

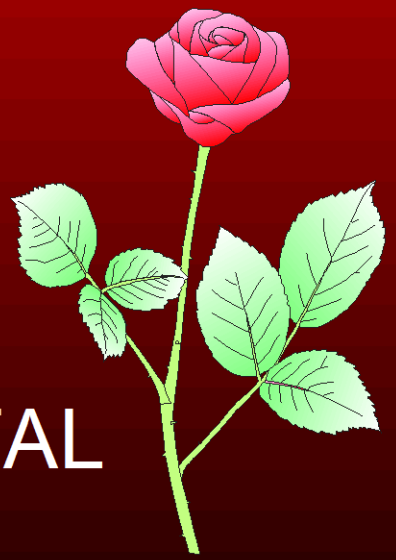

PERIODONTAL SURGERY - INTRODUCTION

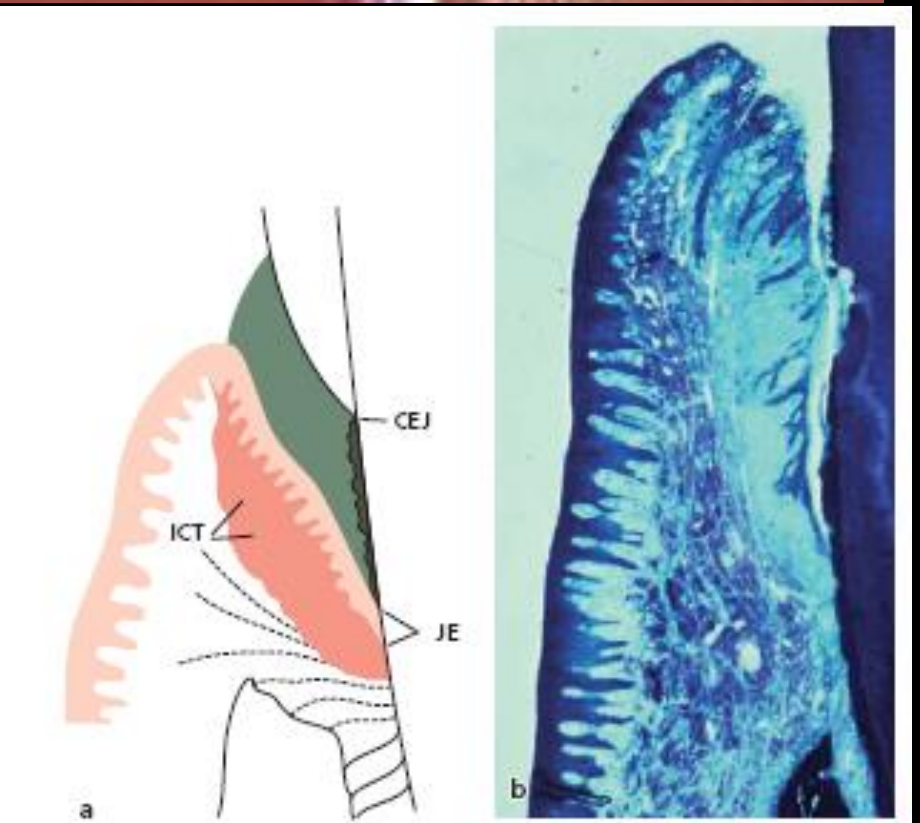

THE ULTIMATE GOALS OF PERIODONTAL THERAPY

- *ELIMINATION OF INFLAMMATION*
- PRESERVATION / IMPROVEMENT OF PERIODONTAL ATTACHMENT
- MAINTAINING / IMPROVING OF THE STABILITY OF REMAINING NATURAL TEETH

THE APPROACHES TO ACCOMPLISH THE GOALS

- ELIMINATING LOCAL AETIOLOGICAL FACTORS
- PLAQUE-CONTROL
- SCALING AND ROOT PLANING
- CAUSE RELATED PERIODONTAL SURGERY





ELIMINATE POCKETS

Periodontal pocket is the consequence of periodontal infection

But also a major risk factor for the further progression of disease

CONSEQUENTLY

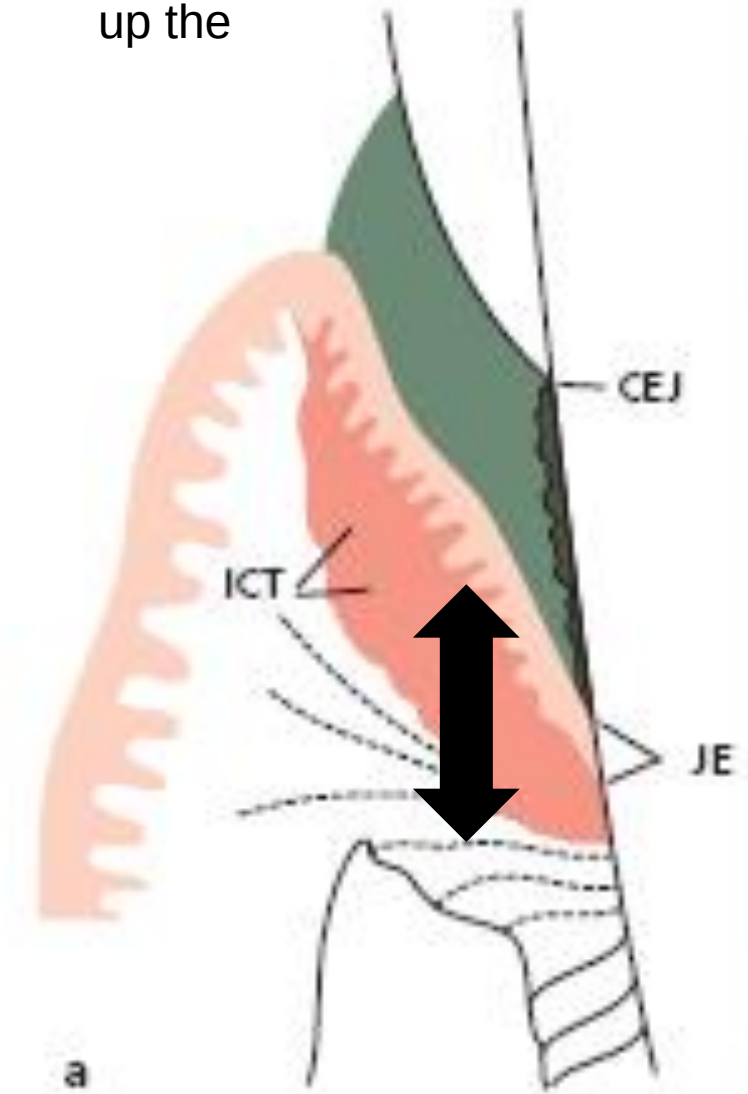
Periodontal pockets should be eliminated or at least pocket depth should be reduced

How reduce pocket depth???

1. remove/dislocate pocket wall
2. Restore lost tissues – fill up the bony crater

How reduce pocket depth???

1. remove/dislocate pocket wall
2. Restore lost tissues – fill up the



1. Move the gingival margin towards the bottom of the pocket

Move the bottom of the pocket towards the gingival margins

PERIODONTAL SURGERY -

OBJECTIVES OF PERIODONTAL SURGERY

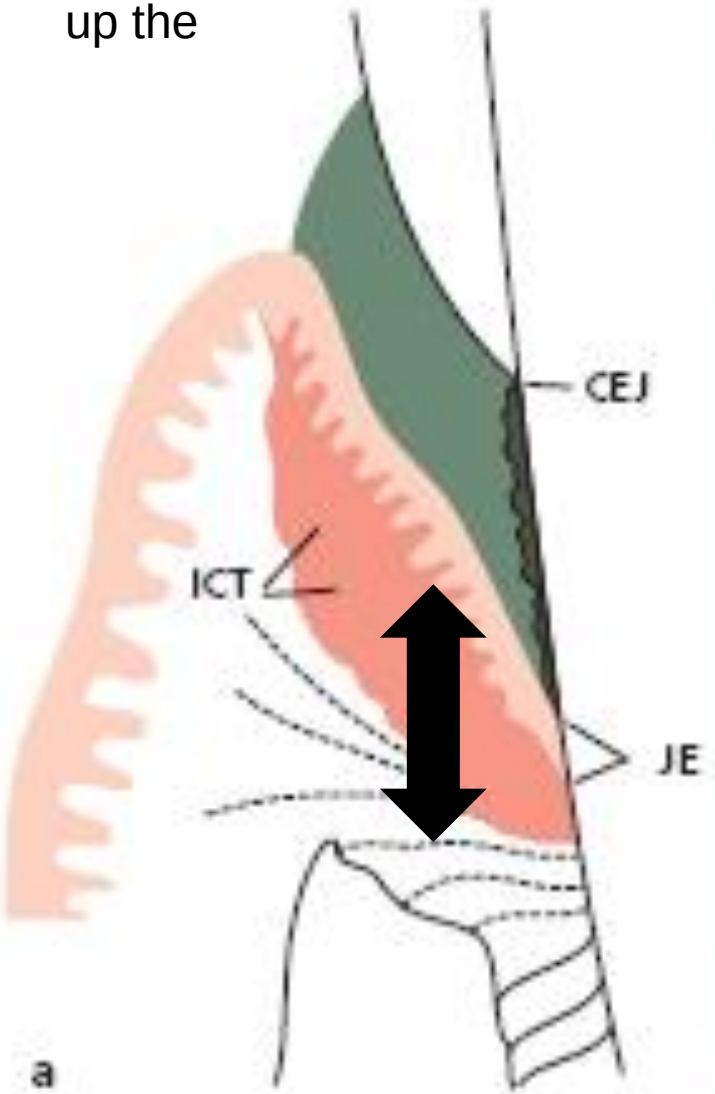
1. Accessibility of instruments to root surface.
2. Elimination of inflammation.
3. Creation of an oral environment conducive to plaque control.
   a. Establish gingival sulcus for easy periodontal disease control (elimination of pocket).
   b. Correct abnormal gingiva and alveolar bone morphologic characteristics that interfere with plaque control.
   c. Perform root-sectioning procedures or treatments to improve morphology for easier oral hygiene maintenance.
   d. Create an easy to clean and proper embrasure space.
4. Regeneration of periodontal apparatus destroyed by periodontal disease.
5. Resolution of gingiva-alveolar mucosa problems.
6. Preparation of periodontal environment suitable to restorative and prosthodontic treatment. Periodontal surgery serves as the therapy prior to prosthodontic treatment.
7. Esthetic improvement.

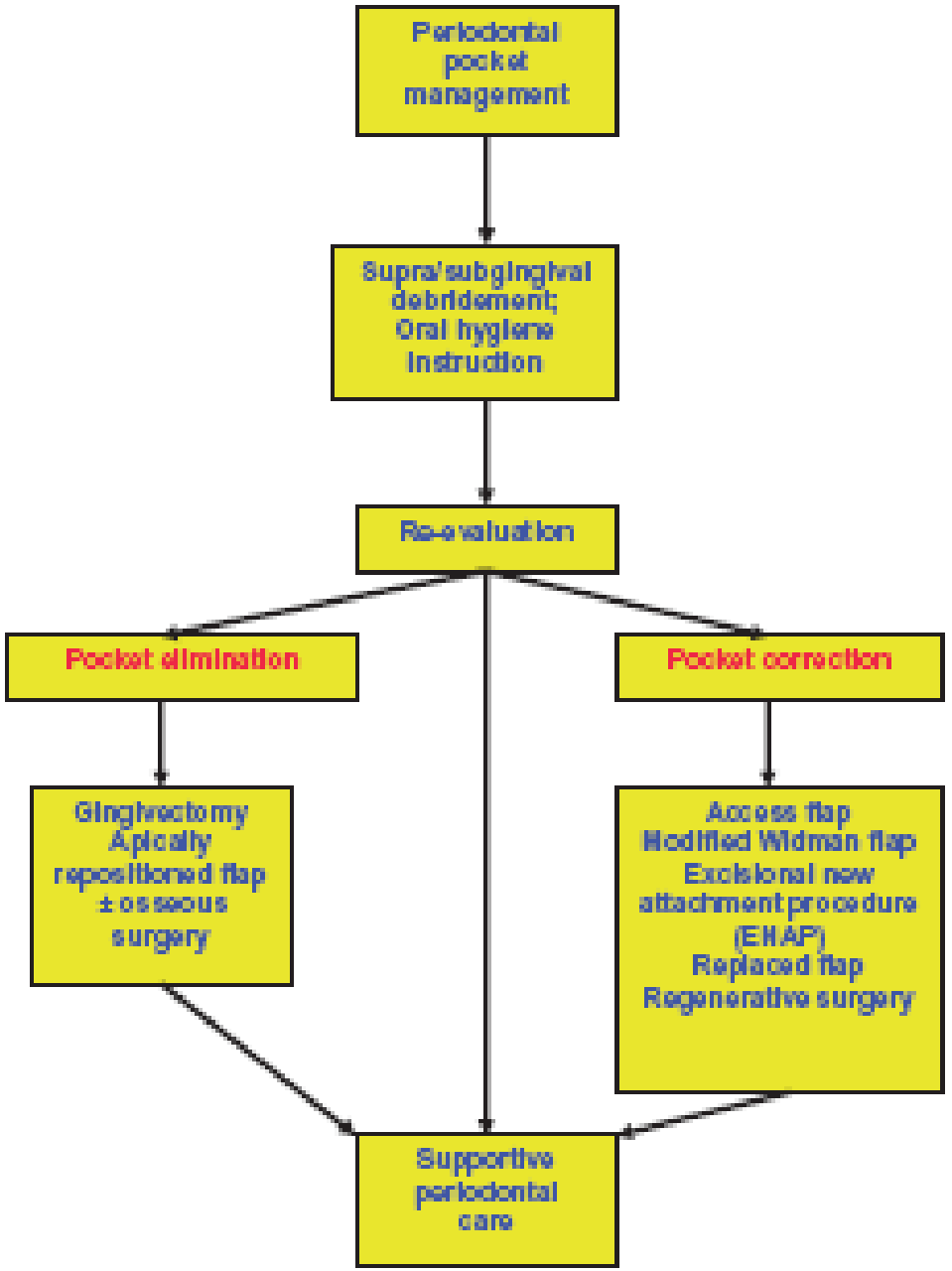
METHODES OF PERIODONTAL SURGERY

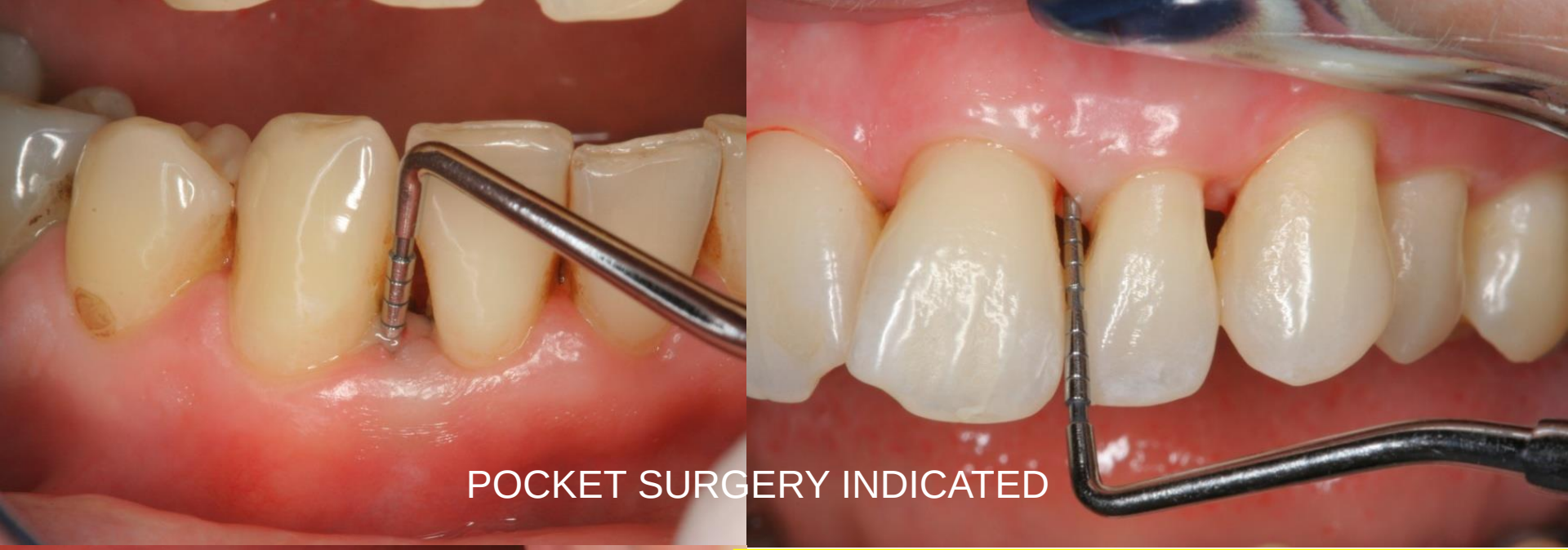
1. Closed curettage
2. Gingivectomy
3. Flap surgery
   a. Flap curettage
   b. Osseous resection
      - osteoplasty
      - ostectomy
   c. Bone graft
   d. GTR (guided tissue regeneration)
      - GTR with bone grafts
      - GTR without bone grafts
4. Mucogingival surgery
   a. Attached gingiva augmentation
      - Free autogenous gingival grafts
      - Pedicle gingival grafts
      - Apically positioned flap surgery
   b. Root coverage
      - Pedicle gingival grafts
      - Semilunar coronally positioned flaps
      - Free autogenous gingival grafts
      - Subepithelial connective tissue grafts
      - GTR (guided tissue regeneration)
   c. Frenum operation
5. Combination of various periodontal surgical approaches

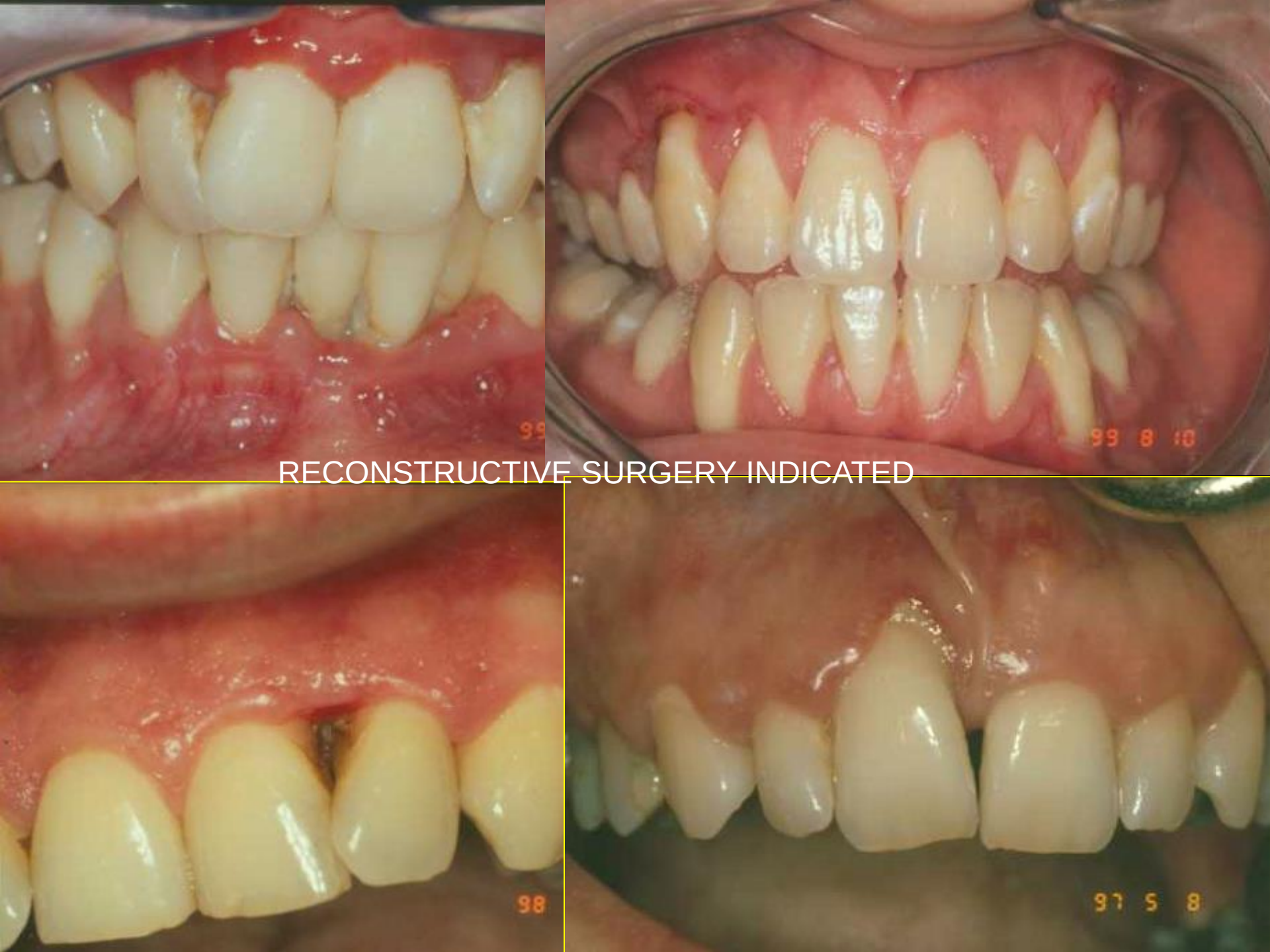
How reduce pocket depth???

1. remove/dislocate pocket wall
2. Restore lost tissues – fill up the






POCKET SURGERY INDICATED


RECONSTRUCTIVE SURGERY INDICATED

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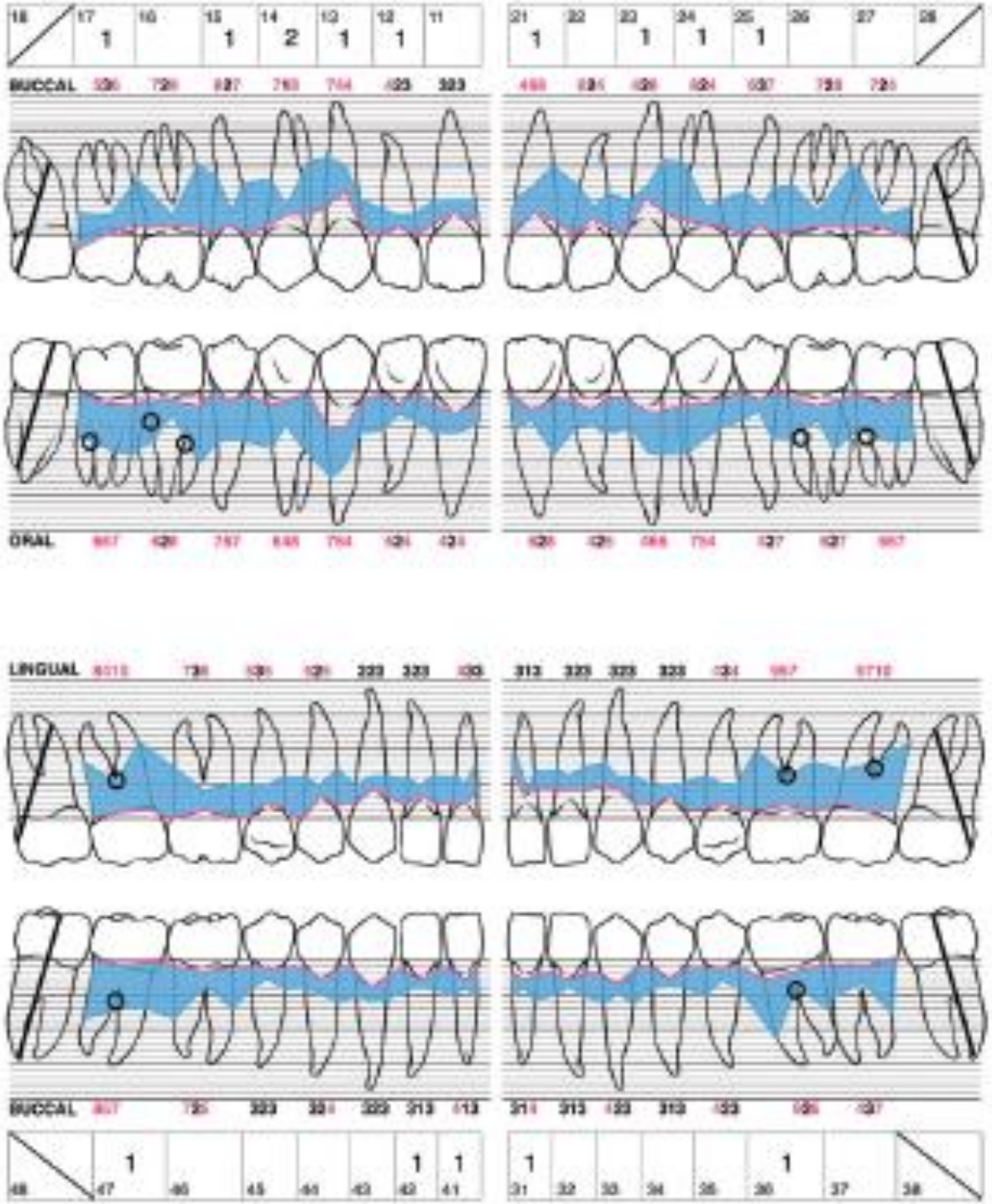
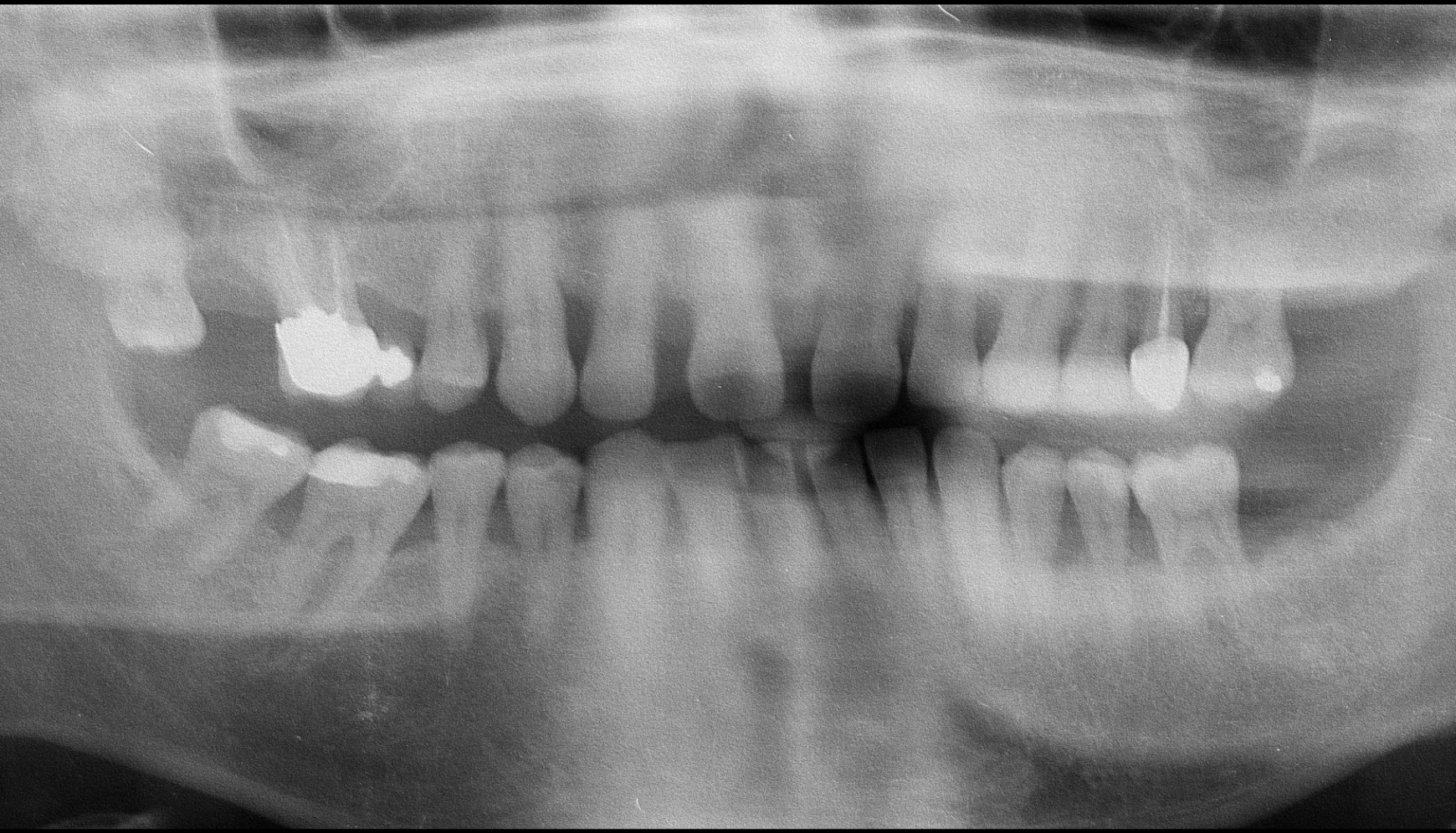


How can we reduce pocket depth??

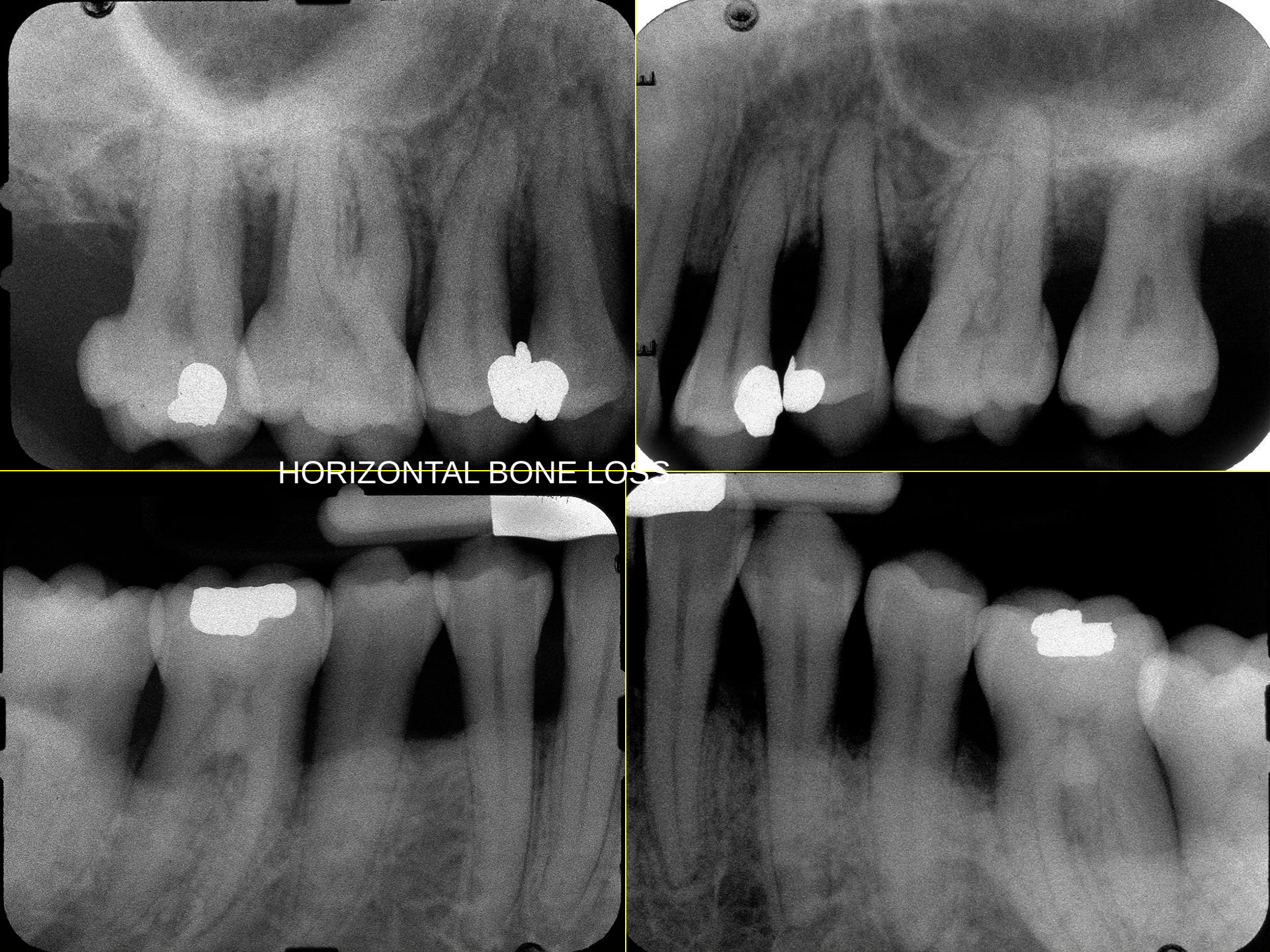
Can we always move margin towards the bottom of the pocket??

What about bony pockets?

Should we remove alveolar bone?



HORIZONTAL BONE LOSS

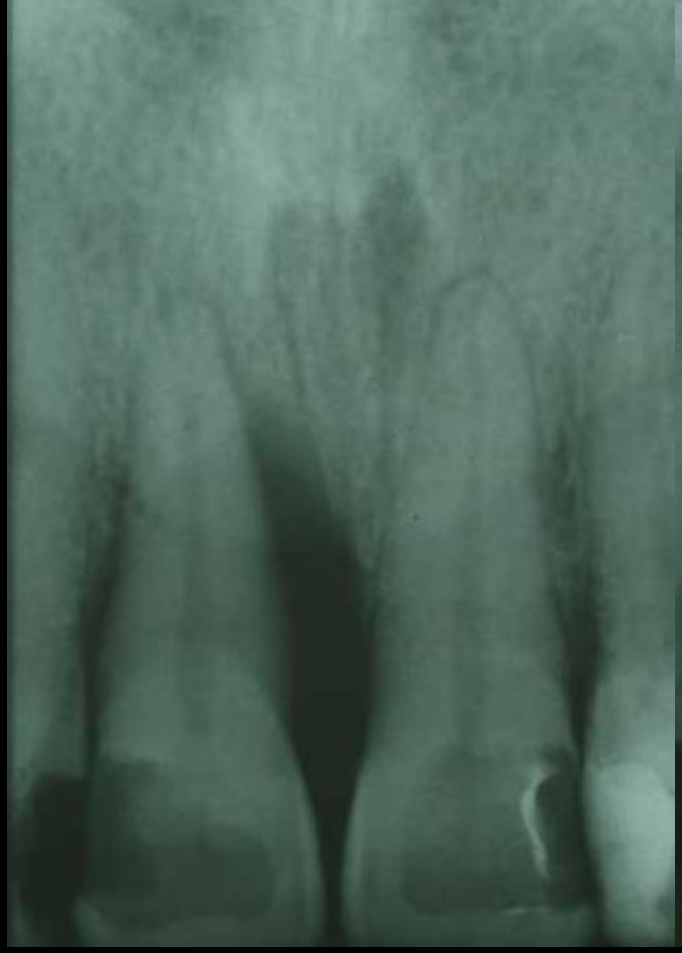

HORIZONTAL BONE LOSS

HOW POCKET REDUCTION CAN BE ACHIEVED IN THIS CASE??



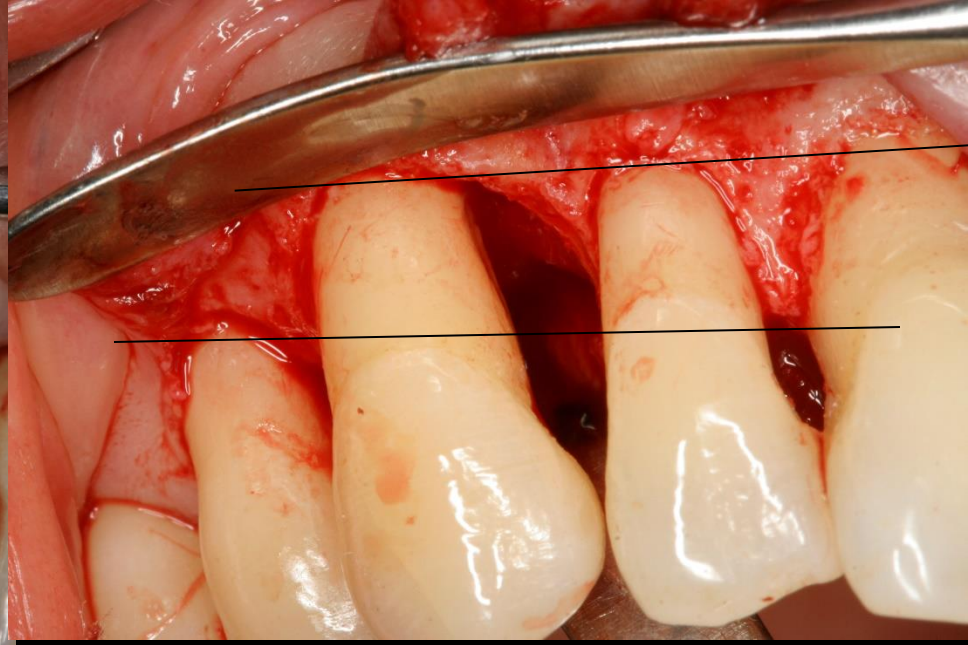







VERTICAL BONE LOSS

HOW POCKET REDUCTION CAN BE ACHIEVED IN THIS CASE??



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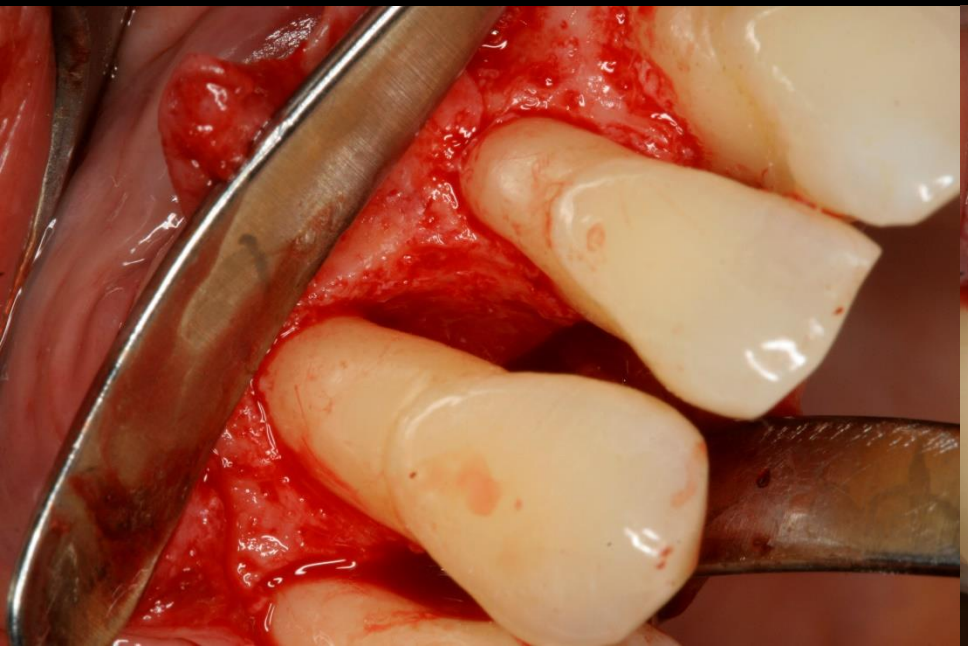
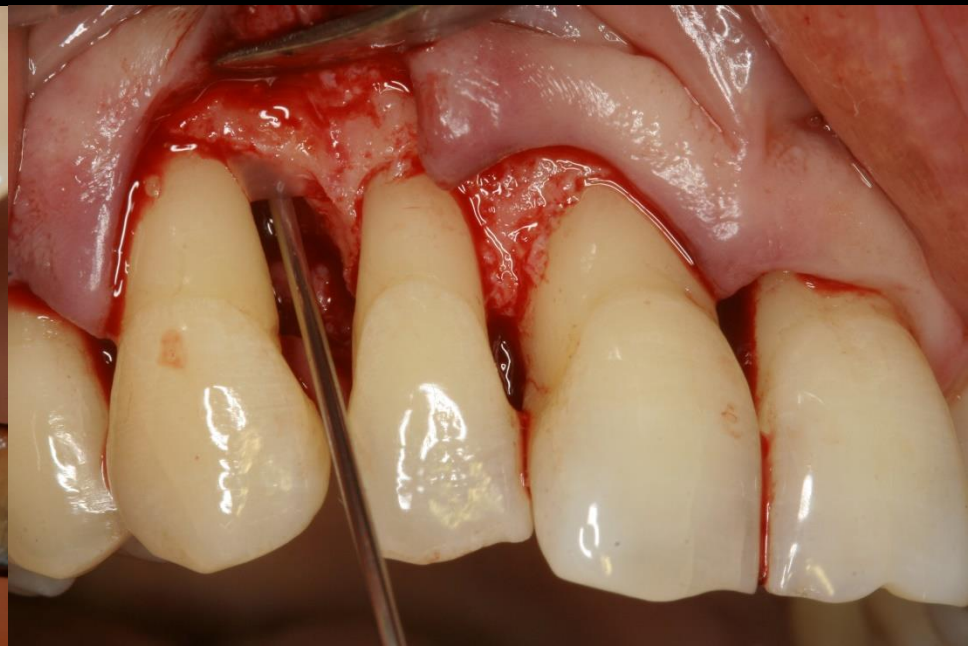
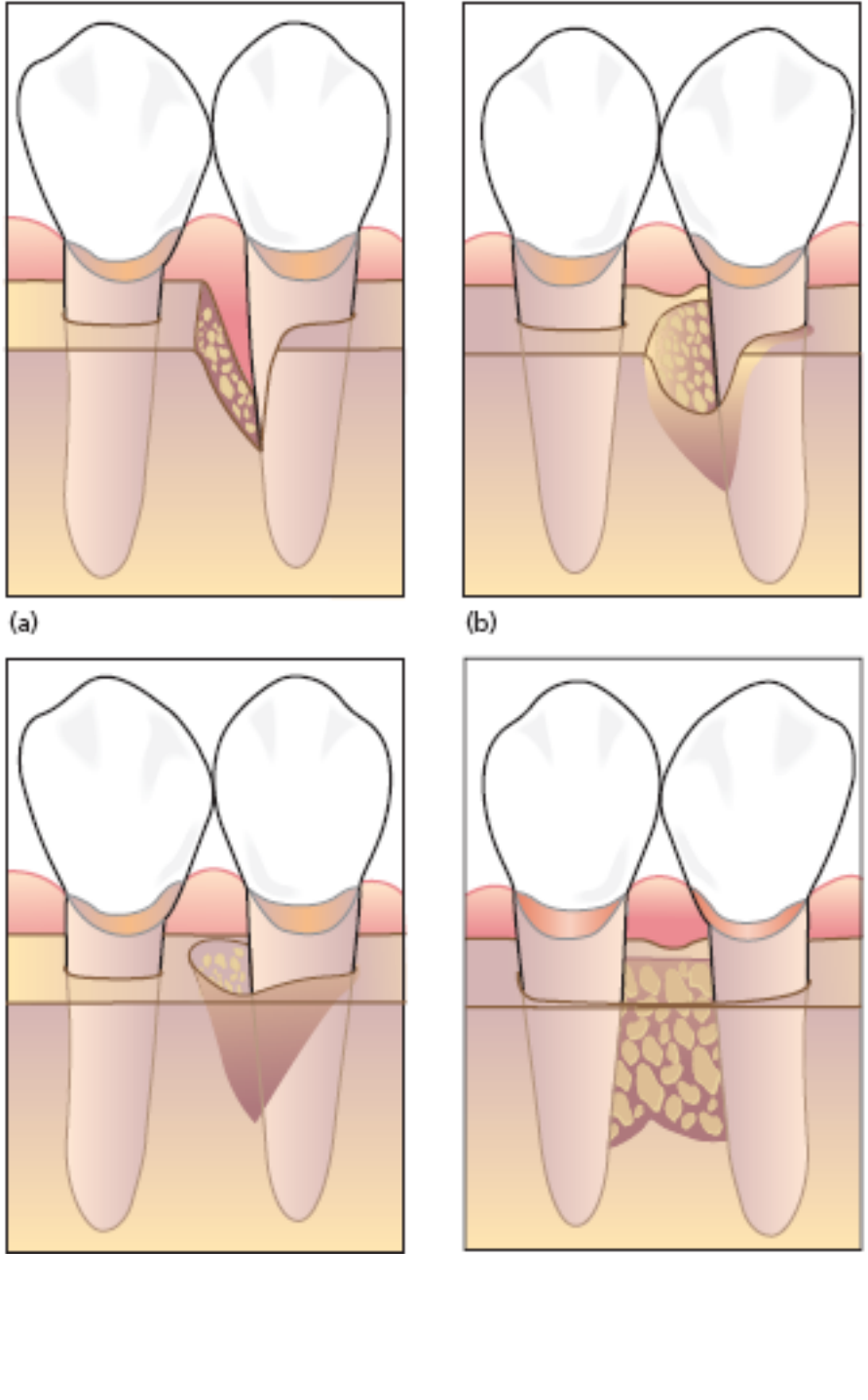
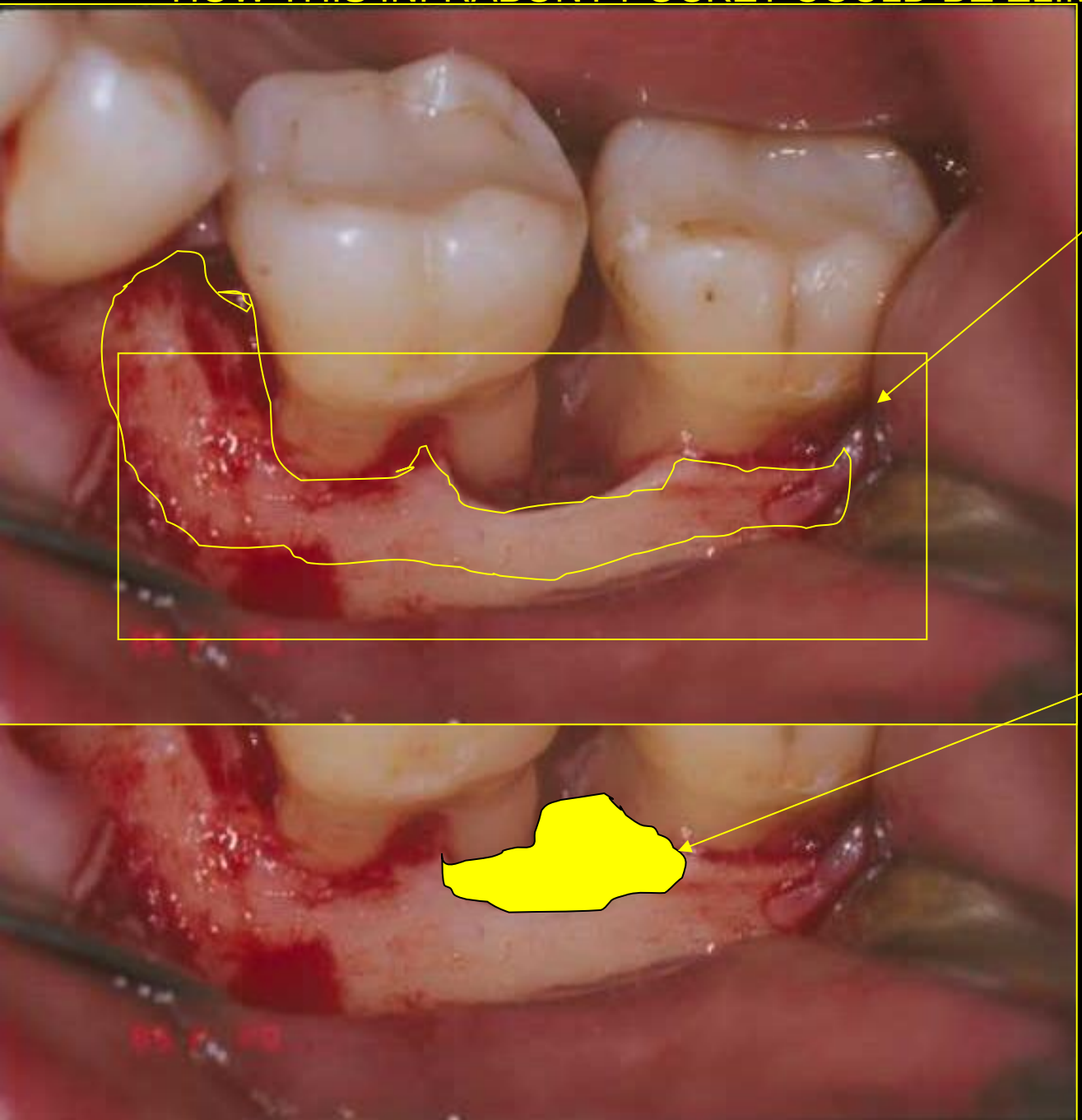





(a)
(b)

HOW THIS INFRABONY POCKET COULD BE ELIMINATED ???



OSTECTOMY ???

CAN WE DO THAT
WE CAN BUT WE
MIGHT NOT

BONEFILL??

CAN WE DO THAT

IT IS POSSIBLE

BONE GRAFT

GTR

THE MAJOR GOALS OF CAUSE RELATED PERIODONTAL SURGERY

- TO FACILITATE THE EFFECTIVENESS OF SUBGINGIVAL SCALING AND ROOT PLANING
- TO CREATE A MORE ADVANTAGEOUS BONE AND SOFT TISSUE MORPHOLOGY FOR INDIVIDUAL ORAL HYGIENE AND PROFESSIONAL PERIODONTAL MAINTENANCE

PERIODONTAL SURGERY

- POCKET ELIMINATION ?
- NEW ATTACHMENT?

THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

ACCESS FLAP SURGERY

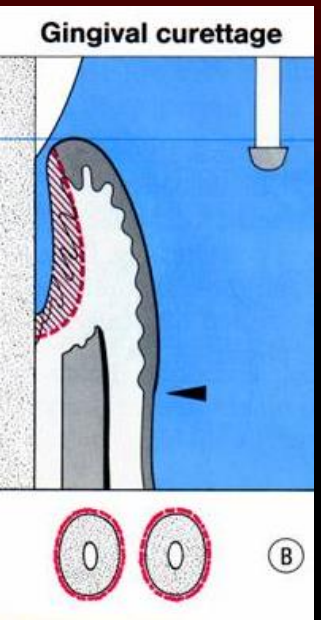
GINGIVECTOMY EXTERNAL

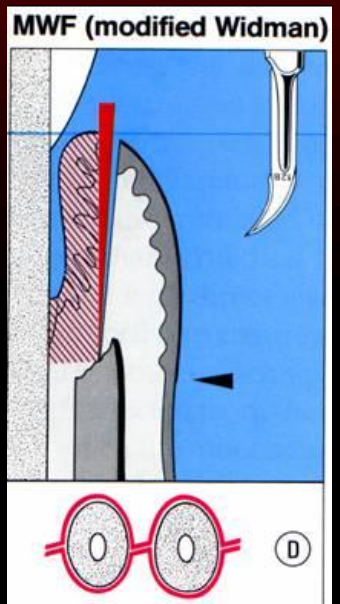
INTERNAL

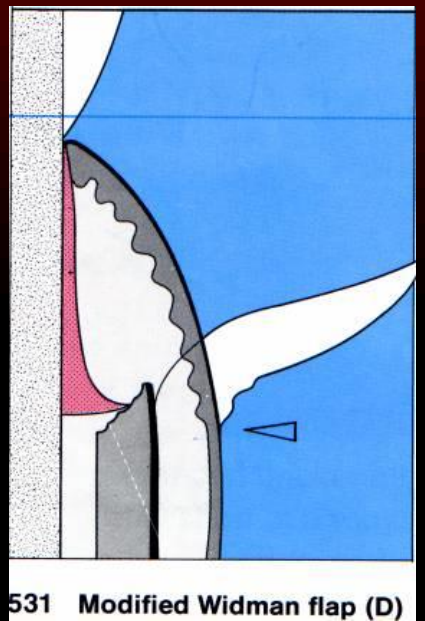
APICALLY REPOSITIONED FLAP

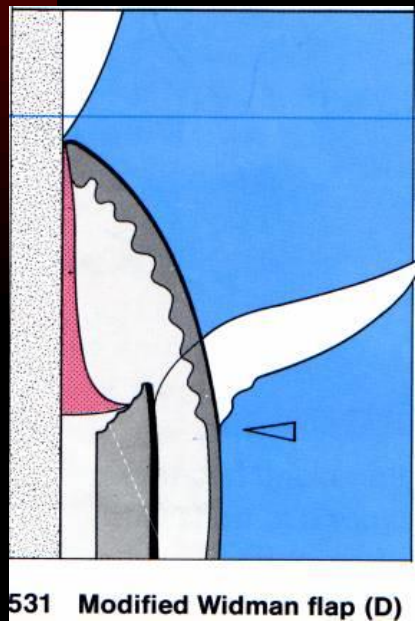
SURGERY OR CONSERVATIVE THERAPY ?

- WHICH CAN PROVIDE BETTER RESULTS AND MORE PREDICTABLE REGENERATION ?









THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

ACCESS FLAP SURGERY

GINGIVECTOMY EXTERNAL

INTERNAL

APICALLY REPOSITIONED FLAP

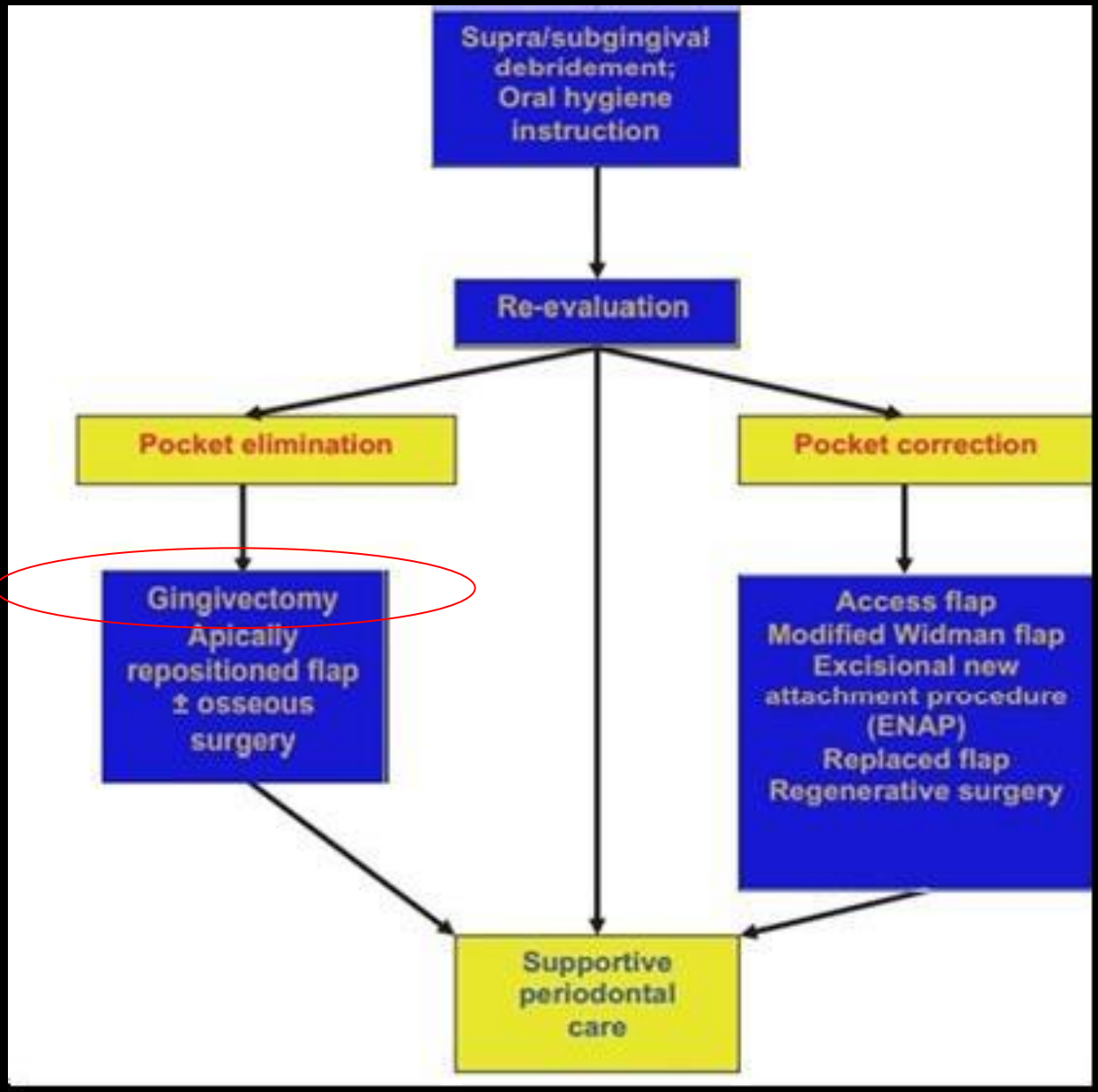
SUBGIGNIVAL CURETTAGE

BEFORE and AFTER

SUBGINGIVIAL CURETTE

BOP 100 %

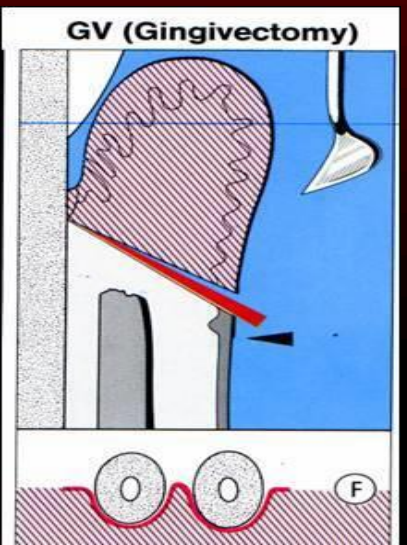
BOP 15%

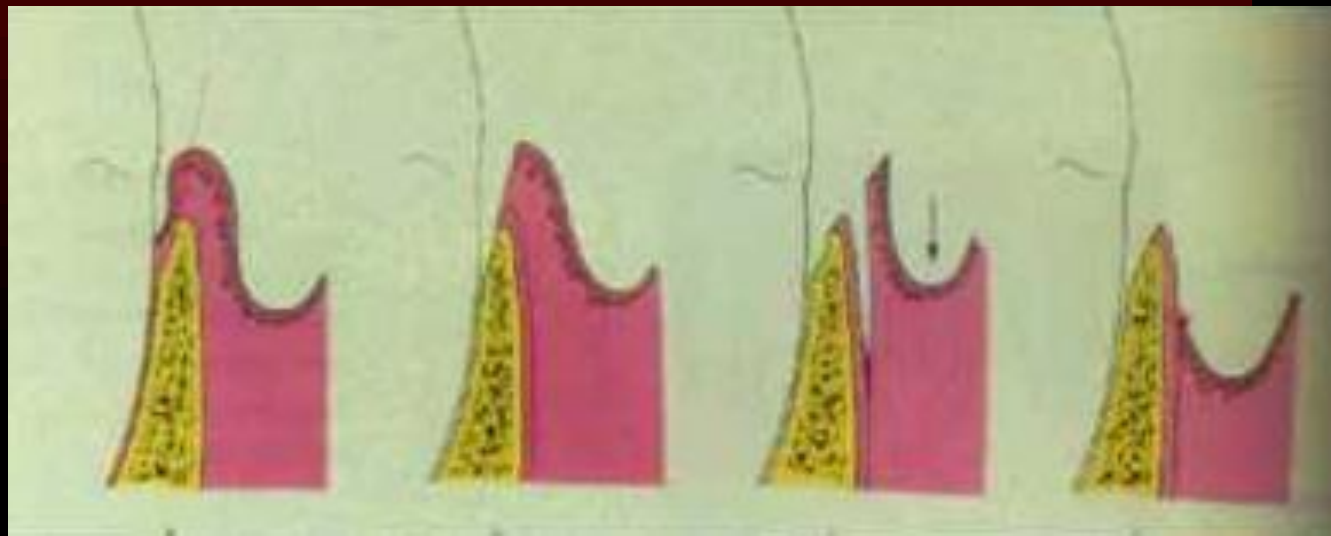


Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)

RESECTIVE PERIODONTAL SURGERY

- GINGIVECTOMY
- APICALLY REPOSITIONED FLAP





THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

ACCESS FLAP SURGERY

GINGIVECTOMY EXTERNAL

INTERNAL

APICALLY REPOSITIONED FLAP

Gingivectomy

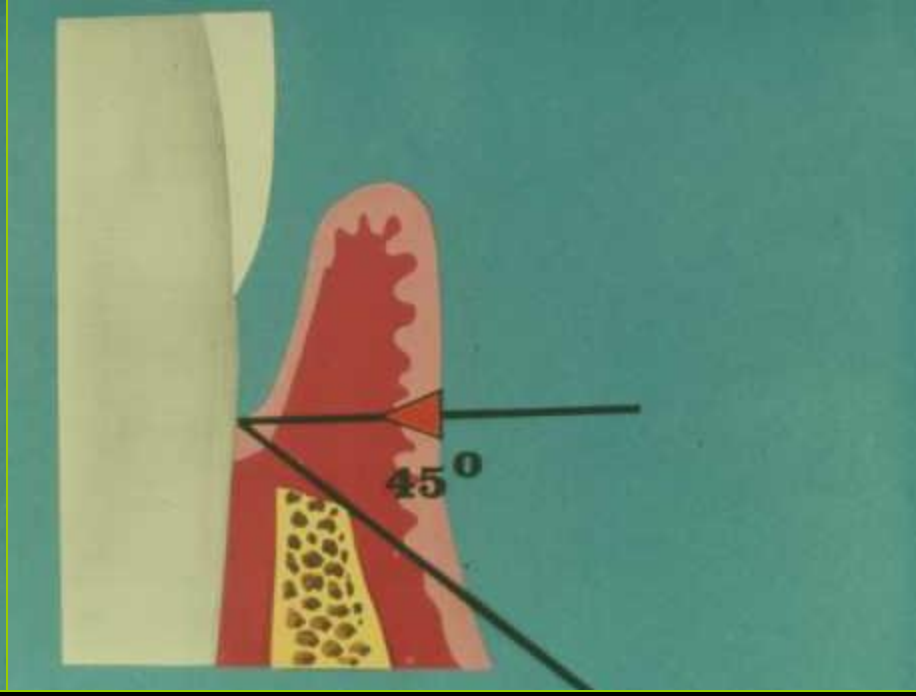
EXTERNAL REVERSE BEVEL GINGIVECTOMY

Advantages

1. Technically simple. Good visual access
2. Complete pocket elimination
3. Predictable morphologic result

Disadvantage

1. Very limited indication
2. Gross wound, post operative pain
3. Danger of exposing bone
4. Sacrifice of attached gingiva
5. Exposed cervical area of tooth
6. Phonetic and esthetic problem in Anterior areas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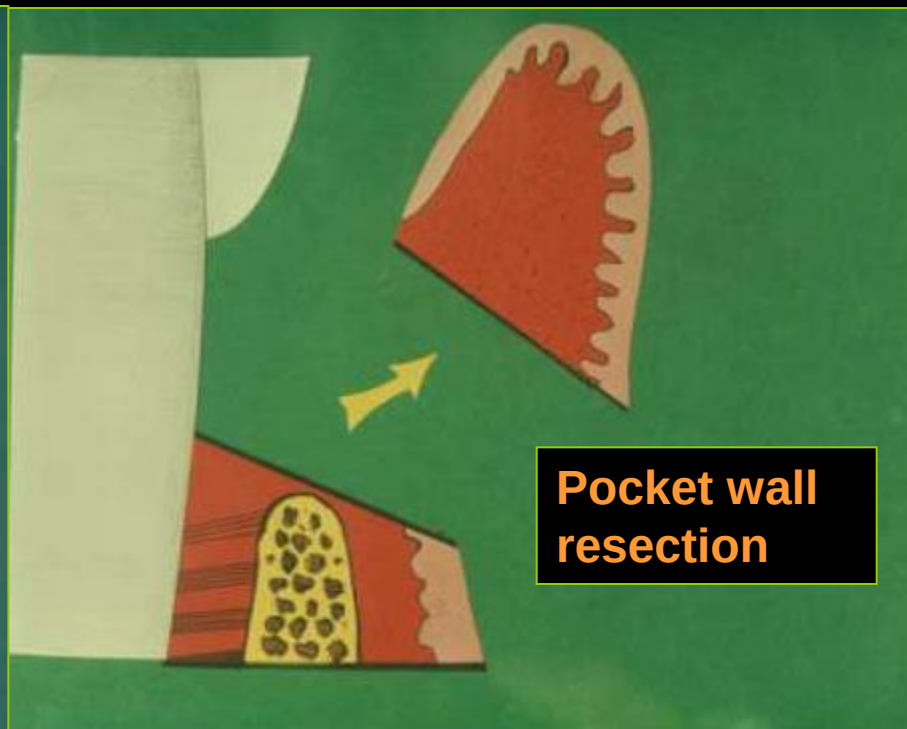
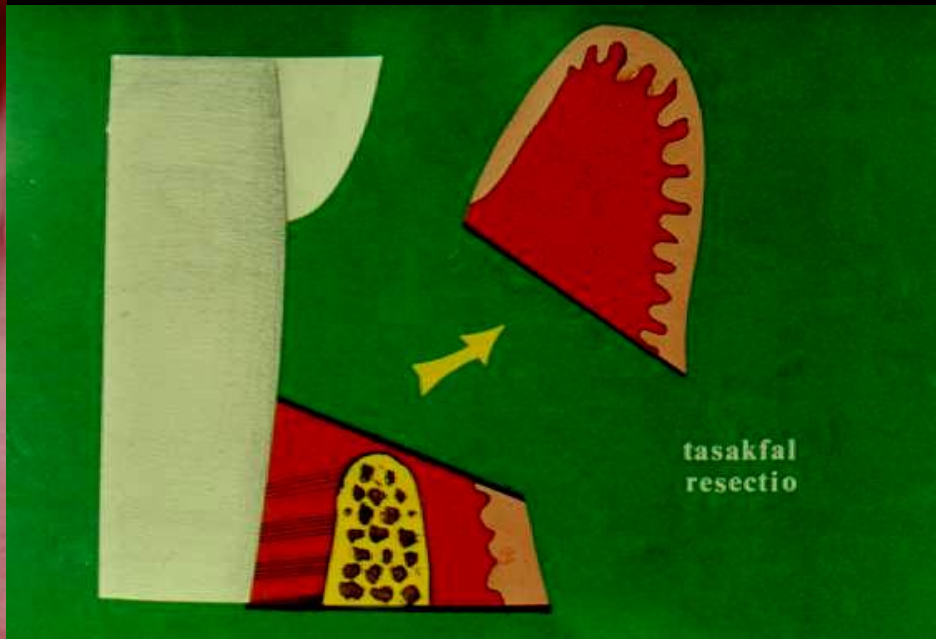

Pocket wall resection

THE PERIODONTAL CONNECTIVE TISSUE AND EPITHELIAL ATTACHMENT FORMS AT THE LEVEL OF THE PREOPERATIVE POCKET BASE

- THE PERIODONTAL REATTACHMENT OR NEW ATTACHMENT ARE NOT AIMED

GINGIVECTOMIA







THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

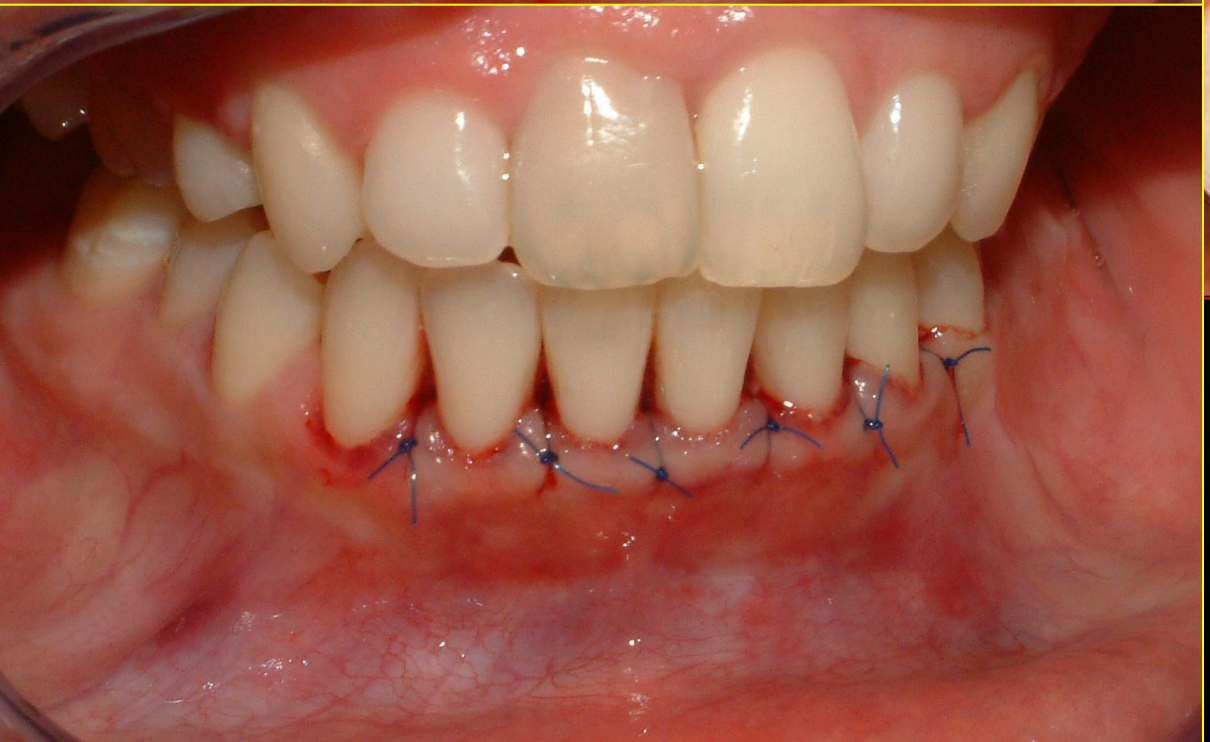
ACCESS FLAP SURGERY

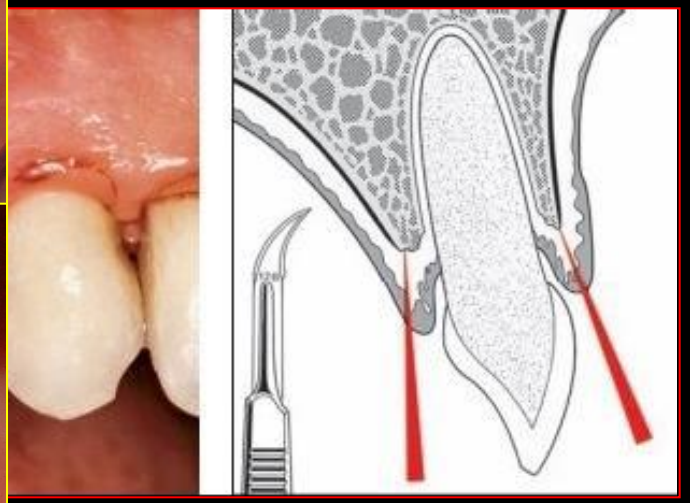
GINGIVECTOMY EXTERNAL

→ INTERNAL

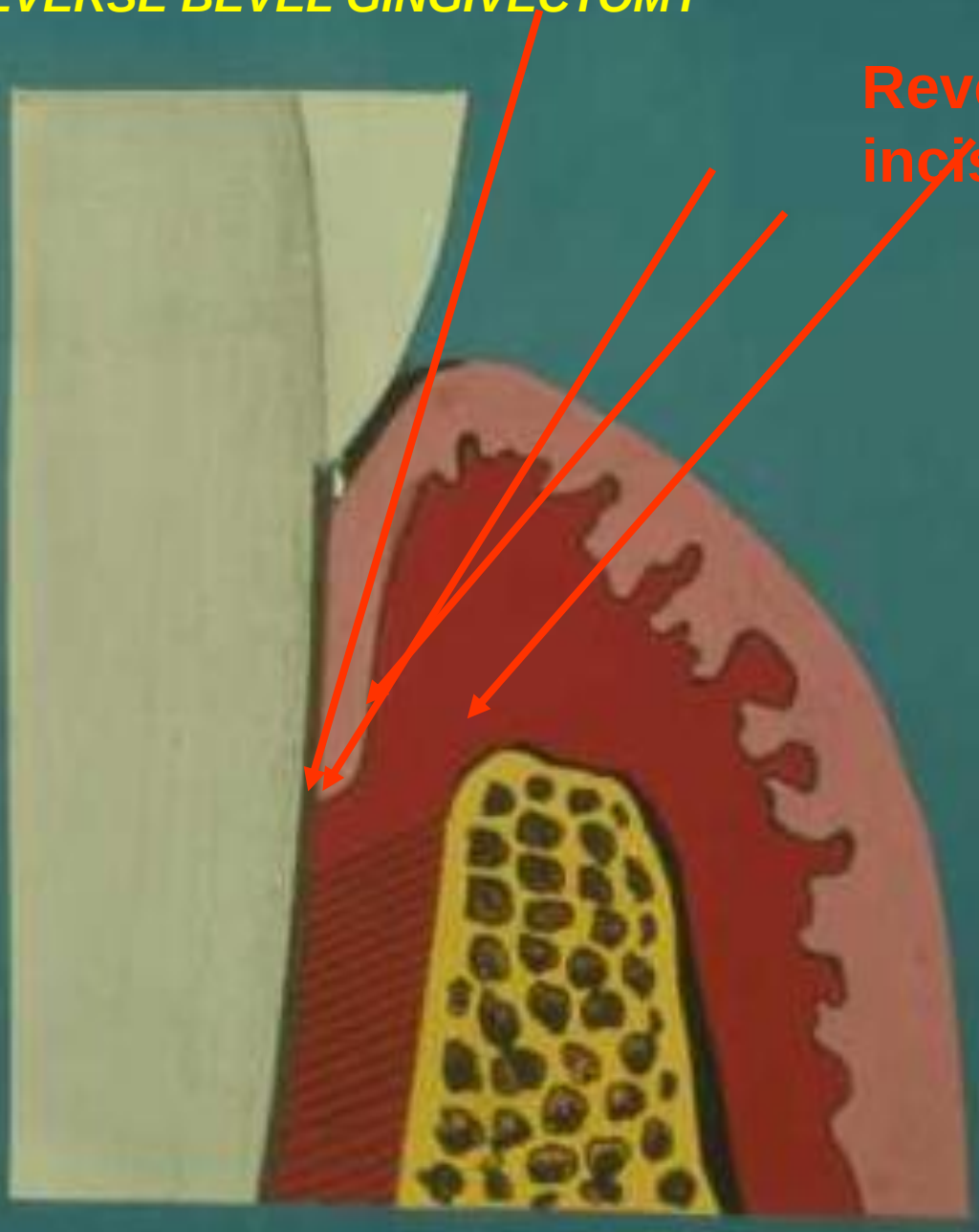
APICALLY REPOSITIONED FLAP

INTERNAL REVERSE BEVEL GINGIVECTOMY





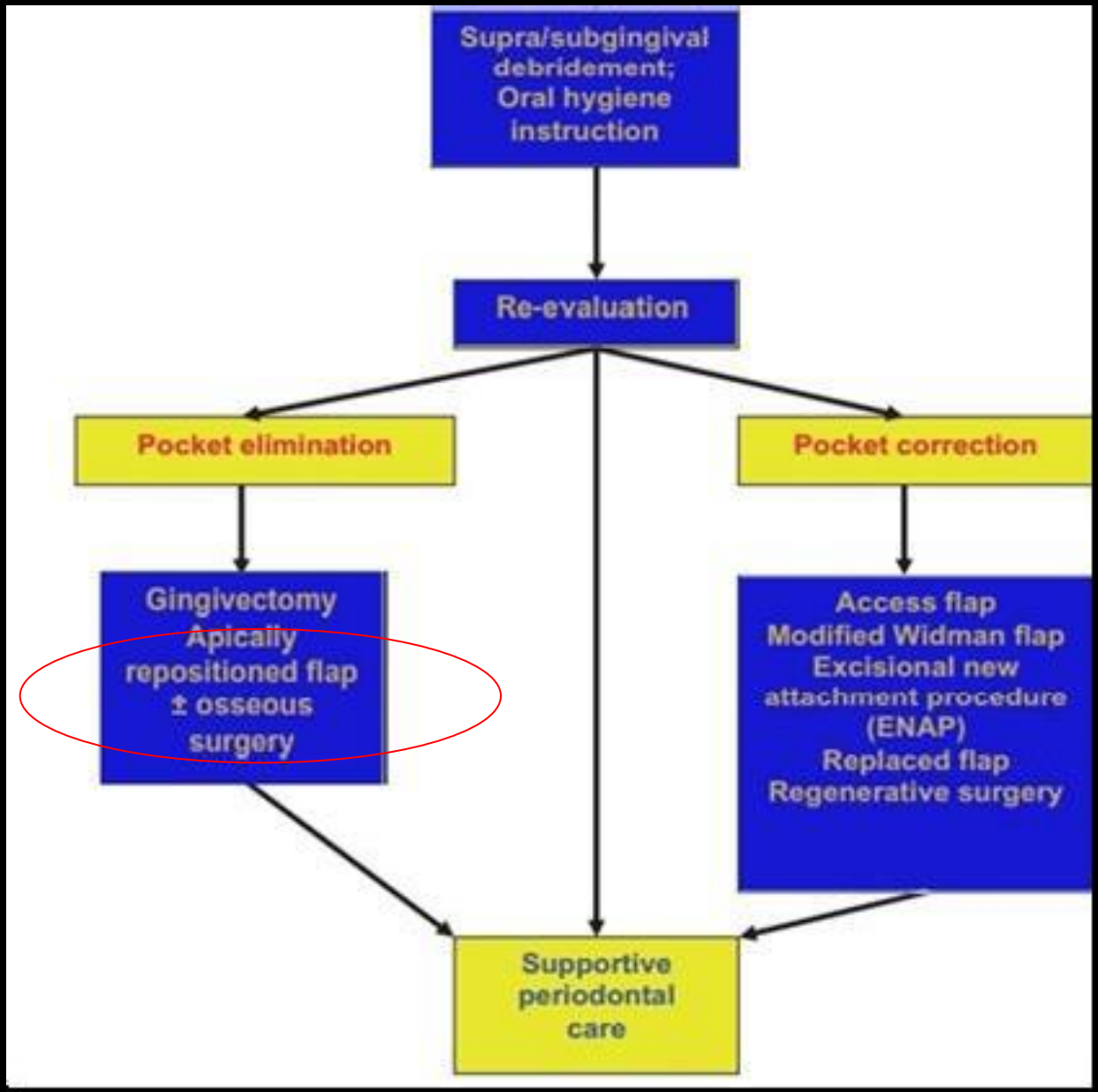
INTERNAL REVERSE BEVEL GINGIVECTOMY



MINIMAL INVASIVE SURGERY

1. WEEK POSTOP

2. WEEKS POSTOP



Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)

THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

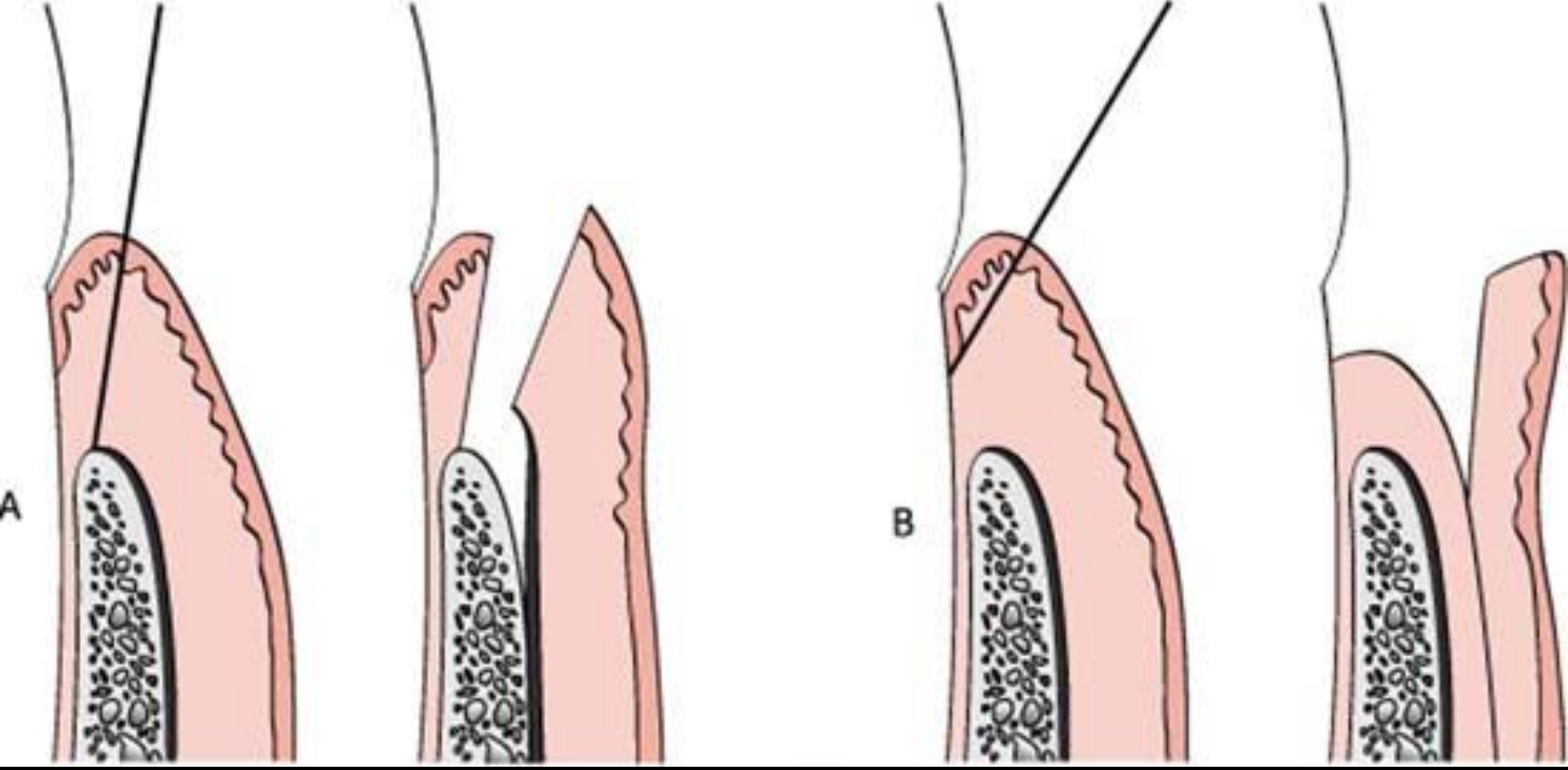
ACCESS FLAP SURGERY

GINGIVECTOMY EXTERNAL

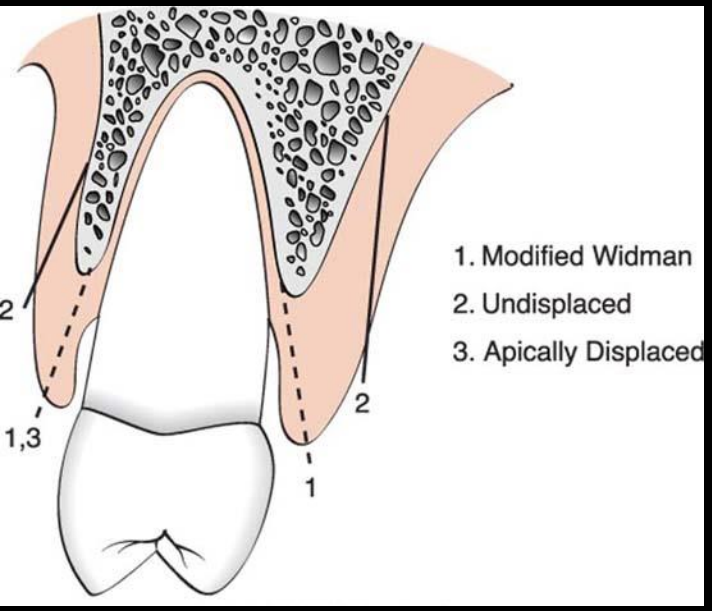
INTERNAL

APICALLY REPOSITIONED FLAP



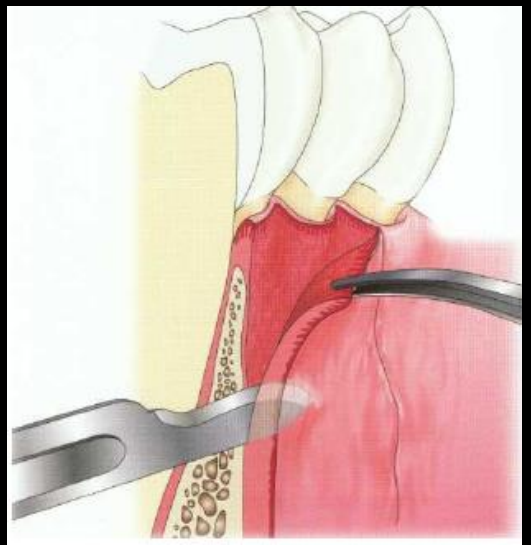


A
B

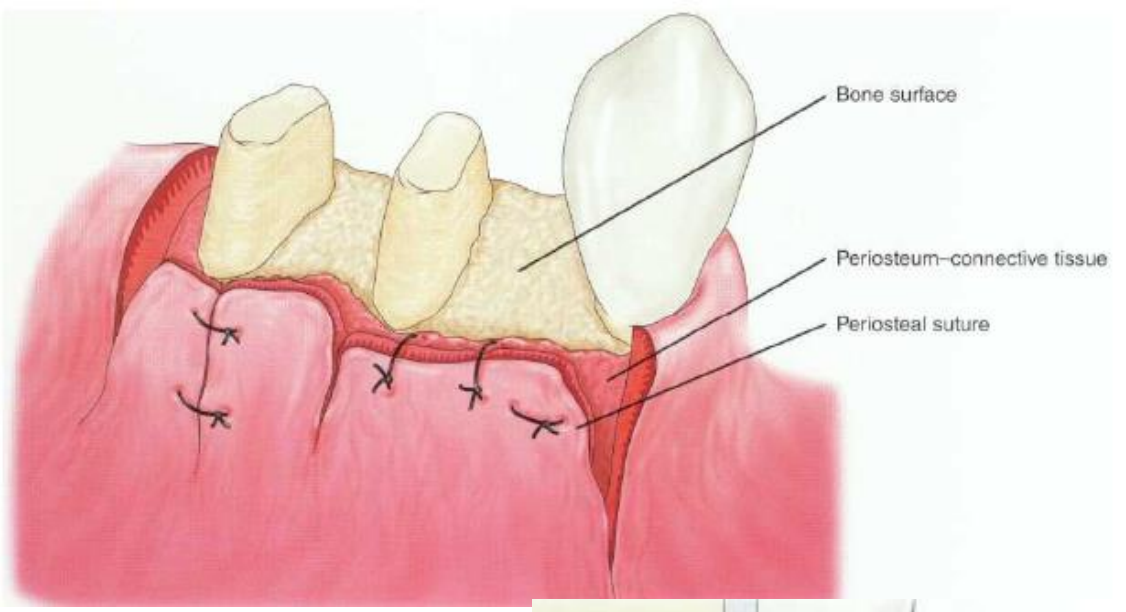
Periodontal flap surgeries

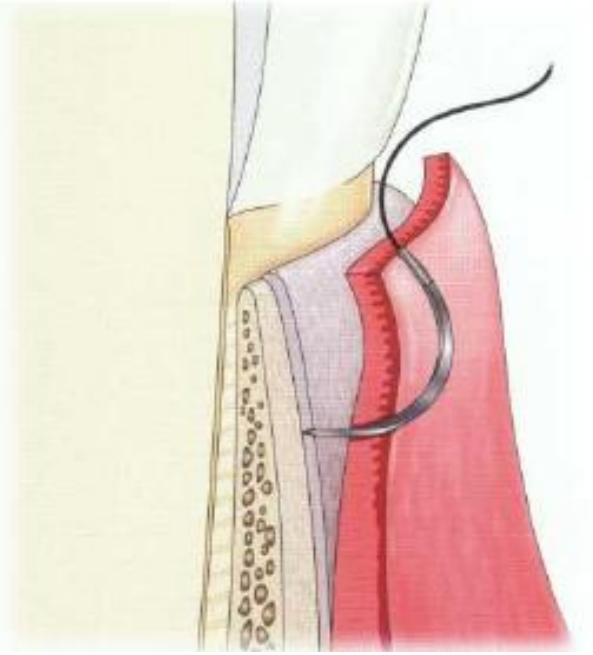


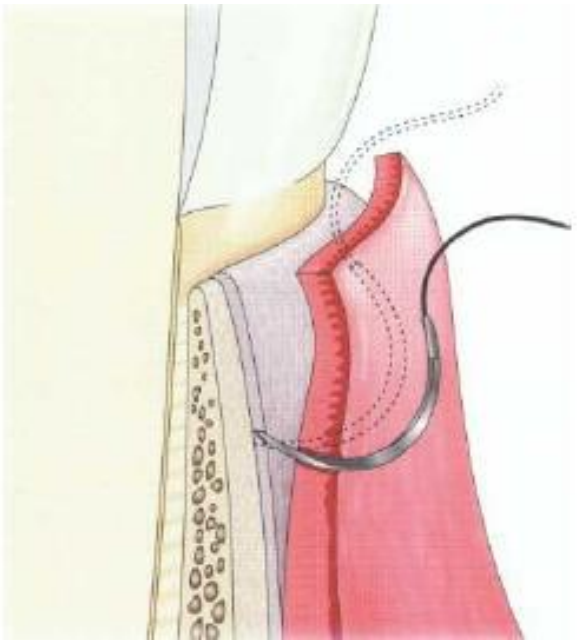
DISPLACED FLAPS

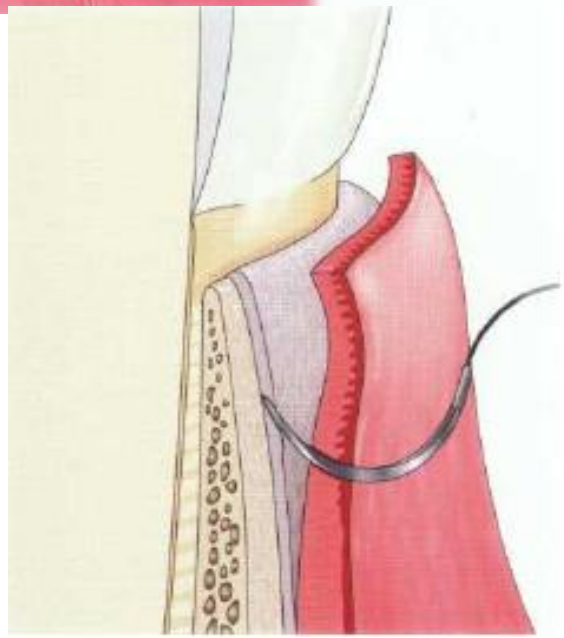
- **Apically repositioned**
  - Full thickness
  - Partial thickness
- **Coronally repositioned**
  - Full thickness
  - Partial thickness
- **Laterally repositioned**
  - Full thickness
  - Partial thickness




Bone surface
Periosteum–connective tissue
Periosteal suture





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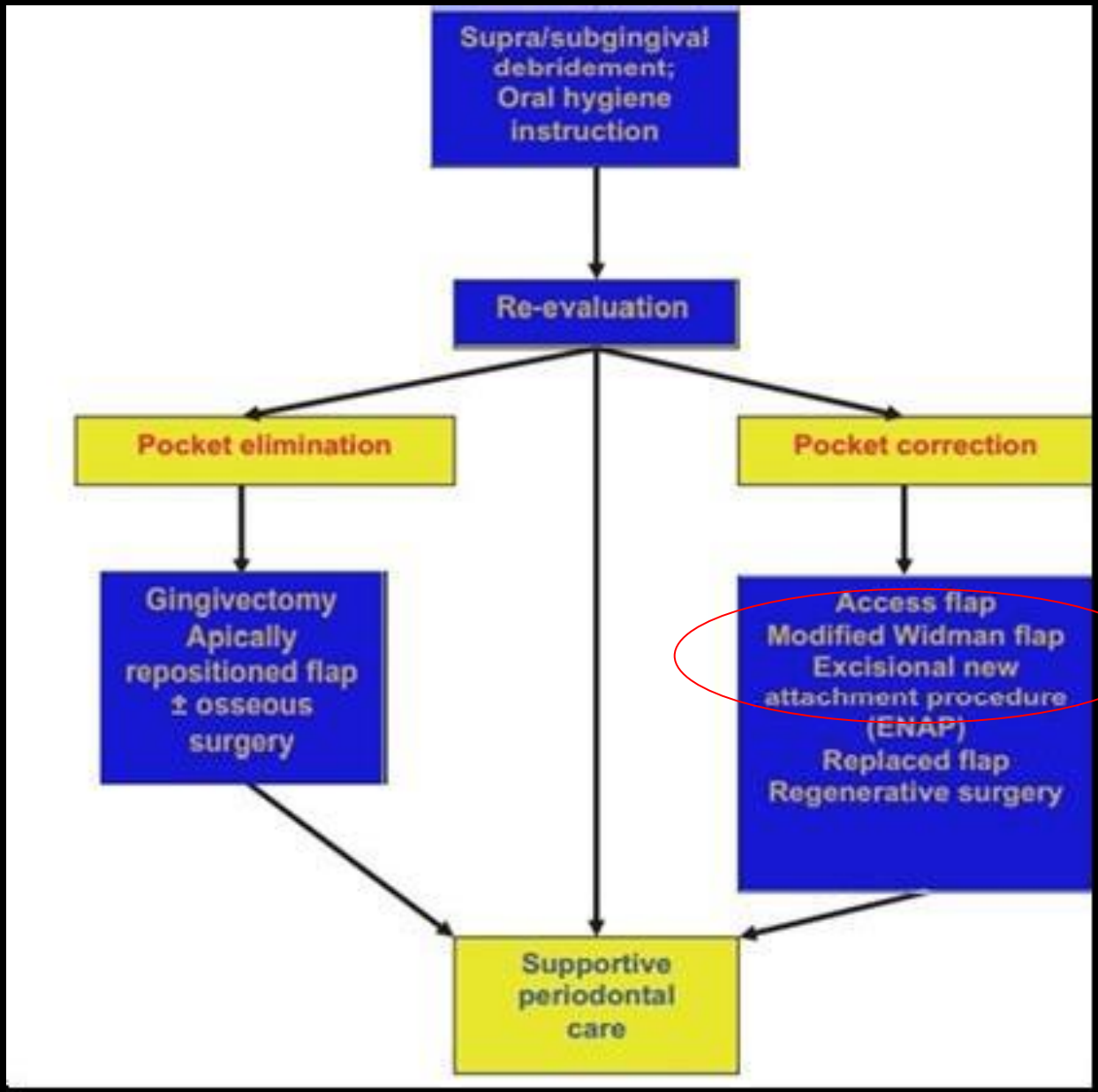

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THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

ACCESS FLAP SURGERY

GINGIVECTOMY EXTERNAL

INTERNAL

APICALLY REPOSITIONED FLAP

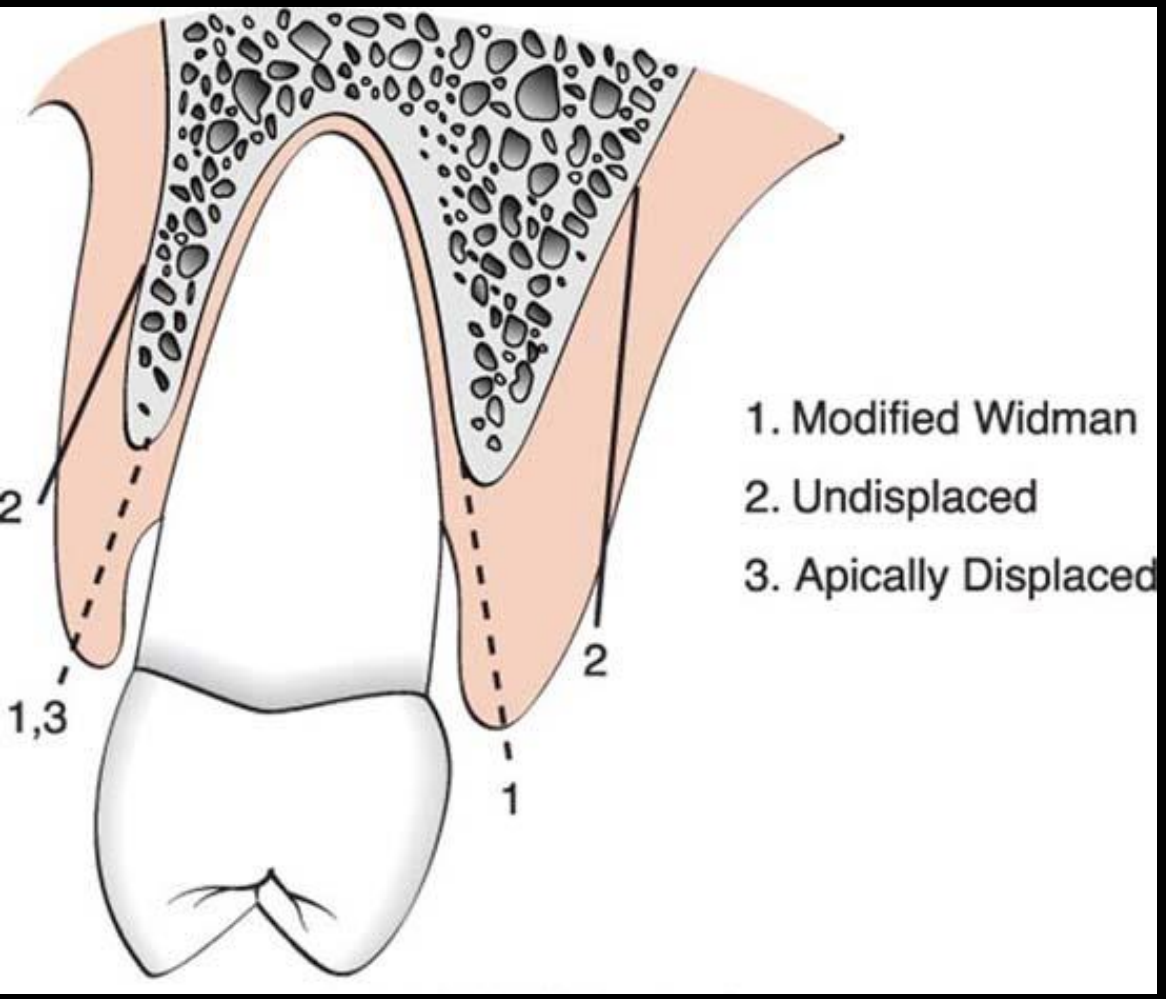
MODIFIED WIDMAN FLAP

MÓDOSÍTOTT WIDMAN LEBENY

History

- **The original Widman flap**
- Leonard Widman 1918,1920
- **The Neumann flap**
- Neumann 1920
- **The modified flap operation (Kirkland flap)** Kirkland 1931
- **The apically repositioned flap**
- Nabers 1954 modified by (Tyrrell 1957 and Friedman 1962).
- **The modified Widman flap**
- Modified Widman flap was described by Ramforjd and Nissle 1974),

Periodontal flap surgeries



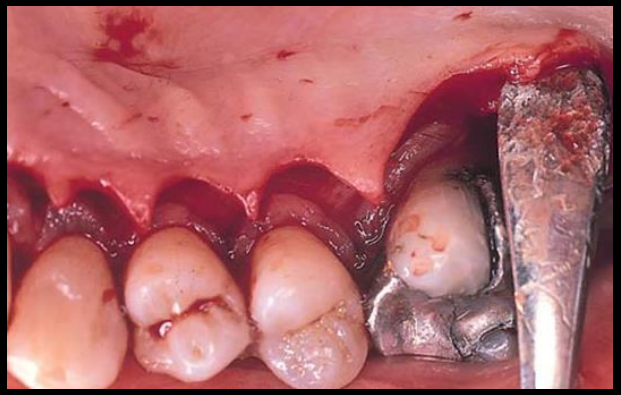
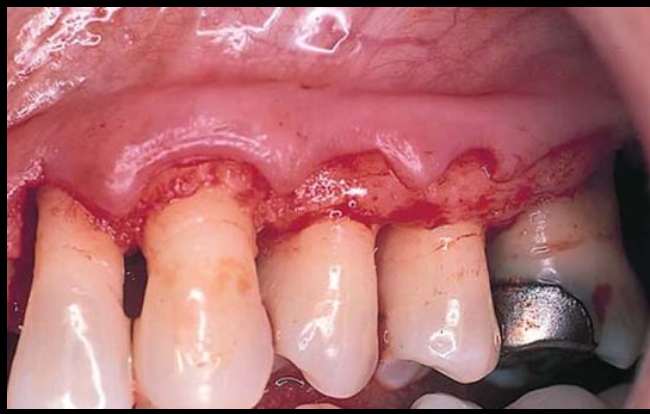
Access flap surgery

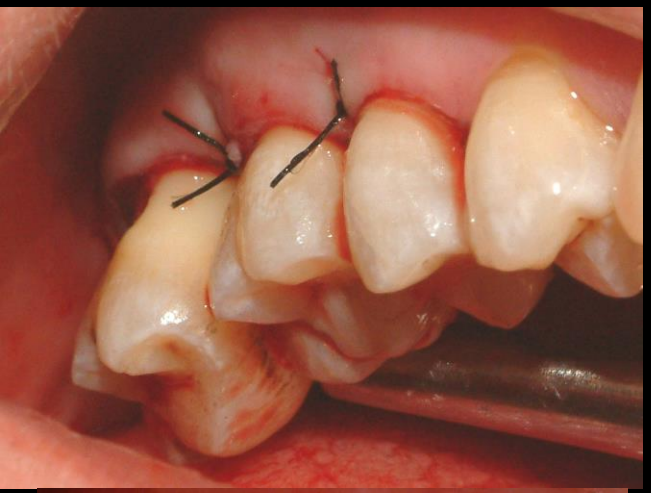
Gingival reduction

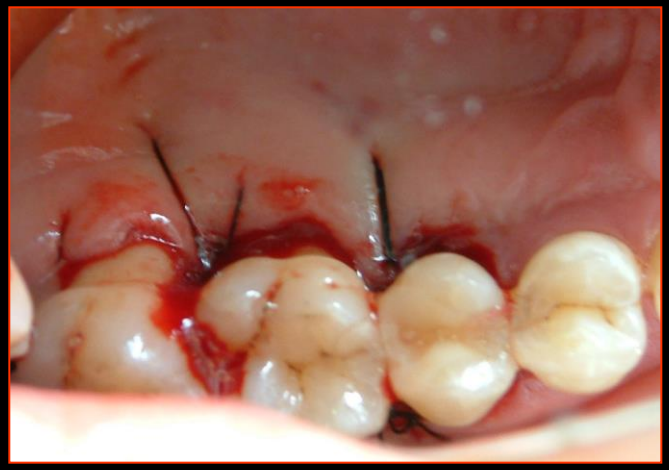
Pocket reduction



INTRACREVICULARIS METSZÉS





The modified Widman flap " open gingival curettage"

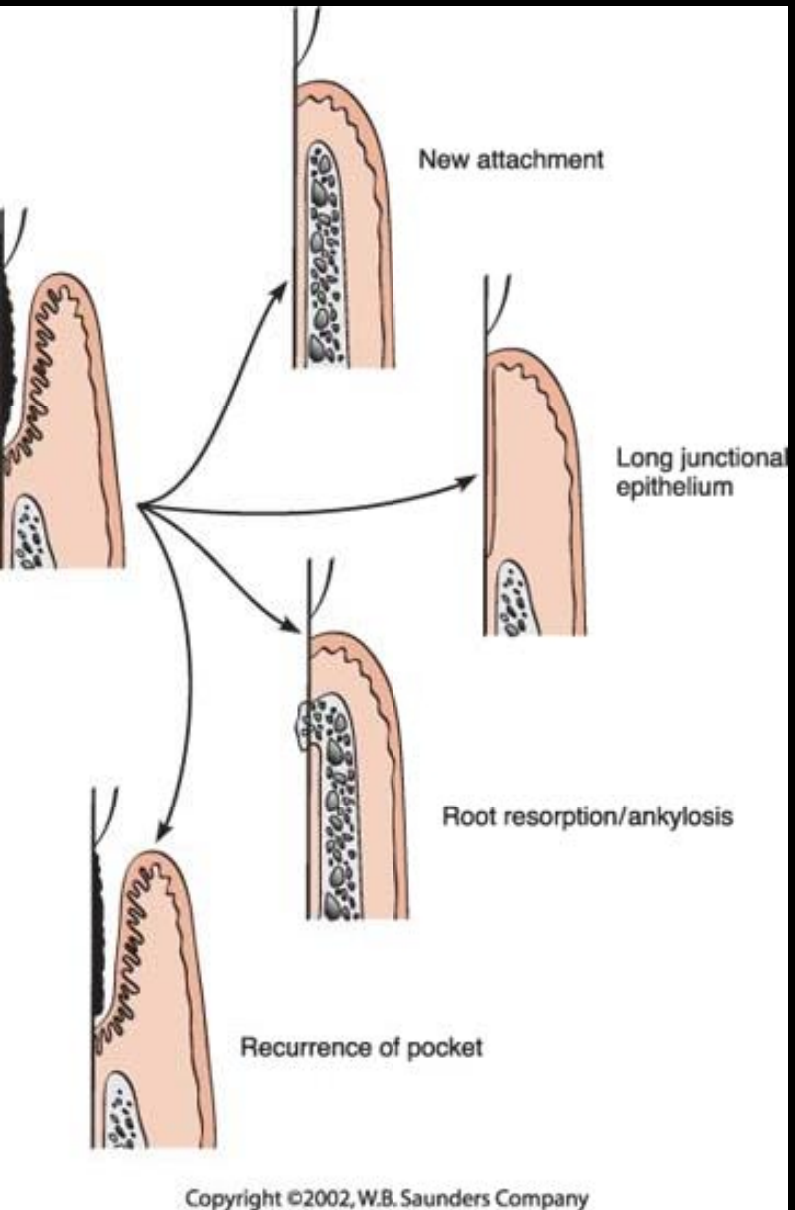
to obtain access to the root surface and an intimate postoperative adaptation of healthy collagenous connective tissue and normal epithelium to the root surface.

do not aim at surgical pocket elimination and apical displacement of the flap.

Advantages

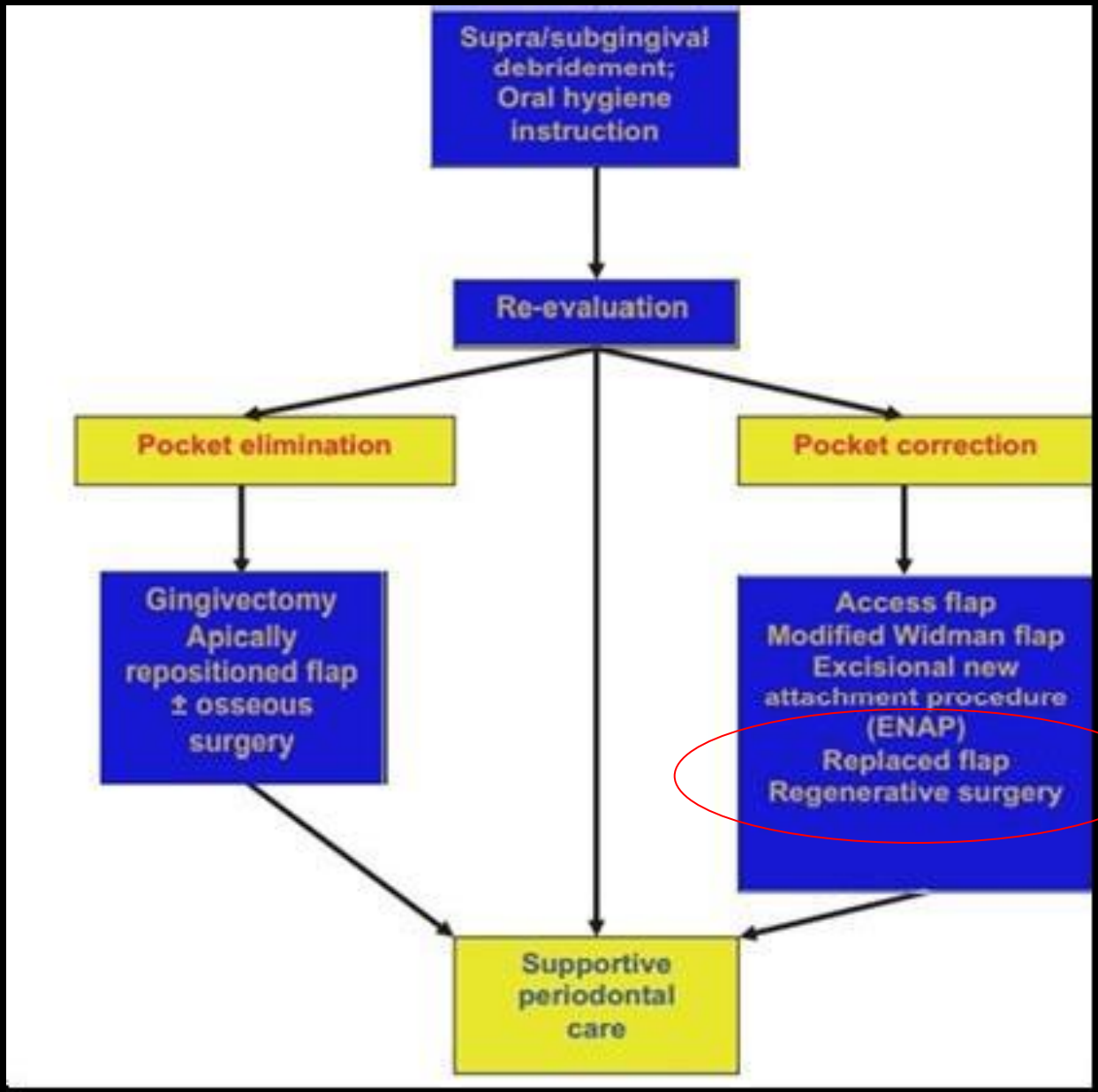
1. Root cleaning with direct vision
2. Protective of tissues, reparative
3. Healing by primary intention
4. Lack of pain or complications postoperatively

MODIFIED WIDMAN FLAP AND REGENERATIVE PERIODONTAL SURGERY

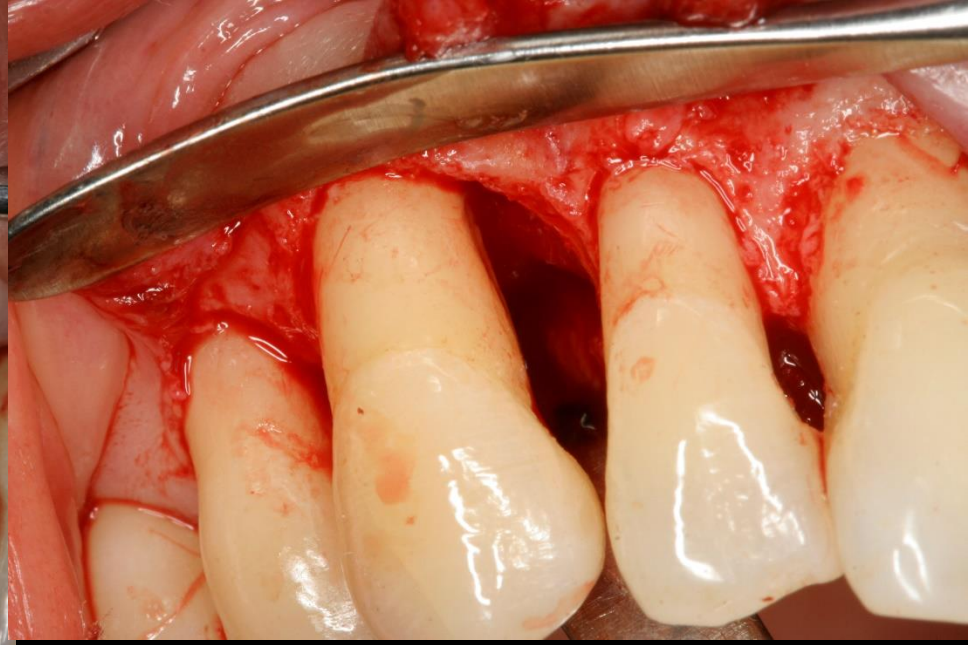
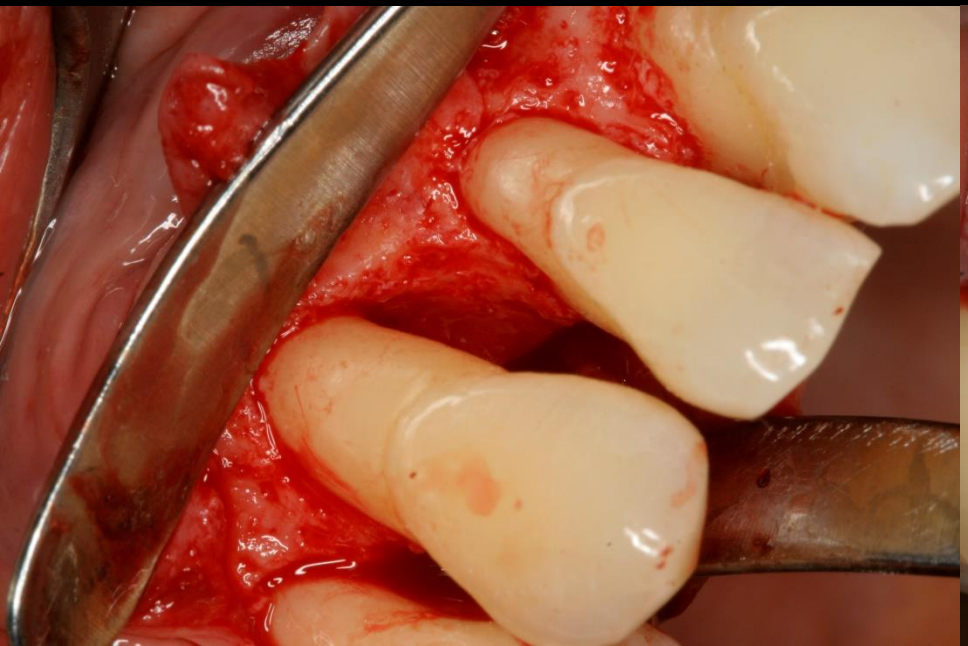
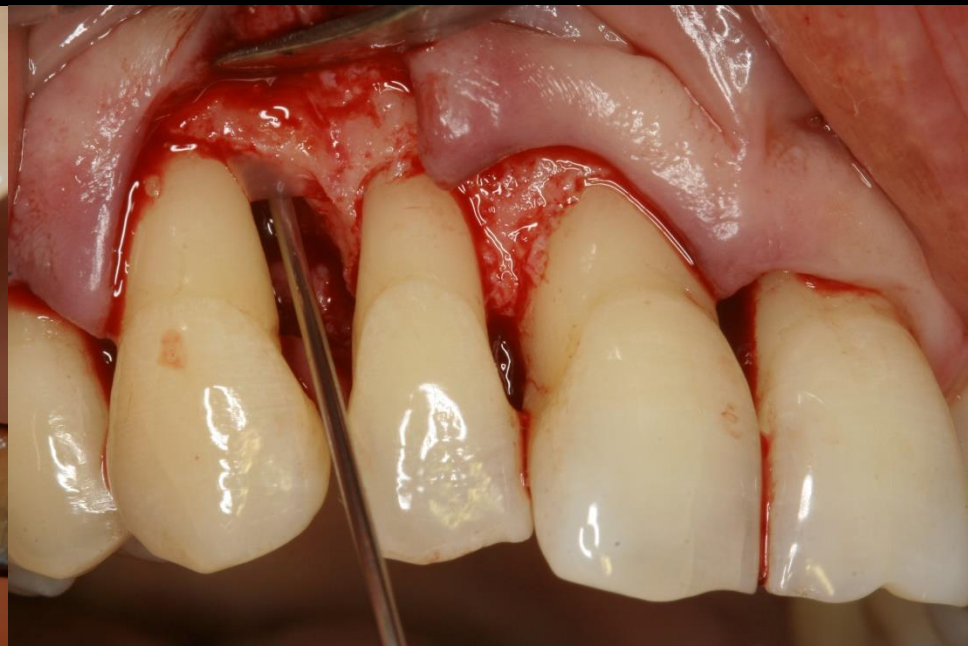


NEW ATTACHMENT DEVELOPS ONLY AT THE BOTOM OF THE POCKET

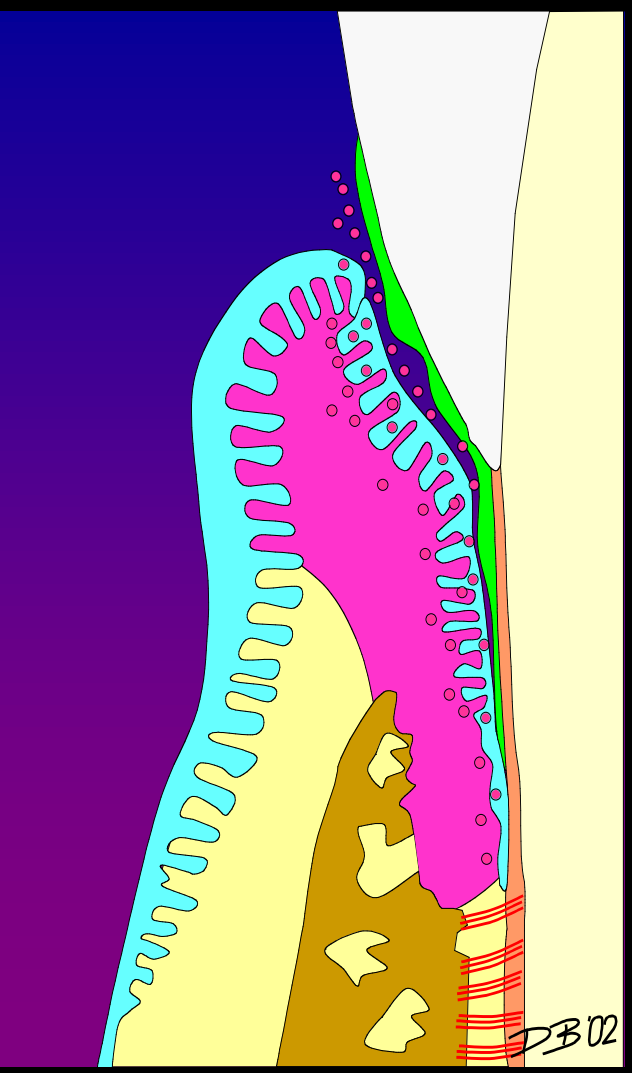
LONG JUNCTIONAL EPITHELIAL ATTACHMENT

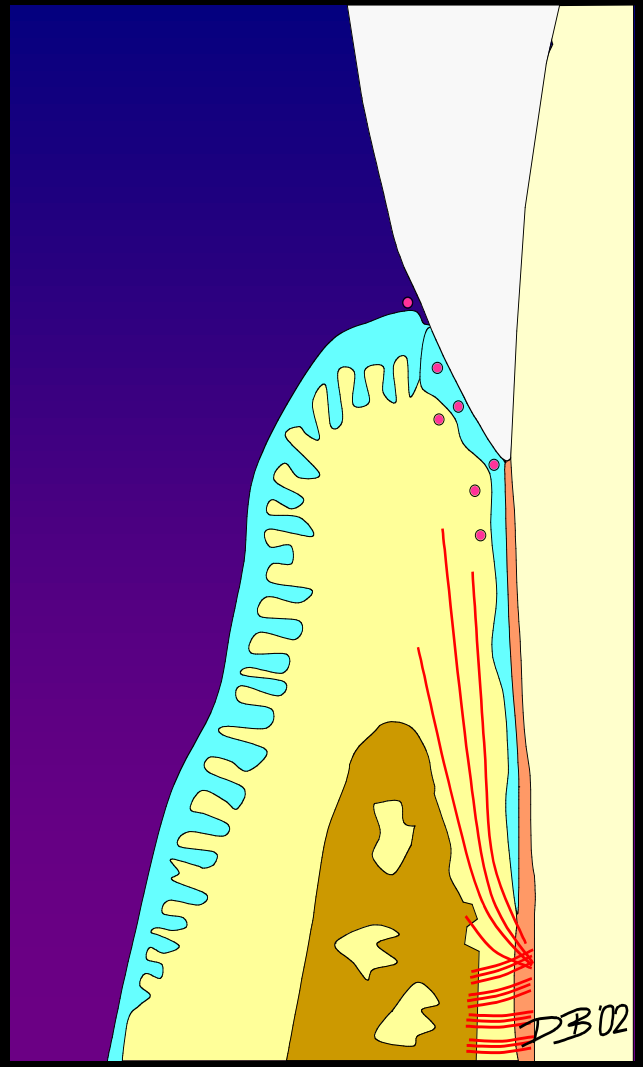


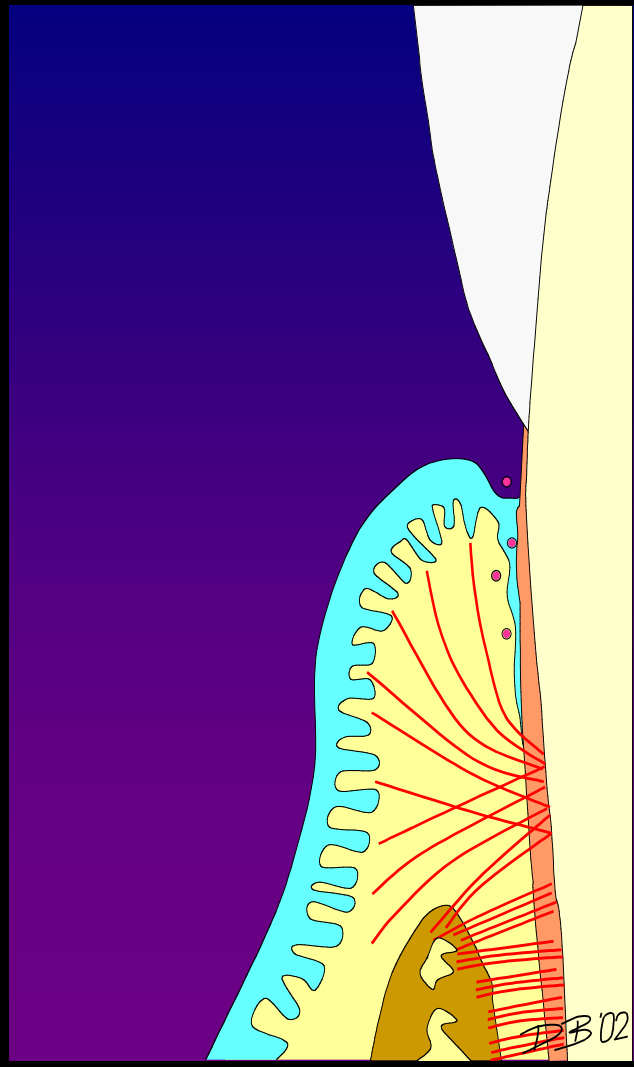
Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)

Periodontitis Reparation Regeneration



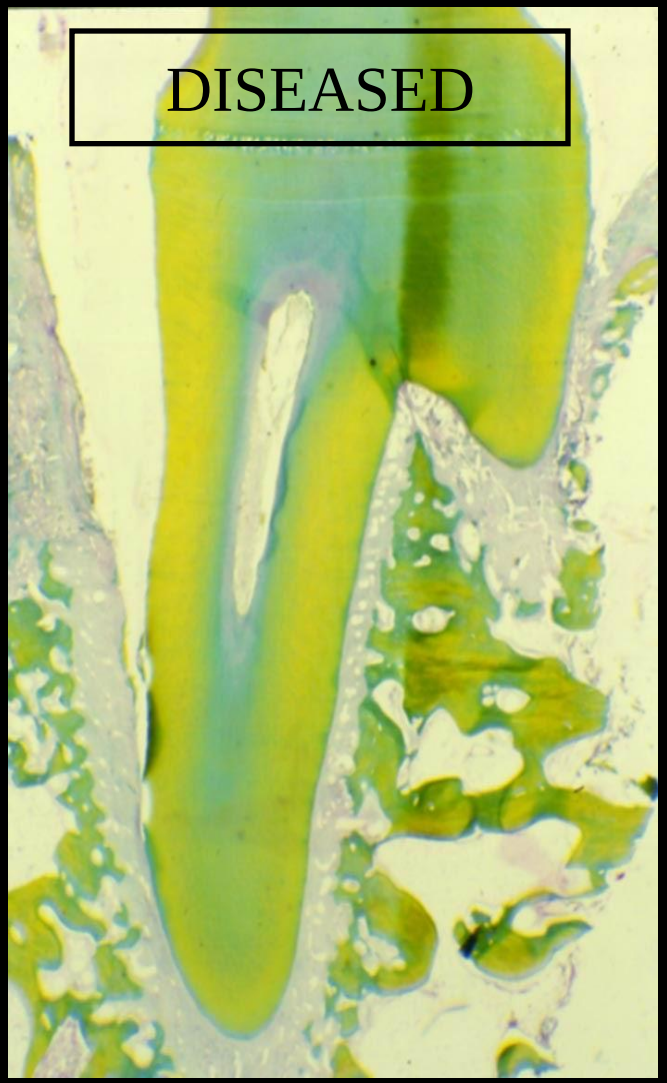




(NEW PERIODONTAL ATTACHMENT)

- REUNIFICATION OF THE PERIODONTAL LIGAMENT AND CEMENTUM SEPARATED BY PATHOLOGICAL CHRONIC INFLAMMATION WITH REFORMATION OF NEW CEMENTUM BY APPOSITIONAL GROWTH

PERIODONTIUM



- **PERIODONTAL REGENERATION INVOLVS THE REFORMATION OF ALL THE THREE ELEMENTS OF THE ATTACHMENT APPARATUS:**
- **CEMENTUM**
- **BONE**
- **PERIODONTAL LIGAMENT**

This goal is attained by the presence of specific cell types, that occupy the defect area and form structures typical of the periodontal tissue during wound healing.

At the same time gingival cell types must be prevented from proliferating into the defect region

(Caton, 1976).

PERIODONTAL WOUND HEALING

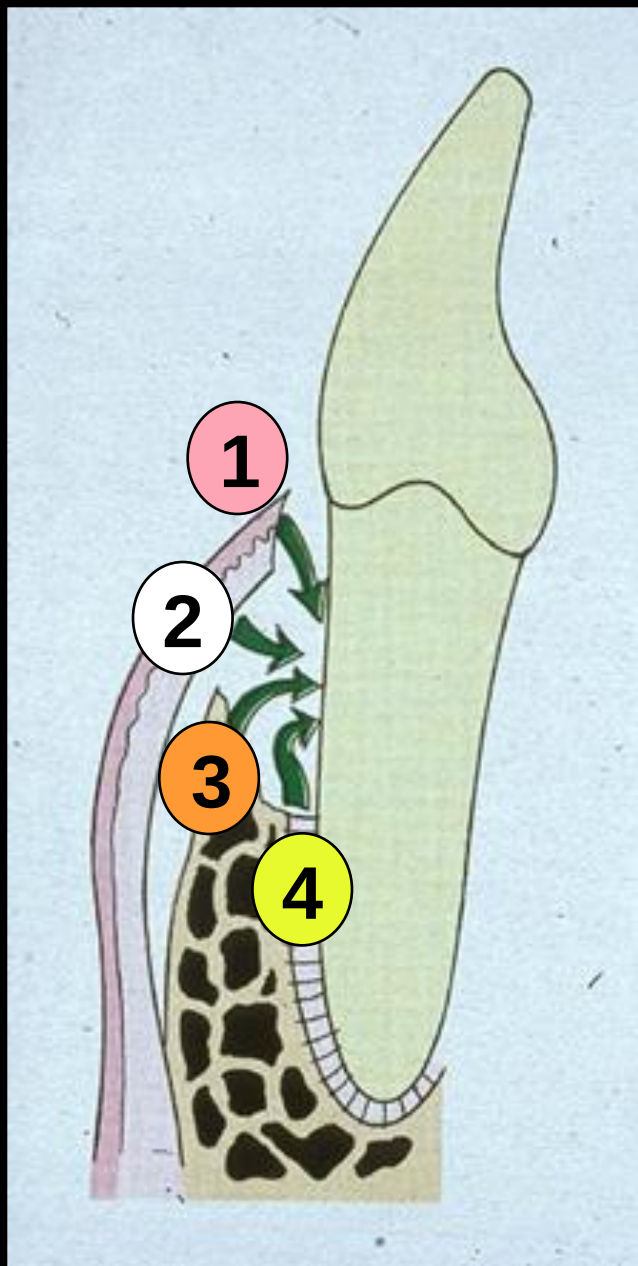
AFTER FLAP OPERATION THE WOUND CAN BE REPOPULATED BY FOUR GROUP OF CELLS:

Epitheleial cells

Gingival connective tisseue

Alveolar bone cells

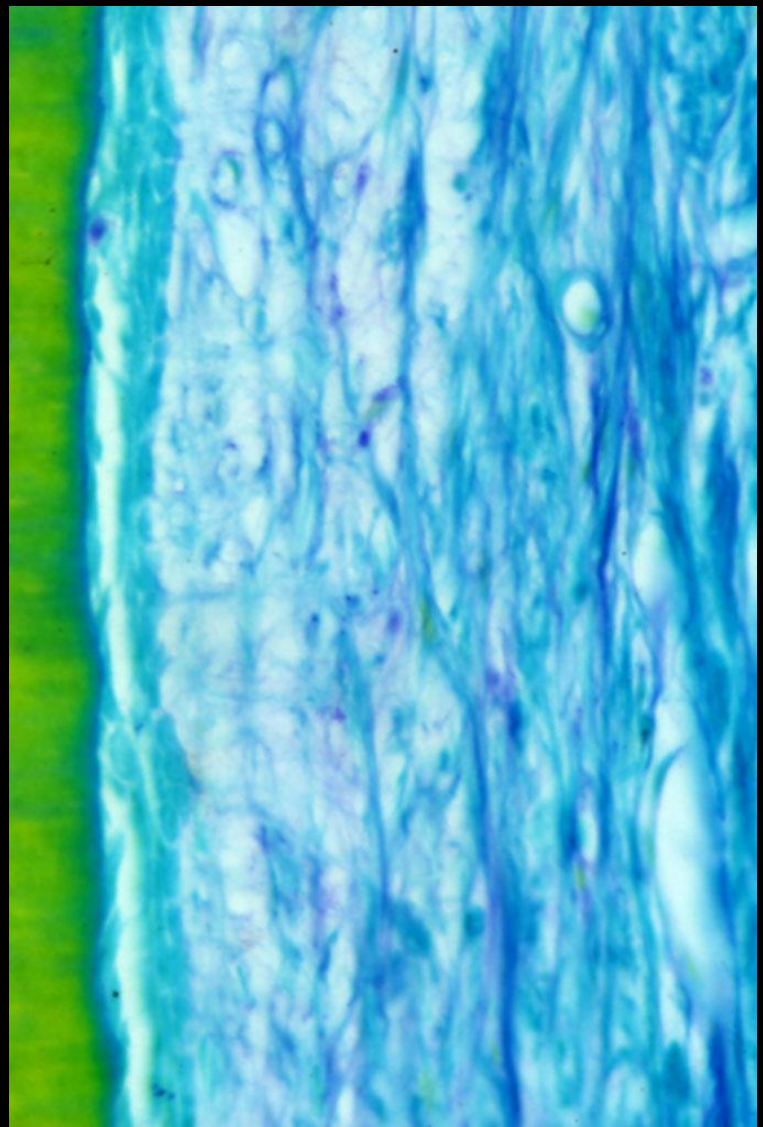
Periodontal ligament cells



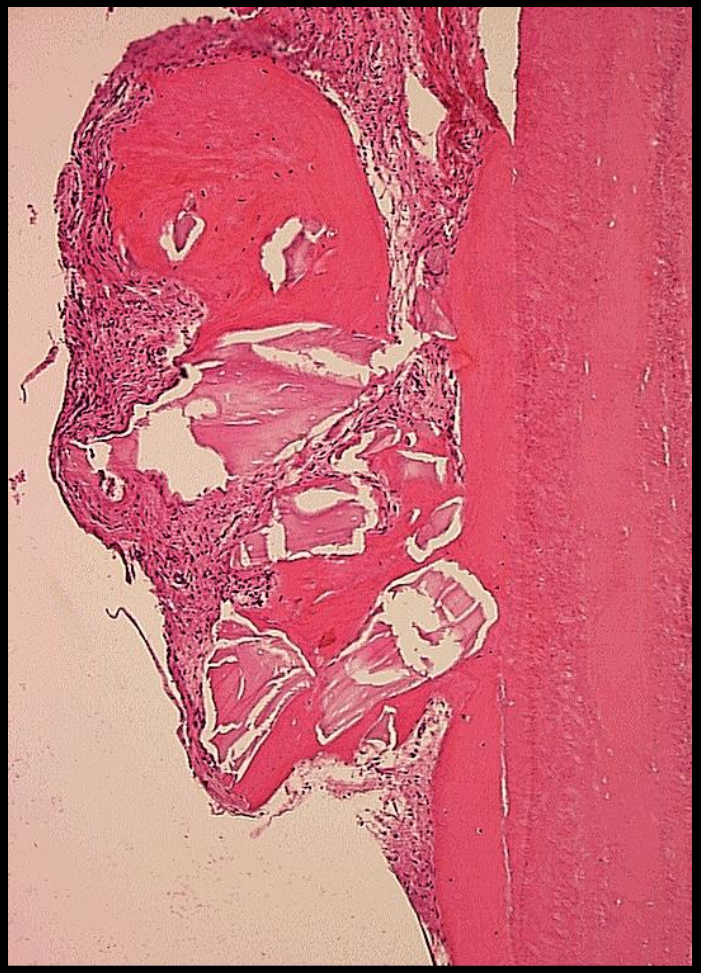
PERIODONTAL WOUND HEALING

- Reparation
  - LONG JUNCTIONAL EPITHELIUM (LJE)
  - CEMENTUM RESORPTION
  - ANKYLOSIS
- Regeneration
  - NEW CONNECTIVE TISSUE ATTACHMENT(CEMENTUM AND PDL)
  - COMPLETTE PERIODONTAL REGENERATION (BONE, PDL, CEMENTUM)

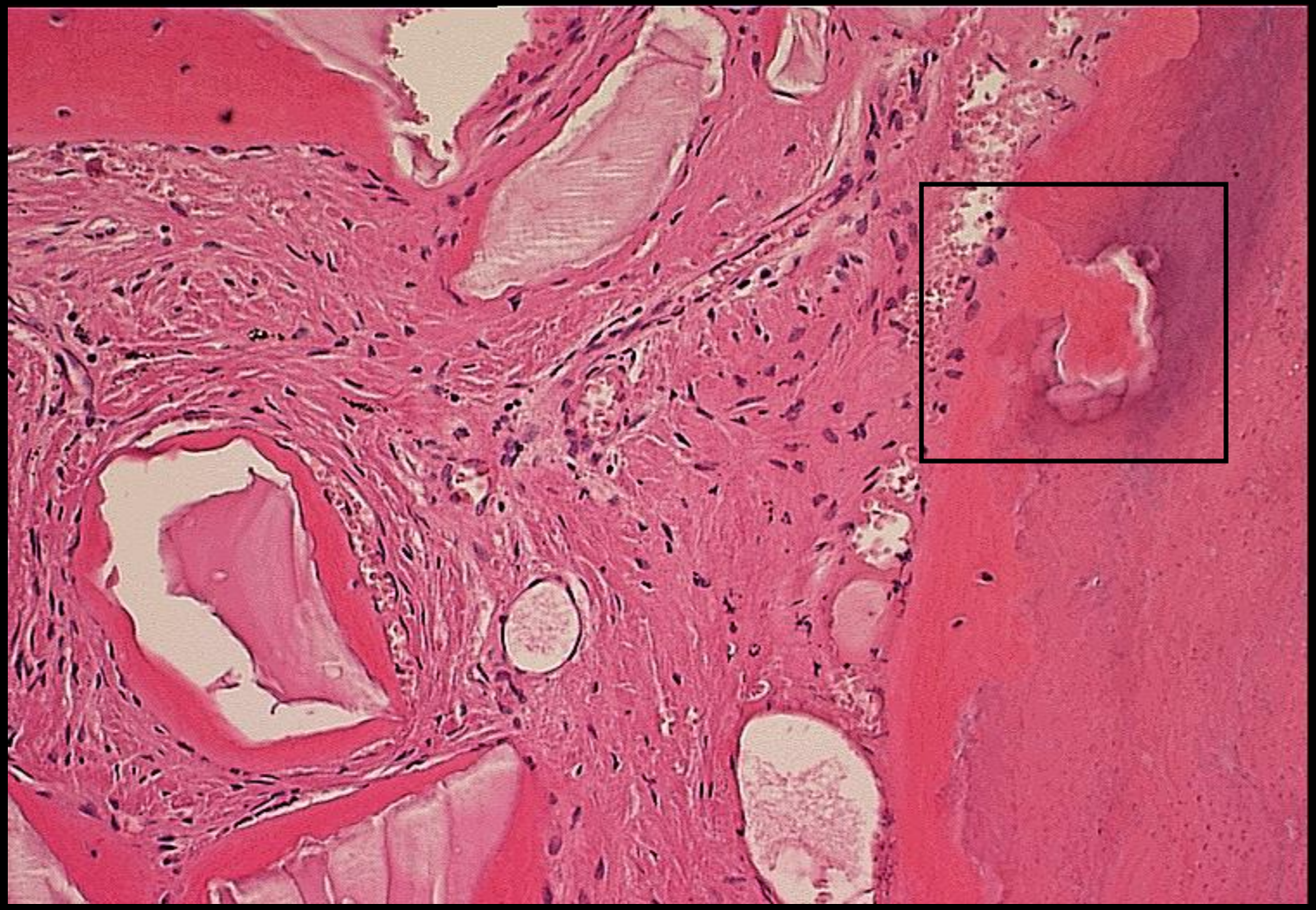
LONG JUNCTIONAL EPITHELIAL ATTACHMENT (LJE)



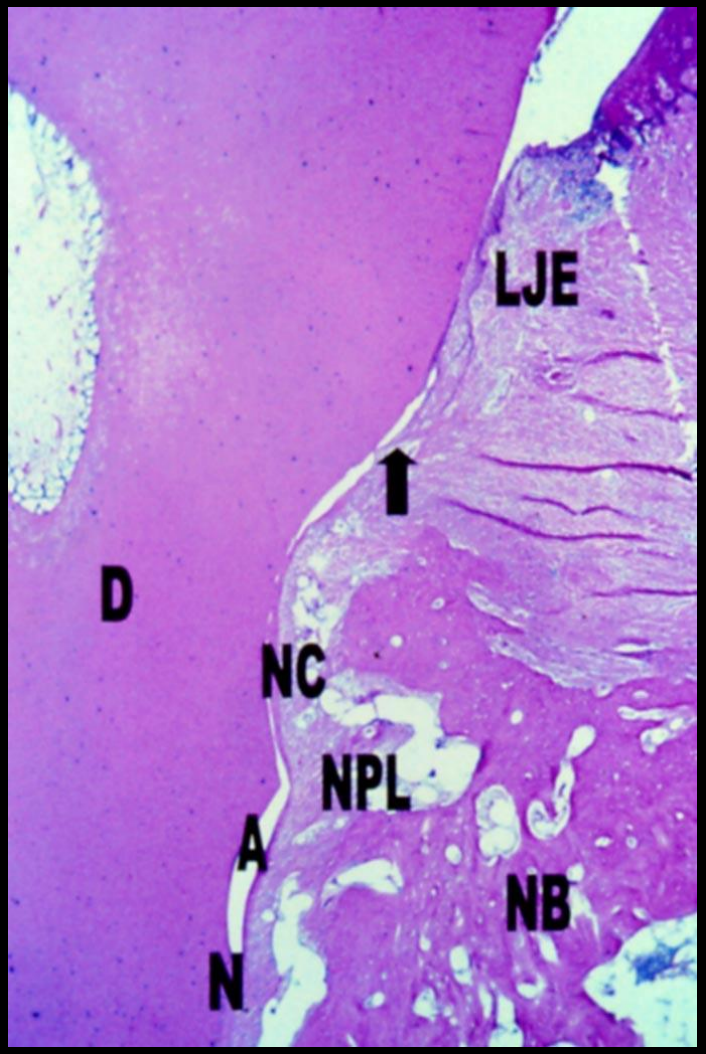
ANKYLOSIS

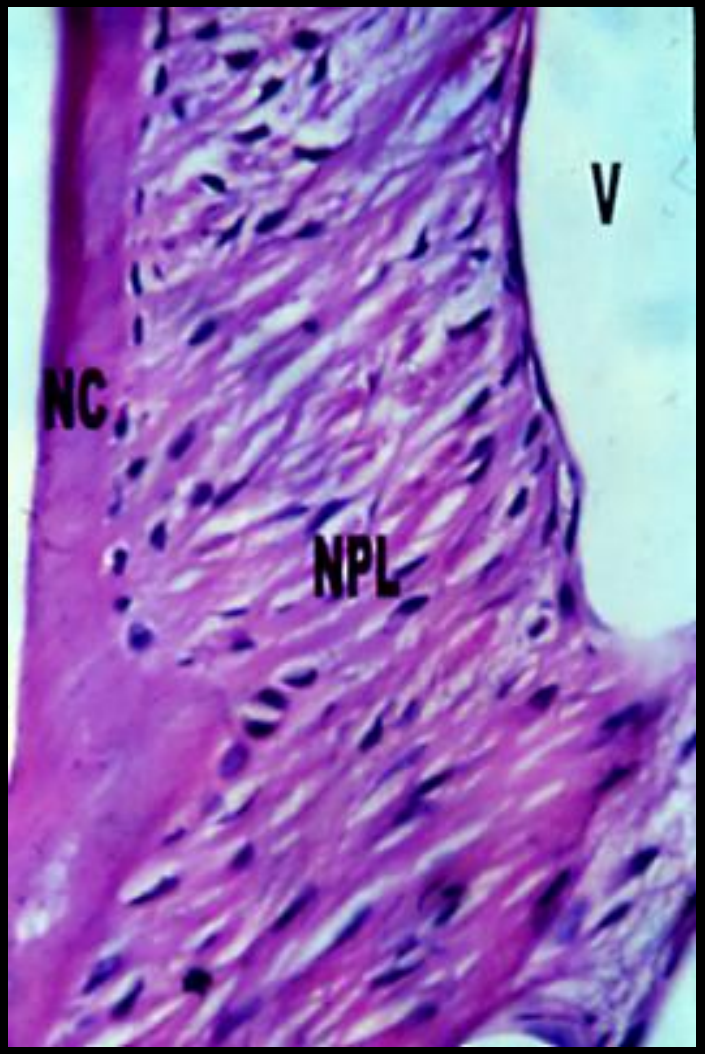


CEMENTUM RESORPTION

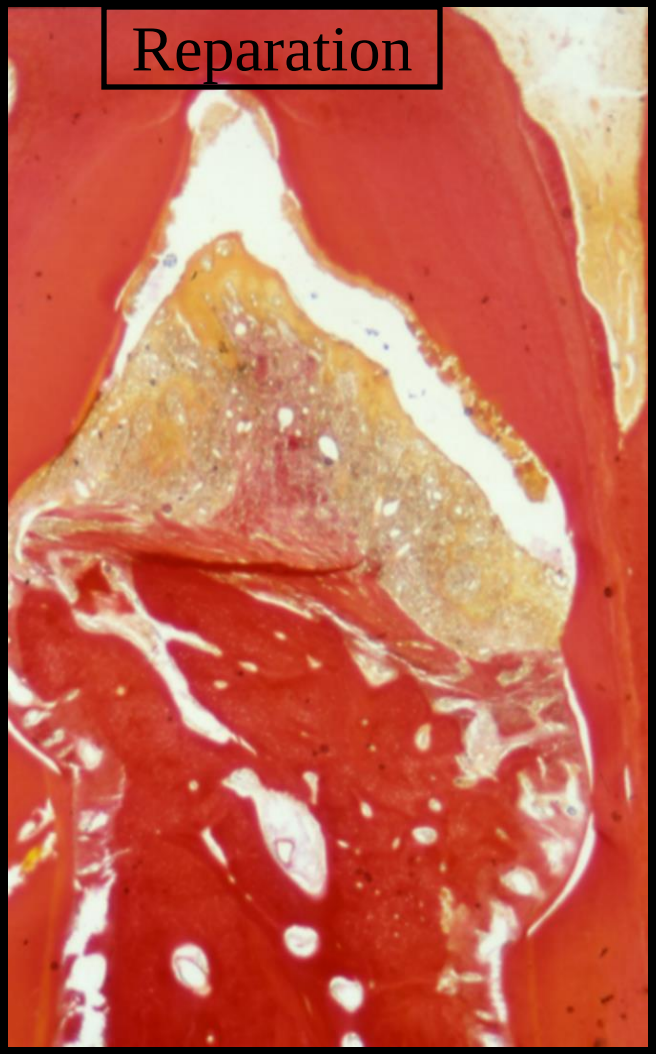


PERIODONTAL REGENERATION



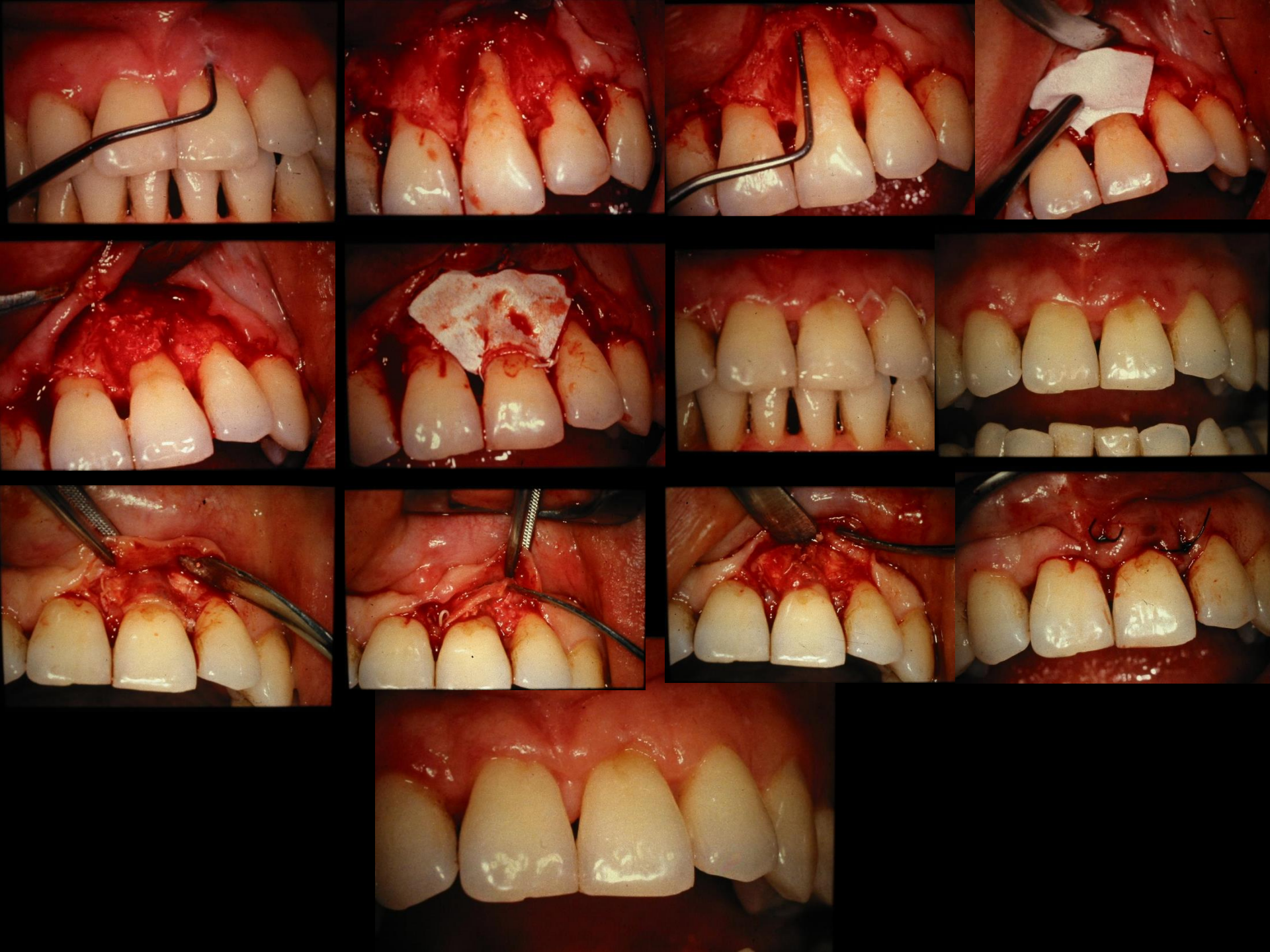


WOUND HEALING



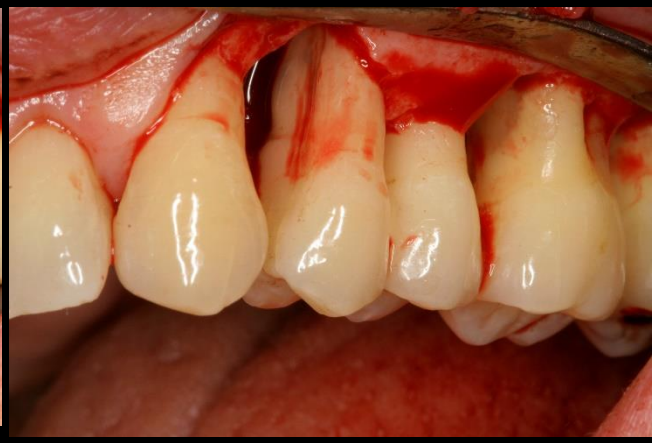
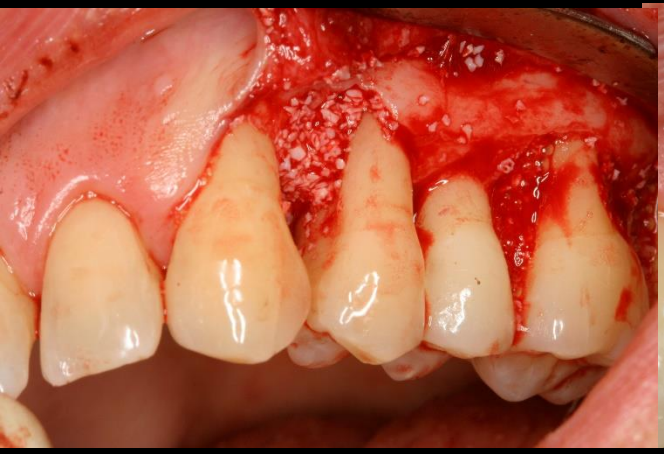

7737


3932



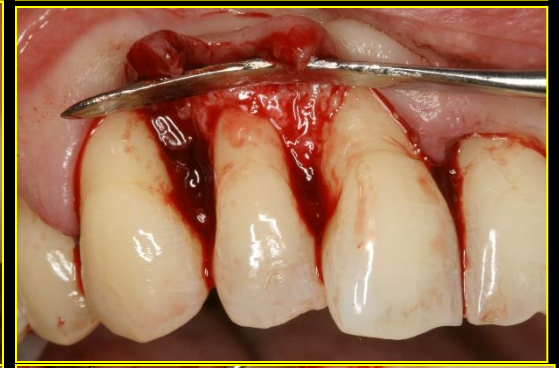


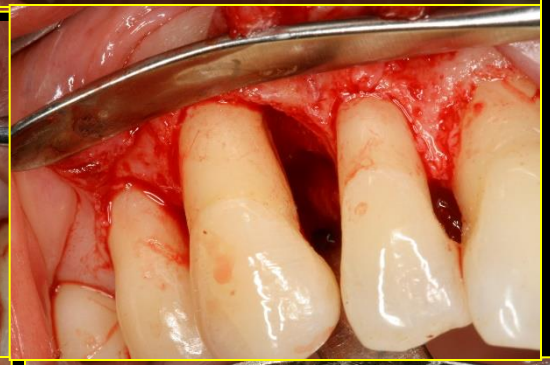


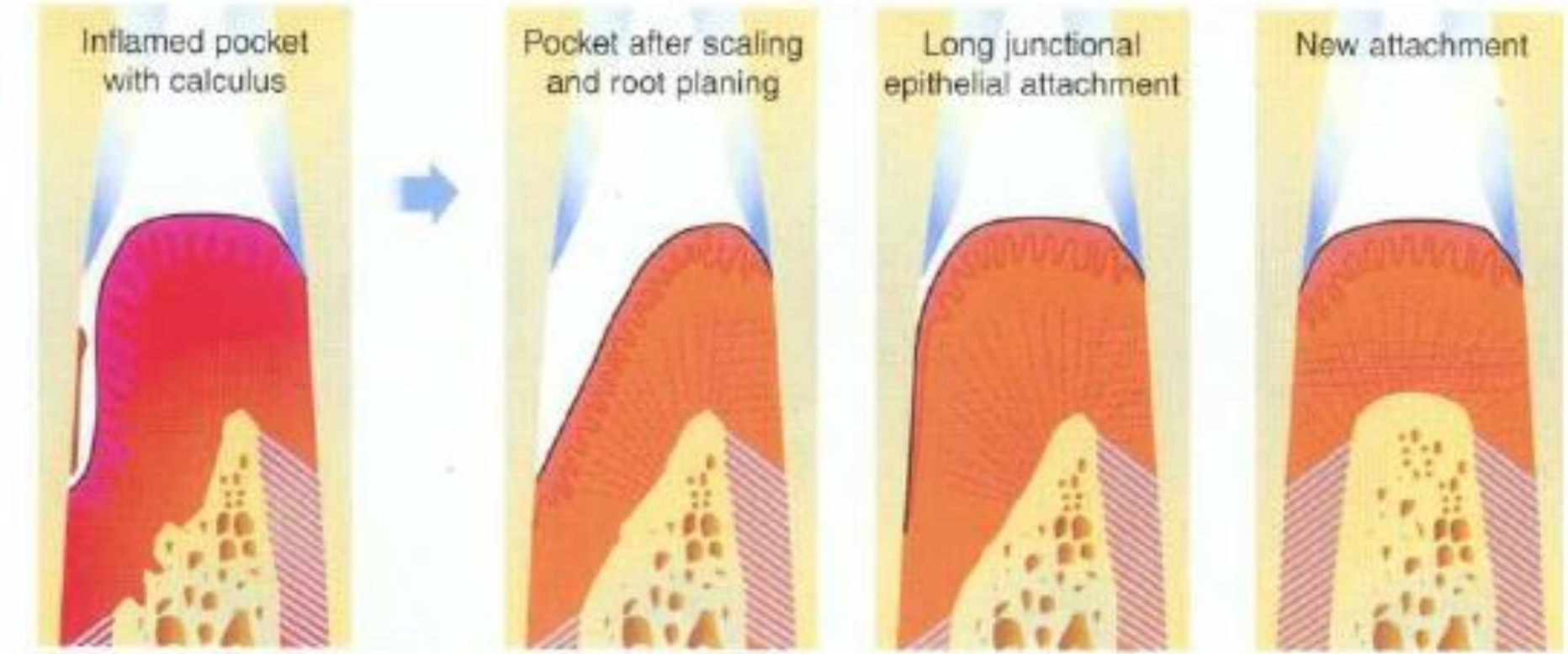


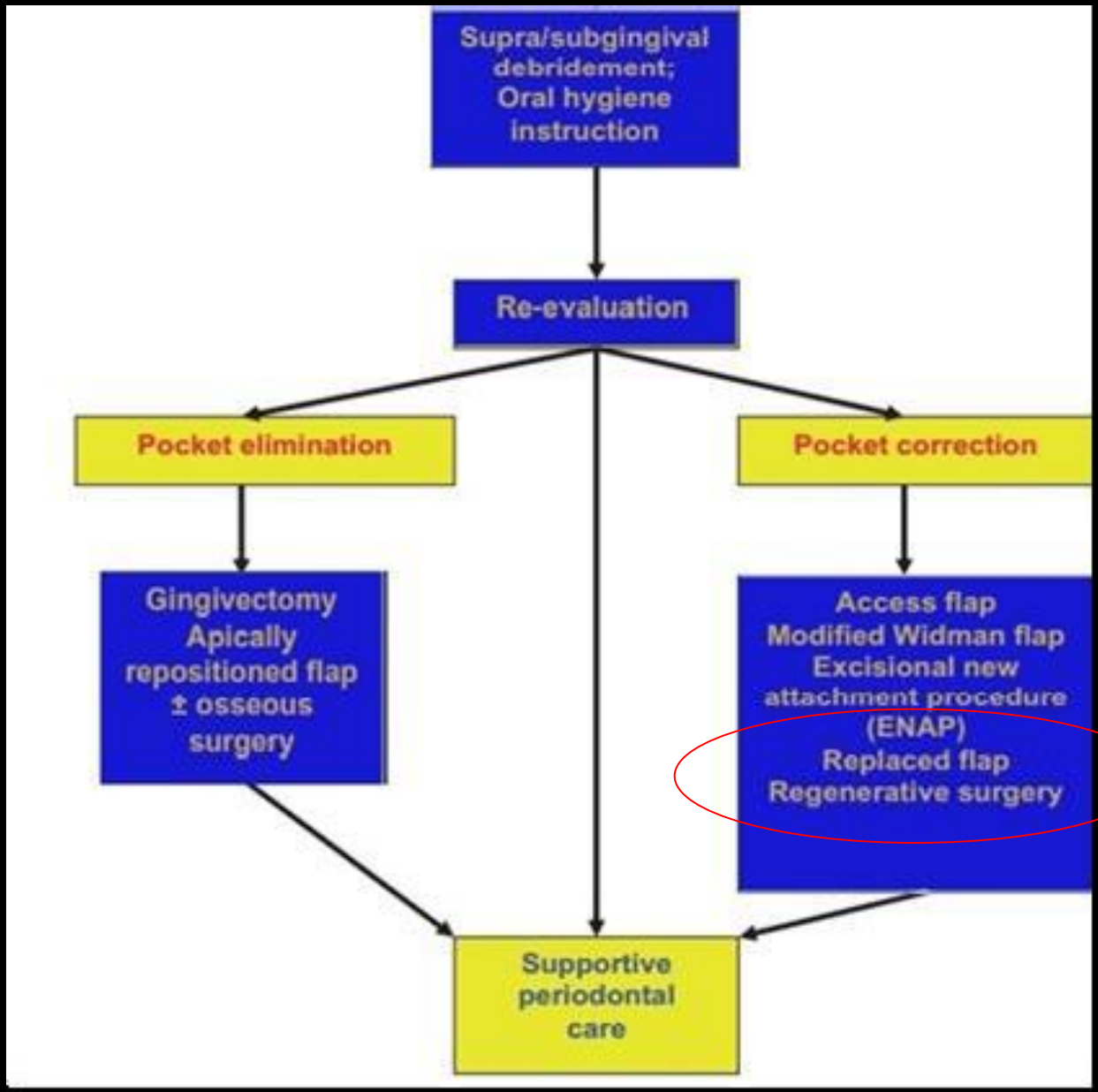






Inflamed pocket with calculus
Pocket after scaling and root planing
Long junctional epithelial attachment
New attachment
Flap curettage
GTR

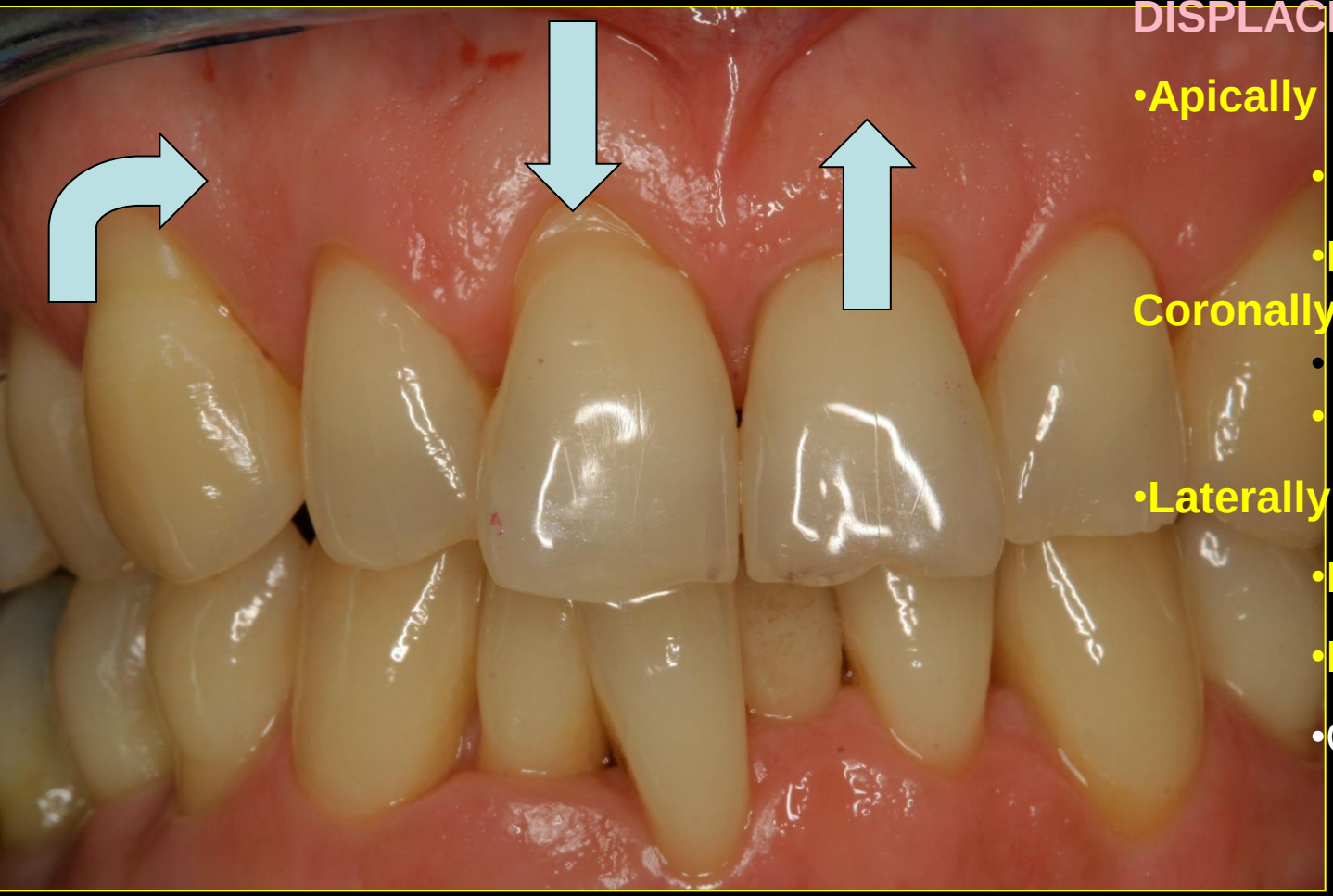


Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)


99 8

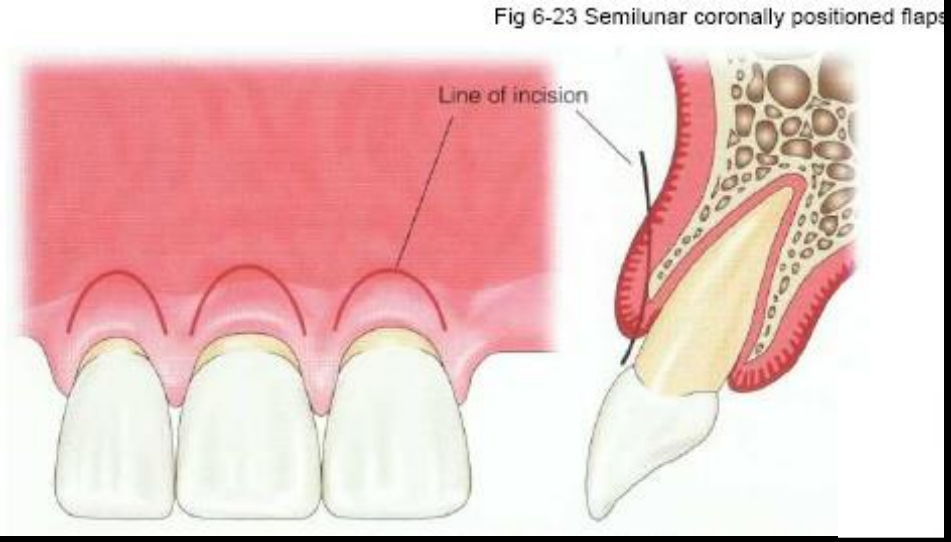

99 8 10

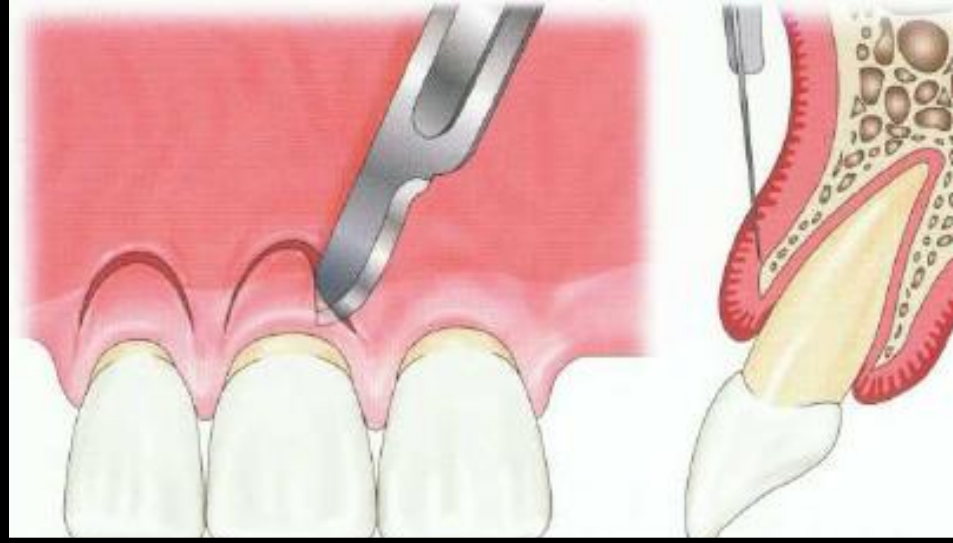
Periodontal flap surgeries

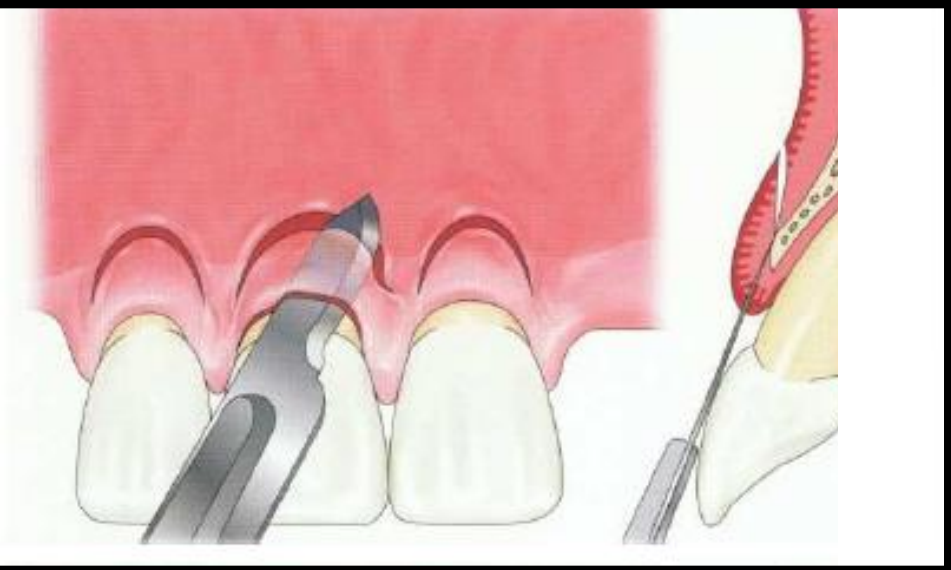


DISPLACED FLAPS

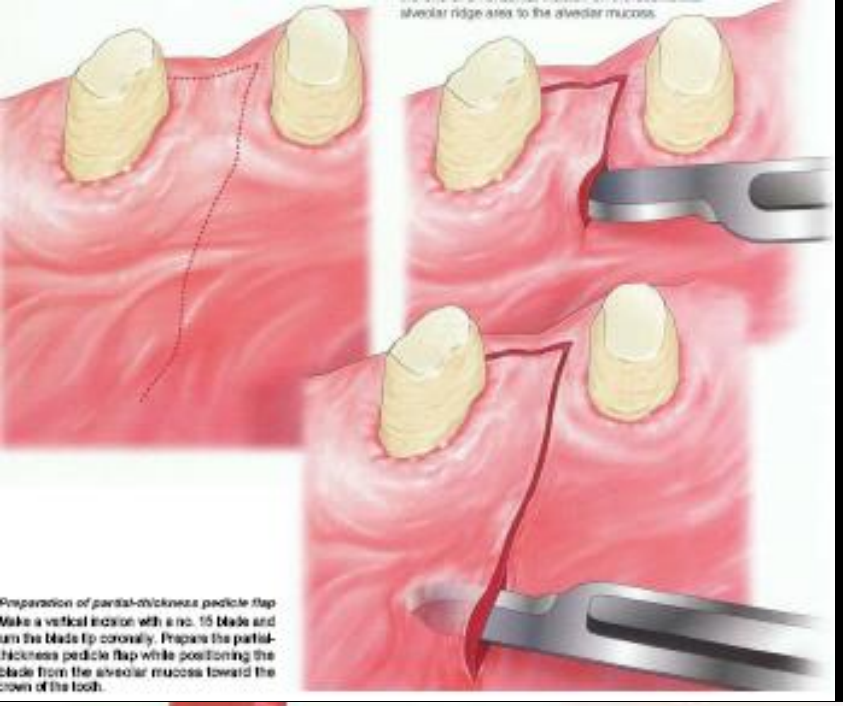
- **Apically repositioned**
  - Full thickness
  - Partial thickness
- **Coronally repositioned**
  - Full thickness
  - Partial thickness
- **Laterally repositioned**
  - Full thickness
  - Partial thickness
  - GRAFT



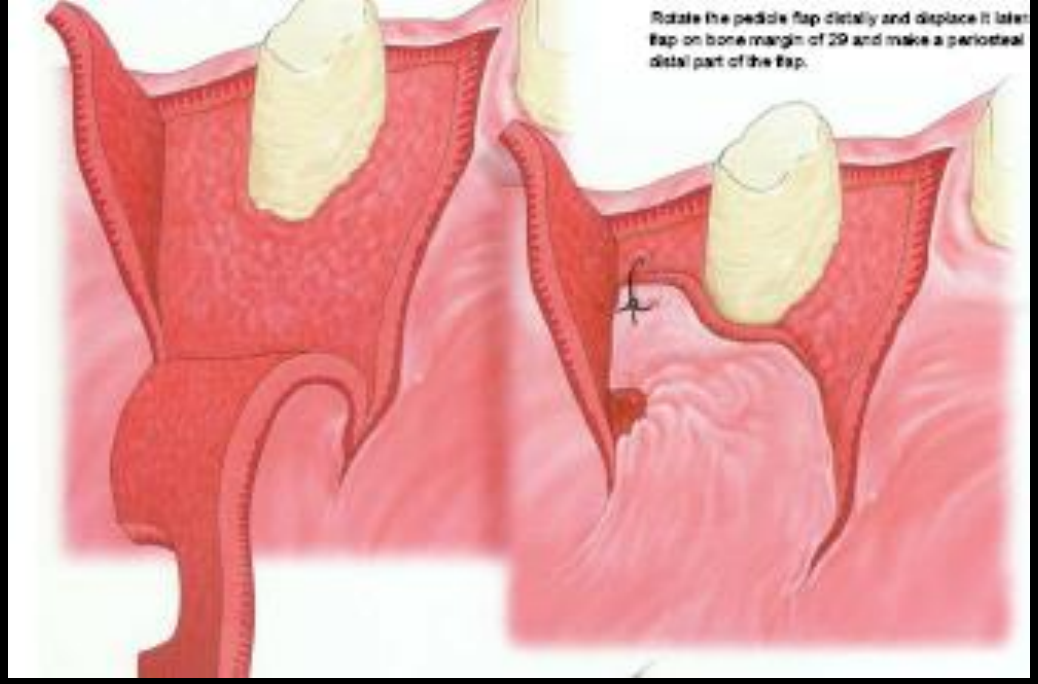


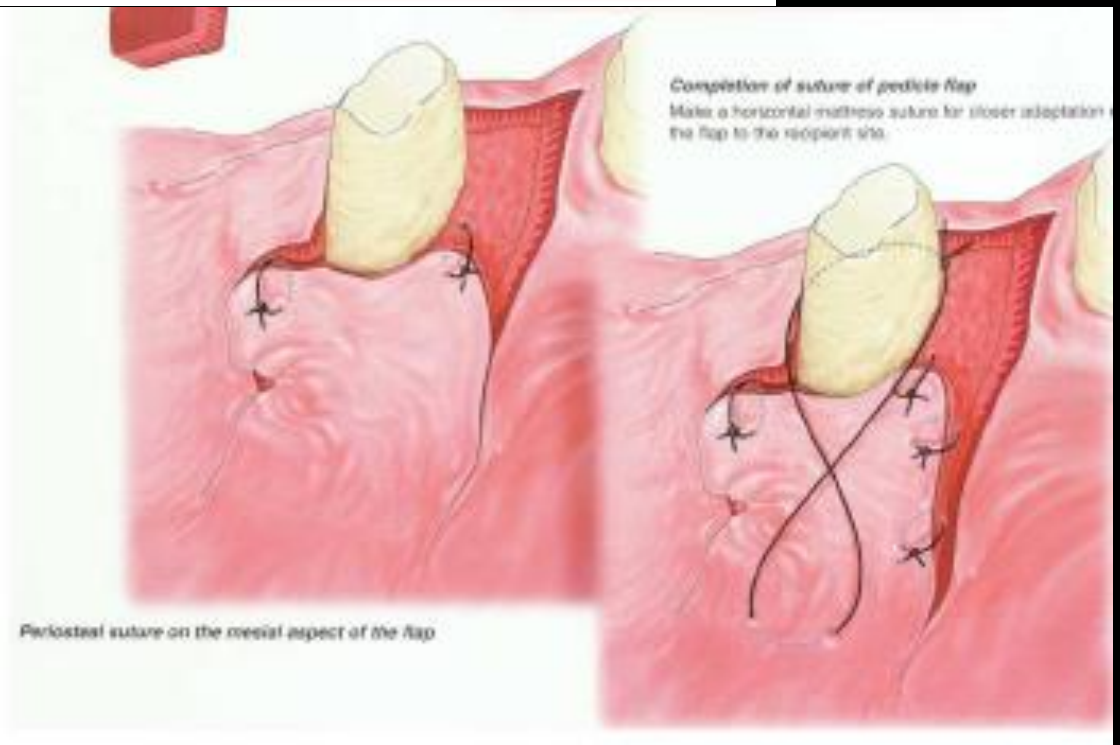


CORONALLY POSITIONED FLAP



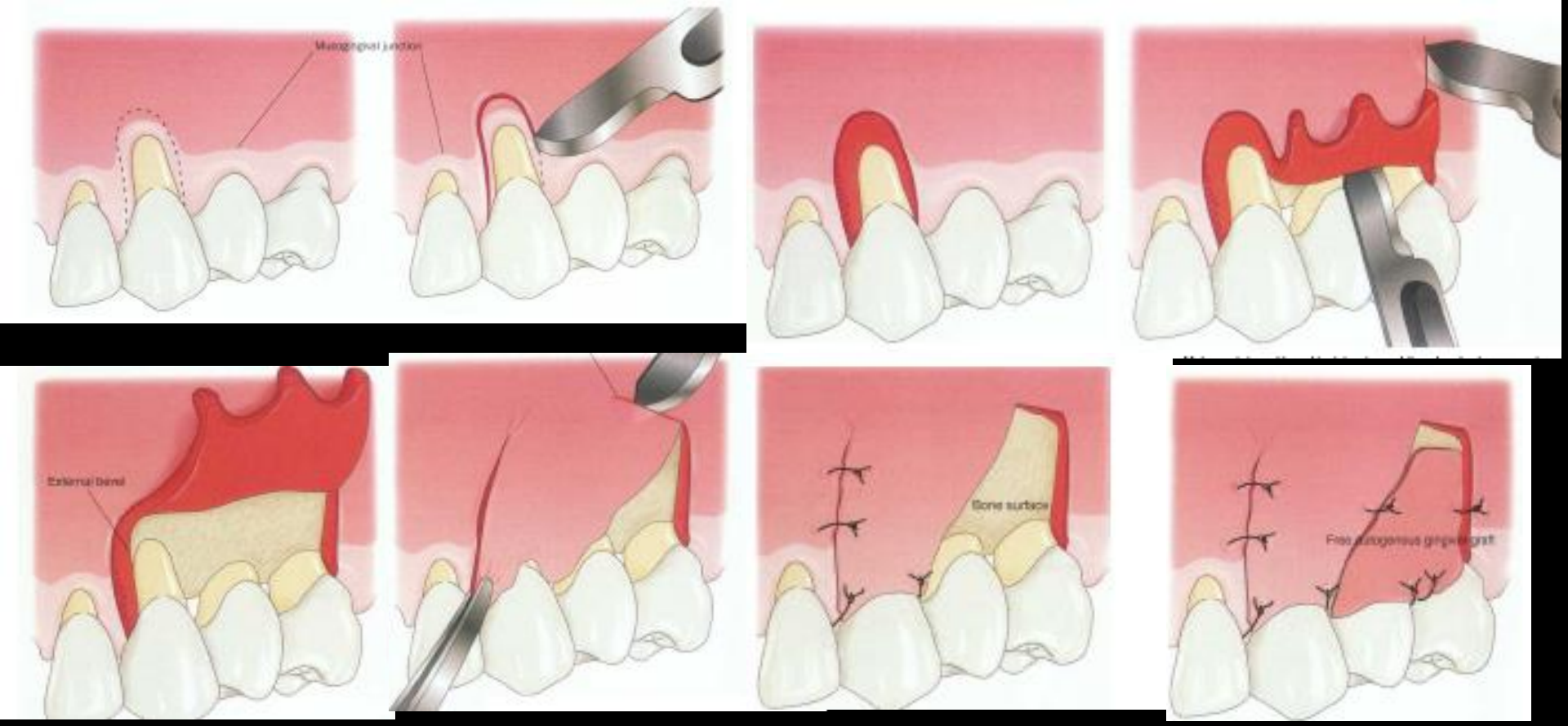
Preparation of partial-thickness pedicle flap
Make a vertical incision with a no. 15 blade and turn the blade tip coronally. Prepare the partial-thickness pedicle flap while positioning the blade from the alveolar mucosa toward the crown of the tooth.



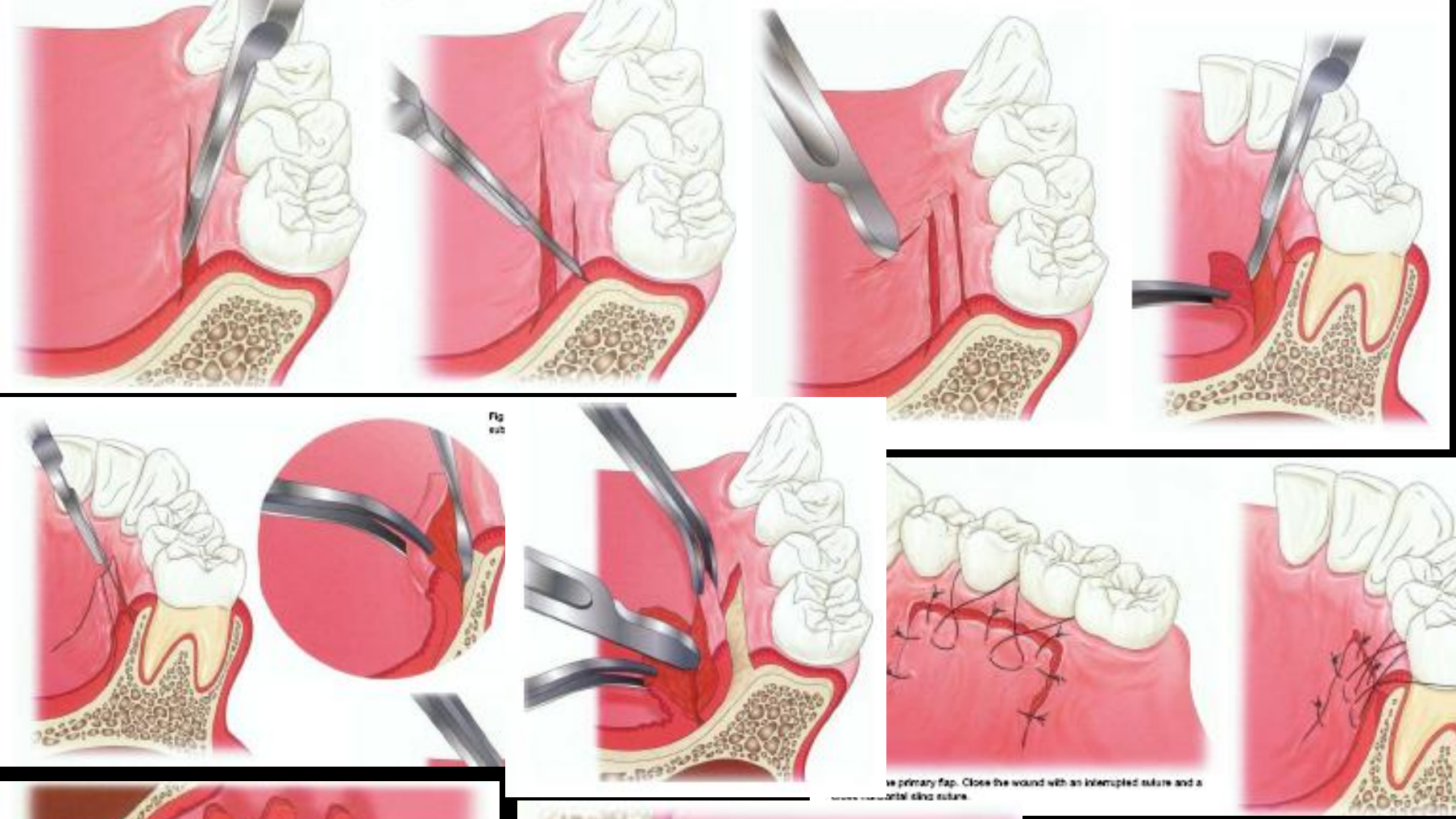


Periosteal suture on the mesial aspect of the flap

APICALLY POSITIONED
PARTIAL THICKNESS FLAP

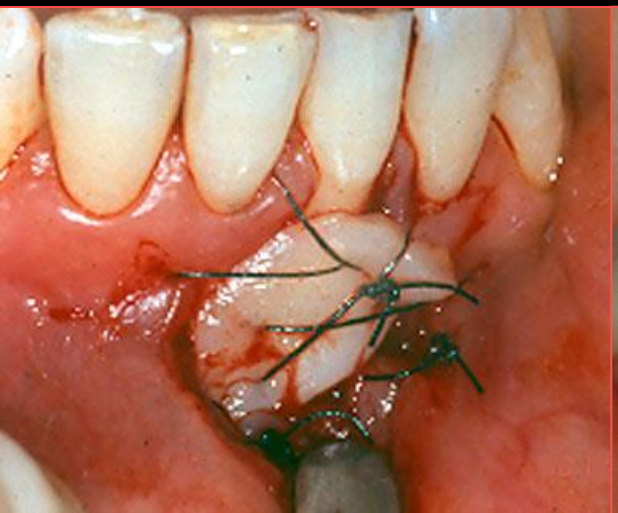


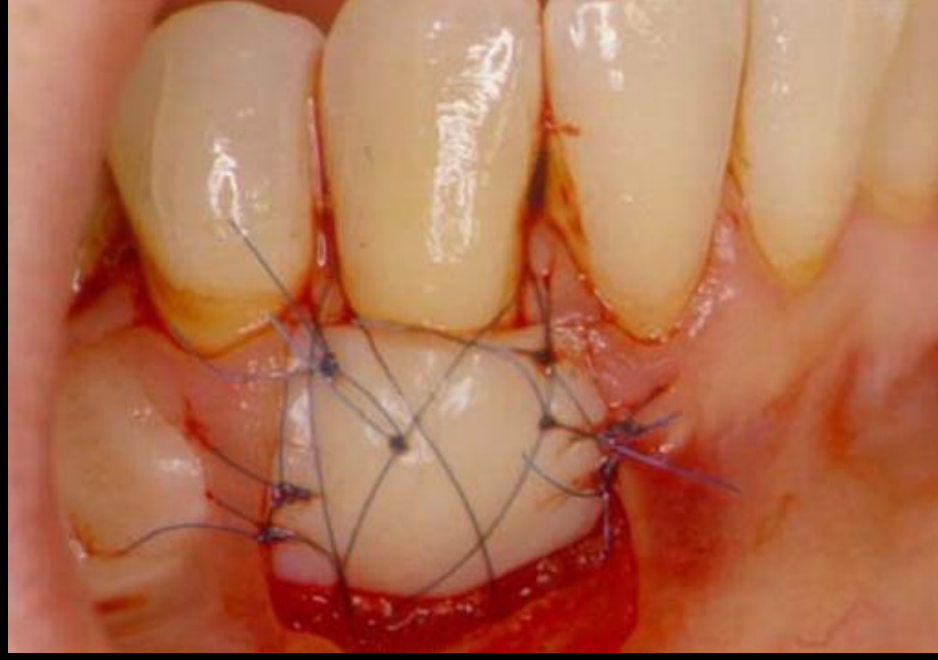
Laterally positioned flap



FREE GINGIVAL GRAFT


00 12 6





MUCOGINGIVAL AESTHETIC SURGERIES CORRECTING GINGIVAL RECESSIONS

Envelope technique

Raetzke PB. Covering localized areas of root exposure employing the "envelope" technique. J Periodontol. 1985 Jul;56(7):397-402.

Multiple envelope technique

Allen AL. Use of the supraperiosteal envelope in soft tissue grafting for root coverage. I. Rationale and technique. Int J Periodontics Restorative Dent. 1994 Jun;14(3):216-27.

Tunnel technique + SCTG+bilaterally pedicle flap

Blanes RJ, Allen EP. The bilateral pedicle flap-tunnel technique: a new approach to cover connective tissue grafts. Int J Periodontics Restorative Dent. 1999 Oct;19(5):471-9.

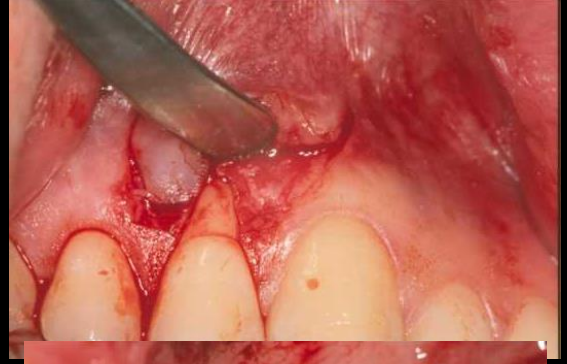
Tunnel technique an acellular dermal connective tissue allograft

Mahn DH. Treatment of gingival recession with a modified "tunnel" technique and an acellular dermal connective tissue allograft. Pract Proced Aesthet Dent. 2001 Jan-Feb;13(1):69-74;

Tunnel technique+SCTG+subepithelial connective tissue

Tözüm TF, Dini FM. Treatment of adjacent gingival recessions with subepithelial connective tissue grafts and the modified tunnel technique. Quintessence Int. 2003 Jan;34(1):7-13.













1998


2003


2004


2008

When the objective is to reduce probing pocket depth, surgical therapy provides a greater benefit than nonsurgical therapy for all levels of initial disease severity.

When the objective is to increase attachment level, nonsurgical therapy provides a greater benefit for initial disease severity levels 1–3 mm and 4–6 mm, and regenerative surgical therapy for > 6 mm.