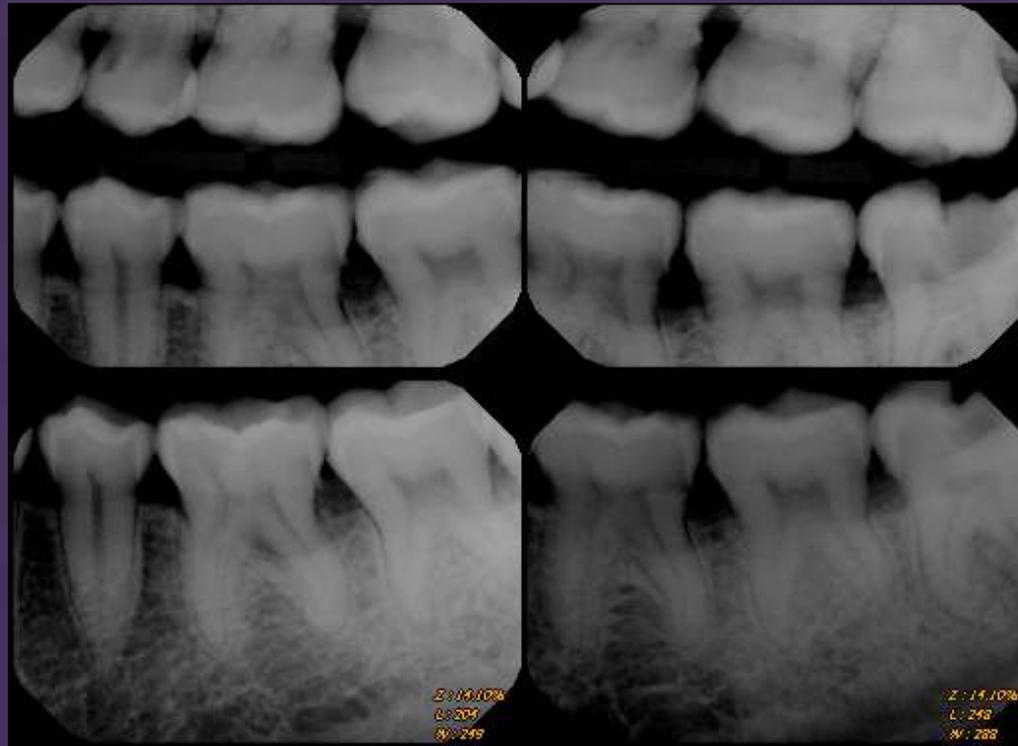


FINANCIAL DISCLOSURE

Speaker Name: Eric Jewell, DDS, MDS
Name of Institution: US Public Health Service
Relationship to Institution: Area/Regional Clinical Specialist
National Indian Health Service Periodontal
Consultant

Neither I nor members of my immediate family have any financial interests to disclose relating to the content of this presentation.

Osseous Resective Surgery



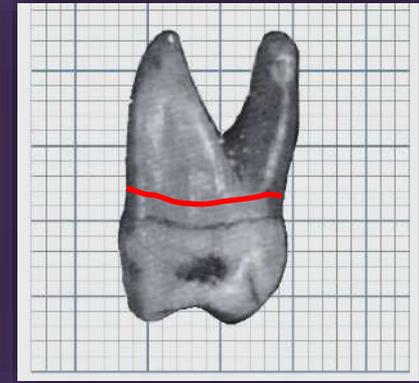
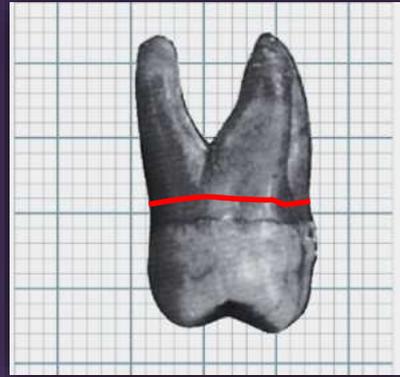
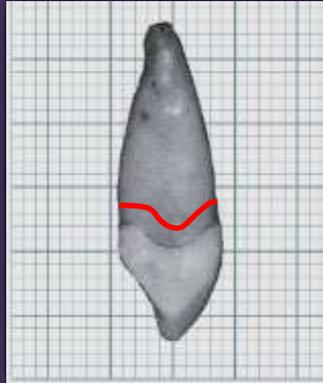
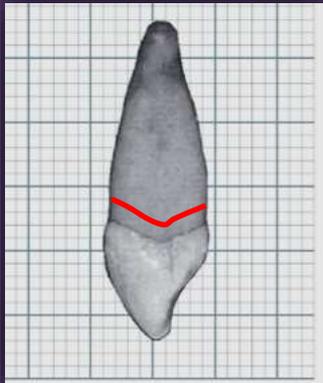
Eric Jewell DDS, MDS
CAPT, US Public Health Service
National IHS Periodontal Consultant

Objectives

At the end of this lecture, participants will be able to:

- Describe normal osseous topography
- Understand the development of osseous defects
- Be able to classify osseous defects
- Describe the steps of osseous resective surgery
- Understand the indications for crown lengthening surgery

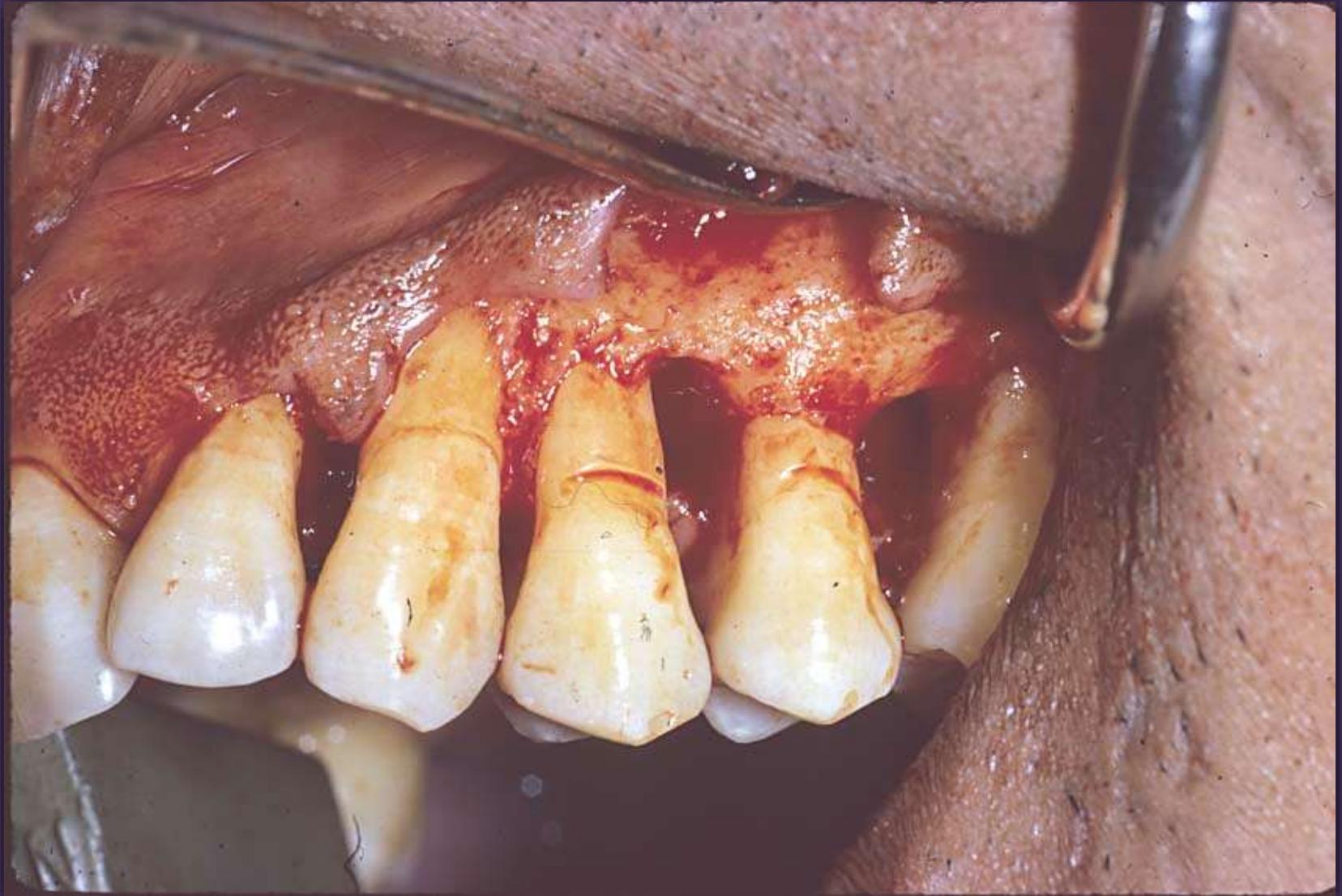
Normal Topography



Normal Osseous Topography

- The interproximal bone should be more coronal than the facial or lingual bone – **Positive Architecture**.
- If the interproximal bone is more apical than the facial or lingual bone – **Negative Architecture**.
- In the molar region the CEJ is nearly flat so the interproximal bone is flat.
- The bony architecture may vary from patient to patient in the extent of contour, configuration, and thickness.

Negative Architecture



BEFORE
Negative architecture



AFTER
Positive architecture

Development of Osseous Defects

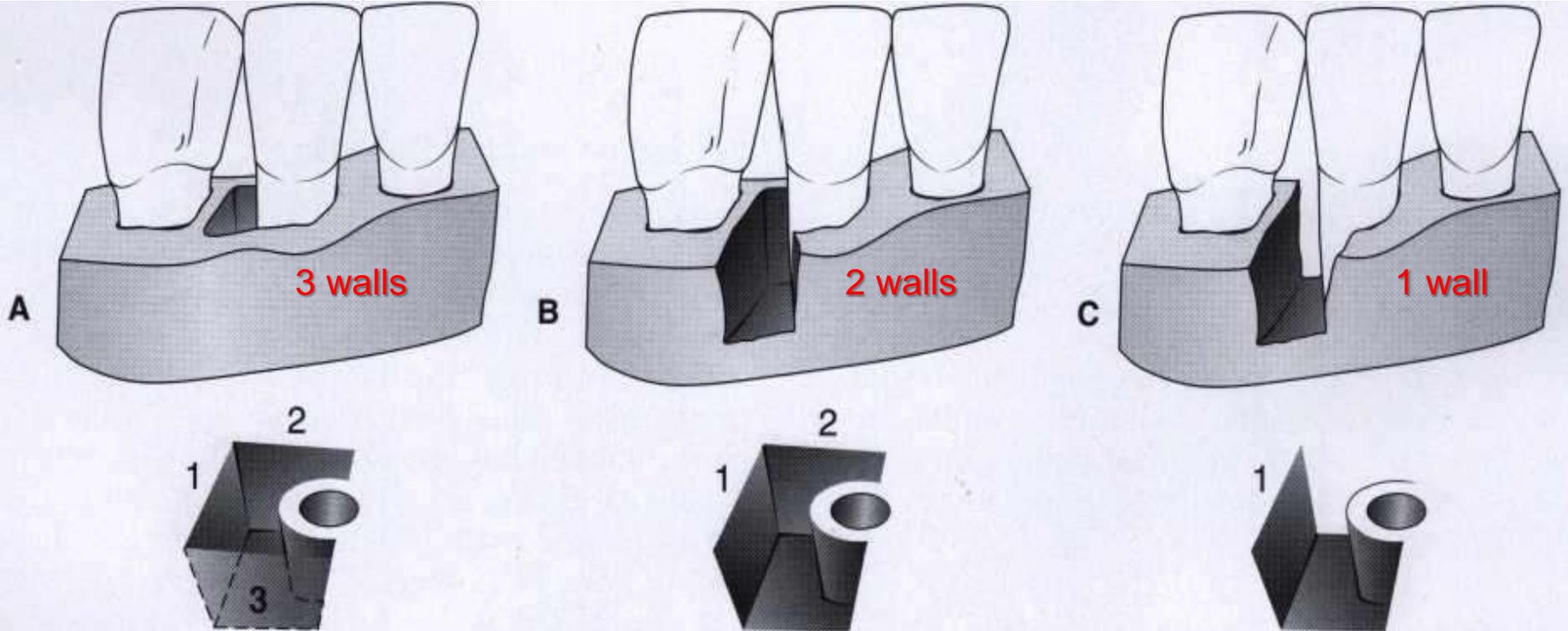
Causes of osseous defects:

- Periodontal disease
- Occlusal trauma
- Subgingival restorations
- Orthodontic tooth movement

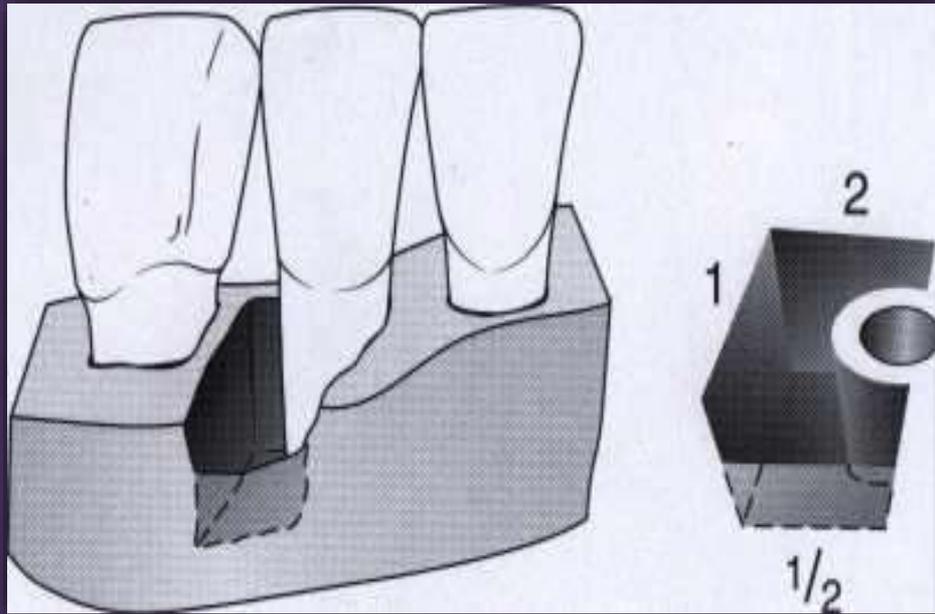


Classification of Osseous Defects

1, 2 and 3 wall vertical defects

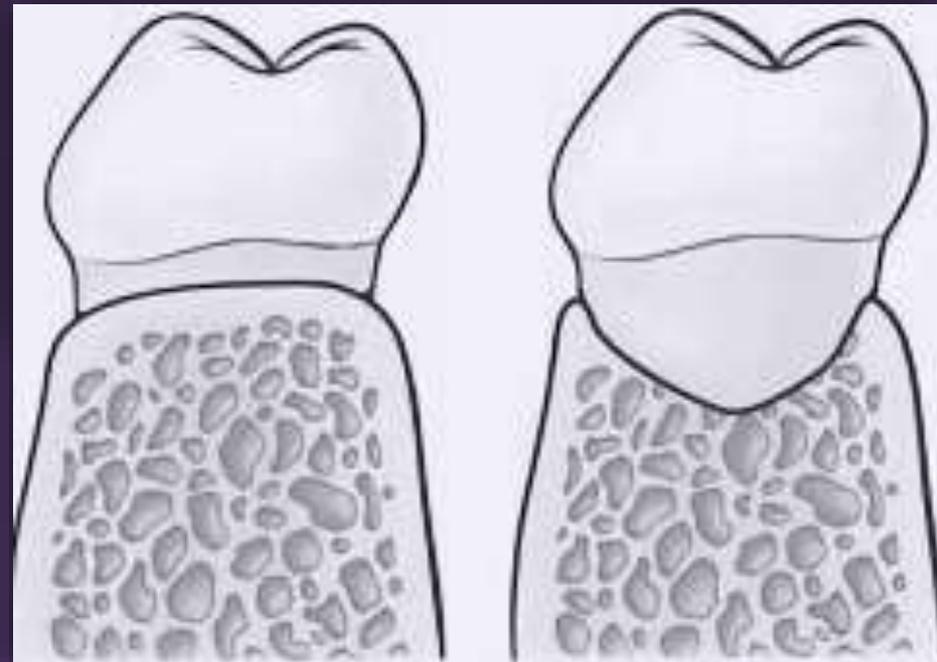


Combined defect



Crater

(most common infrabony defect)



Examination of Osseous Defects

Examination techniques:

- Radiographs
- Probing
- Sounding (transgingival probing)
- **Direct visualization**

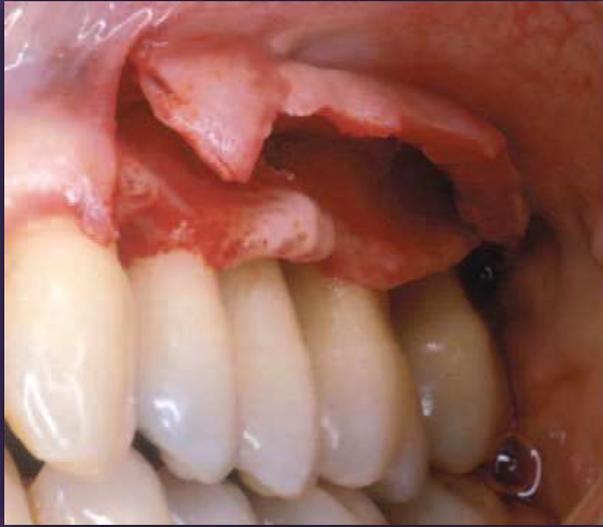
Horizontal Bone Loss



Vertical Bone Loss (infrabony defect)



Ledges



Reverse (negative) architecture



Palatal torus



Lingual tori

Buccal Exostosis



Indications For Osseous Resection

- Infrabony defects
- Negative bony architecture
- Reduction of excessively thick bone
- Pre-prosthetic surgery
- Crown lengthening

Contraindications To Osseous Surgery

- When excessive loss of supporting bone will result postoperatively.
 - Defects that are too deep to allow removal of the osseous walls
 - Removal of the osseous walls will weaken adjacent teeth giving other teeth a poor/hopeless prognosis.
- Apically positioned gingiva in esthetic area
- Poor oral hygiene
- Hopeless prognosis

Surgical Treatment for Periodontal Disease

Two basic surgical approaches to treat periodontitis:

- **Resective** procedures
- **Regenerative** procedures- reducing the probing depth with the reconstruction of lost periodontium.
 - Replaced flaps with Guided Tissue Regeneration (GTR), or Guided Bone Regeneration (GBR).

Osseous Resective Surgery

Primary objectives of resective osseous surgery:

- Provide access
 - Elimination of periodontal pockets
 - Reshape the marginal bone to resemble positive architecture
 - Achieve proper physiologic contour and tissue adaptation amenable to good OH
- Surgical eradication of periodontal pockets is accomplished by ensuring that the underlying bone form *mimics* normal bony architecture at a more apical level.

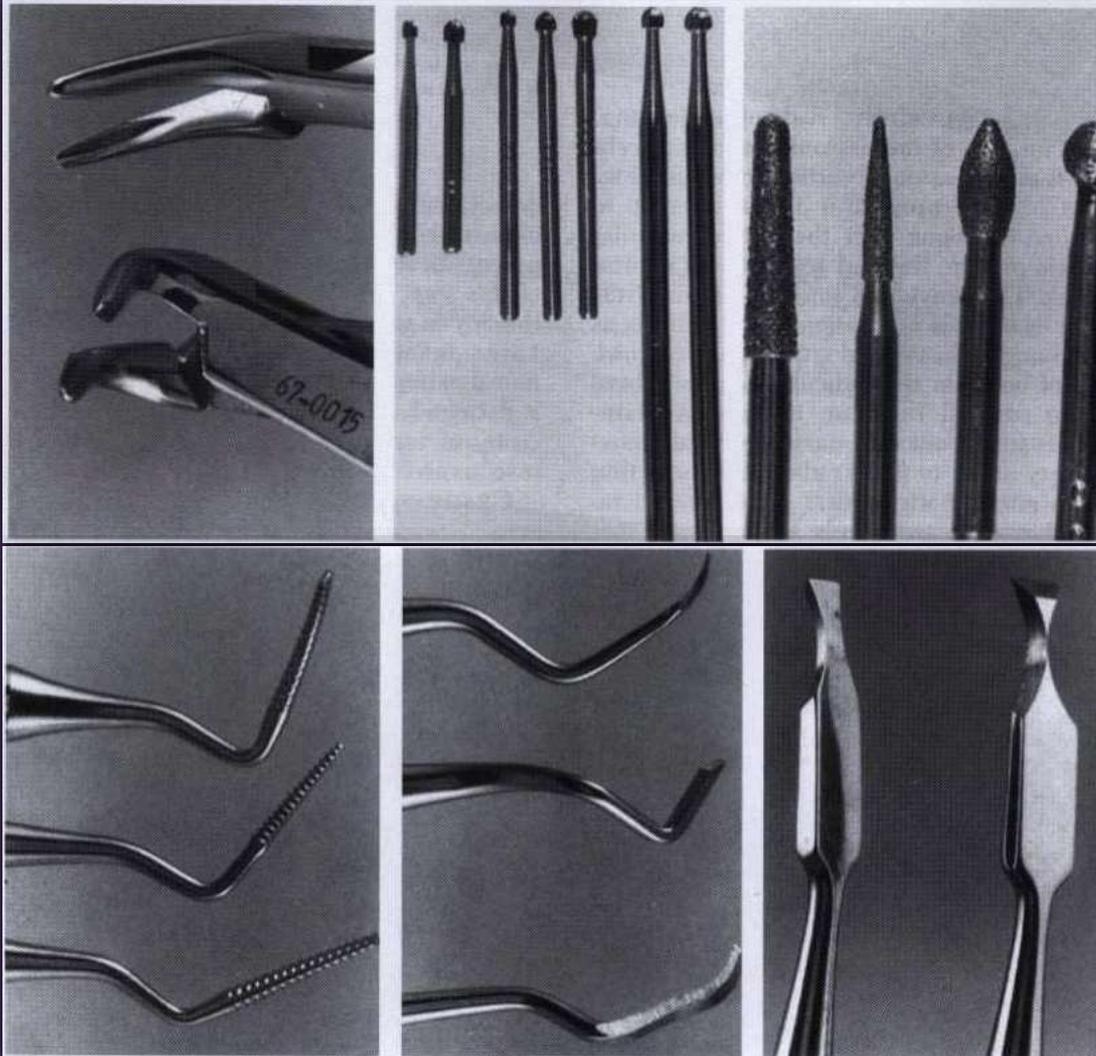
Ostectomy and Osteoplasty

- **Ostectomy** – The removal of tooth supporting alveolar bone that contains periodontal fibers.
 - more root exposed.
- **Osteoplasty** – Reshaping the bone without removal of tooth supporting bone.
 - i.e. thinning bony ledges, or vertical grooving

Ostectomy and Osteoplasty

- Remember: Gingiva tends to return to it's original contour
 - When ostectomy and osteoplasty are done properly, soft tissue and bone will be in harmony with each other.
- Resective surgery is best performed in patients with mild to moderate periodontitis.

Instruments



- Rongeurs
- Carbide round burs
- Diamond burs
- Interproximal files
- Back-action chisels
- Ochsenbein chisels

Sequence of Osseous Resective Surgery

- Assess bony defects with probing, sounding, and diagnostic radiographs.
- Plan incisions:
 - Primary, secondary incisions for flap thinning; reflection and removal of soft tissue.
- Visual and tactile confirmation of bony defects and aberrations.

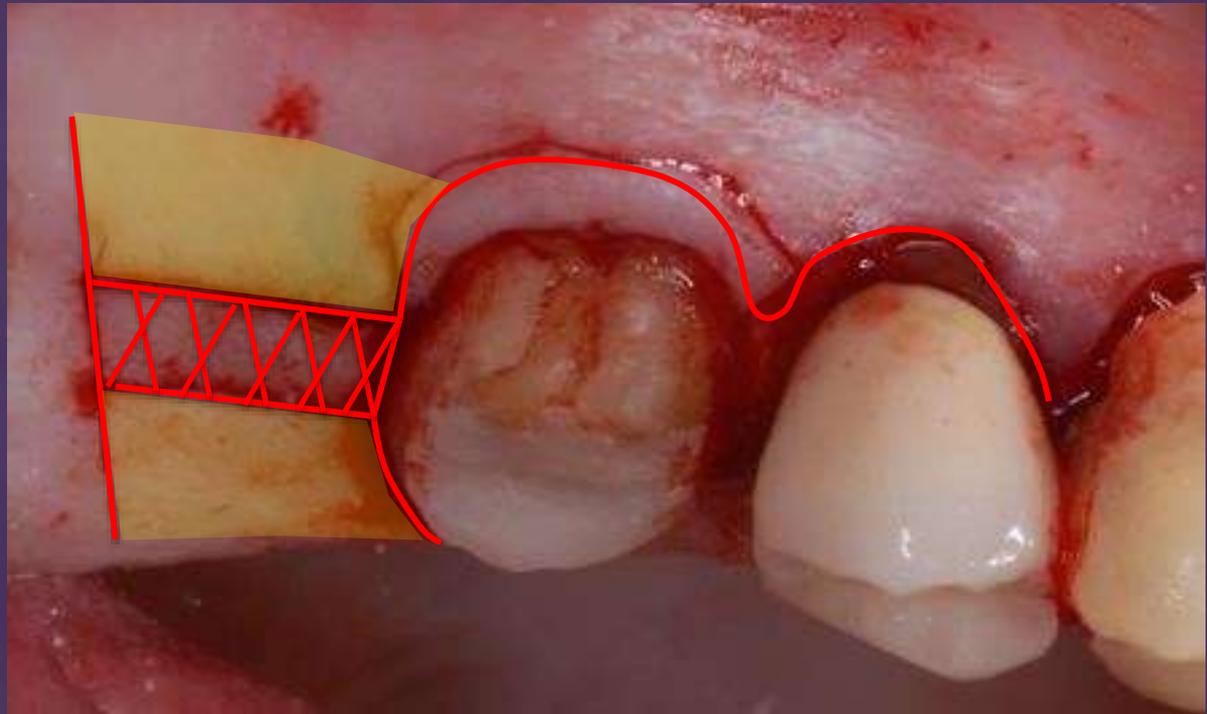
Sequence of Osseous Resective Surgery

Flap Design:

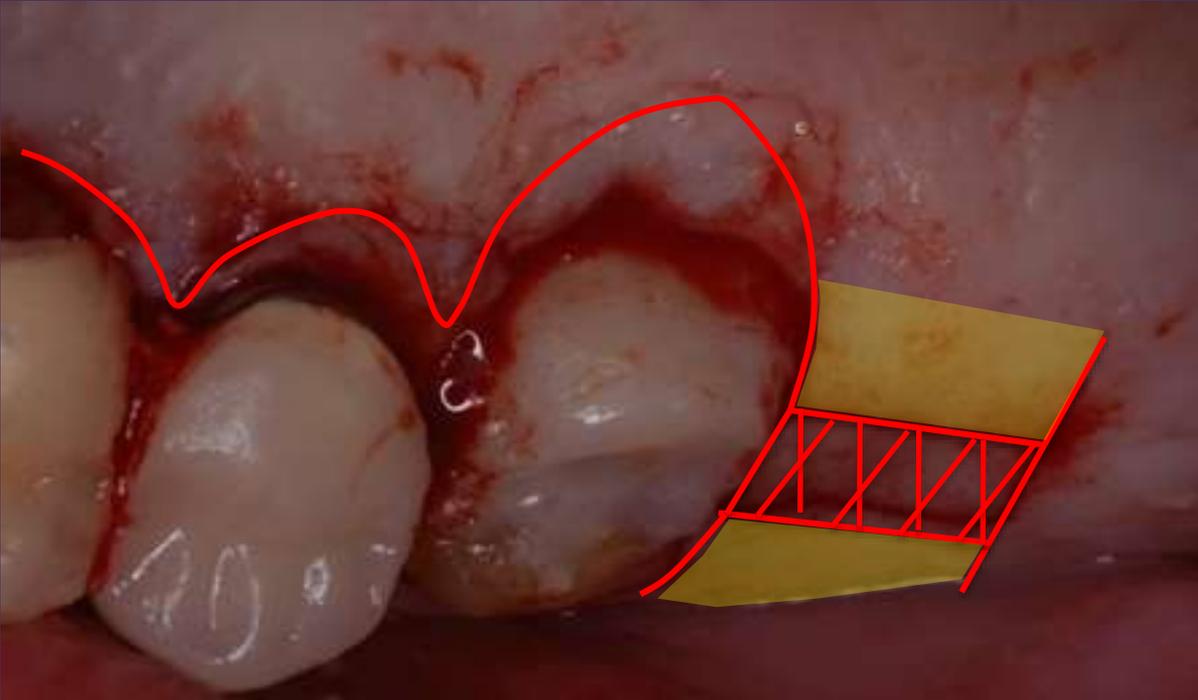
- Sulcular vs Scalloped
- Thinning of tissue
- D or M wedge?

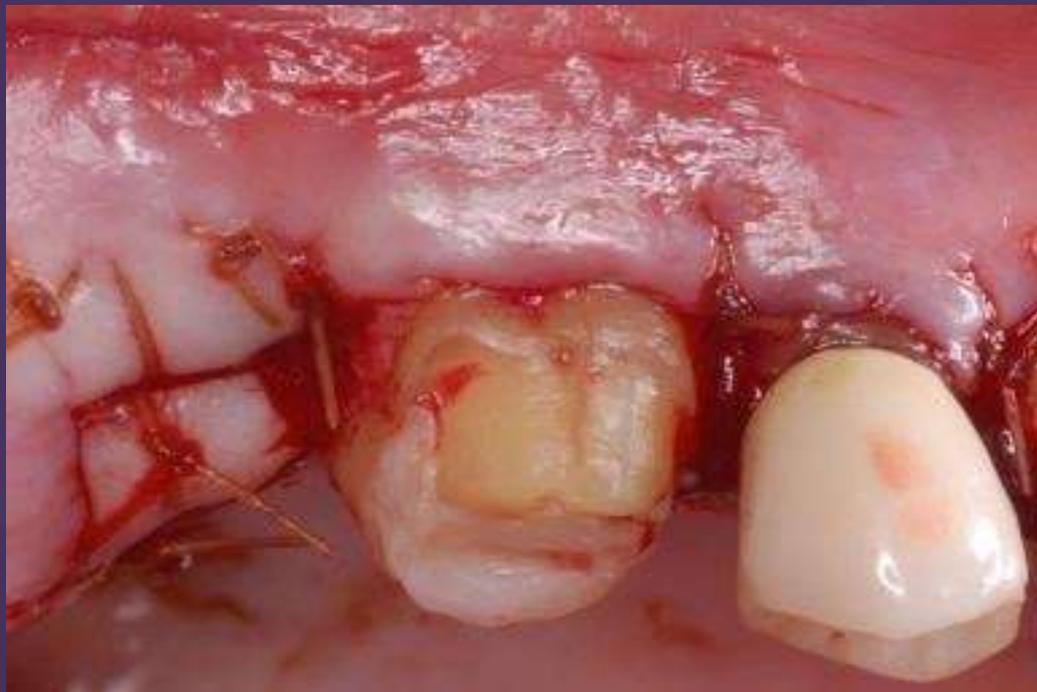






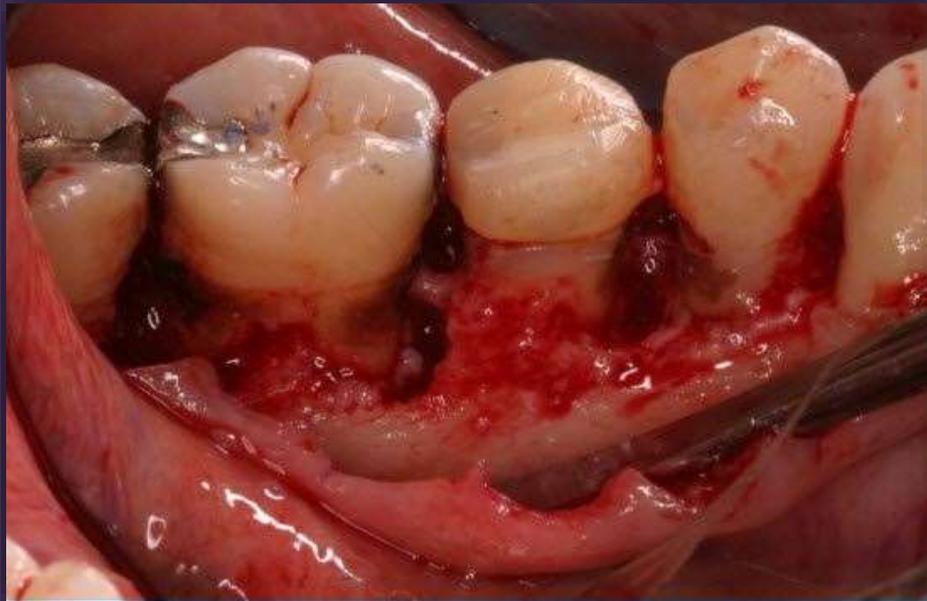
Distal Wedge





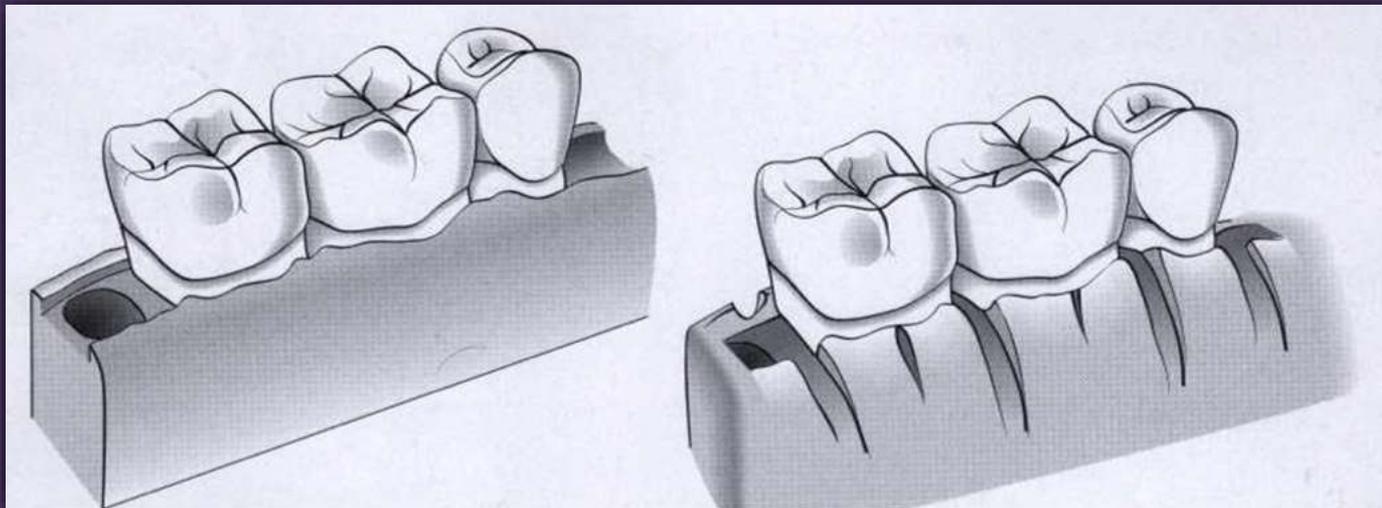
Sequence of Osseous Resective Surgery

Remove diseased granulation tissue



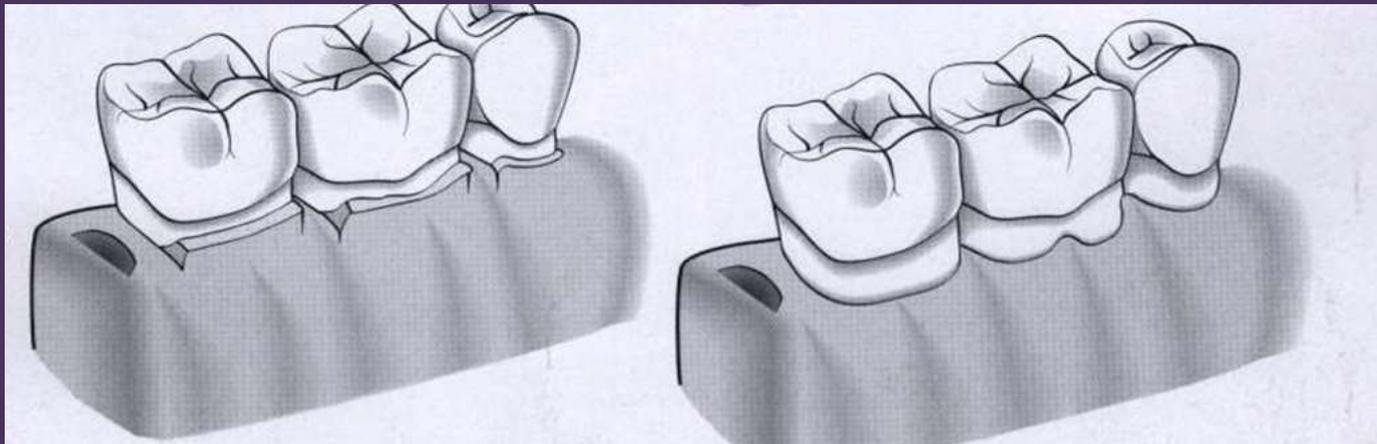
Sequence of Osseous Resective Surgery

- Scaling and root planing – remove calculus & diseased cementum
- Vertical grooving
- Reduction of thick buccal and lingual bone, elimination of bulk



Sequence of Osseous Resective Surgery

- Elimination of the interproximal bony defects.
- Refinement of the bony contours with hand instruments and finishing burs. (shaping)
- Apically position the reflected flaps in a position harmonious with the recontoured bone and close with sutures.





BEFORE

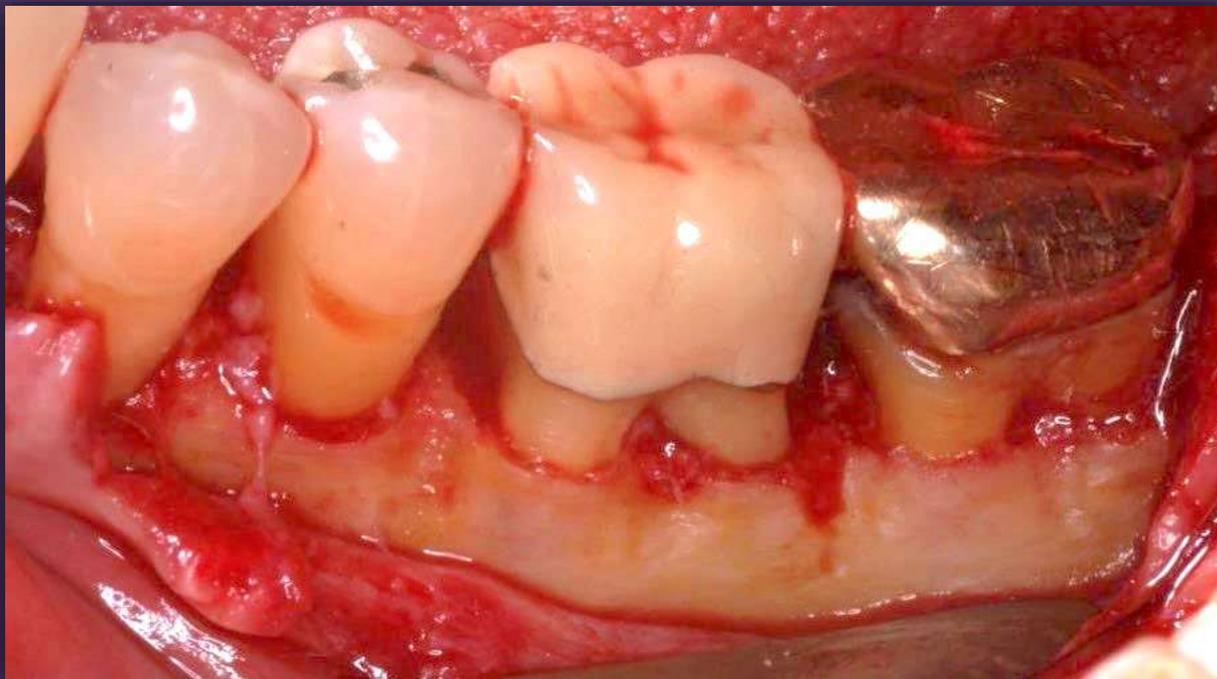
AFTER



BEFORE



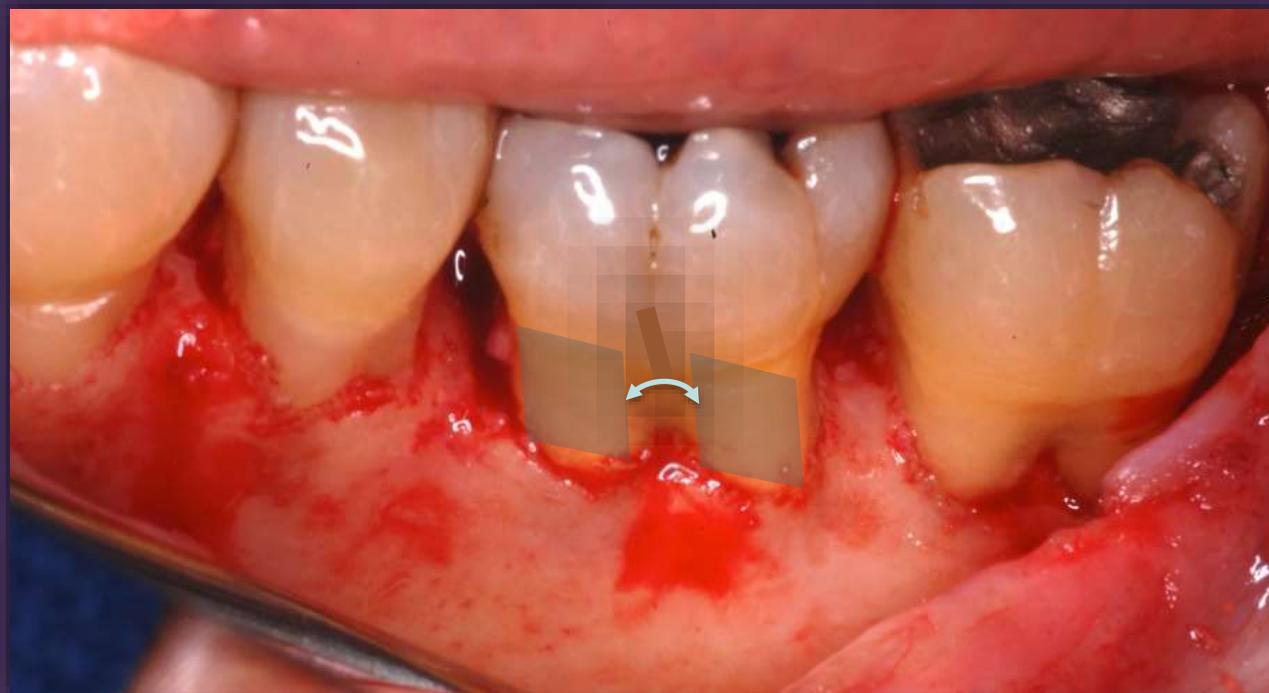
AFTER





BEFORE

AFTER



Suturing

- 3-0 or 4-0 chromic gut (resorbs in 1-2 weeks)
 - Can use silk (non-resorbable), PGA (up to 7 weeks to resorb) – remove after 2-3 weeks
- Simple interrupted (easy)
- Continuous sling (quick once you get the hang of it)
 - Closes M or D wedge incisions better
 - Allows different tension on B vs L
- Sutures should “hold” tissue in position – don’t overtighten!

Continuous Sling



Suturing

- Enter perpendicular to the tissue
- Take an adequate bite of tissue
 - no closer than 2-3mm from tissue margin
- Try to stay in keratinized tissue
- Tie knot “down” on the tissue

Immediately Post Surgery

- No brushing/flossing area for 1st week – CHX 2x daily for surgical site.
- Starting 2nd week GENTLE brushing 2x daily in a gum-to-tooth direction w/ TB dipped in CHX.
- Soft foods, chew on the other side.
- Ice 10 min on, 15 min off for 1st day.
- Return to normal OH after 2 weeks (will initially have tenderness/bleeding)
- Post-op in 2-3 weeks.
- Ibuprofen 800mg is usually sufficient

Post-op Instructions

TON HEALTH CARE
Dental Department

Periodontal Post-Surgical Instructions

1. **BLEEDING:** Blood mixed in with your saliva is normal for several hours after a procedure. However, if significant bleeding resumes later in the day, contact your Doctor as soon as possible. Pressure with a small gauze will usually be all that is required to stop any post-operative bleeding that occurs.
2. **DISCOMFORT:** Take pain medication exactly as instructed by your Doctor. It is a good idea to take the first dose before your local anesthetic has completely worn off if possible. Sometimes narcotics are prescribed to treat post-surgical discomfort. If this is the case, avoid alcohol consumption, driving a car, or operating any sort of dangerous machinery while under the influence of these drugs.
3. **SWELLING:** Expect some swelling in the surgical area and possibly also around lips and cheeks for 3 to 4 days. Swelling normally peaks on the 2nd or 3rd day, then starts to go away over the next few days. Icing the area (10 minutes on, 15 minutes off) for the first post-surgical day can minimize this.
4. **EATING:** Avoid coarse or crunchy foods for the first 2 weeks. You may eat softer foods like eggs, mashed potatoes, soft cooked meats & vegetables, but try to chew on the other side of your mouth. Also, the roots of your teeth may be extra sensitive to hot or cold after treatment.
5. **ORAL HYGIENE:** You can clean your teeth as you normally do in all areas except the surgical site. Do not brush the surgical site until your Doctor tells you to. Use the medicated mouth wash as directed twice daily, but do not swish vigorously.
6. **STITCHES:** If stitches (sutures) were placed, these will usually be removed in about 1 week. In some cases sutures need to stay for up to 3 weeks. Occasionally sutures become loose before your post-operative appointment. Please contact the clinic if they become bothersome.
7. **PERIODONTAL DRESSING:** A periodontal dressing (perio-pack) is placed in some cases. Attempt to keep this in place as long as possible. These often come out during eating, but are harmless if swallowed. They often come loose prior to the scheduled post-operative appointment.
8. **INFECTION:** Since bacteria cause periodontal disease, a post-operative infection can rarely occur. The signs of this may include pain and/or swelling getting worse after the 3rd or 4th day, pus drainage at the surgical site, or a fever. If any of these occur, contact the clinic as soon as possible.

If you have any questions, please CALL. If there is something you don't understand or if you just need some reassurance, do not hesitate to contact the clinic.

Healing After Osseous Surgery

- Attachment of the flap to the underlying bone in 14 to 21 days.
- Maturation and remodeling can continue for up to 6 months.
- Wait at least 6 weeks before beginning dental restorations.

Crown-lengthening Procedures

- Esthetic Crown Lengthening:
 - Adjust level of gingival margin (i.e. gummy smile)
- Functional Crown Lengthening:
 - Tooth preparation
 - Placement of restorative margins
 - Impressions
- Surgical crown lengthening usually includes removal of soft and hard tissue.

Crown-lengthening Procedures

- Finish lines at or above gingival margin
 - Easier to assess accuracy of fit
 - Associated w/ gingival health in pts on recall with good OH

Mueller JCP 1986

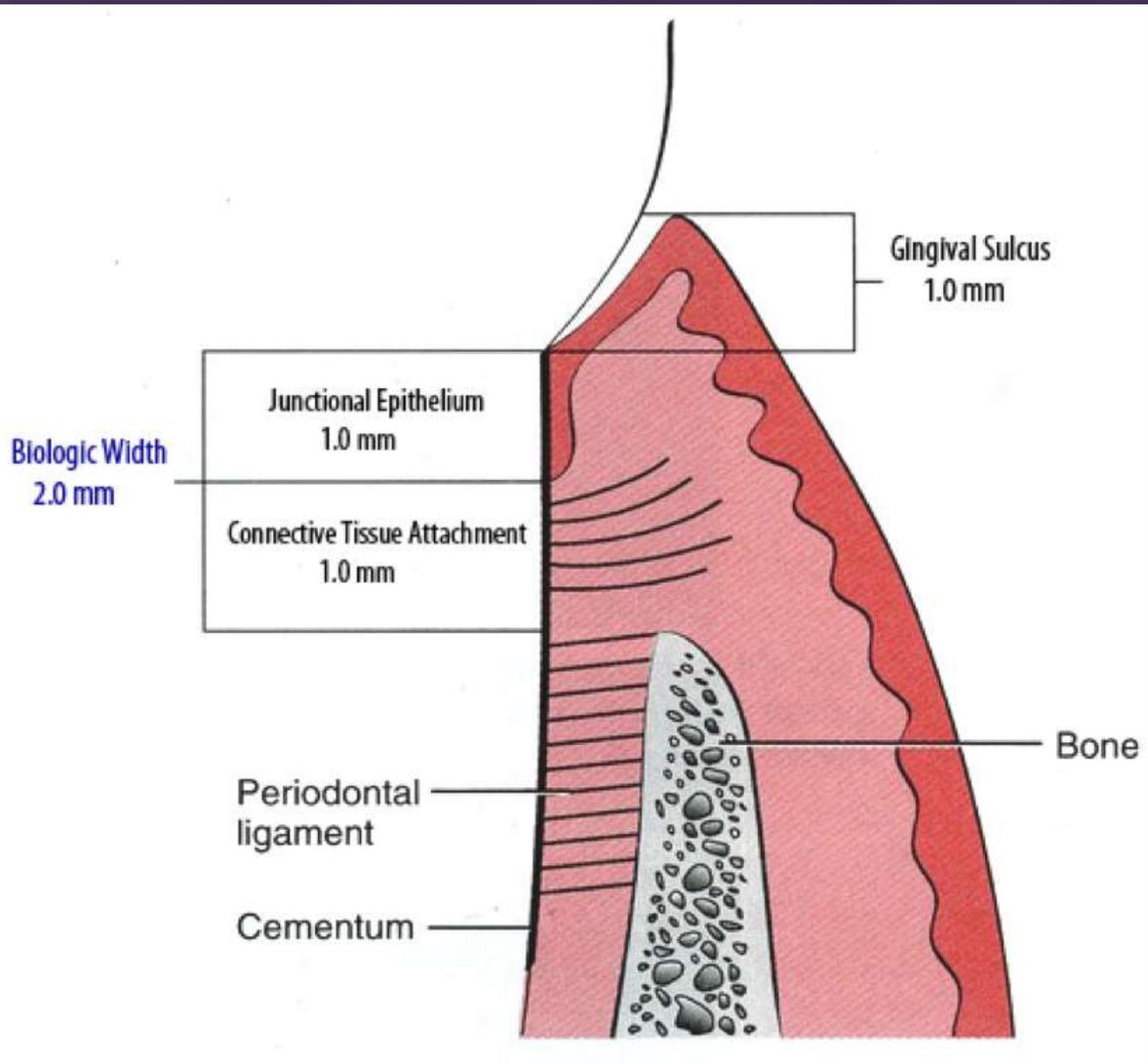
- 5 years after cementation of crowns, sub-g margins were associated with:
 - Higher GI scores, Increased probing depths, Increased loss of attachment compared to supra-g margins

Valderhaug & Birkland
J Oral Rehab 1976

What Is Biologic Width, And Why So Important?

- Physiologic width of the **epithelial attachment** and **connective tissue attachment**. Approximately 2 mm.
- Infringement on the biologic width with a restoration will result in gingival inflammation, pocket formation, and alveolar bone loss.

Biologic Width



- Remove bone to 4mm from restorative margin.

Indications For Crown-lengthening

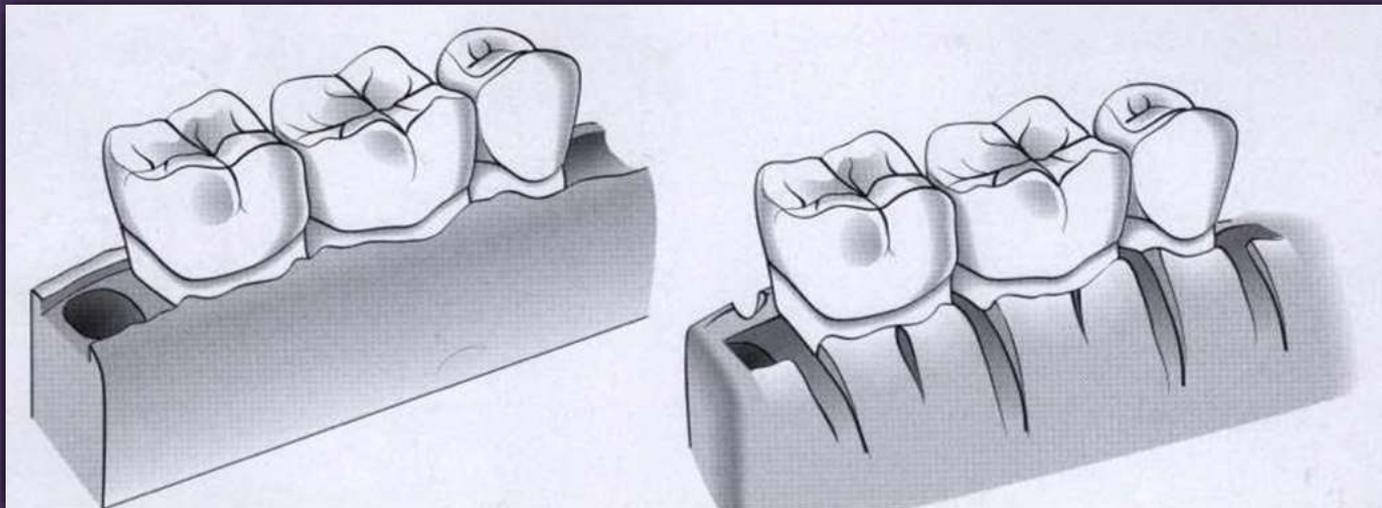
- Subgingival caries or fracture
- Inadequate clinical crown length for retention of restoration
- Unequal or unaesthetic gingival heights

Contraindications

- Surgery would create an unaesthetic outcome.
- Deep caries or fracture would require excessive bone removal on adjacent teeth.
 - Compromised crown to root ratio
- Poor OH

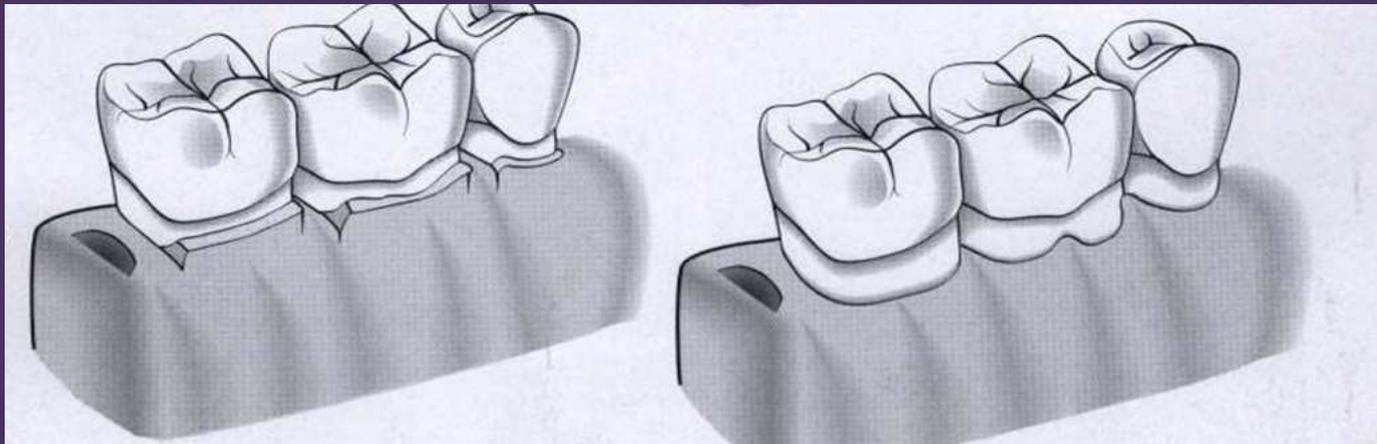
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Buccal



Palatal



Buccal

Palatal



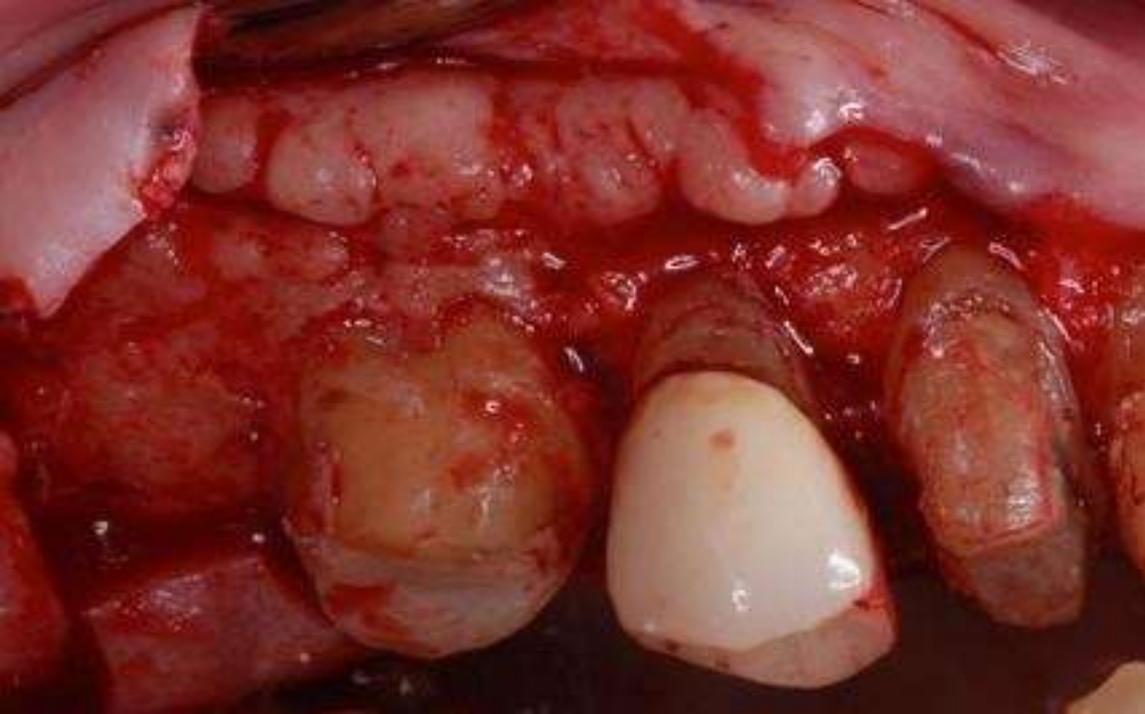


Buccal



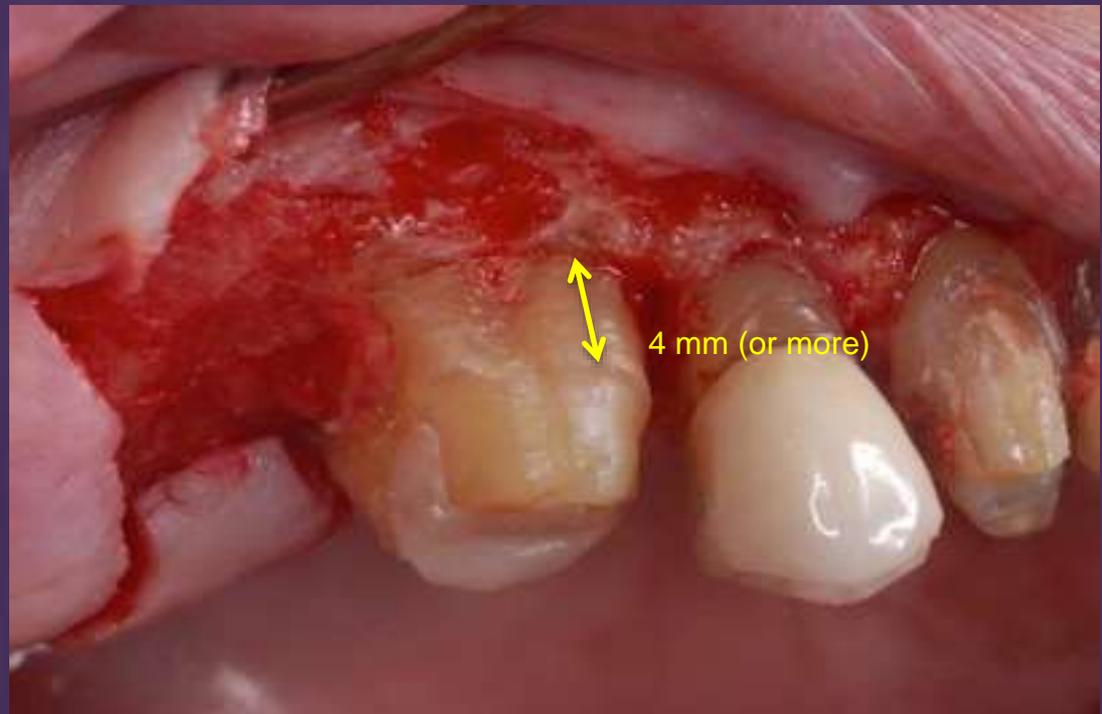
Palatal





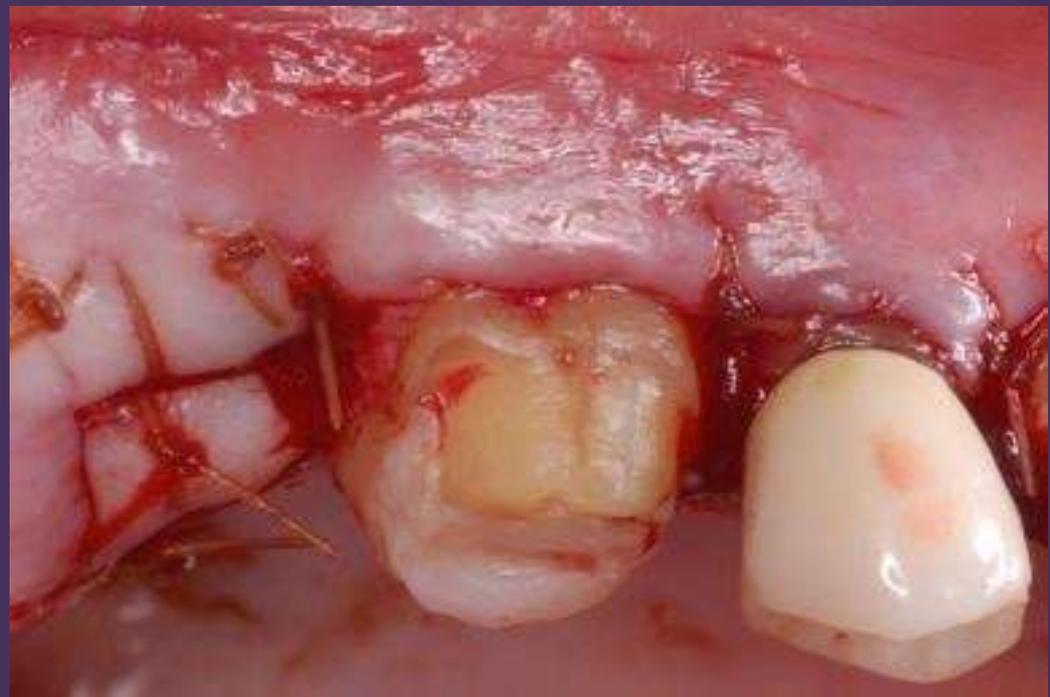
BEFORE

AFTER





BEFORE



AFTER

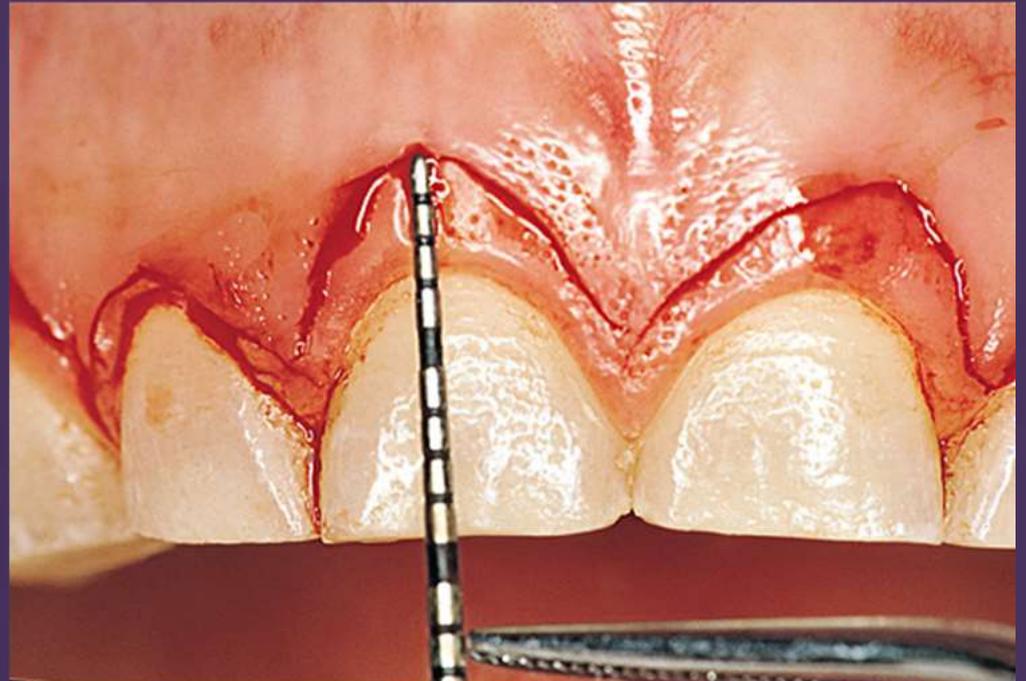
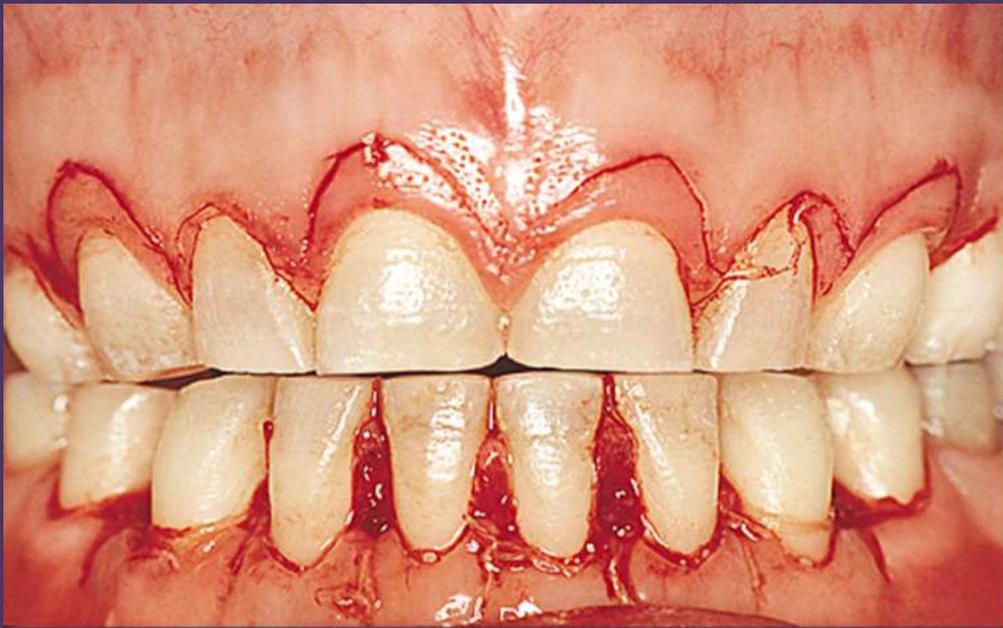
INITIAL



2 week post op



Esthetic crown lengthening









Perio Abscess Treatment

Advantages of Surgical Therapy

- Access for root debridement
- Visualization of the bony defect
- Enhanced predictability of new attachment
- Possibly no second procedure

Perio Abscess Treatment



Perio Abscess Treatment



Perio Abscess Treatment



Perio Abscess Treatment



Perio Abscess Treatment



Other Perio Surgeries

Mucogingival Surgery

- Frenectomy
- Connective Tissue Graft (CTG)
- Acellular Dermal Matrix (ADM)
- Laterally positioned flap w/ or w/o CTG or ADM
- Coronally positioned flap w/ or w/o CTG or ADM
- Free Gingival Graft

Flap Surgery

- Bone replacement grafts
- Guided tissue regeneration
- Guided bone regeneration



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