Sheet number : 4

Slide : 1 – dr nisreen

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-this sheet includes the extra notes only, so you have to refer to slides

Major connectors

slide 4:

-Rigidity is the most important requirement for the major connector

If the major connector was flexible then:1- it will impinge on oral tissues 2- it will transfer horizontal forces to the teeth and 3- it will be deflected

-coverage : less coverage is more favorable and it is more comfortable for the patient

Slide 8:

Width =( rigidity)³

Height = (rigidity)²

Since it is vertical its rigidity is mainly due to its width

To increase rigidity it is favored to increase the width of the bar

Slide9:

The distance from the gingival margin to the functional sulcus depth= 8 or 9 mm on average , this bar needs to be away from the gingival margin by 4 mm and its thickness is 4 mm so it will reach the full depth of the functional sulcus

It is pear shaped on sagittal section "thickest part is the lower margin " with smooth round margins

Slide 10:

-disadvantages :

It is contraindicated for patients with less than 8 mm depth of lingual sulcus

Slide 12:

-The teeth might have deep undercuts that needs to be blocked out because metal can't adapt to it. but the superior part of the lingual surface must be intimately adapted to the plate

 -disadvantages : 1-poor patients' tolerance due to its high coverage

2- plaque accumulation because of the steep margins but it will decrease if the contact was intimate and the borders were smooth

Slide14:

Lingual plate can be used in the presence of diastema ( spaces between the teeth )

Slide 16:

Can be used to splint anterior teeth if they were weak or periodontally involved

Can be used with patients with less than 8 mm sulcular depth because it will still have enough rigidity

Can be used in class 1 or 2 " free end saddle" because this case needs a lot of support

So the lingual plate indications are :

-free end saddle – shallow depth lingually – weak anterior teeth

Slide 17:

Kennedy bar= lingual bar + dental bar

Cingulum bar = dental bar

Slide 18:

Horizontal stabilization: anything placed on teeth with intimate contact helps in stabilizing the teeth

Less coverage than with plate which is better for the patient

Although less coverage is better but it causes more annoyance here because the margins are increased

( 2 margins for the lingual bar and 2 for the cingulum bar ,while the plate had only 2 margins)

 Slide 23:

-If the patient has insufficient space but good oral hygiene then lingual plate is better to use

-It is indicated for patients with poor oral hygiene ( could be due to a muscle problem ) because it is the easiest to clean

-long crowns : increased height increases rigidity

Slide 24;

-its rigidity is affected by the height of the crown

- can't be used with spaced teeth

Slide#27&28:

-Swing Lock: A useful modification of the labial bar where the labial component has a hinge on one side and a locking device at the opposite side providing an opening and closing movement similar to a gate.

- The prosthesis is inserted while the lock is opened and this is locked after fully-seating the denture permitting its insertion in inaccessible labial undercuts.

-swing lock is used when there is:

 1-severe labially inclined teeth (when there is undercut labially).

2- Few no. of teeth (4-5).

-because there are projections on all the teeth we use it when there is few no. of teeth.

-to gain maximum benefits of the few no. of teeth, I should do bracing, splinting using this kind of major connector.

-this type of major connector is rarely used.

-problem of swing lock: Not preferable sometimes because firmly grasped teeth might be subjected to stresses when distal extensions move towards the tissue.

-if there is load posteriorly, there will be stresses on labial surface of teeth.

-this kind of major connector has slots, hooks as shown in the picture slide #27.

Slide #29: sublingual bar

-sublingual bar: it's placed under the tongue.

-cross section of the sublingual bar is more horizontally, while the labial bar is more vertically. So the sublingual bar is more rigid because the width factor increases rigidity more than the height.

 -Used in case of shallow sulcus depth.

-it's annoying for patient because it's placed under the tongue.

-it does NOT aid in indirect retention because it's paced on soft tissues.

Slide#31:

Types of Maxillary Major Connectors:

1-Single Palatal bar (narrow because it's a bar)

2-Single Palatal strap.(wider because it's a strap).

3-Antero-posterior Palatal strap (like the shape of a window; an anterior strap and a posterior strap and there is a connection between those two straps.

4- U-shaped Palatal Connector (horse-shoe shaped).

5-Complete Palatal Plate (complete coverage for the palate).

-the name of a major connector is related to its shape.

Slide #32:

-Antero-posterior palatal bar :( narrower than Antero-posterior Palatal strap).

-Antero-posterior Palatal strap: more commonly used than Antero-posterior palatal bar)

Slide#33:palatal bar:

-used in short span because the coverage of it is limited and rigidity is limited.

* - Provides little support because of its limited width and because of its limited coverage.

- Used only in interim prostheses as it lacks rigidity because it’s narrow.

-if the position of the major connector is more posteriorly, especially the upper, this will be less annoying for the patients as the food will touch the rugae area.

-slide#35:palatal strap:

-wider, always coverage relevant to no. of teeth missing; as the no. of teeth missing increase, we need more support from tissues, so we need more coverage..

- Should not be less than 8mm wide.

- We use it in 2-3 teeth missing which is the width of this major connector.

-we choose a major connector which is relevant to the distance of edentulous area.

-usually used in bounded saddle (limited missing teeth).

- May be used in unilateral distal extension (class 2) but NOT the bilateral(class1) because in class1 we need a lot of coverage and support and the strap can’t provide all that coverage and support.

Slide#36:advantages of palatal strap:

-Great rigidity (because it’s wide )

-with less bulk (in the palatal bar it was narrow so if I want to increase rigidity ,I should increase the width which will be noticeable. But in the palatal strap because there is coverage, I can do thinner sections.

. Good stress distribution because of its width (because there is coverage).

 -offers little interference with the tongue.

 -offers retention through adhesion and cohesion.

-might give some indirect retention

Slide#37: disadvantages of palatal strap:

-the patient may complain of excessive palatal coverage: not really excessive but when I compare it to palatal bar ,it’s coverage will be 4 times greater than palatal bar.

-but its coverage is nothing when we compare it to complete palatal plate.

-you should be specific when you are talking about advantages and disadvantages by comparing it to other types of major connectors.

Slide #38: Antero-posterior palatal strap

-as you can see in the picture, we use it when the bounded saddles are long.

-we can use it in free end saddle (class 1&2) because of its coverage.

Slide#39: same as slides

-excellent rigidity because it’s antero-posterior strap.

Slide #40: Indications for antero-posterior palatal strap:

1-Widely separated abutments (multiple saddles with good abutments).

-we use it in cases with many modifications, so a major connector (antero-post palatal strap) that provides a wide coverage is the choice.

-we can’t use single palatal strap or plate because it’s limited in one place.

2-Cases with large inoperable palatal tori (when the tori is in the middle antero-post palatal strap is a perfect option.

-but if we have tori extended posteriorly (to the Postdam area) we have to use u shaped palatal connector and NOT this type.

3-Patients who want to avoid palatal coverage.

4-Long edentulous span in class II modification 1 arch.

5- Class IV

-Antero-post palatal strap used in all cases(class1,2,3,4) with no contraindications.

Slide #41:

Advantages: same as slides.

-Used when the patient objects the large palatal coverage (antero-post palatal strap is the first option for this case.

-disadvantage:

- anterior strap it may cover the rugae area which is not comfortable to the patient , even if you try to let the position more posteriorly.

-too many borders: because its shape is like the window, as in Kennedy bar in the lower.

Slide #42:

-Two straps are in 2 different planes (more physics)

-the palate is not a flat surface, so ant strap on a plane and post strap on another plane, so that will give it good rigidity.

-rigidity not only a matter of thickness of metal, if the major connector on two planes that will give it rigidity too.

-as in the picture antero-post palatal strap is used in widely separated abutments.

Slides #43+44 :U-shaped Palatal Connector:

-it’s the least rigid major connector.

-horseshoe shaped, never use it extended in the case of extended tori in the palate.

- Margins are open, nothing will join them, so deflection will happen and horizontal forces will be transferred to teeth.

-least favorable.

Slide #45: Indications for U-shaped Palatal Connector

-When many anterior teeth need to be replaced (we don’t consider it an indication because we have complete palatal plate with full coverage).

--With palatal tori extending to the posterior border of the hard palate.(this is the only indication).

Slide#46: same as slides.

-disadvantages: poor cross-arch stabilization (because it tends to deform).

-To decrease its flexibility we should increase thickness ---this will be annoying for the patient.

Complete palatal plate:

1-it provides support because it covers the palate (firm tissues)and also indirect retention (even though it doesn’t cover teeth).but when that will happen ?when we have maximum coverage.

2- Complete palatal plate: best one that gives indirect retention because of its maximum coverage.

3- We add projections to provide a mechanical mean to retain acrylic.

-To do palatal coverage, - if we are talking about retention-acrylic provides seal best to the Potsdam area.

-so acrylic ending at the posterior border is better.

-this is a modification, so either it covers the Potsdam area or we leave 2l3 distance.

-projections are added because the bond is NOT good between acrylic and metal,So we add acrylic as a retaining mean to pack acrylic.

Slide#49:

-used for many missing teeth because I need support from the palate.

-used when I need indirect retention because of its maximum coverage on the hard palate as if it was on teeth.

- A slight seal can be obtained by giving beading posteriorly:

-because it extends posteriorly, we consider Potsdam area to give us seal.

-beading: irritation in the metal, as if we are carving the Potsdam area, to maximize seal.

-like what we did in the complete denture we have missing teeth posteriorly, so we do beading to maximize seal.

Slide#50:

The major connector here is palatal plate (upper) or lingual plate(lower).

-in cases where the major connector should covers the gingiva, there should be a close contact between the connector and gingival margin; otherwise there will be inflammation and growth of gingival to fill the space.

-complete denture rules should be applicable to partial, like intimate contact must be provided because this contact offers retention through cohesion and adhesion.

Slide #51: Indications for Complete Palatal Plate

Many posterior teeth are replaced and periodontally compromised abutments.(like lingual plate in the lower)

- Kennedy class I with anterior teeth replacement.

- Patients with developed muscles and natural lower teeth.

- Flat highly resorbed upper ridge and shallow vaults where high stability is required (anything that have problem in the support like in case of flat palate (no slope in the palate, in this case no ridges to resist forces (lateral and horizontal forces).so complete palatal plate with its maximum coverage will provide stability when I don’t have well developed flanges.

Slide #52:

Advantages

1-Best rigidity and support (because of maximum coverage)

2-Better transmission of temperature and thus better stimulation for underlying tissues.(cobalt metal don’t have a problem in transmission of temperature. The problem will be in acrylic because it not good in the transmission of temperature.

3- Little discomfort or effect on speech because of its minimal thickness (margins not noticeable)

-activity of tongue in ant &middle part of the palate, and here the margins are far away from this place, so will give little discomfort.

-although metal covering middle but there is no margins there so little discomfort

(Margins are the cause of discomfort for the patient).

-Anterio-post palatal strap more annoying for the patient because of margins more than palatal plate.

Disadvantages:

Same as slides.

2-it shouldn’t be very thick, because of its maximum coverage that compensate for thickness.

-NOTE: major connector doesn’t cover gingival part of tissue like lingual plate and palatal plate it should be 6 mm away from teeth.

-nothing ends at the margin, either it covers the margin or 6 mm away.

-either self cleansing or no impaction for food.

Good luck☺