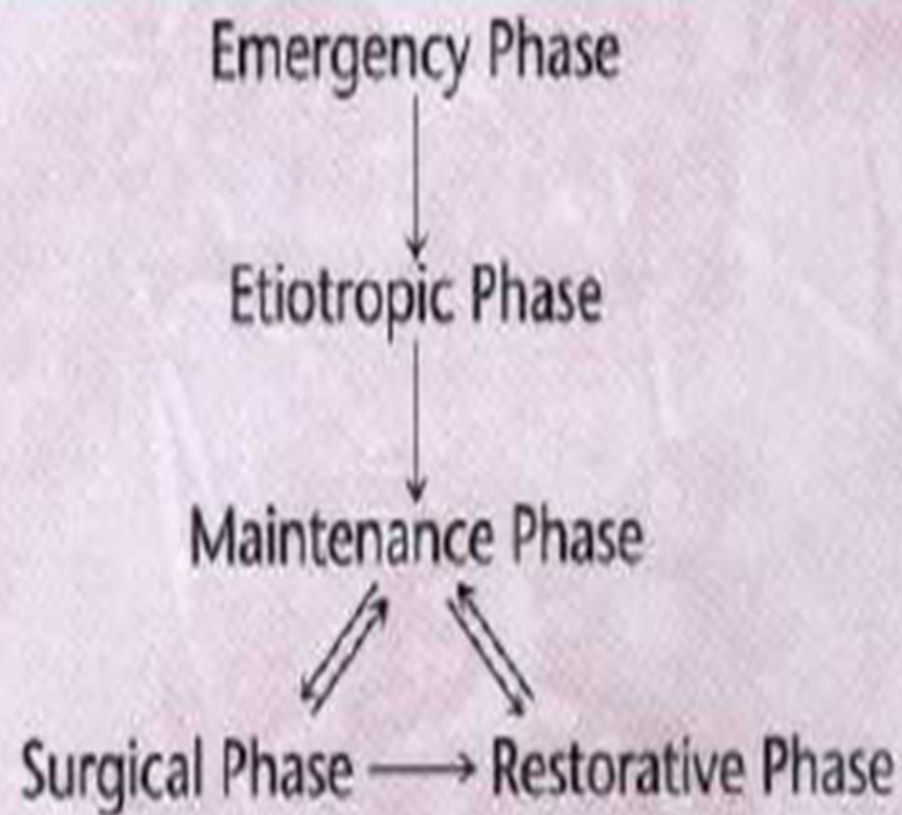


Principles of Periodontal flap surgery

Dr.maryam khosravi



Goals of periodontal SURGICAL phase

- 1 - Controlling or eliminating periodontal disease.
- 2 – Correcting anatomic conditions that may
 - a. favor periodontal disease
 - b. impair esthetics,
 - c. impede the placement of correct prosthetics.
- 3 - Placing implants to replace lost teeth and improving the environment for their placement and function.

Surgical phase of periodontal therapy seeks following:

- a. Improvement of the prognosis of teeth and their replacements
- b. Improvement of esthetics

The surgical phase consists of techniques performed for

1: Pocket periodontal therapy

2.The correction of mucogingival problems defects.

Or both

The purpose of surgical pocket therapy is to eliminate the pathologic changes in the pocket walls or inner wall to create a maintainable condition ; if possible, periodontal regeneration.

surgical techniques allow:

- 1) increase accessibility to the root surface, making it possible to remove all irritants;
- 2) reduce or eliminate pocket depth, making it possible for the patient to maintain the root surfaces free of plaque
- 3) reshape soft and hard tissues to attain a harmonious topography.

Periodontal Surgery

Pocket Reduction Surgery

- Resective (gingivectomy, apically displaced flap and undisplaced flap with or without osseous resection)
- Regenerative (flaps with grafts, membranes, etc.)

Correction of Anatomic/Morphologic Defects

- Plastic surgery techniques to widen attached gingiva (free gingival grafts, and other techniques)
- Esthetic surgery (root coverage, recreation of gingival papillae)
- Preprosthetic techniques (crown lengthening, ridge augmentation, vestibular deepening)
- Placement of dental implants, including techniques for site development for implants (guided bone regeneration, sinus grafts)

INDICATIONS FOR PERIODONTAL SURGERY

1. Areas with Bone deformities require a surgical approach.
2. Pockets on teeth in which a complete removal of root irritants is not possible may call for surgery. This occurs frequently in molar and premolar areas
3. In cases of furcation involvement of Grade II or III, a surgical approach ensures the removal of irritants; any necessary root resection or hemisection also requires surgical approach.

4. Intrabony pockets on distal areas of last molars, frequently complicated by mucogingival problems, are usually unresponsive to nonsurgical procedure

5. Persistent inflammation in areas with moderate to deep pockets may require a surgical approach.

In areas with shallow pockets or normal sulcus, persistent inflammation may point to the presence of a mucogingival problem that needs a surgical solution

Criteria for the selection of surgical techniques for pocket therapy

1. Characteristics of the pocket: depth, relation to bone, and configuration.
2. Accessibility to instrumentation, including presence of furcation involvements.
3. Existence of mucogingival problems.
4. Response to Phase I therapy.
5. Patient cooperation, including ability to perform effective oral hygiene and, for smokers, willingness to stop their habit at least temporarily

Criteria for the selection of surgical techniques for pocket therapy

6. Age and general health of the patient.
7. Overall diagnosis of the case: various types of gingival enlargement and types of periodontitis
8. Esthetic considerations.
9. Previous periodontal treatments

METHODS OF POCKET THERAPY

1 - New attachment techniques {regeneration of Periodontal tissues}

2 -Removal of the pocket wall:

- a. shrinkage pocket wall after SRP or Curettage
- b. gingivectomy technique or by undisplaced flap
- c. apically displaced flap

3. Removal of the tooth side of the pocket,
is accomplished by tooth extraction or by partial
tooth extraction (hemisection or root resection)

Therapy for Gingival Pockets

1- Edematous Gingival Pockets

treatment with SRP

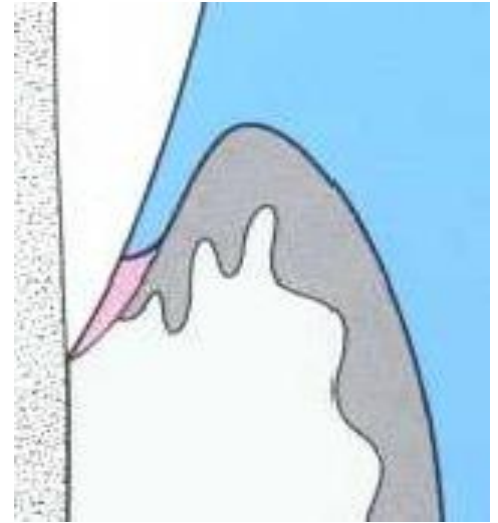
shrinkage pocket wall after SRP

2- Gingival Pockets fibrotic

which are not reduced pocket wall after SRP

* gingivectomy technique

* In cases of marked gingival enlargement (severe phenytoin enlargement), Modified Widman flap





Therapy for Slight Periodontitis

[Anterior Sector and Posterior Sector]

- In slight or incipient periodontitis,
- small degree of bone loss and pockets are shallow to moderate.
- a conservative approach {SRP.} and adequate oral hygiene suffice to control the disease
- recurrence

Therapy for Moderate to Severe Periodontitis in the [Anterior Sector]

- The anterior teeth are important esthetically; therefore the techniques that induce the least amount of visual root exposure should be considered first
- The final decision may have to be a compromise between health and esthetics , not attaining ideal results in either respect

Anterior teeth offer some advantages to conservative approach:

- 1.they are all single rooted and easily accessible;
- 2.patient's compliance and in plaque control are easier to attain

1- Therefore SRP is the technique of choice

Sometimes, a surgical technique may be necessary owing to the need for improved

a - accessibility for root planning or

b - regenerative surgery of osseous defects

2 - The papilla preservation flap

3 -The sulcular incision flap offers good esthetic results

When the teeth are too close interproximally,

When esthetics are not the primary consideration,
The **modified Widman flap** can be chosen

In some cases, bone contouring may be needed despite the resultant root exposure. The technique of choice is the **apically displaced flap** with bone contouring



Therapy for Moderate to Severe Periodontitis in the [Posterior Sector]

Most cases of moderate to severe periodontitis have developed osseous defects that require

- regenerative procedures or
- some degree of osseous remodeling



When osseous defects amenable to regeneration are present, the **papilla preservation flap** is the technique of choice because it better protects the interproximal areas where defects are frequently present

Second and third choices are the **sulcular flap** and the **modified Widman flap**, maintaining as much of the papilla as possible

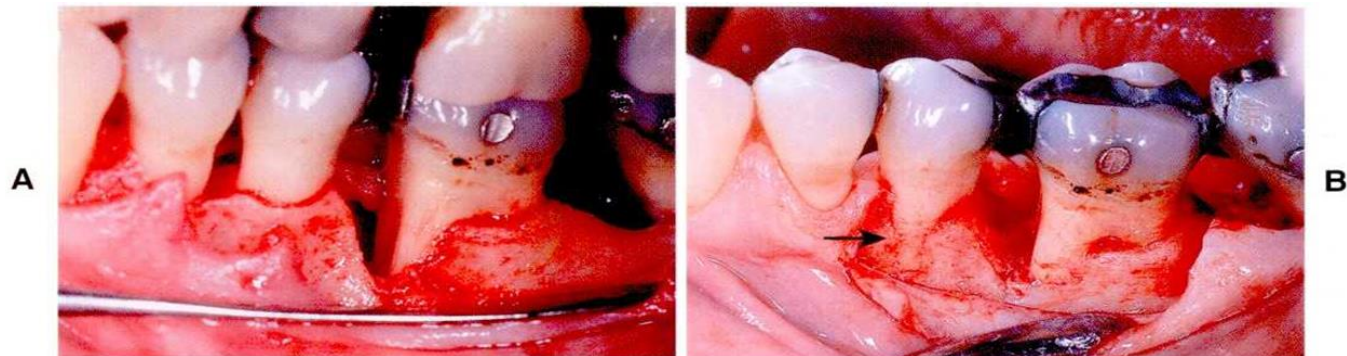
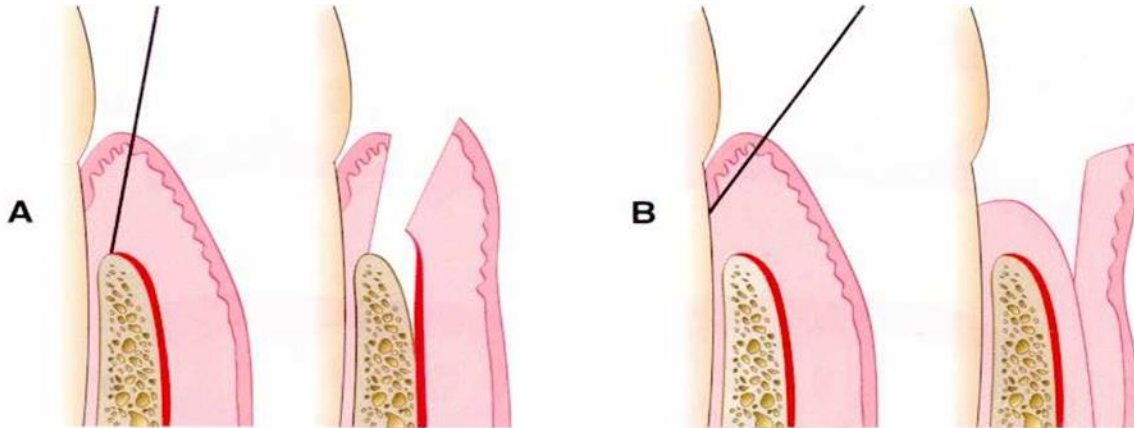
- When osseous defects with no possibility of reconstruction, such as interdental craters, are present, the technique of choice is

The flap with osseous contouring.

{apically displaced flap}

Periodontal Flap

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



INDICATIONS

- Irregular bony contours
- Deep craters
- Pockets on teeth in which a complete removal of root irritants is not clinically possible
- Grade II or III furcation involvement
- Root resection / hemisection
- Intrabony pockets on distal areas of last molars
- Persistent inflammation in areas with moderate to deep pockets.

CONTRAINDICATIONS

- Uncontrolled medical conditions such as
 - unstable angina
 - uncontrolled diabetes
 - uncontrolled hypertension
 - myocardial infarction / stroke within 6 months
- Poor plaque control
- High caries rate
- Unrealistic patient expectations or desires

Classified based on:

Bone exposure after flap reflection

- Full thickness (mucoperiosteal)
- Partial thickness (mucosal)

Placement of the flap after surgery

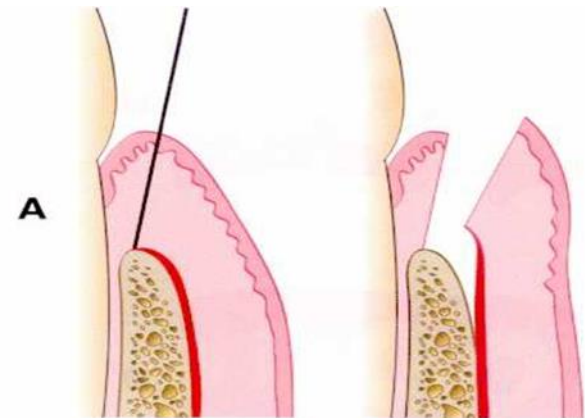
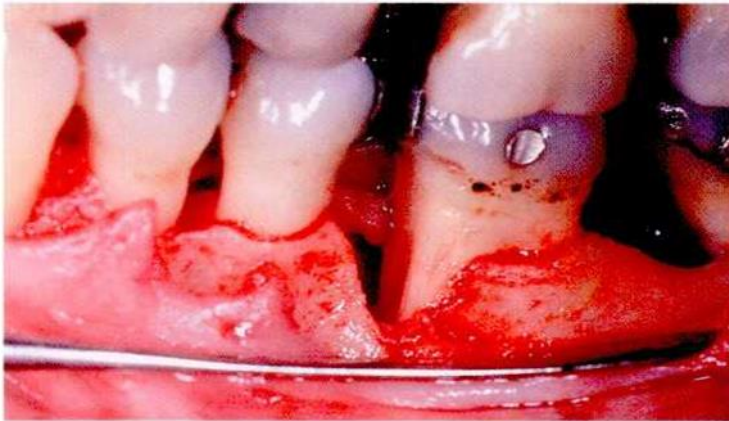
- Udisplaced flaps
- Displaced flaps

Management of the papilla

- Conventional flaps
- Papilla preservation flaps

FULL THICKNESS FLAP

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

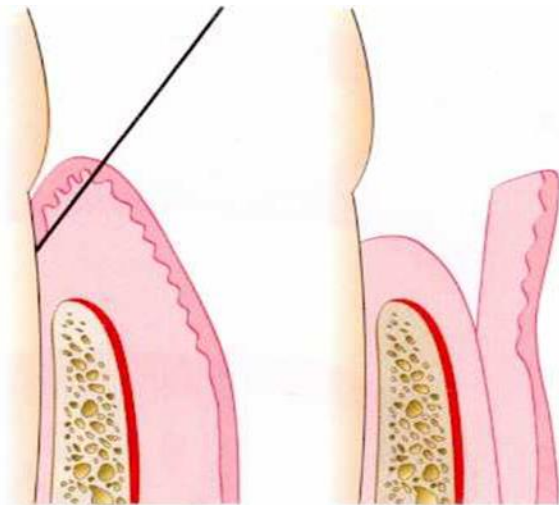


Contraindications:

- Thin periodontal tissue with probable osseous dehiscence and osseous fenestration.
- Area where alveolar bone is thin.

PARTIAL THICKNESS FLAP

- 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

Undisplaced flaps:

When the flap is returned and sutured in its original position.

Displaced flaps:

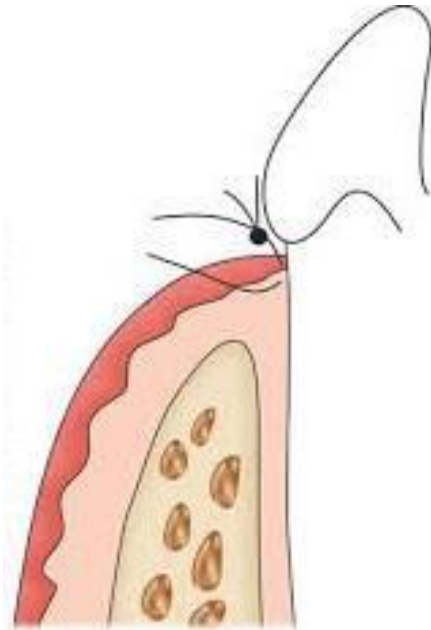
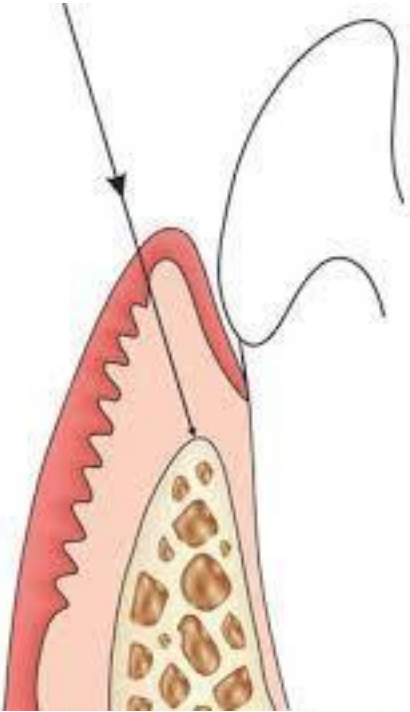
When the flap is placed apically, coronally or laterally to their original position

It can be a full-thickness or partial-thickness flap.

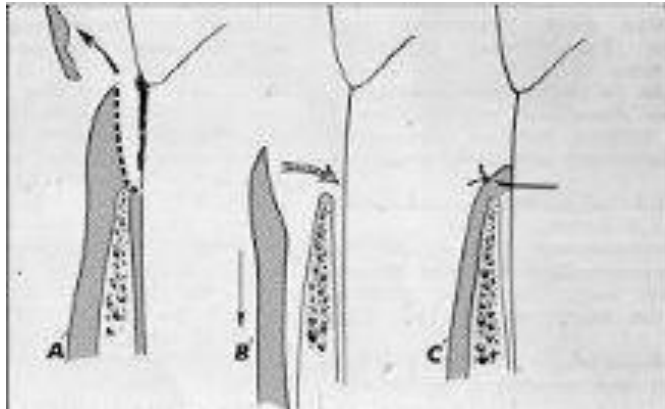
Note:

The attached gingiva must be totally separated from the underlying bone

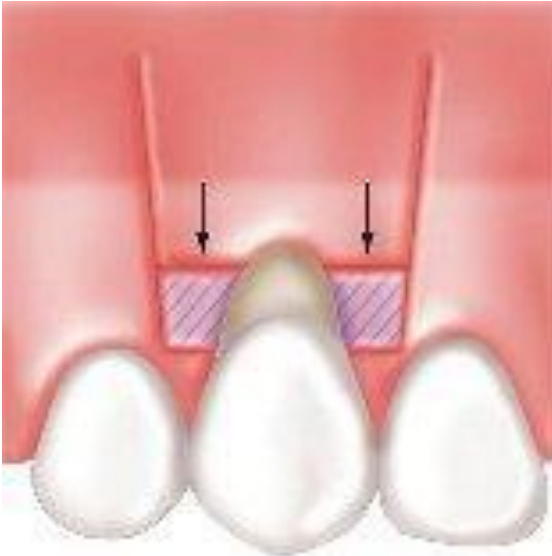
Nondisplaced Flap



Apically Displaced Flap



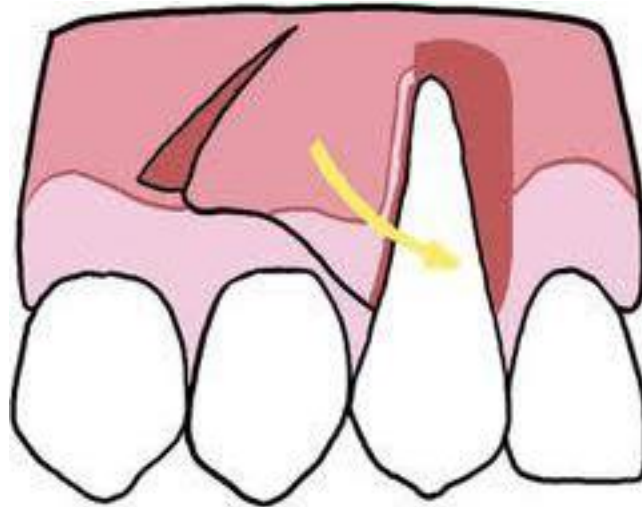
Coronally Displaced Flap



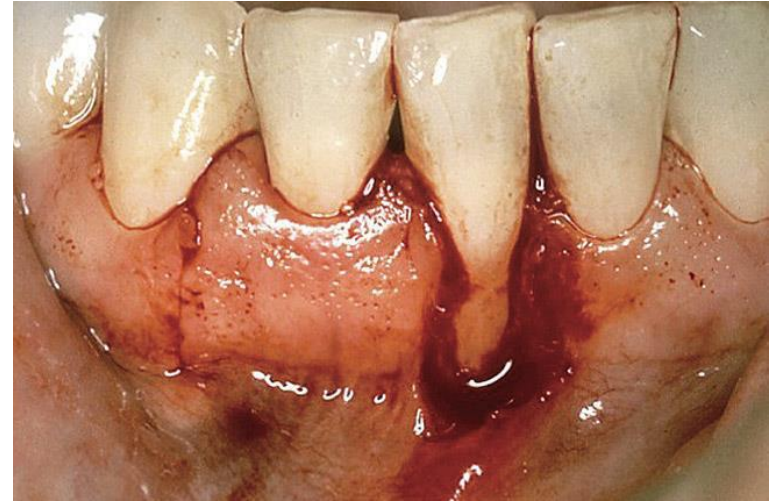
Coronally Displaced Flap



Laterally Displaced Flap



Laterally Displaced Flap

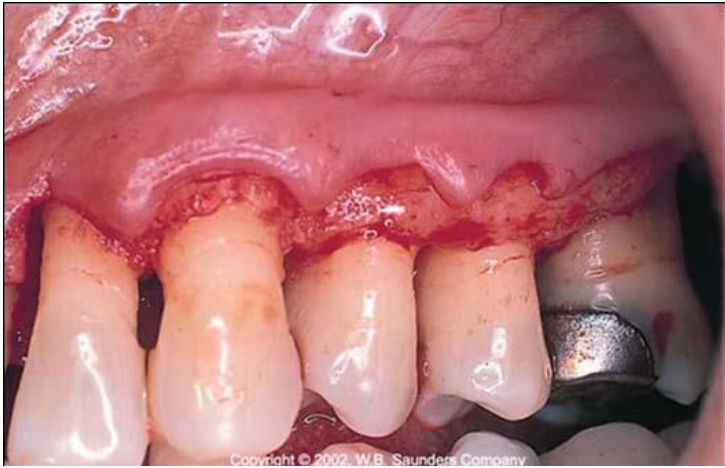


Is the displaced flap applicable on the palate? Why?

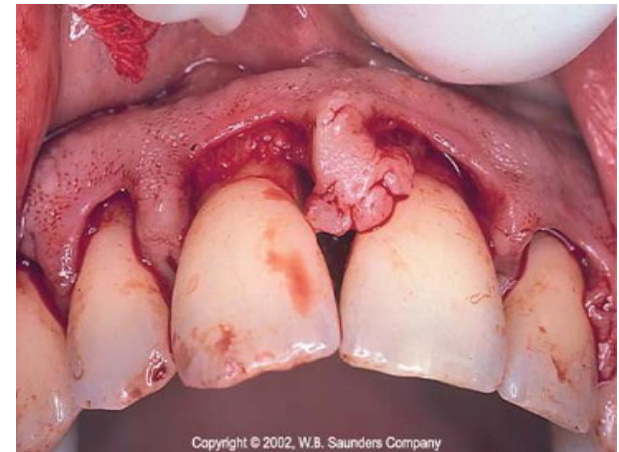
Management of Papilla

- Split the papilla (conventional flap) or

The interdental papilla is split beneath the contact point of the two approximating teeth to allow reflection of buccal and lingual flaps.



- Preserve it (papilla preservation flap).

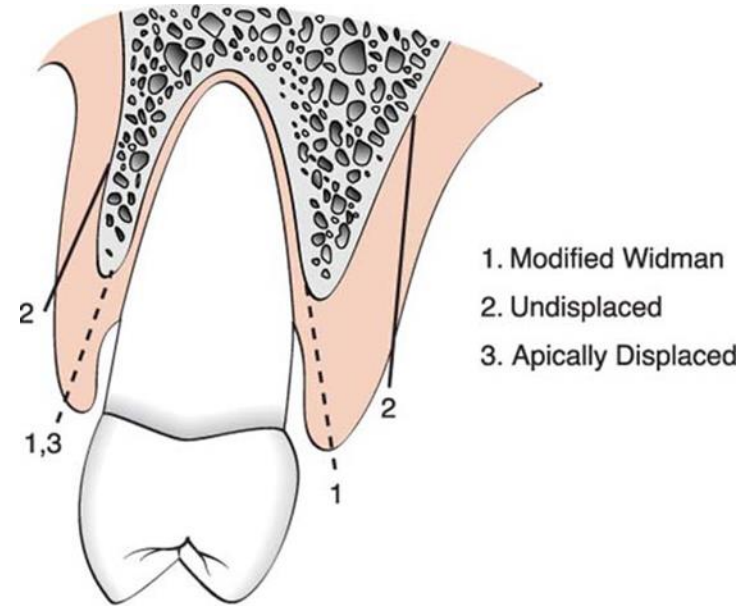


The conventional flap is used when

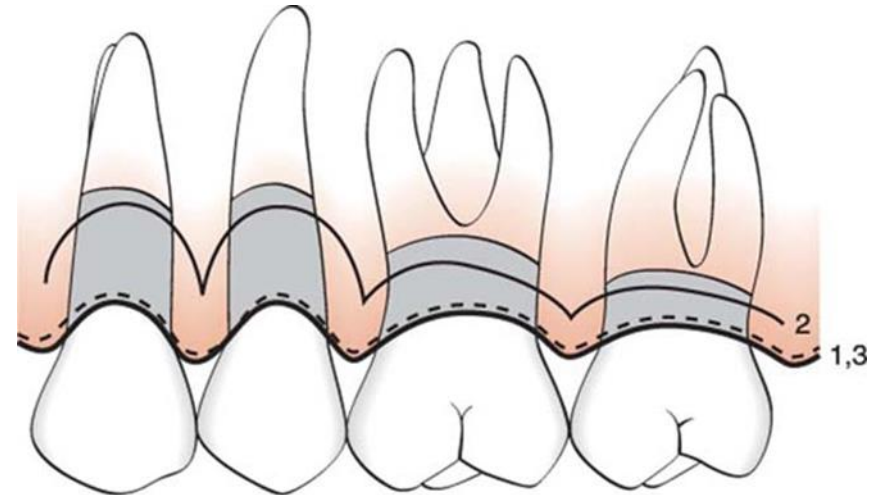
- The interdental spaces are too narrow
- When the flap is to be displaced.

Conventional flaps include the:

- The Modified Widman flap,
- The undisplaced flap,
- The apically displaced flap



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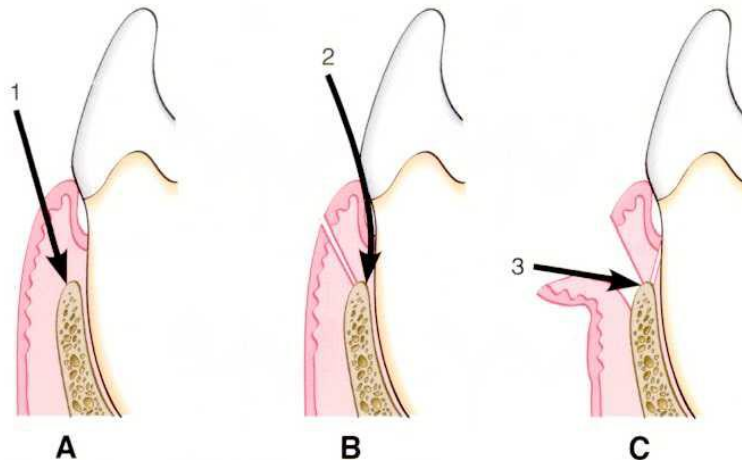
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Incisions

Horizontal incisions:

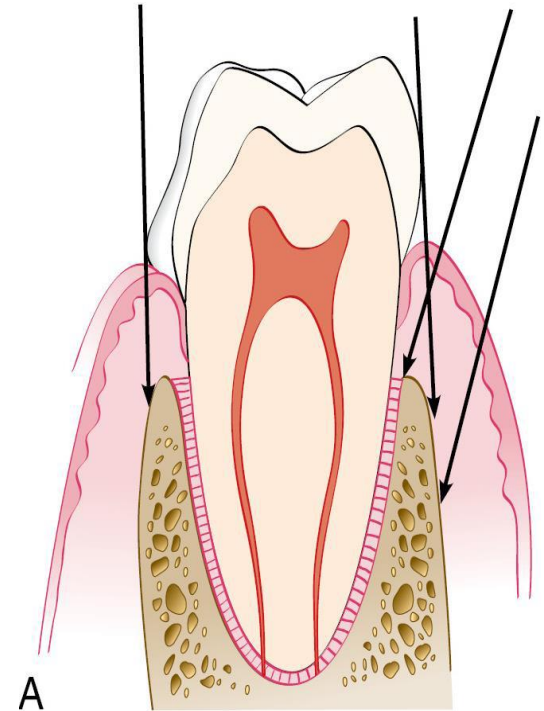
Horizontal incisions are directed along the margin of the gingiva in a mesial or a distal direction.

- A) The **internal bevel incision**, which starts at a distance from the gingival margin and is aimed at the bone crest, and
- B) The **crevicular incision**, which starts at the bottom of the pocket and is directed to the bone margin.
- C) In addition, the **interdental incision** is performed after the flap is elevated.



Internal Bevel Incision

- 1st incision
- Reverse bevel incision
- 11 or 15 surgical scalpel used
- Starts at a distance from the gingival margin aiming at the bone crest.
- Removes pocket lining.
- Produces a sharp thin flap margin.



Crevicular Incision



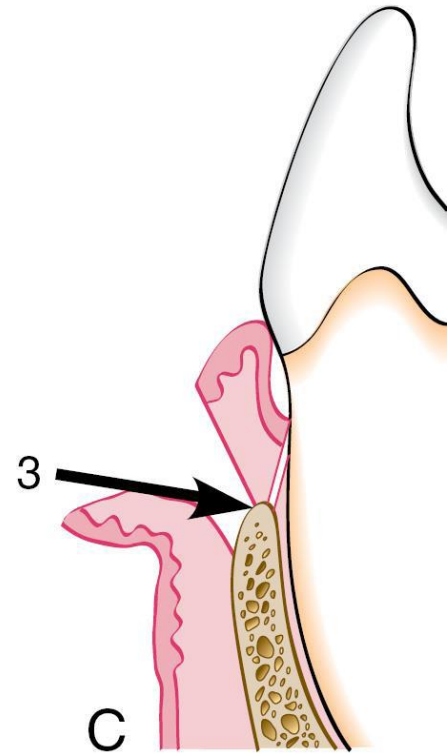
INTERDENTAL INCISION

Also known as third incision

To separate the collar of gingiva that is left around the tooth

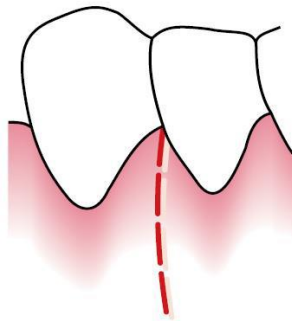
Orbans knife is used

Incision made facially lingually & interdentally connecting the 2 segments.

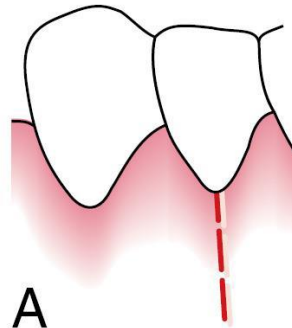


VERTICAL INCISIONS

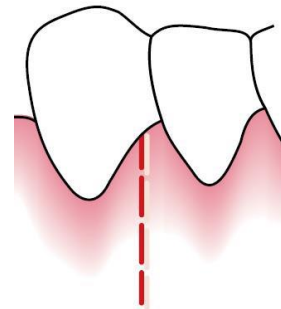
- Can be used on one or both ends of the horizontal incision
- Must extend beyond the mucogingival line, reaching the alveolar mucosa, to allow for the release of the flap to be displaced
- Vertical incisions in the lingual and palatal areas are avoided



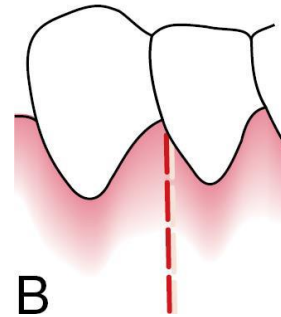
Incorrect



A



Correct



B

Flap Design

Depends on:

- Surgical judgment of the operator
- Objectives of the procedure.
- Necessary degree of access to the underlying bone and root
- Final position of the flap
- Good blood supply

Requires:

Careful planning that includes the type of flap, exact location, type of incisions, management of the underlying bone, and final closure of the flap and sutures.

Flap Design

Depending on papilla preservation

- Conventional flap (split the papilla).
- Papilla preservation flap (preserve papilla).

Depending on the types of incisions:

- Envelope Flap:
it is released horizontally & has no vertical releasing incision(s).

- Pedicle Flap:
Two vertical releasing incisions are included in the flap design

- Triangular Flap:
One vertical releasing incision is included in the flap design

Two basic flap designs, those with and those without vertical releasing incisions:

Envelope Flap: A flap that is released in a linear fashion at the gingival margin but has no vertical releasing incision(s).



Pedicle Flap: If two vertical releasing incisions are included in the flap design.



Triangular Flap: If one vertical releasing incision is included in the flap design.



Periodontal Flap Elevation

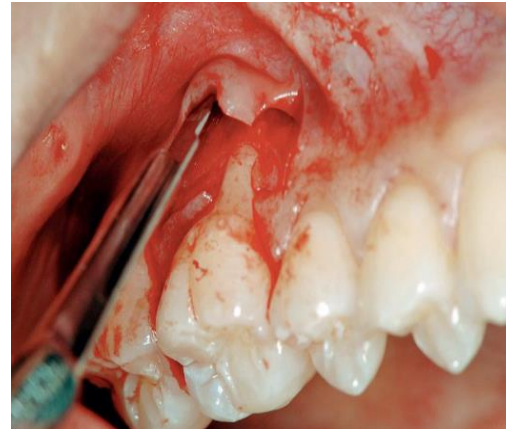
Blunt dissection with periosteal elevator

For reflection of full thickness flap



Sharp dissection with surgical scalpel # 11 or # 15

For reflection of partial thickness flap



FLAP TECHNIQUES FOR POCKET THERAPY

- Increase accessibility to root deposits
- Eliminate or reduce pocket depth by resection of the pocket wall
- Expose the area to perform regenerative methods

FLAP TECHNIQUES

- The modified widman flap
- The undisplaced flap
 - The palatal flap
- The apically displaced flap
- Flaps for regenerative surgery
 - The papilla preservation flap
 - Conventional flap for regenerative surgery
- Distal molar surgery

THE MODIFIED WIDMAN FLAP

Ramfjord and Nissle(1974) -The modified Widman flap.

The main goals of the procedure include optimum mechanical sub gingival root planing with direct vision.

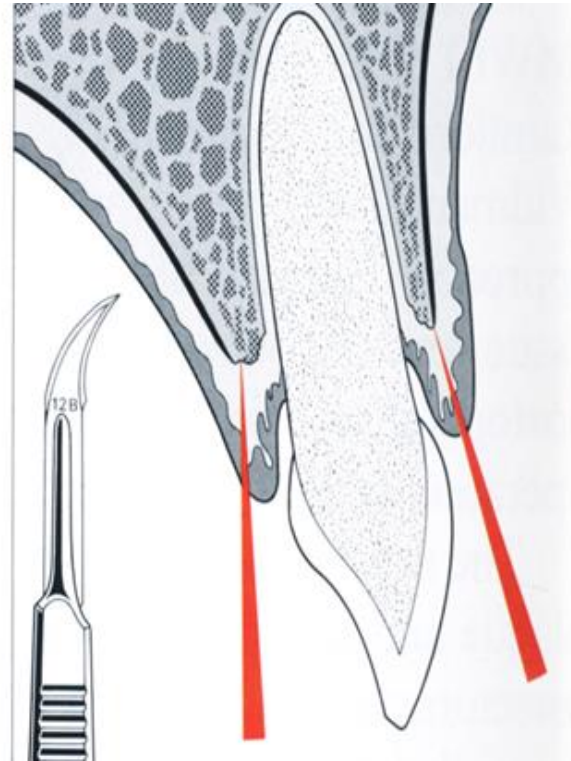
INDICATIONS:

Especially effective with pocket depths of 5-7 mm.

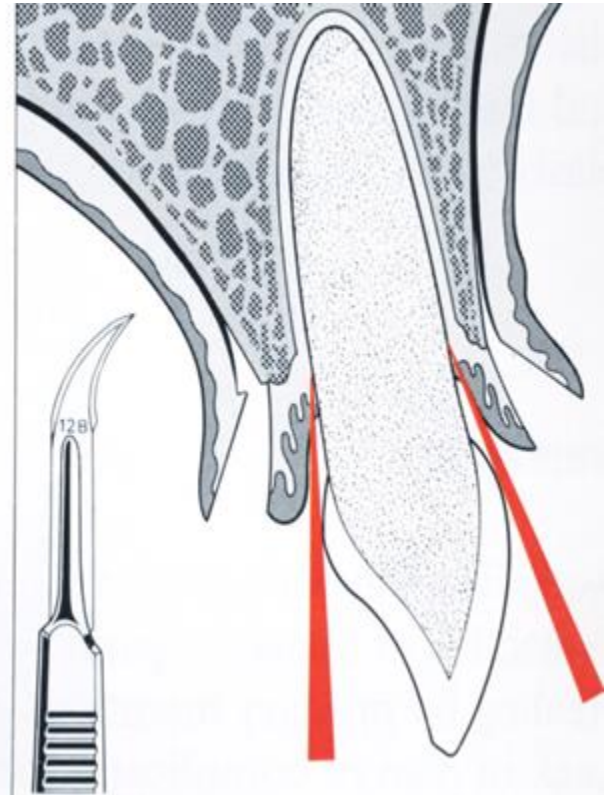
CONTRAINdicATIONS:

- Lack of or very thin and narrow attached gingiva can render the technique difficult, because a narrow band of attached gingiva does not permit the initial scalloped incision (internal gingivectomy)..
- osseous surgical procedure

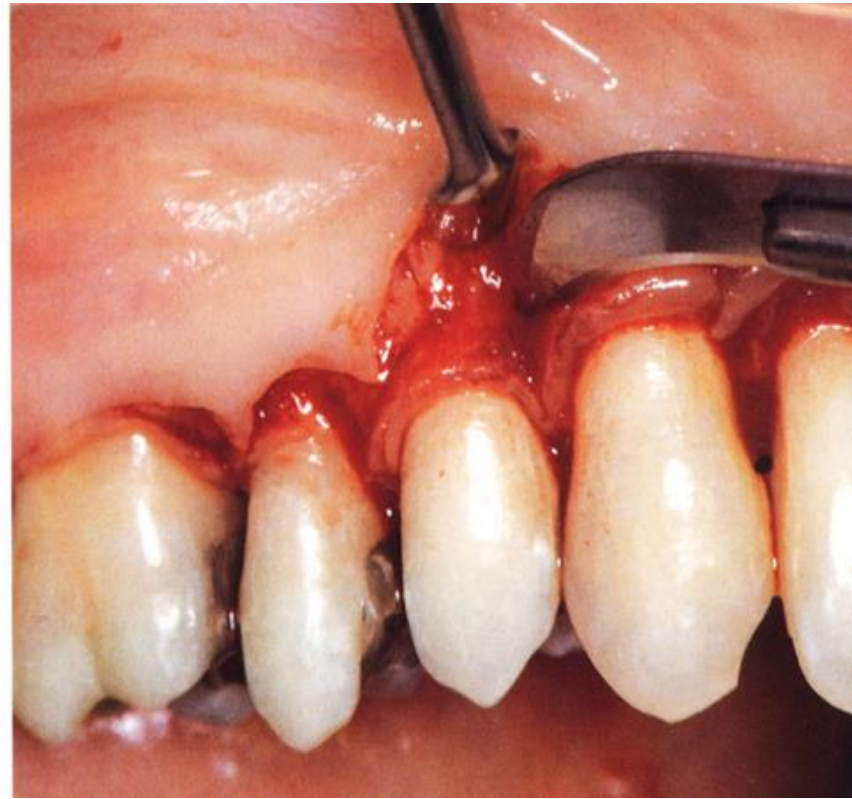
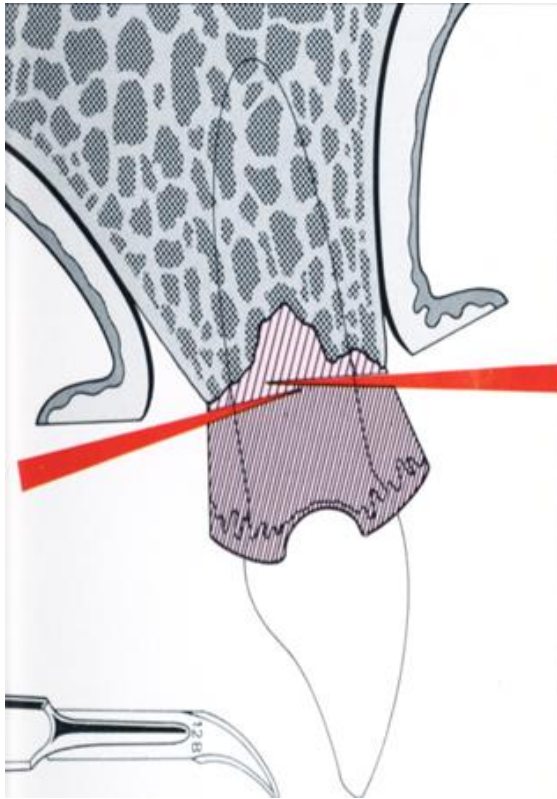
MWF FIRST INCISION



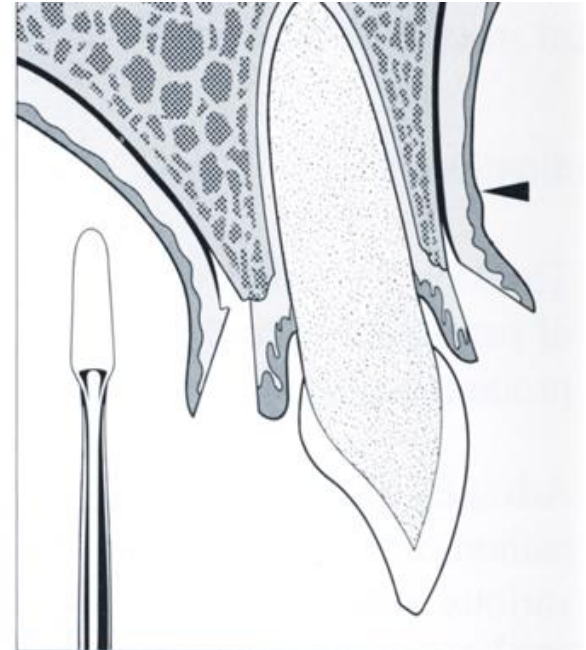
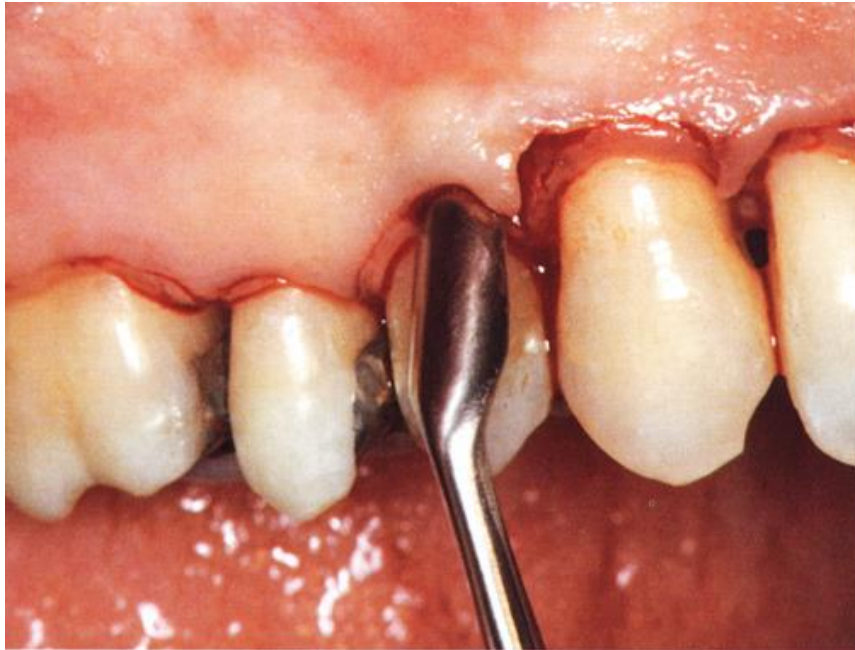
MWF SECOND INCISION



MWF THIRD INCISION

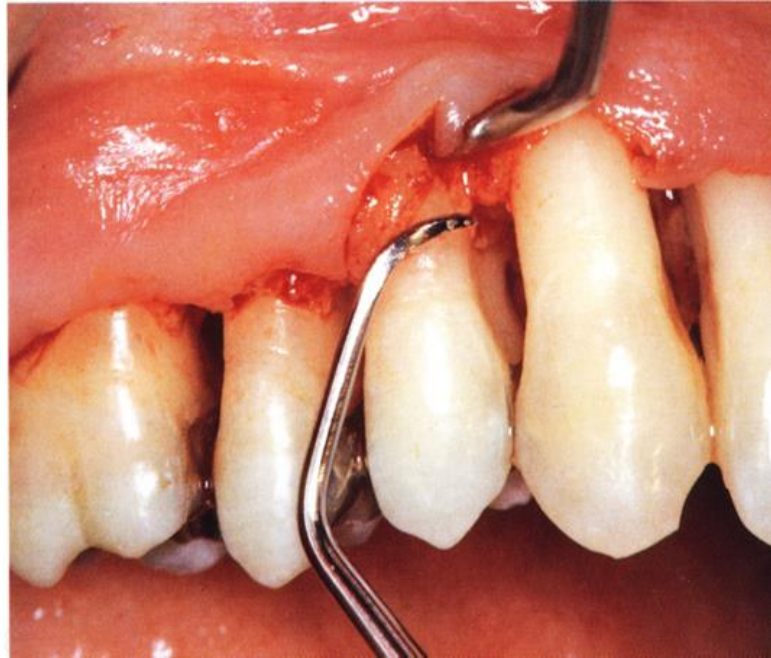


MWF FLAP REFLECTION

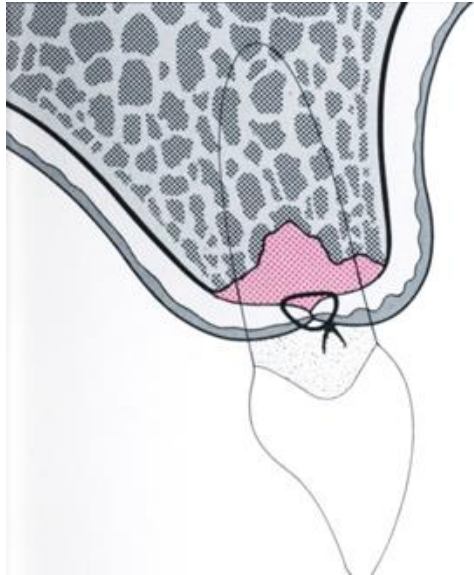


■ DIRECT VISION

MWF ROOT PLANING



MWF SUTURING



TIGHTLY

COVERING THE BONE

THE MODIFIED WIDMAN FLAP

ADVANTAGES:

Root cleaning with direct vision.

Tissue friendly.

Healing by primary intention.

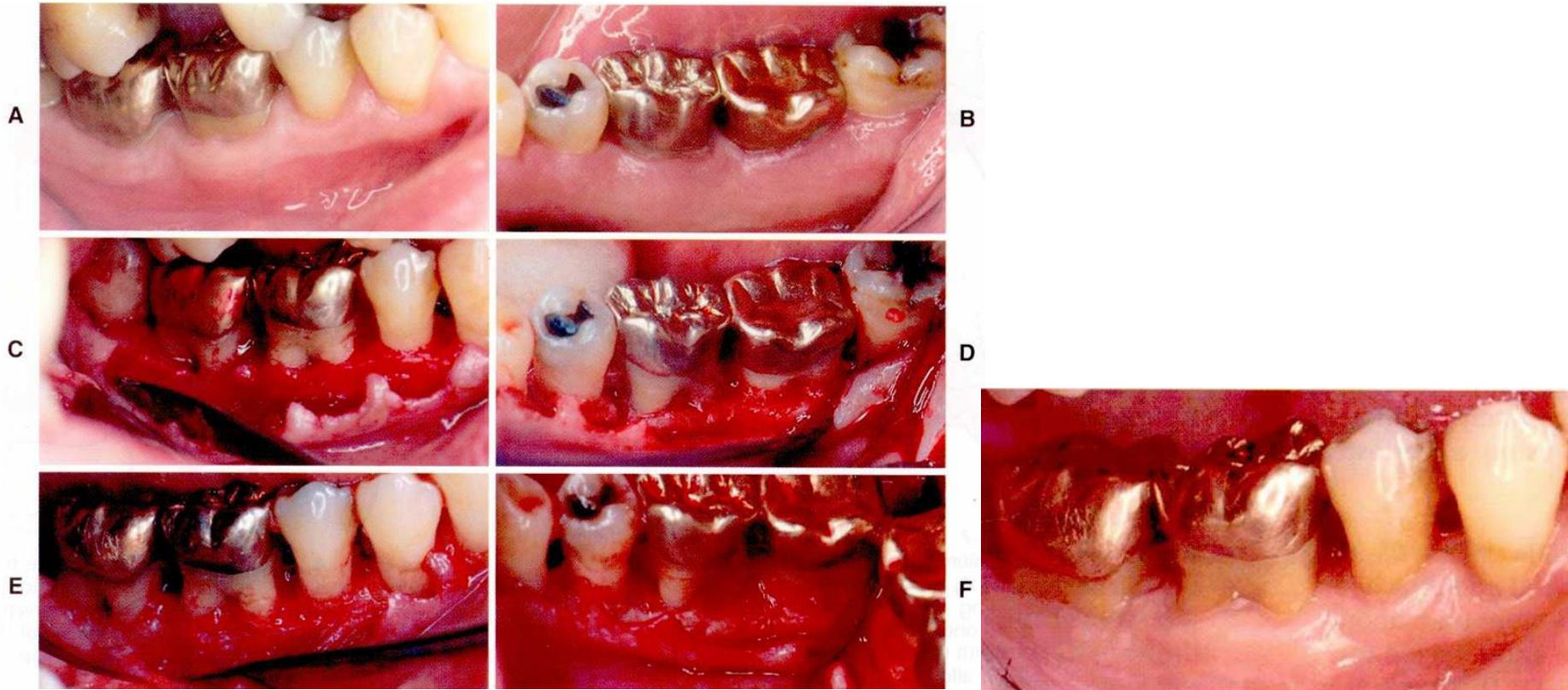
Minimal crestal bone resorption.

Lack of post operative discomfort

THE APICALLY DISPLACED FLAP

It can be used for both pocket eradication as well as widening the zone of attached gingiva.

It can be a full thickness (mucoperiosteal) or a split thickness (mucosal) flap.



- **ADVANTAGES:**

- Eliminates periodontal pocket.
- Preserves attached gingiva and increases its width.
- Establishes gingival morphology facilitating good hygiene.

- **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.
- Unsuitable for treatment of deep periodontal pockets.
- Possibility of exposure of furcations and roots, which complicates post operative supragingival plaque control.

CONTRAINDICATIONS:

Periodontal pockets in severe periodontal disease

Periodontal pockets in areas where esthetics is critical.

Deep intrabony defects.

Patient at high risk for caries.

Severe hypersensitivity.

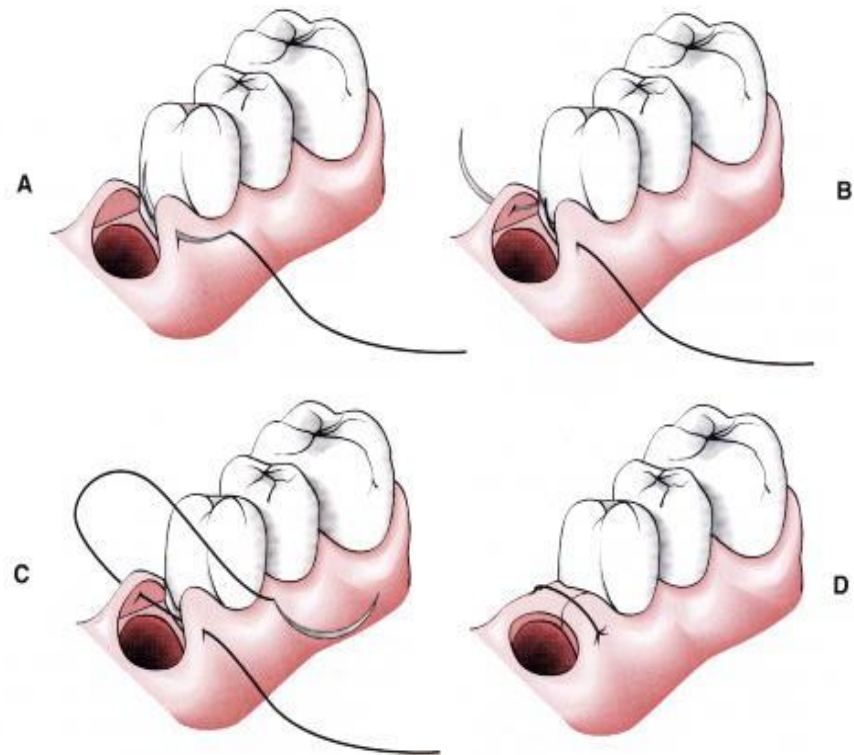
Tooth with marked mobility and severe attachment loss.

Tooth with extremely unfavourable clinical crown / Root ratio.

Interdental ligation

Simple loop

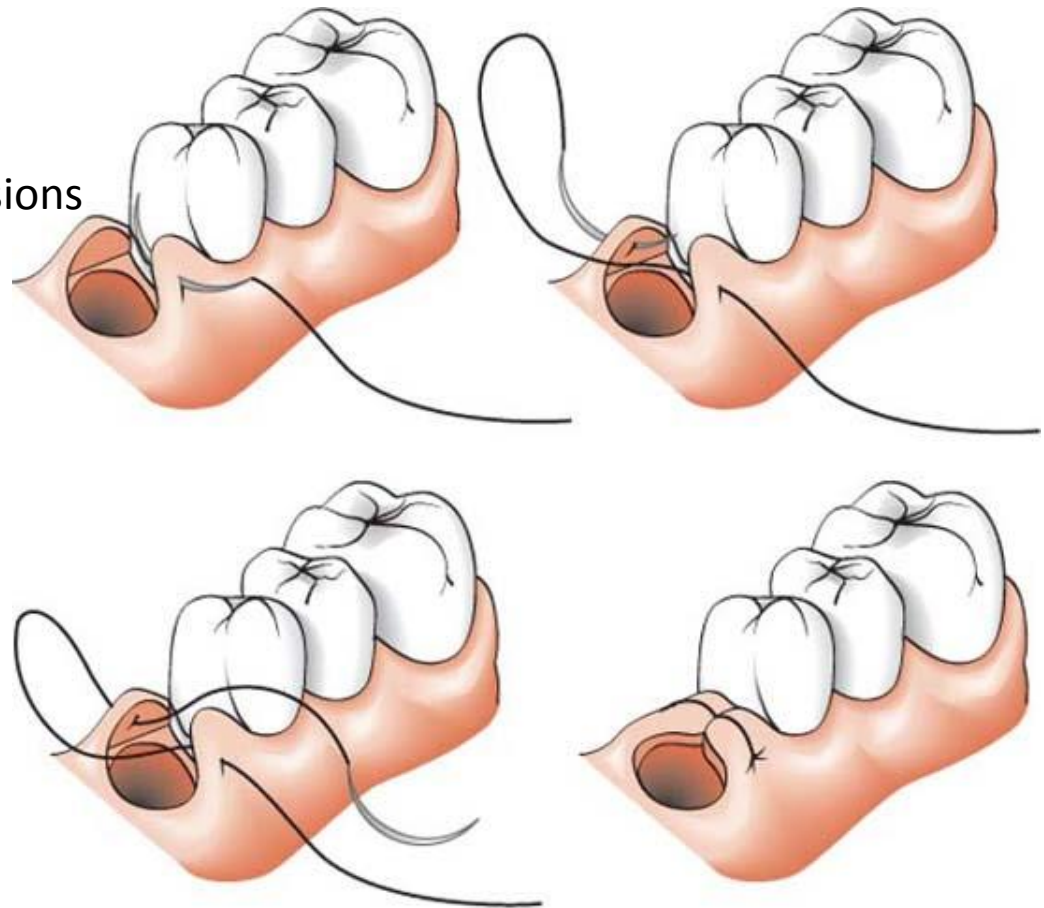
Performed when bone grafts are used or when close apposition of the scalloped incision is required.



Interdental ligation

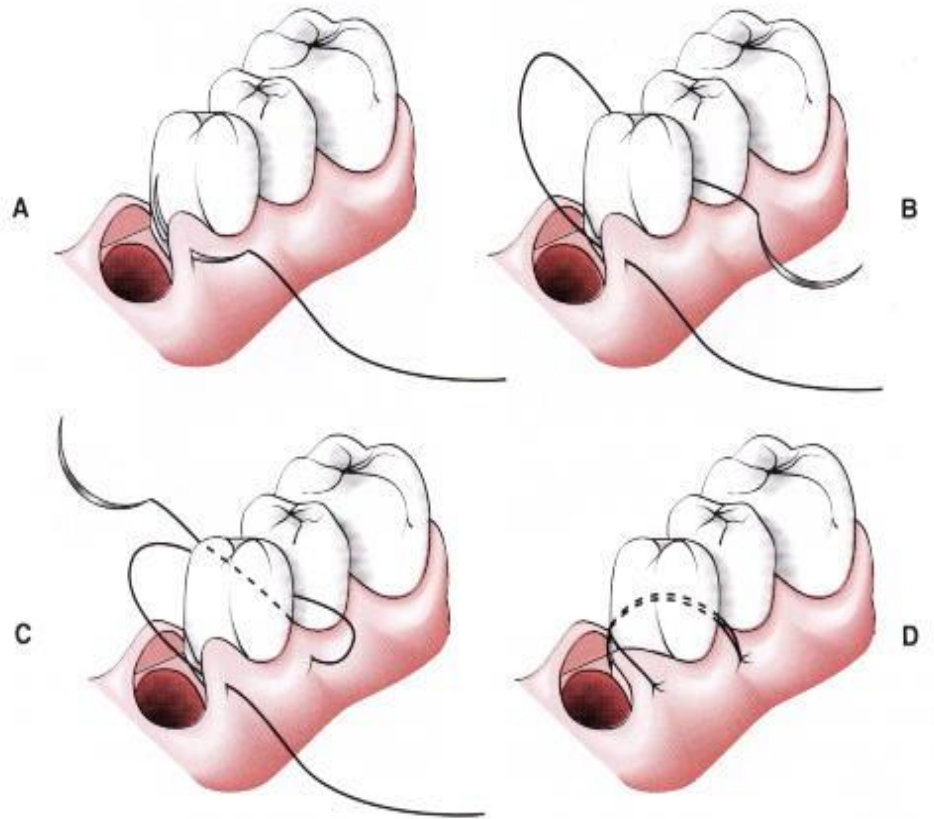
Figure of 8

Used when the flaps are not in close apposition because of apical flap position or nonscalloped incisions

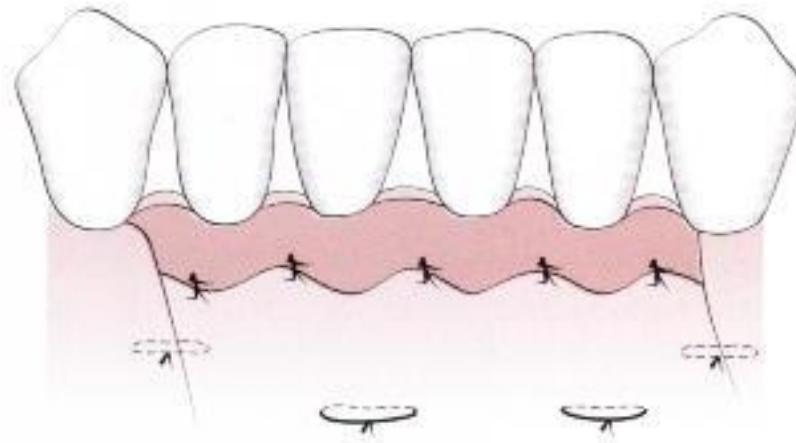


Sling suture

Used for a flap on one surface of a tooth that involves two interdental spaces



Periosteal suture: Holding suture & Closing suture



Patient Instruction After Surgery

Pain control

prescribe Analgesic

Acetaminophen codein

Ibuprofen

Naproxen

Infection control

prescribe antibiotics

Amoxicillin

Metronidazol

Ciprofloxacin

- **In the first 24 hours**

Avoid eating & drinking HOT things

Do not smoke

Apply ice pack

Avoid excessive exertion

Occasional bleeding

mouthrinse

Thanks for your attention

