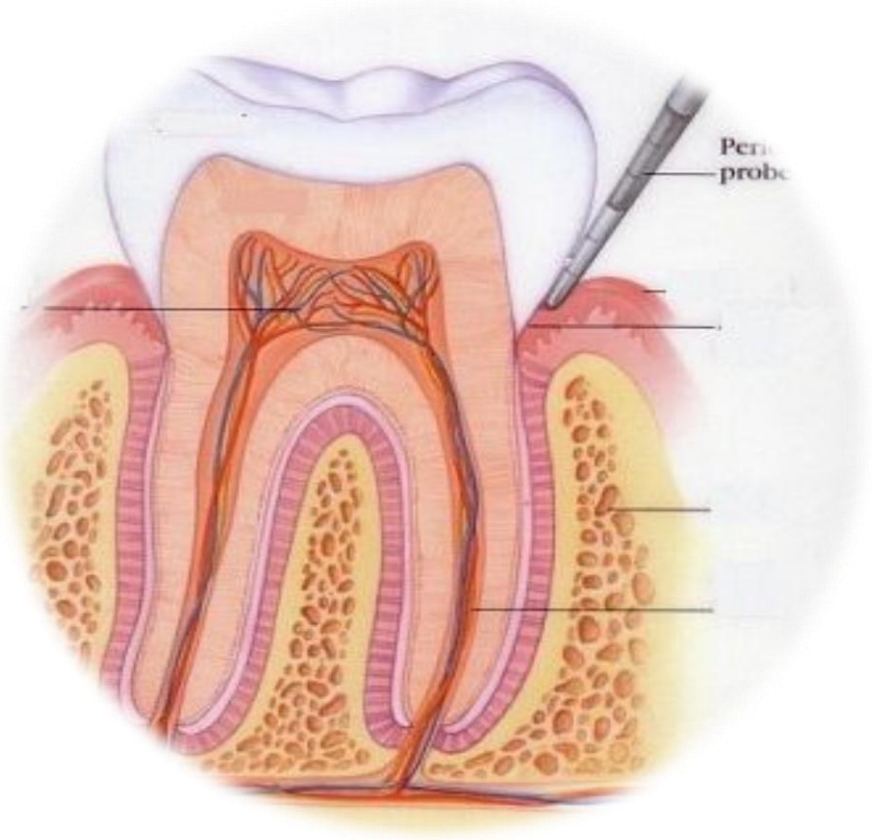
University of Jordan

Faculty of Dentistry

5th year (2015-2016)

Periodontics II



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Slide

Hand Out

Lecture No.	7
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Designed by: Hind Alabbadi

In this lec we will continue talking about muocogingival surgry .

→The Surgical procedure used to treat certain muocogingival problems is :

1-augmentation apical to the gingival margin **2-** augmentation coronal to the gingival margin.

→ augmentation apical to the gingival margin can be achived by :

1-free graft which include:

-free gingival graft (FGG) -connective tissue graft(CTG)

2-apical positioned flap (APF) "alveolar denudation"

→about free graft :

In this type of graft I take the tissue from the donor site without it`s blood supply; so I`m separating it from the donor site.

- A **free gingival graft** is a dental procedure where a small layer of tissue is removed from the palate-*which will heal by secondary intention*- of the patient's mouth and then relocated to the site of gum recession. It is sutured (stitched) into place and will serve to protect the exposed root as living tissue. The donor site will heal over a period of time without damage.

- So this type of graft include epithelium and a layer of connective tissue .

-the goal of FGG is: to increase the thickness of the attached gingiva. Check slide 48 to notice how the attached gingival increased

-steps of FGG procedure "classical approach of FGG":

1) 1st I prepare the *recipient site* ; we either do marginal or submarginal incision and then we do partial thickness flap and we call it "sharp dissection" , we do this dissection using a blade NOT by blunt instrument like mucoperiosteal elevator. So by doing partial thickness flap we leave a large layer of soft tisseattached to the underlying periosteum . – hens: the periosteum remain attached to the underlying bone- .by that we prepared the **"recepient bed"**

Notes about types of incisions we used in FGG:

-in marginal incision: the flap includes the gingival margin, and the graft will take the place of the original gingival margin ; so that you have to re-establish the original scalloping of the gingival ad do scalloping to the graft it self.

-**in sub marginal incision**: the flap spares the gingival margin. The advantages of this incision is that this remaining band of tissues will allow for healing by secondary intention if the flap detached.

2) 2nd we will prepare the *donor site*;

- the piece of tissue that we will take from the donor site should include a layer of epithelium an C.T.

-the thickness of the graft should be .75-1.5 mm

-notes about the thickness of the flap :

- ✓ The flap shouldn't be too thin ; bcz most of the graft will be epithelium ,and there won't be enough connective tissue ..resulting in tearing .and it`s important to have enough thickness of C.T-lamina dura- because it`s the source of the blood supply .
- ✓ The flap shouldn't be too thick; bcz there will be difficulty in providing good blood supply because it`s too thick and thus there will be more time needed for heaing.

-avoid fatty tissue when you harvest the flap; because adipose tissue will compromise the blood supply. So when you harvest the flap and you notice the presence of adipose tissue ,try to remove it .

-most of the time the pt has more discomfort at the donor site rather than the recipient site.

why do we prepare the recipient site then the donor one?

-by that we know the size-we measure it by perio probe or template of aluminum foil that covers the blade because it`s sterile- and the shape of the graft that we will harvest , and there will be no extra or unnecessary tissue cut .

- **<u>Certain Factors should be there in order for the graft to integrate :</u>**

1-immobility of the graft ; the graft should be sutured and secured in place . If there was mobility in the graft , the blood supply will be compromised.

2- there should be no hematoma under the graft . when you prepare the recipient bed , and go to harvest the graft , by that time hematoma and blood clot will be established , so make sure to remove it then suture the graft in place. Because this blood clot ia Avascular , it`s only protein so it`s going to compromise the blood supply. Usually when we put the graft we should apply pressure on it for 5 minute to prevent the bleeding.

Stages of healing : you have to go back to the text book to know the details

→in the 1st 2-5 days the graft is surviving mainly by plasma circulation .there is no true blood vessel that supply the graft .That`s why if the graft is thick , the plasmatic circulation can`t provide all the flap thickness so it`s going to separate . and if the flap is thin ; it will composed only from epithelium and thus it will shrink and disappear .also this give a reason why there should be no hematoma underneath the graft , bcz it will prevent the plasmatic circulation from reaching to the graft.

You have to know that most of the epithelium that covers the flap go away, and only the base layer will stay and regenerate.

- ➔ 3-10 days revascularization will occur ,and anastomosing between the blood vessel in the C.T of the graft and the recipient site will occur.
- ➔ Organic union ; fusion between the graft and the recipient site tissue will occur, their protein fibres attached to each other .
- ➔ The functional integration occur within 2 weeks .
- ➔ So after 1 week you can tell if the graft is successful or not. If the graft is not successful it will <u>shrink</u> and <u>detached</u> from the tissue.

-if you do FGG in proper way , the result will be predictable, and highly successful. and It is the most effective way to do augmentation to the keratenised gingiva.

-disadvantages of FGG : the tissue will end up with patches ,and with time it will become bulbous.

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slide 44 :

notice how these implant placed too bucally , and because there is no place for impression taking due to shallow vestibule . so we decide to do FGG

slide 48: the graft after 1 week.

Slide 49:

There is no attached gingival, and this tooth is going to receive a crown , so we decide to do FGG.

Note: the tissue thickness that remain attached to the recipient bed should be with minimal thickness , but if the remaining thickness is increased it will be more movable. So the closer that you can get to the bone the better the immovable the flap will be.

Slide 50:

Here we do scalloping to the graft , and there is certain area remain exposed and it will heals by secondary intention.

Slide 52: the graft after 1 week.

Slide 53:

Another example of FGG. Some time when we do frenectomy ,the frenum will reattaches again.

So the best way to make sure that it doesn`t reattach is to do FGG.

Slide 54 : another example of FGG

Slide 55:

There is no enough keratinized gingival and there is a recession .so this is not really augmentation apically ,it`s rather coronal augmentation and it is CTG; there is no epithelium.

The graft later on will be covered by epithelium from the adjacent tissue.the advanteges of this:

1- Secondary epithelialization; the epithelium migrates from the edges of the wound to cover the graft.

2- We ended up with keratinized attached tissues (We added thickness to tissues).-

3- Better color matching of the graft (Esthetics).

Again;

→The Surgical procedure used to treat certain muocogingival problems is :

1-augmentation apical to the gingival margin **2-** augmentation coronal to the gingival margin.

About augmentation coronal to the gingival margin.

-this can be achived by :

1. Pedicle flaps.
2. Free grafts.

* free gingival graft FGG
* connective tissue graft CTG

3. Guided tissue regeneration., low predictibility
4. Coronally positioned flap.-type of psdicle flap-.
5. Tunnel (in combination with APF or without)

→miller`s classification for gingival recession helps us in predicting the prognosis of the treatement. So:

-you can achive100% of root coverage on class I&II.

-in class III it`s fall to 50%

-in class IV it`s unpredictable and usually we don't do root coveragr.

Indications for root coverage:

1- Esthetic demands: specially in anterior areas.
2- Root sensitivity; although the predictability of sensitivity elimination after root coverage is poor, but it might work in certain case
3- Shallow root caries and cervical abrasion:
We excavate the caries, and cover it by tissues without putting any restoration.
4- Changing gingival topography for better plaque control:
If there's any discrepancy in gingival margin between adjacent teeth, it will complicate plaque control. So we should achieve harmony in gingival margin.

* Percentage of root coverage:

Overall range: 60 – 84 % , this is my aim , and we can achive it in miller classI andII , and we can achive this aim by :

CTG/ CAF: 77.9 %

GTR: 76.4 %

* Percentage of 100% root coverage:

Overall range: **22 – 50 %**

CTG/ CAF: 37.4 %

GTR 33.1%

In Miller class I, II cases ,, percentage of 100% root coverage = 70%

Note:I didn`t understand this par properly , so any one has his own note about this part let me know , or just tell us about it on our facebook group.

1- Pedicle Flaps:-

Variations of pedicle flaps

a* Laterally-positioned flap.
b* Coronally positioned flap.
c* Semi-lunar flap.

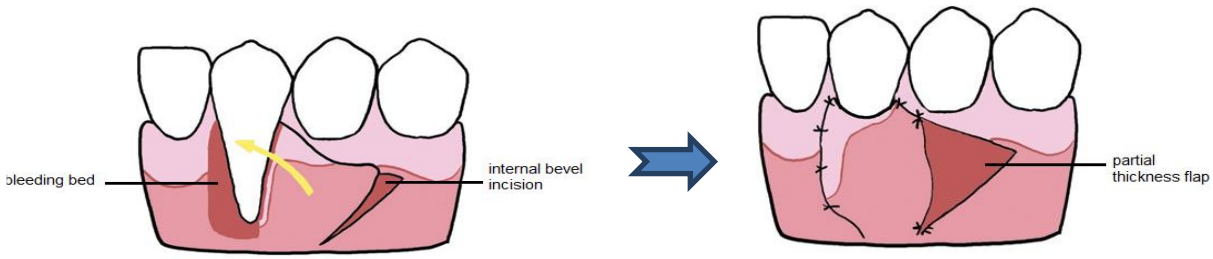
✓ A flap that maintains its blood supply.

1) ***Laterally-positioned flap***:[slide 60]

The adjacent tooth should have adequate width and thickness (1-1.5 mm) of keratinized tissues other wise if there is no enough keratenizesd gingiva ;gingival recession will occur on the adjacent tooth. If there is recession of the adjacent tooth, laterally-positioned flap is contraindicated.

Case: A canine with recession.
Treatment: Laterally-positioned flap.

- External bevel incision is done on the recipient margin. The recipient tissues should have a bleeding margin (called recipient bed).
- Do an internal bevel incision (partial thickness flap), then slide the flap laterally to cover the defect. The original site will heals by secondary intention **.always it`s better to spare the gingival margin**.
- Disadvantage: recession on adjacent tooth



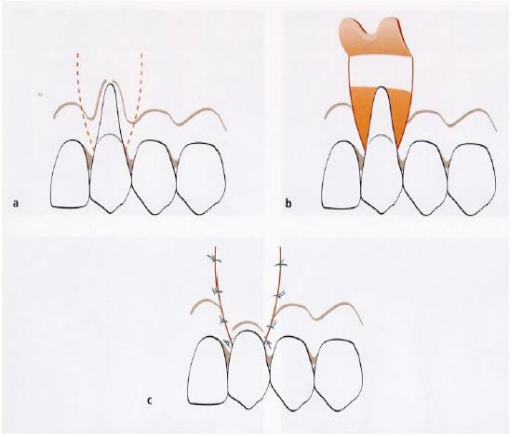
2) ***Coronally-positioned flap***[:slide62-6 3]

❖ *Indications:*

Good tissue thickness.
Enough keratinized tissues.

❖ Advantages:

1- No donor site. (Simple procedure)
2- Can be used with minimal recession cases.



- We should release the periosteum to have more freedom in movement. Periosteal release should bypass the edge of the flap margin to have good mobility of tissues. This is done by inserting the blade under tissues to release it.

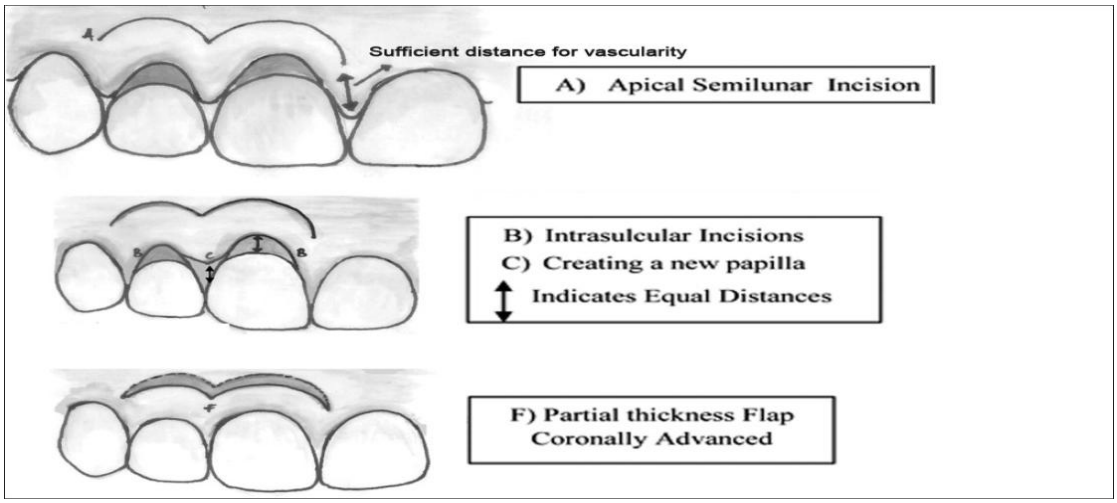
Important note De-epithelialization of the receiving tissues should be done. If you don't do this, no proper healing will occur and a cleft will form. (The underside of the flap will be setting on bleeding connective tissues).

3) Semi-lunar flap:-

Same principles, we have to give good care to vascularity, flap attachment, flap security, tension free closure, …

-Exposed connective tissue heals by secondary intention.

- Make sure you take the flap from an area in which the root is covered by bone. Bone has blood supply and heals by secondary intention, while the root is devoid of blood supply. If no bone is left, a window will form in tissues and the root will remain exposed.



In GTR we always have to release the periosteum and advance the flap coronally, to:Get good coverage of materials.Close the flap without tension (tension free closure). If tissues are blanched, they will tend to go back to their original position, and this will cause failure of our procedure.

Free tissue grafts:[slides from67-75)]

- free gingival graft

→ We don't usually use the FGG for root coverage purposes. We use CTG.

→If you look at a graft after one week, it will look like this (red color). Why? Because most of the layers of epithelium sloughed, the only layer that remains is the stratum basalli which regenerates epithelium.

- Connective tissue graft
  Connective tissue graft (subepithelial connective tissue graft):

  -Usually taken from the palate and less commonly from tuberosity area.

  - How to obtain the graft from the palate?
  Two incisions are made in the palate, first incision is horizontal (away from the gingival margin by 3 mm), the second one is parallel to the long axis of the tooth (how deep you can go? The width of the cutting edge of blade 15 is 8 mm). A band of epithelium should be obtained within the graft. Then the site is left to heal by secondary intention.

  - Which is easier, the shallow vault of the high vault?
  The high vault is better,
  1- More tissues can be obtained.
  2-The angle of cutting

If the tissues are thin, the periosteum should be detached with the graft. If they are thick, we try to make our incision more superficial to stay away from the fatty tissues (the quality of connective tissue is less dense).

There's a type of scalpels that holds two blades at the same time with a distance of 1.5 mm between them, this helps to cut the two incisions at one time and obtain the graft. Then, you cut the base of the graft and take the tissues out.

There is 2 techniques to harvest the graft :

1-conventional sub-epithelial C.T graft

2-conventional free graft then you remove the epithelium.

In slides 87-90 there is a combination of CTG and coronally advancing flap.

In slide 94 double pedicle CTG . you do incision then graft then you suture the pedicle in the middle.

-the advantages: What is the benefit of using the pedicle flap with CTG?

->→→The root surface, on which we are going to put our graft, is devoid of blood supply, the only source of blood is the recipient bed we prepared on the recipient site. By doing a pedicle flap and covering the graft with it, we guarantee that most of the graft is supplied appropriately with blood.

In slide 95 lateral sliding flap

Slide 96 double pedicle flap

Slide 97 double pedicle CTG

Slide99-102 this pt has a complication and recession after apicectomy procedure, so here we do CTG with coronally repositioned flap .

Slide103 the CTG left uncovered coronally. The exposed portion can survive and takes its nutrition from the rest of the graft. If you cover it with the mucosa , it will stay as it is , but if you don't it will receive the signals from underlaying C.T – which is originally from the palate which is keratenied-and thus it will increase the thickness of keratinized gingiva

- ✓ Leaving an exposed portion
  1) helps to increase the width of the keratinized tissues.

  2)we don't reduce the depth of the vestibule.

Tunnel technique:-

slide 113 You undermine the tissues only undermine and detach the tissue without raising aflap, and the hold the graft with the suture and slide it underneath tissues, then suture it. It the case involves multiple adjacent recessions, the procedure is more complicated.

+ve: blood vessel network is intact ,so the CTG will have good blood supply

GTR:-

In GTR we're using a membrane.

Disadvantage: Exposure of membrane which increases risk of infection.

-doesn`t have predictable result , and it is very technique sensitive.

+ve: you regenerate the bone so the tooth is not covered only by soft tissue.

you can get the best result by using soft tissue graft .

note: I used last yr sheet to clarify certain points
best of luck ☺

done by : lobn ahunaiti