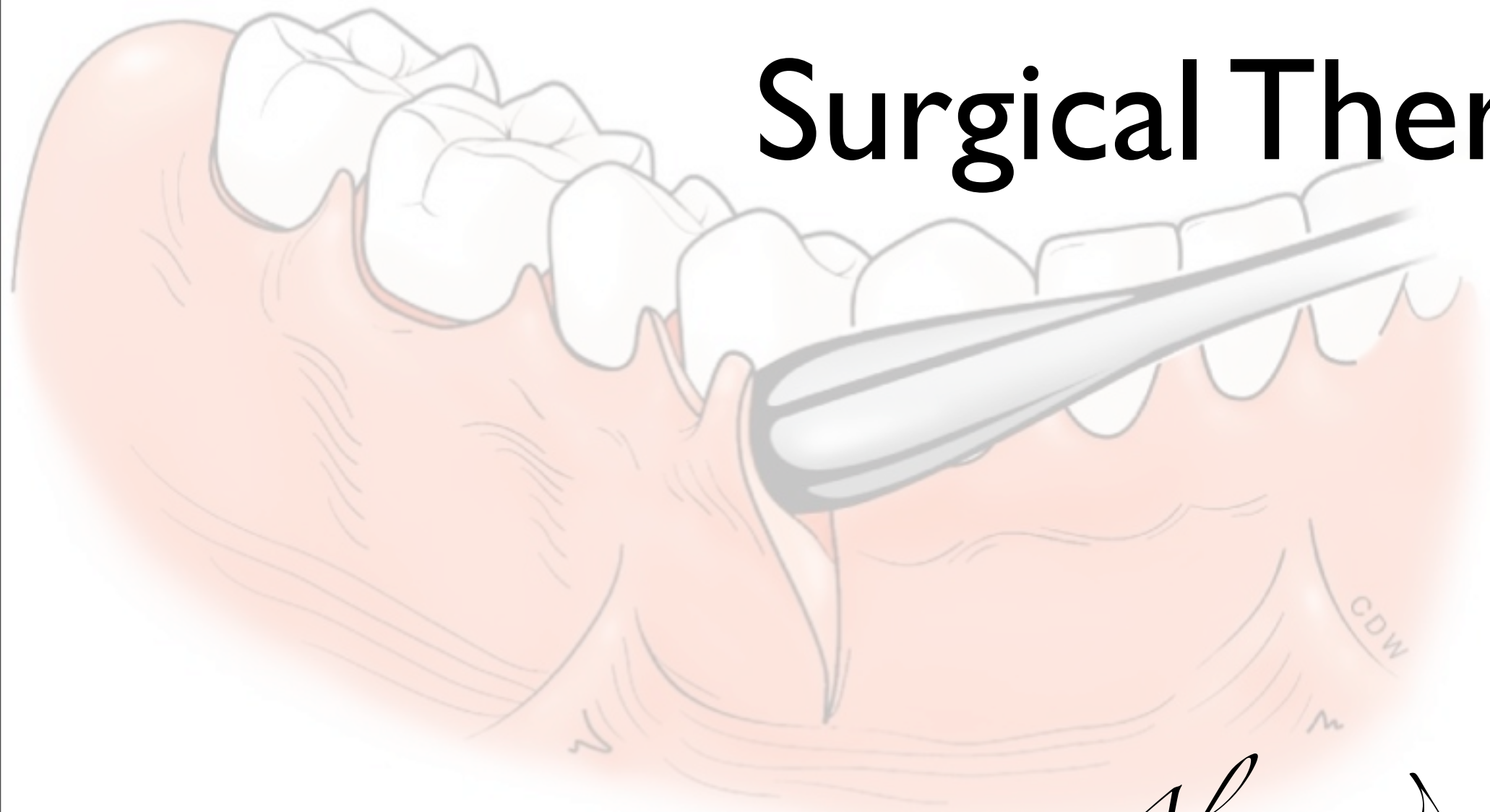


# Surgical Therapy

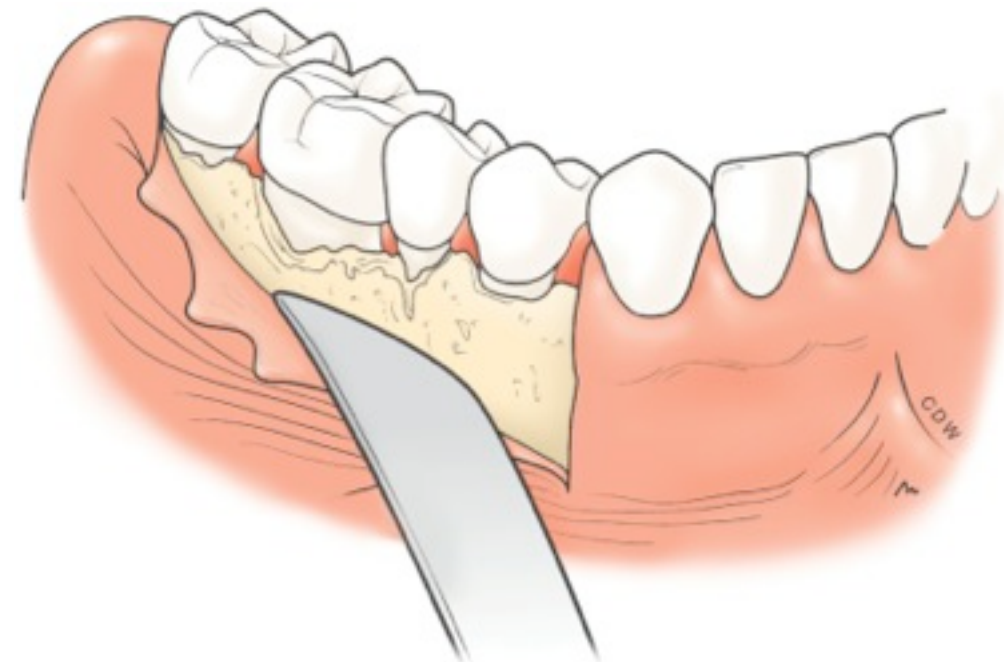


*Alessandro Geminiani, DDS, MS*

# Periodontal Surgery

## Periodontal Flap:

a surgical procedure in which incisions are made in the gingiva or mucosa to allow for **separation of the epithelium and connective tissues** from the underlying tooth roots and underlying alveolar bone



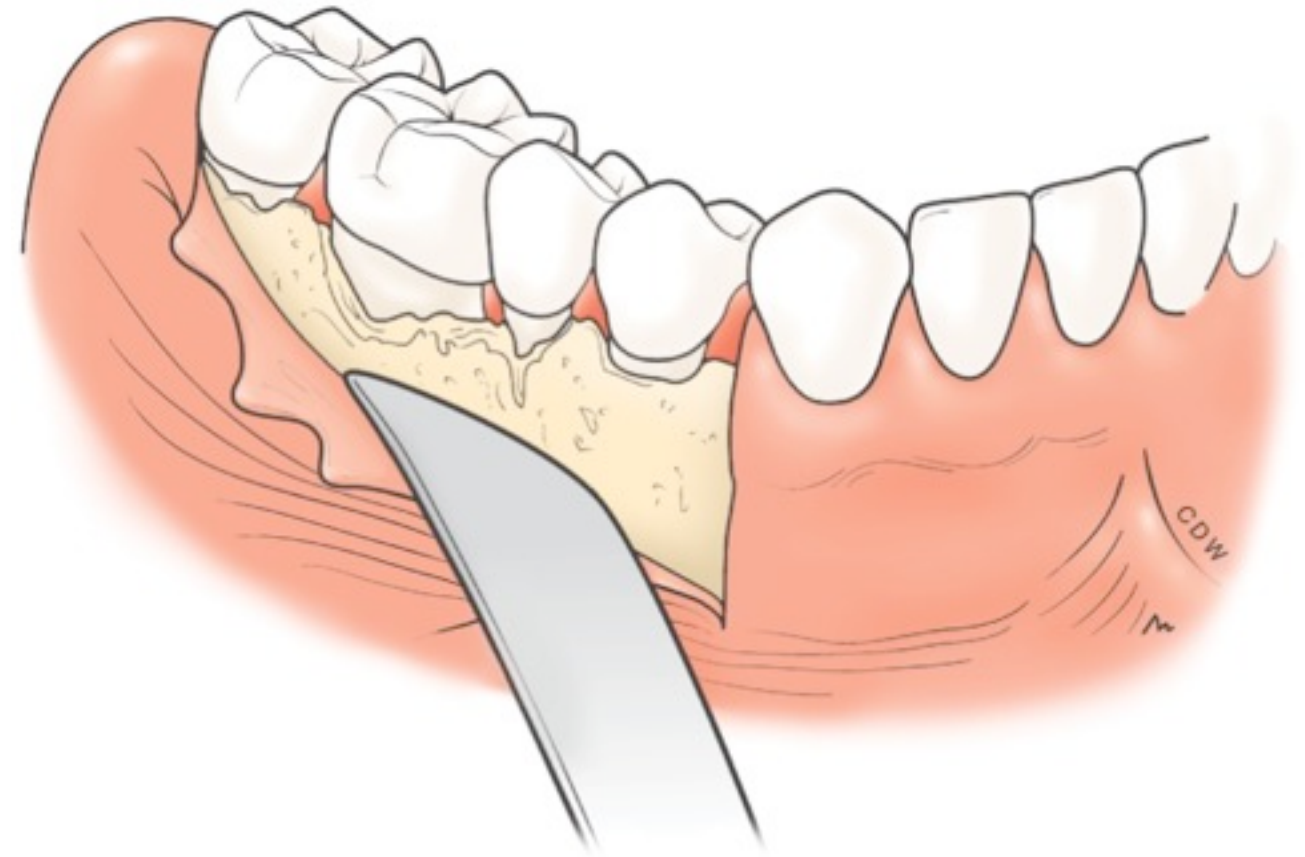
# Periodontal Surgery

Why would the elevation of a periodontal flap would be beneficial and helpful during periodontal therapy?



# Periodontal Surgery

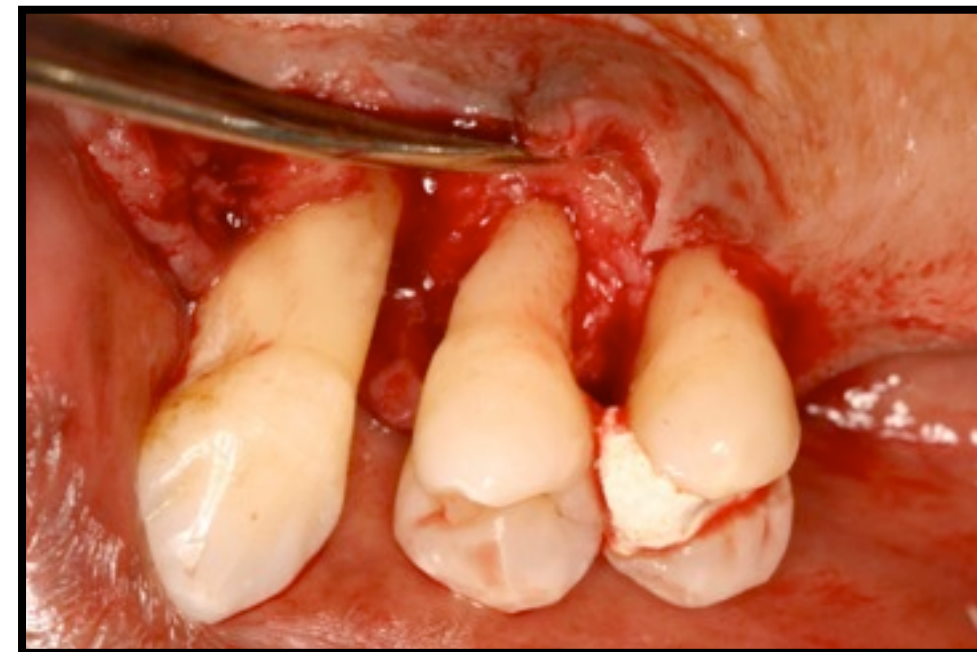
- ☑ Access to root surfaces for root debridement
- ☑ Make an oral environment conducive to plaque control
  - Elimination/reduction of probing depths
  - Correct abnormal gingiva
  - Correct bone morphology interfere with plaque control
  - Remove plaque retentive factors (i.e. overhangs)
  - Perform root sectioning procedures
- ☑ Regeneration of periodontal apparatus
- ☑ Correct mucogingival defects & Esthetic
- ☑ Make periodontal environment suitable to restorative therapy





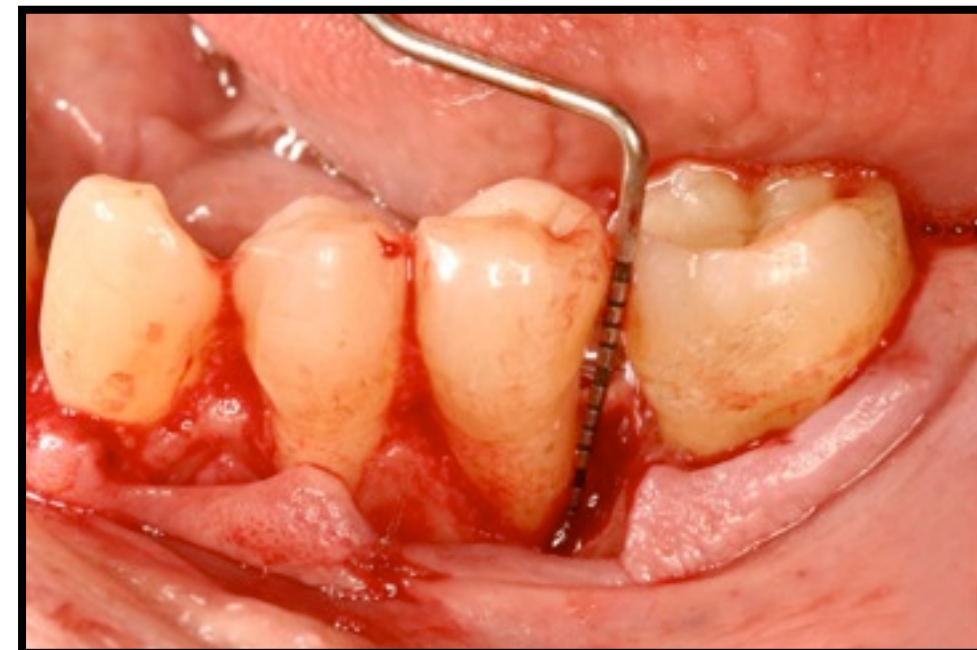
# Periodontal Surgery

Access to root surfaces for root debridement



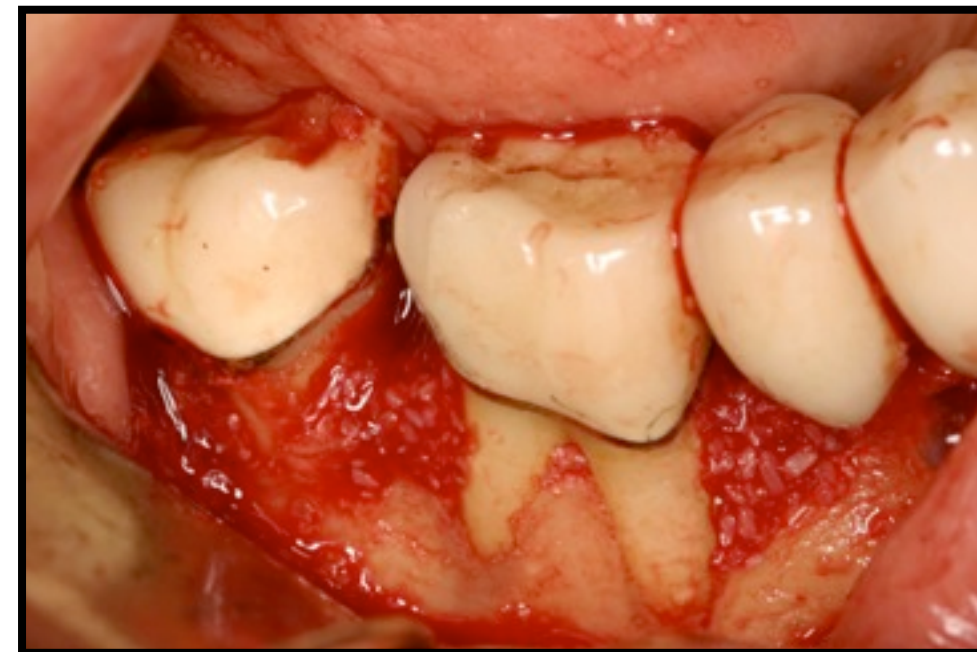
# Periodontal Surgery

Make an oral environment conducive to plaque control



# Periodontal Surgery

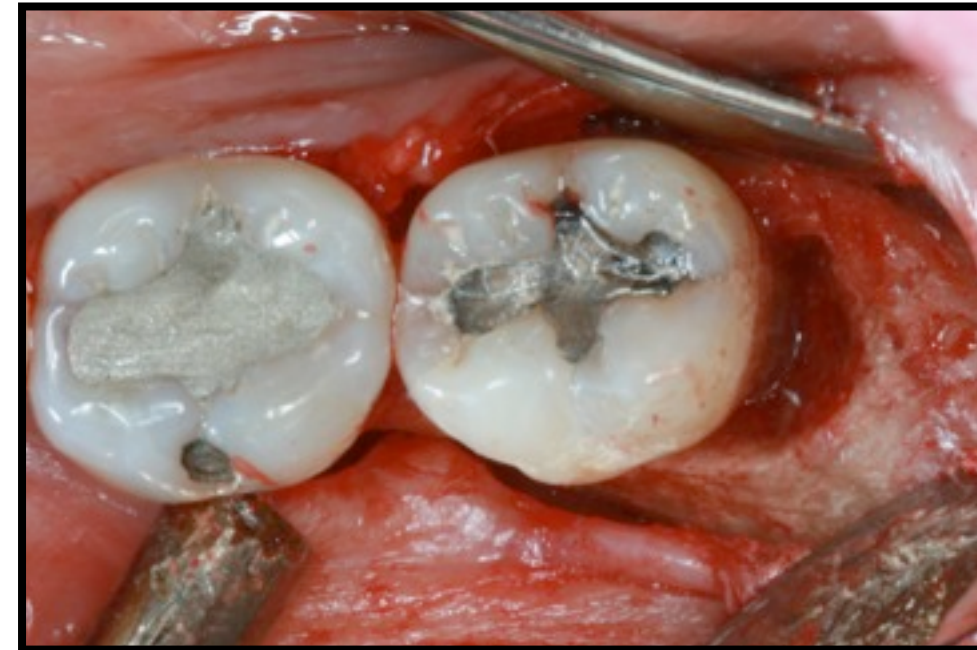
Regeneration of periodontal apparatus





# Periodontal Surgery

Regeneration of periodontal apparatus





# Periodontal Surgery

## **Regeneration of periodontal apparatus**

The site of bone graft should not be disturbed for several months.

Do not probe until appropriate interval has lapsed.

Meticulous plaque control is critical to maintain health in the area.

# Periodontal Surgery

Mucogingival defects



# Periodontal Surgery

Mucogingival defects





# Periodontal Surgery

Esthetic

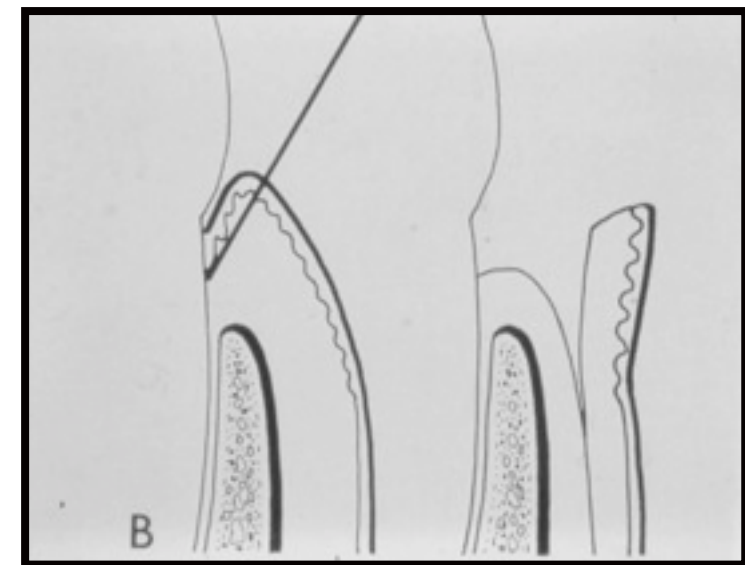
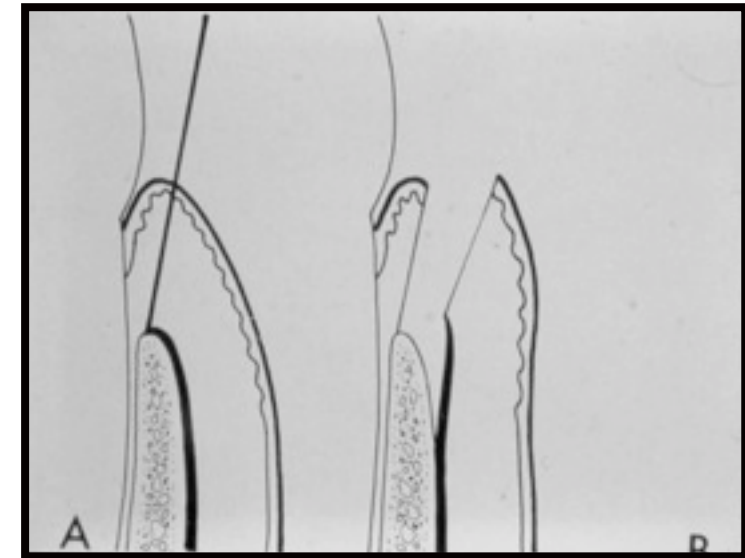


# Periodontal Surgery

## **Periodontal Flap:**

Full thickness flap - periosteum included in the flap

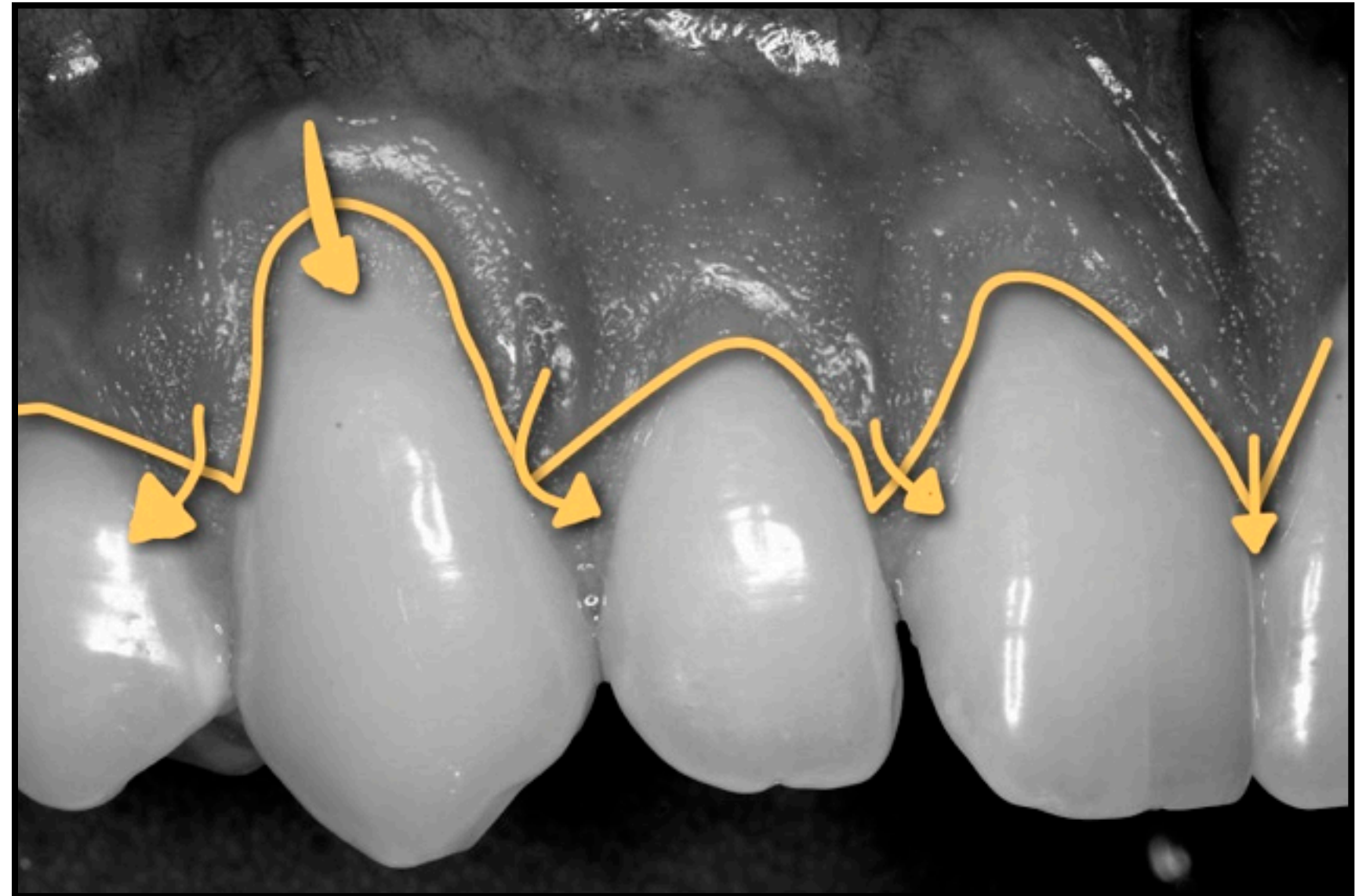
Split thickness flap - bone covered by periosteum and thin layer of connective tissue



# Periodontal Surgery

## **Periodontal Flap:**

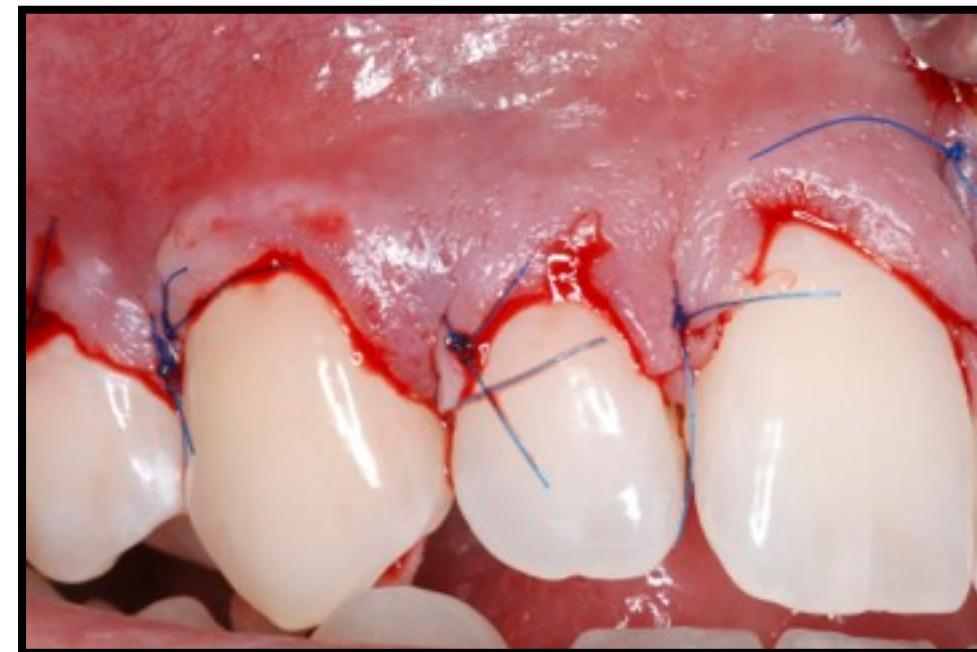
Displaced flap - laterally, coronally, apically  
Replaced flap - left original position





# Periodontal Surgery

Coronally positioned flap



# Periodontal Surgery

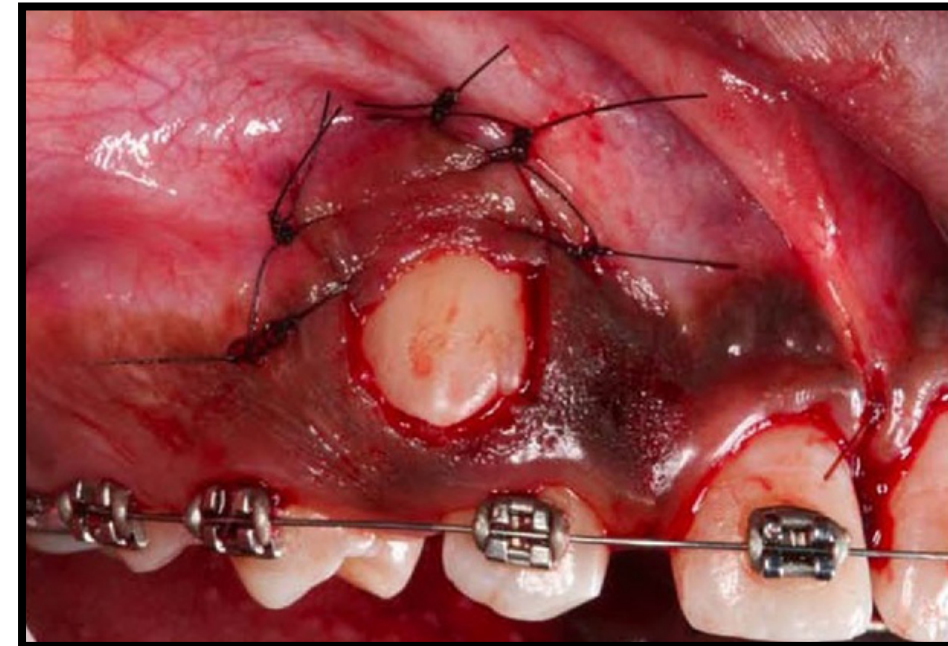
Apically positioned flap

## Advantages

- Eliminates periodontal pocket
- Preserves attached gingiva
- Establishes gingival morphology facilitating good plaque control

## Disadvantages

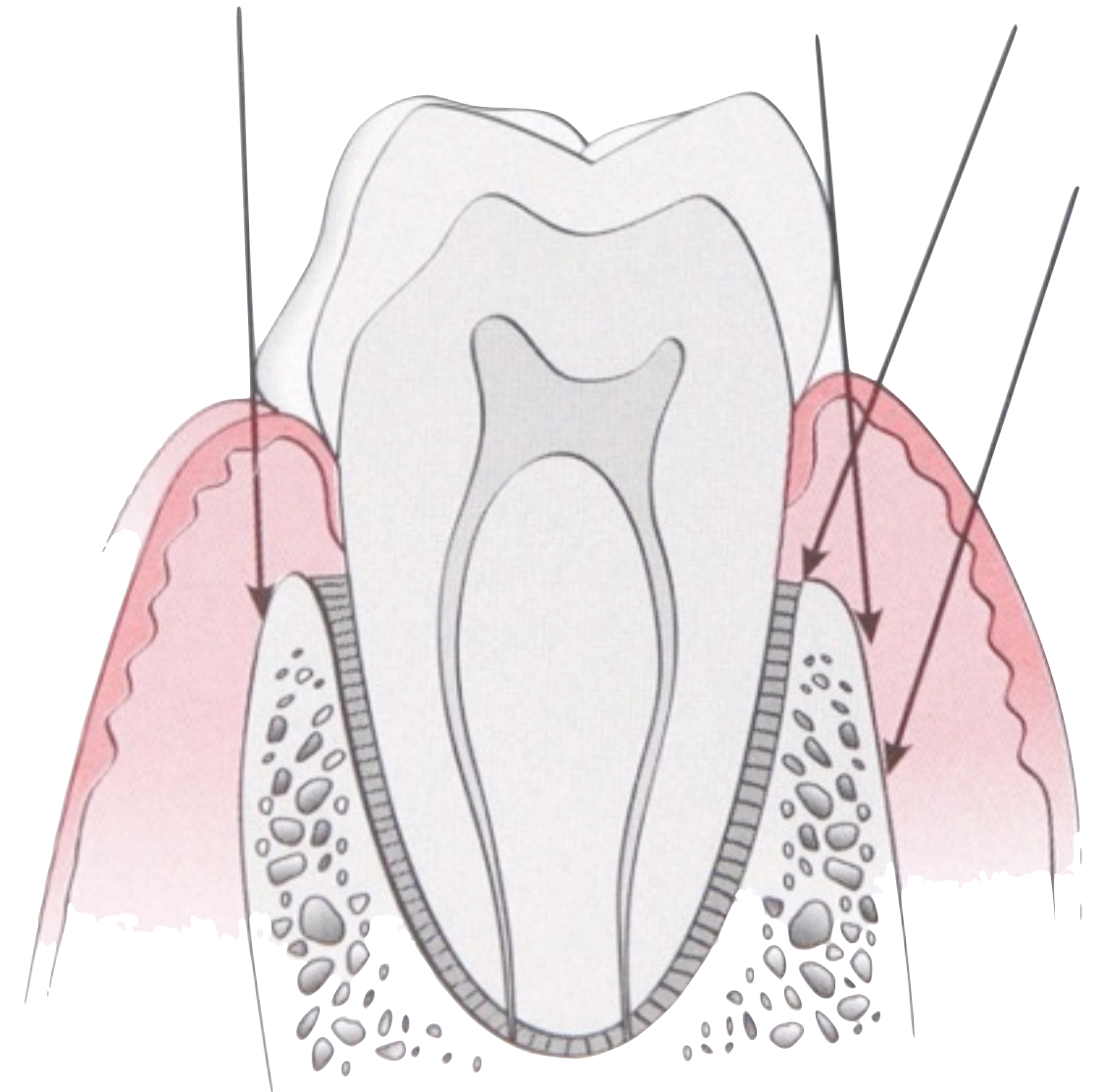
- Esthetic issues
- Attachment loss
- Hypersensitivity
- Risk of root caries
- Possibility of exposing furcations



# Periodontal Surgery

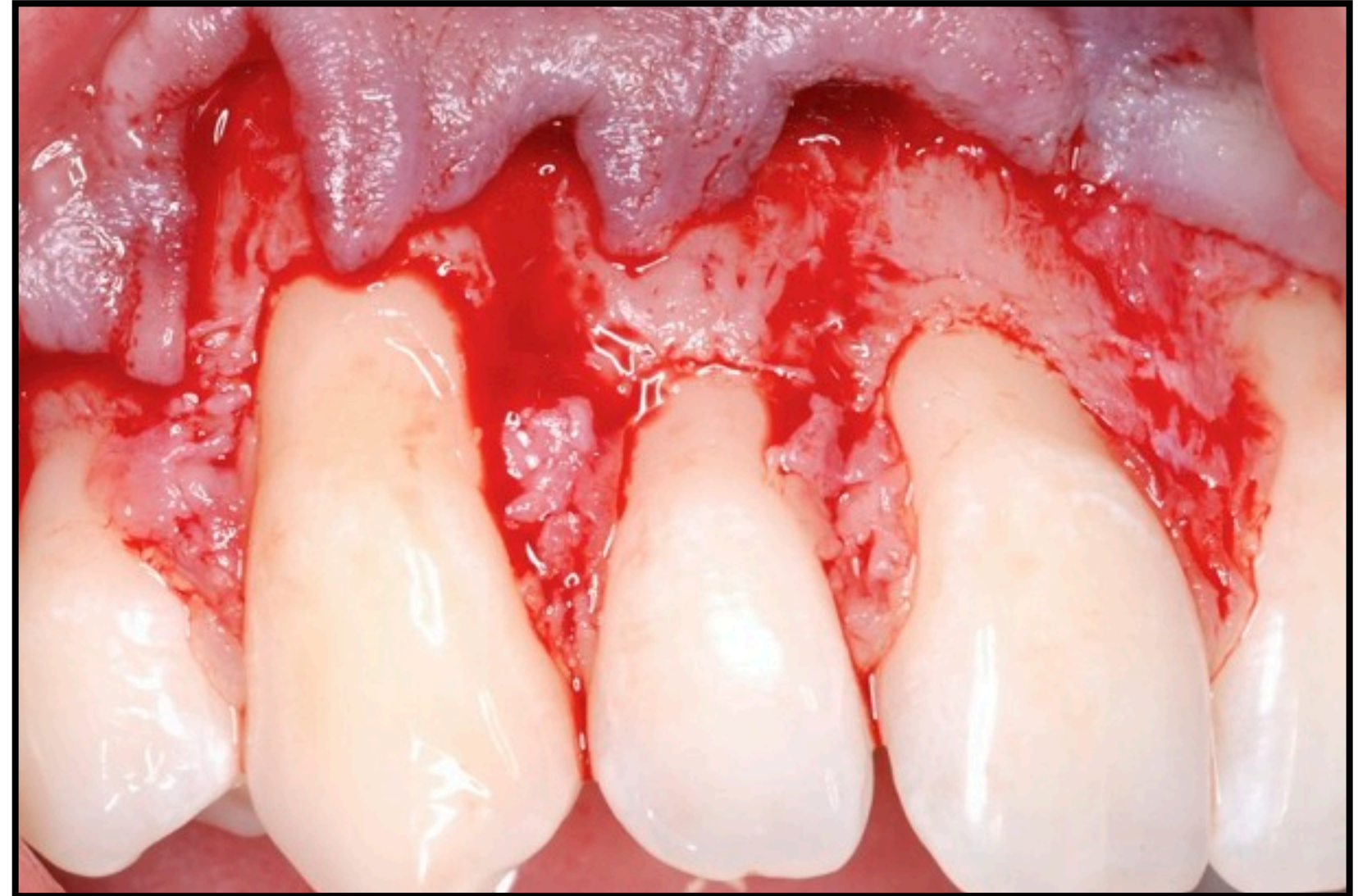
## **Incision:**

Intrasulcular - full retention of the tissues  
Inverse bevel - splits the soft tissue pocket wall into an outer gingival surgical flap and an inner epithelialized pocket lining





# Periodontal Surgery





# Periodontal Surgery



# Periodontal Surgery



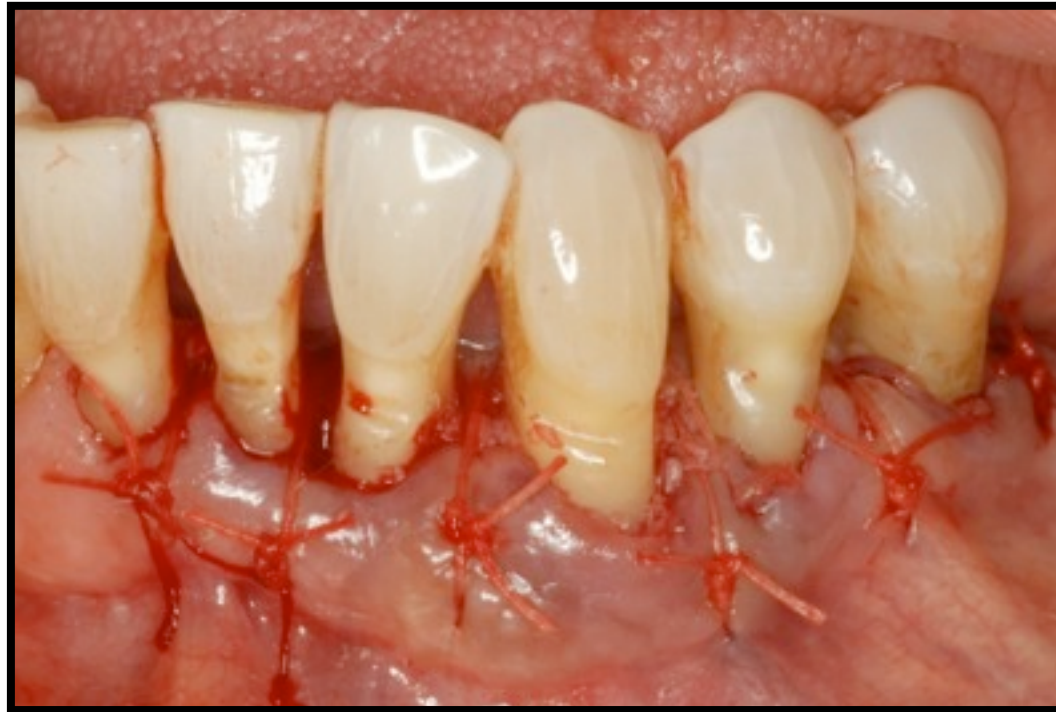


# Healing of Periodontal Flap





# Healing of Periodontal Flap





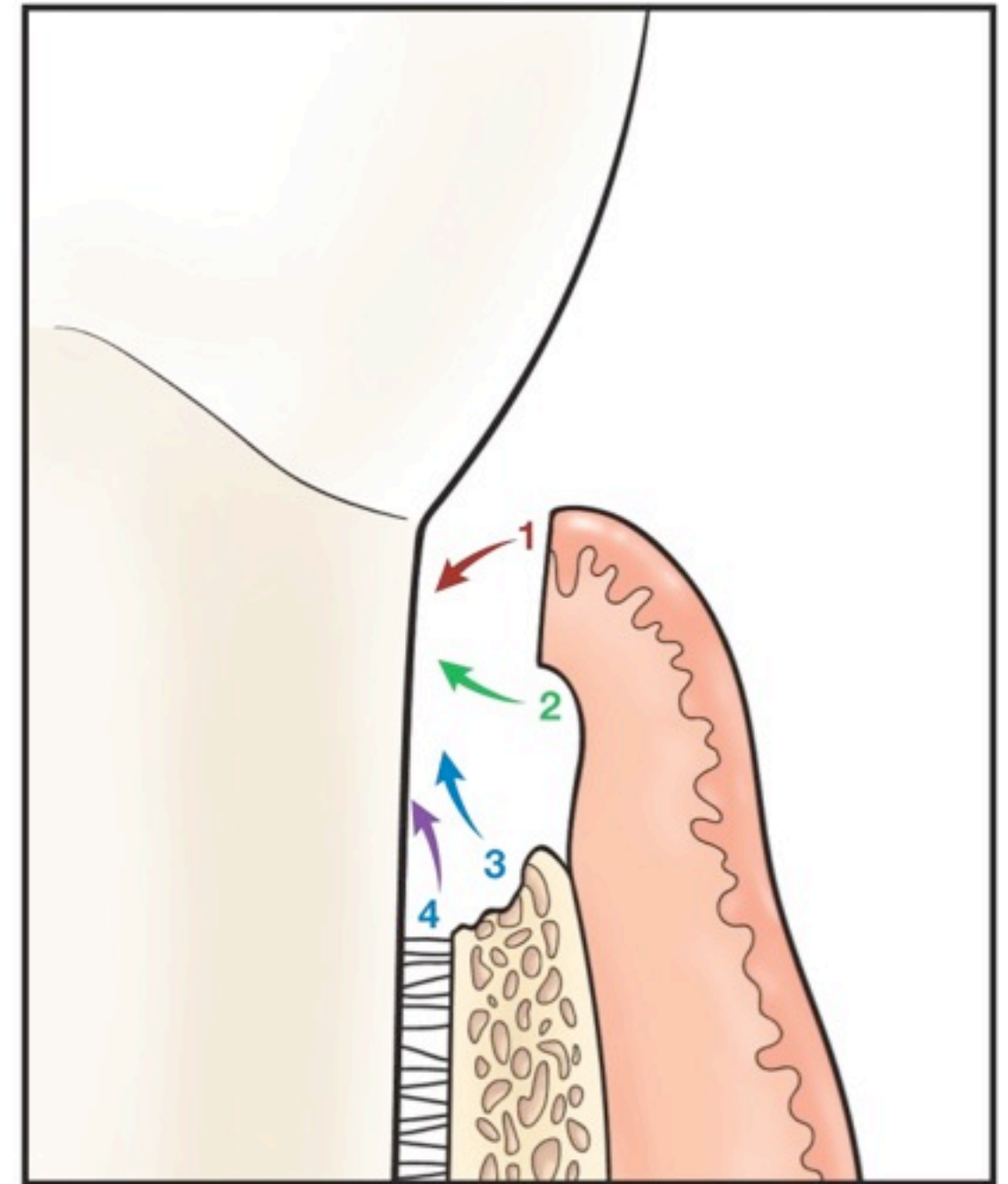
# Healing of Periodontal Flap



# Healing of Periodontal Flap

## Four different types of healing:

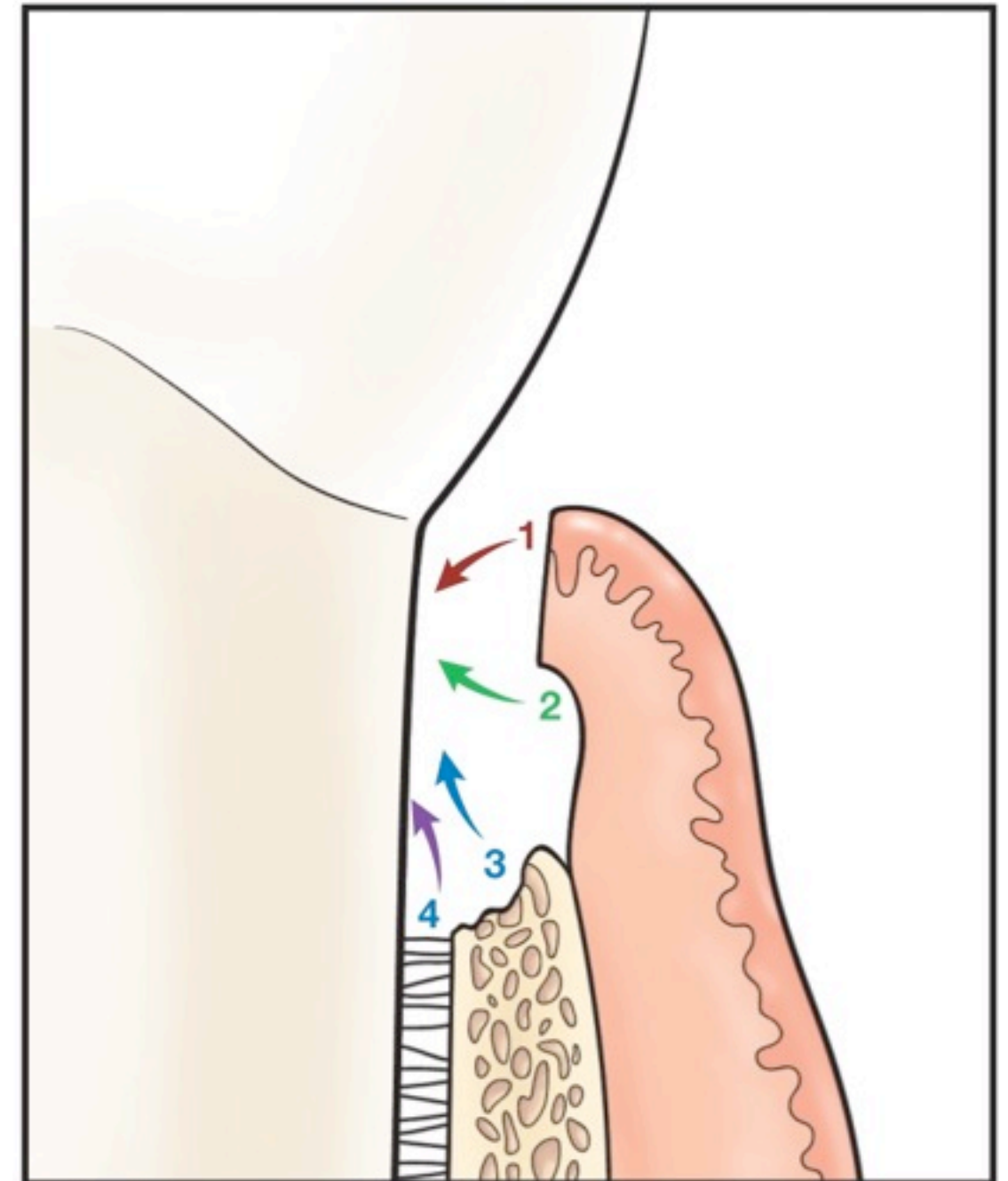
- (1) Healing by repair
- (2) Healing by reattachment
- (3) Healing by new attachment
- (4) Healing by regeneration



# Healing of Periodontal Flap

## Healing cells from 4 different sources:

- (1) Gingival epithelial cells
- (2) Gingival connective tissue cells
- (3) Bone cells
- (4) Periodontal ligament cells

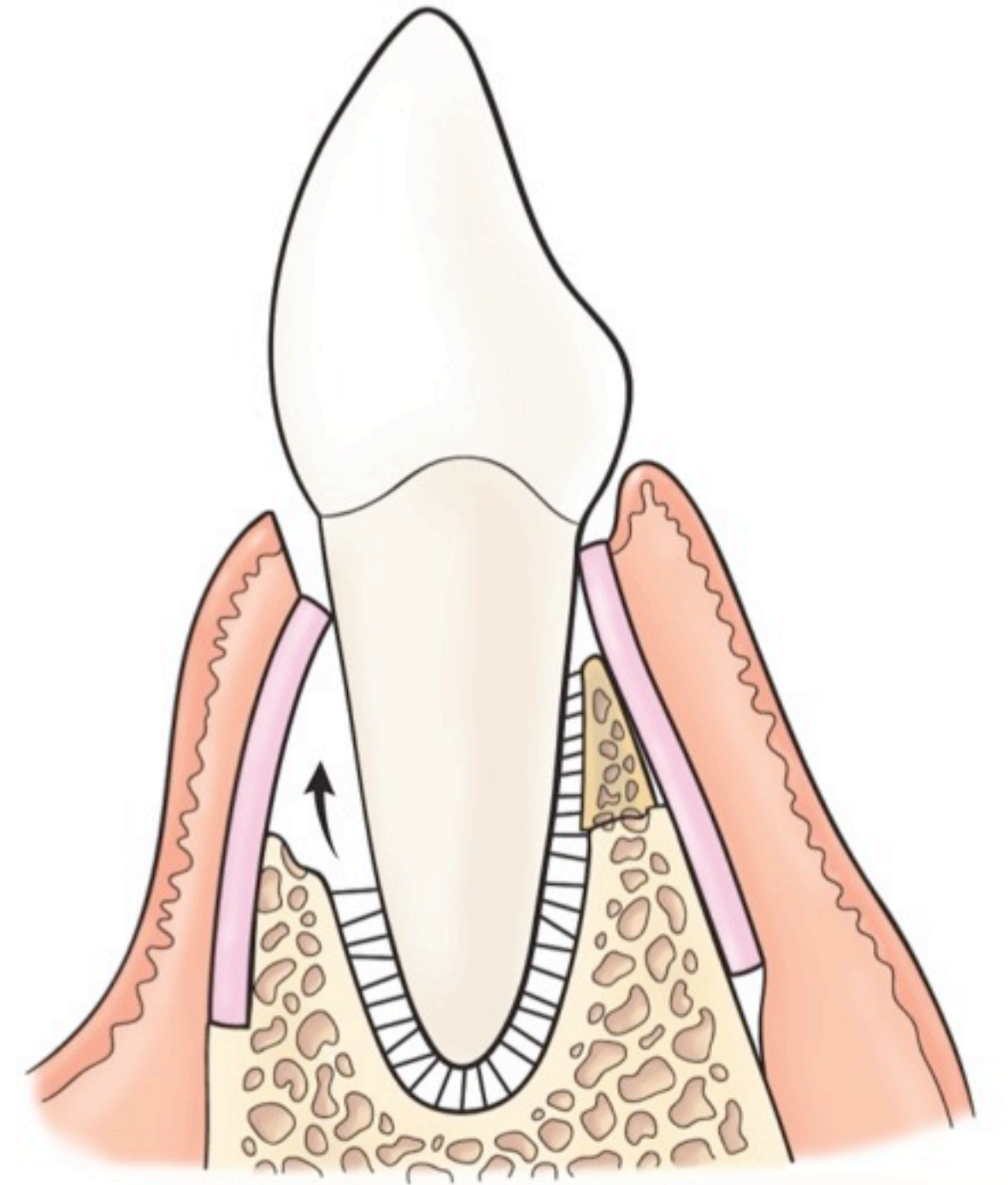




# Barrier Membrane

The membrane delays the growth of epithelial cells along the tooth root.

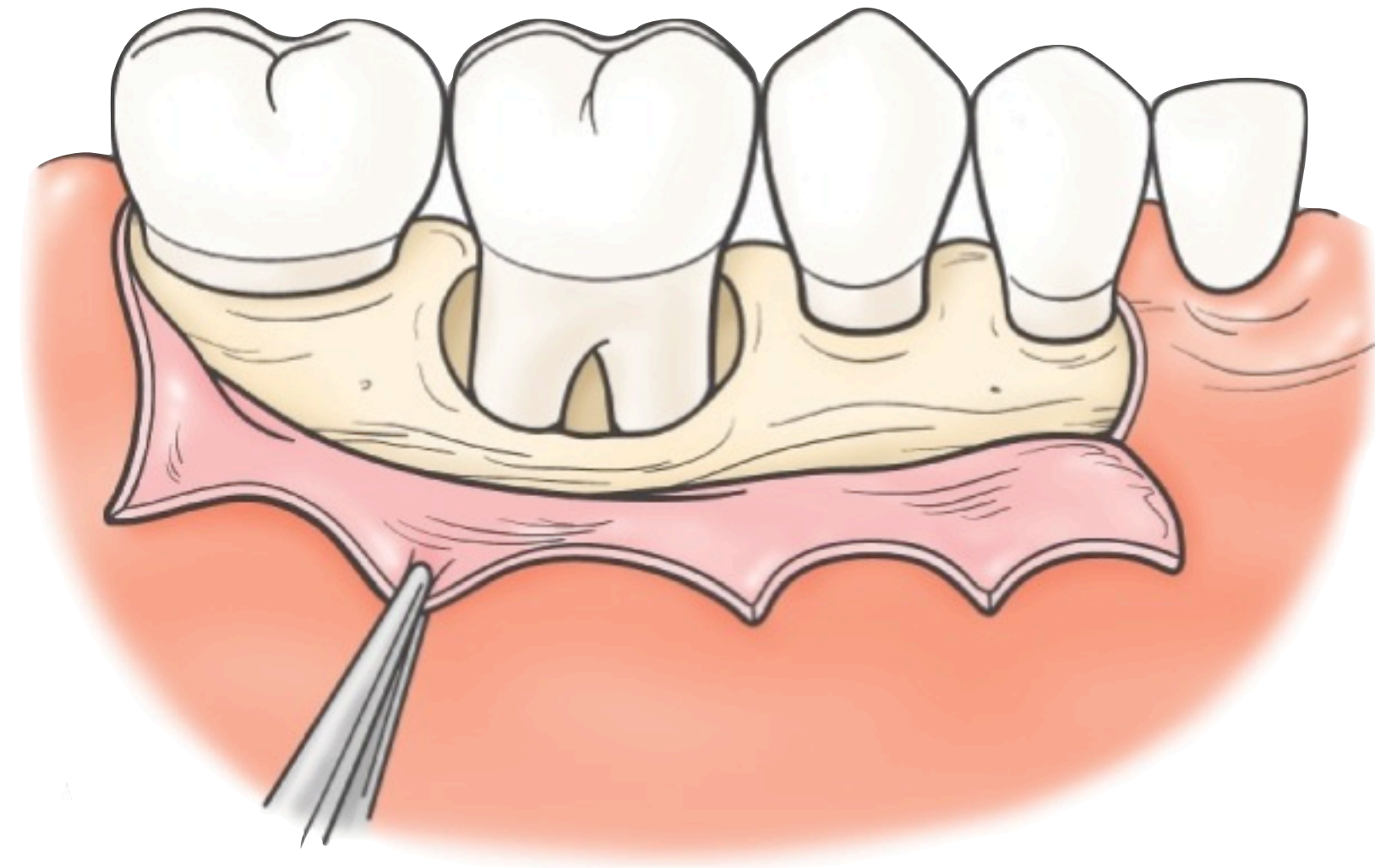
This provides time for the cementum, PDL, and bone to form next to the root.



# Guided Tissue Regeneration

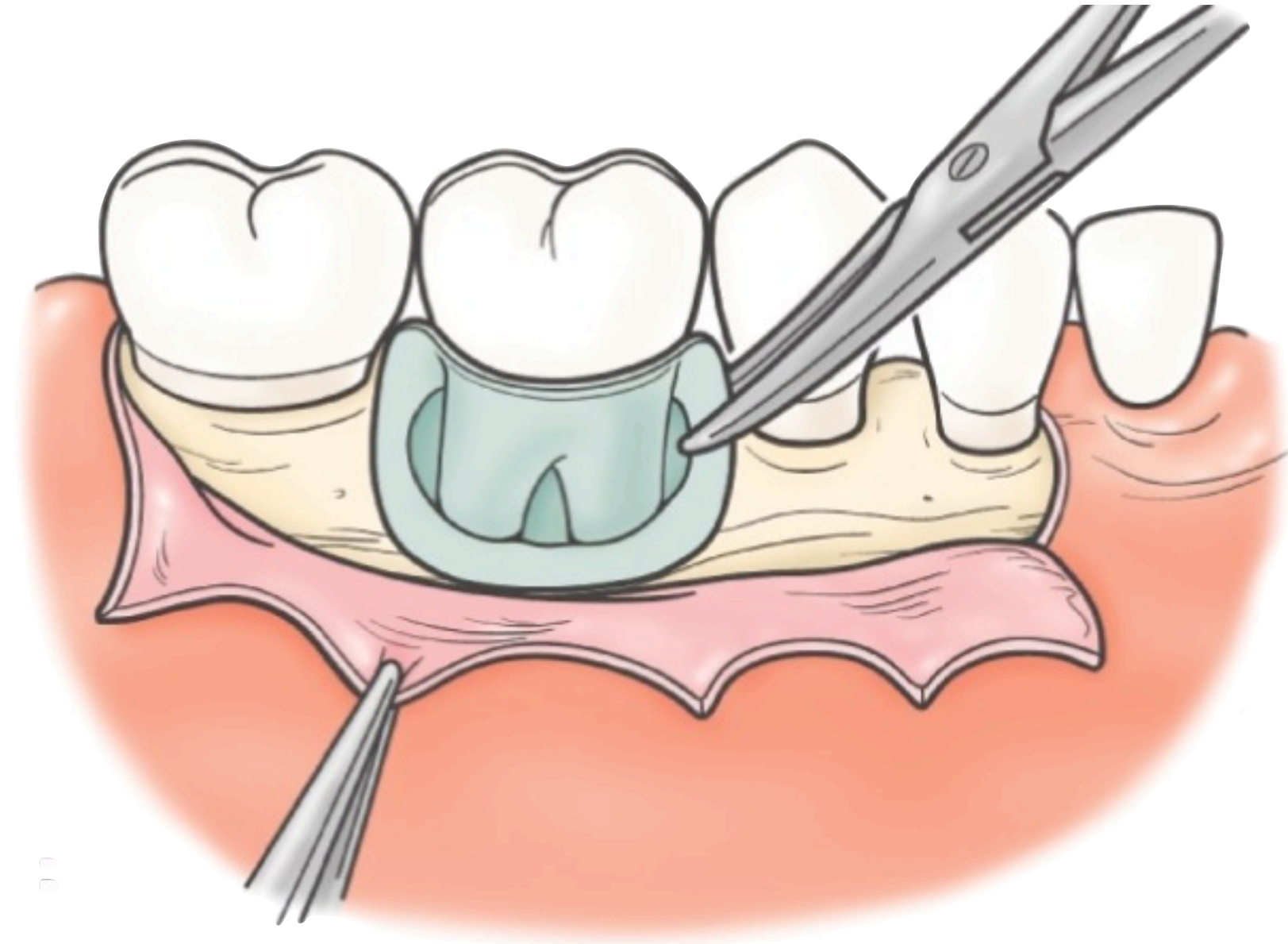
The flap is incised and elevated.

Periodontal instrumentation and debridement of  
the osseous defect



# Guided Tissue Regeneration

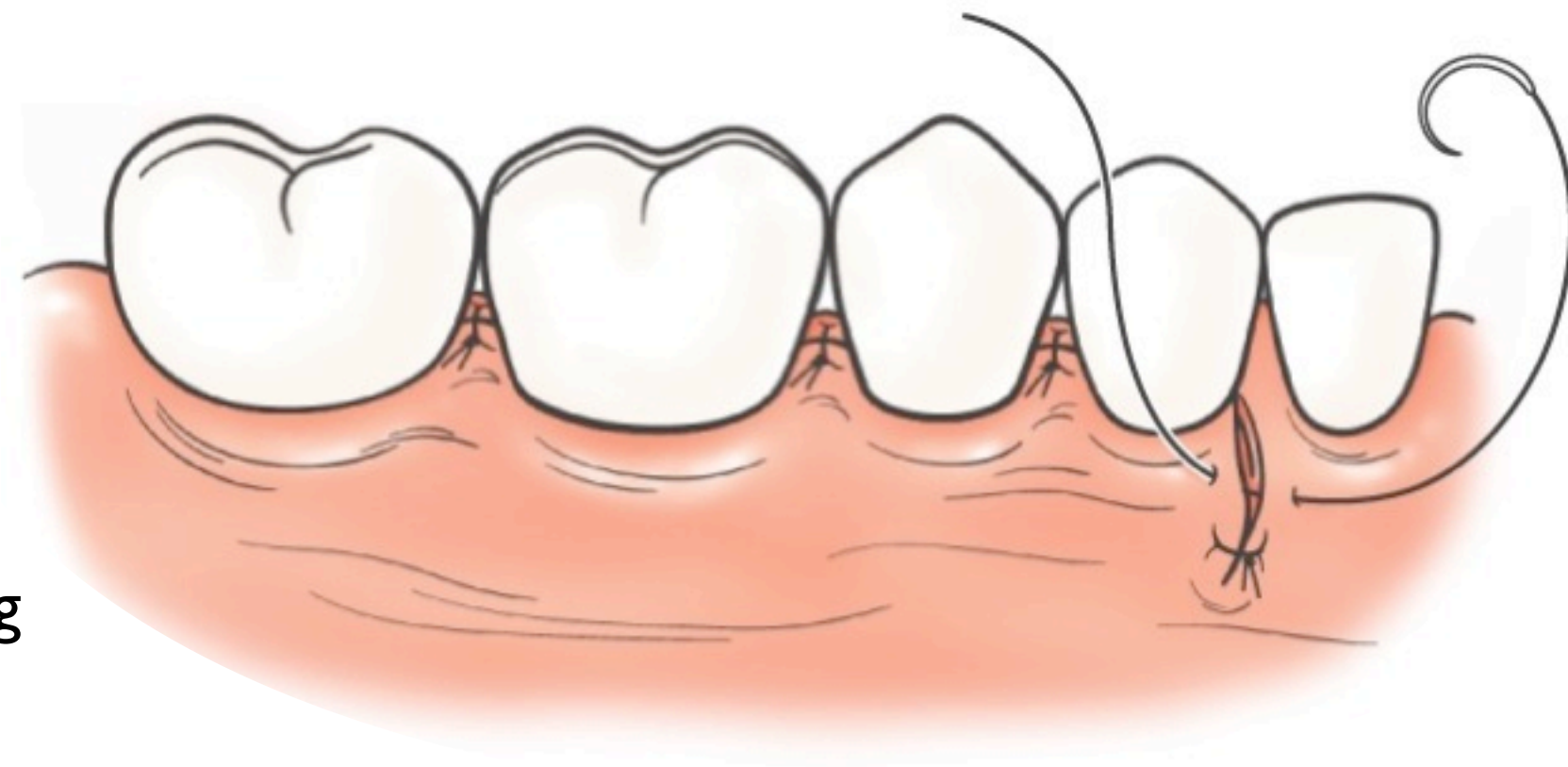
Barrier membrane is sutured into place.



# Guided Tissue Regeneration

The flap is sutured into place, completely covering the barrier material.

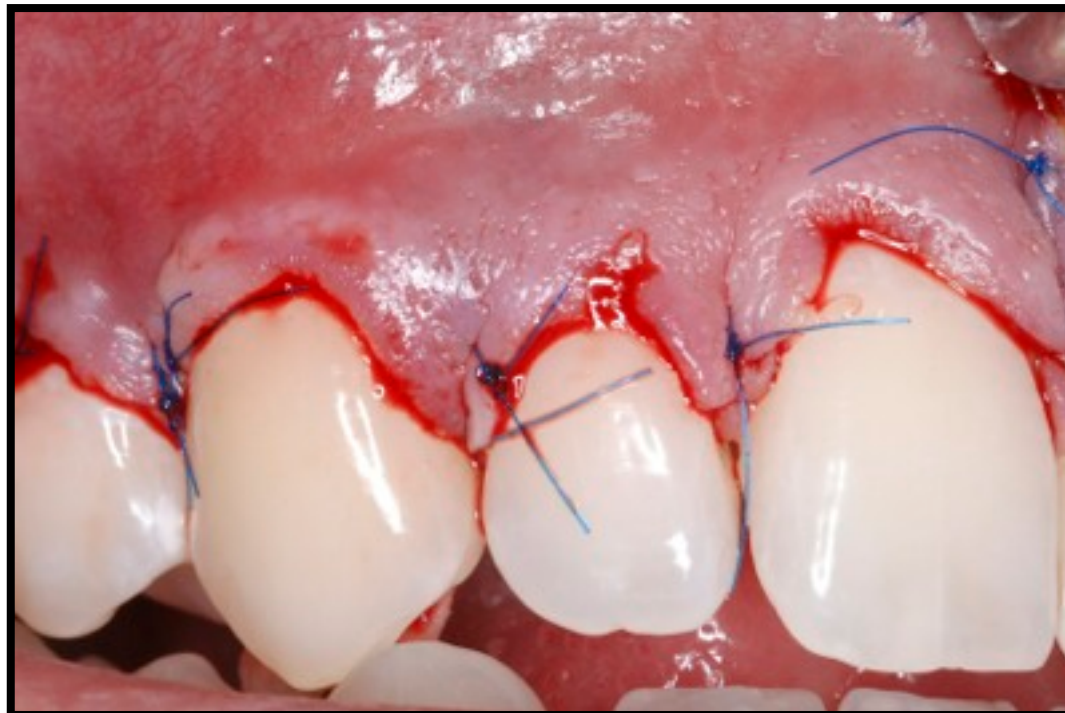
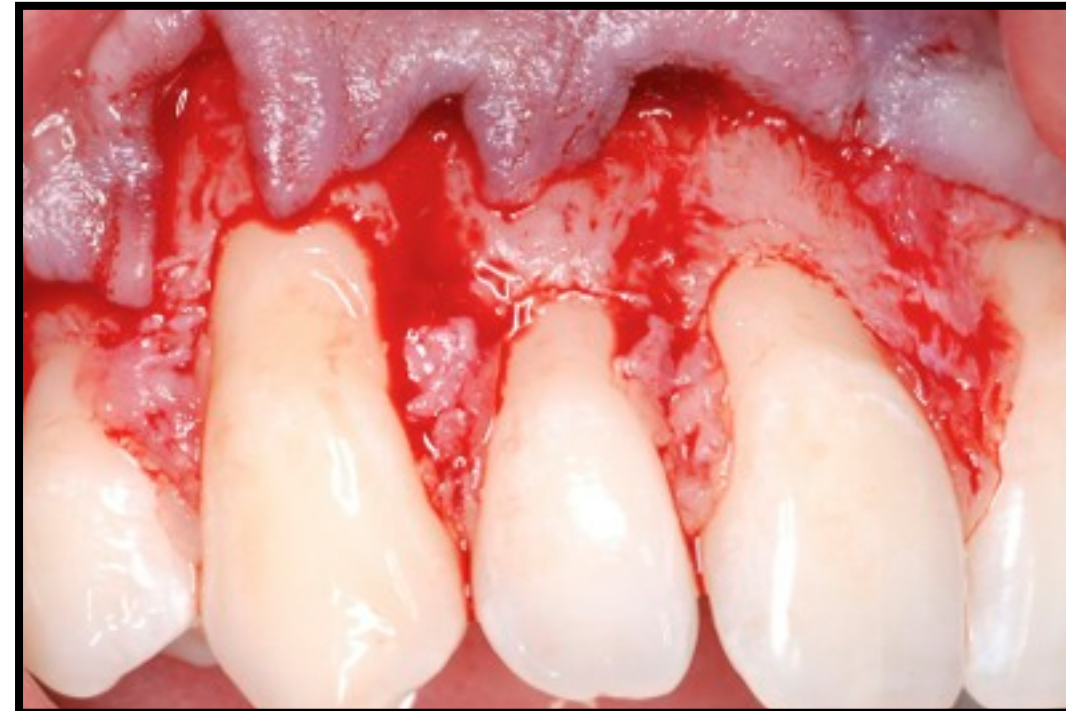
Sites treated by guided tissue regeneration should **not be probed for several months** following the surgery.





# Mucogingival Surgery

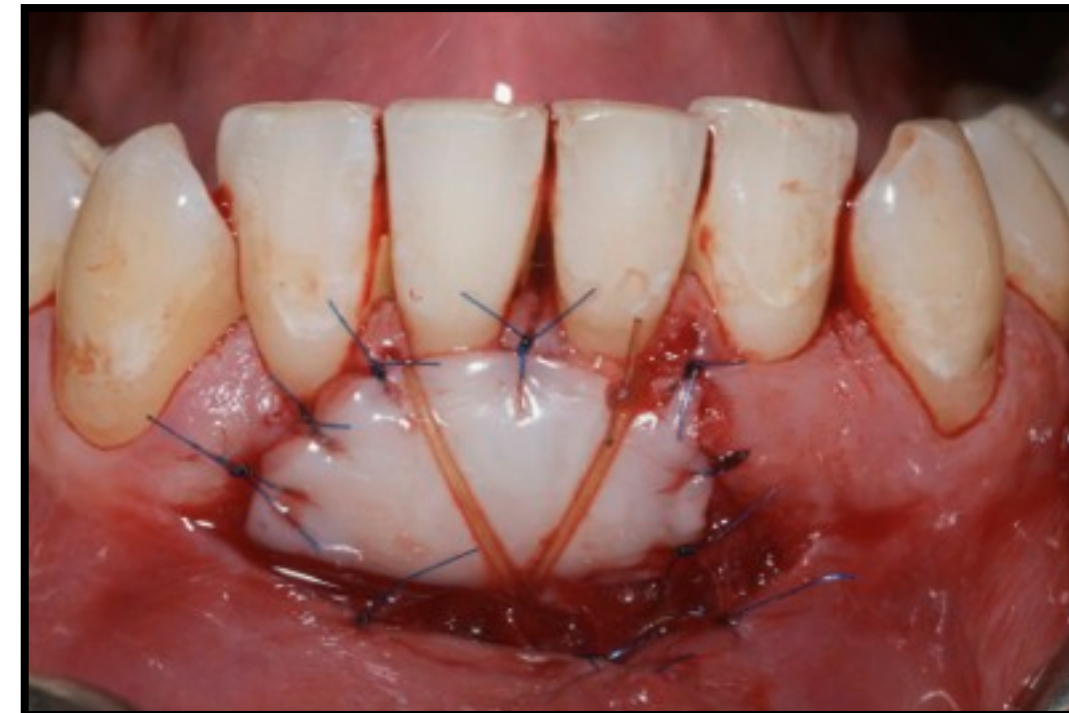
Coronally Advanced Flap





# Mucogingival Surgery

Free Gingival Graf

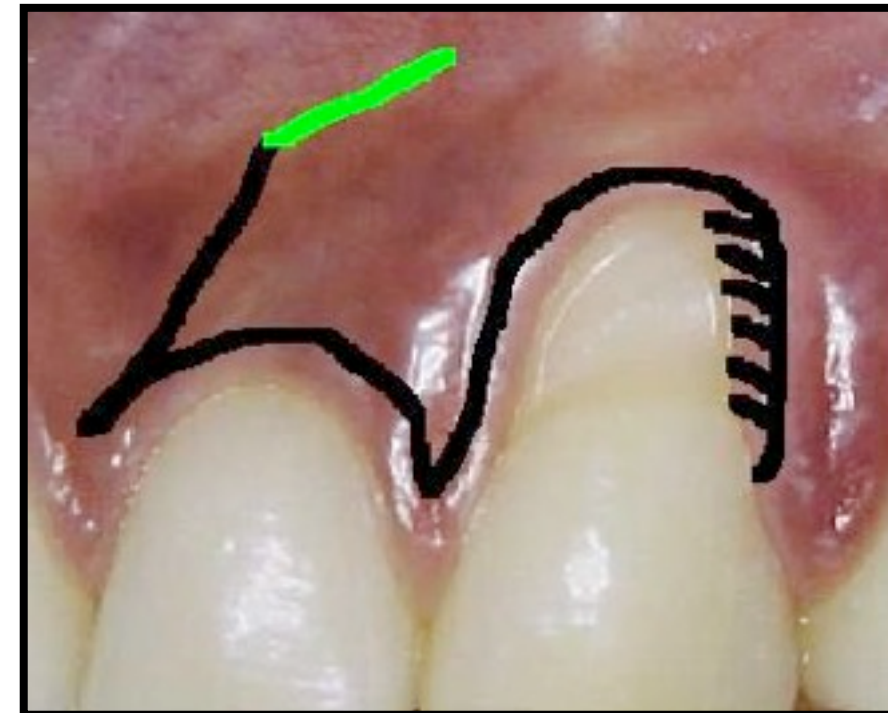


# Mucogingival Surgery

Semilunar Flap



Laterally Positioned Flap





# Periodontal Surgery

## **Crown Lengthening:**

a surgical procedure that **creates a longer clinical crown** for a tooth by **removing gingival and alveolar bone** from necks of teeth



# Crown Lengthening

What are the scenarios where each type of crown lengthening procedure might be conducted?  
What is the benefit?



# Periodontal Surgery

## Functional Crown Lengthening:

performed when the existing **tooth structure** is **inadequate to support a necessary restoration**—  
decay below the gingival margin



## Esthetic Crown Lengthening:

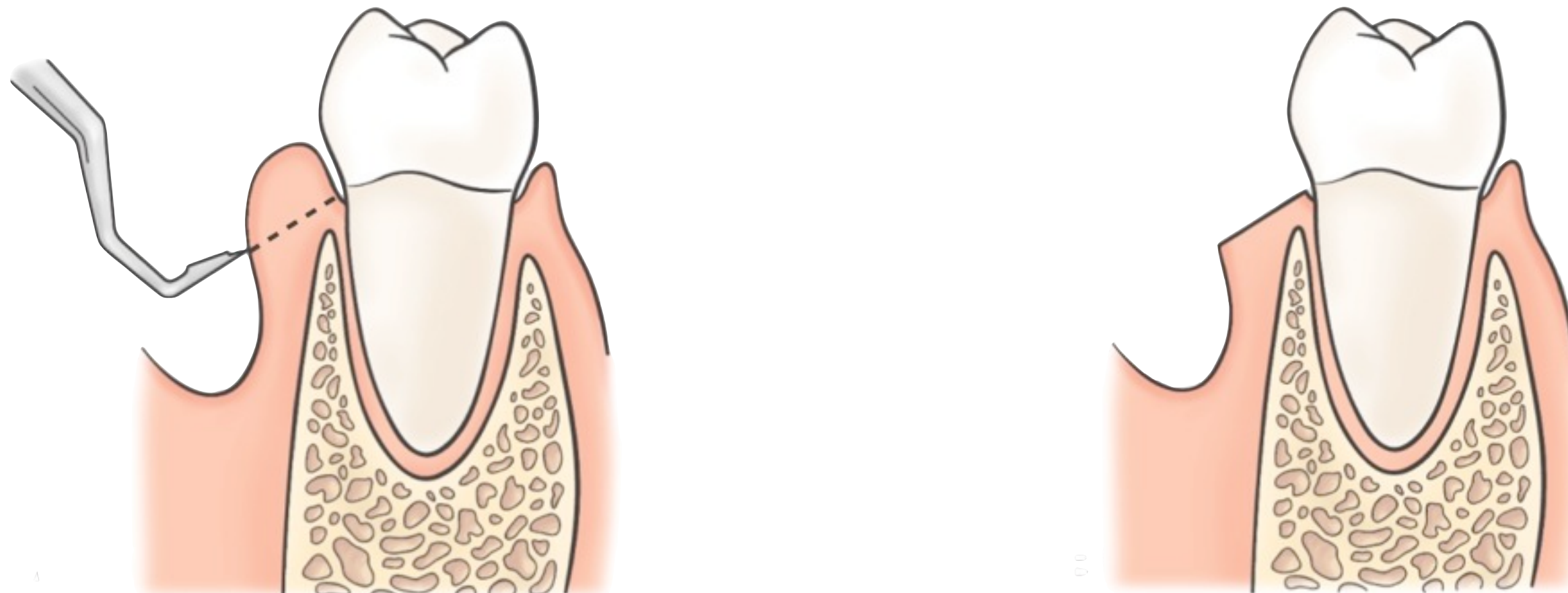
performed to **improve appearance of teeth** when  
there is excess gingiva in relation to clinical  
crowns



# Periodontal Surgery

## Gingivectomy

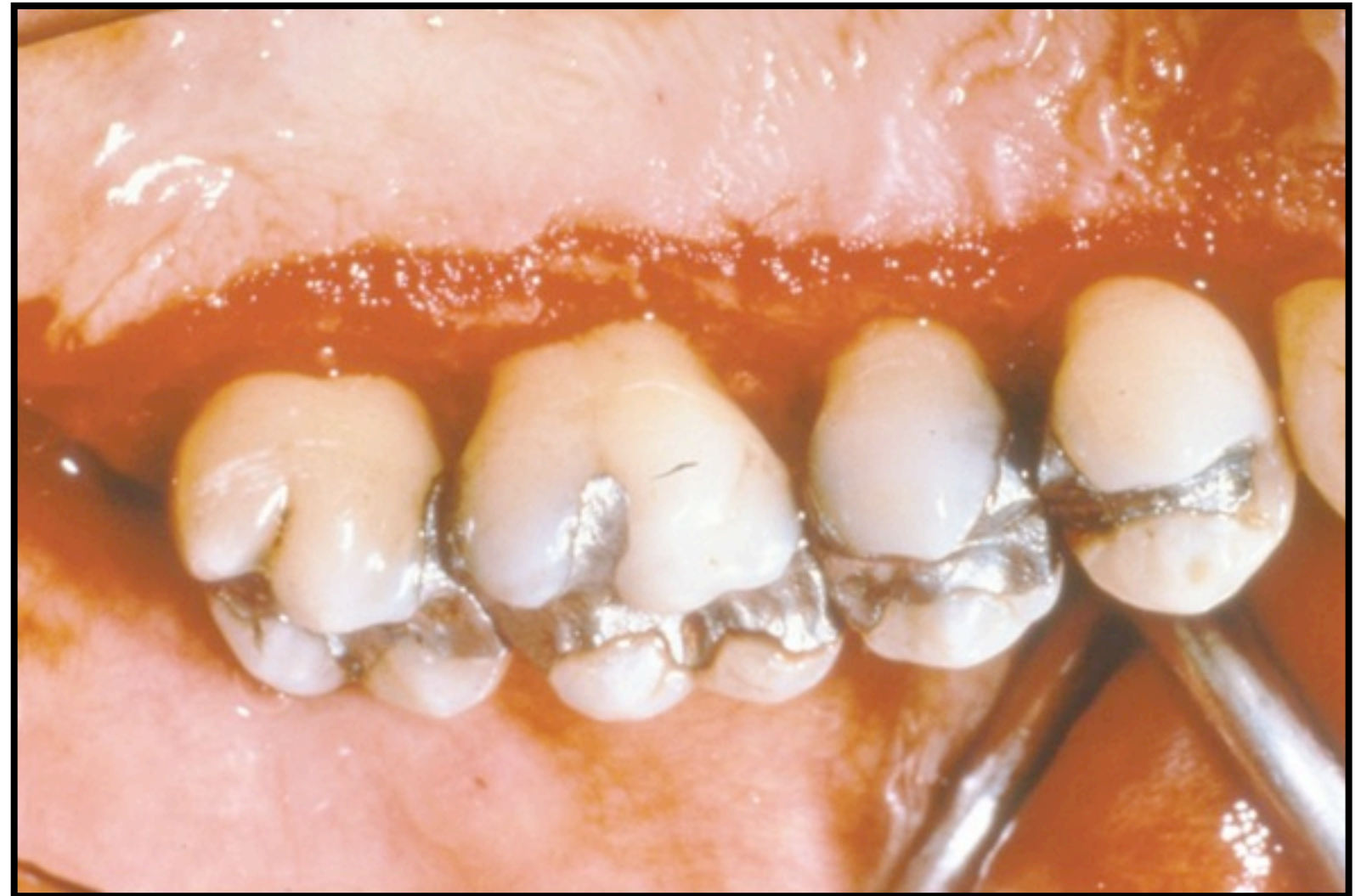
the surgical **removal of the gingival tissue**. Results in more apical position of the gingival margin. Allows for better self-care in select sites. Plays a greatly reduced role in modern periodontal surgery





# Periodontal Surgery

Connective tissue wound created by a gingivectomy.



# Periodontal Surgery

## **Gingivectomy**

Results in more apical position of the gingival margin.



# Periodontal Surgery

## Dental Implant

artificial tooth root placed into the alveolar bone to hold a replacement tooth. Requires exposure of alveolar bone using flap surgery. A precise hole is drilled into bone and metallic implant screw (artificial root) is inserted.

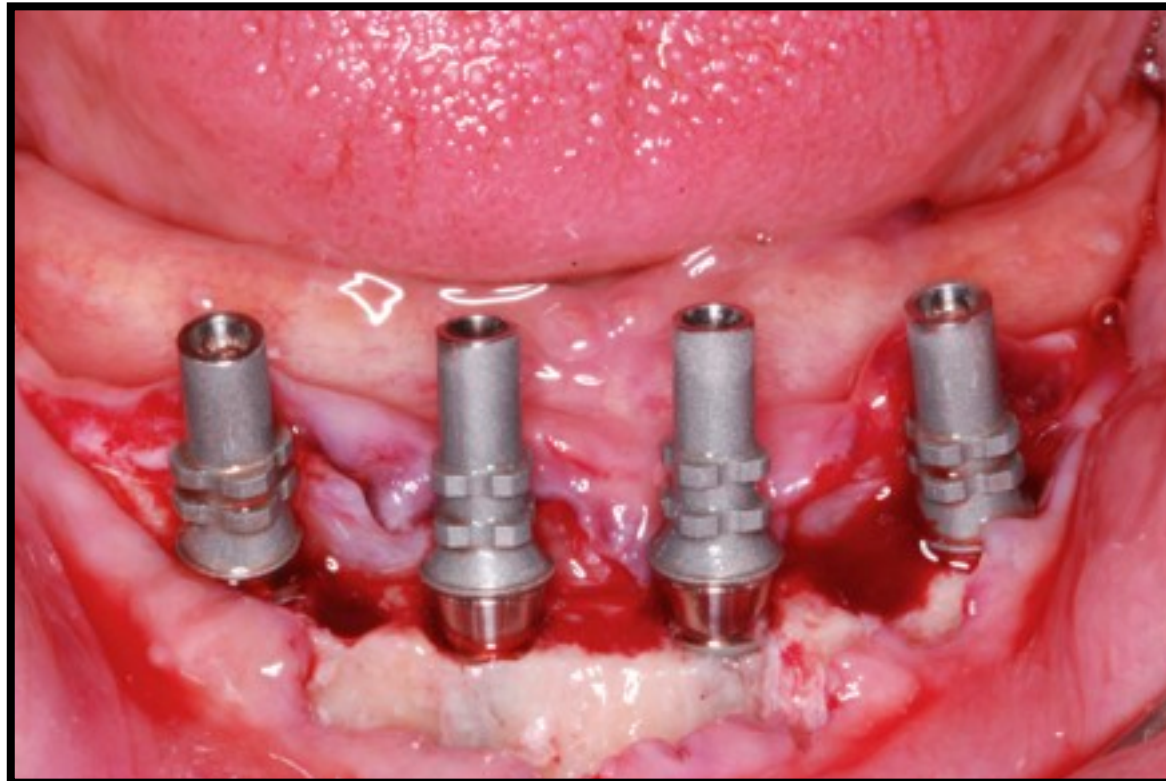




# Periodontal Surgery

## Dental Implant

artificial tooth root placed into the alveolar bone to hold a replacement tooth. Requires exposure of alveolar bone using flap surgery. A precise hole is drilled into bone and metallic implant screw (artificial root) is inserted.



# Periodontal Surgery

## Periodontal Microsurgery

periodontal surgery performed **using surgical microscope**. Can result in procedures performed with increased precision on the part of the surgeon.



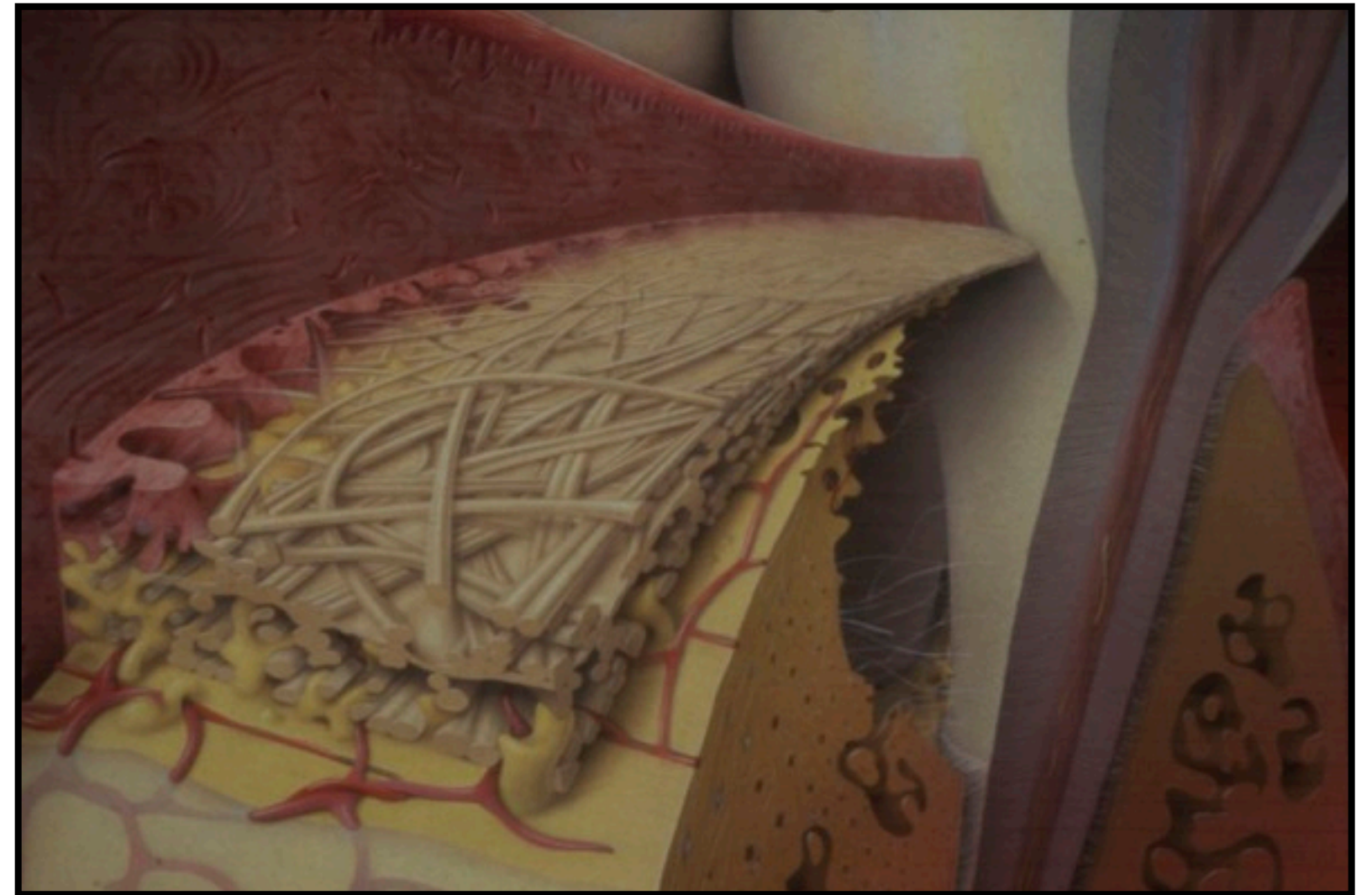


# Periodontal Surgery

## Biological enhancement

attempts to **enhance the outcomes of periodontal surgery** by using chemical or biologic **mediators to influence healing** following periodontal surgical procedures

1. Root surface modification
2. Growth factors
3. Enamel matrix derivative (EMD)
4. Platelet rich plasma (PRP)
5. Bone morphogenetic proteins (BMP)





# Periodontal Surgery

## Sutures

is a device placed by a surgeon to **hold tissues together** during healing.

Must be nontoxic, flexible, and strong

No wicking effect  
(not allowing bacteria to travel down the suture and contaminate wounds)

No tension on the flap



# Periodontal Surgery

## Sutures

**Nonabsorbable** suture material that does not dissolve in body fluids; must be removed by the clinician.

**Absorbable** suture material designed to dissolve harmlessly in body fluids over time.





# Periodontal Surgery

Continuous Sutures



Interrupted Sutures





# Periodontal Surgery

## Periodontal Dressing

a **protective material** applied over a periodontal surgical wound. Used **somewhat like a bandage** to cover a finger wound. Modern periodontal surgical techniques may not require a periodontal dressing.

**Chemical cure paste** requires the mixing of paste from two tubes to form a dressing with a putty-like consistency

**Light-cured paste** a light-cured gel that contains a resin



# Periodontal Surgery

## Chlorhexidine digluconate

A chlorhexidine mouth rinse is recommended for use twice daily **until the patient can safely resume mechanical self-care.**

**Areas** of the dentition **not involved** by the surgery may be **cleaned with routine self-care techniques.**

Flap surgery resume self-care in 10 to 14 days.  
Guided tissue regeneration resume self-care in 4 to 6 weeks.  
(or bone graft)



# Take Home Message

- ☑ Periodontal surgery performed for: access for debridement, regeneration, pocket reduction, pre-prosthetic or esthetic.
- ☑ The patient should have achieved a high level of plaque control prior to surgery and should be able to maintain it.
- ☑ Healing by primary intention is a desirable goal following surgery.





## Review Questions

**1. One of the indications for periodontal surgery is to provide access for improved periodontal instrumentation of the root surfaces.**

A. True

B. False

**2. One relative contraindication for periodontal surgery can be a high risk for dental caries.**

A. True

B. False

**3. The term healing by repair means that the architecture and function of lost tissue is completely restored.**

A. True

B. False

**4. In bone replacement graft procedure, using an autograft means that the graft material is taken from the patient.**

A. True

B. False

**5. The term xenograft refers to a graft taken from a human other than the patient receiving the graft.**

A. True

B. False

**6. A subepithelial connective tissue graft is a type of periodontal plastic surgery.**

A. True

B. False

**7. Esthetic crown lengthening surgery results in longer clinical crowns for the teeth.**

A. True

B. False

**8. The suture size 4-0 is smaller than the suture size 3-0.**

A. True

B. False

**9. When removing sutures following a periodontal surgical procedure, the suture knot should always be pulled through the tissues.**

A. True

B. False



**10. When placing periodontal dressing, the primary guideline is to place as much bulk of dressing as possible over the wound surface.**

A. True

B. False

**11. Facial swelling following periodontal surgery is always a sign that healing will not occur properly.**

A. True

B. False

**12. During postsurgical visits, it is important to remind patients to take all prescribed antibiotic medication.**

A. True

B. False

Thank You!