
GOOD MORNING

PERIODONTAL PLASTIC SURGERY
part II

Dr. Kanchan Jagtap

- Papilla reconstruction
- Crown lengthening procedures
- Techniques to deepen shallow vestibule
- Techniques to remove frenum
- Ridge augmentation

PAPILLA RECONSTRUCTION

"Black triangles"

- Loss of periodontal support due to plaque-associated lesions
- Abnormal tooth shape
- Improper contours of prosthetic restorations
- Traumatic oral hygiene procedures may also negatively influence the outline of the interdental soft tissues.

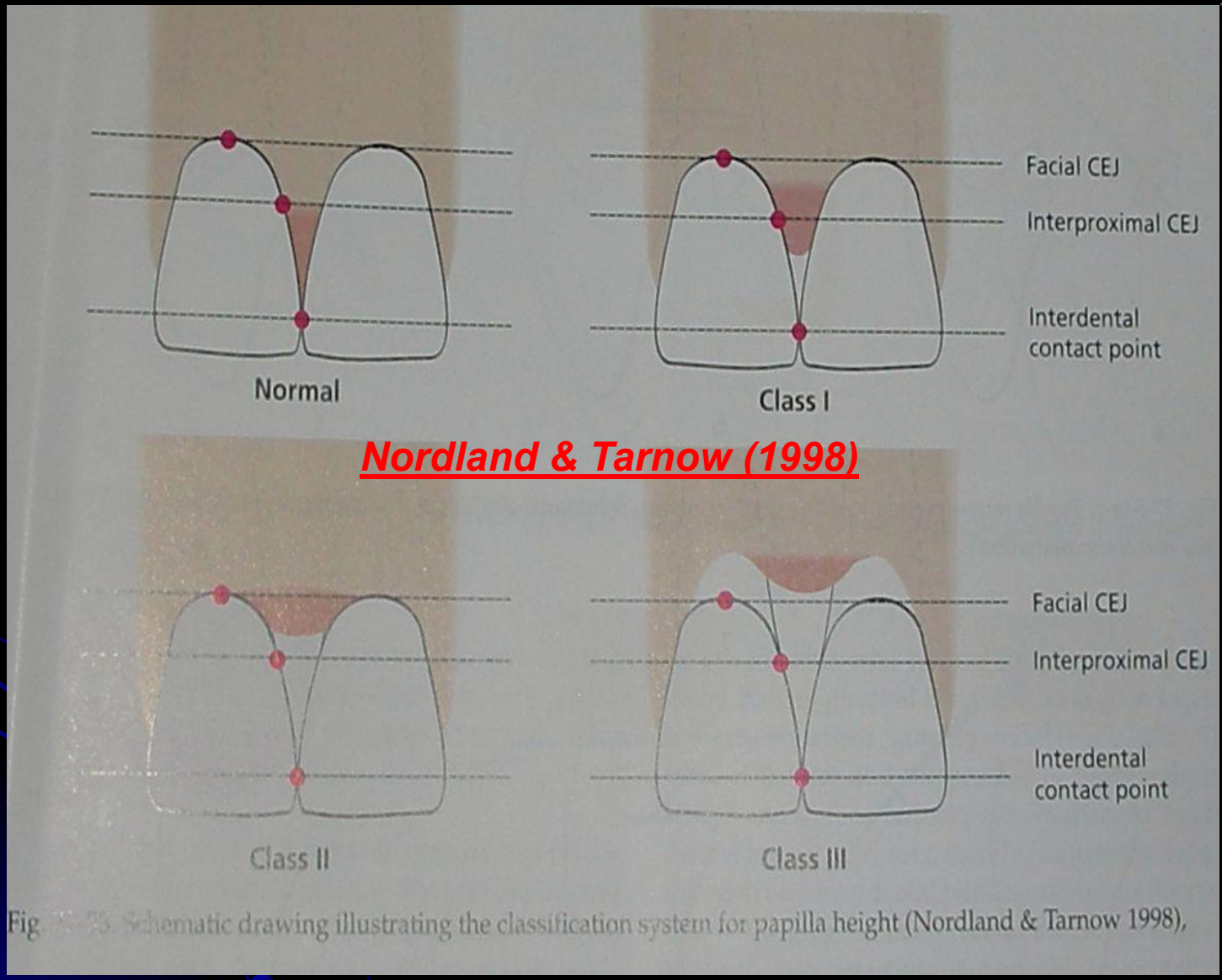


Fig. [illegible] Schematic drawing illustrating the classification system for papilla height (Nordland & Tarnow 1998).

Before attempts are made to surgically reconstruct an interdental papilla, it is important to carefully assess both

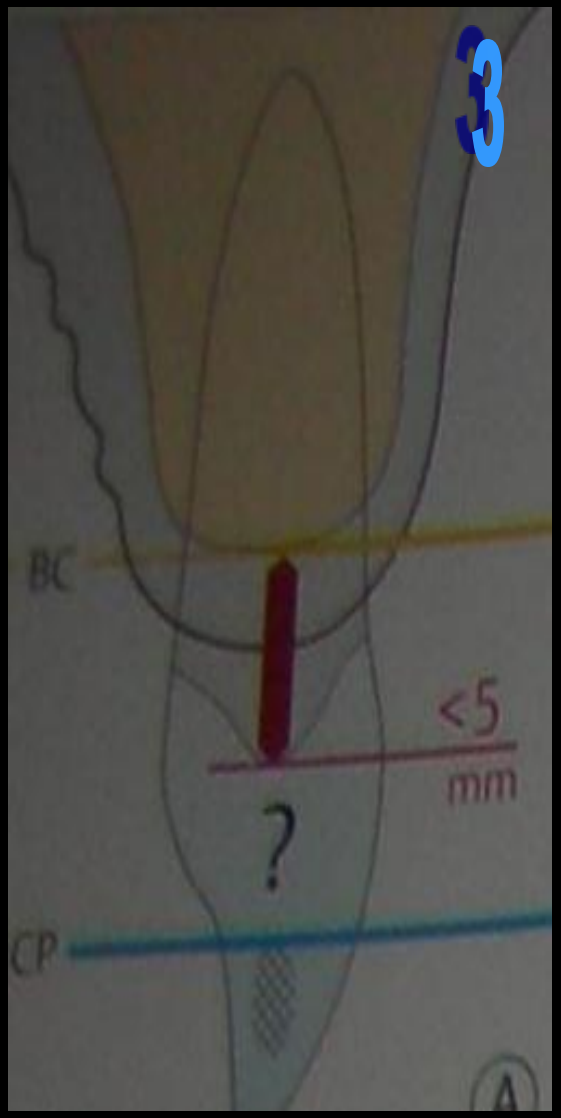
(1) the vertical distance between the bone crest and the apical point of the contact area between the crowns, and

(2) the soft tissue height in the interdental area.

- If the distance bone crest-contact point is < 5 mm and the papilla height is less than 4 mm, surgical Intervention for increasing the volume of the papilla could be justified in order to solve the problem of an interdental "black triangle".

- However, if the contact point is located > 5 mm from the bone crest, because of loss of periodontal support and/or an inappropriate interdental contact relationship between the crowns, means to apically lengthen the contact area between the teeth should be selected rather than a surgical attempt to improve the topography of the papilla.

- If loss of papilla height is caused by soft tissue damage only from oral hygiene devices, the interproximal hygiene procedures must be initially discontinued to allow soft tissue recovery and then modified in order to eliminate/minimize the traumatic injury to the papillae.



Beagle (1992)

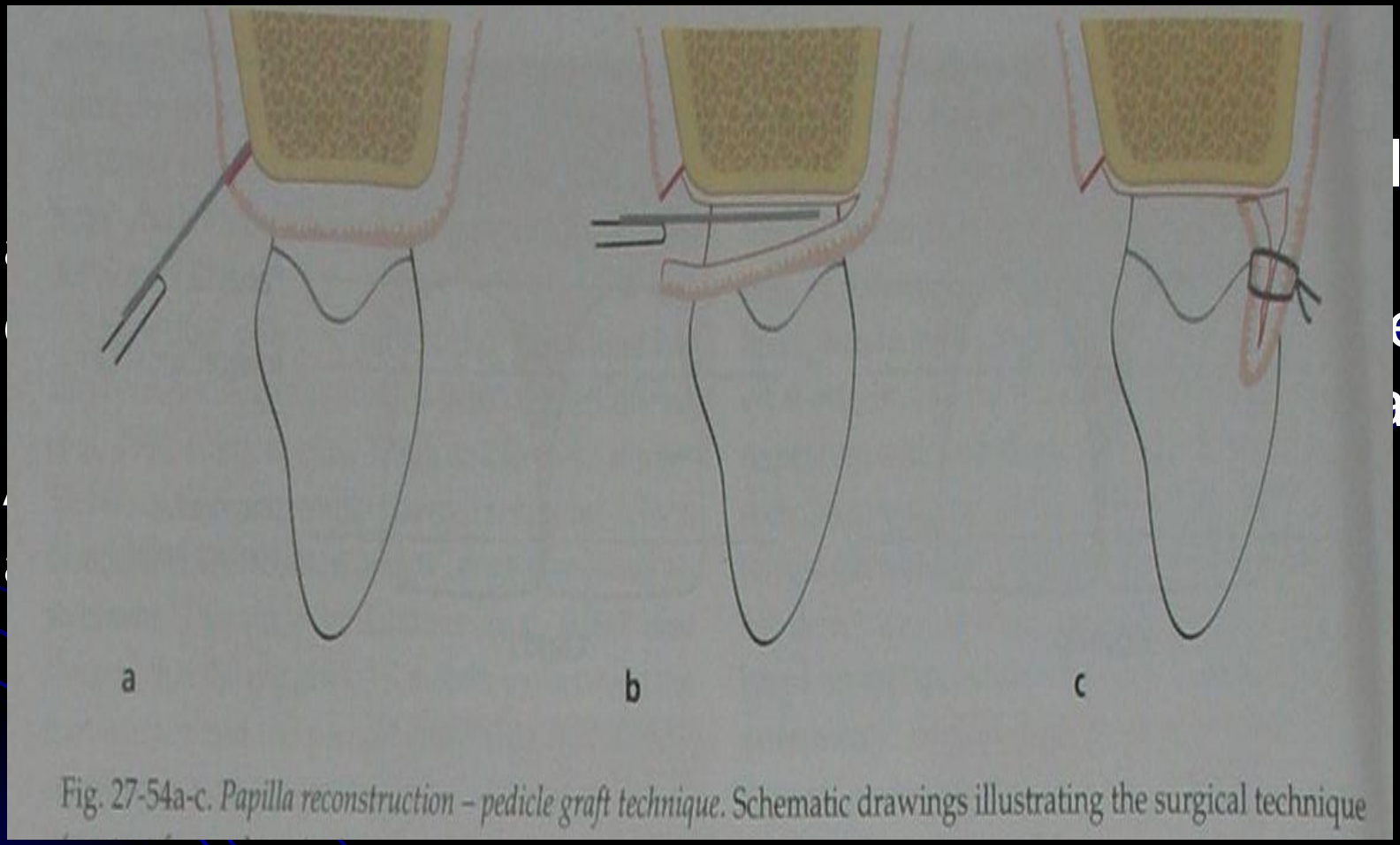


Fig. 27-54a-c. *Papilla reconstruction – pedicle graft technique.* Schematic drawings illustrating the surgical technique

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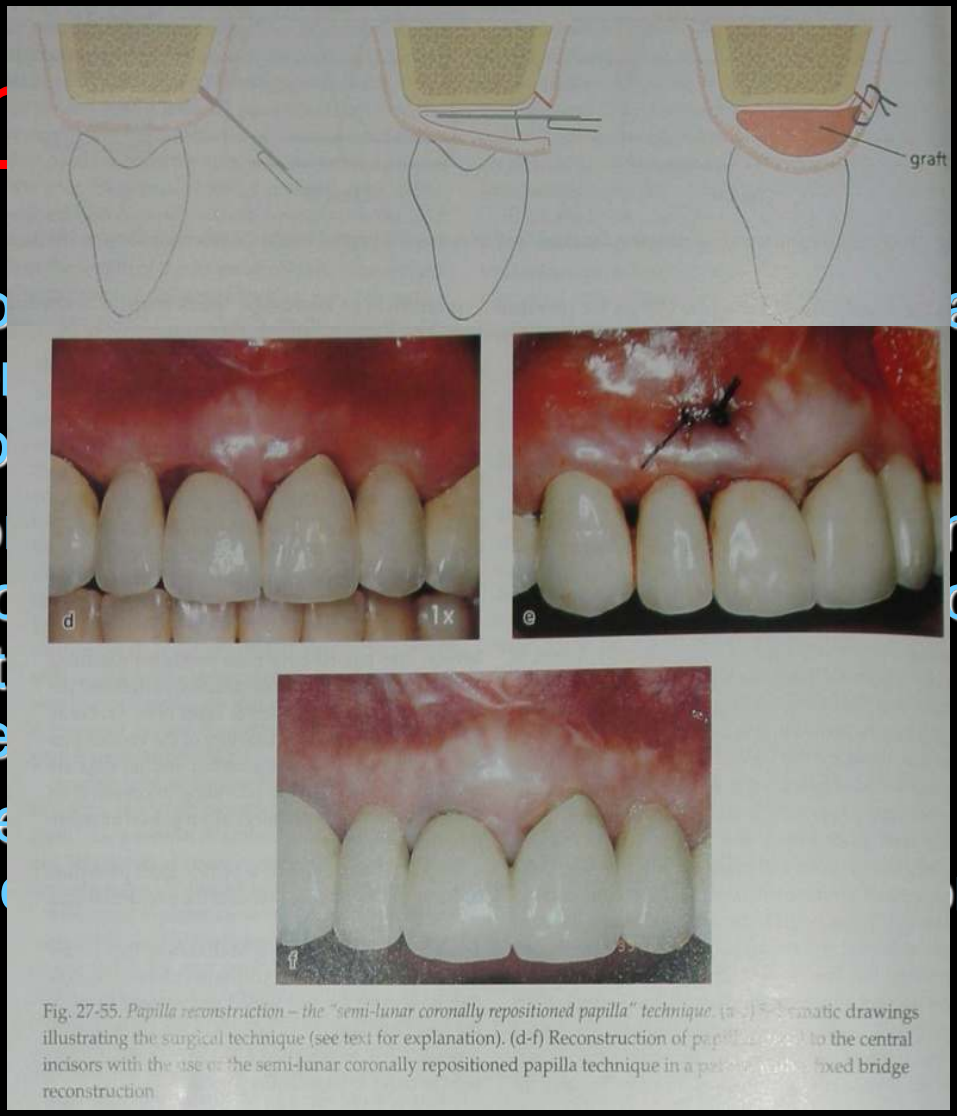

Fig. 27-55. *Papilla reconstruction – the "semi-lunar coronally repositioned papilla" technique.* (a-c) Schematic drawings illustrating the surgical technique (see text for explanation). (d-f) Reconstruction of papilla to the central incisors with the use of the semi-lunar coronally repositioned papilla technique in a patient with fixed bridge reconstruction.

Azzi et al (1998)

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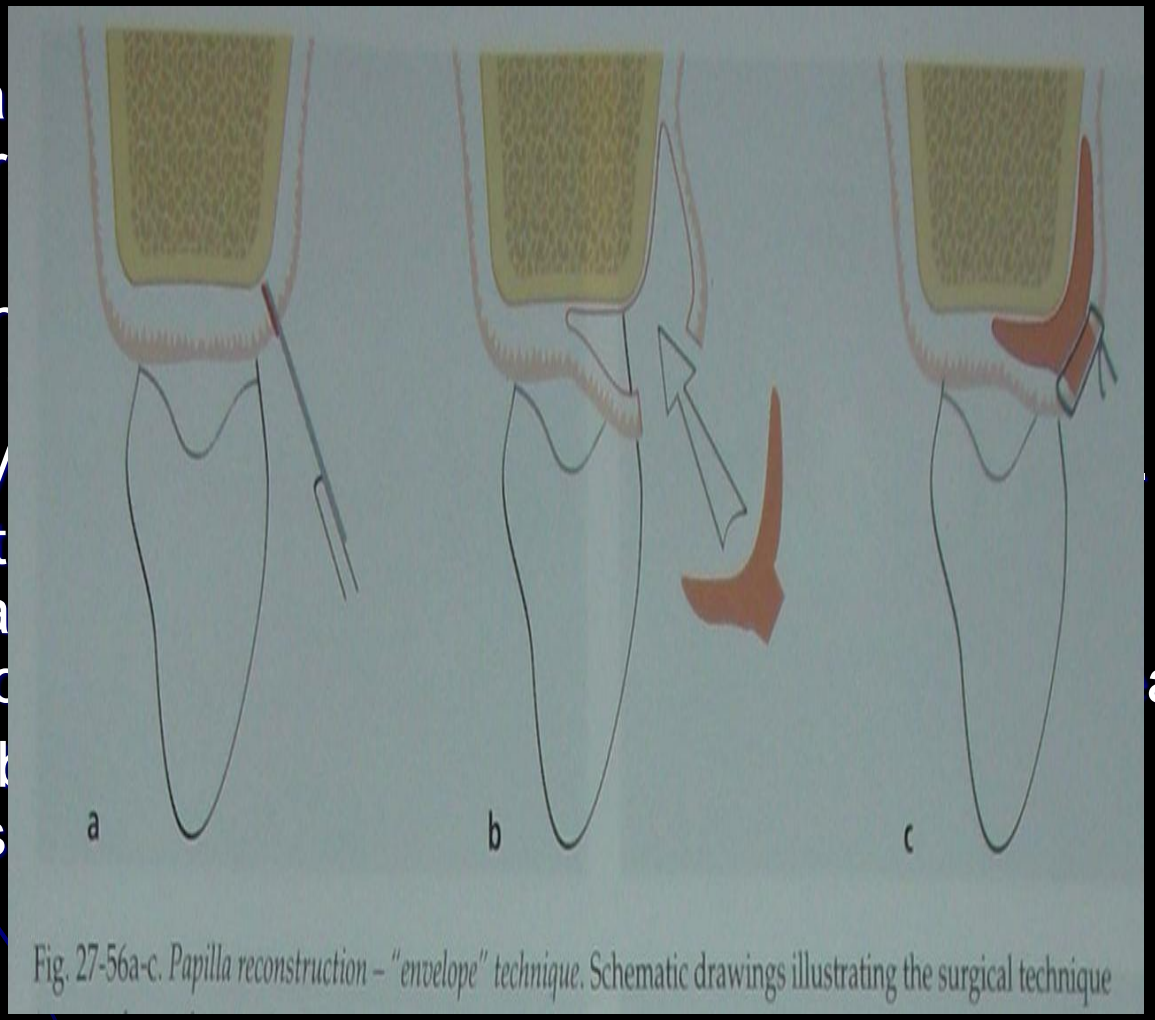
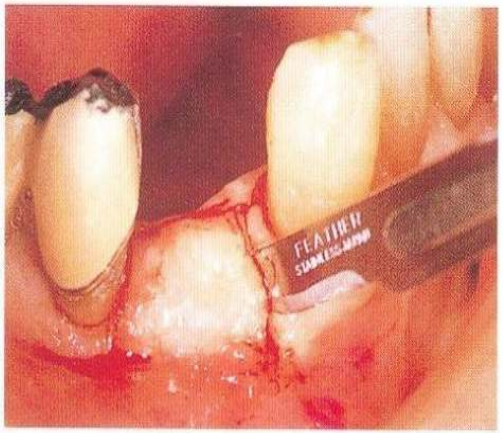


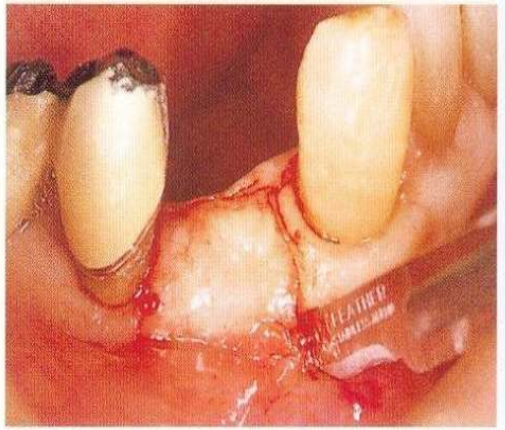
Fig. 27-56a-c. *Papilla reconstruction – "envelope" technique.* Schematic drawings illustrating the surgical technique

Flap design in the papilla regeneration technique

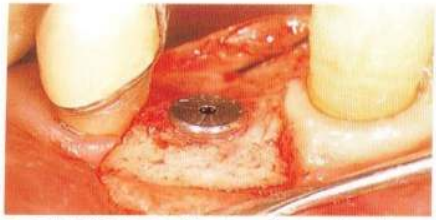
c17-2 *Preparation of trapezoidal flap.*

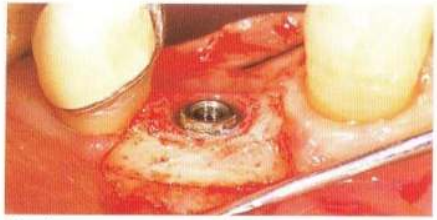
a. A horizontal incision is made lingually from the alveolar crest.





b. Two vertical incisions, extending to the mucogingival junction, are made on the mesial and distal aspects of the horizontal incision. The distal interdental papilla of 27 is preserved.

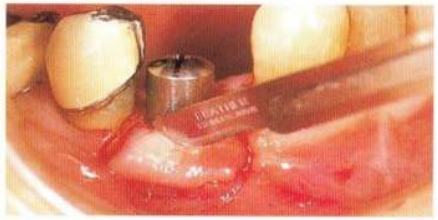


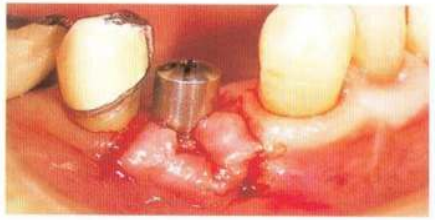


c. A full-thickness flap is reflected. In this case, the bone regeneration in the osseous defect area around the implant was facilitated by GBR.

d. A temporary healing abutment is selected and connected. The healing abutment is long enough to support the grafted pedicle flap.

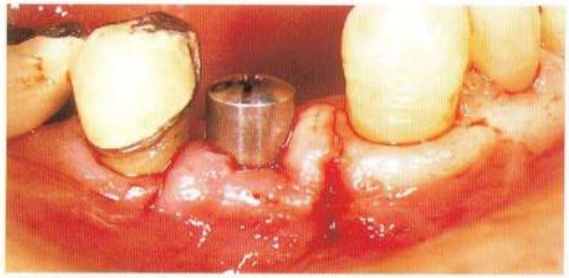
c17-3 Preparation of semilunar pedicle flap. A no. 15 blade is used to make a semilunar pedicle flap on the buccal flap. An incision from the distal to the mesial aspect of the flap is made to prepare the pedicle flap.

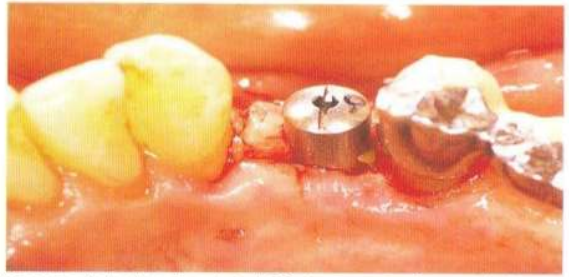




Key point

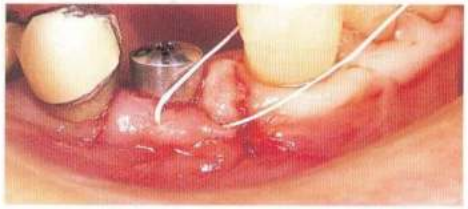
Make the incision long enough for free movement of the pedicle flap and to avoid flap tension.





c17-4 Displacement of the semilunar pedicle flap. The semilunar pedicle flap is rotated 90 degrees to the mesial interdental area of the temporary healing abutment. The rotated pedicle flap is shaped like interdental papilla.

Stabilization of the semilunar pedicle flap



c17-5 Stabilization of the flap using a horizontal mattress suture.

a. After the flap is approximated closely to the temporary healing abutment, it is stabilized. The needle is inserted horizontally from the semilunar pedicle flap to about 7–8 mm apically with about 4–5-mm width.

b. A horizontal mattress suture is made to stabilize the pedicle flap.

c. An interrupted suture is made on the buccolingual flap distally.

d. The suture is completed on the mesial vertical incised area.

Key point

Use Teflon suture material (WL Gore) for reduced plaque buildup in the surgical area. Do not use a periodontal dressing; it may displace the pedicle flap.

Prognosis

c17-6 Prognosis.

a. Eight days after surgery.

b. Two weeks after surgery.


c. Five weeks after surgery.


d. Placement of temporary restoration.


e. Four months after second-stage implant surgery. After the soft tissue is stable, the esthetic abutment (Hermans) is connected to the fixture.

f. Final restoration.

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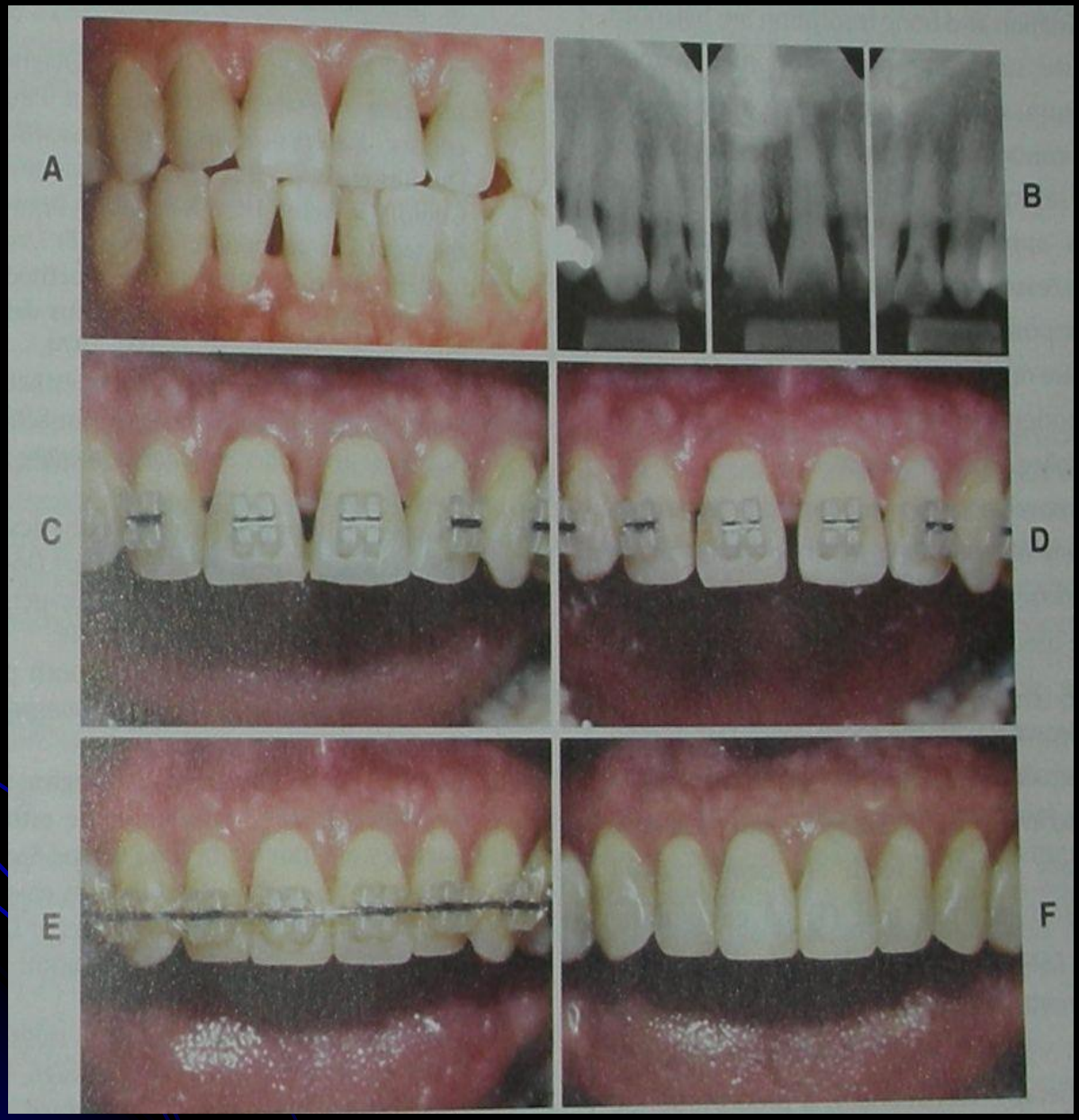

CROWN LENGTHENING PROCEDURES

Excessive gingival display

In most patients, the lower edge of the upper lip assumes a "gum-wing" profile which limits the amount of gingiva that is exposed when a person smiles.

Patients who have a high lip line expose a broad zone of gingival tissue and may often express concern about their "gummy smile".

The form of the lips and the position of the lips during speech and smiling cannot be easily changed, but the dentist may if necessary modify/control the form of the teeth and interdental papillae as well as the position of the gingival margins and the incisal edges of the teeth.

In other words, it is possible by a combination of periodontal and prosthetic treatment measures to improve dentofacial esthetics in this category of patient.

As a base for treatment decisions, a careful analysis of the dentofacial structures and how they may affect esthetics should be performed and should include the following features:

3

- Facial symmetry
- Interpupillary line - even or uneven
- Smile line - low, median or high
- Gingival display during speech and during broad, relaxed smile
- Harmony of gingival margins
- Location of gingival margin in relation to the cemento-enamel junction
- Tooth size and propotions/harmony
- Incisal plane /occlusal plane

3

Classification of the "smile line"		Upper lip – Interdental and marginal gingiva
Class	Type – Description	Evaluation: **IDG** interdental gingiva **M** gingival margin
Score 0	"low smile line"	IDG less than 25% visible M not visible, teeth masked
Score 1	"average/ideal smile line"	IDG 25–75% visible M visible on individual teeth
Score 2	"high smile line"	IDG >75% visible M <3 mm visible (overall)
Score 3	"very high smile line"	IDG completely visible M <3 mm wide maxillary band of gingiva visible, beyond the MGL "gummy smile"

4

Surgical Crown Lengthening

Indications

Subgingival caries or fracture

Inadequate clinical crown length for retention

Unequal or unesthetic gingival heights

Contraindications

Surgery would create an unesthetic outcome.

Deep caries or fracture would require excessive bone removal on contiguous teeth.

The tooth is a poor restorative risk.

BIOLOGIC WIDTH

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- It is important urgery is done in such a width is preserved. The d as the physiologic dim ithelium and connective

- This measurem elatively constant at appr

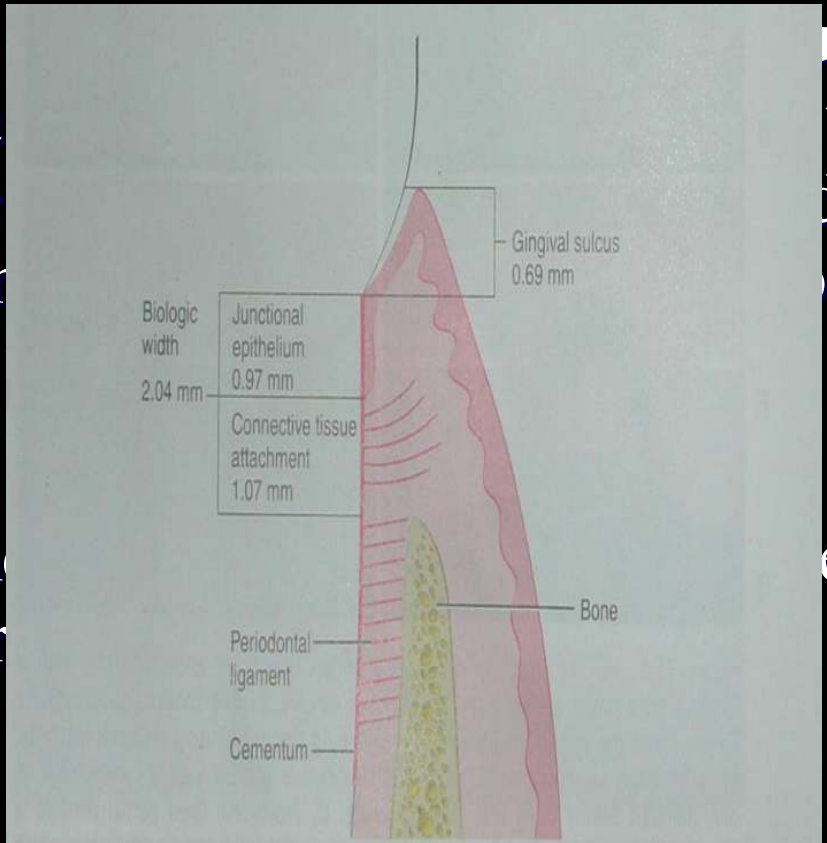

Figure 71-7 The biologic width has been estimated to be about 2 mm. Efforts should be made to preserve its integrity.

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The healthy gingival sulcus has shown an average depth of 0.69 mm.It has been theorized that infringement on the biologic width by the placement of a restoration within its zone may result in gingival inflammation pocket formation, and alveolar bone loss Consequently, it is recommended that there be at least 3.0mm between the gingival margin and bone crest. This allows for adequate biologic width when the restoration is placed 0.5 mm within the gingival sulcus .

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- Surgical crown lengthening may .Include the soft tissu f soft tissu e is adec than 3 mi crest. This either ging

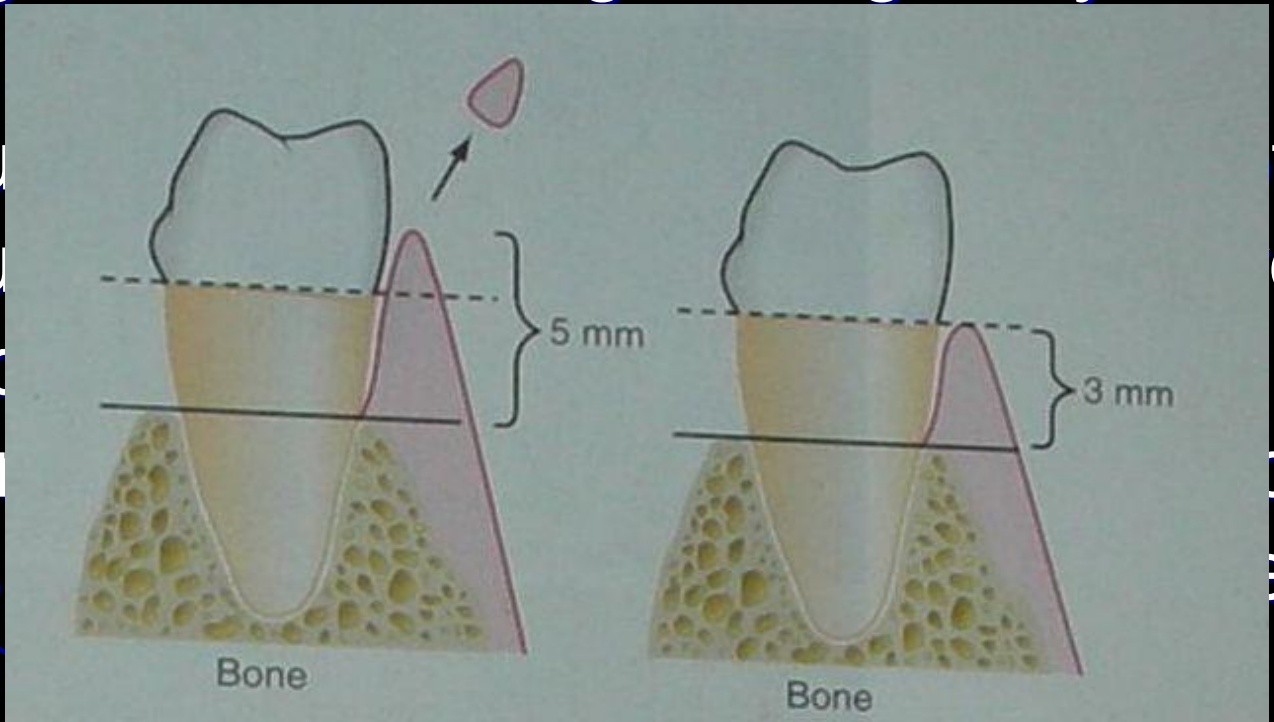

Figure 71-10 Greater than 3 mm of soft tissue between the bone and gingival margin, with adequate attached gingiva, allows crown lengthening by gingivectomy.

Fig. 27-58. (a) Pretreatment view. The patient disliked her "small front teeth" and diastema. Radiographs and probing indicated the gingival tissues were covering the cervical one third of the crowns. Crestal bone was thin and in normal relationship to the cemento-enamel junctions. The patient preferred "pink gums" if she could possibly have them. (b) A long externally beveled path of incision was used to accomplish the gingivectomy. (c) This view shows the color changes and pleasing architecture produced in the anterior gingiva at 2 months post-surgery. The diastema was partially closed by direct bonding at this time. (d) Post-treatment view showing the enhancement of esthetic values for the patient. Courtesy of Dr J. Seibert, US.

Fig. 27-57. *Crown lengthening procedure.* (a-b) Pretreatment views. The clinical crowns are considerably shorter than the anatomical crowns. The lateral incisors were congenitally missing and orthodontic treatment had been carried out to move the posterior teeth anteriorly. The canine teeth in the position of the lateral incisors added to the esthetic disharmony. (c) A gingivectomy was performed to expose the anatomical crowns of the teeth. (d) One month post-surgery. At this appointment, the canine and first premolar teeth were reshaped and bonded. (e) Tooth form and proportional balance were improved by bonding. (f) At 3 years post-treatment, the gingival tissues exhibited no rebound and retained the architectural form sculpted into the tissue at the time of the surgical procedure. Courtesy of Dr J. Seibert, US.

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- Inadequate attached gingiva and less than 3 mm of-soft tissue require a flap procedure and bone recontouring

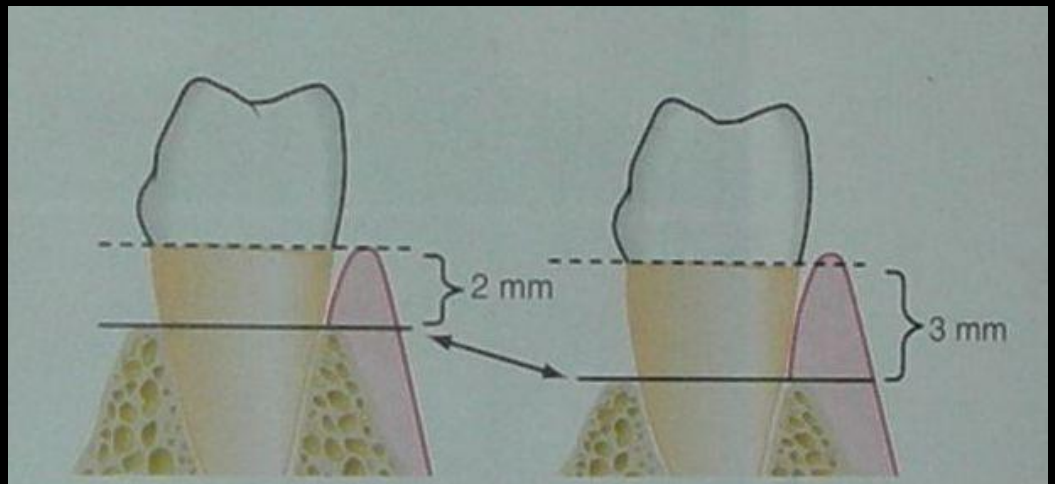


Figure 71-11 With less than 3 mm of soft tissue between the bone and gingival margin, or less-than-adequate attached gingiva, a flap procedure and osseous recontouring are required for crown lengthening.

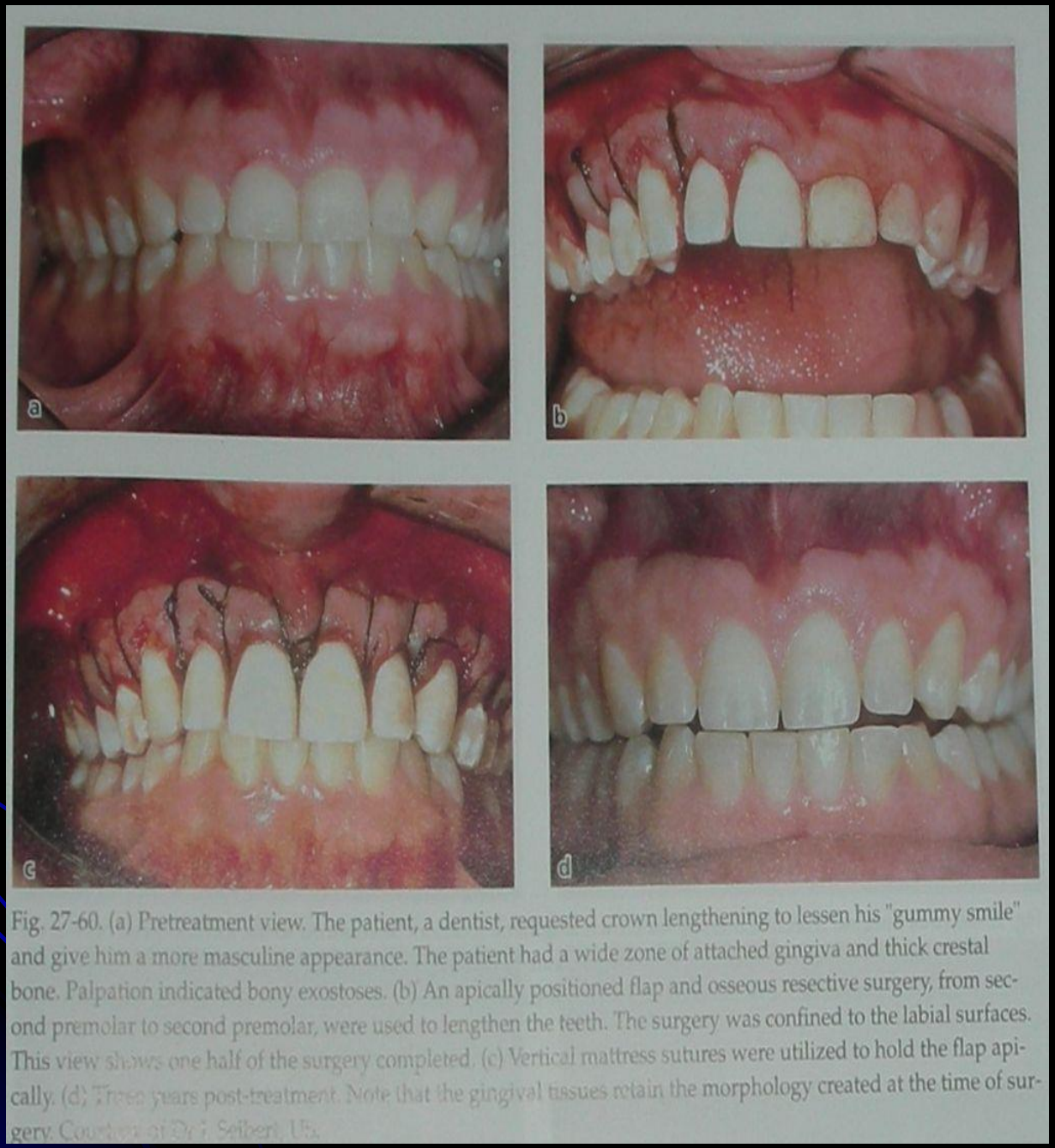
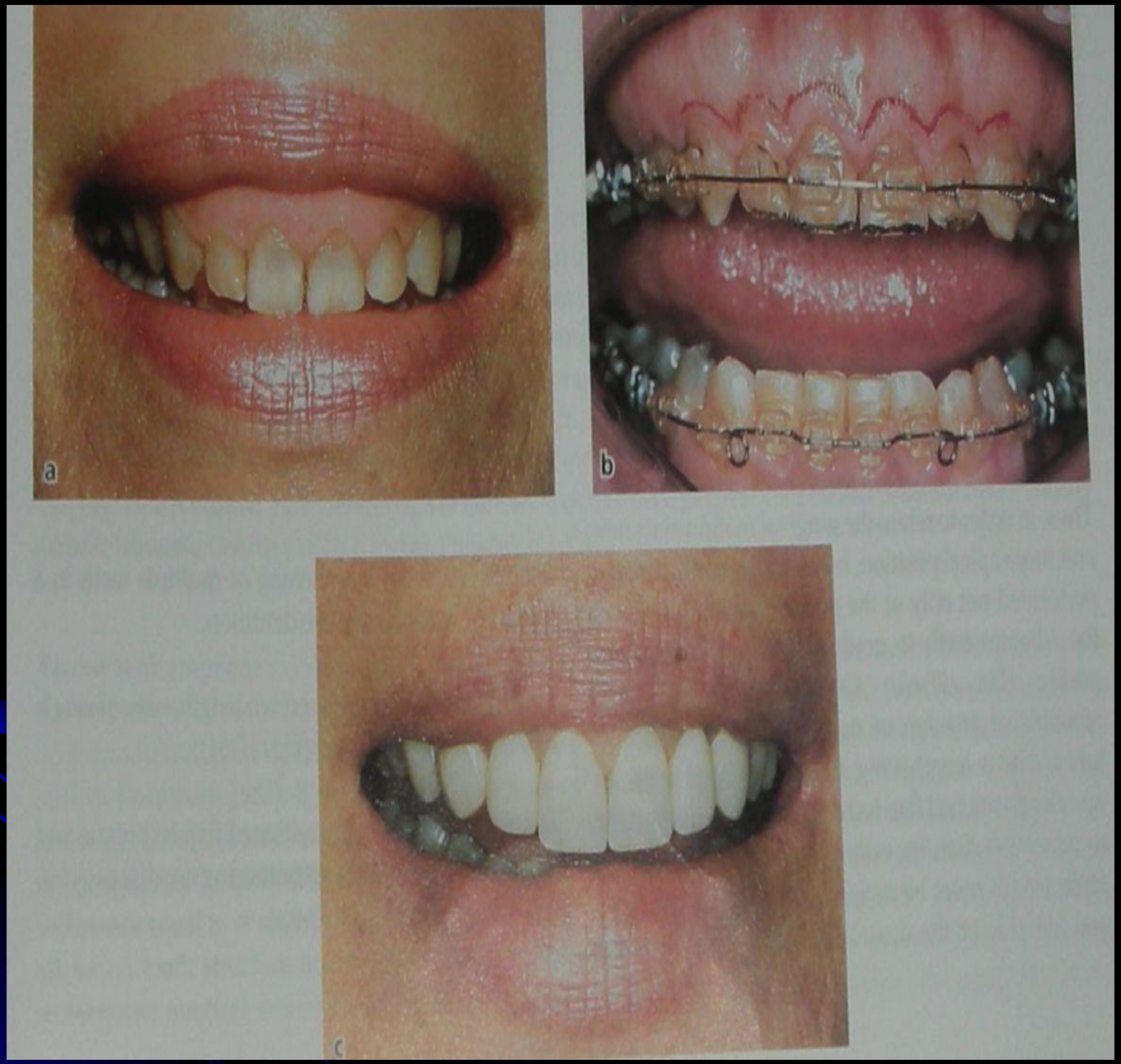


Fig. 27-60. (a) Pretreatment view. The patient, a dentist, requested crown lengthening to lessen his "gummy smile" and give him a more masculine appearance. The patient had a wide zone of attached gingiva and thick crestal bone. Palpation indicated bony exostoses. (b) An apically positioned flap and osseous resective surgery, from second premolar to second premolar, were used to lengthen the teeth. The surgery was confined to the labial surfaces. This view shows one half of the surgery completed. (c) Vertical mattress sutures were utilized to hold the flap apically. (d) Three years post-treatment. Note that the gingival tissues retain the morphology created at the time of surgery. Courtesy of Dr. J. Seibert, UT.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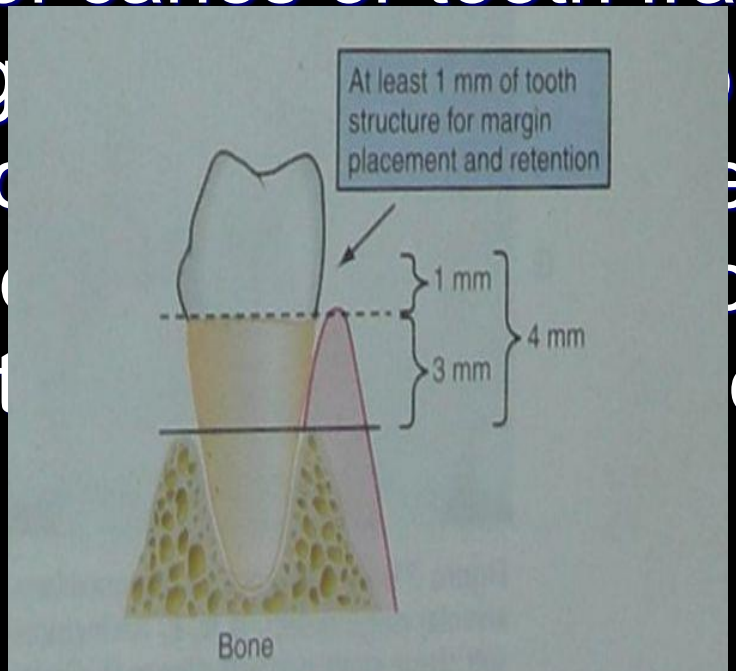
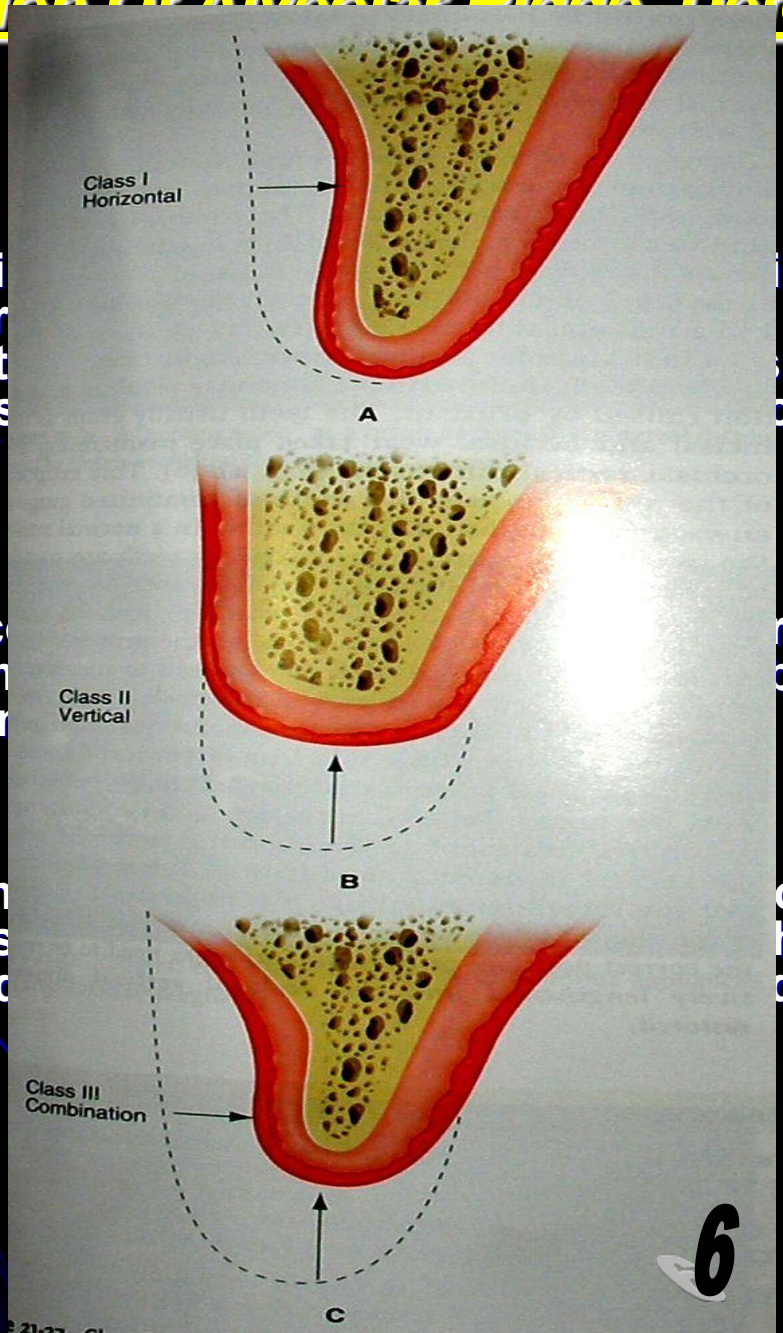
- In the case of caries or tooth fracture, to ensure marg ound \ tooth structure anc e surgery should provi om the apical extent cture to the bone crest.



igure 71-12 In the case of caries or fracture, at least 1 mm f sound tooth structure should be provided above the gingival argin for proper restoration.

RIDGE AUGMENTATION

Classificati… Of Alveolar Ridge Deformities



- **Class I :** Buccoli… idge height in an apicocoronal dir… encountered and most predictably treat… . A pouch-type augmentation us… ceramic graft is usually the treatment of …

- **Class II** : Apicoc… ridge width in a buccolingual din… bly and is usually managed with ar…

- **CLASS III** : Com… ornal loss of tissue resulting in a los… h. This is the most difficult type of d… quires multiple surgical procedures.

Seibert 1983

Fig. 10-4. Free Gingival Onlay Graft for Correction of *Class III Ridge Defect*. **A,** Pretreatment view of an extensive *Class III ridge defect*. The patient has used a removable prosthesis for many years and wished to have a fixed prosthesis made. **B,** First stage of soft-tissue reconstruction. A large, thick onlay graft was sutured into position. **C,** Two months postsurgery. The onlay graft produced gain in ridge height. A second procedure was performed to augment the ridge further in buccolingual dimension. **D,** A veneer type of free graft was used to gain augmentation in a buccolingual direction. **E,** Appearance of the reconstructed ridge 2 months after the final grafting procedure. Compare the contour of the healed augmented ridge with that shown in Figure 10-4A. **F,** Provisional prosthesis in place. (Contributed by Dr. Jay Seibert, Philadelphia, PA.)

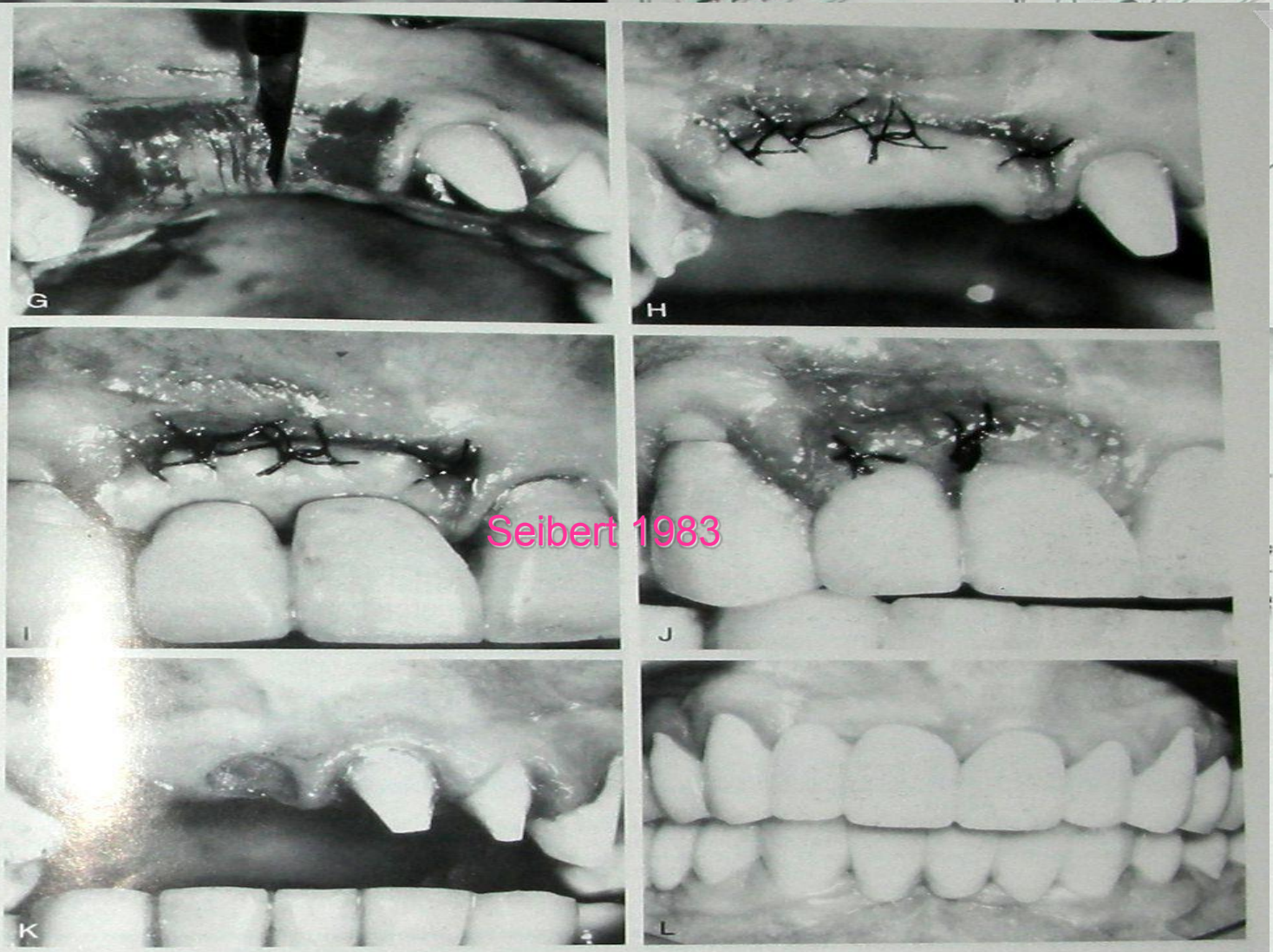


Fig. 10-5 (continued). **G,** Two months after the first surgical procedure, the ridge was de-epithelialized and cuts were made into the connective tissue prior to placing the second-stage onlay graft into position. **H,** The onlay graft was sutured into position. **I,** The pontics were adjusted and brought into light contact with the graft. **J,** Marked swelling occurred within the graft 14 days postsurgery. **K,** Two months following the second surgical procedure, a gingivoplasty was performed to deepen the pontic sites for the ovate pontics. **L,** Post-treatment view 1 year after the final surgical procedure. (Contributed by Dr. Jay Seibert, Philadelphia, PA.)

Fig. 10
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to gain more ridge height and to fill in the "dark triangles" between the teeth.

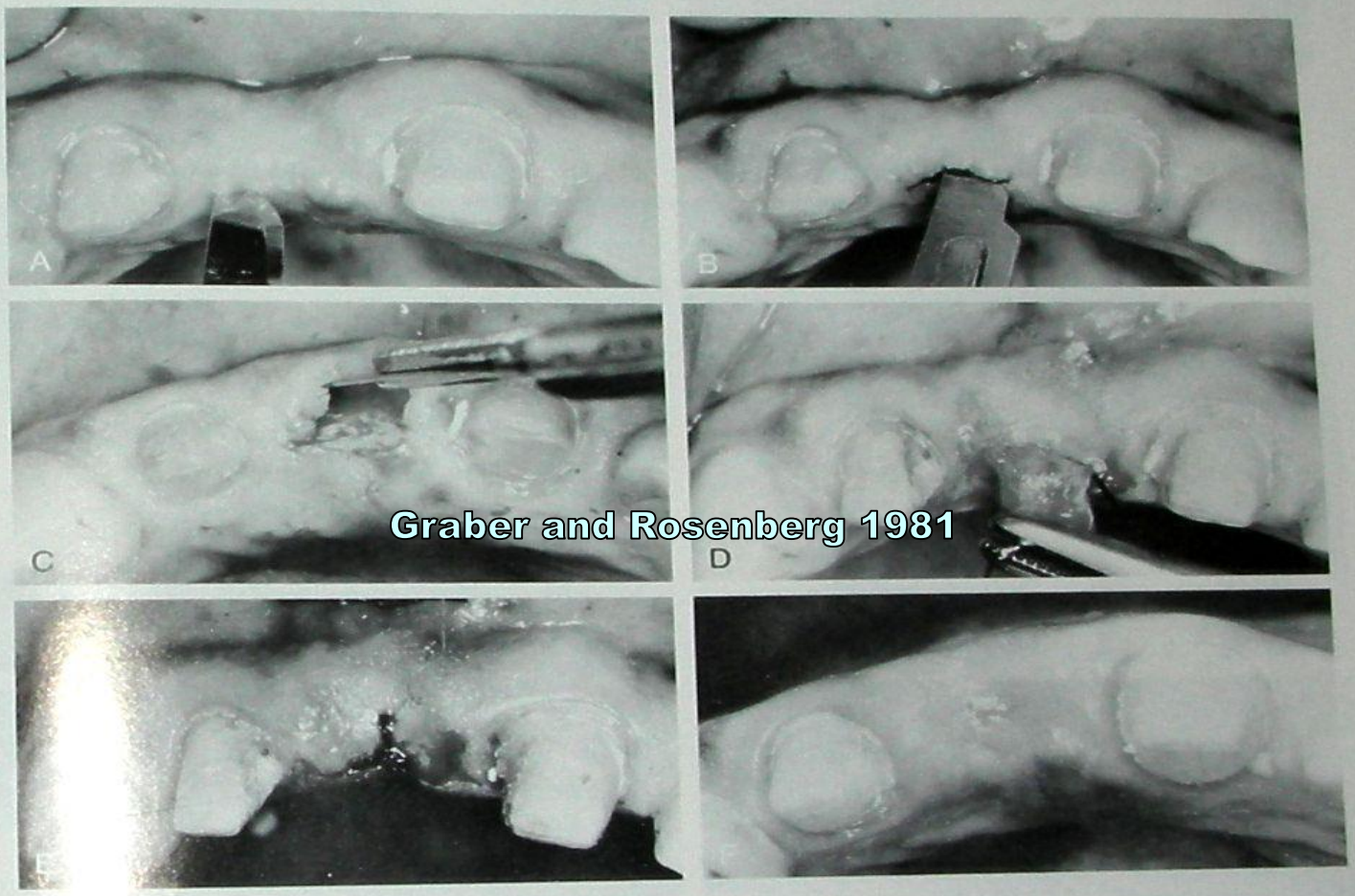
Ridge Augmentation Using Gingival Grafts (Onlay Graft Procedures)

Advantages

1. Vertical dimension of alveolar ridge can be obtained.
2. Simultaneous resolution of alveolar ridge defects and increase in the width of keratinized gingiva.

Disadvantages

1. Reduced blood supply to the graft.
2. Suboptimal esthetics because of different colors of the graft and surrounding tissue.
3. Possible postoperative pain and delayed healing because of the open wound of the palatal tissue on the donor site.



Graber and Rosenberg 1981

Fig. 10 Pouch Procedure for Ridge Augmentation. **A,** Before, as incision is to begin. Note horizontal loss of ridge dimension **B,** Horizontal ridge incision begun. **C,** Pouch formed. **D,** Connective tissue graft being placed and sutured. **E,** Graft placed and pouch sutured. **F,** Three months later. Note restoration of ridge. (From Garber, D. and Rosenberg, E.: The edentulous ridge in fixed prosthodontics. Compend. Cont. Ed. Gen. Dent., 2:212, 1981.)

Ridge Augmentation Procedures Using Connective Tissue Grafts

Advantages

1. Excellent blood supply to the graft because the graft receives blood from the periosteum-connective tissue recipient site and the flap.
2. Ability to obtain initial wound closure of surgical area.
3. Easy stabilization of the graft due to the periosteal suture.
4. Faster healing than the onlay graft procedure.
5. Easy hemostasis and less postoperative pain and discomfort because of closed wound at the donor site.
6. Color match of the surrounding tissue.
7. Applicable to Class I, II, and III alveolar ridge defects.

Disadvantages

1. Technically demanding.
2. Less increase of alveolar ridge height compared to onlay graft procedures.
3. Reduction of keratinized gingiva likely because the mucogingival junction becomes more coronal (because the flap is displaced coronally to cover the graft in some cases).

Shallow Vestibule

4

- Another objective of periodontal plastic surgery is the creation of some vestibular depth when this is lacking.
- Gingival recession displaces the gingival margin apically,thus reducing vestibular depth, which is measured from the gingival margin to the bottom of the vestibule.
- With minimal vestibular depth, proper hygiene procedures are jeopardized.
- Minimal attached gingiva with adequate vestibular depth may not require surgical correction if proper atraumatic hygiene is practised with a soft brush.
- Minimal amount of keratinized attached gingiva with no vestibular depth usually benefit from mucogingival correction.
- Adequate vestibular depth may also be necessary for proper placement of removable prostheses.

Techniques To Deepen Vestibule 4

Predictable deepening of the vestibule can only be accomplished by the use of free autogenous graft techniques and their variants.

- Before the free gingival graft procedure was developed,- during the era in which vestibular extension was popular, an innovative approach to increasing the amount of attached mucosa (not gingiva) was introduced by two Czech stomatologists, Edlan and Mejchar, in 1963.

- The historical context in which their procedure was introduced is important. The laterally positioned pedicle graft had been introduced by Grupe and Warren in 1956, but recessions involving more than isolated teeth were still being handled by a variety of frenum repositioning procedures, which usually failed with time or by denudation that was slow-healing and painful.

- At the time of its introduction, the Edlan-Mejchar procedure seemed quite promising.

- The procedure had as its objective prevention of recession on the facial surface of lower anterior teeth, especially in young people.
- Frenum pull and the resultant effect of food passing into a shallow vestibule were stressed as problems which led to recession and deep pocket formation caused by food impaction.
- A high attachment of the mentalis muscle was viewed with similar concern.
- They viewed these problems as primary (or developmental) in nature or secondary following progressive periodontitis.

Figs. 8-9a and b A narrow band of gingiva is present on the mandibular anterior teeth. Two vertical incisions, running from within the gingiva through the alveolar mucosa and up almost to the vestibular edge of the vermilion border of the lip, are cut into bone to the base of the existing vestibule. The shallow vestibule is illustrated in Fig. 8-9b.

Fig. 8-9c A horizontal incision joining the two vertical incisions is made near the lip. A flap is made in the labial mucosa and extended lifting the facial mucosa supraperiosteally. With the flap raised periosteum and labial submucosa are exposed.

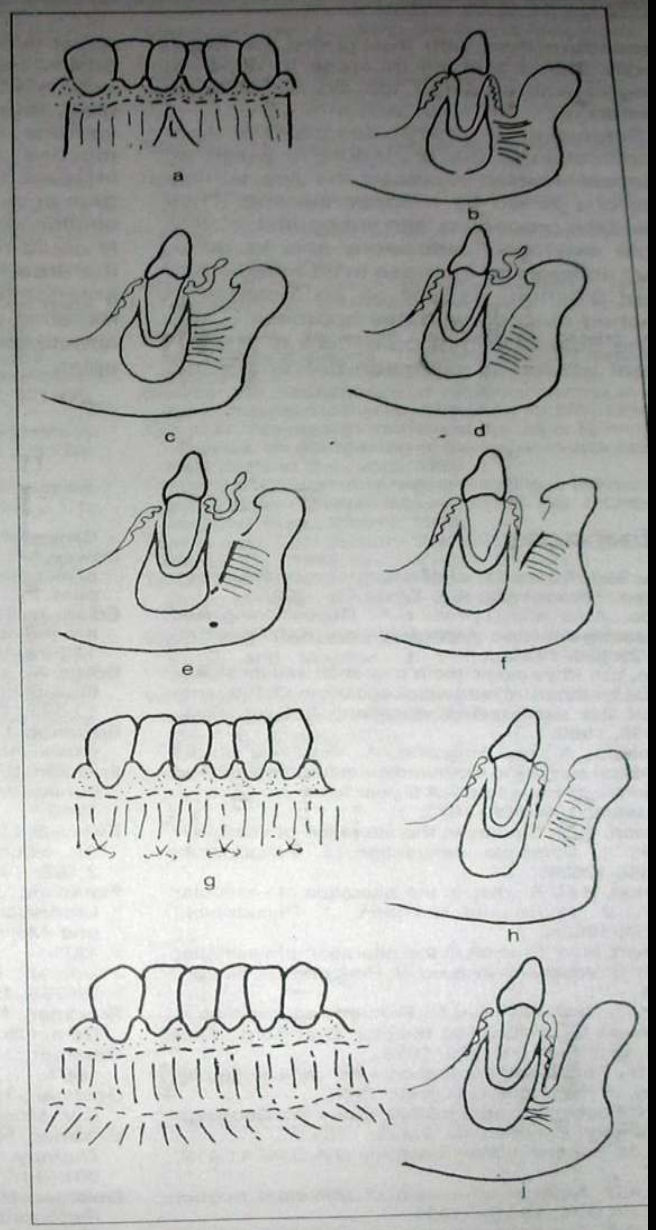
Fig. 8-9d With the mucosal flap raised, the vertical incisions are extended nearly to the border of the mandible. The periosteum is freed up from the bone to that point so that the lip may be retracted including the periosteum.

Fig. 8-9e An incision is made to bone at the base of the new vestibule separating the periosteum which remains with the lip.

Fig. 8-9f The original flap is placed over the bone and sutured at its base.

Figs. 8-9g and h With the original flap sutured at its base, the periosteum remaining with the lip is sutured to the border of the horizontal incision near the vermilion border of the lip. A periodontal pack is placed covering the wound.

Figs. 8-9i and j The anticipated result is a deepened vestibule with an increase in bound-down mucosa but no increase in attached gingiva. A new periosteum is formed covering the facial bone, while the vestibular surface of the lip is covered with new epithelium.



TECHNIQUES TO REMOVE FRENUM

FRENECTOMY/FRENOTOMY

- These terms refer to surgical procedures that differ in degree.

- Frenectomy is complete removal of the frenum, including its attachment to underlying bone, and may be required in the correction of an abnormal diastema between maxillary central incisors.

- Frenotomy is incision of the frenum. Both procedures are used, but frenotomy generally suffices for periodontal purposes, that is, relocating the frenal attachment so as to create a zone of attached gingiva between the gingival margin and the frenum.

FRENUM/FRENULUM

Definition

A Frenum is a fold of mucous membrane, usually with enclosed fibers, that attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying mucosa

FEATURES OF FRENUM

- Sickle shaped folds
- Found mostly in between central incisors and canine premolar area
- Contain loose connective tissue and dense collagen fibers, fat cells & occasionally acini of mucous producing salivary glands

CLASSIFICATION

: BASED ON LOCATION OF ORIGIN OF FRENUM

MUCOSAL ATTACHMENT : attachment to MG junction

GINGIVAL ATTACHMENT : to ATTACHED GINGIVA

PAPILLARY ATTACHMENT : within PAPILLA

PAPILLA PENETRATING ATTACHMENT : passing through papilla and inserting into ATTACHED GINGIVA (of palate)

Clinical features of Abnormal frenum

Gingival Recession

Midline Diastema

Accumulation of debris by reflection& opening of sulcus.

Difficult oral hygiene maintenance

Pull syndrome

A detaching movement of the marginal gingiva transferred from the lip by the frenum has been termed the pull syndrome

(Placek et al 1974).

Tension test:

It's a term used to describe the movement or displacement of marginal gingiva when tension is applied to the lower lip in an outward, downward & lateral direction

Indications :

1) To eliminate tension on & retraction of the gingival margin that has been caused by the frenum during lip movements. If left untreated, it may cause.
   a) Distention of the orifice of the sulcus or pocket, leading to debris accumulation.
   b) An increase in the severity of the pocket, impairing healing

2) To eliminate a well developed frenum that penetrates the gingival papilla to its origin on the incisive papilla. The coronally attached frenum may lead to a midline diastema & prevent mesial drift, which usually closes this space.

3) To facilitate orthodontic treatment, A thick frenum resists orthodontic forces & its wedging area can be responsible for slight spacing of the maxi. Central Incisors following ortho treatment.

4) To eliminate a frenum that makes it difficult or impossible to use a Tooth Brush effectively in the area.

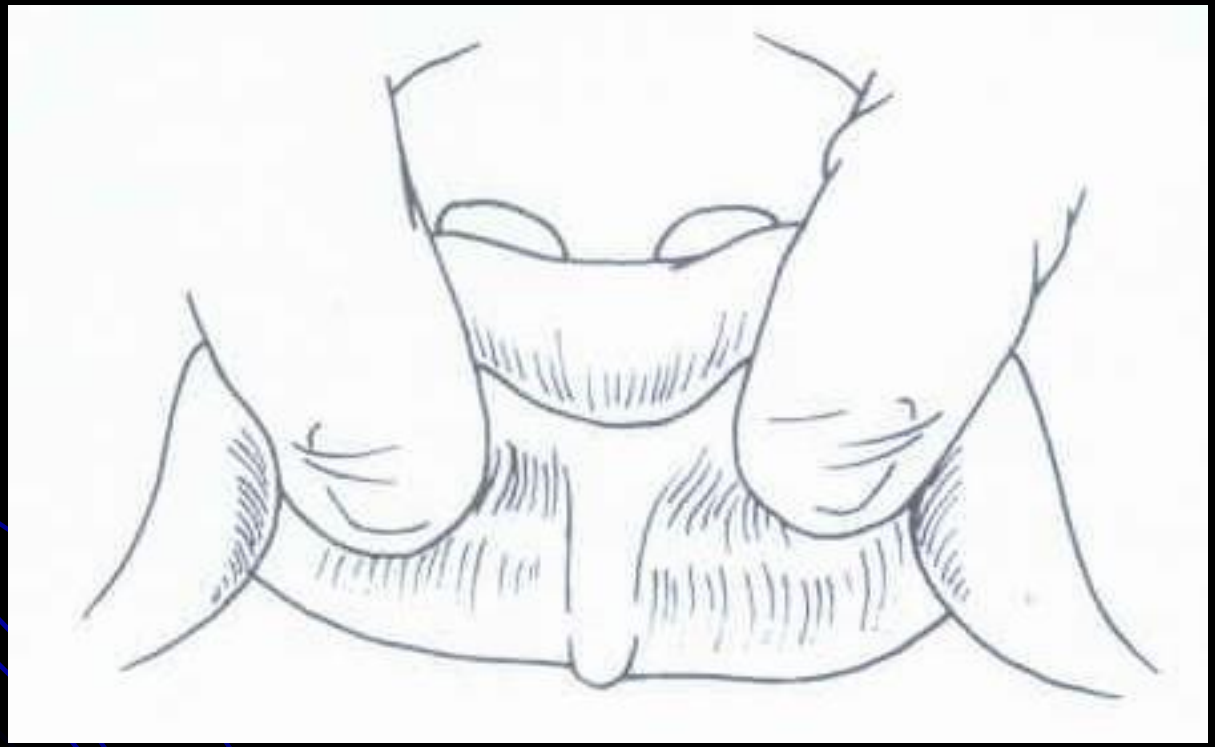
5) When combined with more sophisticated periodontal surgery, e.g.. to eliminate periodontal pockets & increase Attached Gingiva & depth of vestibular trough.

Surgical Techniques

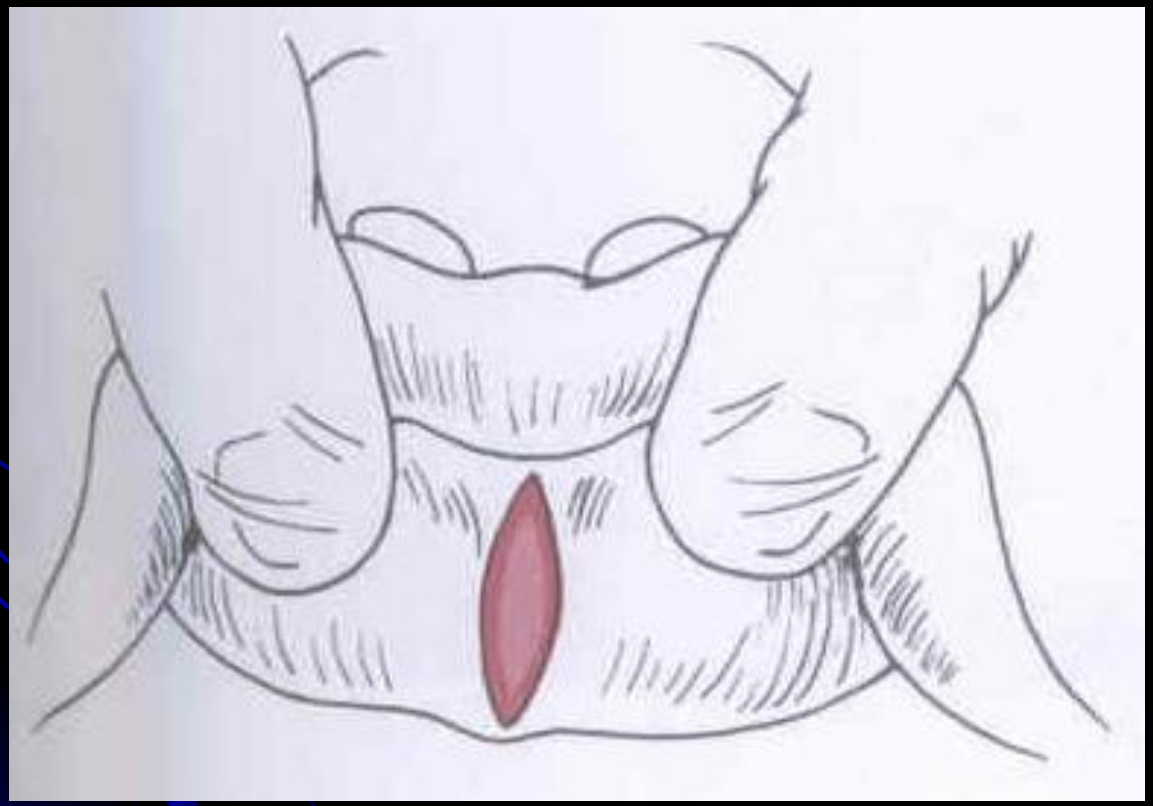
: Simple excision
  One Hemostat Technique
  Two Hemostat Technique
: Z-Plasty
: Vestibuloplasty with Secondary Epithelialization
: V-Rhomboid plasty
: Modification of V-Rhomboid plasty
: Simple Incision
: V-Y plasty
: Submucoasal frenotomy

Simple Excision

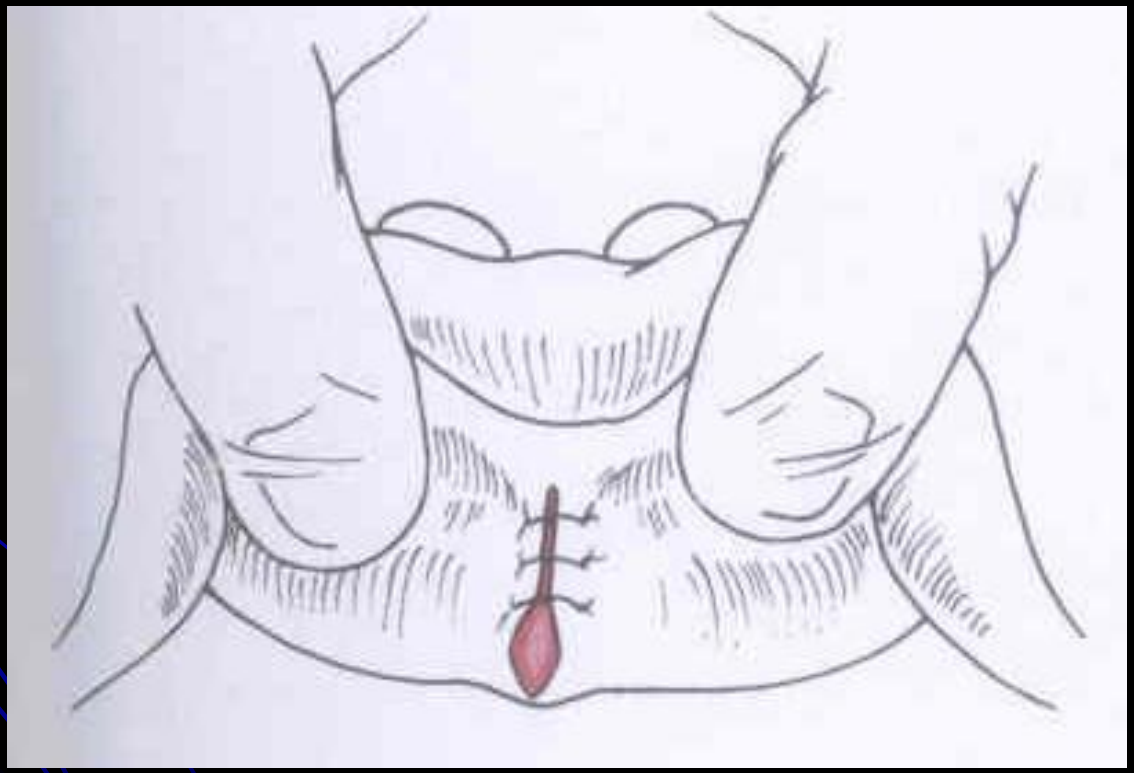
Abnormal Frenum



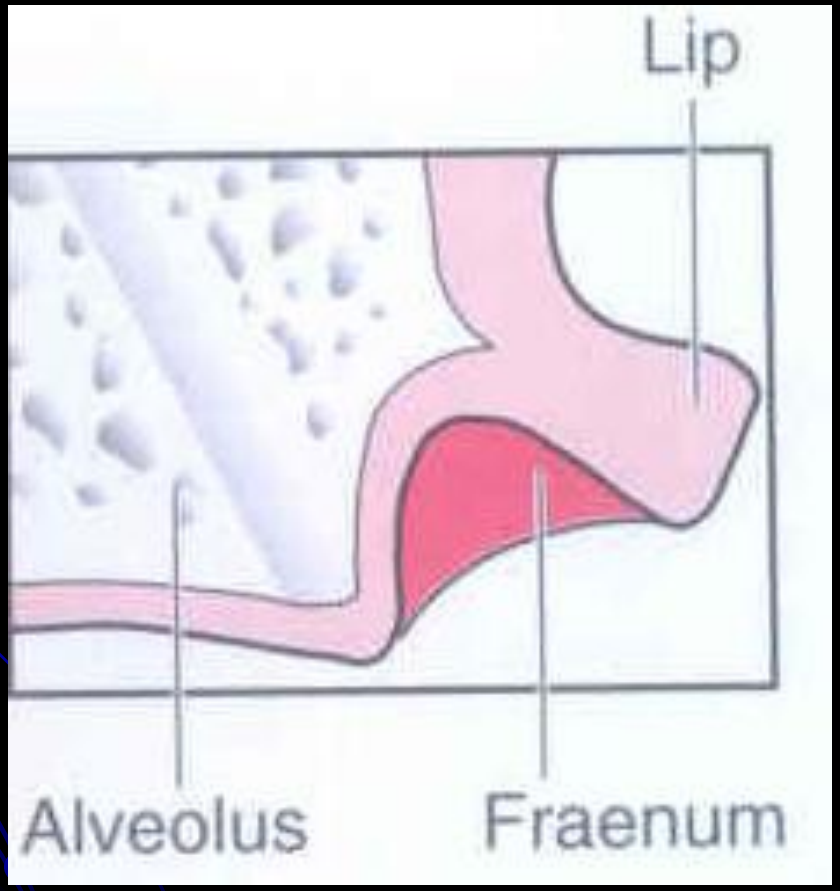
Diamond-shaped Wound

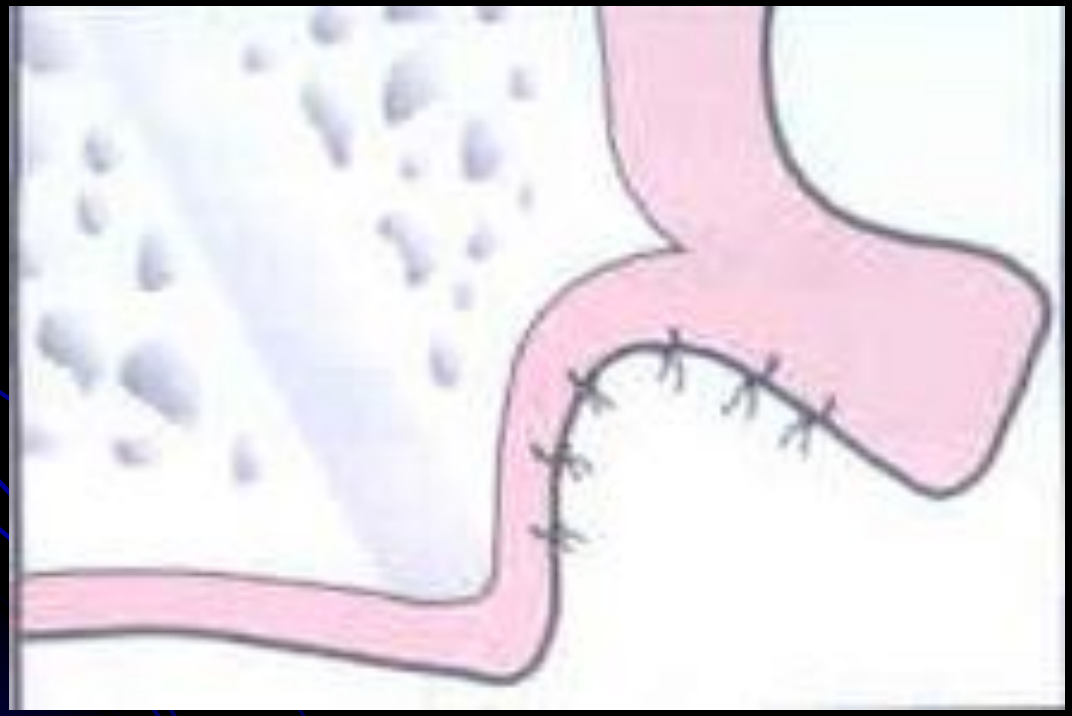


Sutures in place



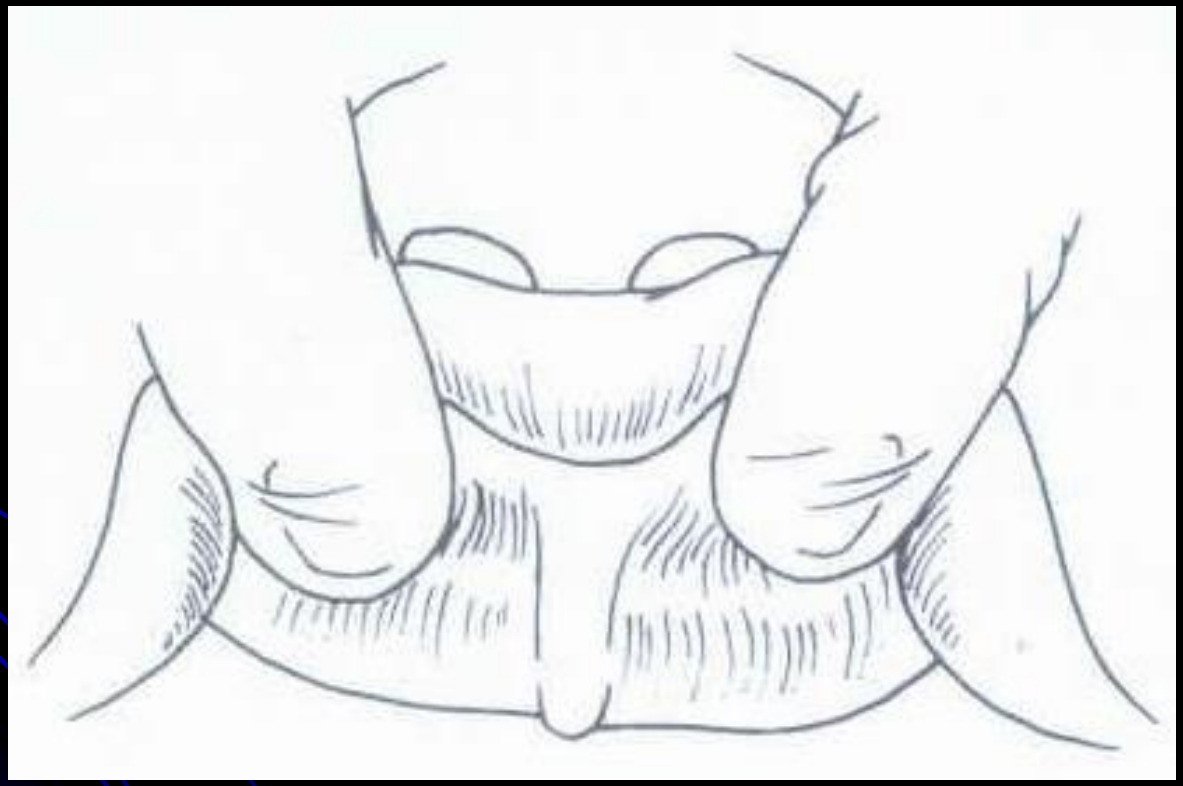
Lateral view



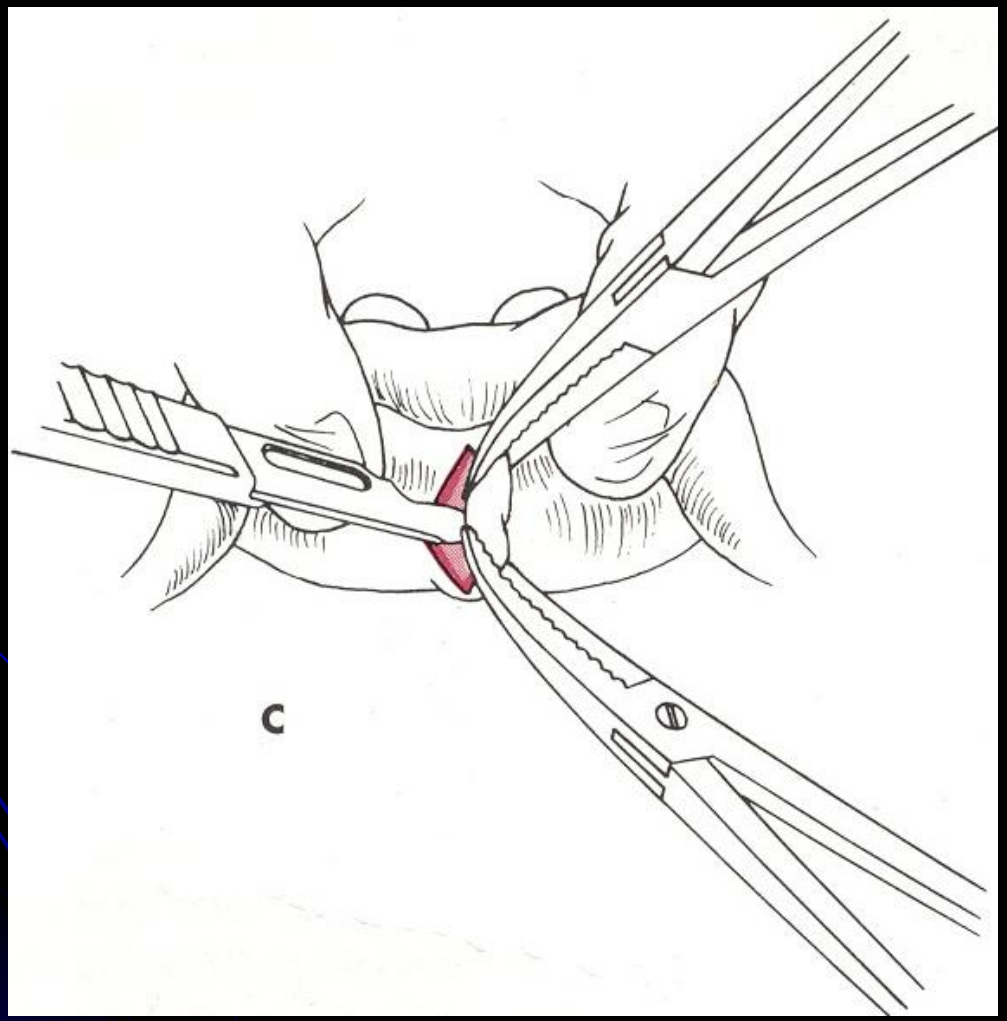


TWO HEMOSTAT TECHNIQUE

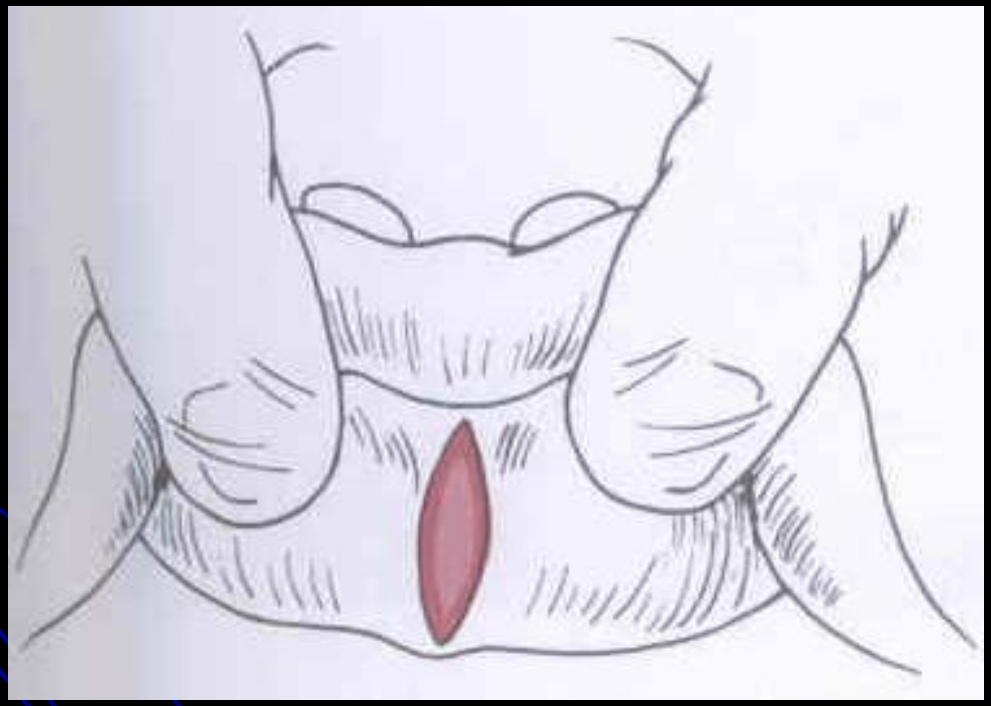
Abnormal Frenum



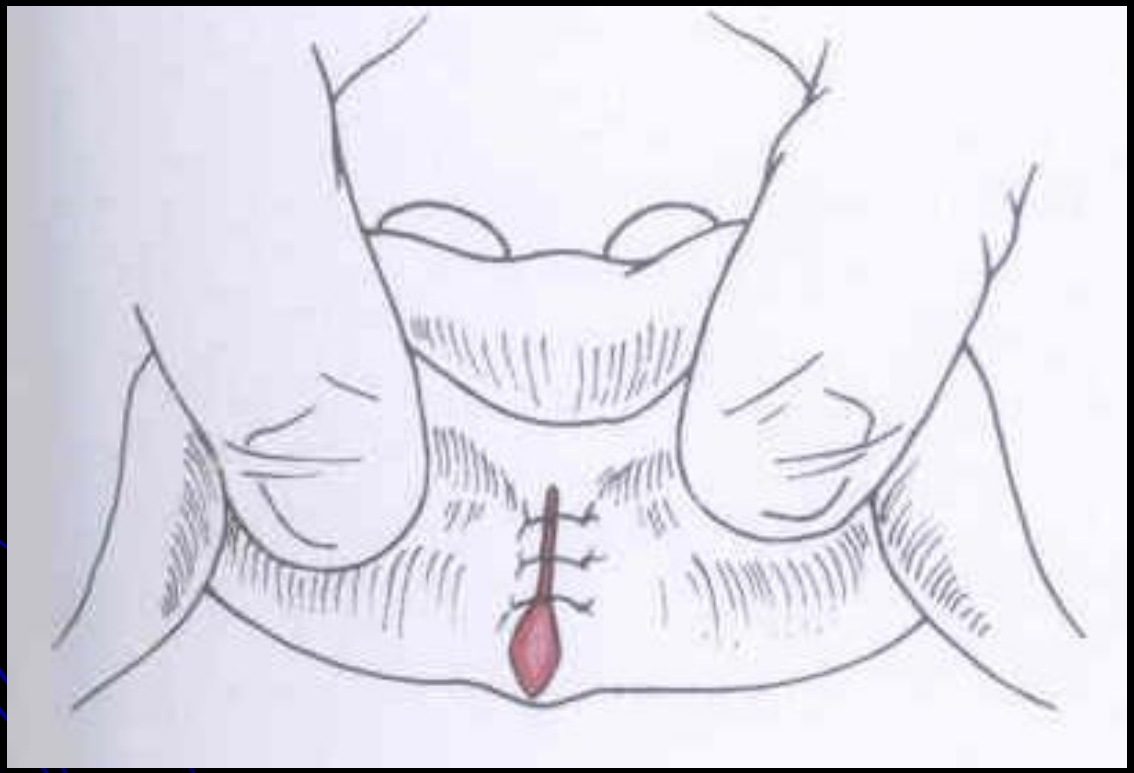
Two Haemostats Technique



Wound



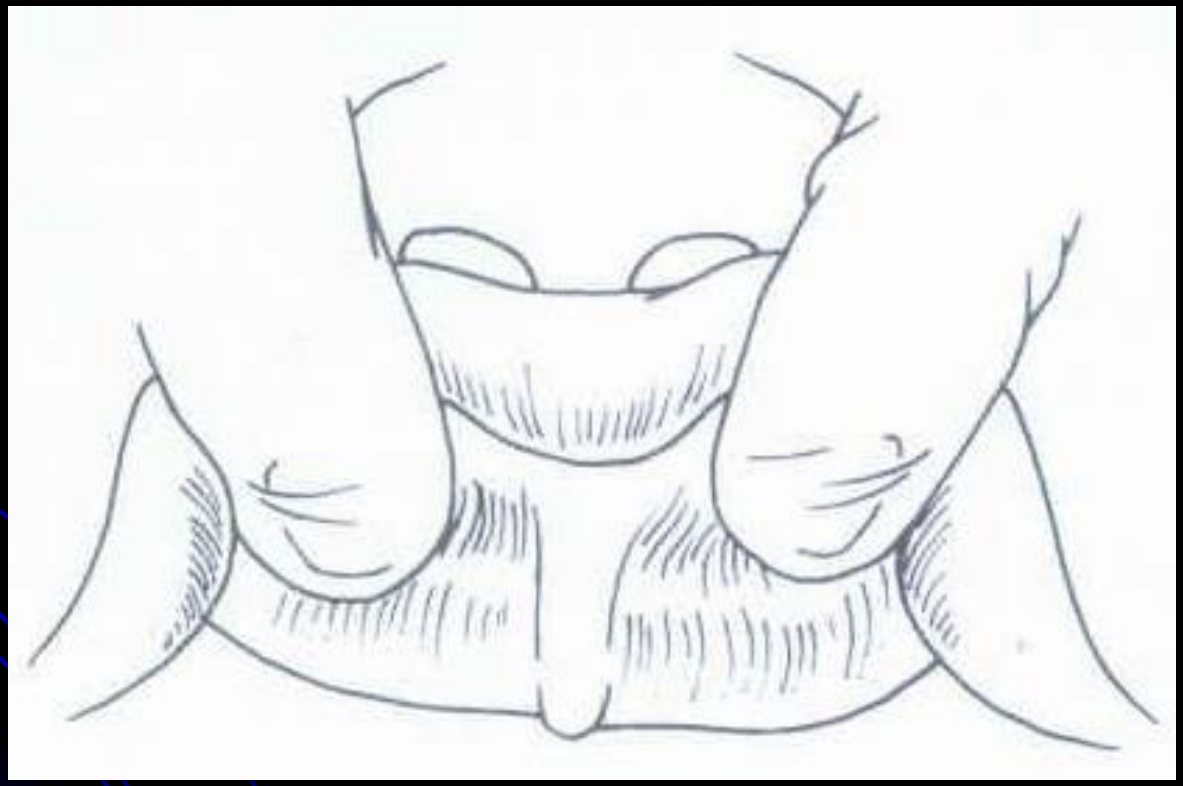
Sutures in place



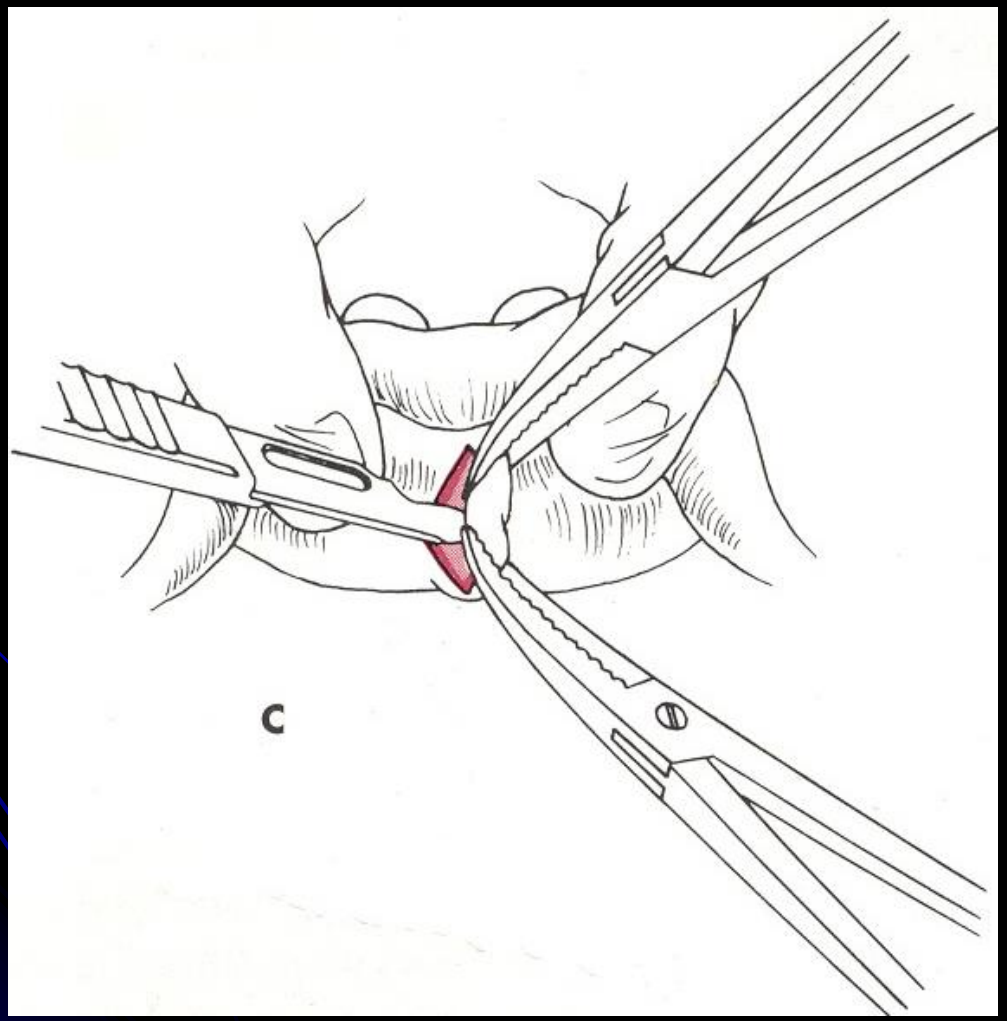
Z-Plasty Technique

For a narrow band of frenum

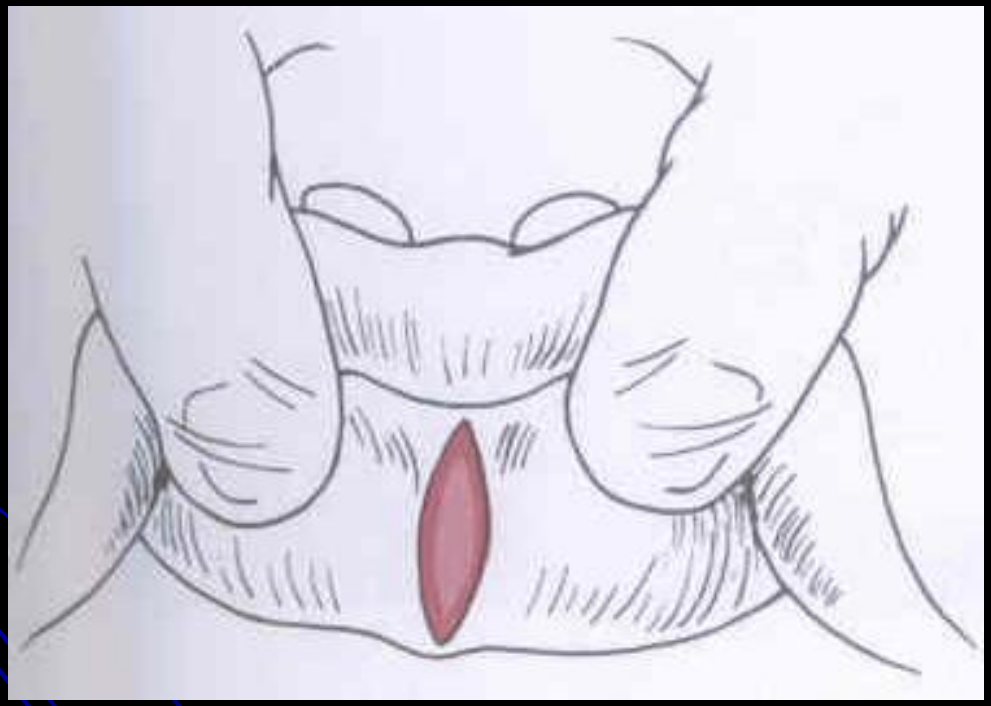
Abnormal Frenum



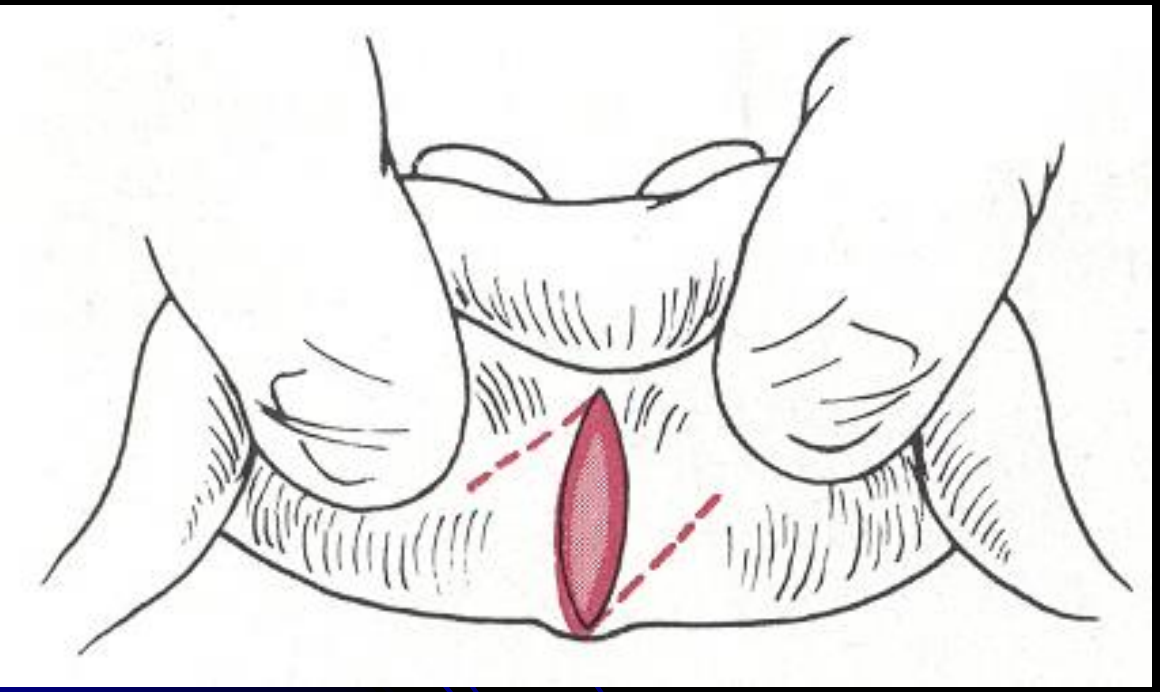
Two Haemostats in place



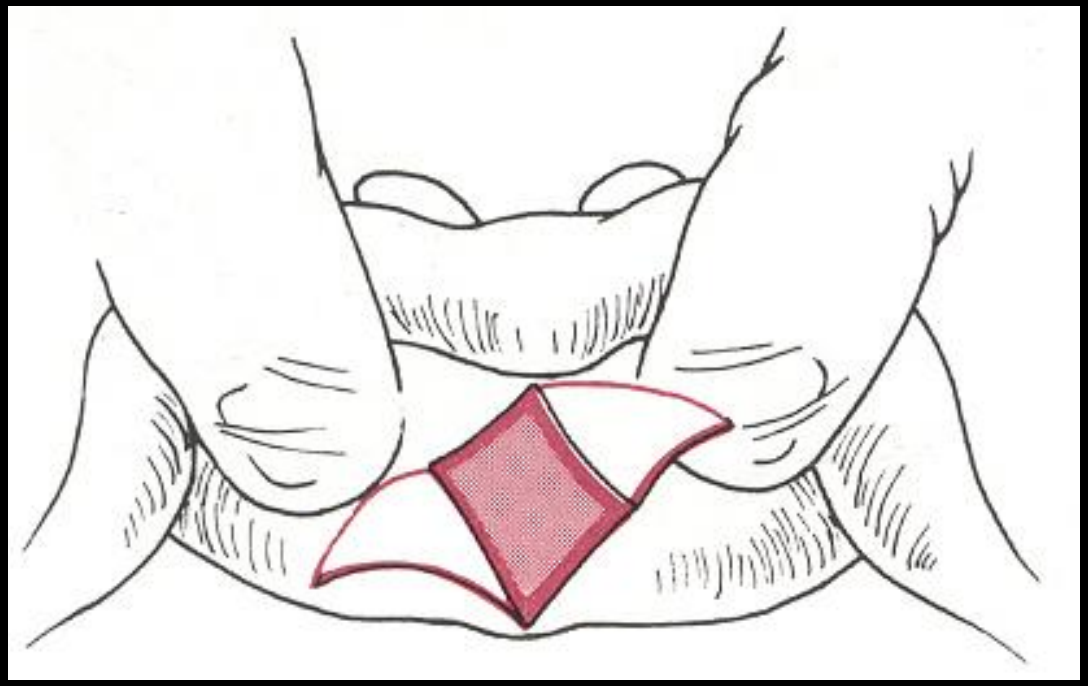
Wound



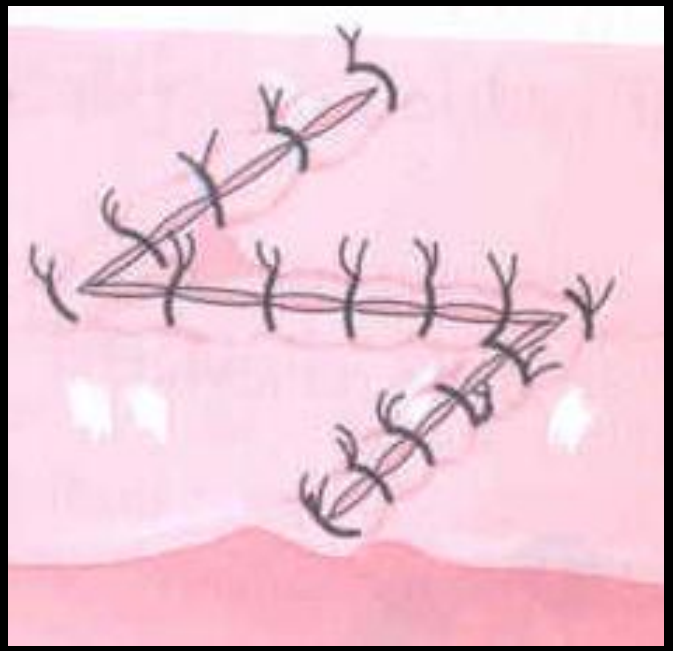
Two Oblique incisions placed



Flaps reflected



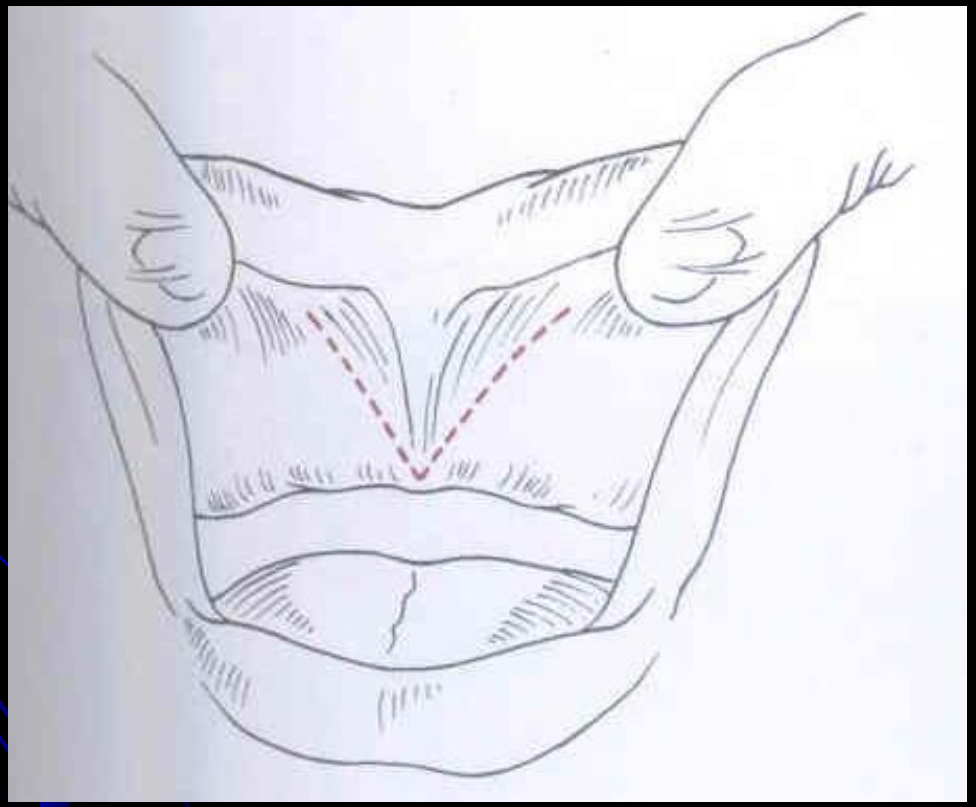
Vertical flaps positioned Horizontally and sutured



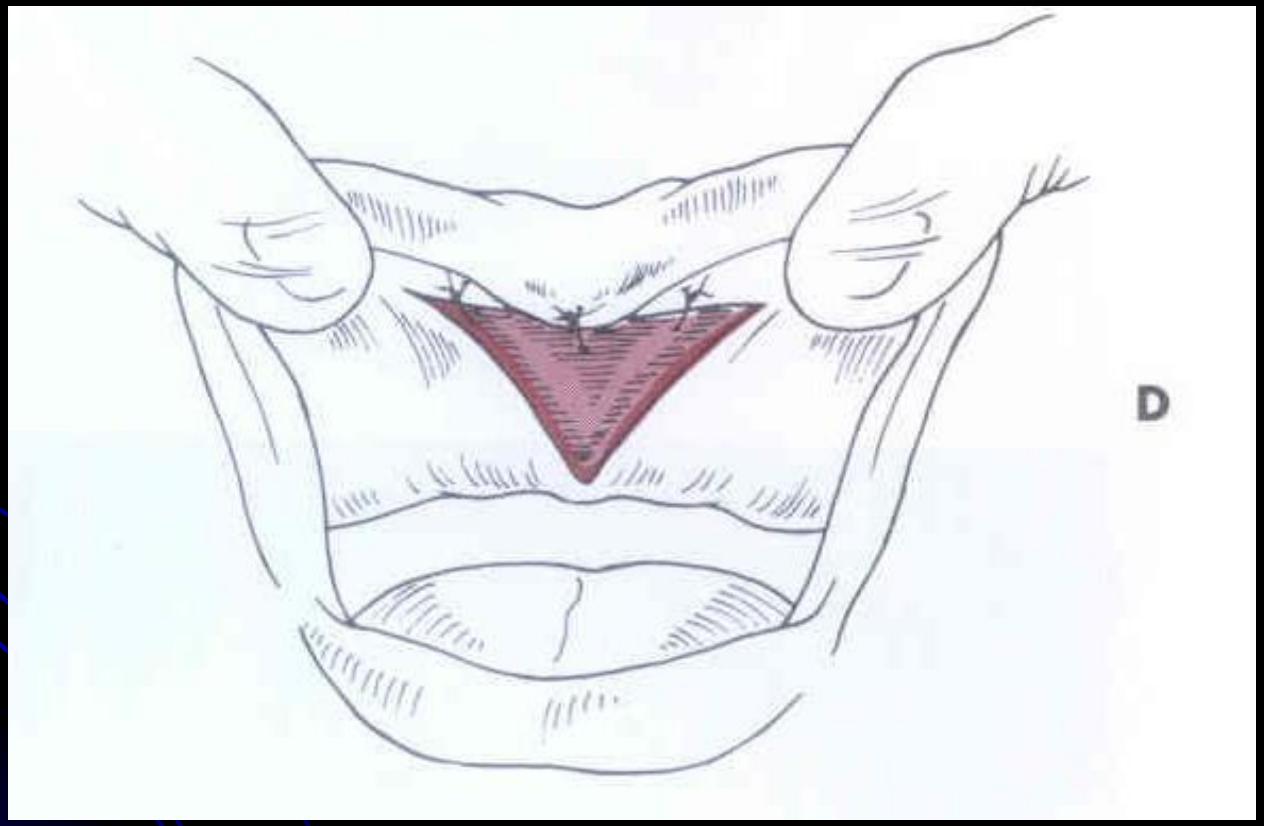
VESTIBULOPLASTY WITH SECONDARY EPITHELILIZATION

For extremely wide base of frenal attachment

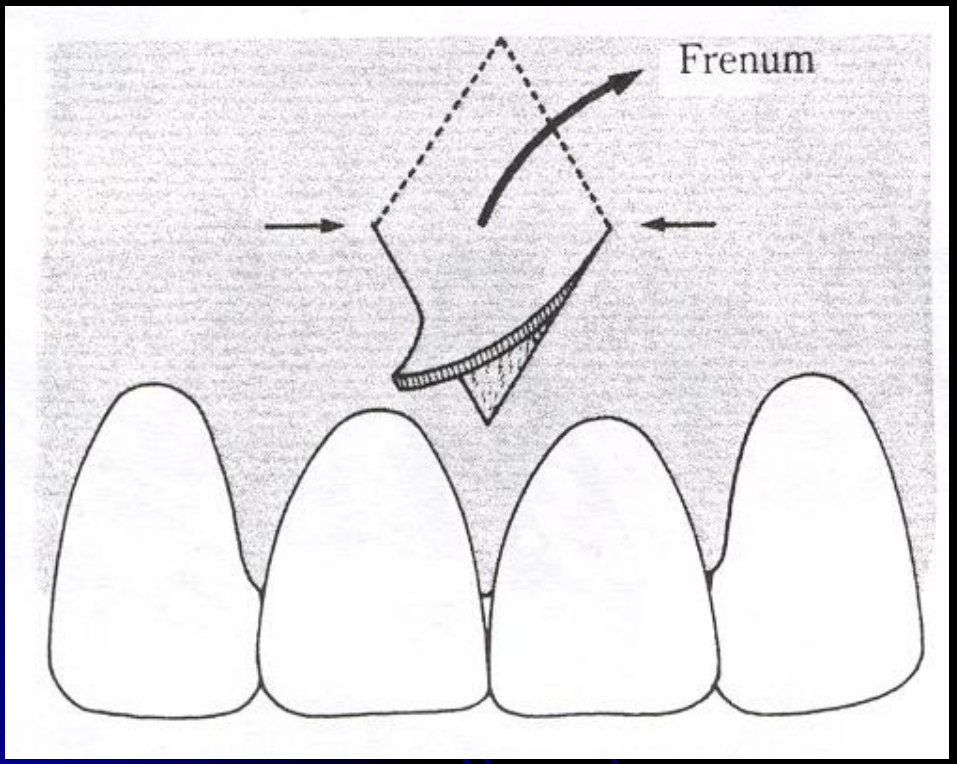
Incision starting from apex to base



Sutured in the most depth of vestibule



V-Rhomboid Plasty

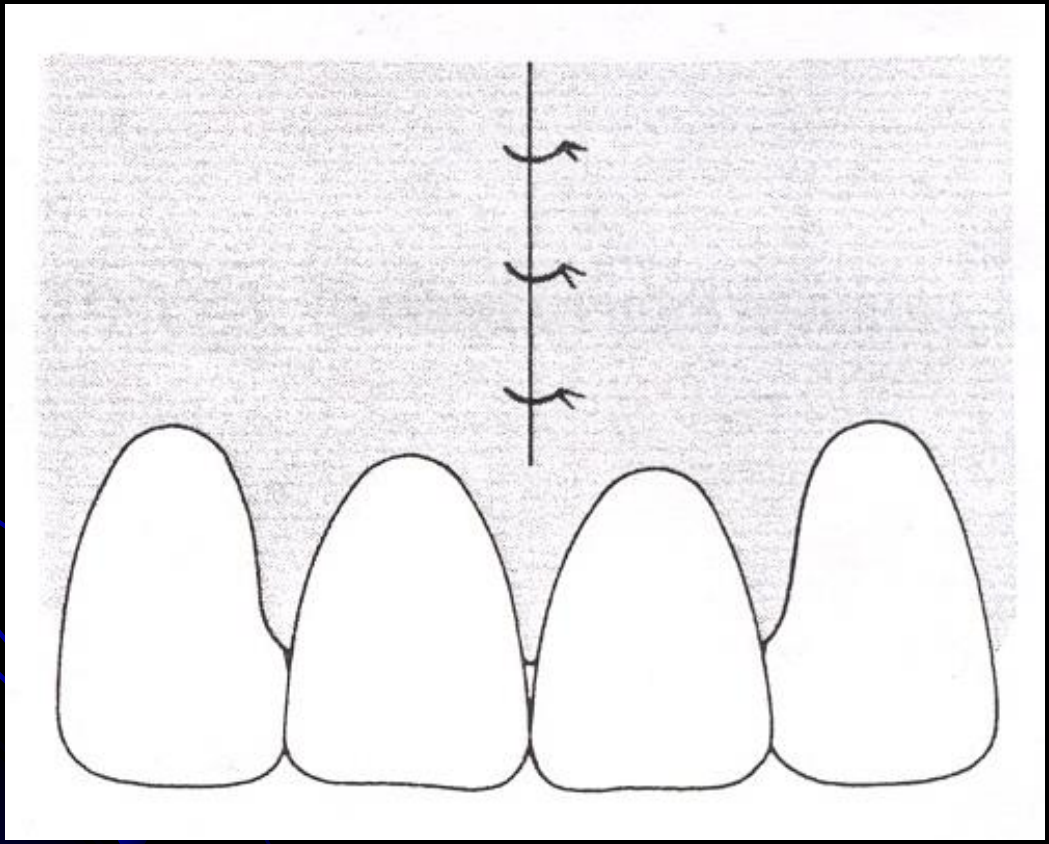


Engage frenum in a hemostat

Excise frenum coronal & apical to hemostat with a blade

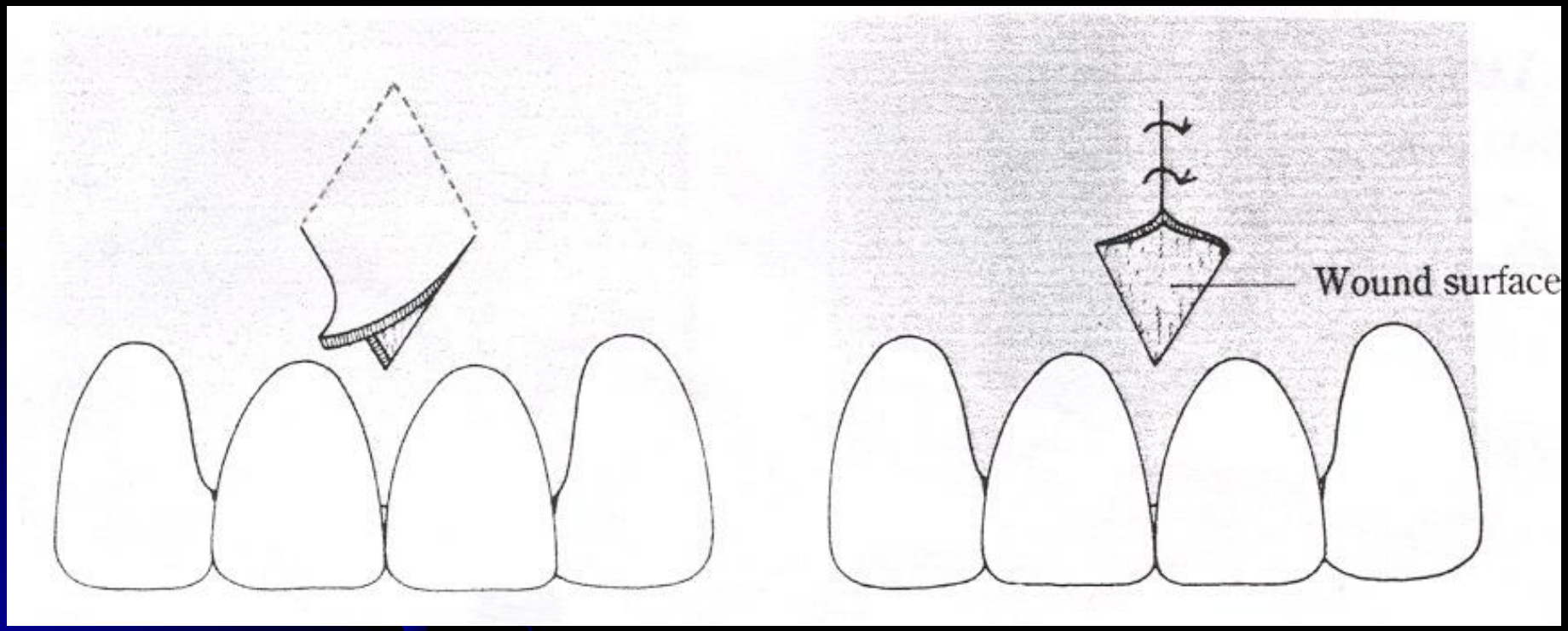
Dissect submucosal tissue

Rhomboid wound closed with sutures



Modification of V-rhomboid plasty

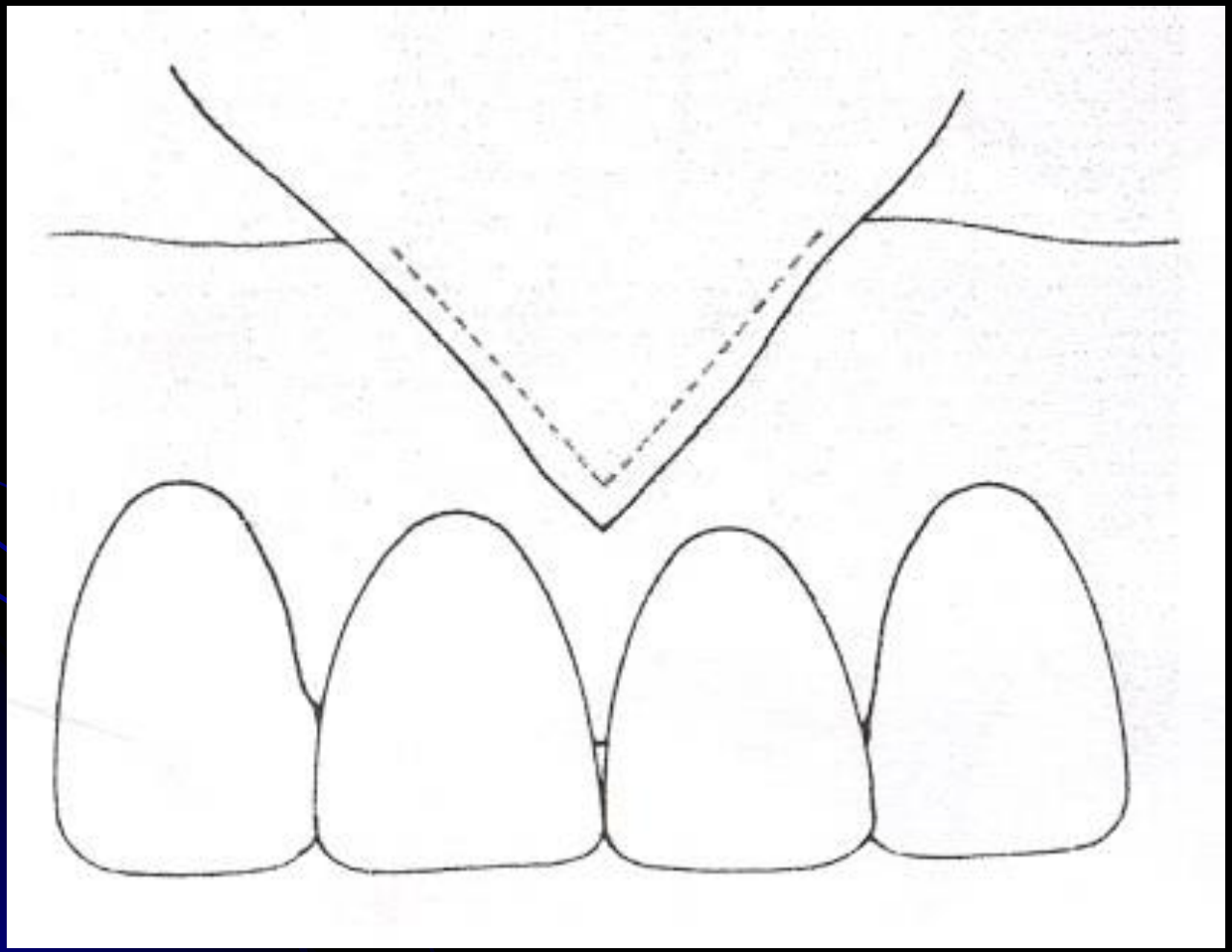
Wound surface is left open in attached gingiva



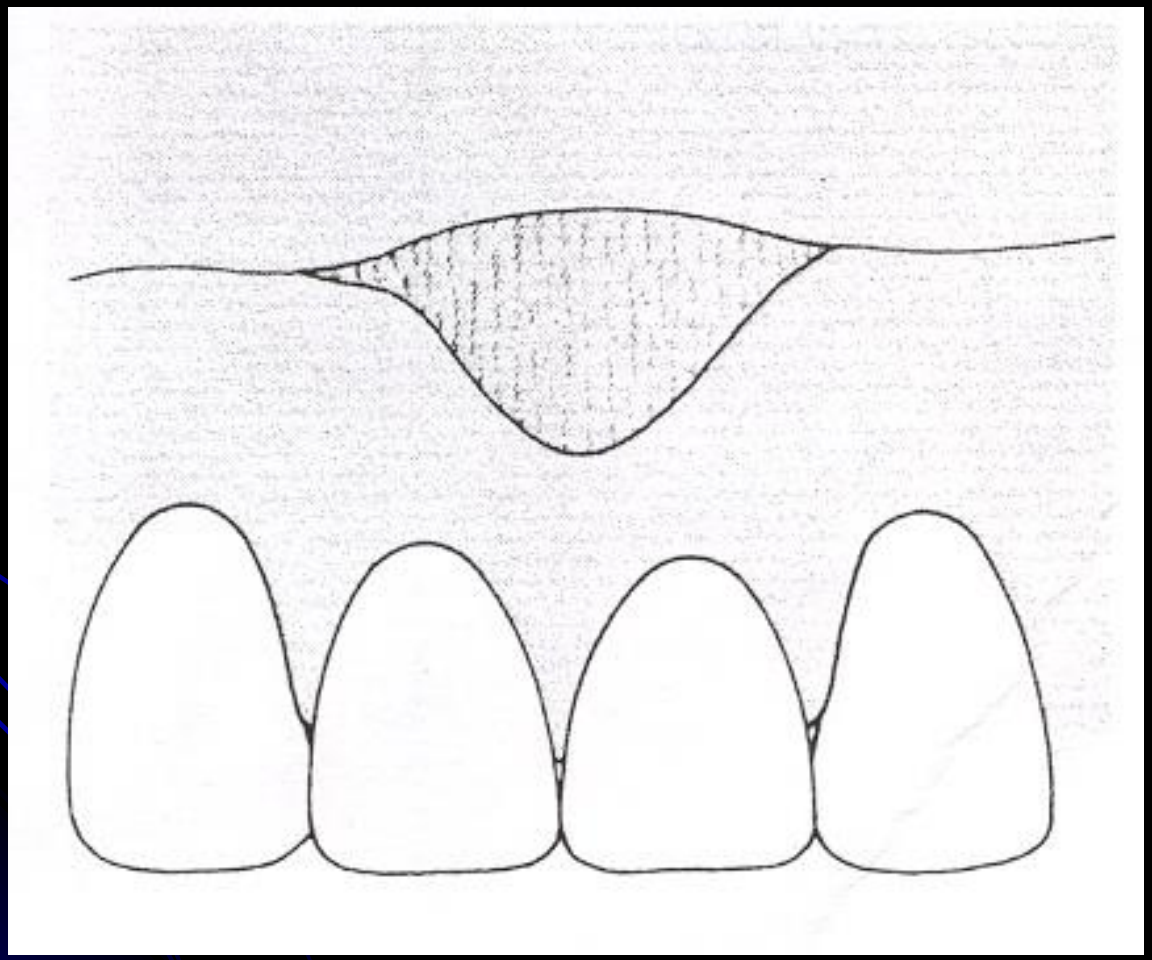
Simple Incision

For a frenum attached too closely to gingival margin

Incision made into the attachment and frenum is raised apically

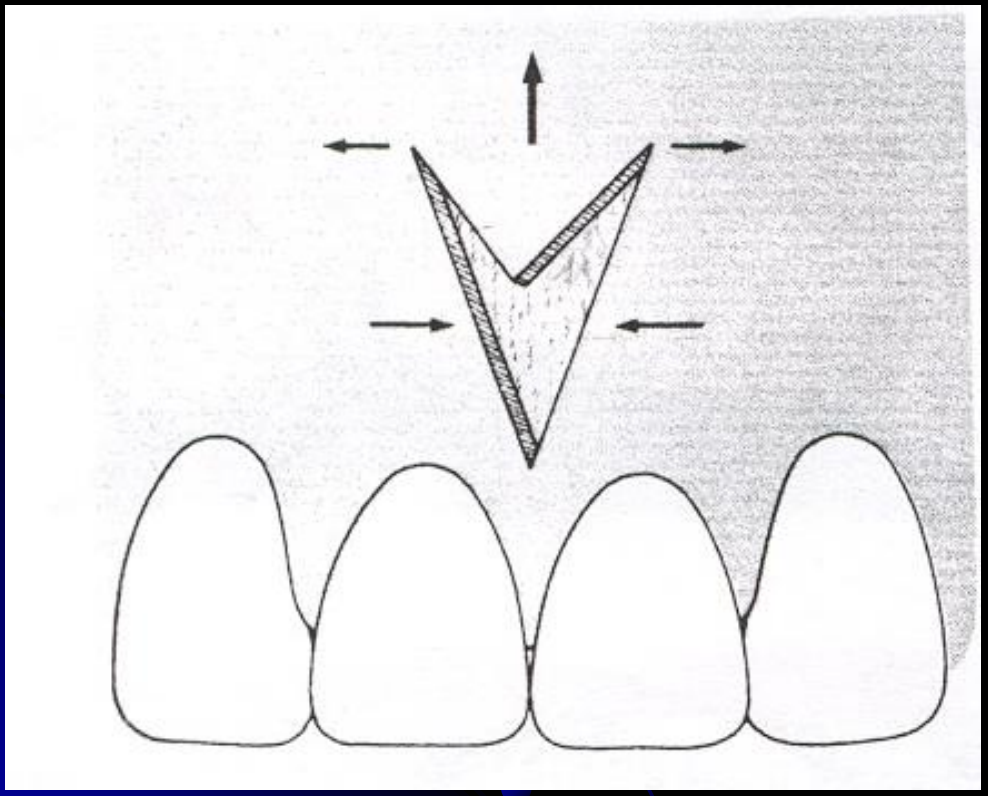


Dissected frenum raised till MGJ & an open wound surface is left & pack is given



V-Y Plasty

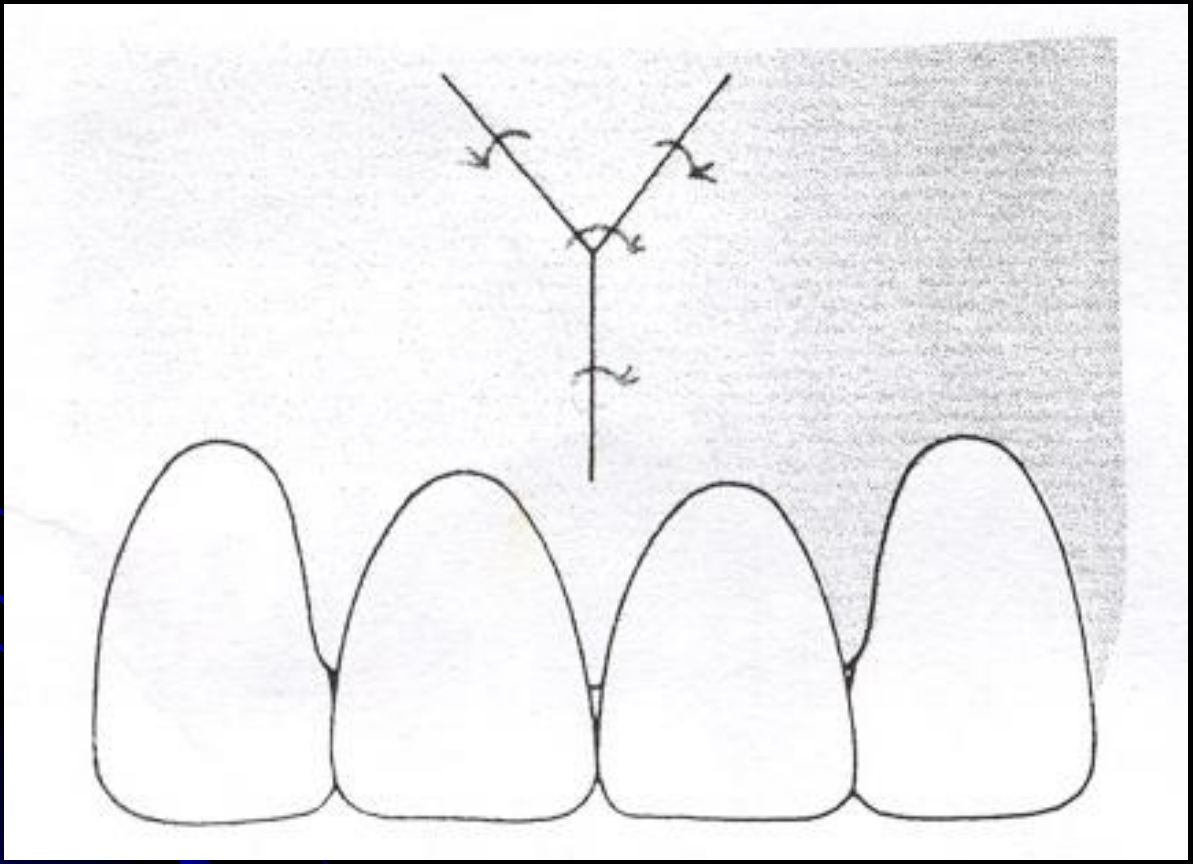
Indicated in reducing height of attachment of frenum



V shaped incision is made in the Attachment of frenum

Remove underlying fibrous tissue

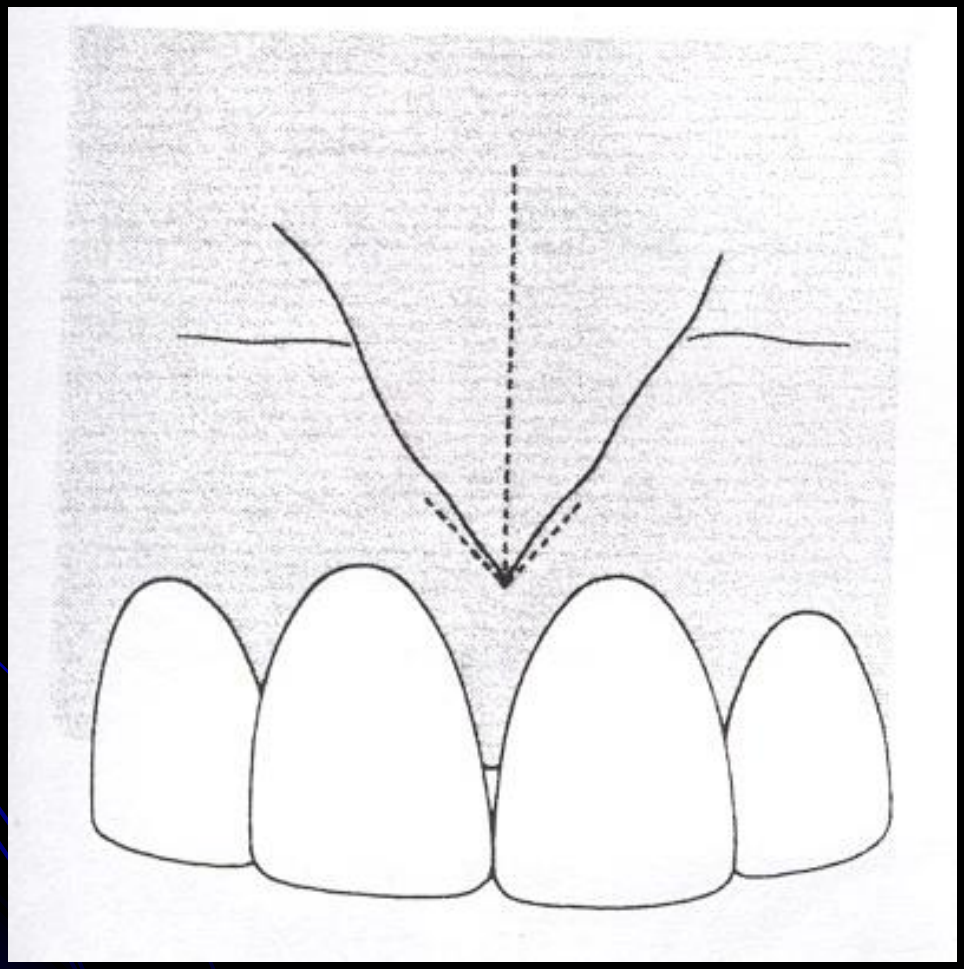
Wound margins closely adapted like the letter Y and sutured



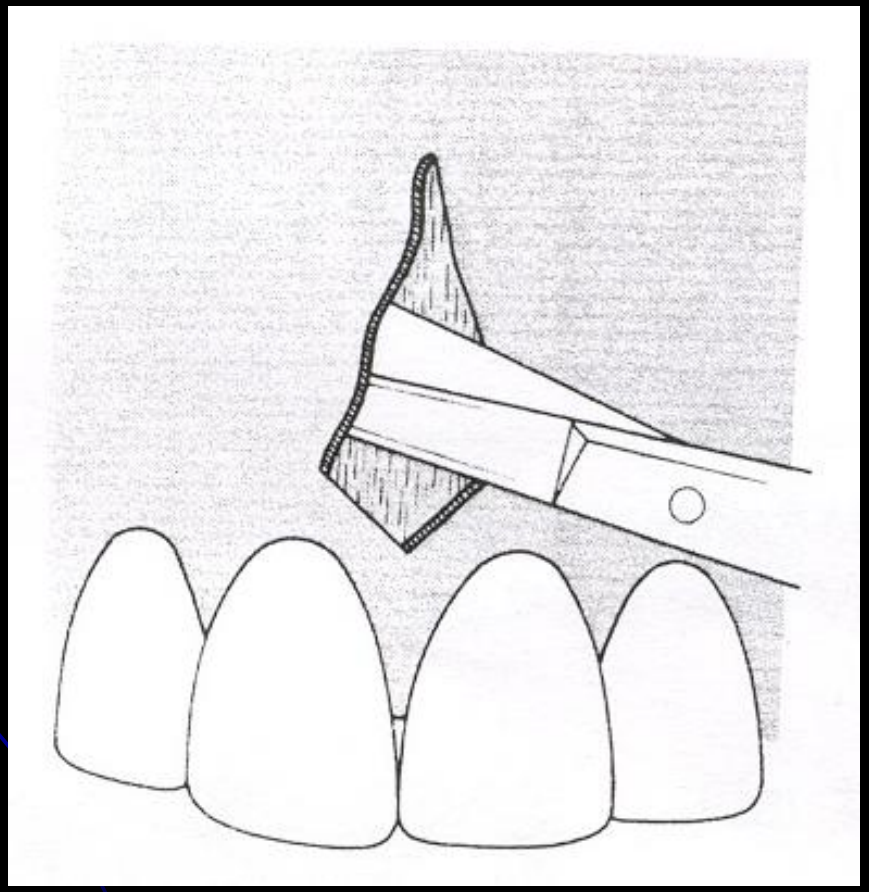
Submucosal Frenotomy

Indicated in a frenum with a wide base

A vertical incision along the ridge & two incisions bilaterally to the attachment



Surgical scissors inserted through the incised margin to dissect submucosal tissue bluntly



Suturing done later

LASER FRENECTOMY

Abnormal Frenum

Immediate Post-operative

Post-operative

Summary

- The term ***mucogingival surgery*** was used by Friedman in 1957 he referred to corrective surgery of the alveolar mucosa and the gingiva which included problems with the attached gingiva, shallow vestibule, and the aberrant frenum. Currently, mucogingival surgery is defined as periodontal surgical procedures designed to correct defects in the morphology, position, or amount of gingiva surrounding teeth neither alveolar bone nor implants are included in this definition.

- ***Mucogingival therapy*** is defined as the correction of defects in morphology, position, or amount of soft tissue and underlying bone. This is the most comprehensive definition because it includes both nonsurgical and surgical mucogingival therapy of the gingiva, alveolar mucosa and bone.

- In I988, Miller introduced the term ***periodontal plastic surgery*** because the term mucogingival surgery did not adequately describe all the periodontal procedures that were being performed under this classification. such procedures include root coverage, functional crown lengthening, esthetic crown lengthening, ridge preservation , ridge augmentation, reconstruction of papillae.
-

- Periodontal plastic surgery is inclusive of surgical procedures to prevent or correct anatomic, developmental, and traumatic or plaque disease-induced defects of the gingiva, alveolar mucosa, or bone. The goal is the creation of form and appearance that is acceptable and pleasing to the patient and the therapist.

- The word *plastic* means to mold or shape, therefore *periodontal plastic surgery* literally means to mold or shape the tissues around the teeth or implants to create optimal esthetics. The addition of the word *reconstructive* (meaning to rebuild that which is missing) to the phrase periodontal plastic surgery better describes some of the procedures, such as root coverage, ridge augmentation, and papillae reconstruction, because missing tissues being reconstructed rather than molding or shaping tissues that are already there.

- The term ***periodontal plastic* and *reconstructive surgery*** better fits the current definition and goals of periodontal plastic surgery and describes the surgical modalities for both periodontal plastic surgery and mucogingival surgery; therefore, the term periodontal plastic and reconstructive surgery will be used to encompass all the surgical procedures used in this area of contemporary periodontics.

CONCLUSION

New techniques are constantly being developed and are slowly being incorporated into periodontal practice. The practitioner should be aware that, at times, new methods are published without adequate clinical research to ensure the predictability of the results and the extent to which the techniques may benefit the patient. Critical analysis of newly presented techniques should guide our constant evolution toward better clinical methods.

Thank you

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7. Pure Mucogingival Problems Etiology,Treatment,and Prevention Walter B.Hall