



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

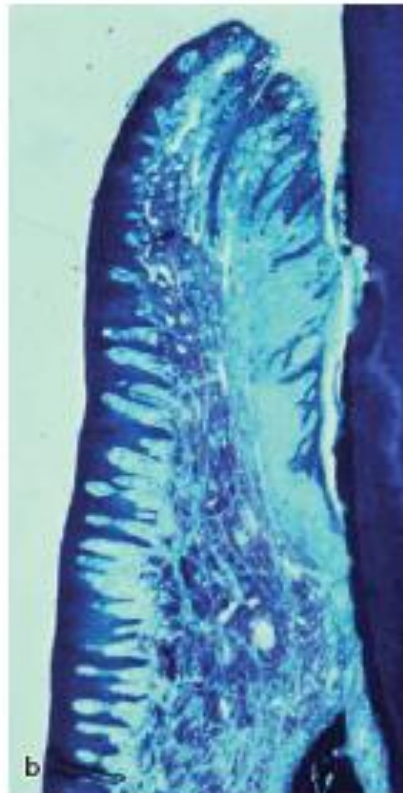
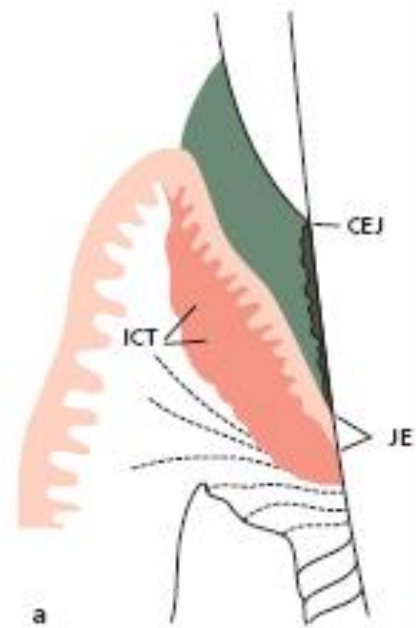
But also a major risk factor for the further progression of disease

CONSEQUENTLY

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

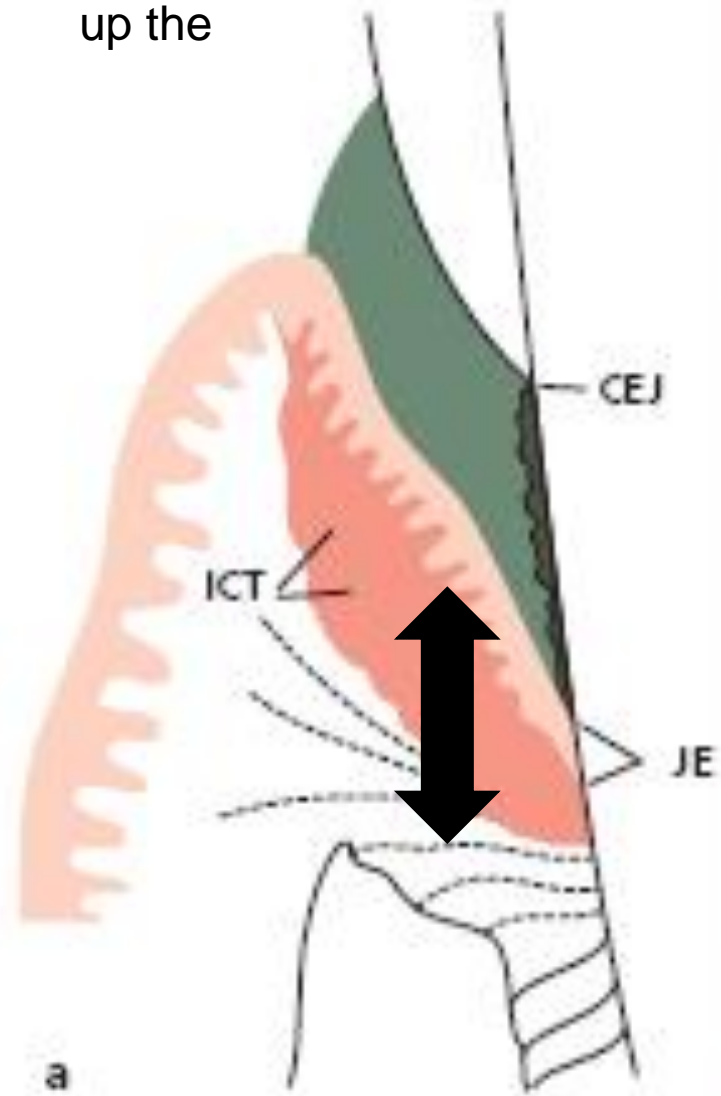
How reduce pocket depth???

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



How reduce pocket depth???

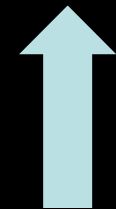
1. remove/dislocate pocket wall
2. Restore lost tissues – fill up the



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

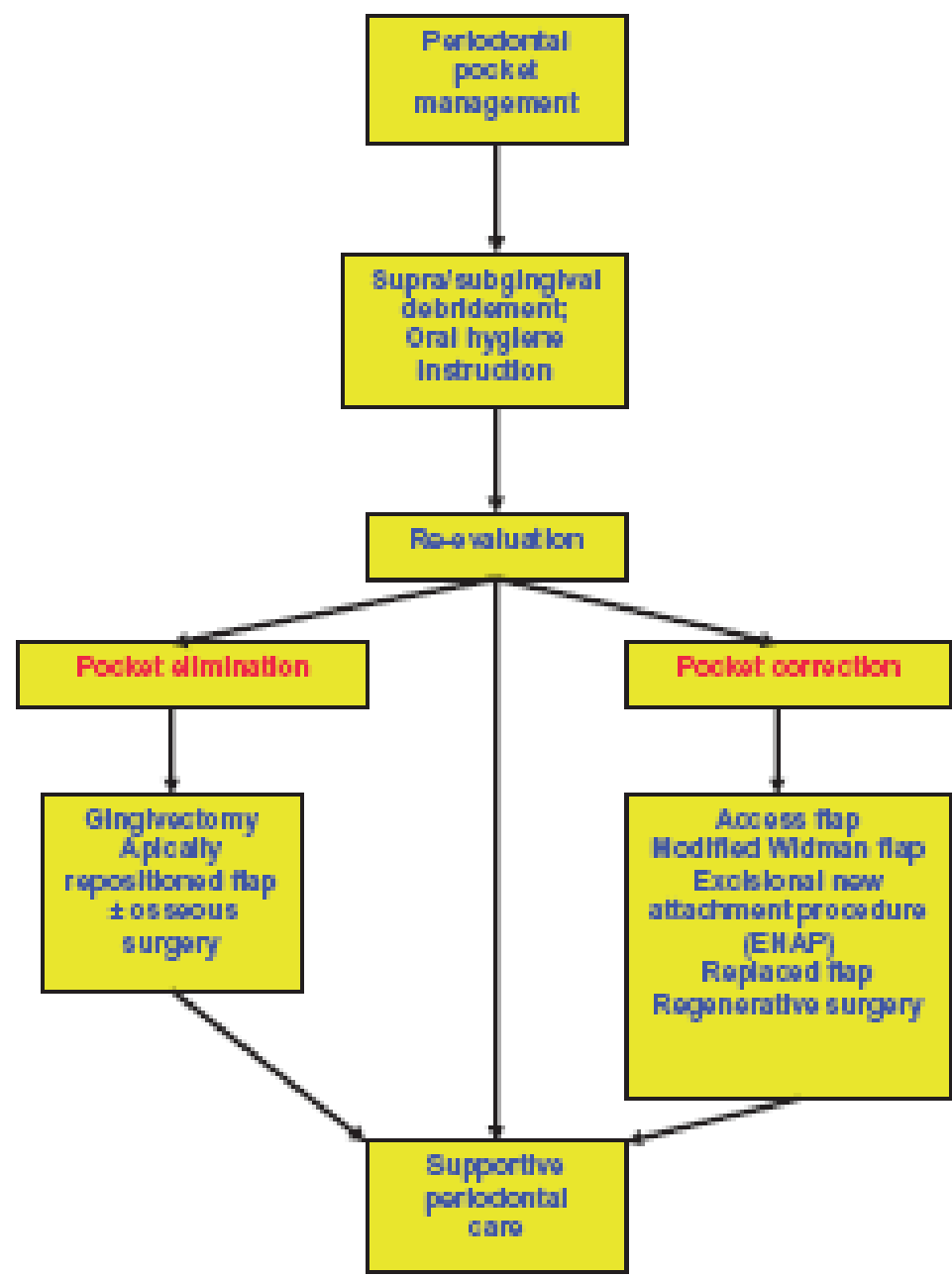
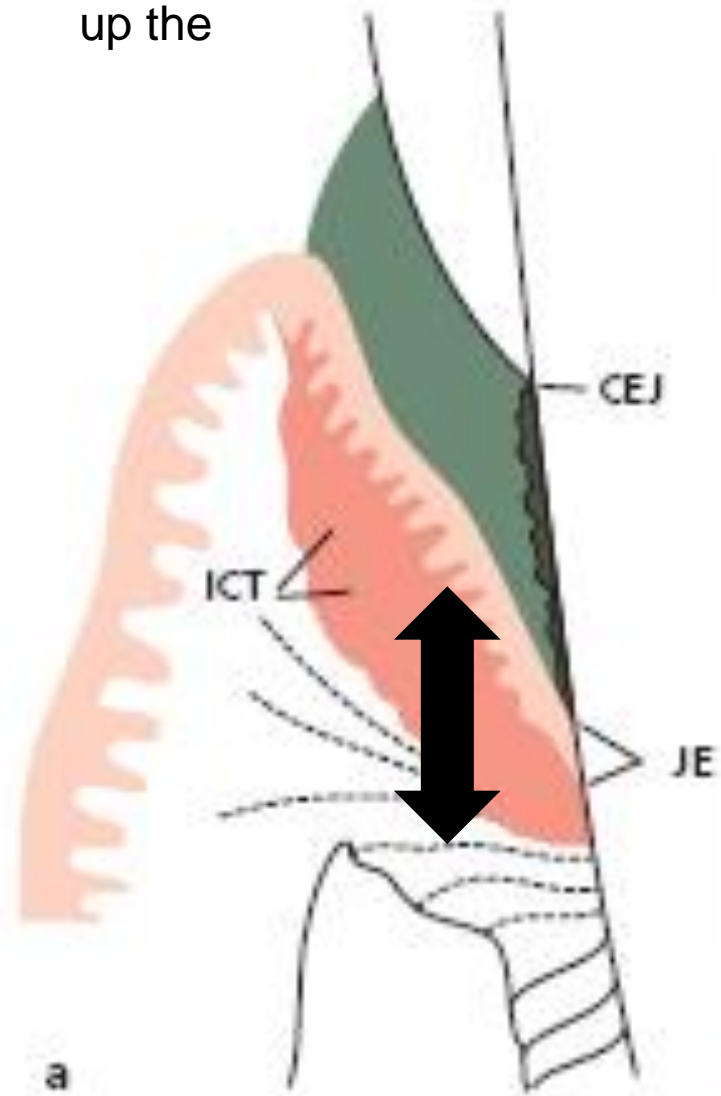
1. Accessibility of instruments to root surface.
2. Elimination of inflammation.
3. Creation of an oral environment conducive to plaque control.
 - a. Establish gingival sulcus for easy periodontal disease control (elimination of pocket).
 - b. Correct abnormal gingiva and alveolar bone morphologic characteristics 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.

METHODS 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



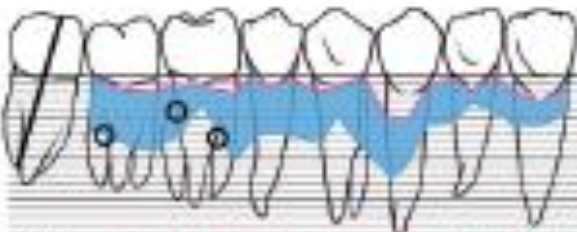
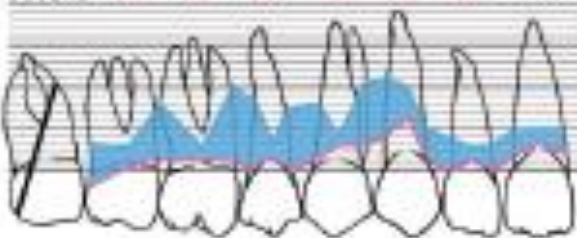


RECONSTRUCTIVE SURGERY INDICATED



18	17	16	15	14	13	12	11
	1		1	2	1	1	

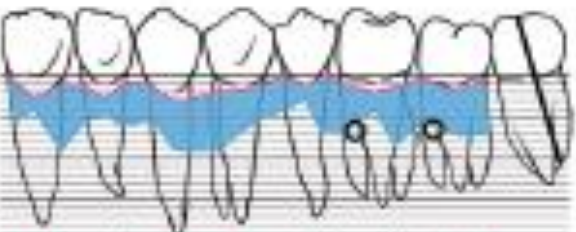
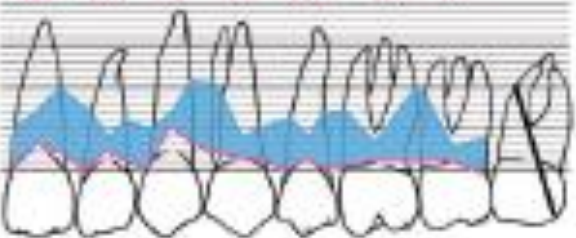
BUCCAL 326 726 827 769 744 623 323



ORAL 867 426 757 845 754 626 426

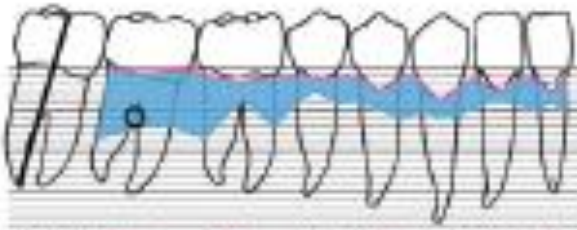
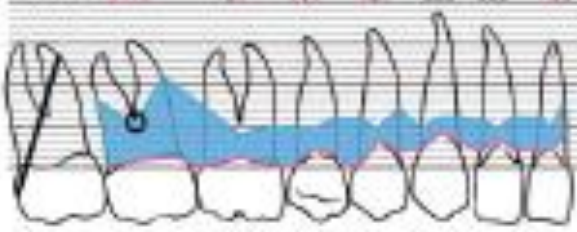
21	22	23	24	25	26	27	28
1		1	1	1			

468 826 626 624 637 738 726



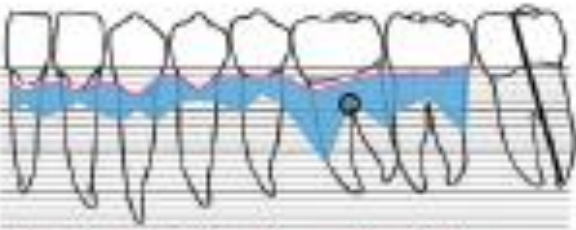
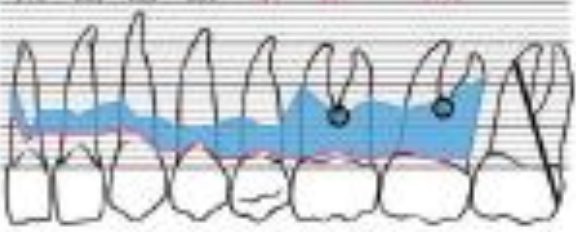
626 626 668 754 627 627 867

LINGUAL 8118 726 626 626 323 323 626



BUCCAL 867 726 323 321 323 313 613

312 323 323 323 626 867 8118



311 313 623 313 623 626 627

18	17	16	15	14	13	12	11
	1					1	1

21	22	23	24	25	26	27	28
1					1		

How can we reduce pocket depth??

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

What about bony pockets?

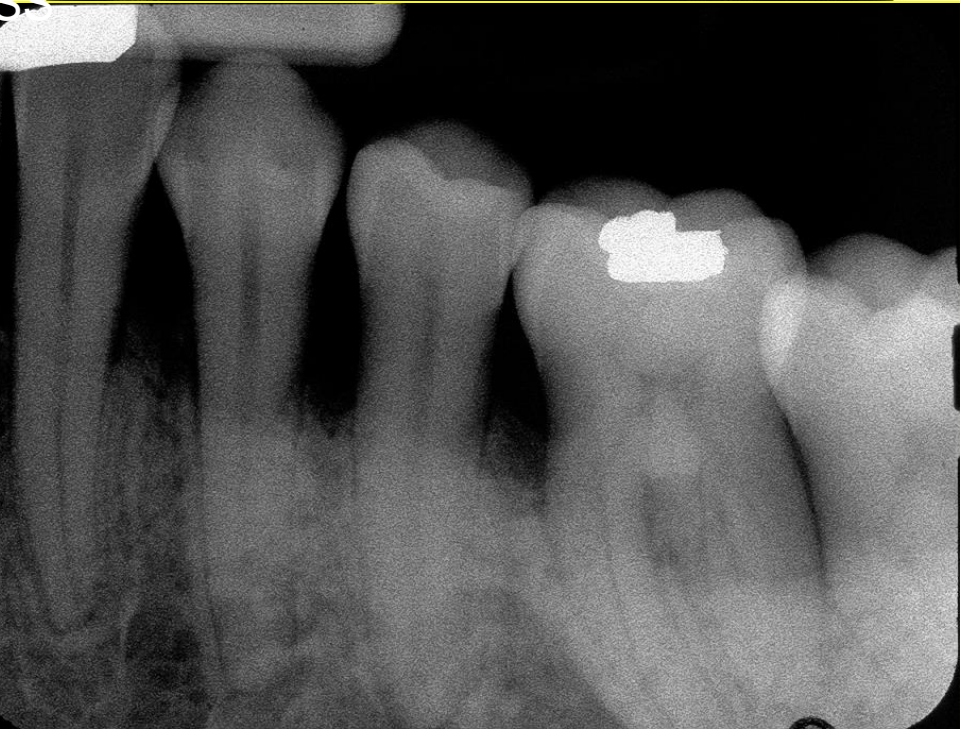
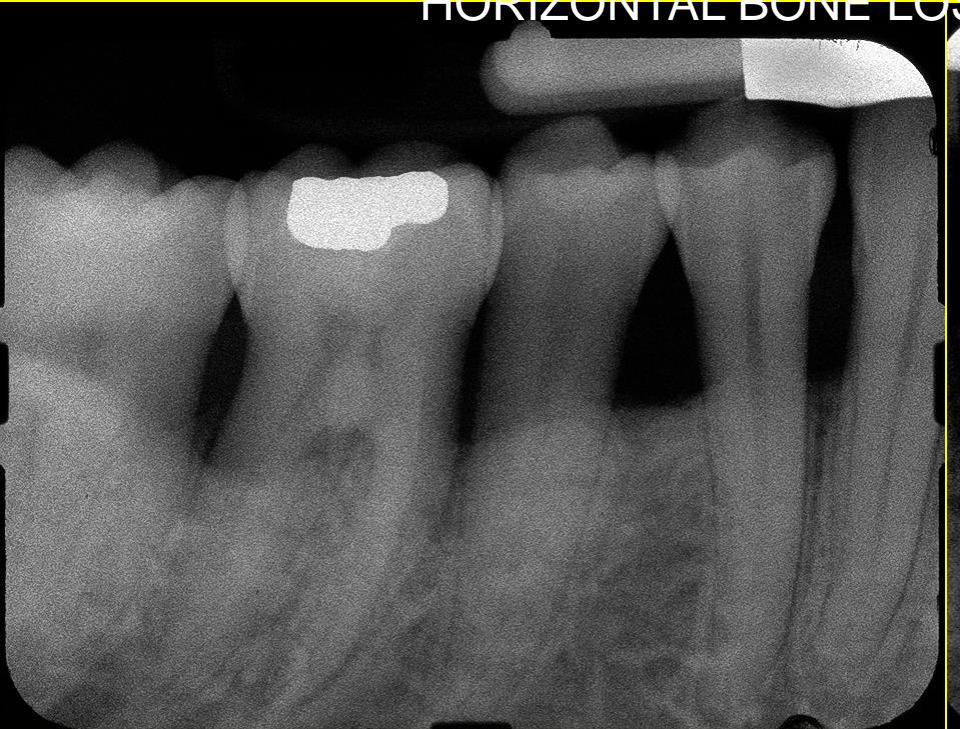
Should we remove alveolar bone?



HORIZONTAL BONE LOSS



HORIZONTAL BONE LOSS

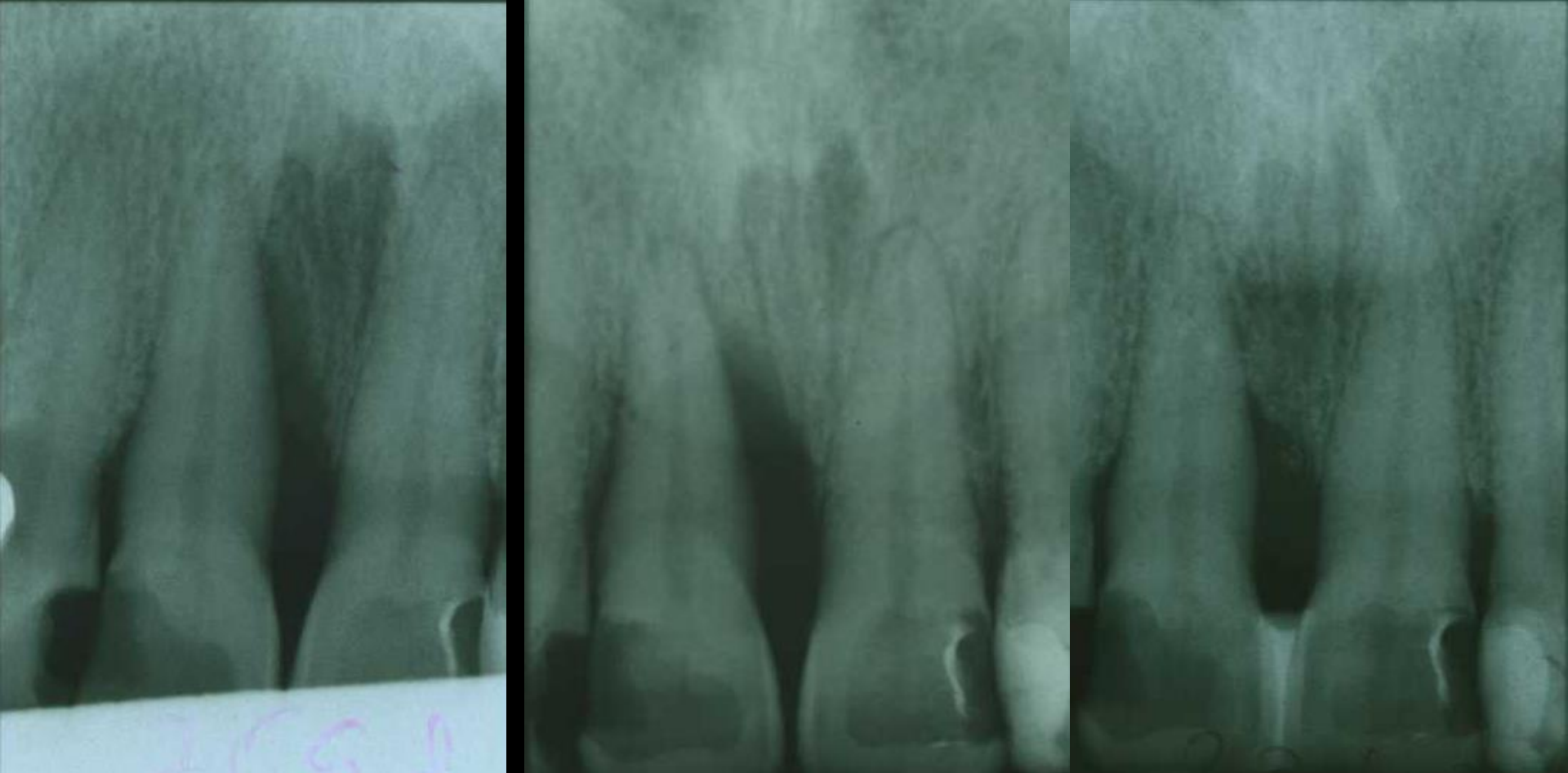




HOW POCKET REDUCTION CAN BE ACHIEVED IN THIS CASE??



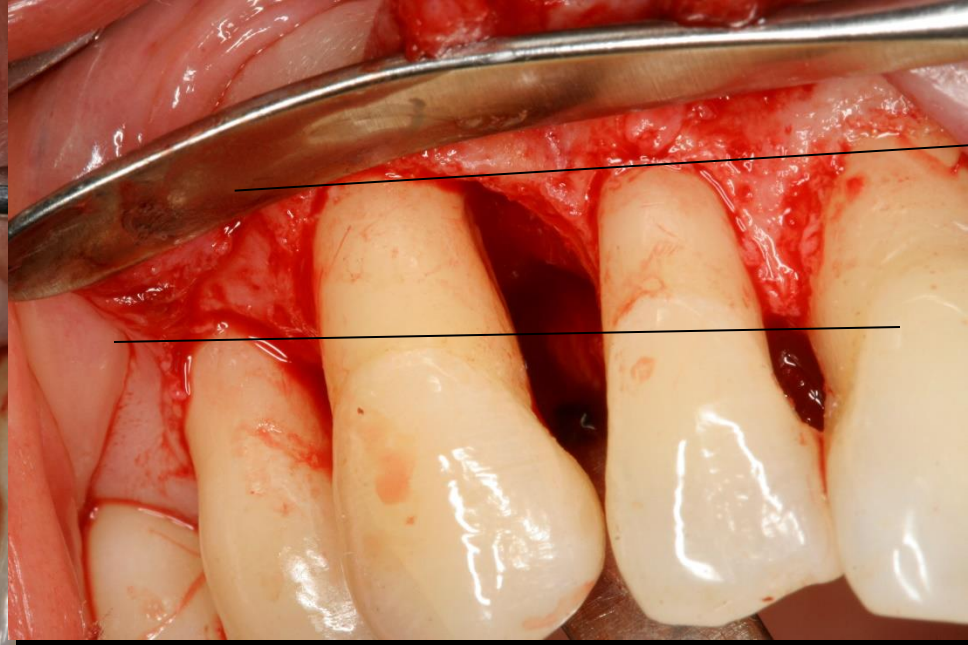




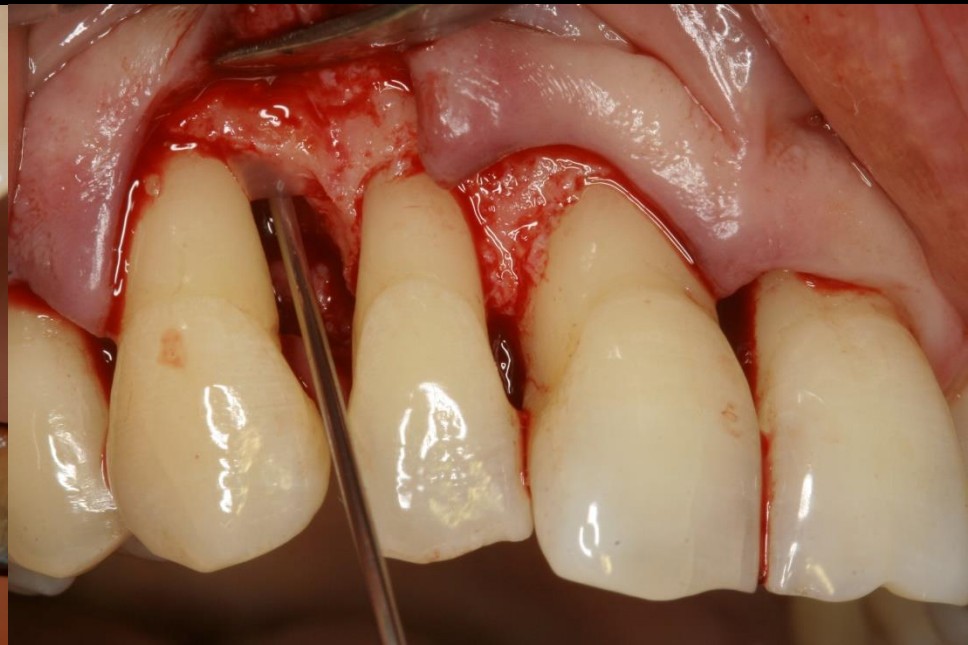
VERTICAL BONE LOSS

HOW POCKET REDUCTION CAN BE ACHIEVED IN THIS CASE??



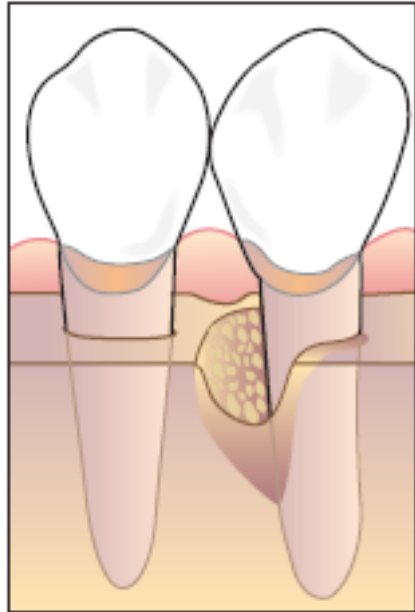


HOW POCKET REDUCTION CAN BE ACHIEVED IN THIS CASE??

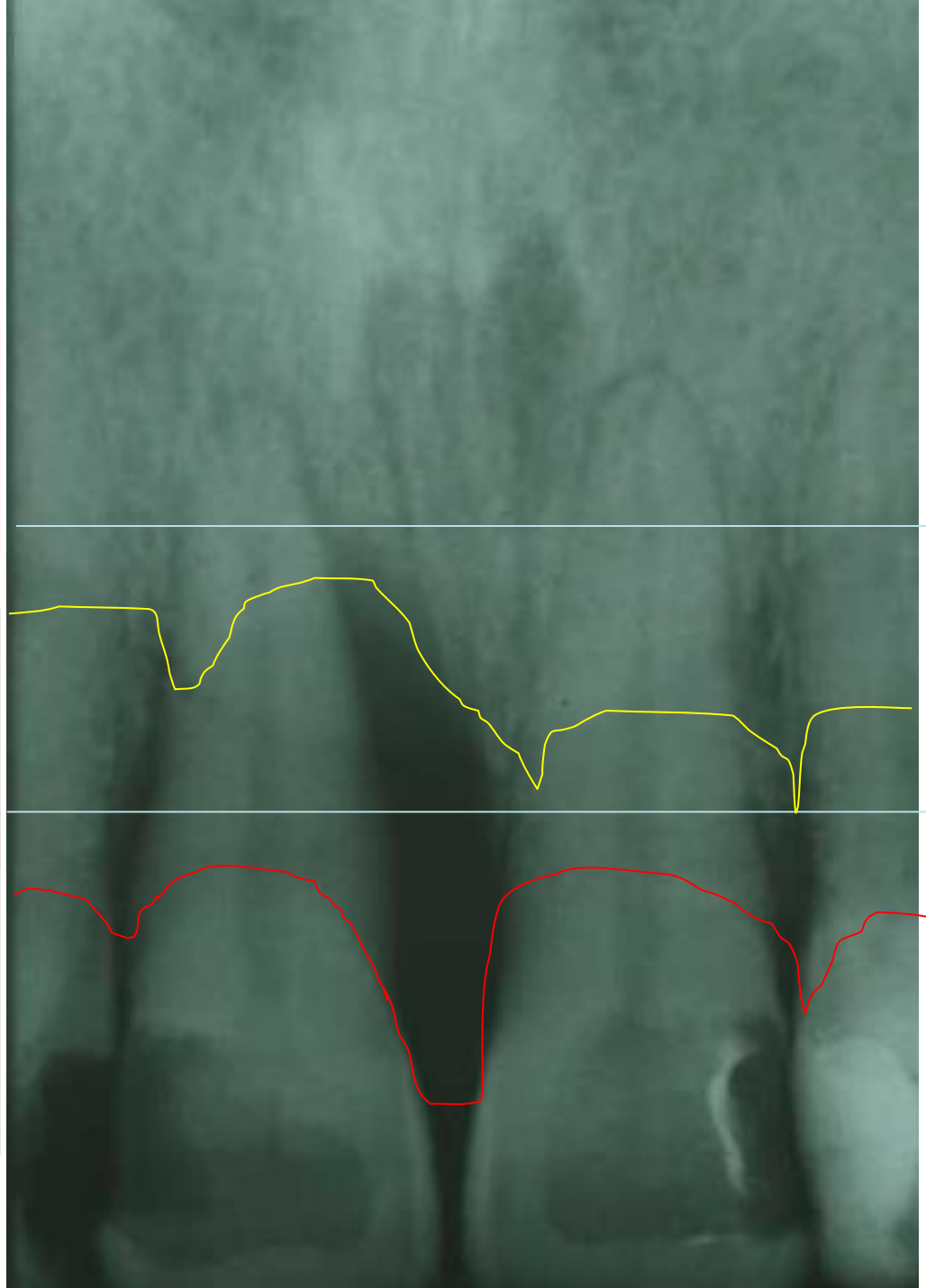
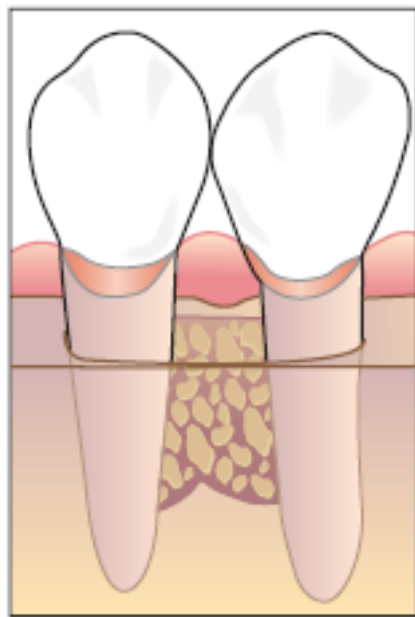
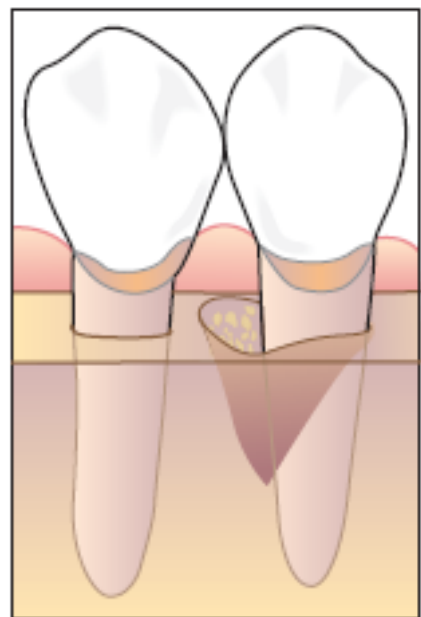




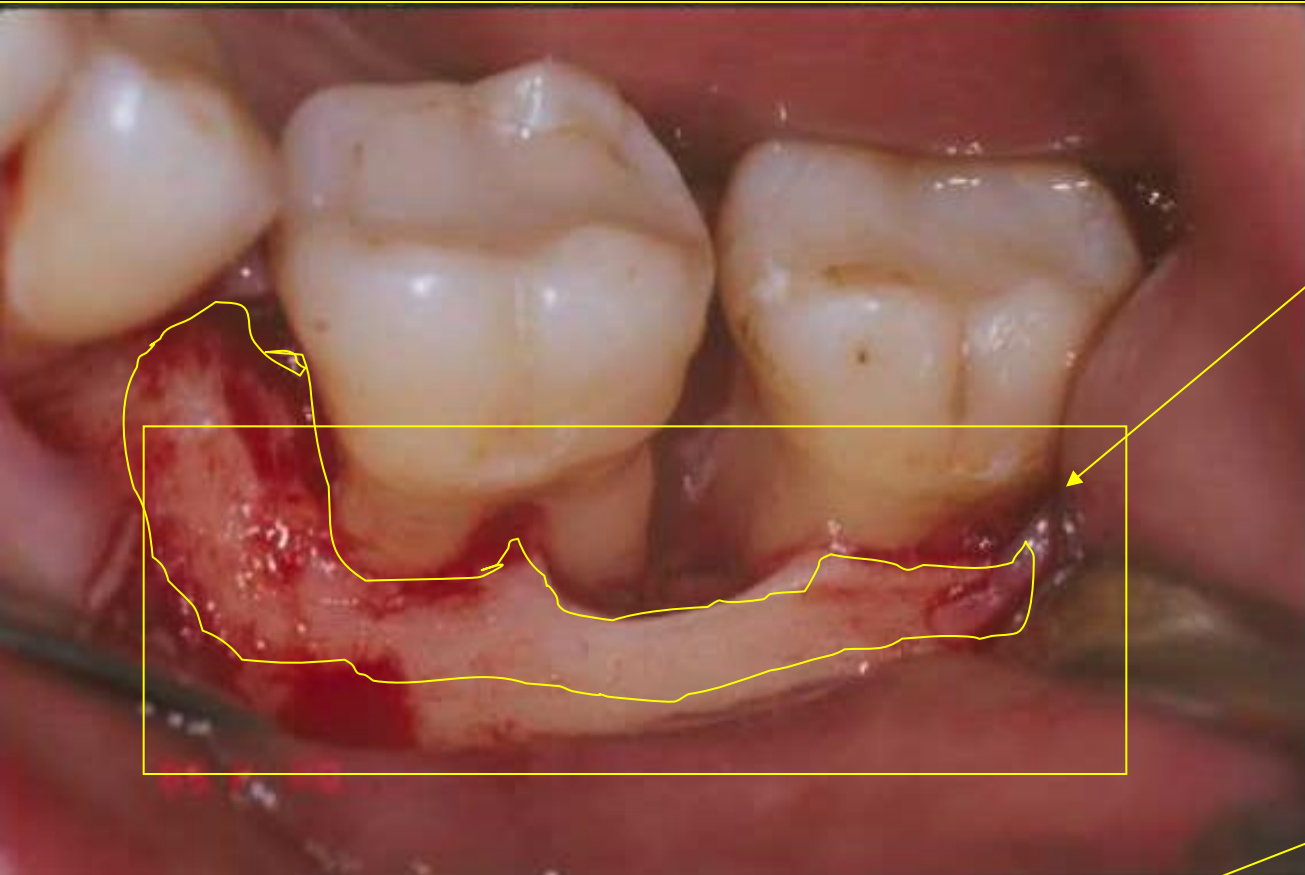
(a)



(b)



HOW THIS INFRABONY POCKET COULD BE ELIMINATED ???

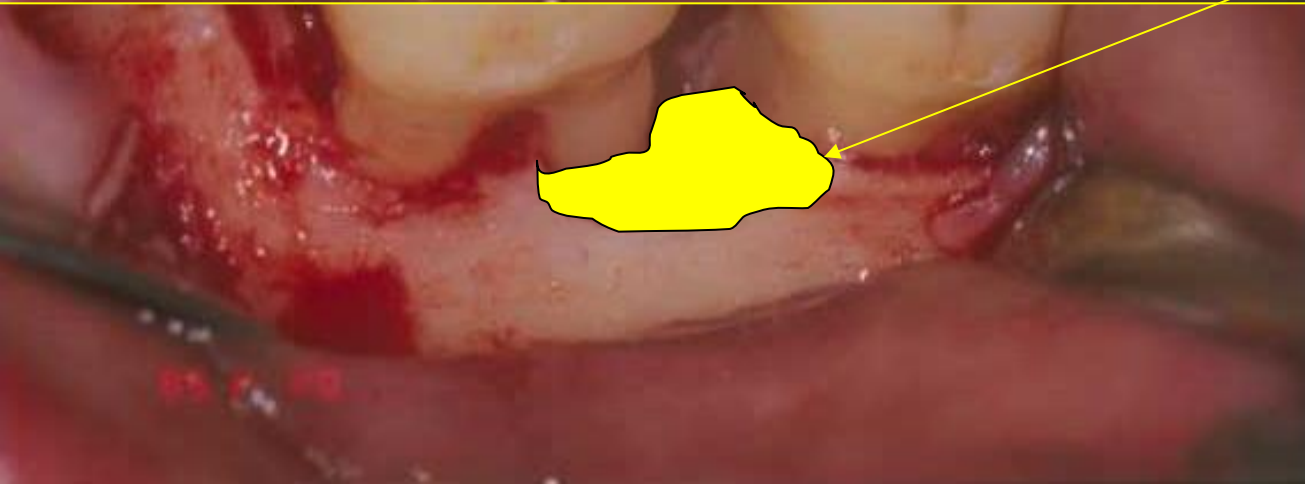


OSTECTOMY ???

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

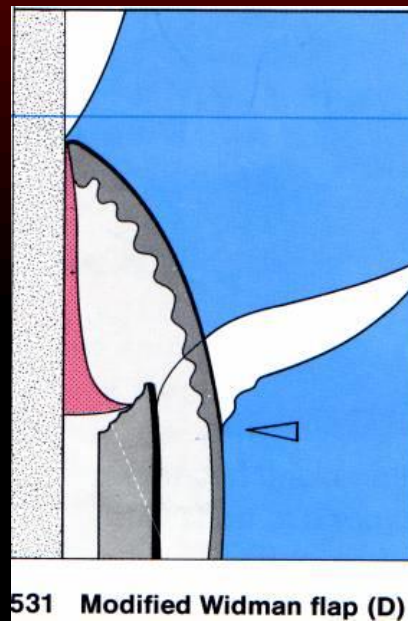
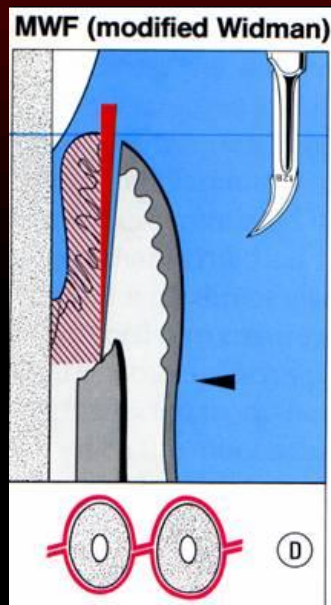
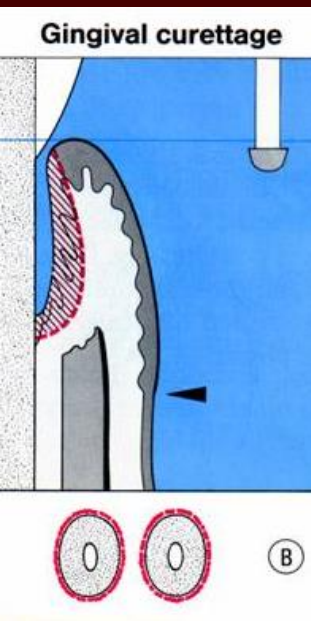
GINGIVECTOMY EXTERNAL

INTERNAL

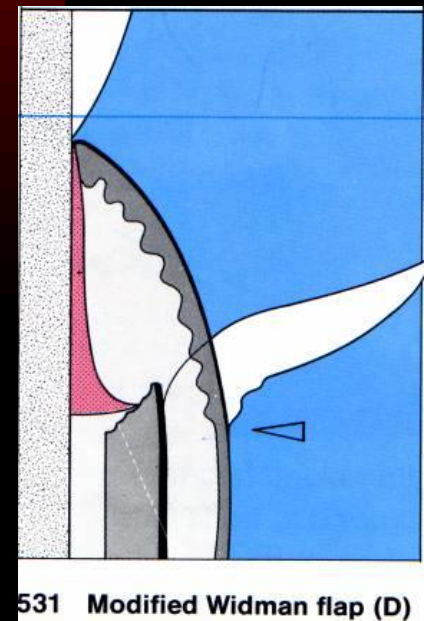
APICALLY REPOSITIONED FLAP

SURGERY OR CONSERVATIVE THERAPY ?

- WHICH CAN PROVIDE BETTER RESULTS AND MORE PREDICTABLE REGENERATION ?



531 Modified Widman flap (D)



531 Modified Widman flap (D)



THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS



SUBGINGIVAL CURETTAGE

ACCESS FLAP SURGERY

GINGIVECTOMY EXTERNAL

INTERNAL

APICALLY REPOSITIONED FLAP



SUBGIGNIVAL
CURETTAGE

BEFORE and
AFTER



SUBGINGIVAL CURETTE

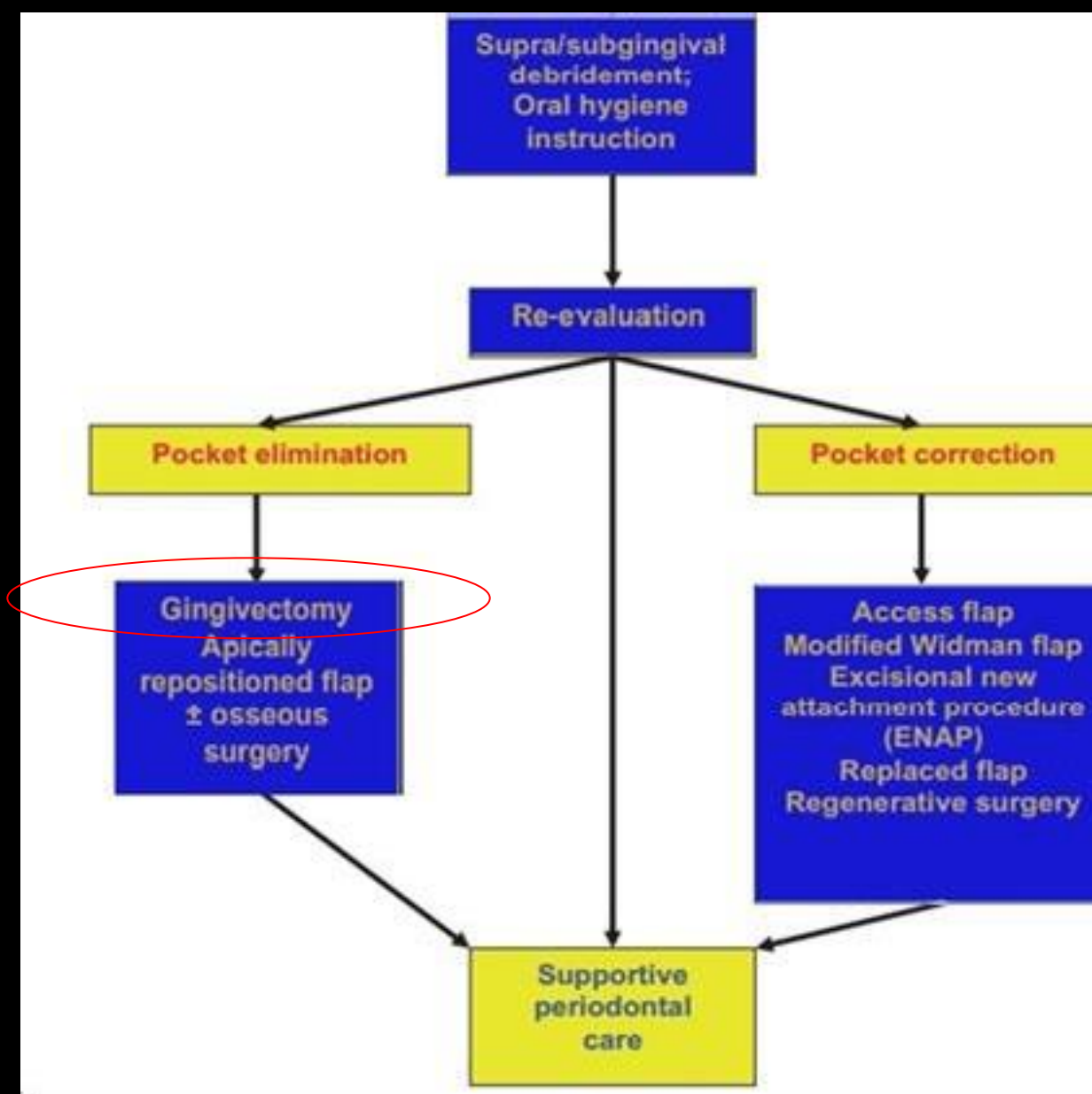
BOP 100 %

BASELINE

BOP 15%

AFTER SIX MONTHS

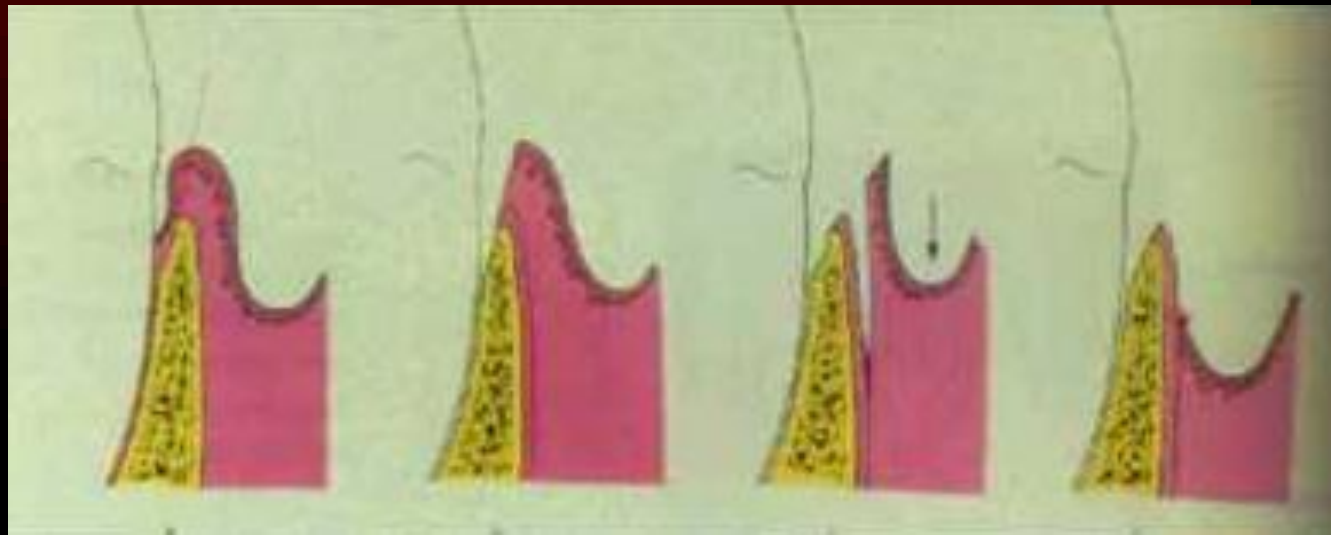
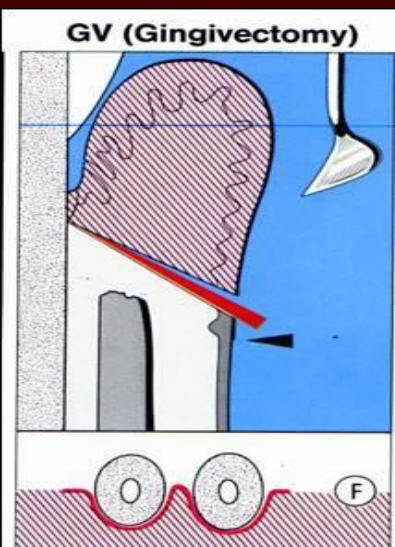




Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)

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

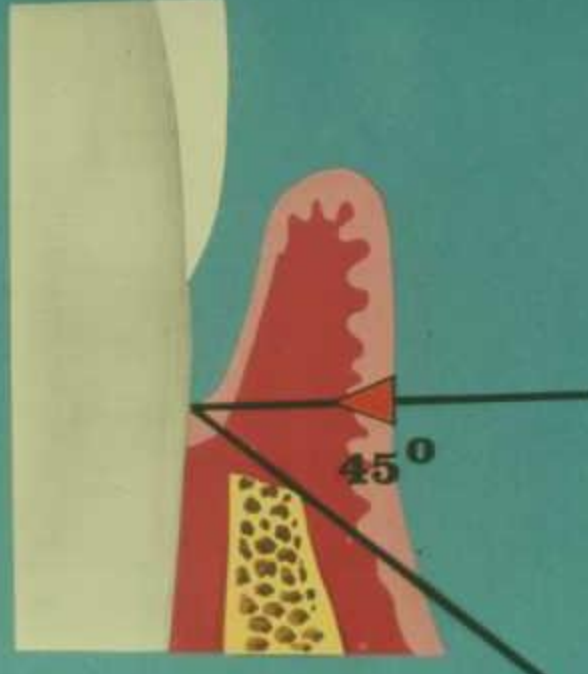


Advantages

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



Pocket wall resection



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

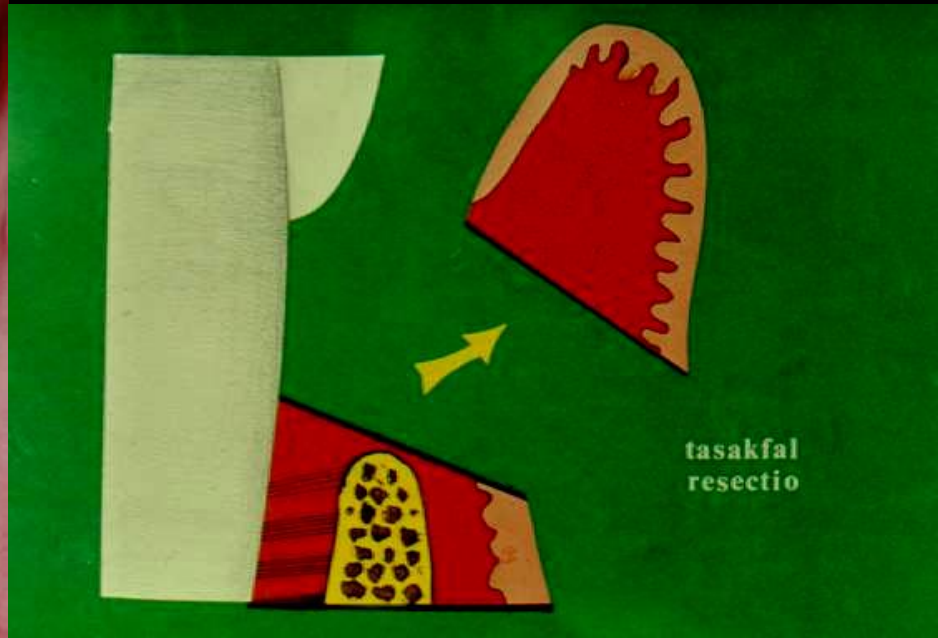
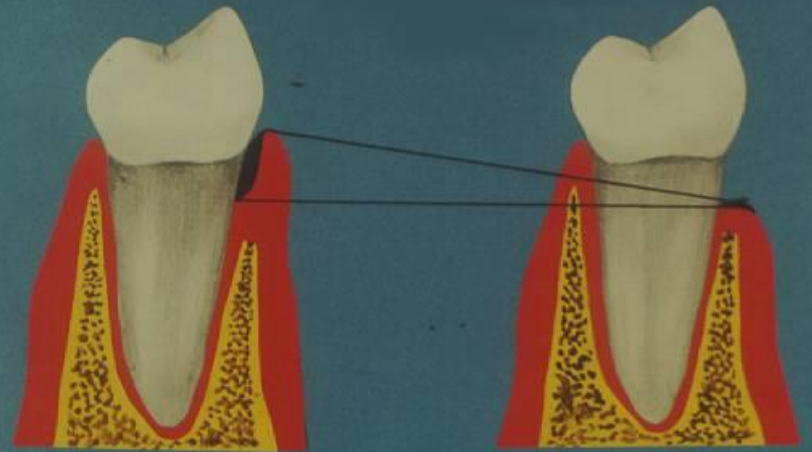


- **THE PERIODONTAL REATTACHMENT OR NEW ATTACHMENT ARE NOT AIMED**





GINGIVECTOMIA







THE MANAGEMENT OF SUPRACRESTAL SOFT TISSUE POCKETS

SUBGINGIVAL CURETTAGE

ACCESS FLAP SURGERY

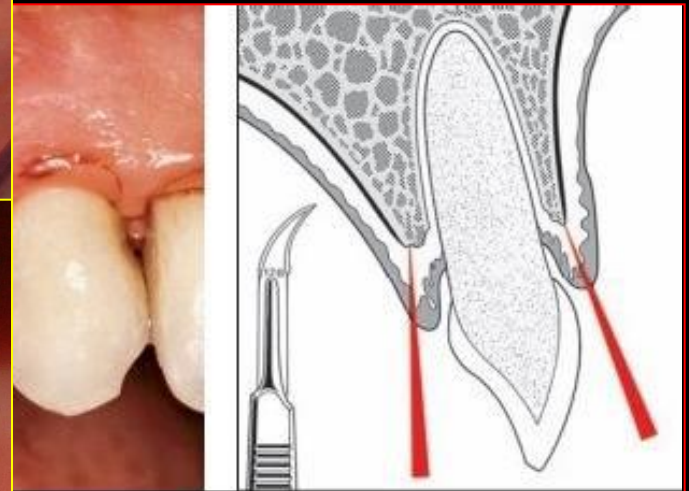
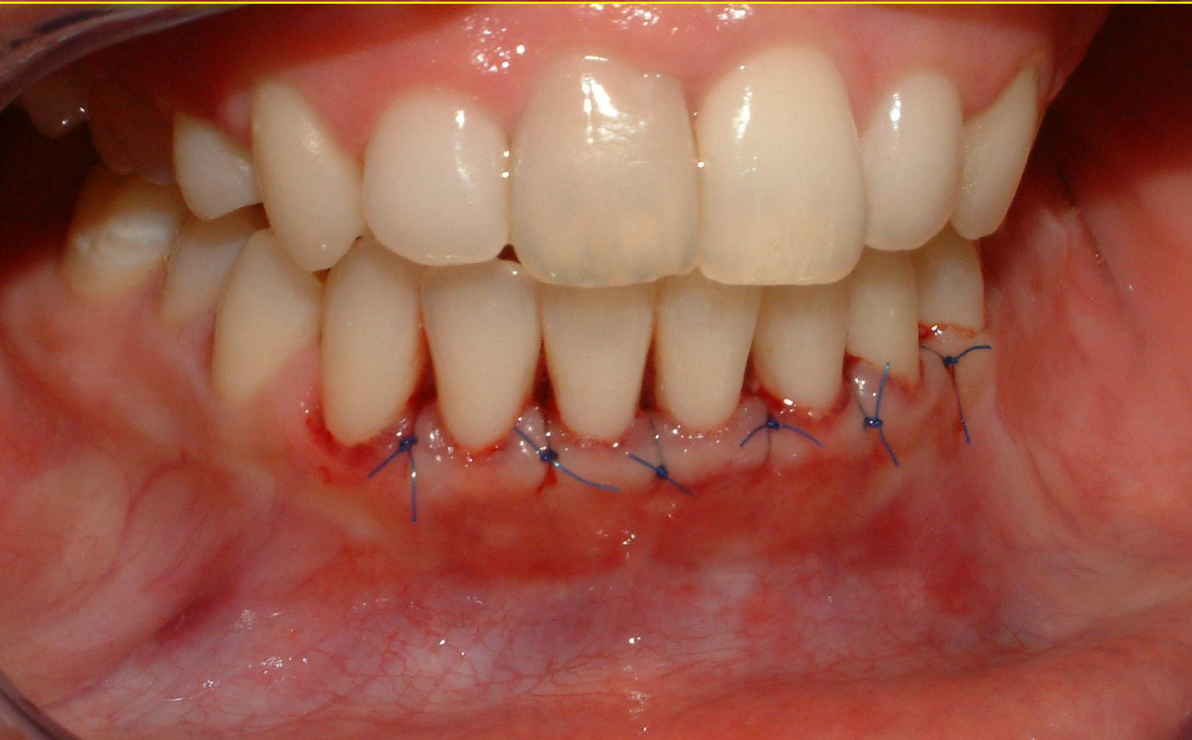
GINGIVECTOMY EXTERNAL



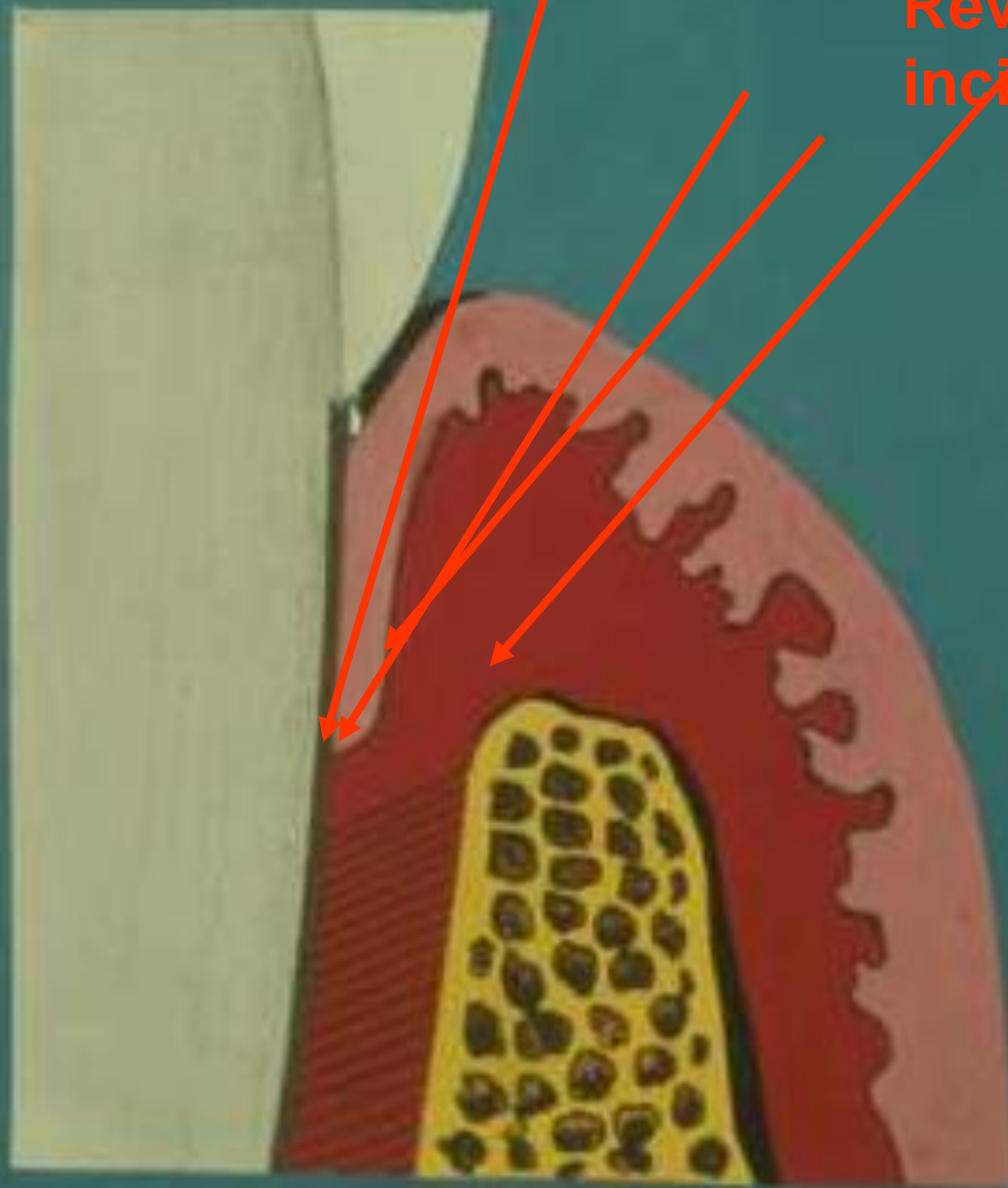
INTERNAL

APICALLY REPOSITIONED FLAP

INTERNAL REVERSE BEVEL GINGIVECTOMY



INTERNAL REVERSE BEVEL GINGIVECTOMY



**Reverse bevel
incision**



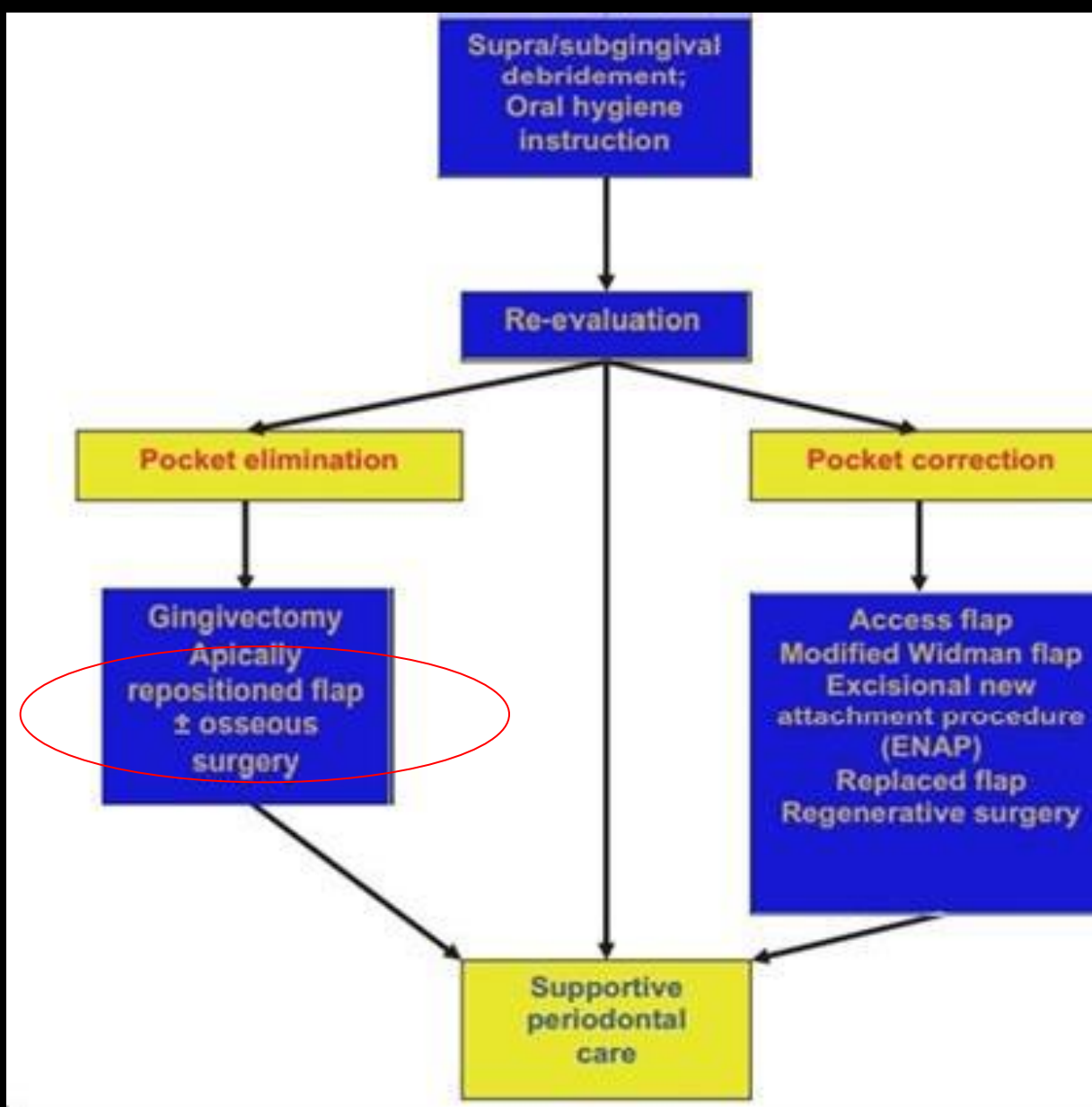
MINIMAL INVASIVE SURGERY



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

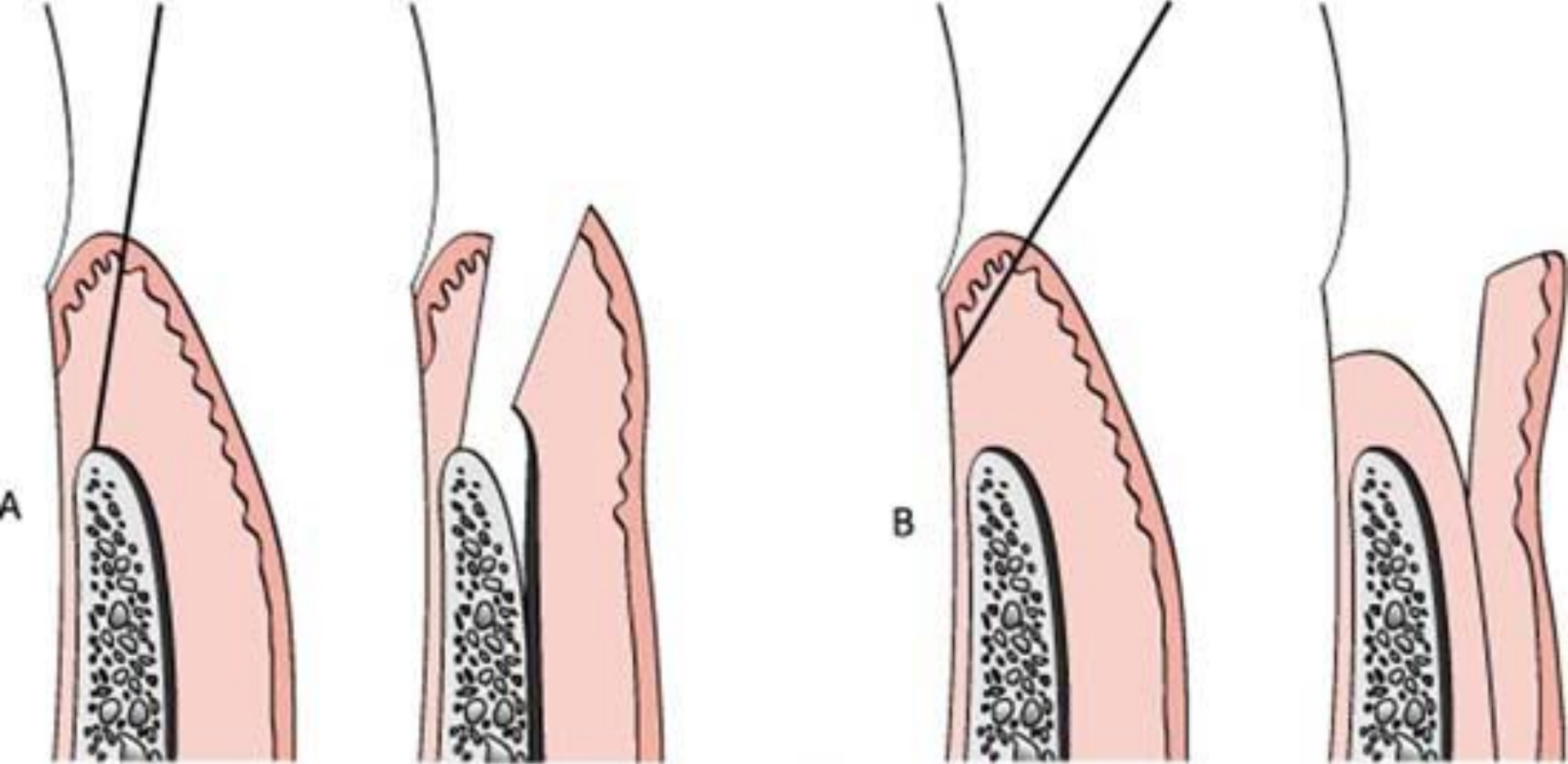
GINGIVECTOMY EXTERNAL

INTERNAL

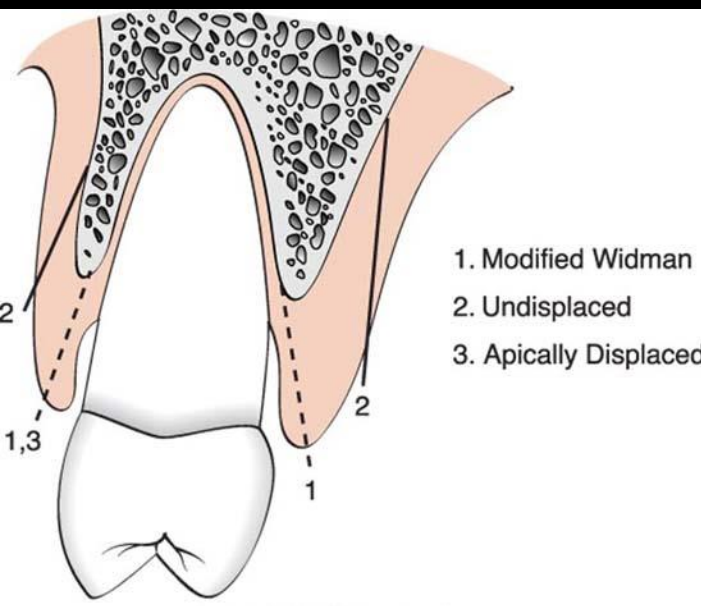


APICALLY REPOSITIONED FLAP





Periodontal flap surgeries



DISPLACED FLAPS

• Apically repositioned

- Full thickness

- Partial thickness

Coronally repositioned

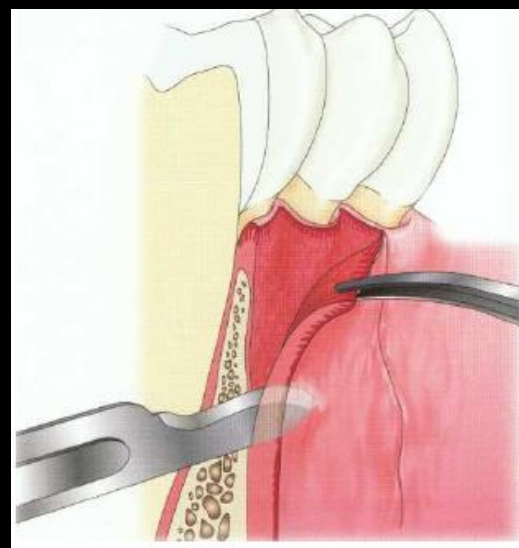
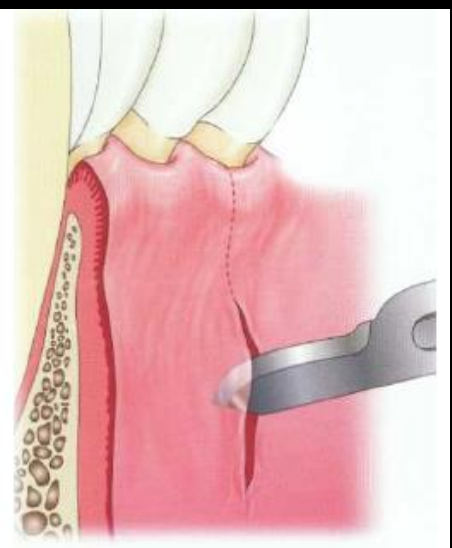
- Full thickness

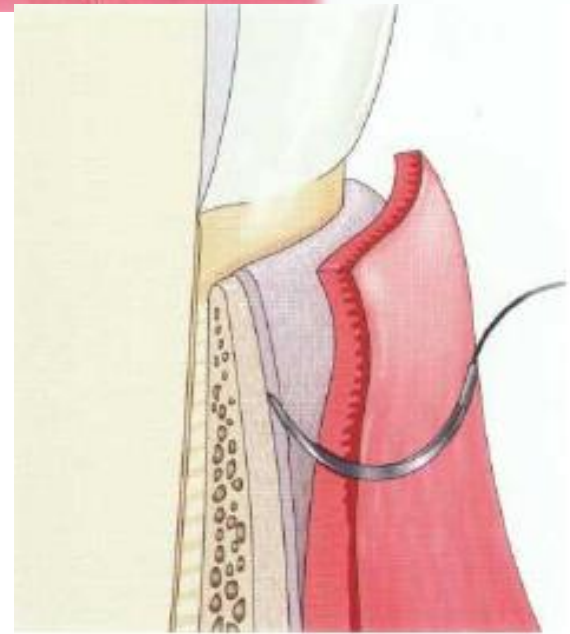
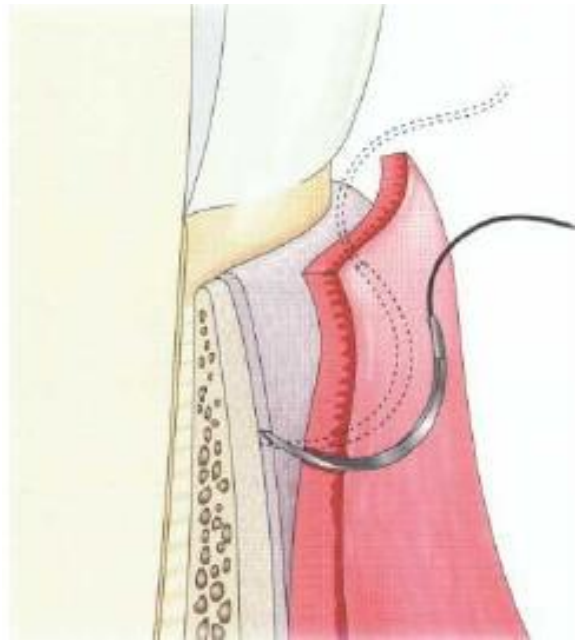
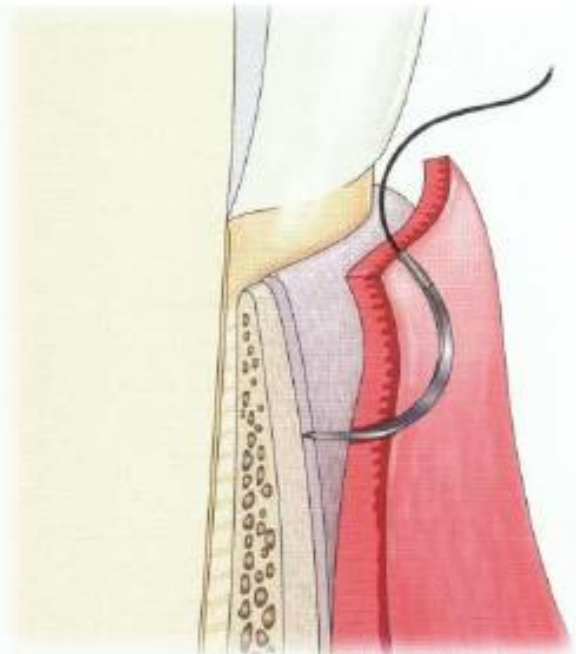
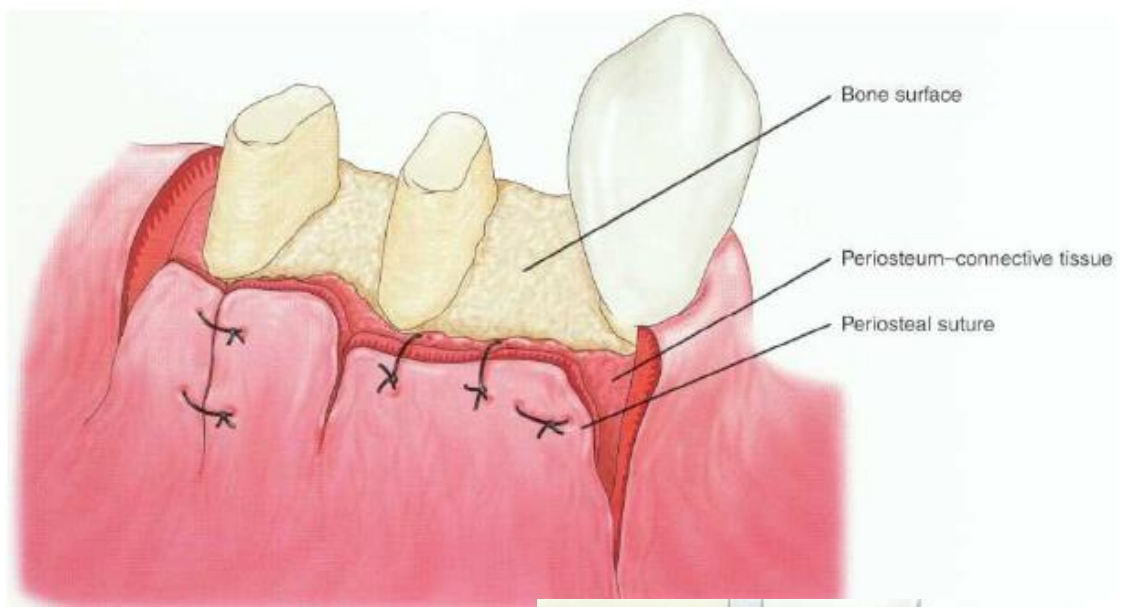
- Partial thickness

• Laterally repositioned

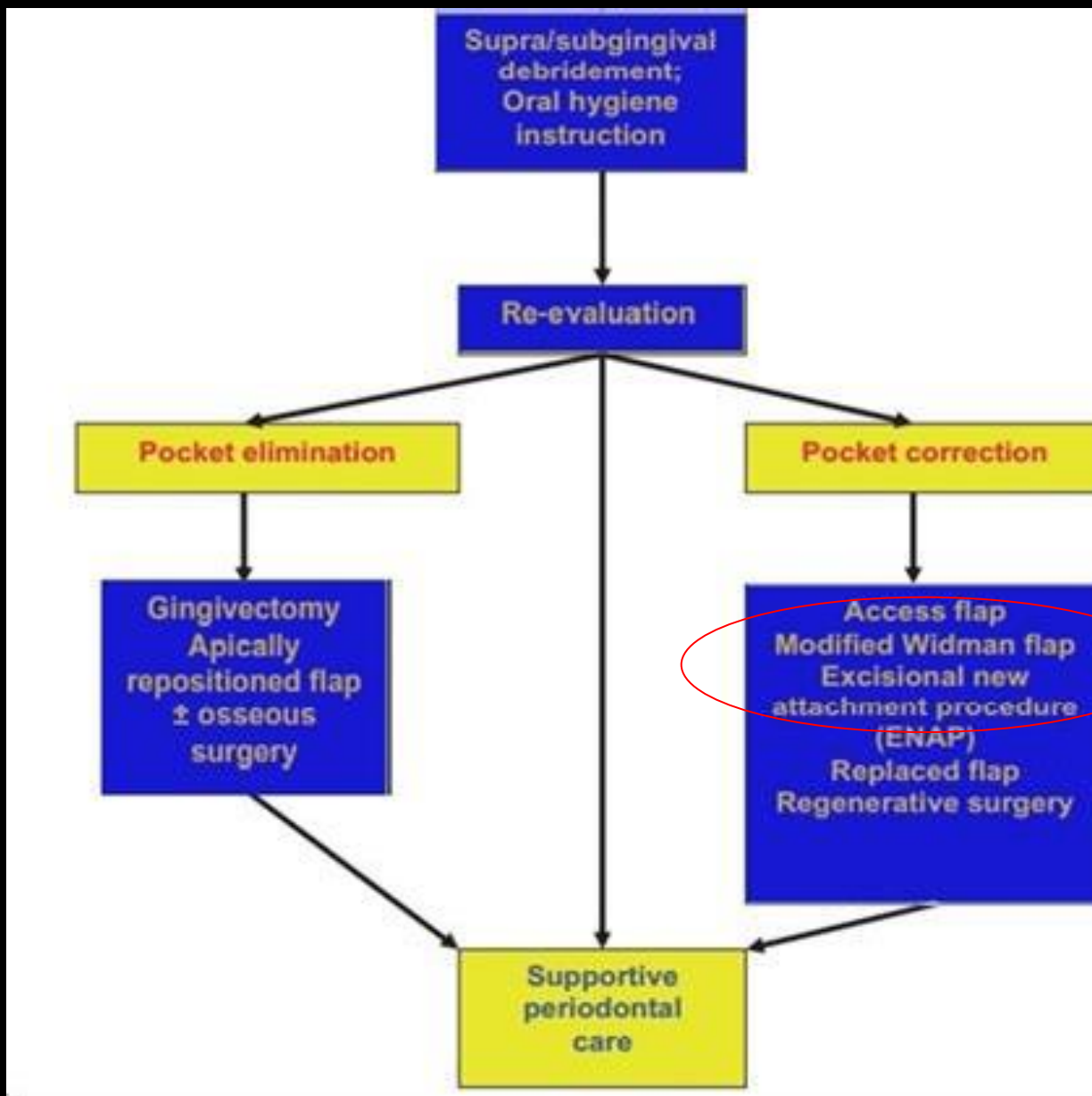
- Full thickness

- Partial thickness









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

MODIFIED WIDMAN FLAP



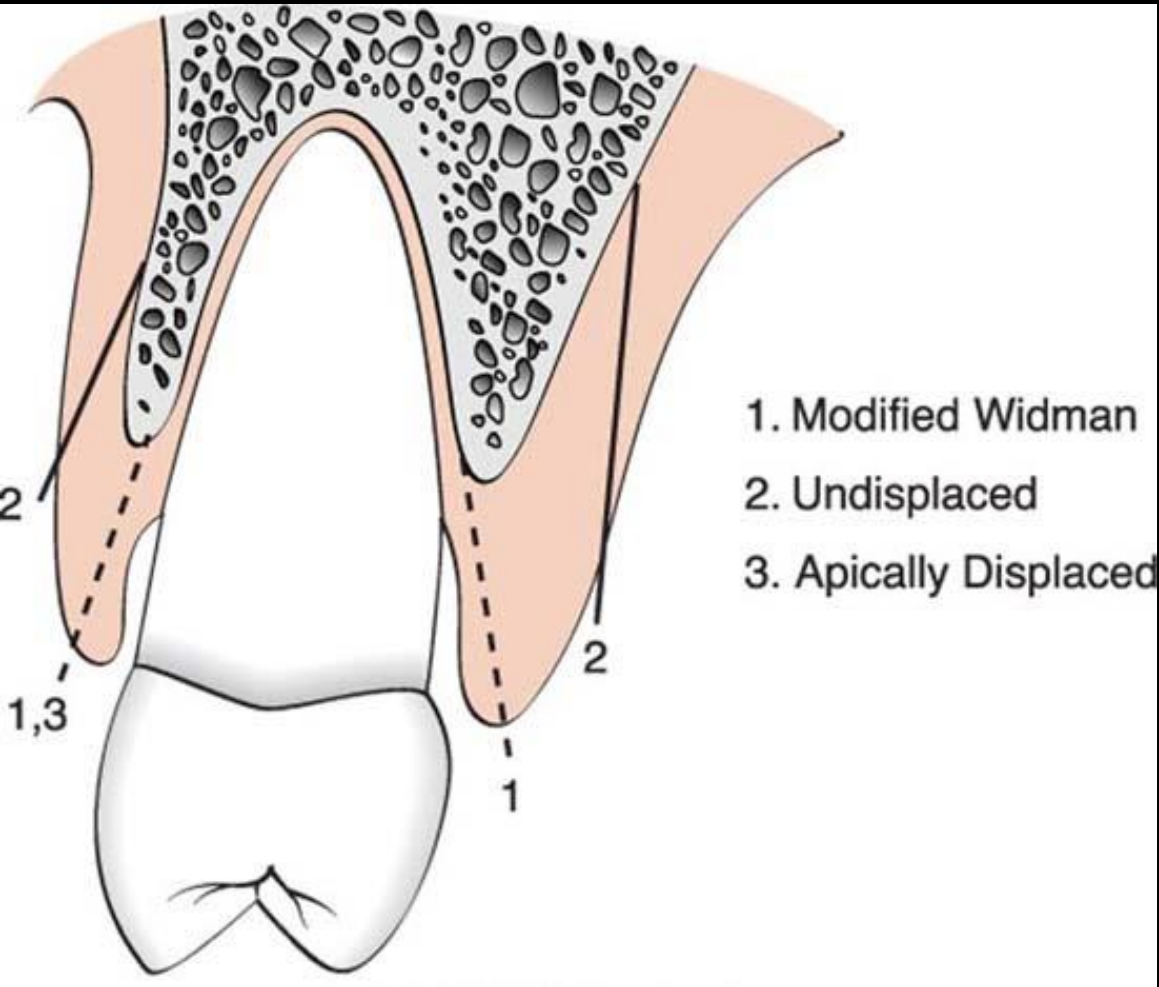
**MÓDOSÍTOTT
WIDMAN LEBENY**

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



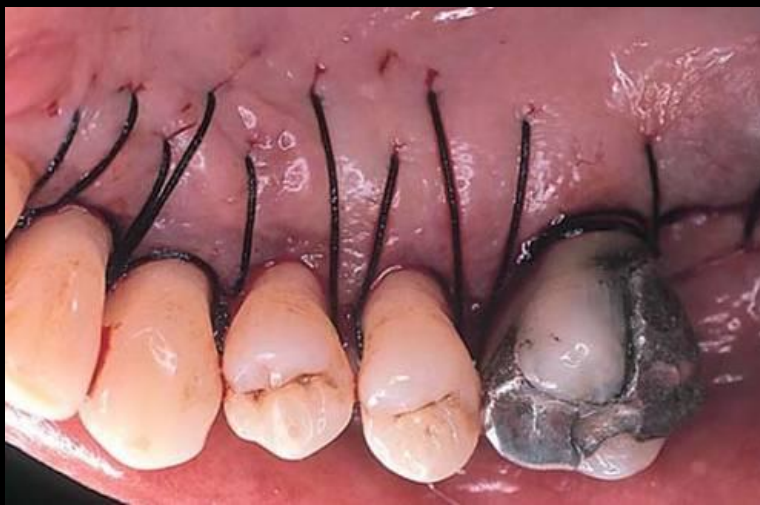
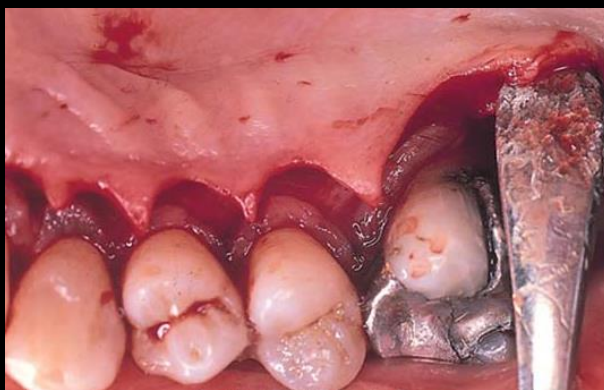
Access flap surgery

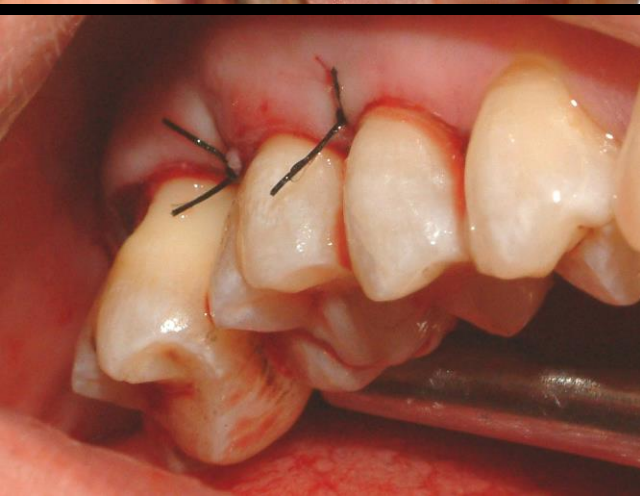
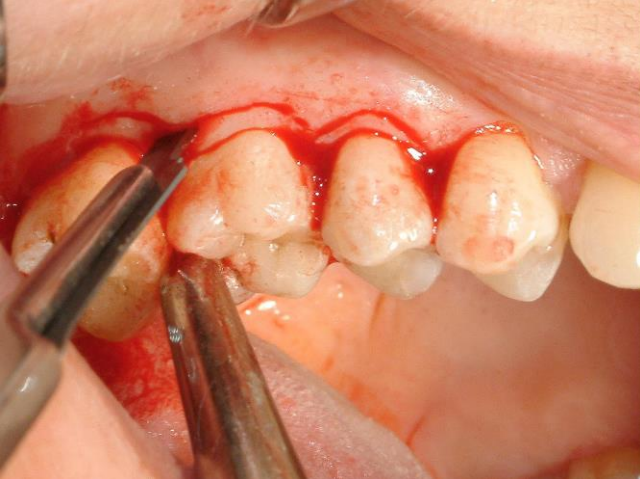
Gingival reduction

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.

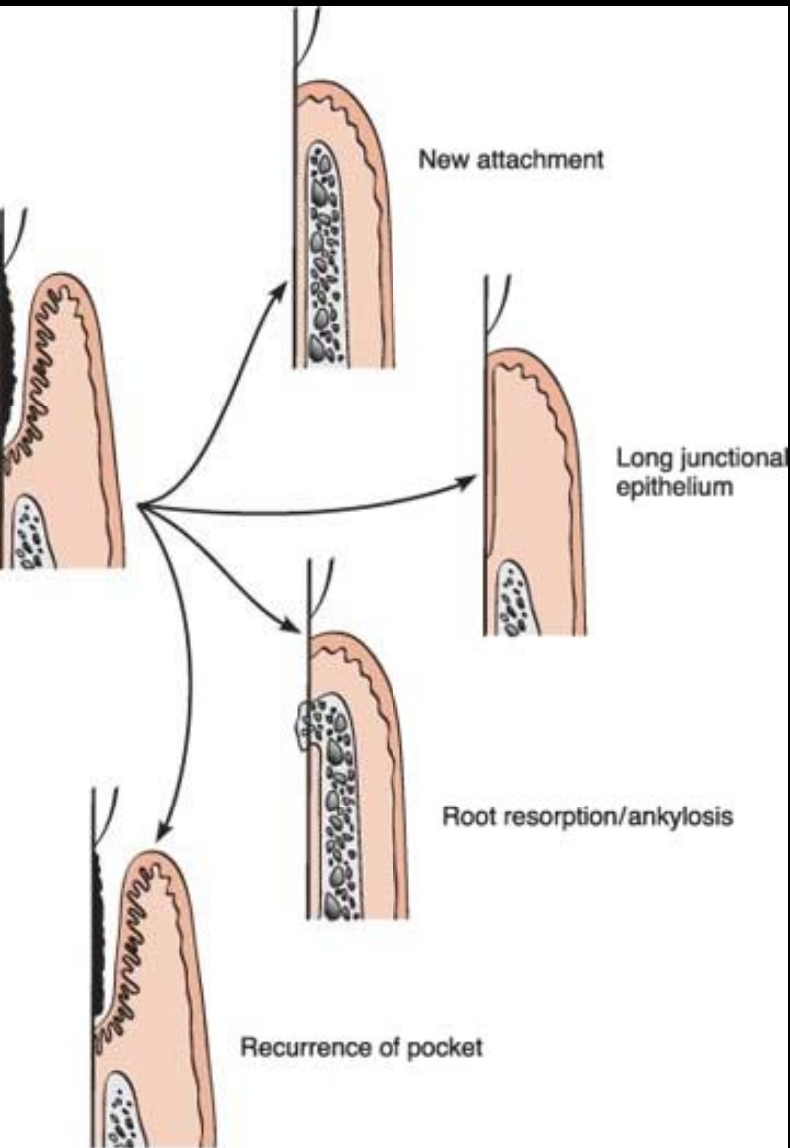
do not aim at surgical pocket elimination and apical displacement of the flap.

Advantages

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

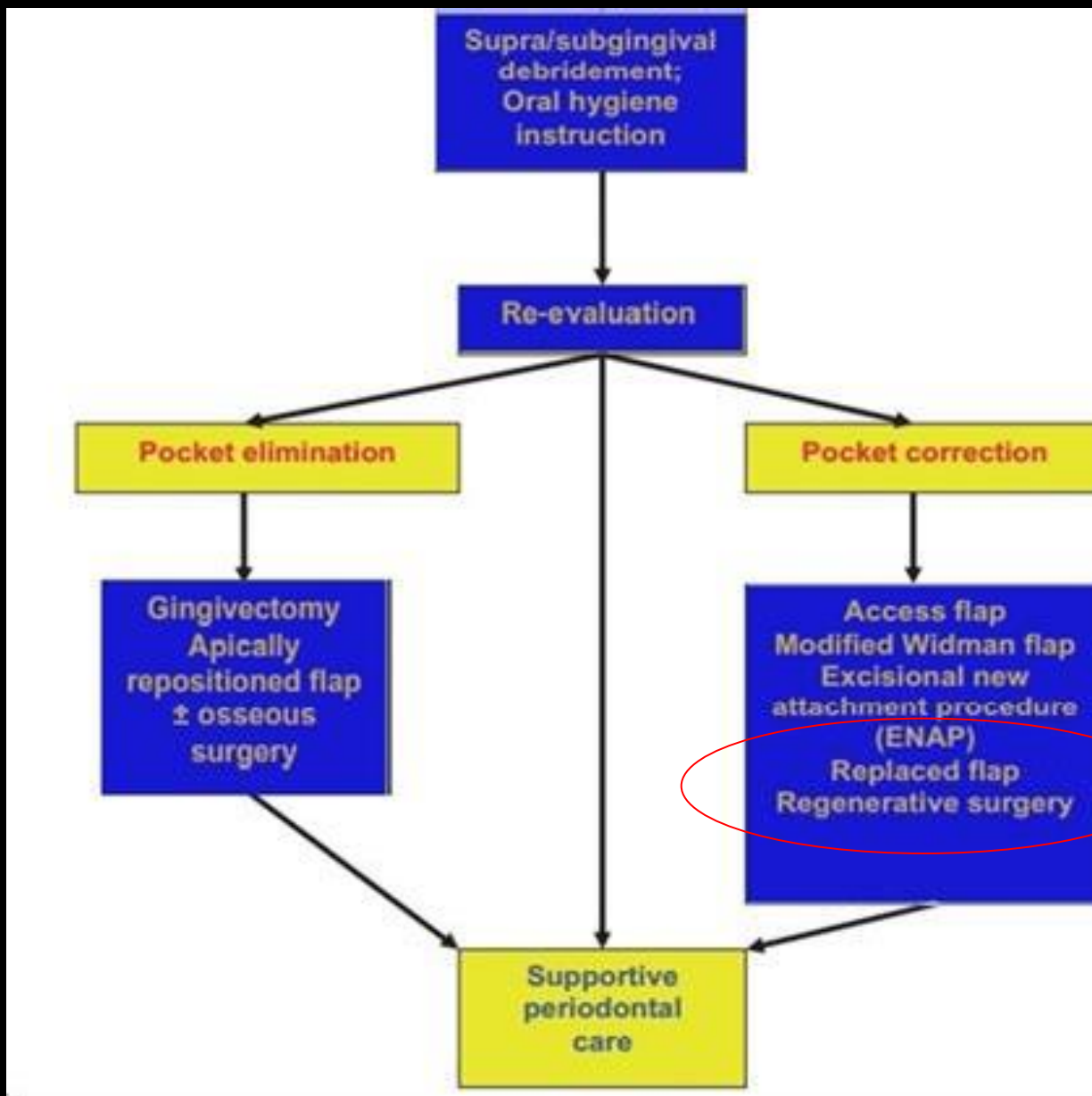


MODIFIED WIDMAN FLAP AND REGENERATIVE PERIODONTAL SURGERY

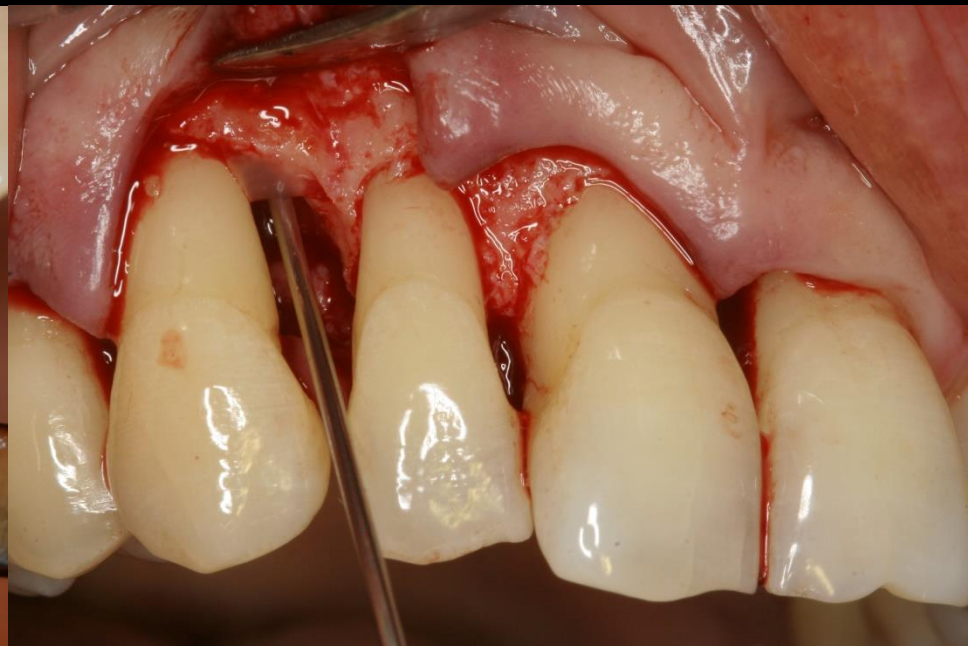
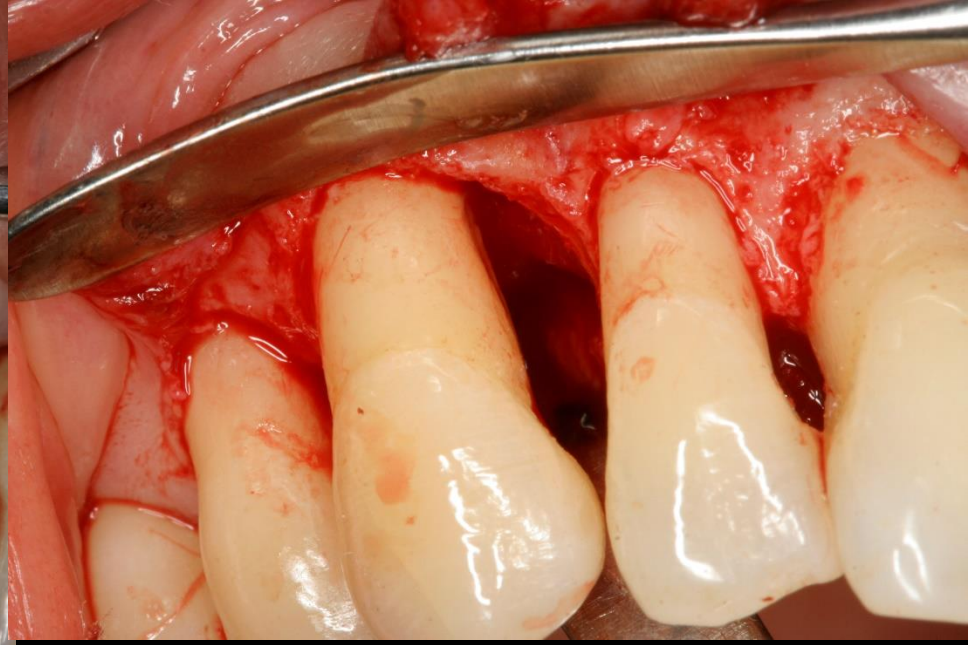


**NEW
ATTACHMENT
DEVELOPS ONLY
AT THE BOTTOM
OF THE POCKET**

**LONG
JUNCTIONAL
EPITHELIAL
ATTACHMENT**



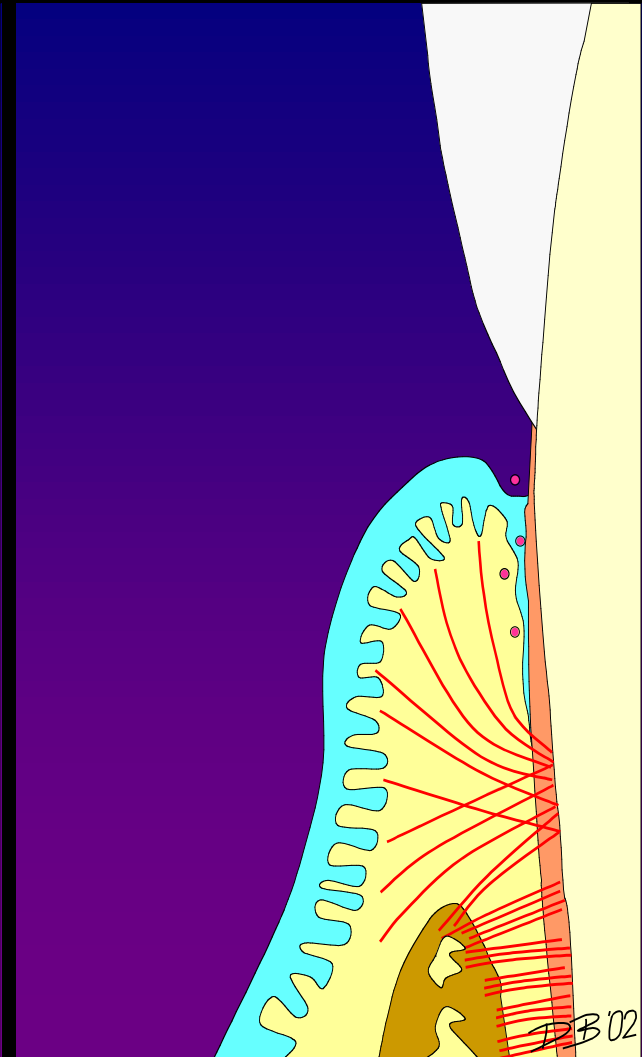
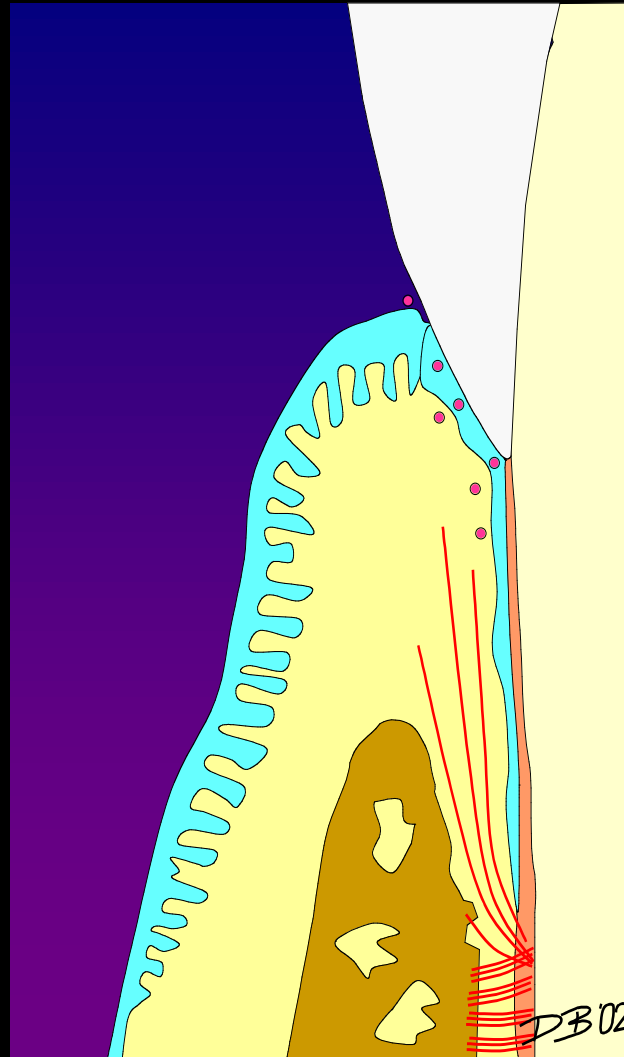
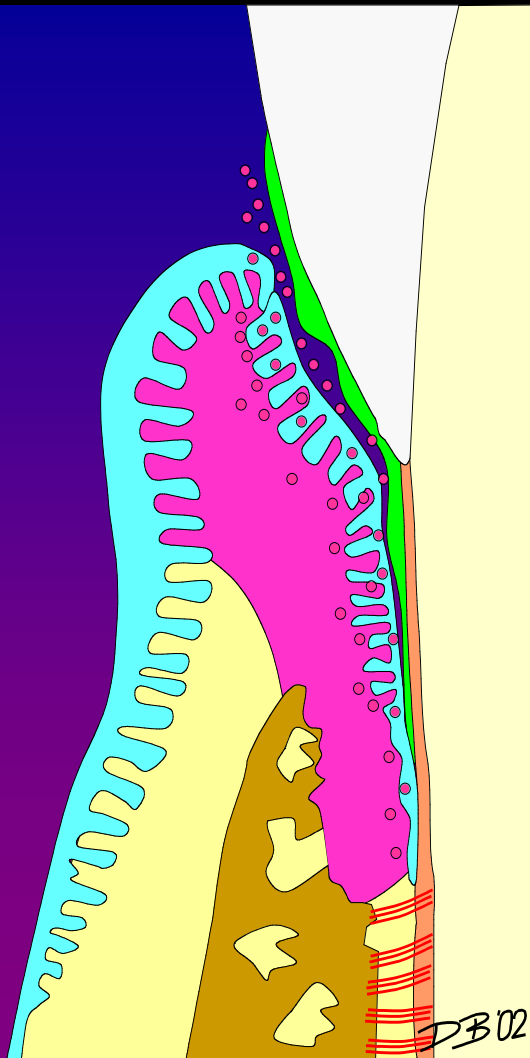
Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)



Periodontitis

Reparation

Regeneration



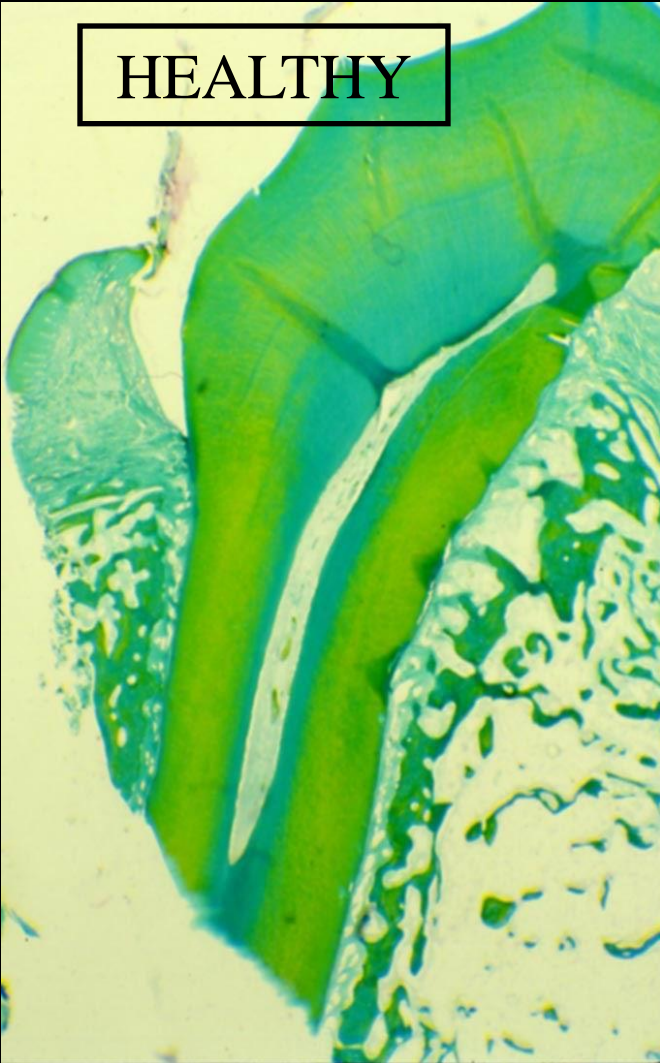
(NEW PERIODONTAL ATTACHMENT)

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



PERIODONTIUM

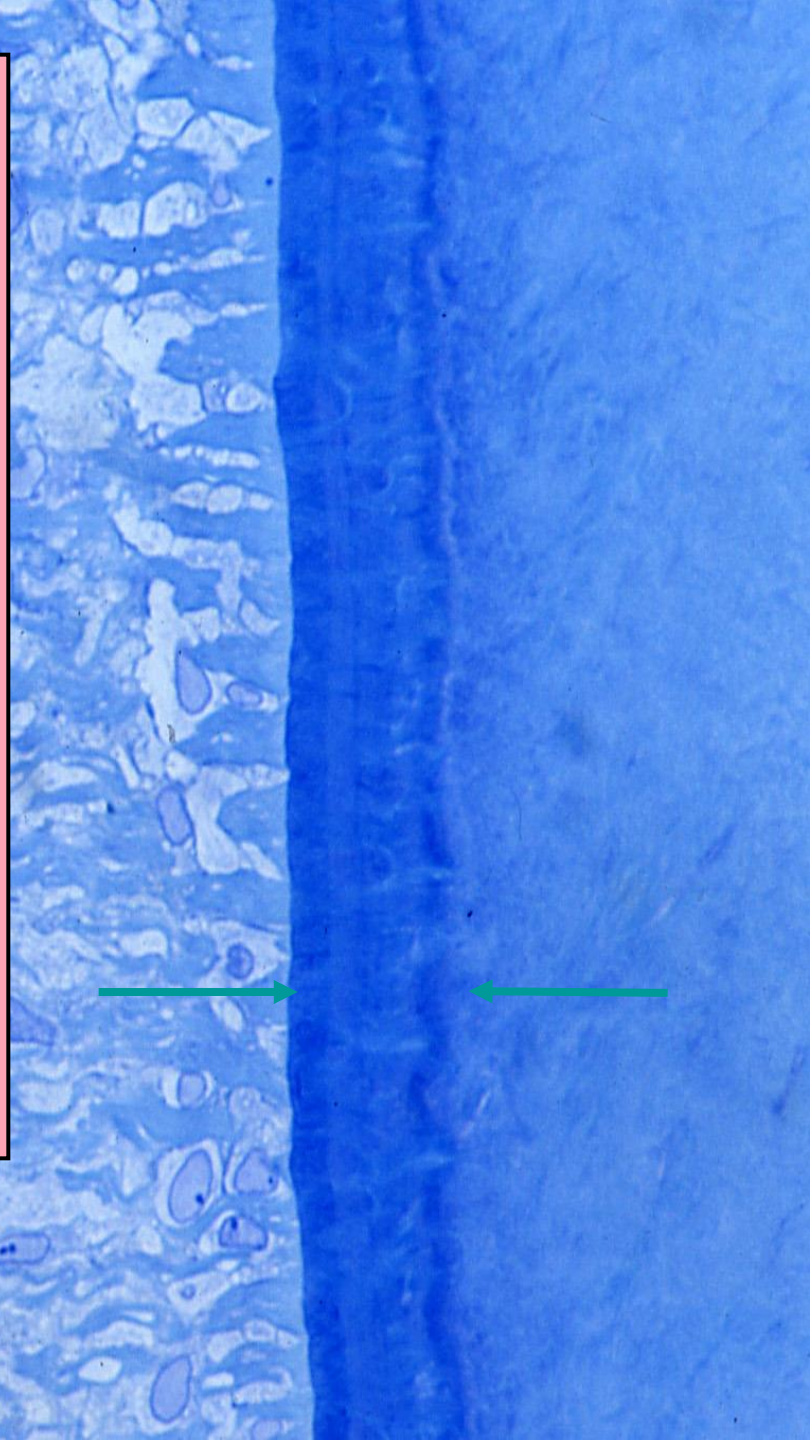
HEALTHY



DISEASED



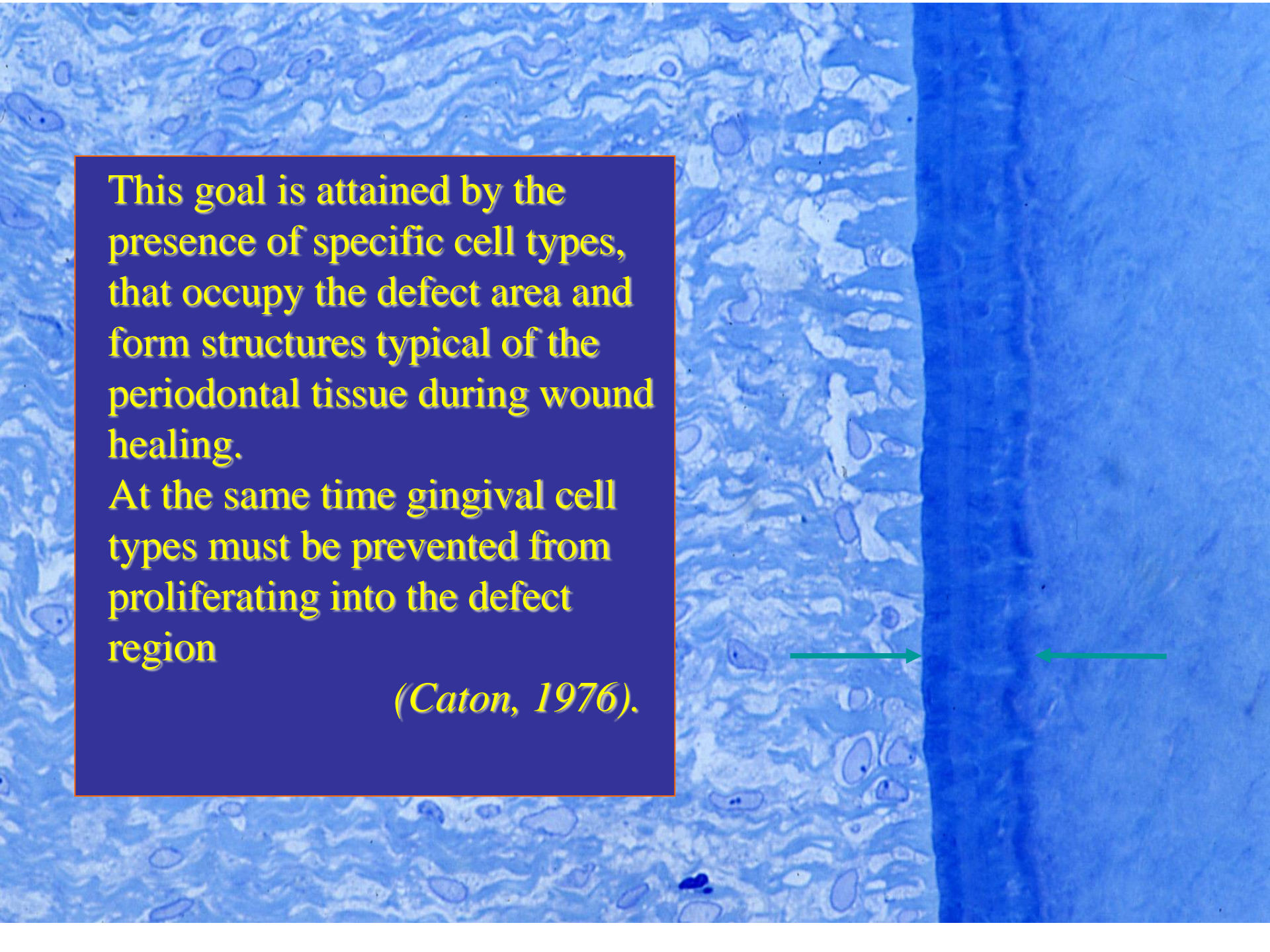
- **PERIODONTAL REGENERATION INVOLVS THE REFORMATION OF ALL THE THREE ELEMENTS OF THE ATTACHMENT APPARATUS:**
- **CEMENTUM**
- **BONE**
- **PERIODONTAL LIGAMENT**



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

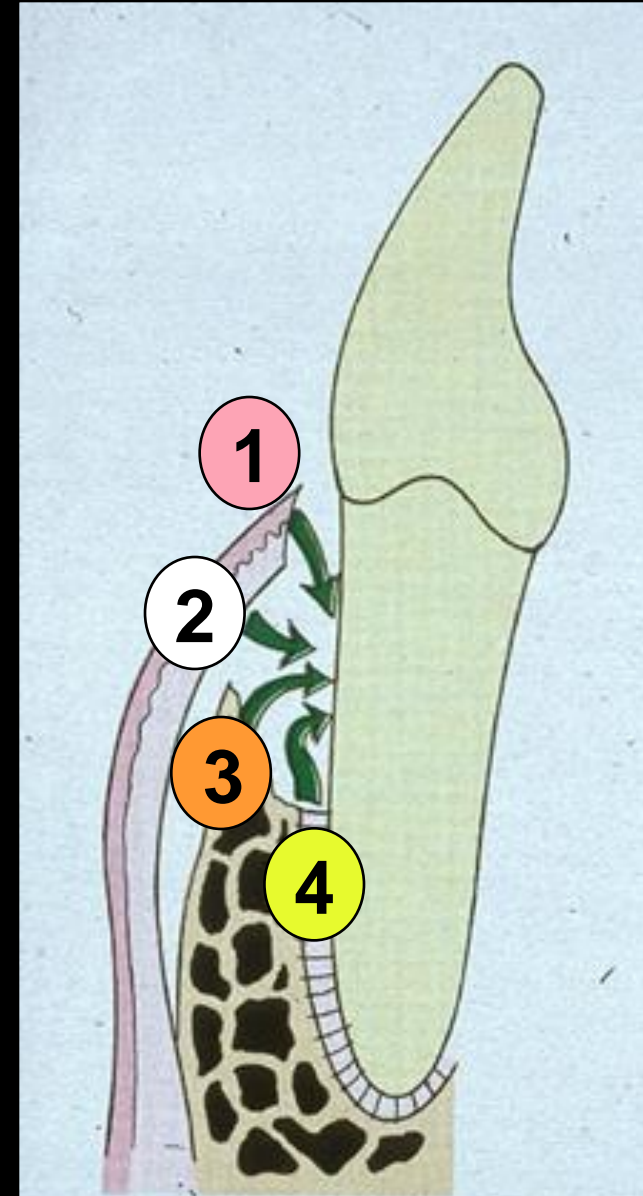
AFTER FLAP OPERATION THE
WOUND CAN BE REPOPULATED BY
FOUR GROUP OF CELLS:

Epithelial cells

Gingival connective tissue

Alveolar bone cells

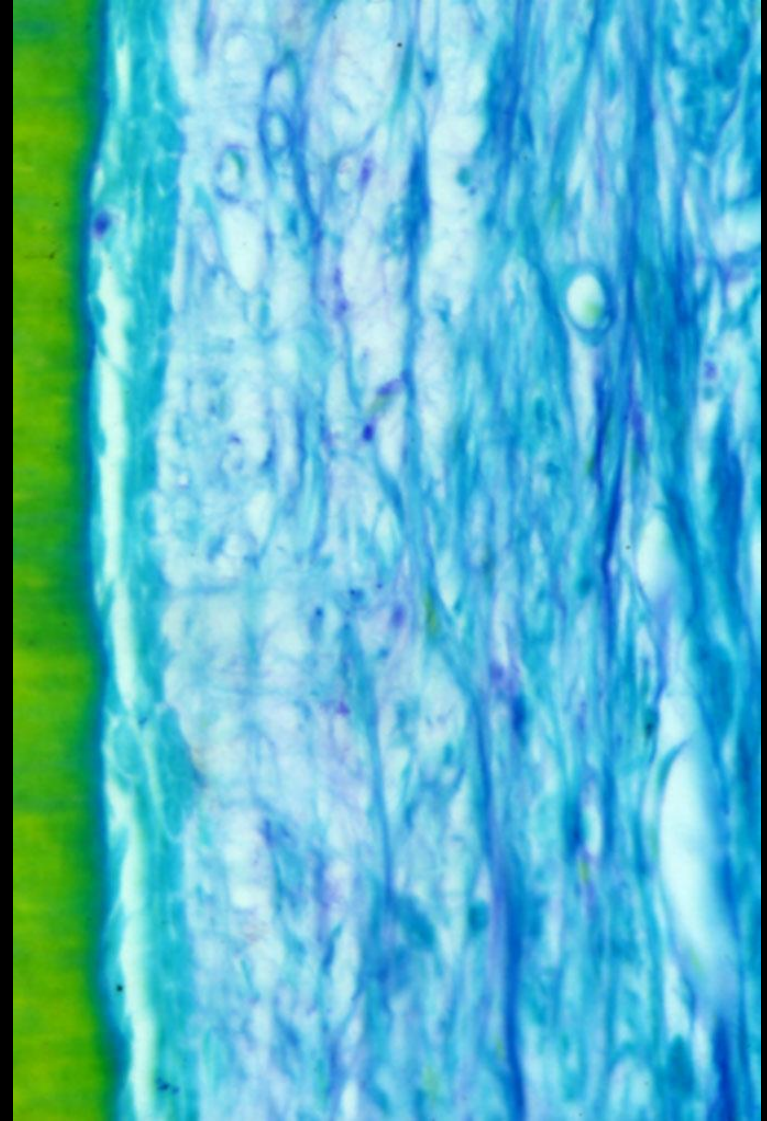
Periodontal ligament cells



PERIODONTAL WOUND HEALING

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

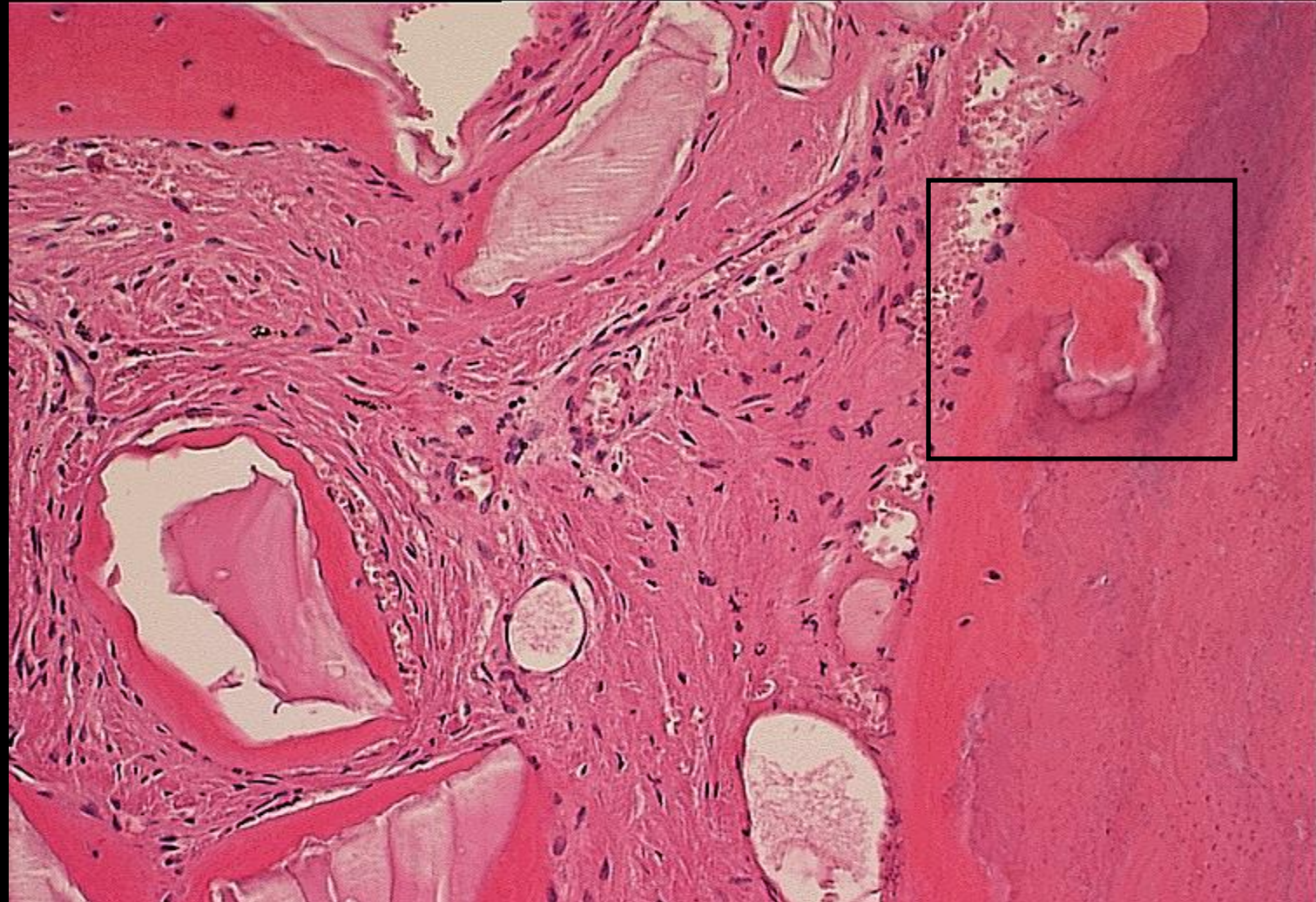
LONG JUNCTIONAL EPITHELIAL ATTACHMENT (LJE)



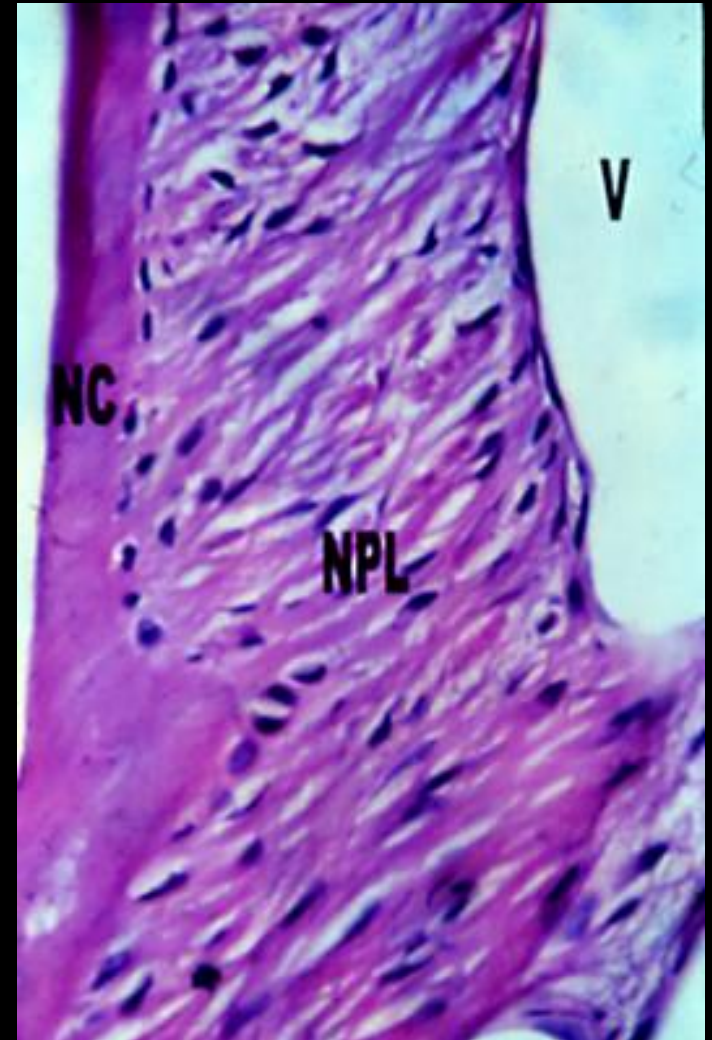
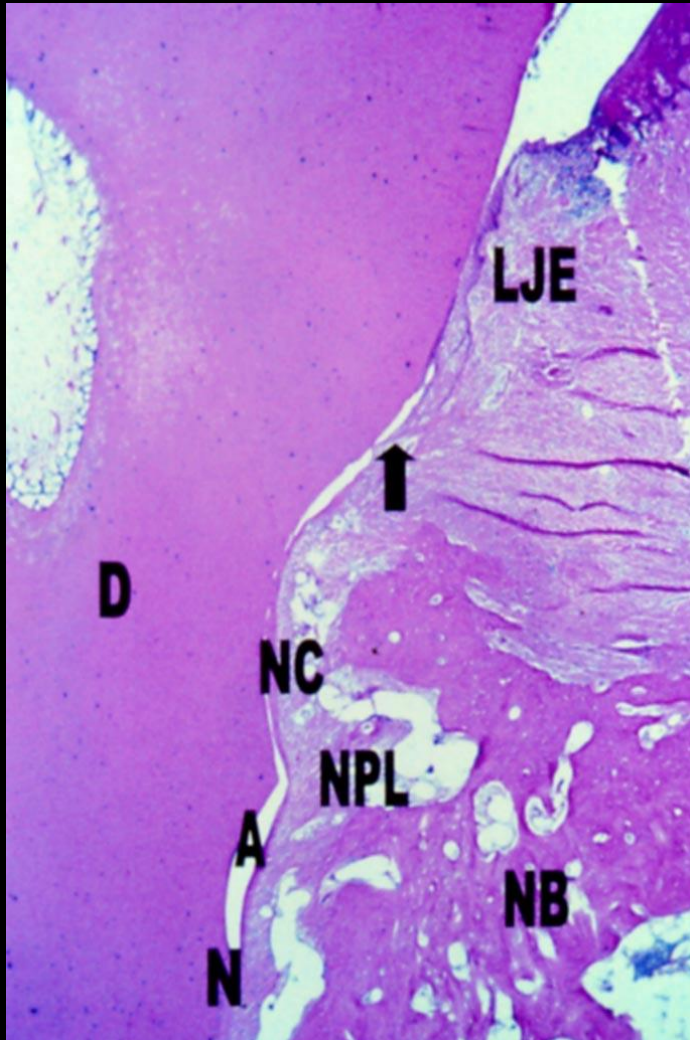
ANKYLOSIS



CEMENTUM RESORPTION

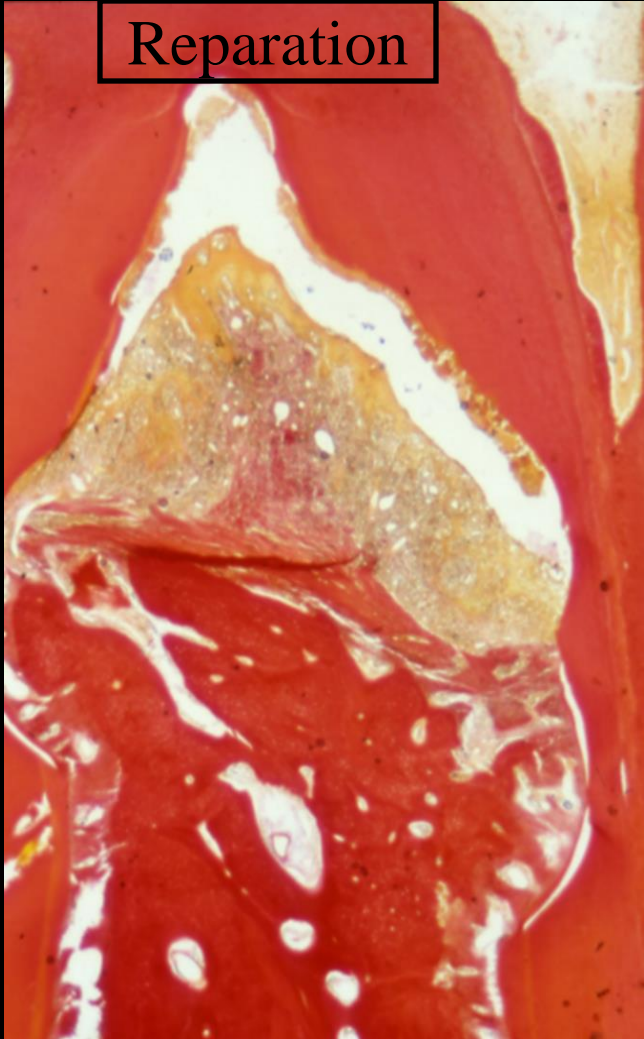


PERIODONTAL REGENERATION



WOUND HEALING

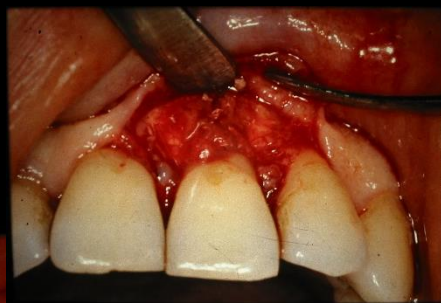
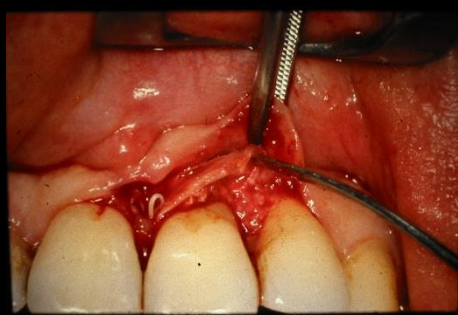
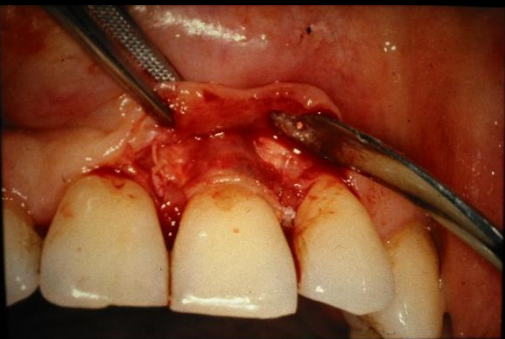
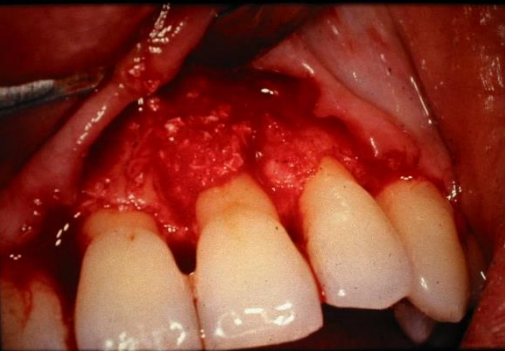
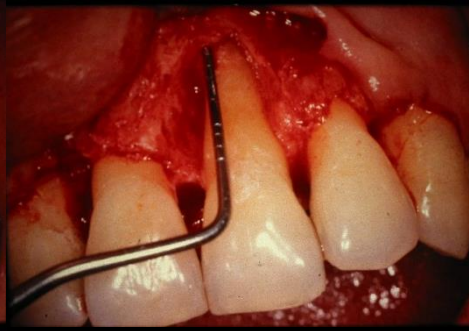
Reparation

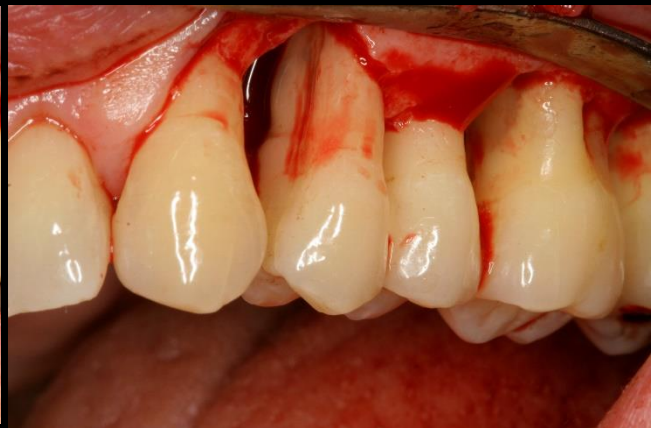


Regeneration









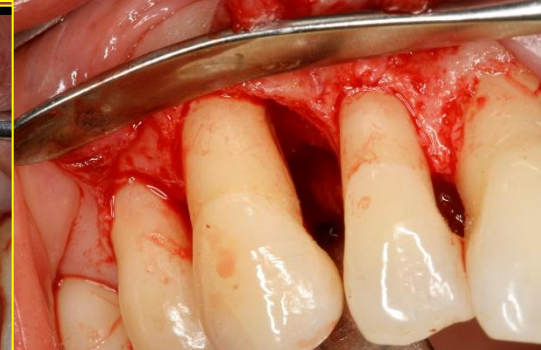
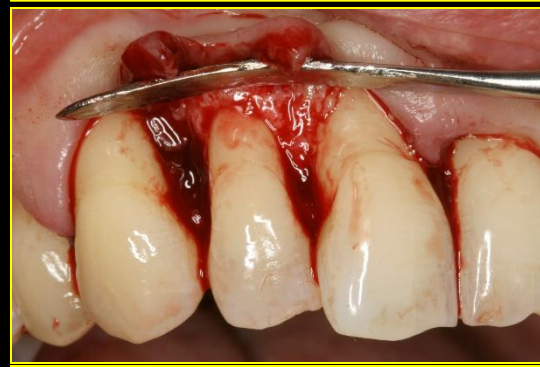
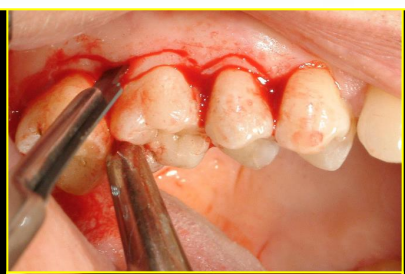
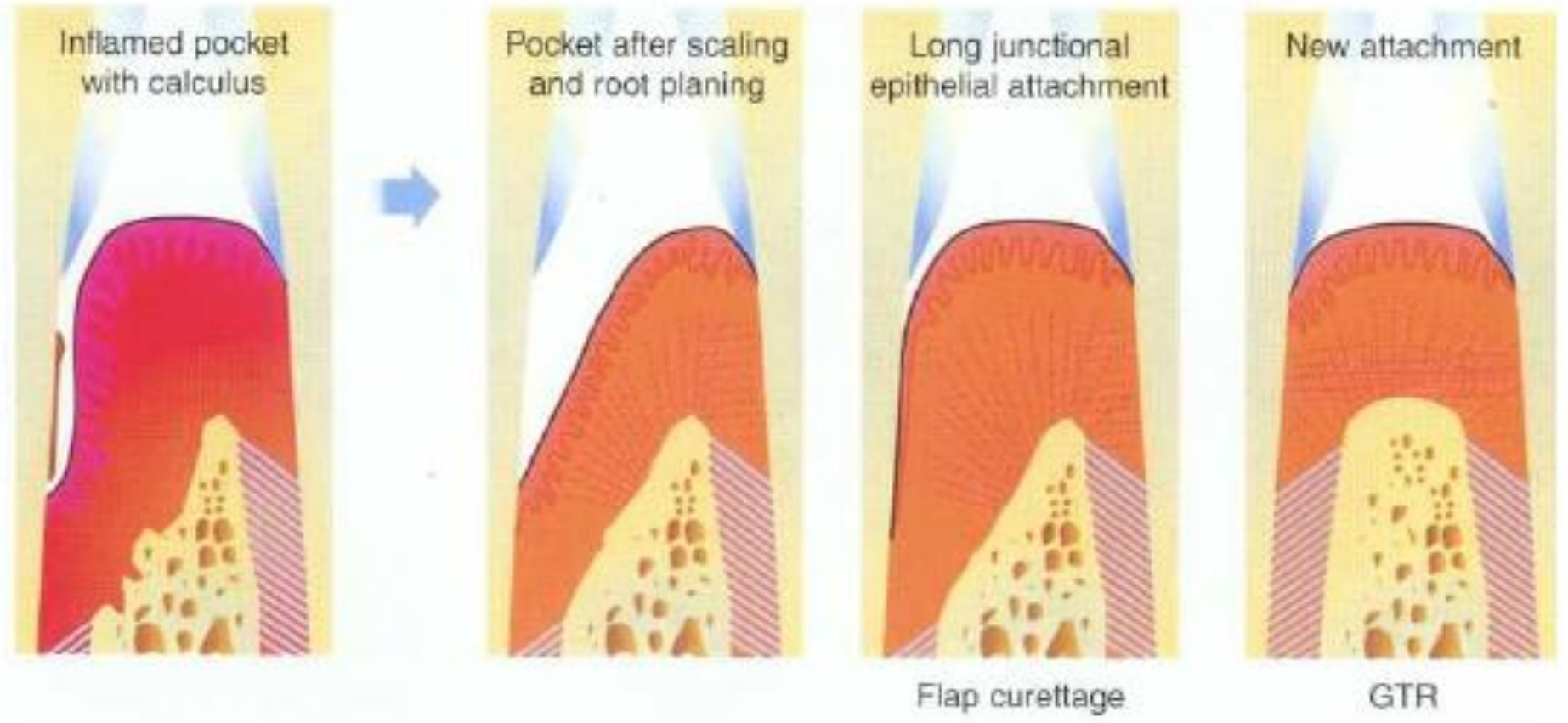
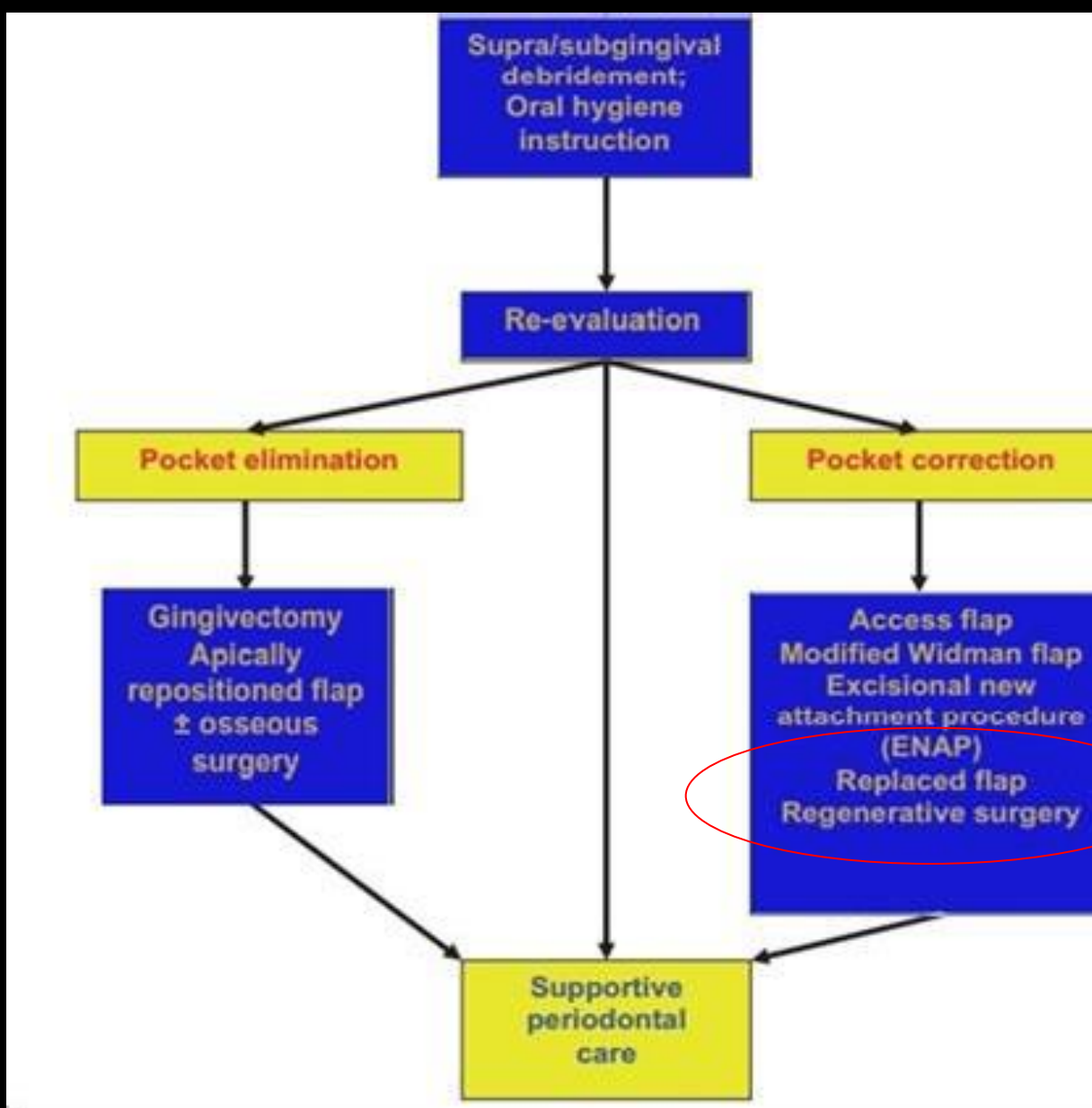




Fig 17. Attachment pocket eliminated by root attachment

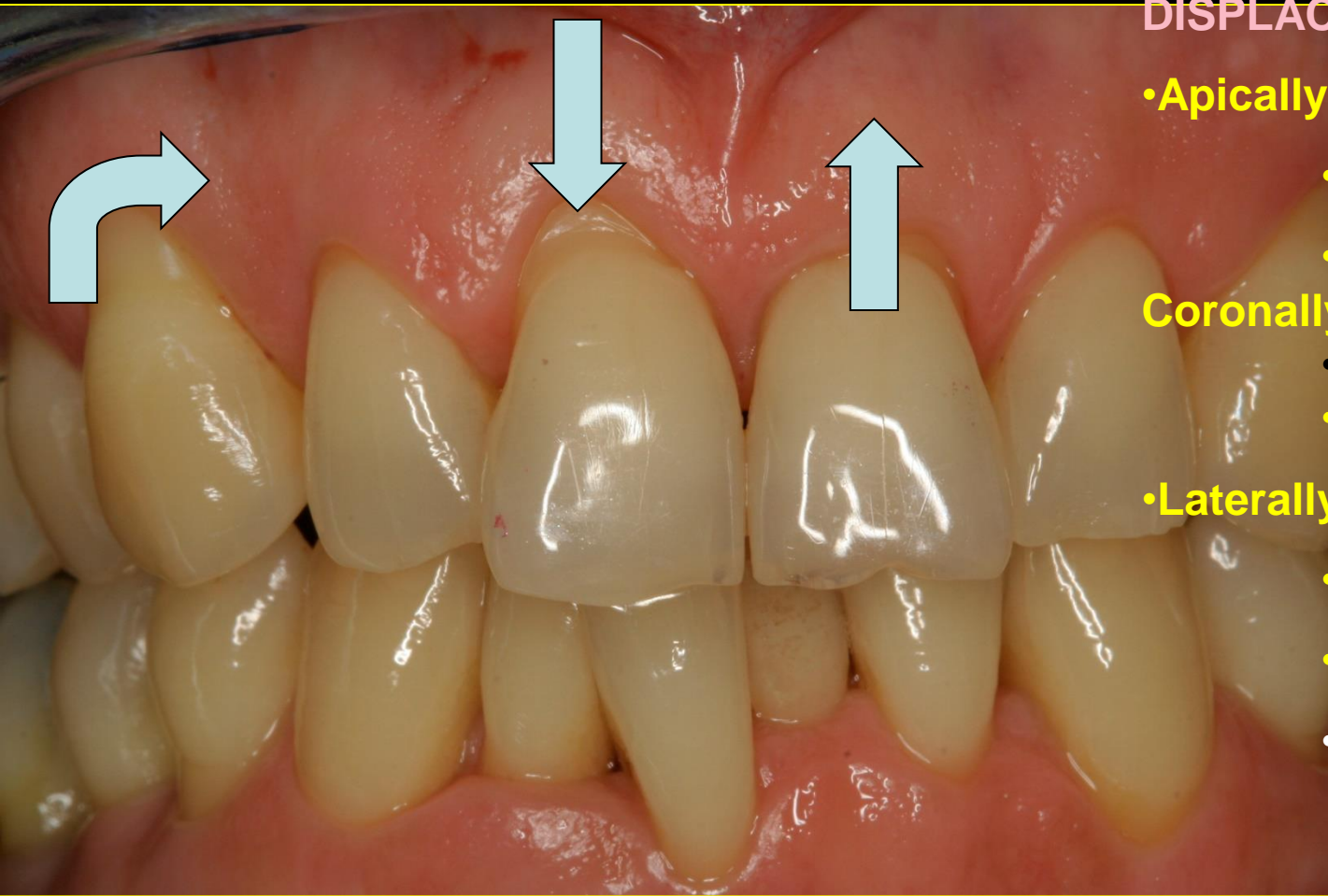




Schematic representation of a typical treatment regimen for periodontitis patient management (Jan Lindhe, Clinical Periodontology and Implant Dentistry (2008), p767)



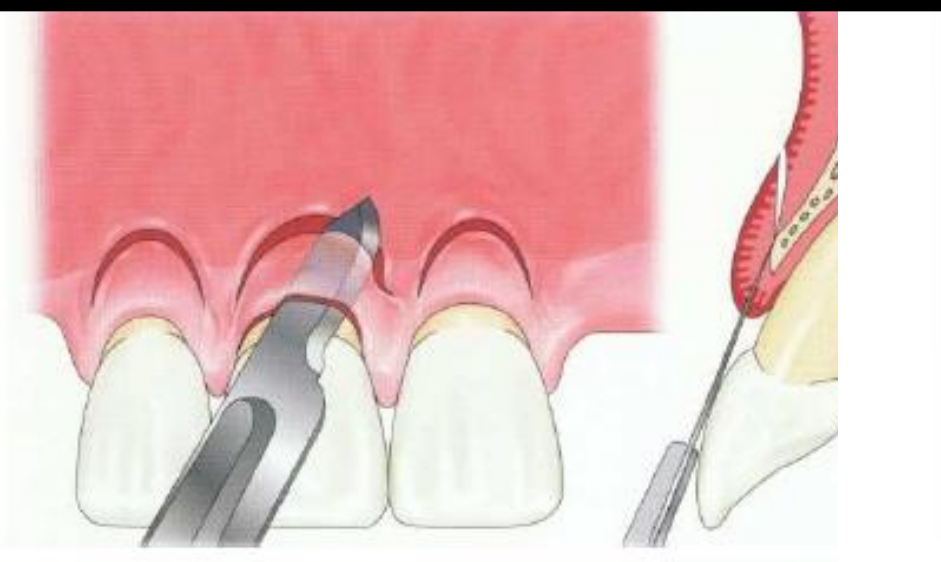
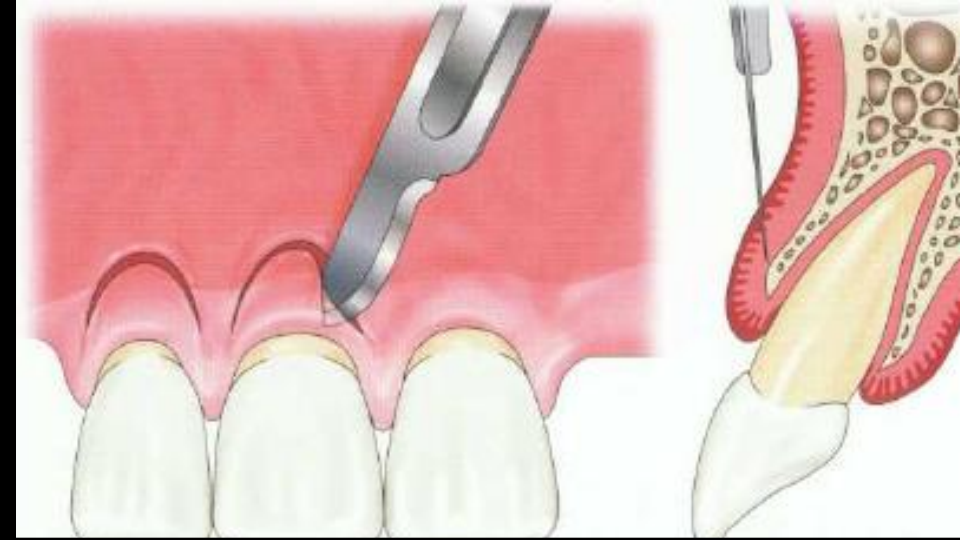
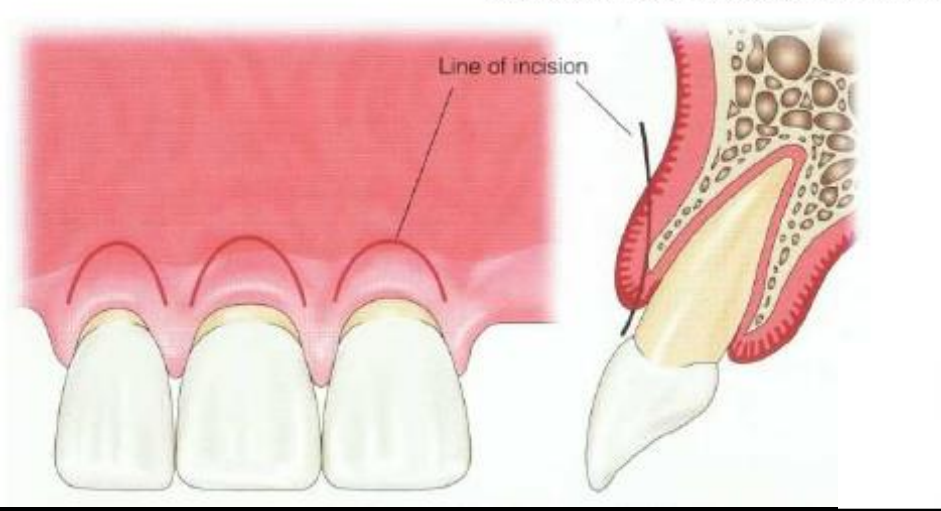
Periodontal flap surgeries



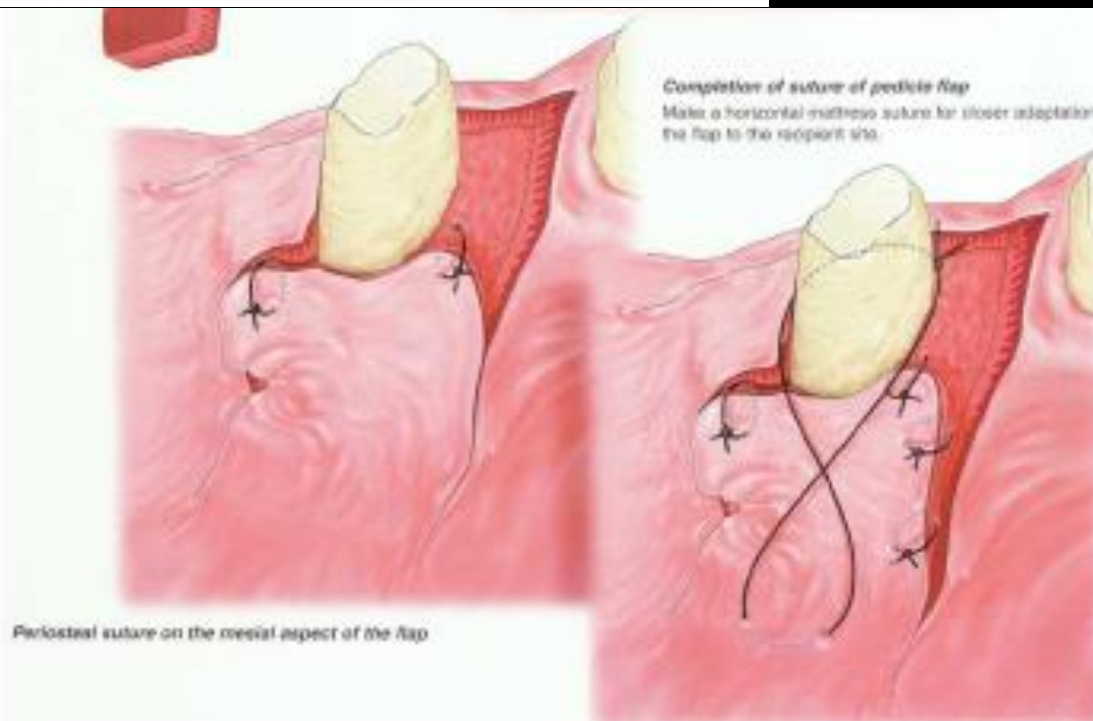
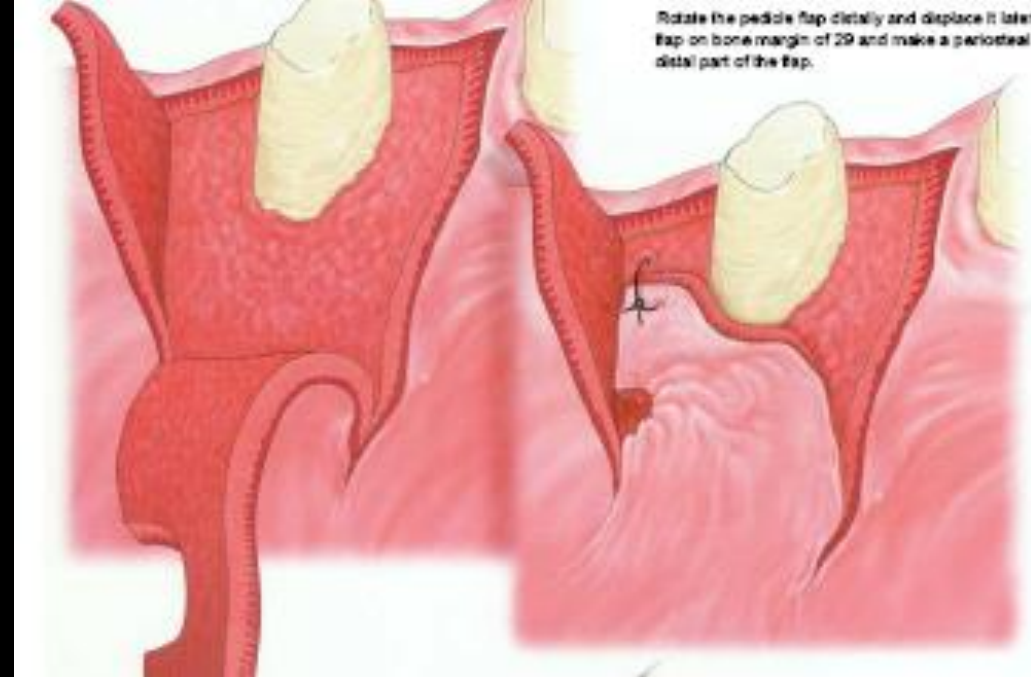
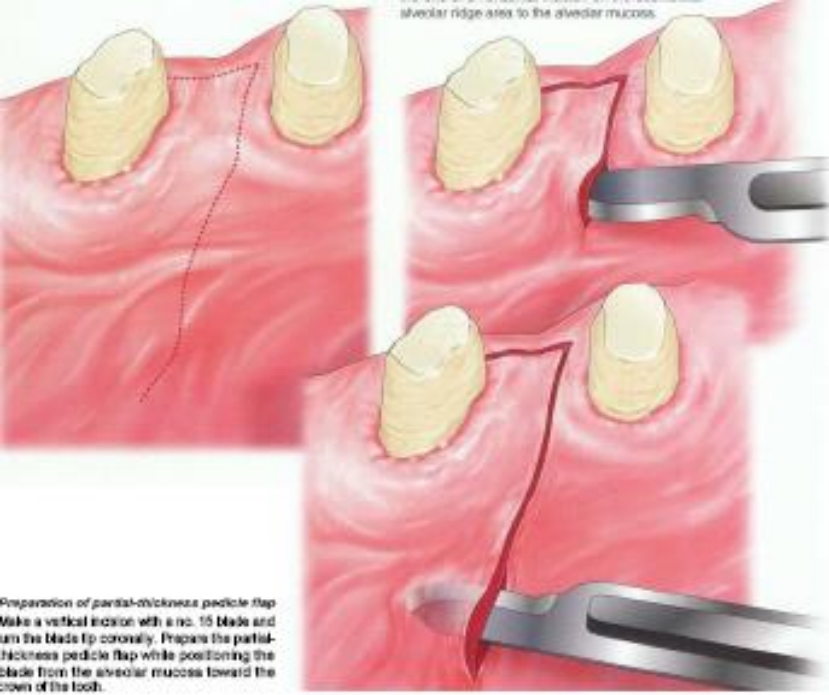
DISPLACED FLAPS

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

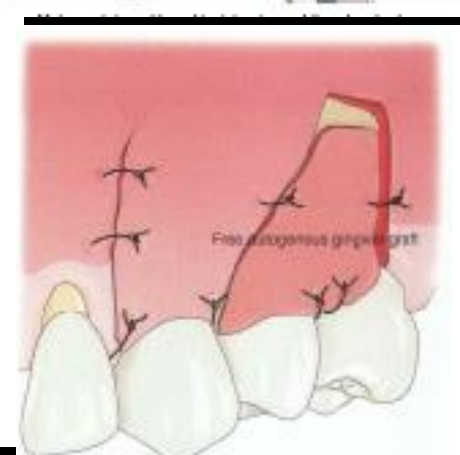
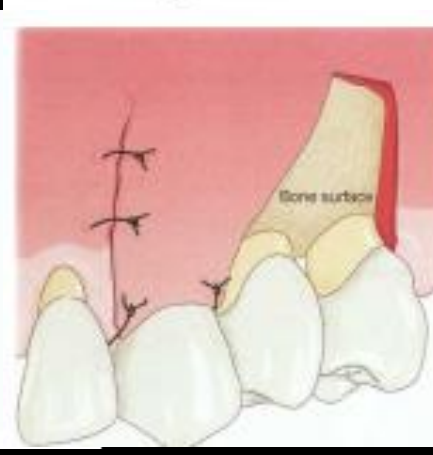
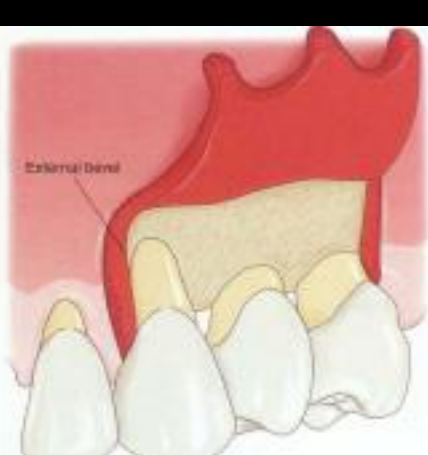
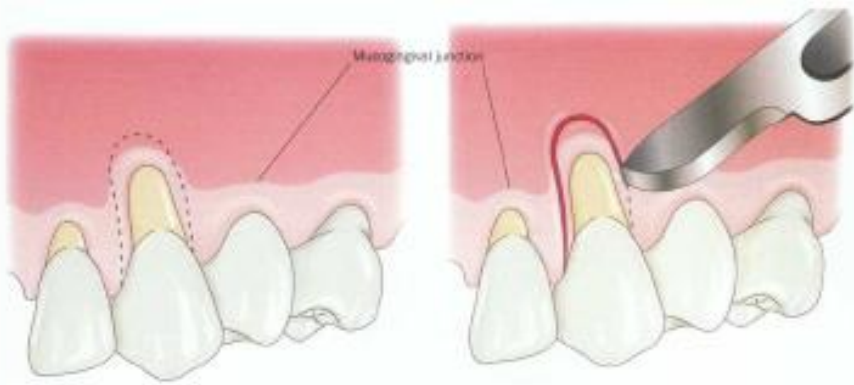
Fig 6-23 Semilunar coronally positioned flaps



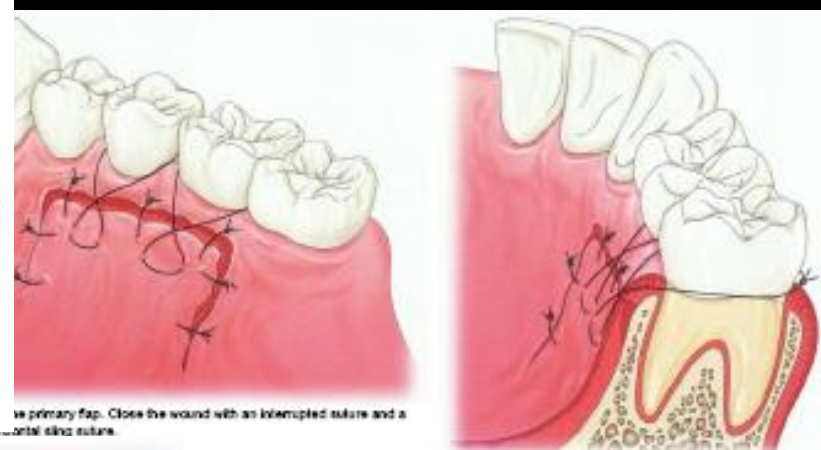
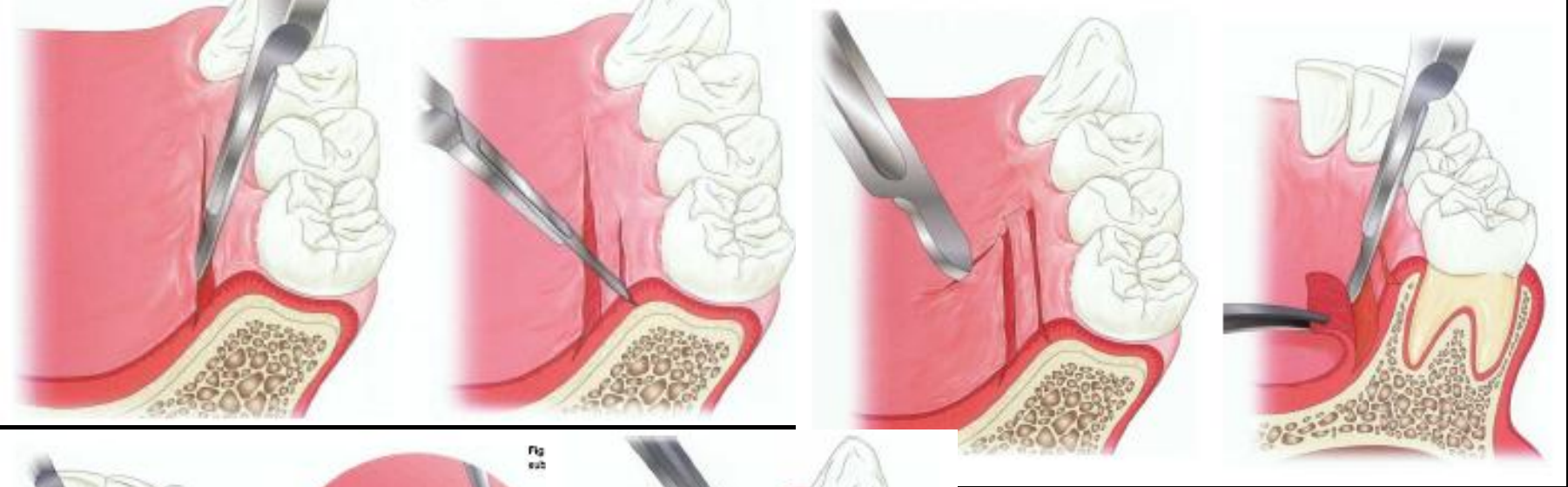
CORONALLY POSITIONED
FLAP



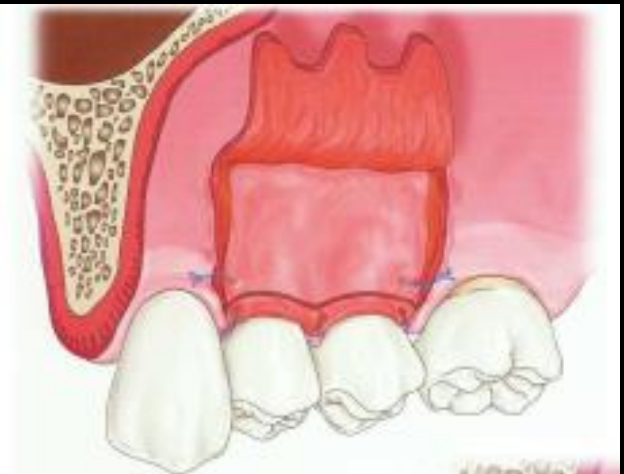
APICALLY POSITIONED PARTIAL THICKNESS FLAP



Laterally positioned flap

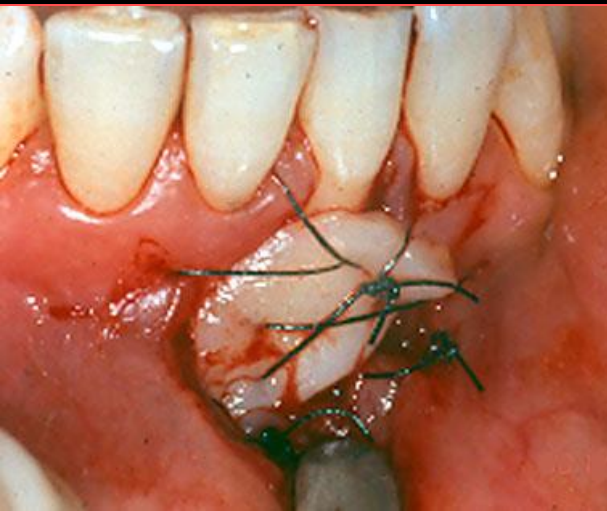


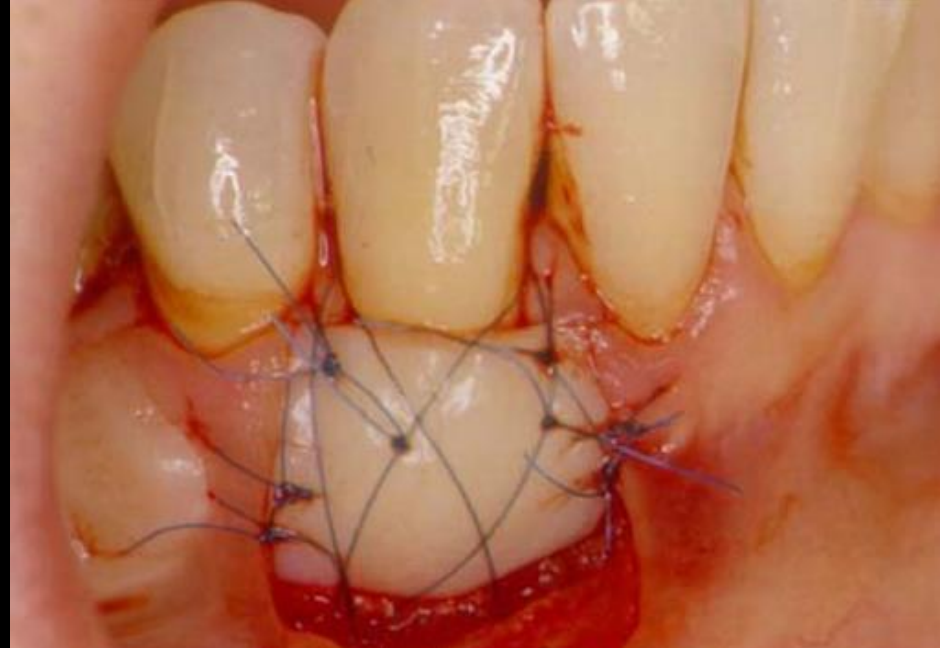
Close the wound with an interrupted suture and a horizontal silk suture.



the graft as

FREE GINGIVAL GRAFT





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.





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.