

The Periodontal flap

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- A Periodontal flap is a section of gingiva and / or mucosa surgically separated from the underlying tissues to provide visibility of and access to the bone and root surface.

Indication:

- Access to root surface and osseous defects
- In case of periodontitis with 5-6 mm pocket depth.
- Intrabony pocket.
- Resective surgery
- Regenerative procedures

- Periodontal plastic surgery
- Grade 2 & 3 furcation involvement
- Implant surgery
- Treatment of abscess
- Crown lengthening procedure to expose the restorative margins.

CONTRAINDICATIONS:

- Uncontrolled medical conditions
- Poor plaque control
- Unrealistic patient expectations or desires
- Acute infections

- Poor prognosis –tooth loss is inevitable
- Pronounced Gingival overgrowth
- Where thorough scaling and root planning and home care will control the lesion
- Patients of advanced age were teeth may last for life without resort to radical treatment

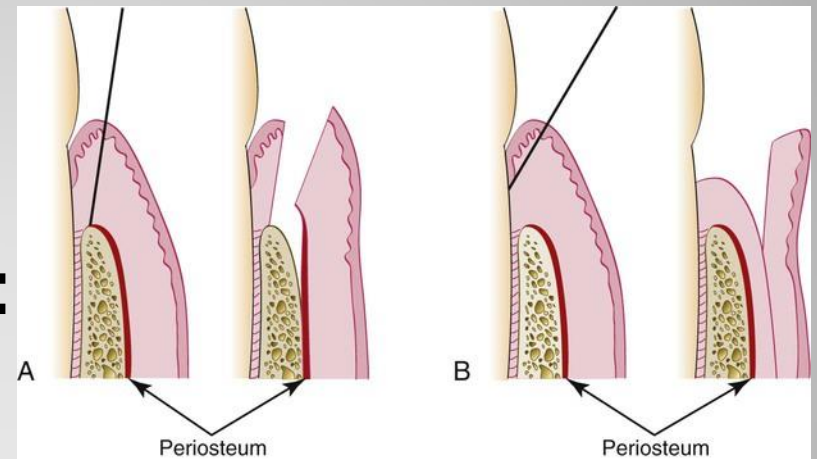
Classification:

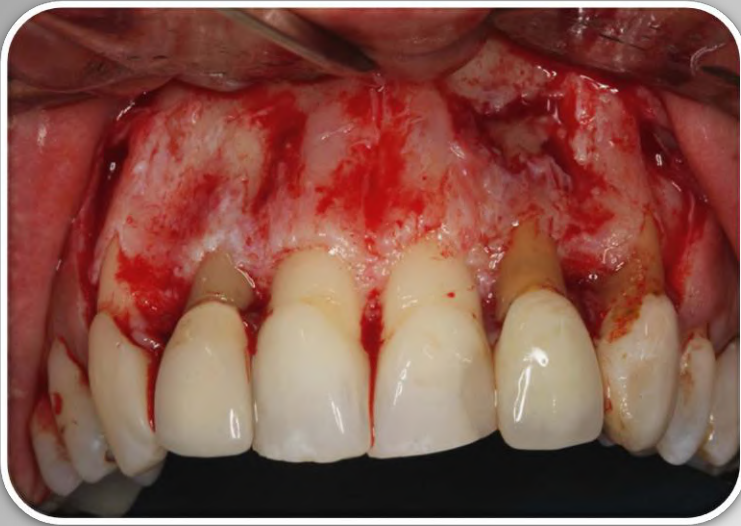
Periodontal flap can be classified based on the following:

- Bone exposure after flap reflection
- Placement of the flap after surgery
- Management of the papilla

❖ Based on bone exposure after reflection:

- Full- thickness flap:
[mucoperiosteal]
- Partial – thickness flap:
[mucosal]





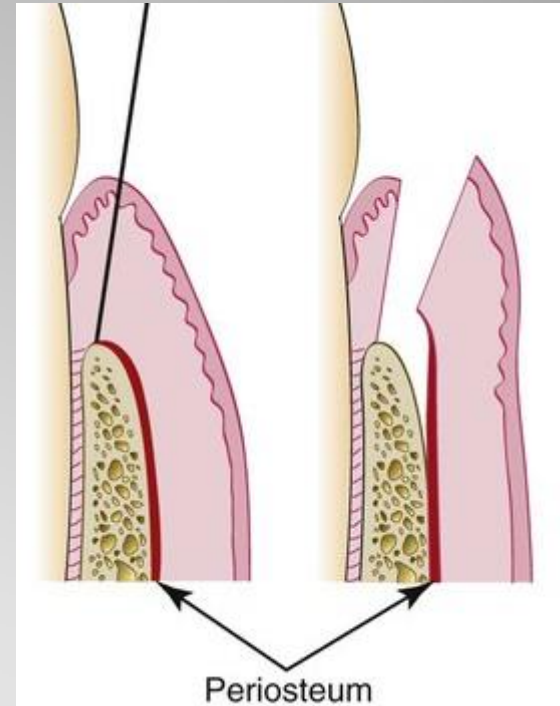
Full thickness flap



Partial thickness flap

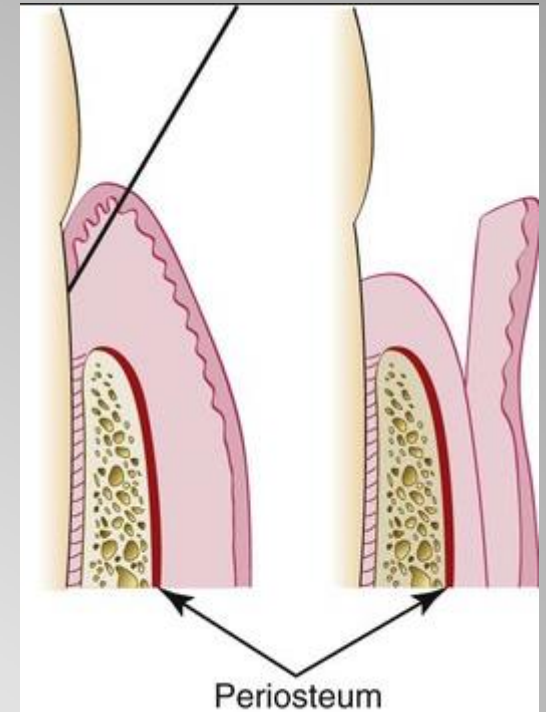
Full- thickness flap: [mucoperiosteal]

- Periosteum is reflected to expose the underlying bone.
- Indicated in resective osseous surgery



Partial – thickness flap: [mucosal]

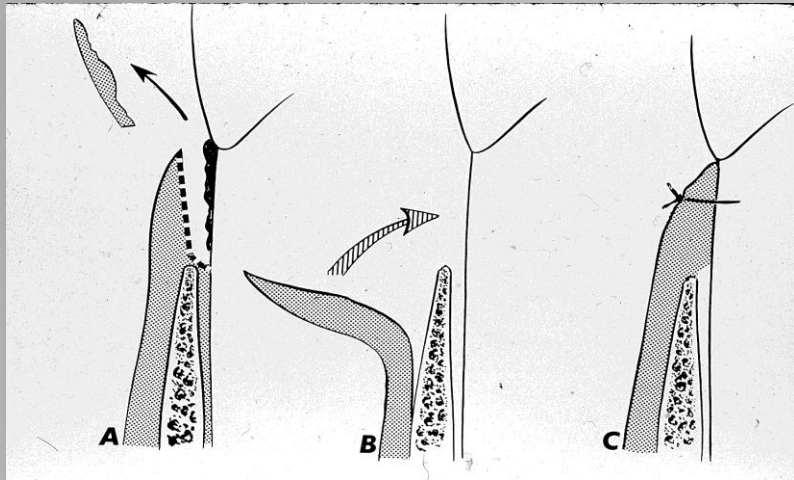
- Split thickness flap.
- Periosteum covers the bone.
- Indicated when the flap has to be positioned apically
- When the operator does not desire to expose the bone.



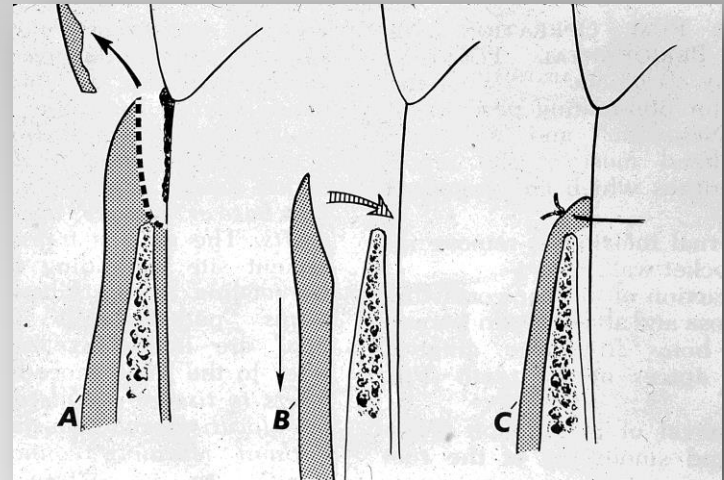
❖ **Based on flap placement after surgery:**

- **Non displaced flaps:** When the flap is returned and sutured in its original position.
- **Displaced flaps:** When the flap is placed apically, coronally or laterally to their original position

Non-displaced flap

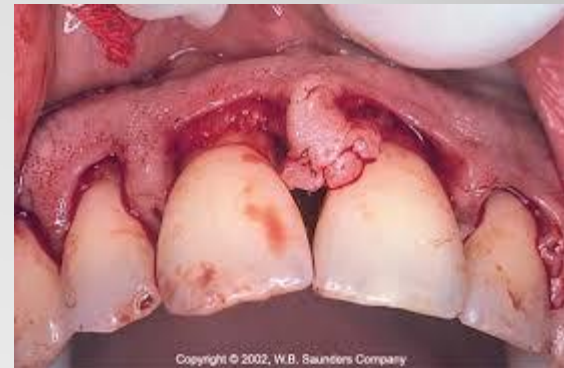


Displaced flap

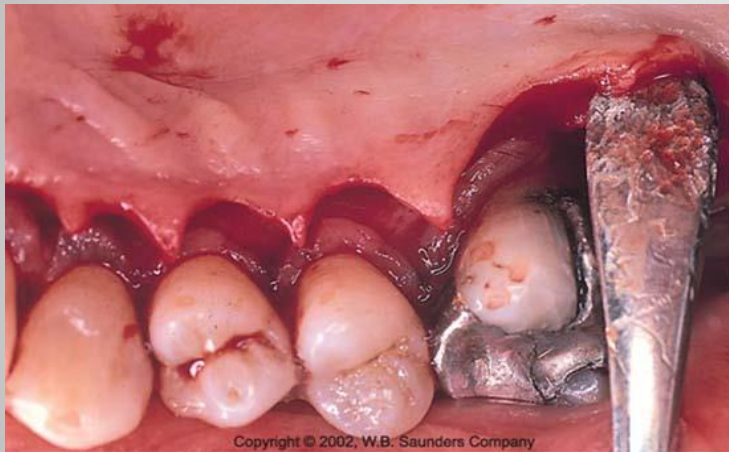


❖ Based on Management of the papilla

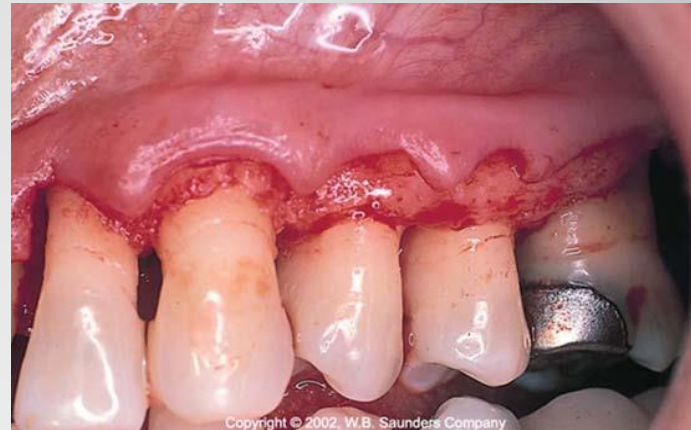
- Conventional flap
- Papilla preservation flap



CONVENTIONAL FLAP



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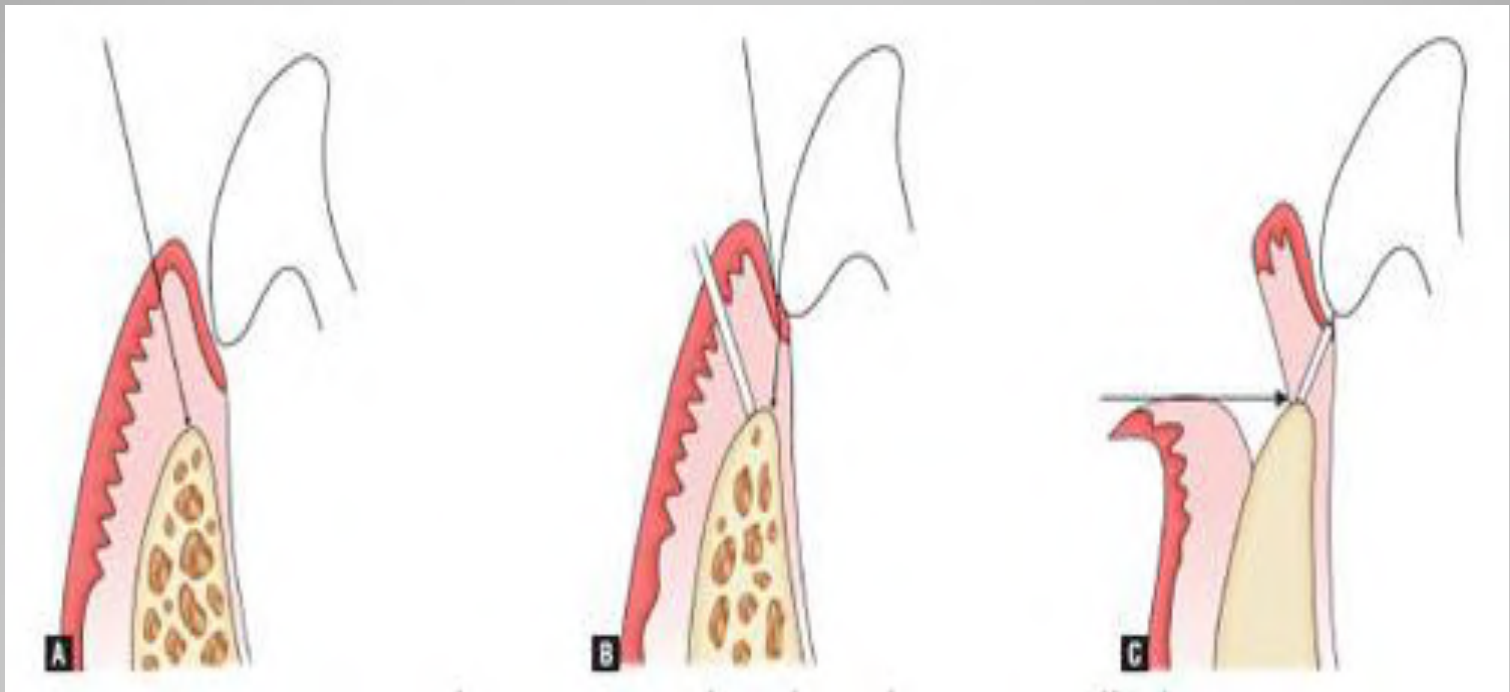
- The Modified Widman flap.
- The undisplaced flap.
- The apically displaced flap.
- Flap for regenerative procedures

PAPILLA PRESERVATION FLAP



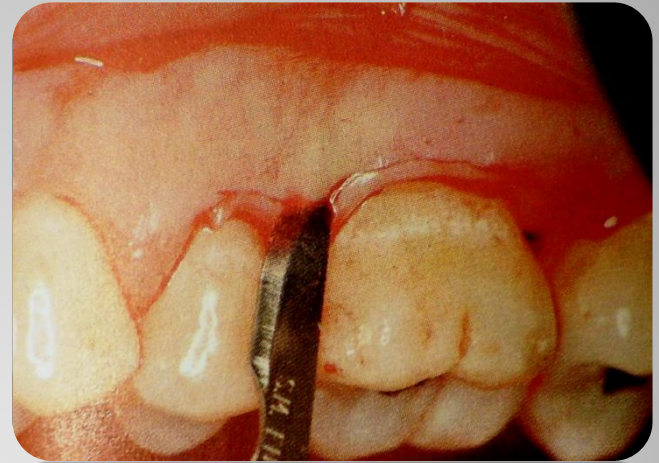
INCISION

- **HORIZONTAL INCISION:**
 - ❖ Internal bevel incision
 - ❖ Crevicular incision
 - ❖ Interdental incision
- **VERTICAL INCISION:**



INTERNAL BEVEL INCISION:

- Initial or first incision
- reverse bevel incision
- 1-3mm from the gingival margin inclined toward the alveolar crest.
- 11 or 15 surgical scalpel used.



Objective:

- it removes the pocket lining
- Conserves relatively uninvolved surface of the outer gingiva.
- it produces a sharp, thin flap margin for adaptation

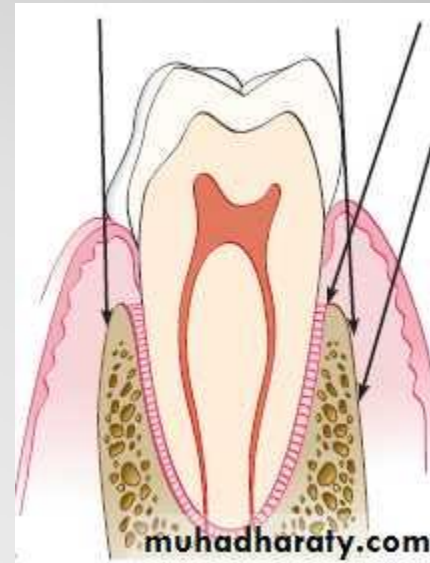
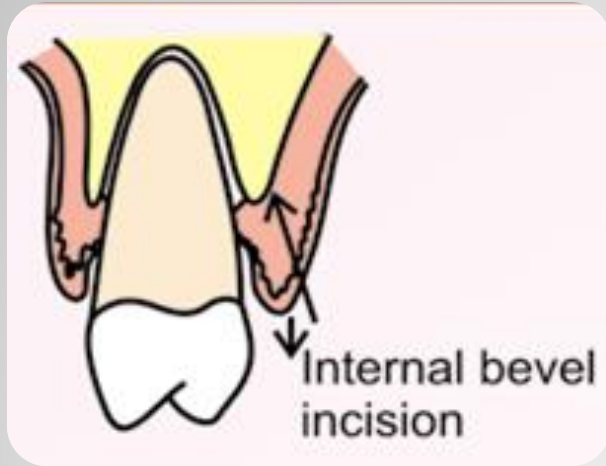


Table 1-11 Indications for the Internal Bevel Incision

1. Primary incision of flap surgery if there is a sufficient band of attached gingiva
2. Desire to correct bone morphology (osteoplasty, osseous resection)
3. Thick gingiva (such as palatal gingiva)
4. Deep periodontal pockets and bone defect
5. Desire to lengthen clinical crown

Creviceular incision:

- Sulcular incision
- Which incis the cervicular area from the bottom of the pocket towards the crest.
- Forms a V-shaped wedge of tissue together with 1st incision ending near the crest of the bone

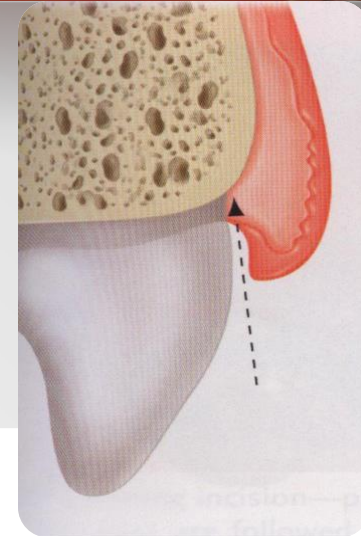
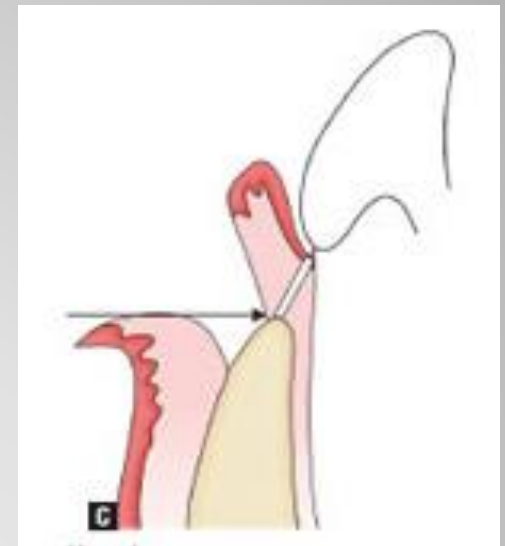


Table 1-10 Indications for the Sulcular Incision

1. Narrow band of attached gingiva
2. Thin gingiva and alveolar process
3. Shallow periodontal pocket
4. Desire to lessen postoperative gingival recession for esthetic reasons in the maxillary anterior region
5. As a secondary incision of usual flap surgery
6. Bone graft or GTR: desire to preserve as much periodontal tissue (especially interdental papilla) as possible to completely cover grafted bone and membrane by flaps

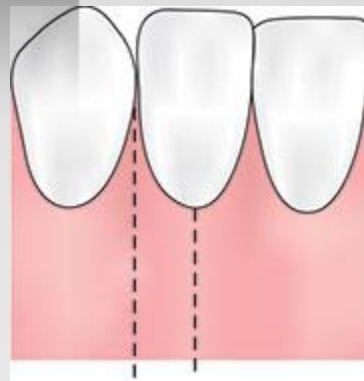
Interdental incision:

- ❖ Third incision
- ❖ It separate the collar of gingiva that is left around the teeth
- ❖ The Orban knife is used
- ❖ Incision made facially, lingually & interdentially connecting the 2 segments.

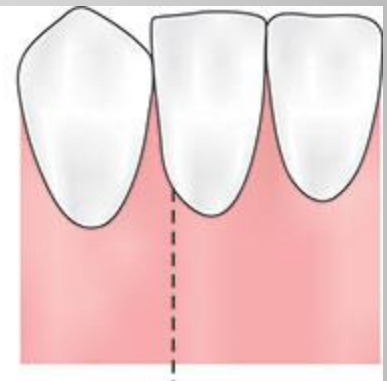


VERTICAL INCISION:

- Oblique incision
- Used in one or both ends of horizontal incision
- Incision should be made at the line angles of the tooth.
- Given on both ends when the flap has to be displaced.
- Must extend beyond the mucogingival junction reaching the alveolar mucosa



Incorrect (×)
Not in center of interdental papilla
Not at radicular surface



Correct (✓)
At line angle

FLAP DESIGN

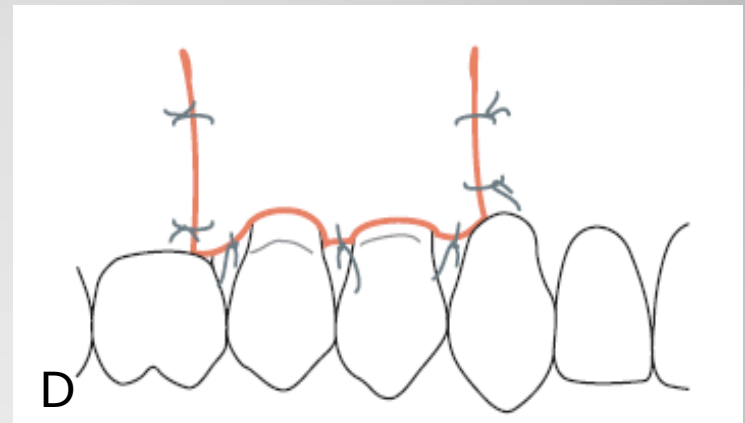
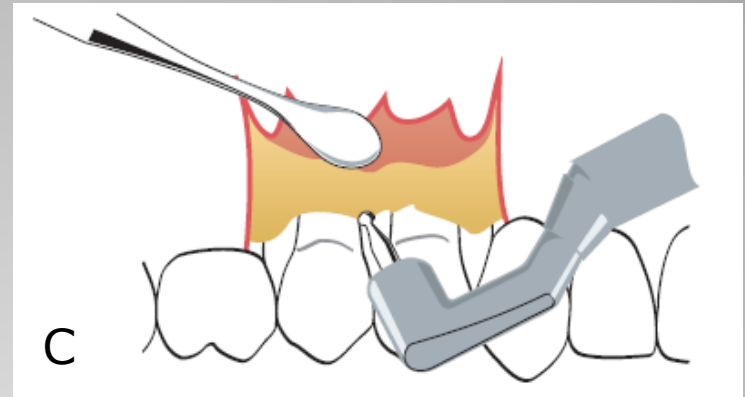
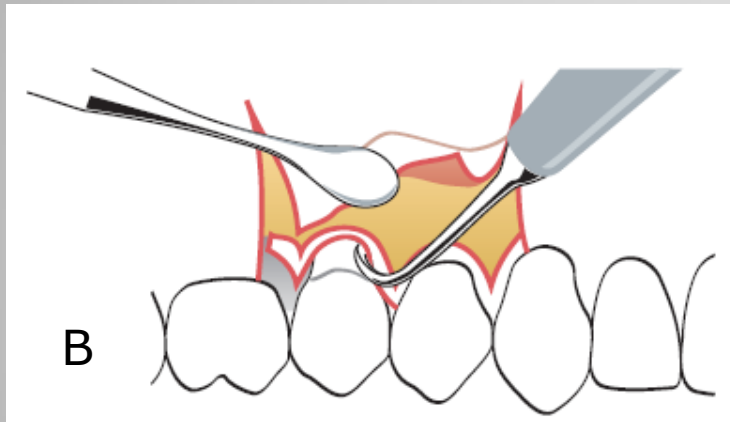
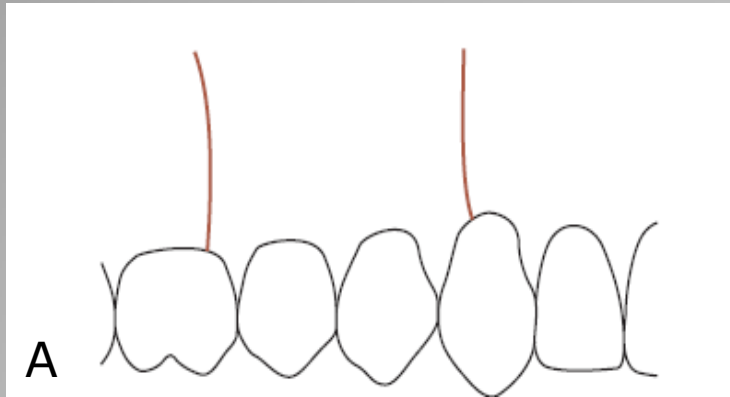
Design of the flap:

Consider:

- The degree of access to the underlying bone and root surfaces necessary
- Final position of the flap
- Preservation of good blood supply to the flap

ORIGINAL WIDMAN FLAP:

- In 1918, ***Leonard Wildman*** published the detailed description of this procedure for pocket elimination
- Aimed to removing pocket epithelium and inflamed connective tissue.



Advantage:

- Re establish a proper contour of the alveolar bone in sites with angular bony defects.
- Healing occurs in primary intention.

Neumann flap

Neumann in 1920

Intracrevicular incision is made to elevate mucoperiosteal flap.



Sectional releasing incisions are made to demarcate the area of surgery



remove the pocket epithelium and the granulation tissue.



The root surfaces is subsequently “cleaned” and any irregularities of the alveolar bone is corrected to give the bone crest a horizontal outline



Flaps are then trimmed to allow both an optimal adaptation to the teeth and a proper coverage of the alveolar bone



Flap is then replaced at crest of alveolar bone.

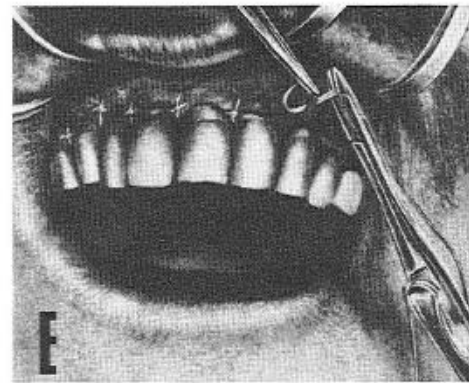
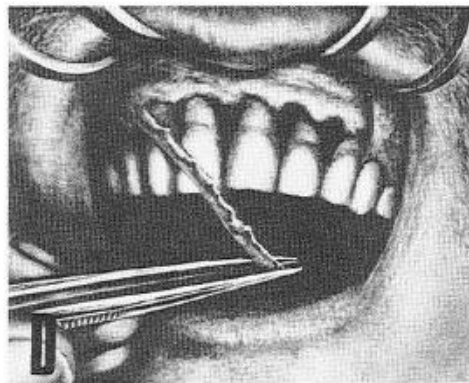
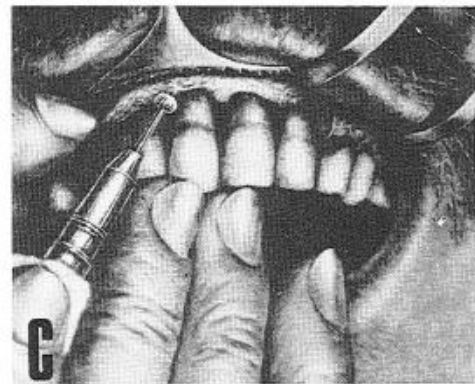
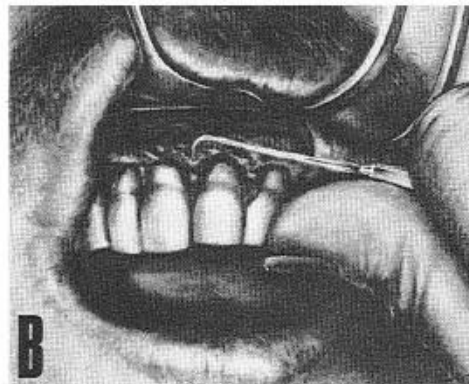
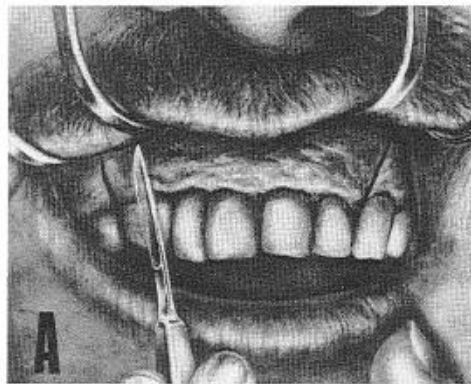
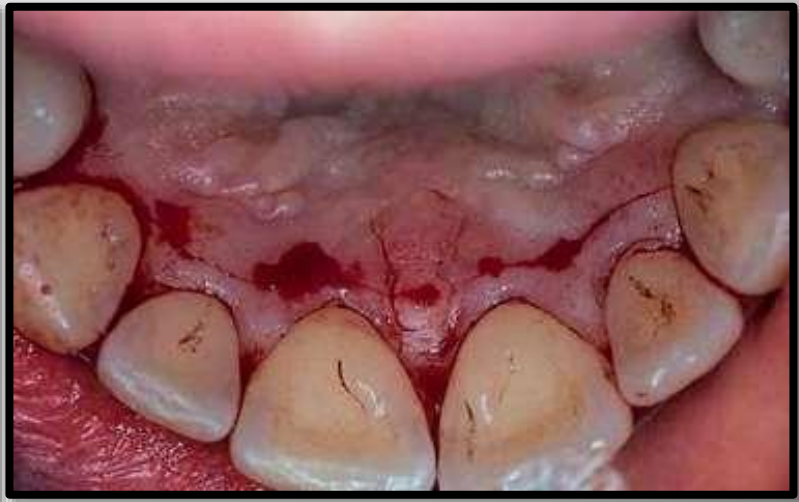
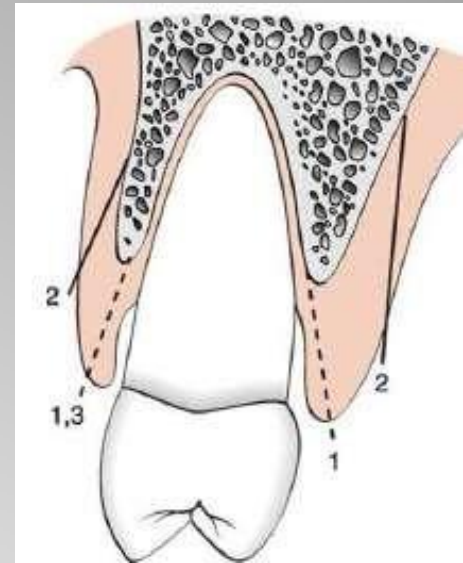


Figure 1A. Initial incision and flap design for maxillary anterior sextant. **B.** Use of curette to remove granulation tissue following reflection of mucoperiosteal flap. **C.** Round bur in a straight handpiece to recontour bone. Neumann underscored the need to mimic the form created by “senile atrophy”. **D.** Fine scissors used to create scalloped gingival margin to cover properly contoured bone. **E.** Curved needle used in closing vertical incisions.

Modified Widman flap

- Ramfjord and Nissle in 1974 coined the term modified Widman flap

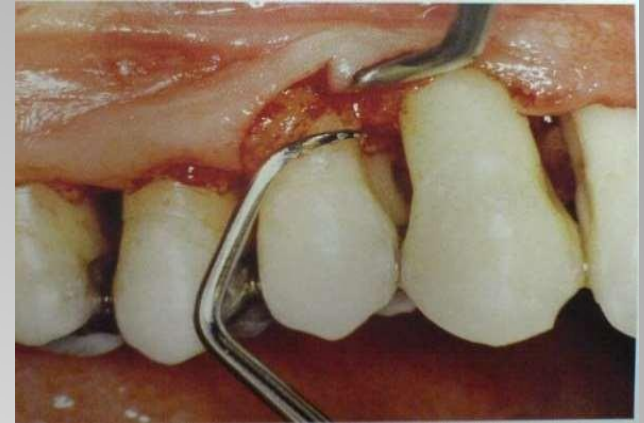
- Internal bevel incision should be made to the alveolar crest starting 0.5 to 1 mm away from the gingival margin.



- Crevicular incision is made from the bottom of the pocket to bone
- Interdental incision sectioning the base of the papilla
- Tissue tags and granulation tissue are removed.



- Scaling and root planning of exposed root surfaces
- Flap is positioned and suture placed.

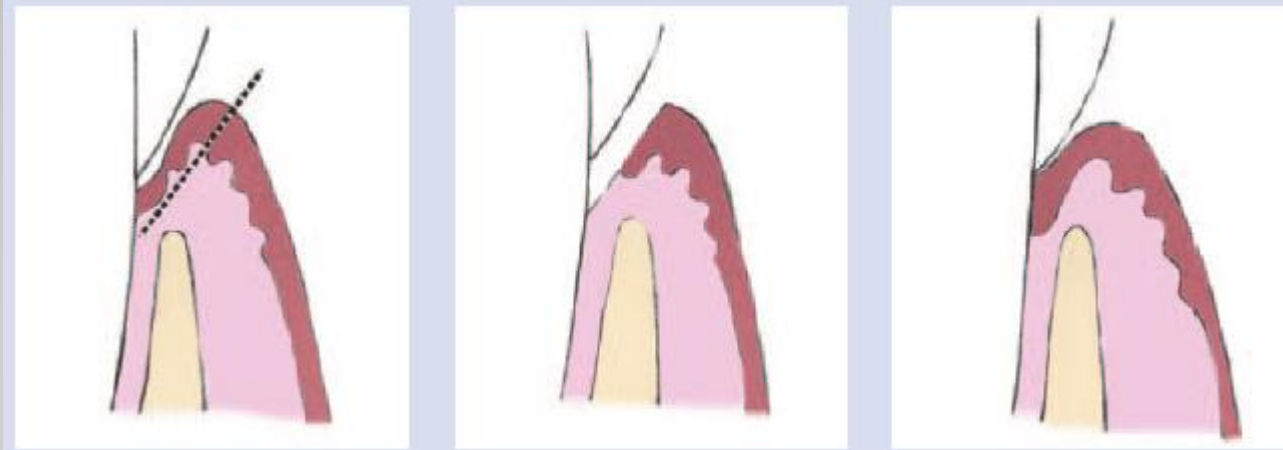


ADVANTAGE:

- Possibility of obtaining a close adaptation of the soft tissues to the root surfaces
- Minimum of trauma to which the alveolar bone and the soft connective tissues are exposed
- Less exposure of the root surfaces, which from an esthetic point of view is an advantage in treatment of anterior segments of the dentition.

Excisional New Attachment Procedure (ENAP)

- introduced in 1976 as a “definitive subgingival curettage performed with a knife”



- Internally beveled incision is made from the free gingival margin to the base of the pocket to remove the pocket epithelium with a curette.
- The fresh connective tissue of the pocket lining is repositioned against the tooth, and digital pressure is applied.
- Interrupted sutures maintain the flap in place.

Undisplaced flap:

- The pockets are measured with periodontal probe and a bleeding point is produced on the outer surface of gingiva to mark the pocket bottom



- Internal bevel incision in the facial and palatal aspects
- Crevicular incision is made and Flap is elevated



- Interdental incision is made
- Triangular wedge of tissues is removed with curette
- All tissue tags and granulation tissue are removed



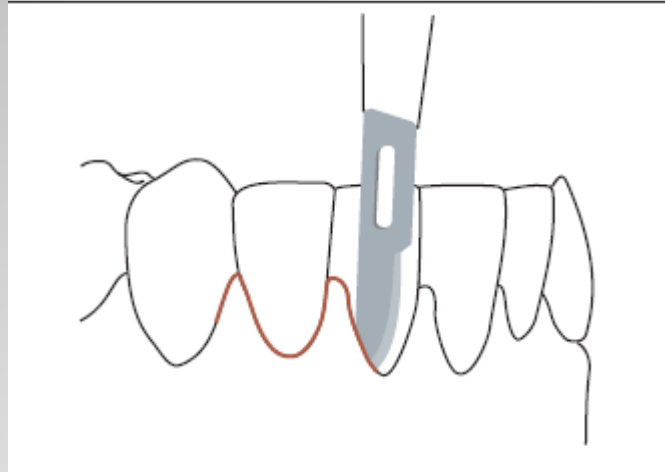
- After the scaling and root planning the flap edge should rest on the root bone junction.
- Flaps have been placed in their original site and Sutured.



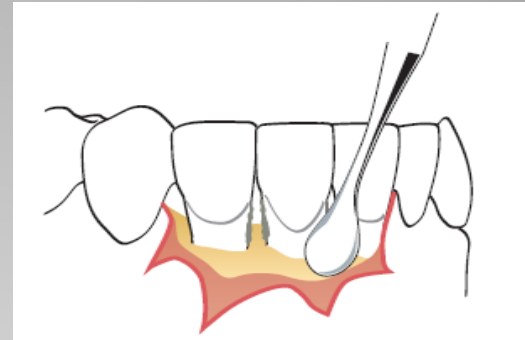
Kirkland flap

- Open Flap Debridement (OFD), modified flap operation
- Kirkland in 1931 published the technique to treat periodontal pockets.

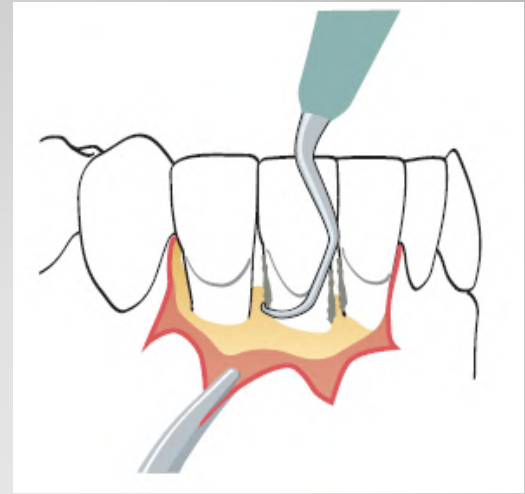
- Intrасulcular incision given in both buccal and the lingual aspects continuing mesial and distal direction.



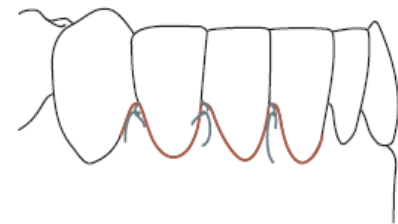
The gingiva is retracted to expose the diseased root surface.



debridement

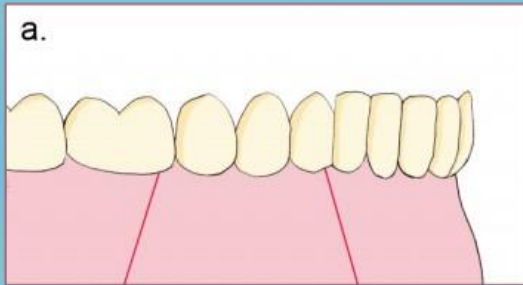


Suture placed



Apically repositioned flap:

- The position of the flap displacement varies depending on the:
 1. Thickness of alveolar margin in operating area
 2. Width of attached gingiva
 3. Clinical crown length necessary for an abutment



Vertical Incisions



Reverse bevel incision



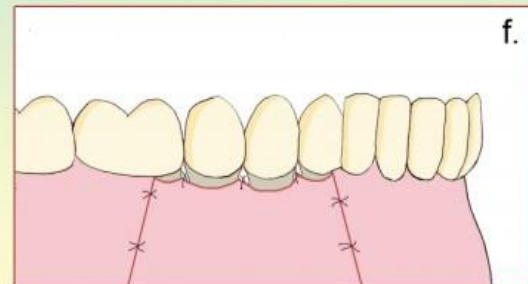
Flat elevation till
alveolar mucosa



Removal of inflamed
gingival collar



Removal and recontouring
of crestal bone



Flap apically positioned
and sutures placed

nue49

Advantages

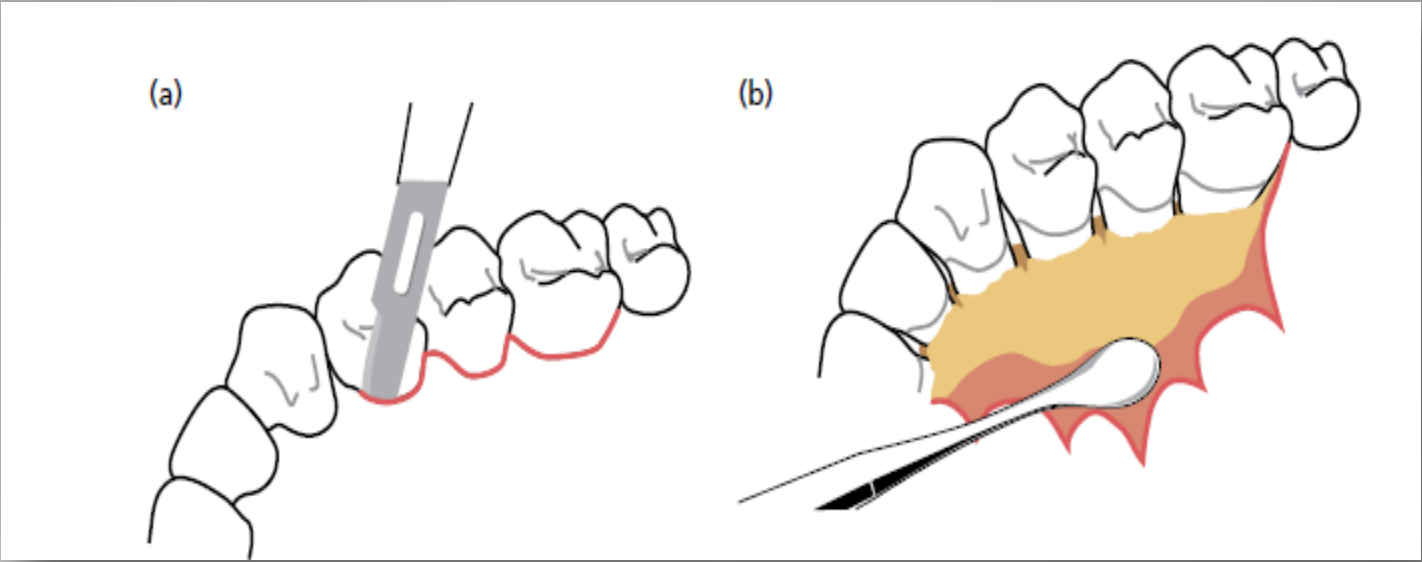
- Eliminates periodontal pocket
- Preserves attached gingiva and increases its width
- Establishes gingival morphology facilitating good hygiene
- Ensures healthy root surface necessary for the biologic width on alveolar margin and lengthened clinical crown

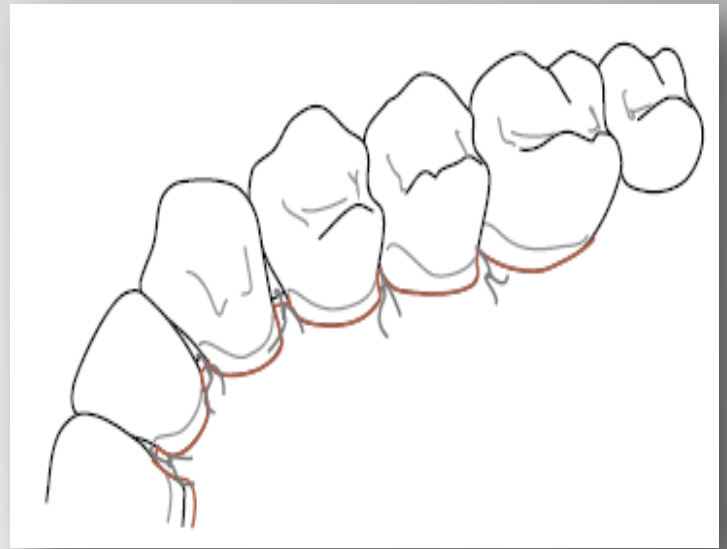
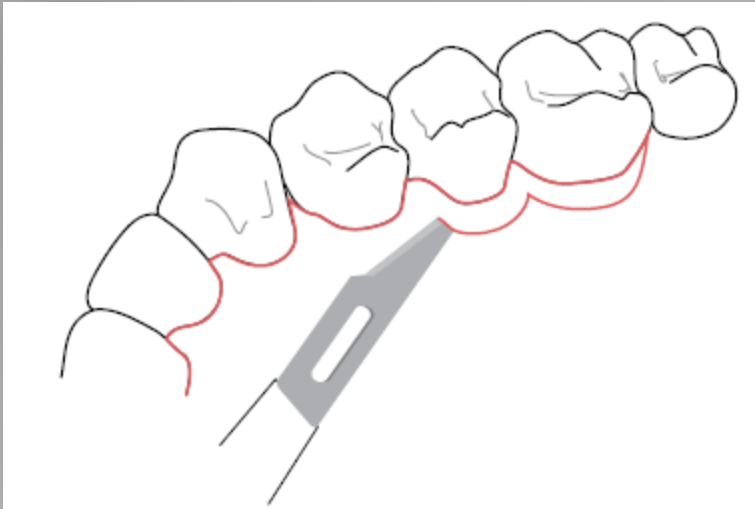
Disadvantages

- May cause esthetic problems due to root exposure
- May cause attachment loss due to surgery
- May cause hypersensitivity
- May increase the risk of root caries

Palatal flap:

Periodontal pockets on the palatal aspect of the maxillary teeth, **Freidman** described a modification of the “apically repositioned flap”, which he termed the **BEVELED FLAP**.

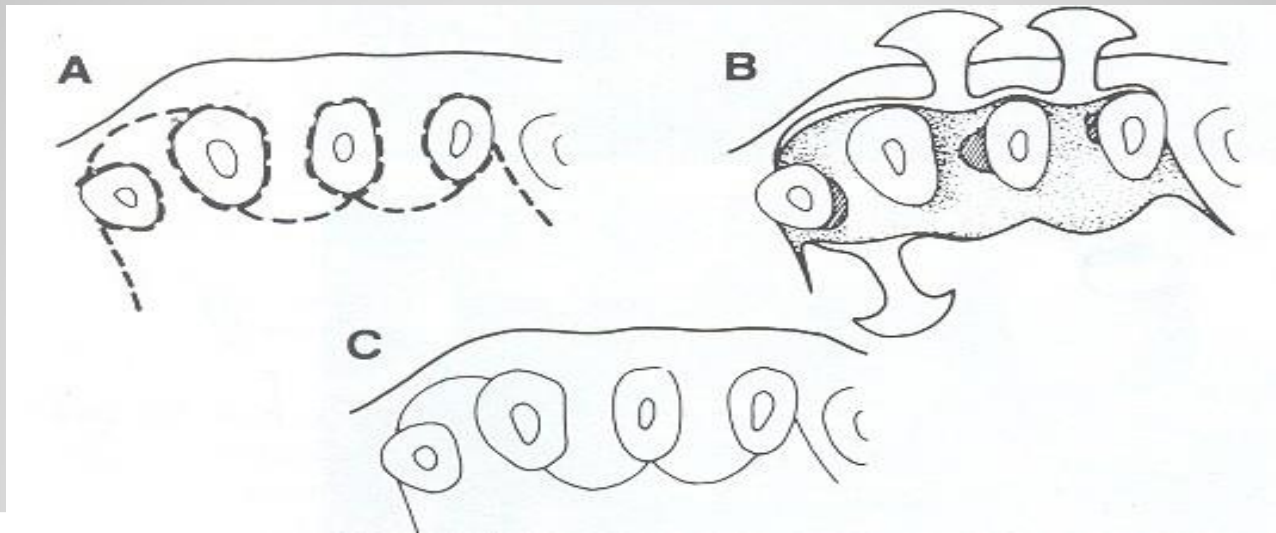




Papilla preservation flap

- Takei et al in 1985.
- To preserve the interdental soft tissues for maximum soft tissue coverage involving treatment of proximal osseous defects
- For esthetic reasons, it is often utilized in the surgical treatment of anterior tooth regions

- Retains the entire papilla with the buccal or the palatal flap.
- Indicated in the regions of adequate interdental space.

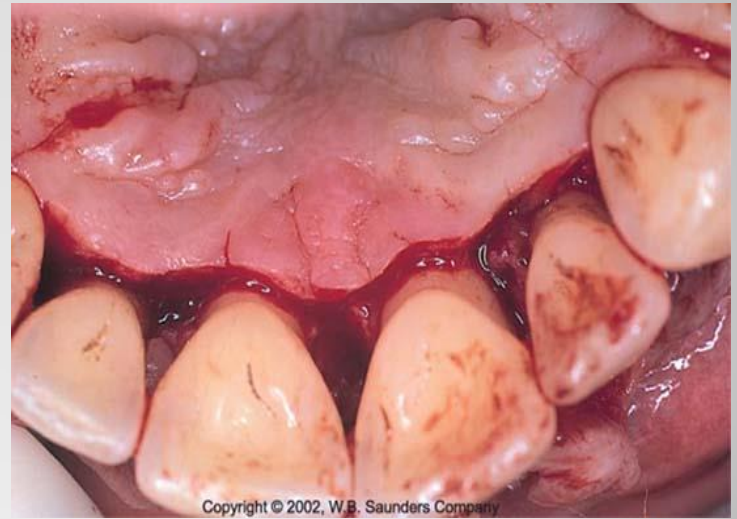
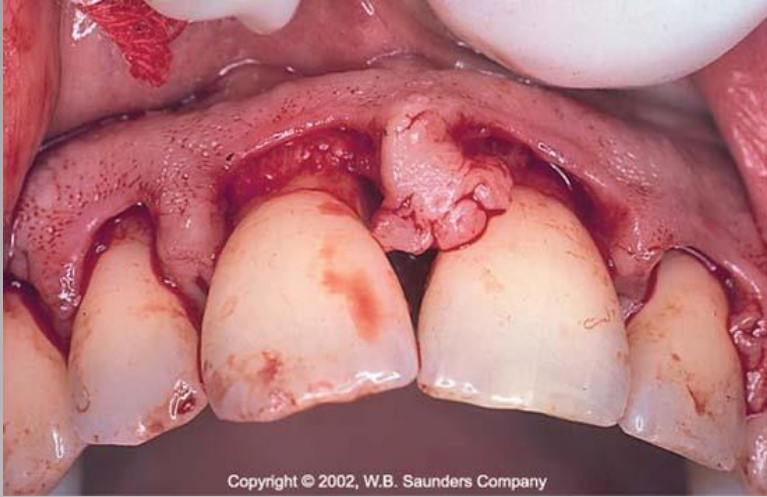




Pocket is identified using probe

Incision is given in the palatal aspect





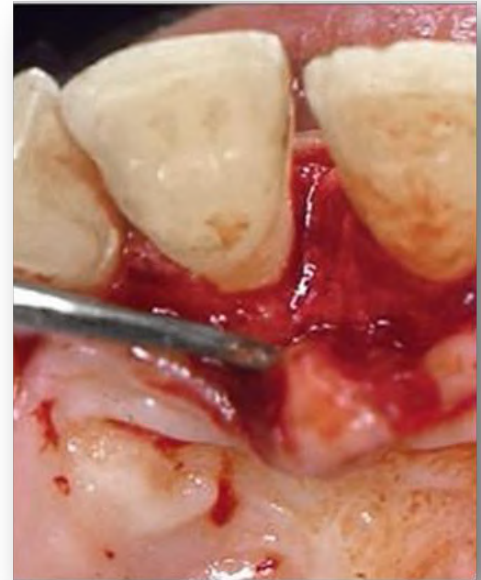


Modified papilla preservation flap

- Cortellini et al in 1995
- Access to the interdental defect consists of a horizontal incision buccal keratinized gingiva at the base of the papilla



Buccal incision



Palatal flap raised



Defect debrided



Bone graft



Vertical mattress suture

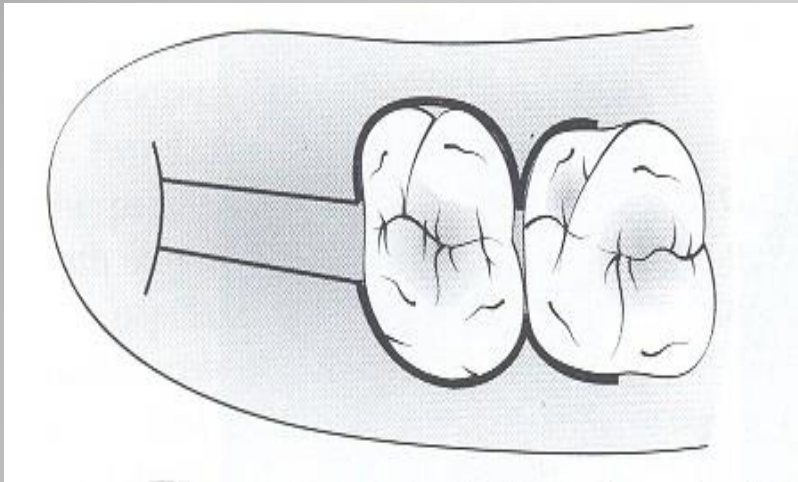


Post-op

Distal molar surgery

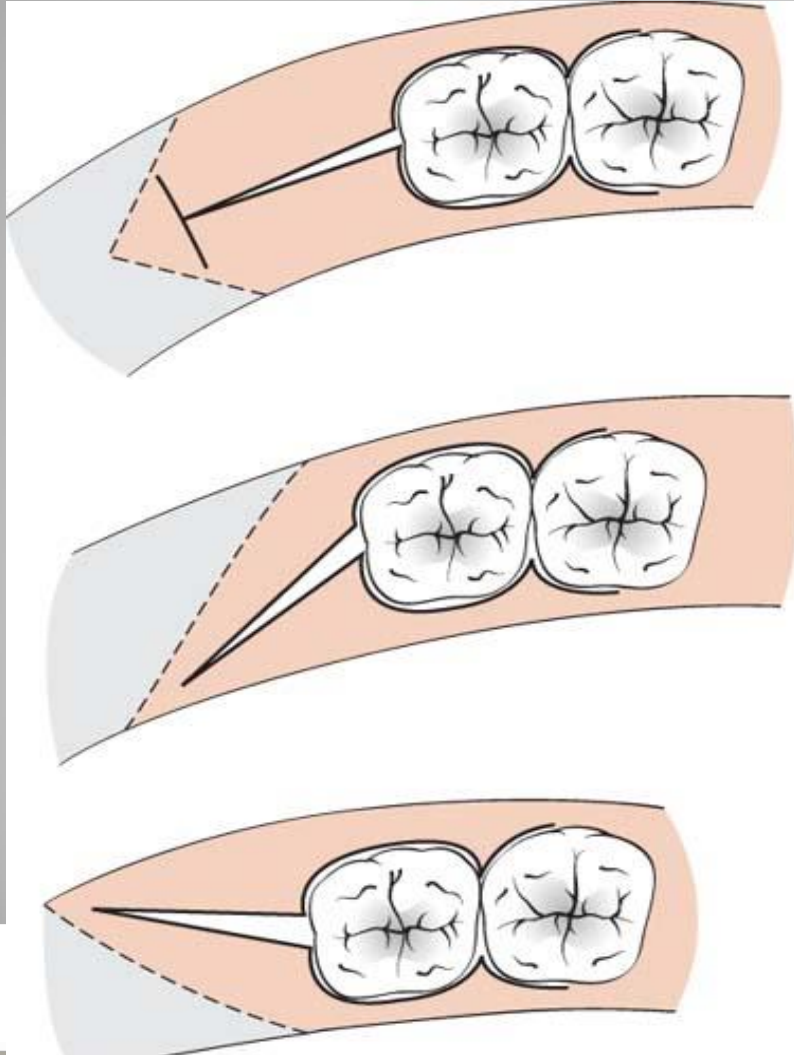
Bulbous fibrous tissue over the maxillary tuberosity or prominent retromolar pads in the mandible complicate the treatment of periodontal pockets distal to terminal molars.

Maxillary molars



- Two parallel incisions begin at the distal portion of the tooth.
- A transverse incision is made at the distal end.
- These incisions are connected to the rest of the incisions.
- Tissue between the parallel incisions removed & flaps approximated.

Mandibular molars



- The two incisions distal to the terminal molar are directed distofacially or distolingually depending on which area has more attached gingiva.

- Before completely reflecting the flap, it is thinned with a 15 blade.
- The redundant fibrous tissue is removed & the necessary osseous surgery is performed & the flaps approximated.

Thank you.....