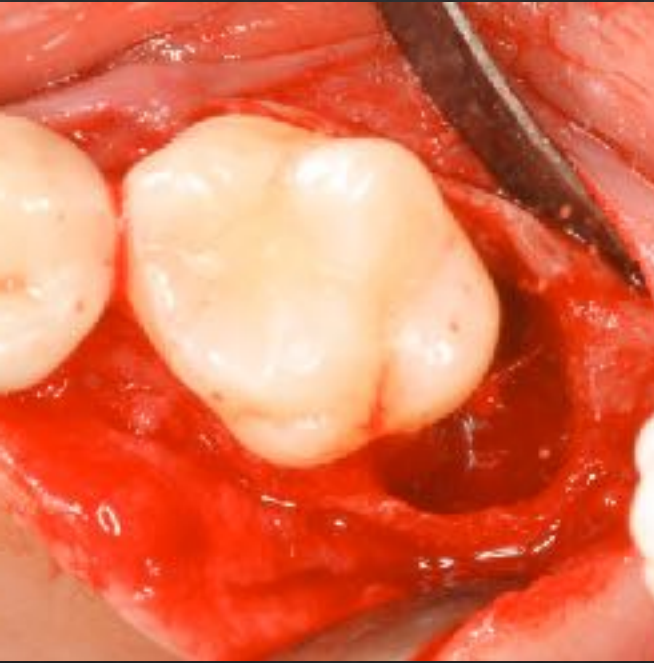
II. Regenerative: Combination (Emdogain + bone filler)

Preoperative clinical and radiological pictures



II. Regenerative: Combination (Emdogain + bone filler)

Root surface modification with Emdogain and filling the defect with mixed bone fillers



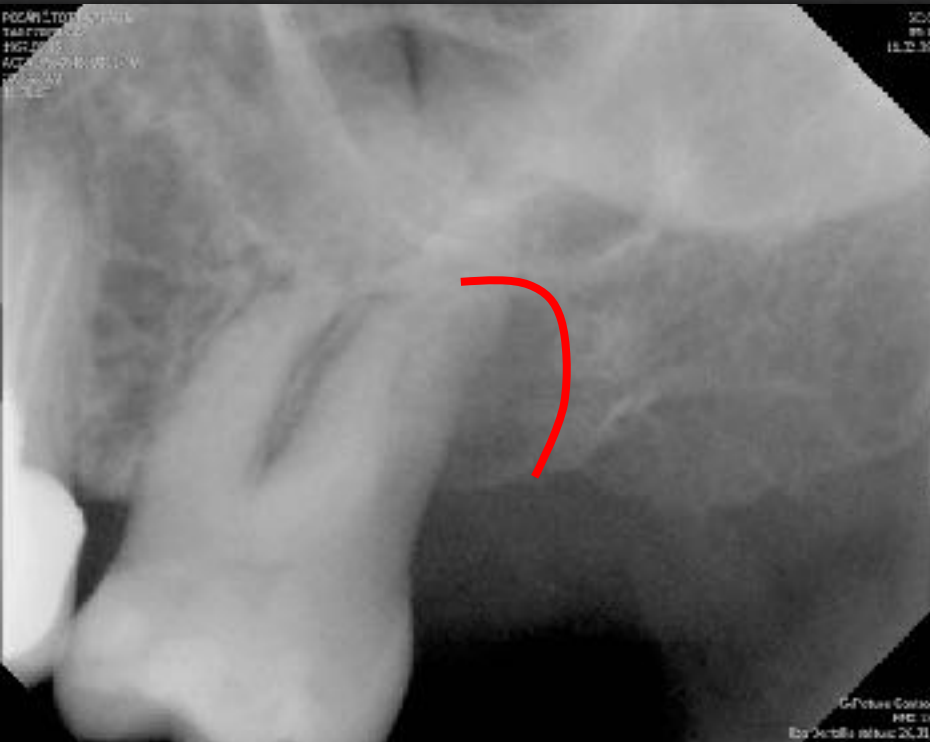
II. Regenerative: Combination (Emdogain + bone filler)

Root surface modification with Emdogain and filling the defect with mixed bone fillers



II. Regenerative:Combination(Emdogain + bone filler)

6 months radiological result



III. Mucogingival surgery

- **Gingival recession's coverage**
- Narrow attached gingiva widening
- Negative papilla
- Gingival asymmetry
- Shallow vestibular fold

III. Mucogingival surgery: recession coverage

Initial state



The modified coronally advanced flap (MCAF) + connective tissue graft

III. Mucogongivalis sebészet: ínyrecesszió fedése

The modified coronally advanced flap (MCAF)(MCAF)



Zucchelli G, De Sanctis M. The coronally advanced flap for the treatment of multiple recession defects: a modified surgical approach for the upper anterior teeth. *J Int Acad Periodontol.* 2007 Jul;9(3):96-103.

III. Mucogingival surgery: recession coverage

Submarginal bevelled incisions, the flap, deepithelialisation of the papillas, connective tissue graft from the palate



Root surface biomodification, securing the connective tissue graft

EDTA



Emdogain



Sutures, coronally positioning

Palate



Preoperative and postoperative pictures



1 year after

III. Mucogingival surgery: recession coverage

Initial and current state

Initial



Current



III. Mucogingival surgery: recession coverage

Initial state



Aroca S, Keglevich T, Nikolidakis D, Gera I, Nagy K, Azzi R, Etienne D.: Treatment of class III multiple gingival recessions: a randomized-clinical trial. *J Clin Periodontol.* 2010 Jan;37(1):88-97.

III. Mucogingival surgery: recession coverage

Root planing



Conditioning (EDTA)



Coronally advanced modified tunnel technique



III. Mucogingival surgery: recession coverage

Connective tissue graft harvesting from the palate



Hürzeler, M. & Weng, D.: A single-incision technique to harvest subepithelial connective tissue graft from the palate. *International Journal of Periodontics and Restorative Dentistry* 1999 19: 279–287

III. Mucogingival surgery: recession coverage

Pulling in the graft under the tunnel flap



III. Mucogingival surgery: recession coverage

Stabilize the tunnel flap coronally with sutures and applying Emdogain



III. Mucogingival surgery: recession coverage

Preoperative and postoperative pictures



QR code is coming

ATTENTION!

Thank You for Your attention ☺

