Periodontal Plastic Surgery/ Mucogingival Surgery

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Most of these procedures were done exclusively by periodontists they are very technique sensistive

Learning Objectives

- Discuss the Indications, Contra-indications, Advantages, Disadvantages, Expected outcomes and Procedure for Periodontal Plastic Surgery Procedures for
  - Gingival Augmentation
  - Ridge Augmentation
  - Root Coverage

- Discuss the Tissue Engineering alternatives for mucogingival surgical procedures

Some of those materials you have already heard about for periodontal regeneration, GTR we will see how those are used for plastic surgeries as well

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Terminology

- Periodontal Plastic Surgery– surgical procedures performed to correct or eliminate anatomic, developmental, or traumatic deformities of the gingiva and alveolar mucosa.

- Mucogingival defect: a departure from the normal dimension and morphology of the relationship between the gingiva and the alveolar mucosa.

- Mucogingival Surgery – periodontal surgical procedures used to correct defects in the morphology, position, and/or amount of gingiva.

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You will not be tested on these definitions but it is always good to know a broader definition of the topic we are talking about

Objectives of Periodontal Plastic Surgery

- Problems associated with attached gingiva
- Problems associated with shallow vestibule
- Problems associated with aberrant frenum Attachment
- Esthetic surgical therapy
- Tissue engineering

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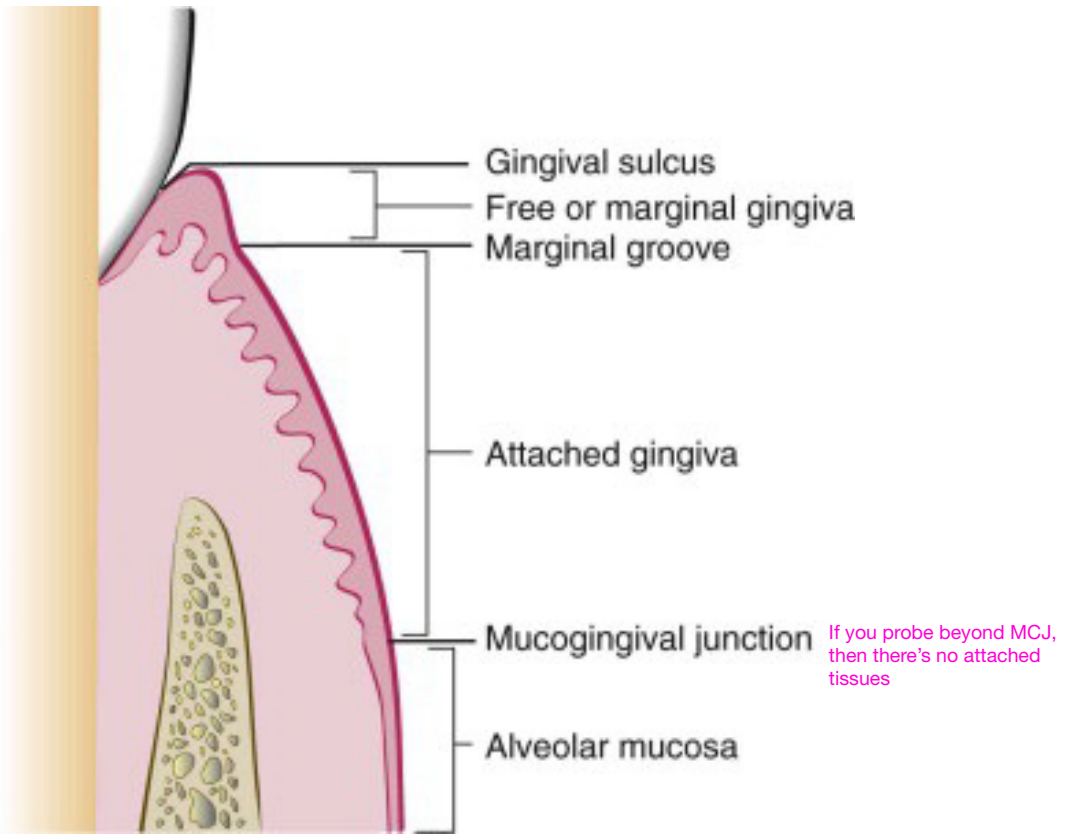
Review: Keratinized vs Attached Gingiva



If you probe beyond MCJ, then there's no attached tissues

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Before we get into the details lets get some basics reviewed
In this image you obviously see the gingival sulcus, some marginal gingiva, many cases you might have a marginal groove separating the marginal gingival and attached ginginva
And then mucogingival junction and apical to that is alveolar mucosa

We will use this terminology often
Attached gingiva is distinctly different from alveolar mucosa

Periodontal Plastic Surgery Rationale

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How much Keratinized Gingiva do we need?

- Gingival health could be maintained with a narrow zone of KG (<1mm) but some was required for health (Bowers, 1963)
- 2 mm of KG, 1 mm of which was attached is adequate for gingival health (Lang & Loe, 1968)
- 5 mm of KG with 3 mm attached is required for gingival health when sub-gingival restorations are planned (Maynard & Wilson, 1979)
- In people with good oral hygiene, 1 mm or less KG may be sufficient for health (Lang and Loe, 1972; Dorfman et al., 1980)
- FGG placed on one side vs un-grafted side with minimal KG. Both sides maintained attachment (Dorfman and Kennedy, 1980)

FGG-Free Gingival Graft, KG-Keratinized Gingiva

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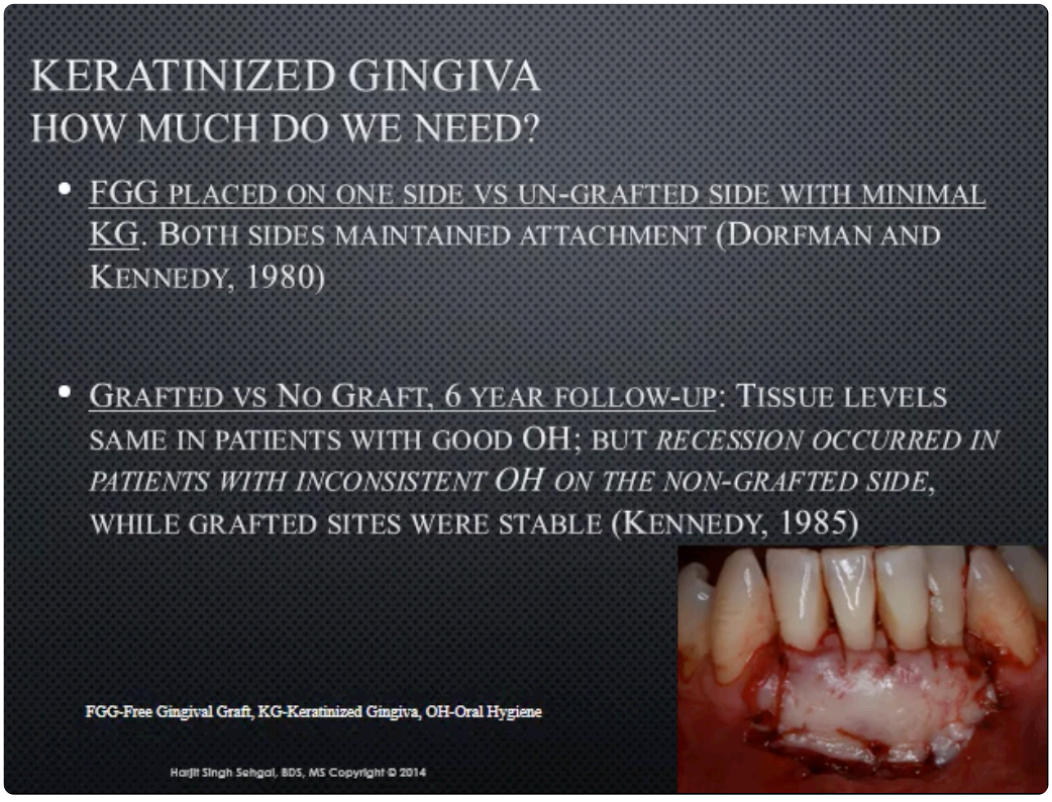
This has been a topic of very active research back in 80s so a lot of these studies are from then

1. Idea was we don't need any specific width of keratinized gingiva, that is marginal as well as attached gingiva but some was required which is again a bit of a vague definition
2. In people with good oral hygiene, 1mm of less keratinized gingiva may be and that was the subsequent publication in 1972 but also by Dorfman in 1980
3. That now changes the equation that if you have sub gingival restorations then you need a lot of attached tissue a lot of keratinized tissue over 3mm attached gingiva
4. Ff
5. In this study they treated some of the sites that did not have enough keratinized tissue they treated one side with free gingival graft we will talk about this grafting techqnieu in more detail but this is a picture from his patient this is how a graft is look likes this, free gingival graft on one side, the other side was left uingrafted and that side also have minimal keratinized gingiva

Both sides maintained attachment



So we can draw a conclusion from this that if a patient can maintain good oral hygiene realistically then even with not having enough width of attached tissue keratinized tissue we are able to the patient can be able to maintain it but if not then they will have further recession, further attaching loss will occur and a free gingival graft was a good treatment to arrest that progression of attachment loss

How much Keratinized Gingiva do we need?

- Grafted vs No Graft, 6 year follow-up: Tissue levels same in patients with good OH; but recession occurred in patients with inconsistent OH on the non-grafted side, while grafted sites were stable (Kennedy, 1985)

- ***Bottom Line:*** No standard width of keratinized attached gingiva has been established, however, an adequate zone of attached gingiva and vestibular depth is beneficial for

  - Individuals with less than optimal OH
  - teeth that serve as abutments for fixed or removable partial dentures, as well as in the ridge areas bearing a denture.
  - teeth with subgingival restorations and narrow zones of keratinized gingiva

    Will benefit from adequate zone of attached gingiva
  - Implant restorations and prostehsis

    This is more recent, it has been consistently seen dn you will learn about more that when you have periimplantits, bone loss around implant then its lack of not enough keratinized tissue has been seen so around implant restoration, around sub gingival restoration, denture bearing areas, abutment sites for dentures those are the sites you definitely need to have some keratinized tissue but other wise patients with good oral hygiene you can maintain those sites with minimal attached tissue/keratinized tissue, if the oral hygiene is compromised then we need to consider treating those sites with minimal keratinized tissue

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Gingival Recession

Causes (predisposing factors):

- Habits
  - Chronic Trauma e.g. vigorous toothbrushing (most common)
  - Smoking
- Periodontal disease and chronic marginal Inflammation
- Anatomical factors
  - Over-eruption of teeth
  - Tooth malposition
  - Gingival biotype/phenotype
  - High frenal attachment
- Iatrogenic
  - Orthodontic Tx
  - Periodontal treatment

The gingival tissue will not follow the CEJ if the tooth over eruptes

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What is gingival recession? Obviously when the marginal gingiva is below the CEJ that is gingival recession You see root surface

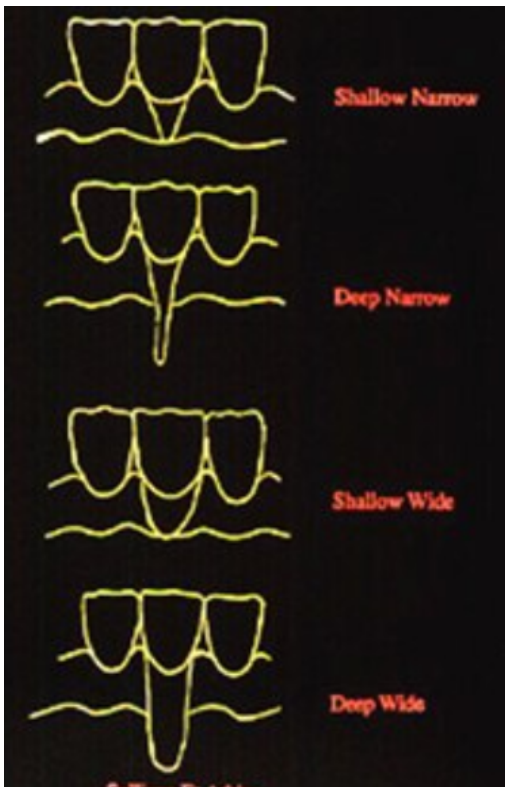
Gingival biotype/phenotype: patients with thinner tissue quality are more predisposed to gingival recession

Orthodontic: for example tooth is moved too far facially in the alveolar housing that often leads to gingival recession on those sites
Periodontal treatment: for example if a patient has deeper probing depths and we do osseous surgery, respective surgery you have learned about in the last two weeks, again with that our idea will be to do resective therapy and apically position that tissue by default lad to gingival recession as well but that would be by design, our interest in those cases will essentially be disease control to get rid of the deeper pockets for better tooth prognosis that's how that becomes an iatrogenic factor for gingival recession as well

Gingival Recession

Sullivan and Atkins Classification (1968)

- Shallow-narrow
- Shallow-wide
- Deep-narrow
- Deep-wide



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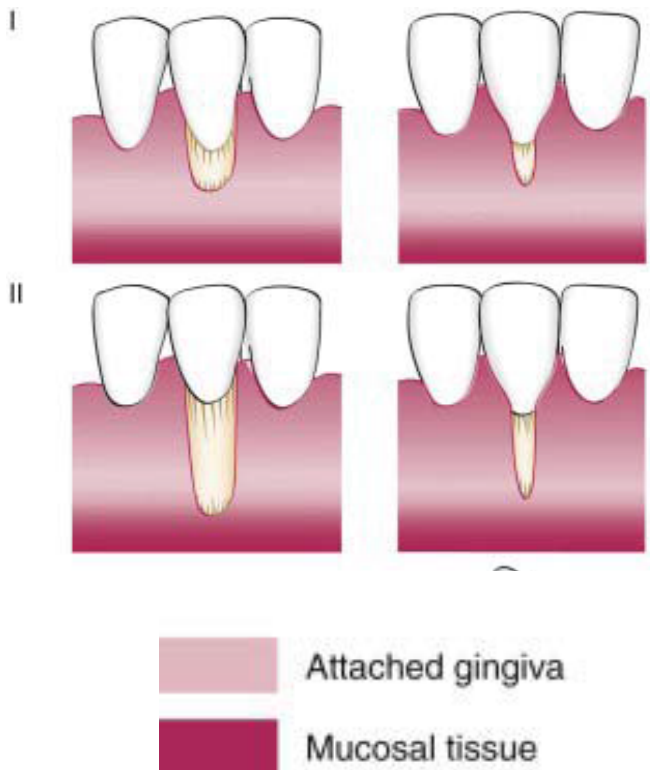
There are different classification systems for gingival recession
This is one of the oldest ones
Classifies as one of these

Gingival Recession
Miller Classification (1985)

- *Class I.*
  - Recession or CAL coronal to mucogingival junction (MGJ)
  - Interproximal bone and papillae intact, No malposiitoning
  - 100% Root Coverage expected

- *Class II.*
  - Recession or CAL beyond MGJ
  - Interproximal bone and papillae intact, No malposiitoning
  - 100% Root Coverage expected



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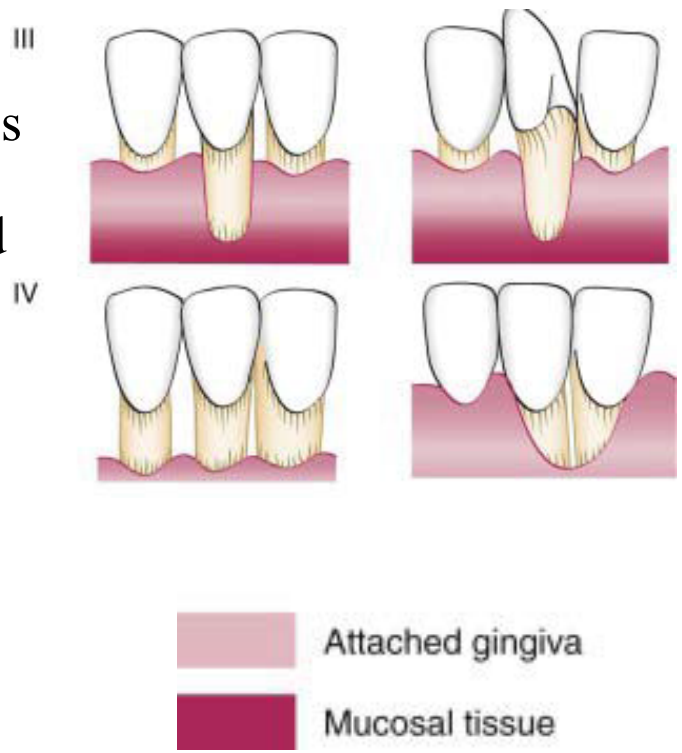
Millers is very commonly used
All of this is need to know so make sure you memorize and understand all the classification systems

Both classes have no bone or papilla loss

Gingival Recession
Miller Classification (1985)

- *Class III.*
  - Recession or CAL to or beyond MGJ
  - Interproximal bone and papillae loss or tooth malposition present
  - Only partial root coverage expected

- *Class IV.*
  - Recession or CAL to or beyond MGJ
  - Severe interproximal bone and soft tissue loss or severe tooth malposition
  - Minimal root coverage expected



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The key difference is that you have inter proximal bone loss or papilla loss

Gingival recession
Cairo classification (2011)

Modern recession classification based on the interdental CAL measurement

- **Recession Type 1 (RT1):** Gingival recession with no loss of inter-proximal attachment. Interproximal CEJ is clinically not detect-able at both mesial and distal aspects of the tooth.

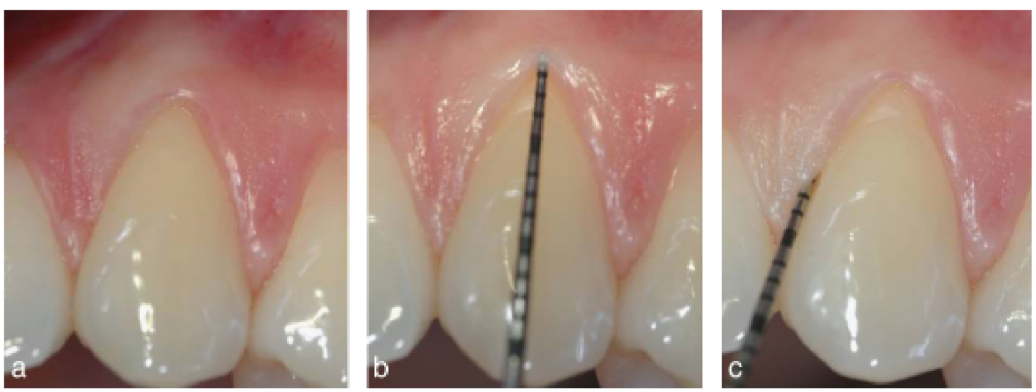

Fig. 1. (a) A buccal gingival recession at the upper left canine, (b) the level of buccal clinical attachment was 3 mm, (c) the interproximal cemento-enamel junction is not detectable: the final diagnosis is recession type 1.

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Millers has been used most commonly, the new periodontitis classification system as well as the world workshop has incorporated use of Cairo classification

so you essentially have facial recession and inter proximal is in tact

Gingival recession
Cairo classification (2011)

- **Recession Type 2 (RT2):** Gingival recession associated with loss of interproximal attachment. The amount of interproximal attach-ment loss (measured from the interproximal CEJ to the depth of the interproximal sulcus/pocket) is less than or equal to the buccal attachment loss (measured from the buccal CEJ to the apical end of the buccal sulcus/pocket).

Fig. 2. (a) A buccal gingival recession at the upper left canine, (b) the level of buccal clinical attachment was 4 mm, (c) the level of interproximal clinical attachment was 3 mm: the final diagnosis is recession type 2.

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So the critical thing is now we have inter proximal attachment loss that is less than the buccal attachment loss

Gingival recession
Cairo classification (2011)

- **Recession Type 3 (RT3):** Gingival recession associated with loss of interproximal attachment. The amount of interproximal attachment loss (measured from the interproximal CEJ to the apical end of the sulcus/pocket) is greater than the buccal attachment loss (measured from the buccal CEJ to the apical end of the buccal sulcus/pocket).

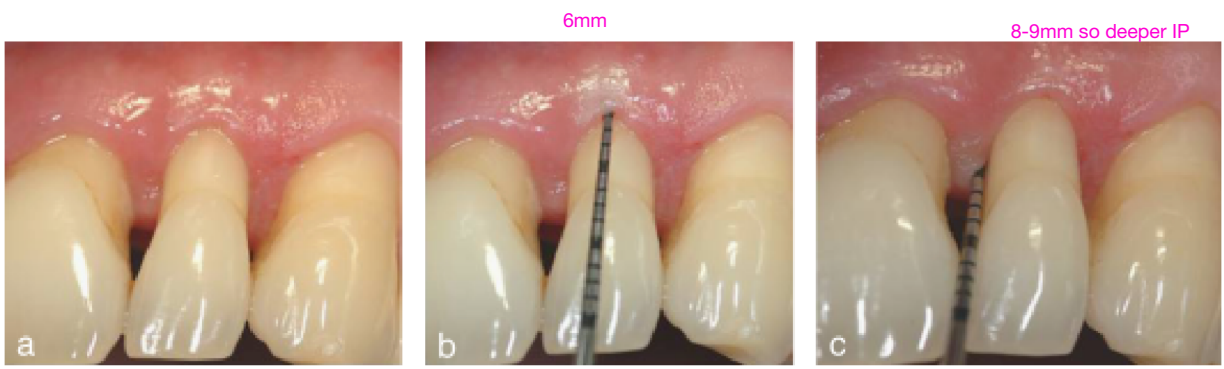

Fig. 3. (a) A buccal gingival recession at the upper left lateral incisor, (b) the level of buccal clinical attachment was 6 mm, (c) the level of interproximal clinical attachment was 8 mm: the final diagnosis is recession type 3.

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For example in this image the CEJ would typically be detectable and if there is a step between CEJ and root surface that is how we will define that as having a step

Gingival recession
Cairo classification (2011)
Root surface concavities

TABLE 2 Classification system of four different classes of root surface concavities

CEJ	Step	Descriptors
Class A	-	CEJ detectable without step
Class A	+	CEJ detectable with step
Class B	-	CEJ undetectable without step
Class B	+	CEJ undetectable with step

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Documentation of gingival recession

TABLE 3 Classification of gingival biotype and gingival recession

Gingival site				Tooth site	
	REC Depth	GT	KTW	CEJ (A / B)	Step (+/-)
No recession					
RT1					
RT2					
RT3					

RT = recession type, REC Depth = depth of the gingival recession, GT= gingival thickness, KTW= keratinized tissue width, CEJ = cement enamel junction (Class A = detectable CEJ. Class B = undetectable CEJ), Step = root surface concavity (Class + = presence of a cervical step >0.5 mm. Class – = absence of cervical step).

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How the documentation of gingival recession is you will see in this chart that if there is no recession it will be documented if there is RT1,2,3 we will document the recession depth, the gingival thickness at that site, keratinized tissue width, the CEJ is if that is detectable or not we talked about class A or B and step if it is present or not and step is defined as if you have cervical step more than 0.5mm that can define as a present the step is present, if it is not if it is less than that or not detectable then that would be absent

Soft Tissue Grafting
Why and When?

- Is there root sensitivity?
- Is the recession progressing?
- Is the tooth treatment planned for orthodontic care or prosthetic treatment?
- Is there difficulty cleaning the root surface by the patient?
- Is there an esthetic concern?

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Connective tissue grafting

Lets talk about some common ,methods for soft tissue grafting, the most common is CT grafting

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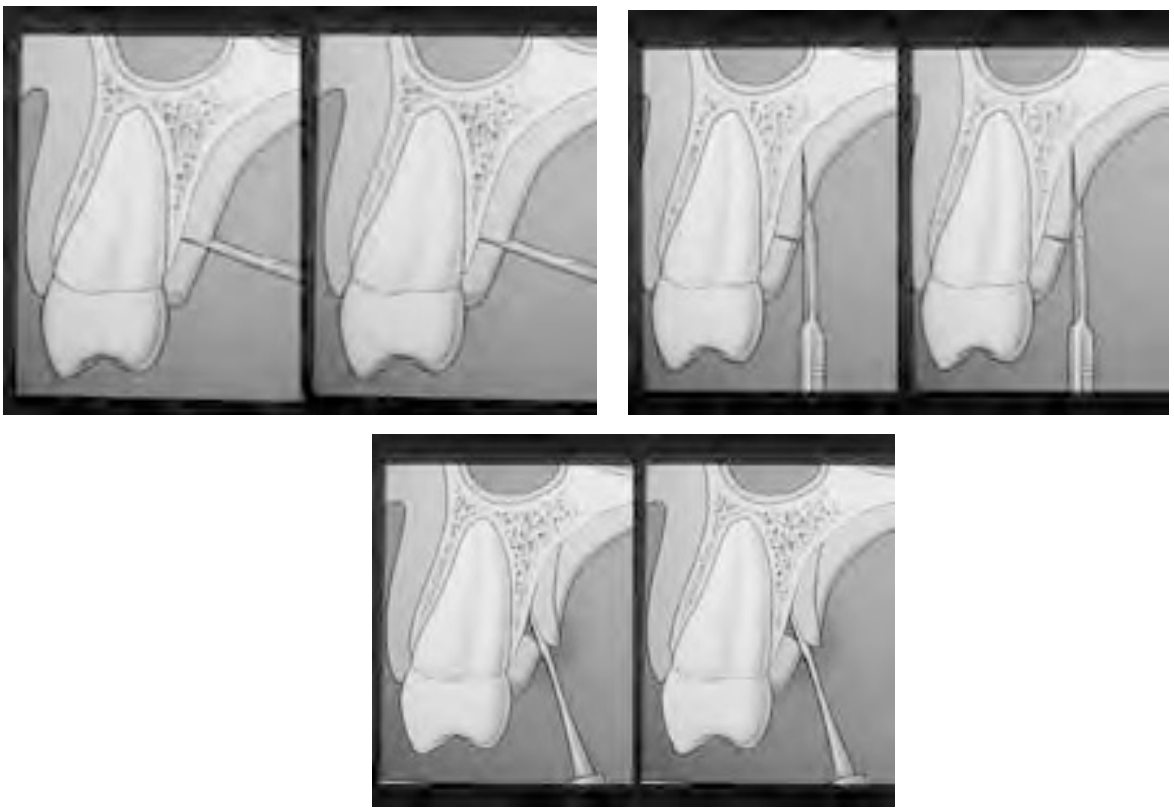
Graft harvesting (Donor site)



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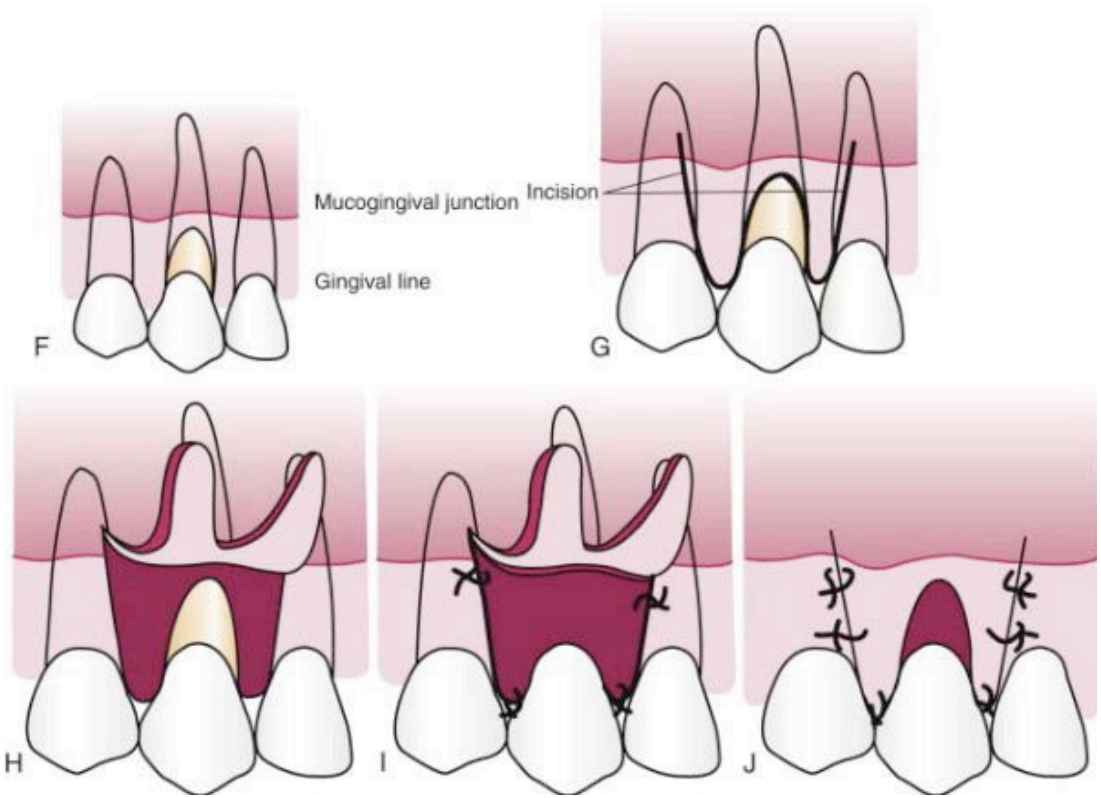
He sis showing some cartoons that describe how the grafting procedure is done, for these grafting procedures there's a doaner site for any ethogenous grafting were the graft is coming from and the recipient site where the graft is goig
So the donor site is typically the palate where we collect the graft from and these cross sectional images show you that we will make incisions on the palate typically away from the marginal gingiva about 4-5mm and then first incision is made and the second incision is made parallel to the axis of the palate and the graft is harvested as you can see in the bottom image, the graft is separated

Graft placement (Recipient site)



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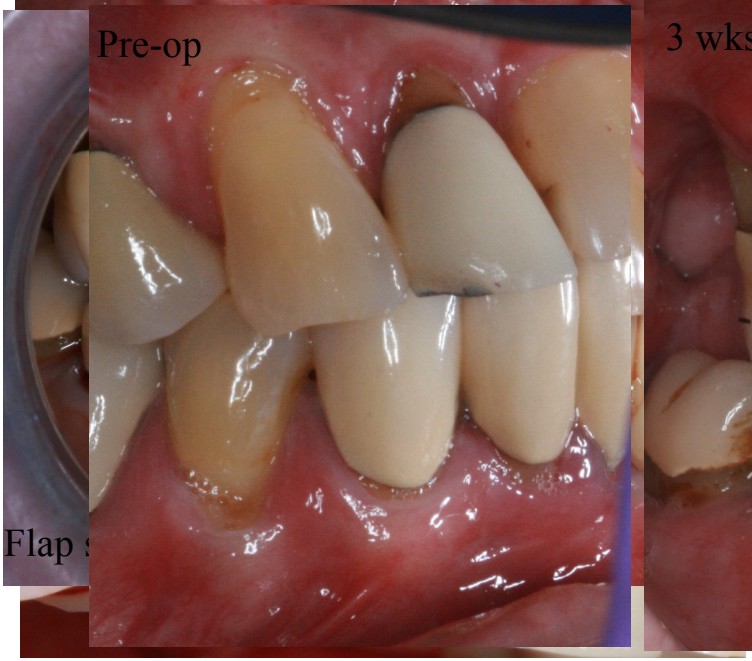
And this is your recipient site, after the graft is harvested
Incisions are made again there are different techniques to do this but as an example here we are showing vertical incision and sulcular incisions, flap is reflected on the bottom left you can see that and in the middle image I you can see there are sutures that are holding the CT graft that is secured in place and then the flap comes on top of that and that is secured so the suturing happens in two layers so first for the graft and second for the flap and that's how that is done

Miller 3 - IP attachment loss, diastema

Case 1



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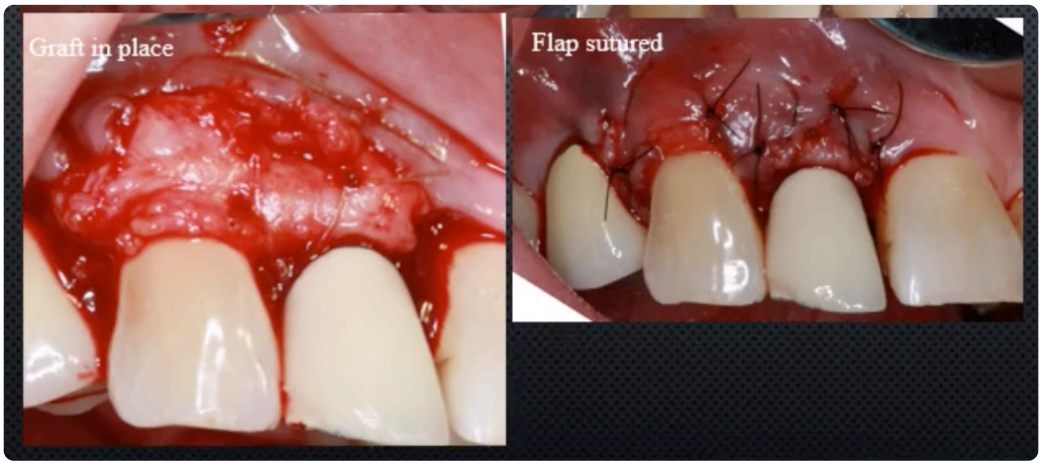
Surgeon: HS Sehgal, BDS, MS

This is one of his patients
Patients concern was #6, #7 also has gingival recession and a lot of inflammation but there is inter proximal attachment loss on 7 mesial even diastema so obviously we are not expecting much root coverage in this tooth because of the inter proximal attachment loss
This tooth has good keratizinzed tissue so but the inflammation on that and plaque retention has been a concern for this patient



So this is the CT graft in place as ou can see it has been sutured you can appreciate the sutures holding the graft in place and then the flap comes on top and that is secured with non resorb-able sutures

So this is the flap sutured, the grafting was also done for the lower teeth at the same time he typically tends to do as many as we can do this is on the same side of the patient right quadrant at the same time for patient to reduce number or surgical procedures as you can see the image on the right that is your palate the single incision was made all the way from lateral incisors to the sectnd molar and flap was reflected, graft was harvest and essentially you get primary closure for that flap using ____ sutures in this case

Pictures on slide are how patient presented at pre op vs 3 weeks post op there is complete root coverage on #6 and even part root coverage on #7 as well, again we were not expecting full root coverage but definitely have partial and the tissue looks much healthier on both of those areas so we define this as success we also have full root coverage on the lower teeth but we are just focusing on the maxilla

Case 2

Surgeon: HS Sehgal, BDS, MS

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Just pre op and post op this patient was undergoing orthodontic therapy but even before she began treatment there were a lot of recessions gingival recession on lower anterior teeth so as you see on the right image patient is now undergoing orthodontic therapy but now all the gingival recession have been treated we got pretty decent complete root coverage on patient and we will. Monitor this patient during ortho therapy she idd not get any additional gingival recession but again if we proceeded with our gingival recessions as such we may expect those to worsen with orthodontic forces

Connective Tissue Grafting

Technique	Advantages	Disadvantages
Subepithelial connective tissue graft	• Dual blood supply • Good root coverage •Suitable for wider recession defects •Small wound at donor site	•Second operative site •Technically demanding

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The technique we talked about is CT graft, the advantages are dual blood supply so the graft is sandwiched between the flap on top and periosteum underneath so bone underneath so we have dual blood supply for the graft which is a significant benefit, CT grafting is still considered a gold standard for gingival recessions, and we get can expect pretty decent root coverage with CT grafting it is suitable for wider recession defect and we lead a small wound at the donor site

The disadvantages are we do need s 2nd operative site, we need the palate for example in this case and this is a technically demanding procedure, most of these procedures are quite technically sensitive so those are the disadvantages for this

Free Gingival Graft

Also a very commonly employed procedure

Indications:

- Increase gingival width
- Deepen vestibule
- Ridge augmentation

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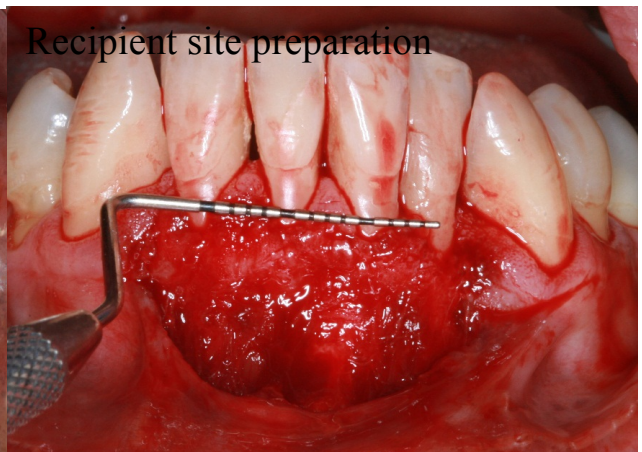
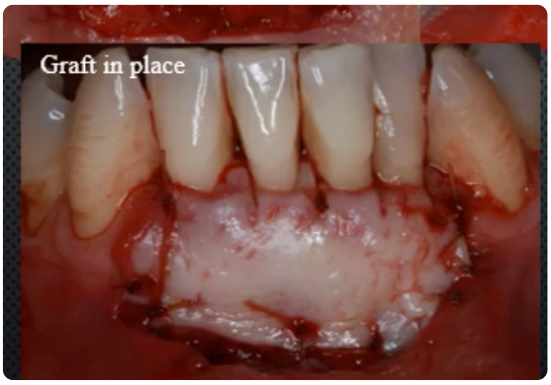
Free gingival grafting



Surgeon: HS Sehgal, BDS, MS

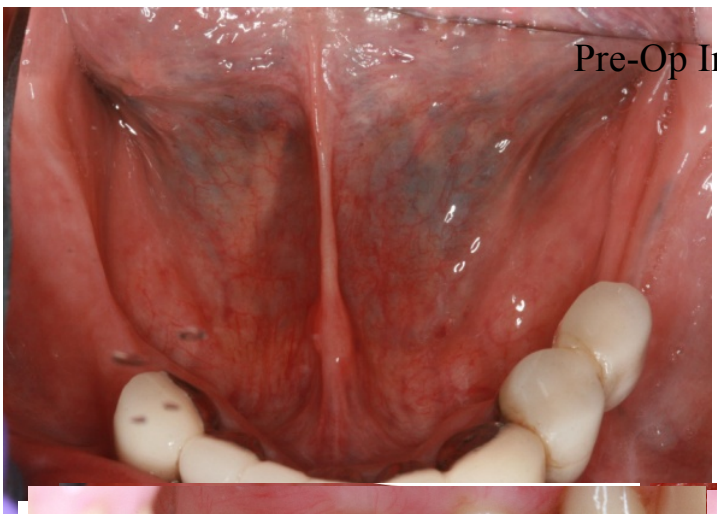
In these images you can see on the left that's our donor site from the palate but distinctly from CT grafting the top layer of the tissue the epithelial tissue comes with the graft so that's why we leave and open wound at the donor site the recipient site is procured with partial thickness direction and the graft is brought right in that area he showed this image before in initial discussion and you can see the graft is secured in place with sutures and that's how that works



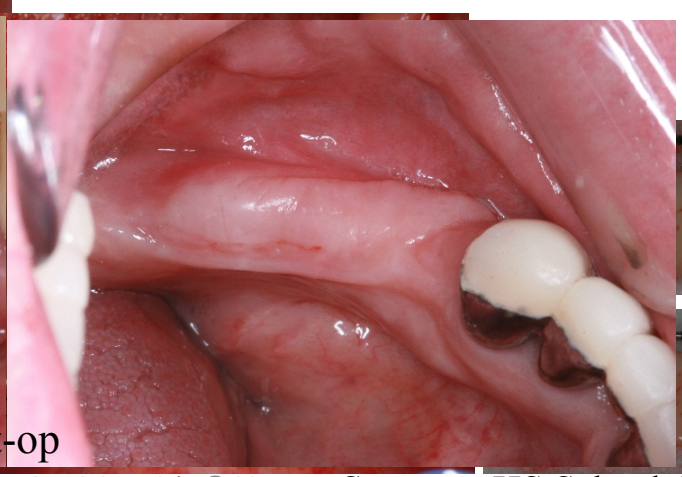
This is 2 weeks post op at both the donor site and recipient site you cn see the graft is filling in the area really nicely now, the palate as you can see that's filling in you can see some blue ish discoloration we typically use glue stitch, typeilly liquid sutures as you can call to get hemostasis in the area and that's what you see in the area but that area for 2 weeks is filing in pretty nicely

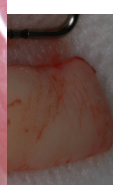
Picture in slide is at 8 weeks post op so the tissue has relatively quite matured at recipient site

FREE GINGIVAL GRAFTING
RIDGE AUGMENTATION



Pre-Op Images





6 weeks post-op

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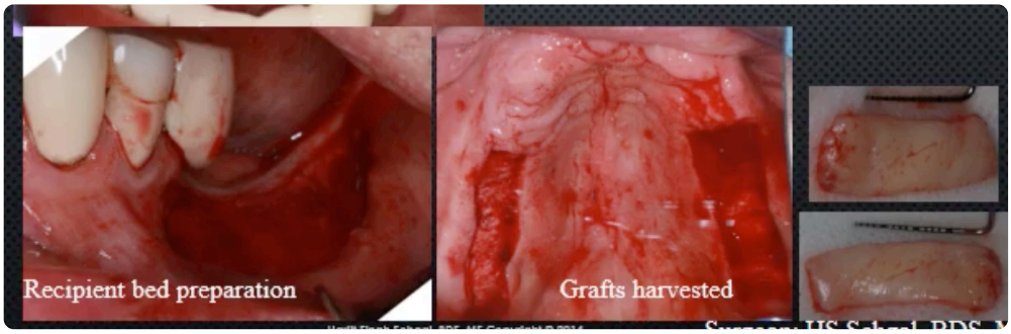
Surgeon: HS Sehgal, BDS, MS

So that is one indication obviously as you can appreciate when we harvest tissue from the palate and it does not have any closure so that can be quite painful for th patina in the palate specifically so with these procedures especially with free gingival grafting we would almost always do a palatal stent because we have primary two concerns, one is patient discomfort and second issues we expect is bleeding from the palate because you not apply any compression dressing on that constantly so that palatal stent acts as a compression dressing as well, now this is what you are seeing here is a free gingival graft used for ridge augmentation procedure, these are pre op images you can appreciate bilaterally how we defined this as knife edge ridge4 the patient has been missing teeth for a while and what it does is the tissue has essentially been lost over time, as well as the bone so there is very thin tissue even this patient was to get conventional dentures at that tissue so thin that it is really painful for the patient and patient cannot tolerate conventional denture even on those sites

If you are planning implants before we can do any augmentation bone augmentation procedures we need to make sure we have good quality tissue that can support or tolerate the bone grafting procedure as well



In these images you can see the recipient bed preparation and the left image and the grafts were harvested from palate patient was completely edentulous in maxilla so grafts harvested both sides and you can see the size often grafts and those grafts were sutured at the recipient site bilaterally both of these were don't at the same time

Picture in slide, this is how the patient looked like at 6 weeks post op on both sides you can even appreciate that not only the tissue quality stands out but also gives impression that there is a decent width of the tissue, if the patient was to wear dentures that would be pretty good site for patient to tolerate dentures, if you were to do any ridge augmentation or bone augmentation procedures this tissue can tolerate surgical trauma even if we were to widen that bone this can tolerate really well

Free Gingival Graft

Technique	Advantages	Disadvantages
Free gingival graft	•Simple •Good for patients lacking adequate vestibular depth •Donor material readily available	•Second operative site •Donor site leaves large wound •Poor color match • Greater discomfort

Just like CT graft

Typically get it from the palate

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FGG Healing

- 1st day: CT becomes edematous and disorganized, undergoes some degeneration and lysis
- Graft initially maintained by diffusion of fluid from host bed, adjacent gingiva and alveolar mucosa
- Sloughing of the epithelium occurs in most cases. Replaced by new epithelium from borders of recipient site. 4th day: a thin layer of new epithelium is present. 7th day: rete pegs are present
- 2nd/3rd day: Revascularization of the graft starts. Capillaries from the recipient bed proliferate into the graft and anastomose with preexisting vessels. Revasularization complete by 10th day, center of the graft being the last area to revascularize
- Functional integration of the graft occurs by the 17th day however morphologically distinct for months.
- Healing complete by 10.5 weeks for intermediate thickness grafts (0.75mm) and by 16 weeks for thicker grafts (1.75mm)

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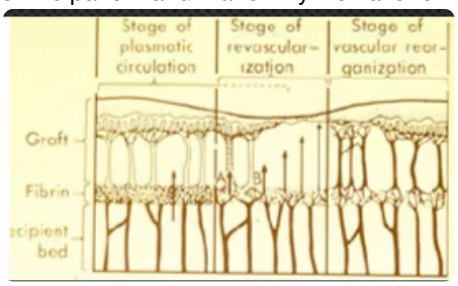
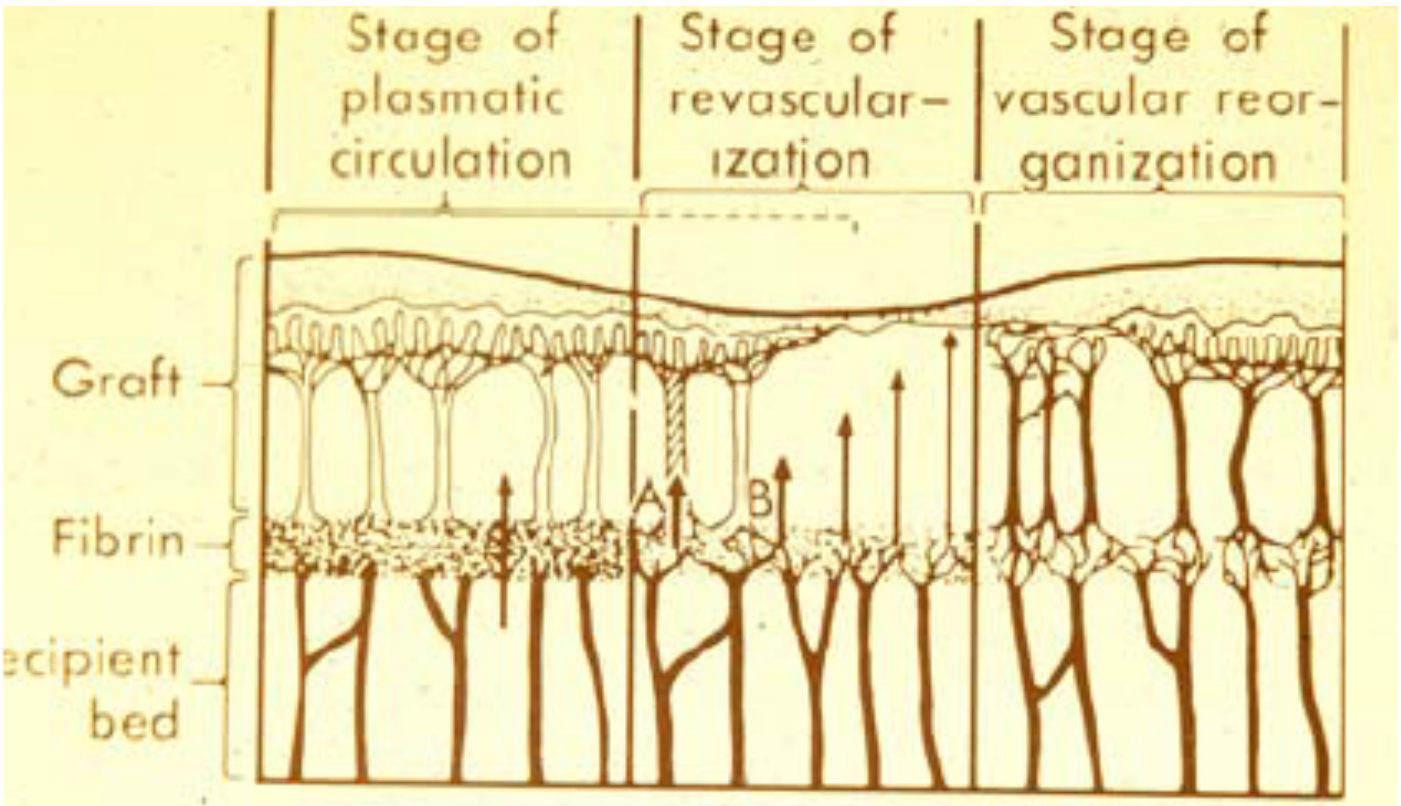
So the critical thing to remember is

That with free gingival graft we typically expect much greater discomfort for the patient and that's why we have to consider using palatal stent to help patient tolerate procedure better



1. --
2. Diffusion only as you can appreciate in this image there is a stage of plasmatic circulation that is the first stage so the only way the graft is getting any nutrition is by diffusion so tats the maintenance so if there is any mobility of the graft or the graft is not sutured well or the patient brushes on the site, something to affect that diffusion they the graft may be lost so it has to be very careful that not only you secure the graft appropriately but also educate the patient on give good post op instructions as well
3. --
4. So you can see in the middle of this image that is the state of revascularization now the recipient bed is going to start capillaries going from recipient bed into your graft and start anastomosing with the vessels that existed int he graft prior to when it was harvested
5. And even years especially for free gingival grafts in more raw terminology they have been described in more tire patch appearances so the patient may present to you they may distinctly show an area where this patch might be visible you might think of it as pathology but think about and ask about if there is history of any gum grafting in the past those can be distinct for many many years, there are specific variations to the technique to make sure we have esthetic outcome so the graft does not distinctly stand out
6. So agin the thicker the graft the longer its going to take to be completely healed and its important to know the timeframes that it takes from he healing

FGG Healing



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PEDICLE GRAFTS

Some other grafting technique, one common one is pedicle grafts, a variety of grafts fall under this category and one of those is laterally displaced grafts, horizontally displaced grafts

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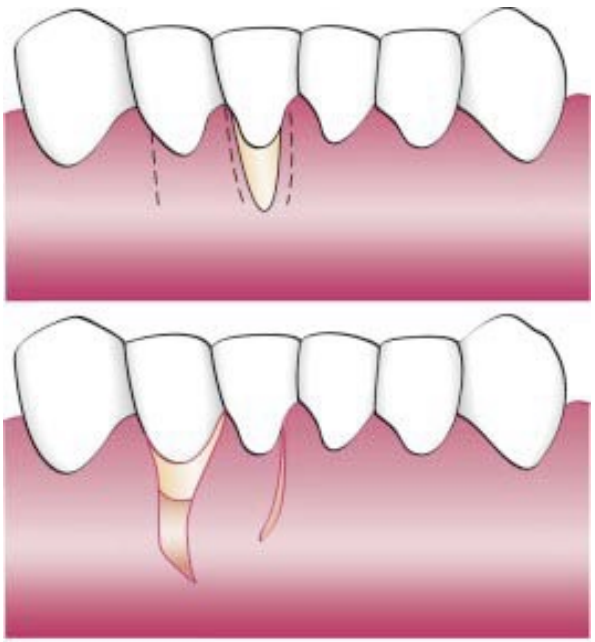
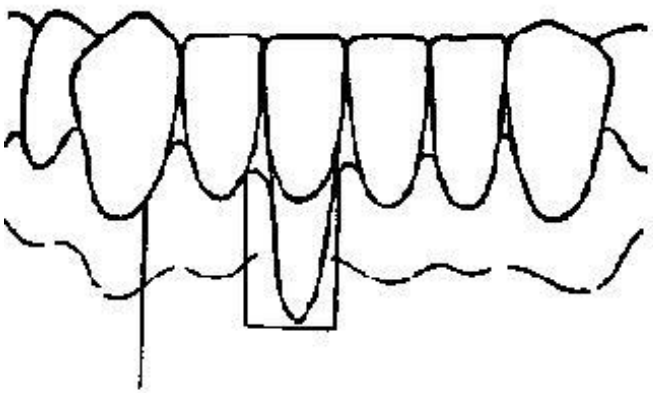
Laterally (Horizontally) Displaced





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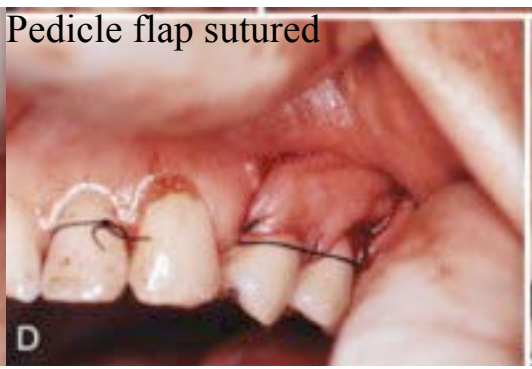
If you have a localized defect typically for example in this case what you are seeing is gingival recession on this incisor tooth and adjacent site has enough attached tissue then the tissue can essentially be displaced laterally to cover this recession defect and in that case the defect can be addressed

Laterally (Horizontally) Displaced

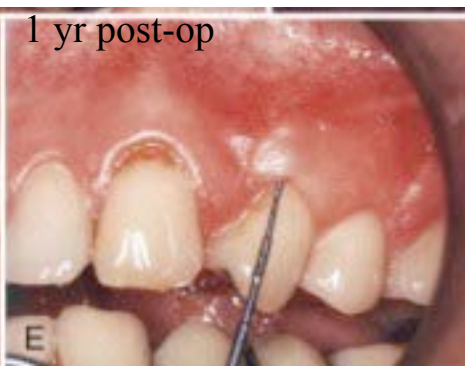
Pre-op view

Recipient site preparation

Incisions at the donor site



Pedicle flap sutured



1 yr post-op

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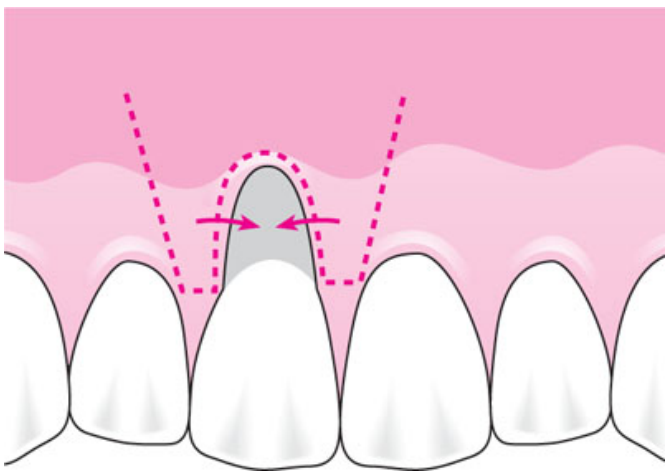
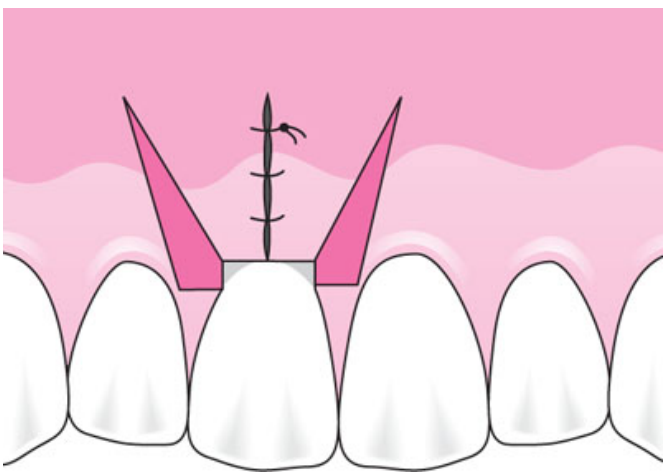
These are some clinical pictures from your textbook what you are seeing is gingival recession defect on this canine and you will see that the incision the vertical inciseons are made on that premolar tooth and the tissue is displaced laterally to cover that defect and one year post op that tissue is maintained, good root coverage has been accomplished in this case

Double Papilla Flap





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Doublee papilla flap can be when you have gingival recession that is wide and you have good keratinized tissue on both sides and what you do is make an incision in the midline and you make 2 vertical incisions bilaterally and bring both of those papilla mesially and you cover that recession defect

Coronally Positioned Flap

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And third is the coronally positioned flap so if we have a large recession defect like we ese here in this case they die 2 step procedure where first they did free gingival graft apical to the recession as you can see and they went back in and coronally positioned that tissue to cover te defect and got good root coverage

Another example that is a semi lunar coronally positioned flap and this is an indication where they might already be good keratinized tissue apical to the recesiooonn and essentially what they did is made the semi lunar incision and coronally positioned that tissue and get good root coverage

So you have to be have to think about these techniques these can be very technique sensitive procedures especially the double papilla flap so lets talk about some advantages and disadvantages together for in general

Pedicle Flaps

Technique	Advantages	Disadvantages
Laterally positioned flap	•Intact blood supply of donor tissue •One surgical site •Relatively easy procedure	•Need adequate keratinized tissue at adjacent site •Coverage limited to 1-2 teeth •Danger of gingival recession at donor site
Coronally Positioned Flap	• Easier to treat multiple sites •Good color match	•Limited by height of papilla •Multiple surgical procedures, if combined with FGG/CTG
Double-papilla repositioned flap	•Minimal exposure of underlying periodontium •Less tension of donor tissue •One surgical site	•Technically demanding •Poor predictability

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Laterally positioned flap: since we move the tissue there is a possibility that tooth may get gingival recession . There are modifications to the technique to try to avoid that but we do need adequate keratinized tissue at the adjacent site irrespective of that that is a key disadvantage of that, limiting factor for this technique

Double papilla repositioned flap: very technically demanding the tissue we are talking about can be just a few mm in width on either site and so its very technically demanding and may result in more comprised outcomes espeaily if that tissue is not handled correctly it can have poor predictability so if anything at all we may sort of laterally position and coronally positioned flap but double papilla we have much better techniques and predictable to consider use of

Factors Associated with Incomplete Root Coverage

- Improper classification
- Inadequate root preparation
- Inadequate papilla size
- Improperly prepared donor tissue
- Inadequate graft size/thickness
- Dehydration of graft (< 30 min)
- Smoking

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If the initial classification for the defect was improper for example lets say there was inter proximal attachment loss and that wasn't considered and we were expecteing complete root coverage and due to the improper classification we may not be able to accomplish that

Inadequate root prep, the root has to be adequately root planed remove all local factors if you have plaque, calculus deposits the root needs to be cleaned there's als a lot of studies used root biomodification using either citric acid to treat the root or using 24% EDTA or us tetracycline different studies have used different biomodificaigtons but the consensus is that those root biomodifications do no affect the surgical outcome

Dehydration say ou arrested the graft and left it alone without hydration and then placed iat the recipient site that can significantly compromise the outcome

Smoker: will have compromise surgical and non surgical therapy outcomes and periodontal plastic surgery is very significant if healing is going to be compromised we might not be able to get complete root coverage

Tissue Engineering Alternatives for Mucogingival Procedures

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Tissue Engineering Alternatives for Mucogingival Procedures

- Passive Engineering
  - GTR
  - Acellular Dermal Matrix (Alloderm)
- Active Engineering
  - Enamel Matrix derivative (Emdogain)
  - Growth Factors: Recombinant Human Platelet derived Growth Factor (rhPDGF)
  - Cell Therapy
    - Autologous Fibroblast
    - Bilayered Cell Therapy
    - Human Fibroblast-derived dermal substitute (Dermagraft)

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There are active and passive methods,

GTR using a membrane to cover the defect and cioronally advancing the flap
ADM is allograft that is commonly used it is called Alloderm

Active is when we use biologics for example Emdogain you already learned this

so the cell therapy or PDGF you learned about these biologics in periodontal regenerative therapy in general these same materials have also been used for treating mucogingival defects

The commonly used one is Alloderm

Tissue Engineering for Root Coverage rhPDGF vs CTG

A. Pre-op View

B. rhPDGF (PTOP 6 months)

C. CTG (PTOP 6 months)

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In this case PDGF was compared with the CT graft what you are looking at us pre op view of the defect when PDGF was used, 6 months post op in middle and CTG graft used now in this study they had bilateral defects one side was treated with CT graft other side with PDGF and they found pretty similar outcome period

Tissue Engineering for Root Coverage Guided Tissue Regeneration

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In this case what we are seeing is gingival recession defect where GTR there is a membrane in place as you see in image B that a membrane is sutured at the site of recession then image C the flap is coronally advanced and sutured and in D you are looking at a post op outcome with complete root coverage

Tissue Engineering for Root Coverage
Alloderm

Pre-op View

Alloderm graft

Alloderm secured in pouch

Flap sutured

1yr post-op

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One key thing to point out is that with the use of alloderm obviously that would simplify the procedure much for the patient because you do not have to harvest the graft from the palate or any other donor site so that would be a big plus however the short term studies have shown that the outcomes are quite similar to CT grafting which is a big plus in the long term 15 years data that you will tend to use benefits key from alloderm much more than the CT graft so CT grafting is still the gold standard for root coverage procedures however alloderm is a good alternative think about especially when the patient has multiple gingival recessions defects or the patient is not open to using their endogenous tissue also think about these other tissue generating methods that the option we can consider when either endogenous graft is not an option to use or patient does not prefer to use their own tissue