

Prosthodontic sheet nom. 4

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Refer to slide nom.:

Written by : Rowa'a Hamadneh

Corrected by : Maram Abu-Ghazaleh

Master impression for complete denture construction

We took the primary impression last time by compound then we pour it by plaster of paris.

The objective of taking the primary impression: to construct the special tray and lay out the area where the denture will seat.

The second step is the final, secondary or master impression that gives more fine details and to make the master cast, final impression should be more accurate than the primary because we want to construct our denture on it.

The special or individual tray is special for the patient and could be discarded after we finish the denture, so we can't use it to another patient. This tray can be modified.

Procedures:

1. The special tray can be fabricated from primary cast ; if you remember that we poured the primary imp. Using plaster of paris and we got a diagnostic cast then we trimmed it to specific height and width . if we over trim the area near to the max. tuberosity or retromolar pad area which are called "crucial area" we have to repeat our cast because we deleted or trimmed anatomical landmarks that are needed , so we have to be 4-5 mm away from them .
2. 3-4 mm land area in the horizontal direction – it's the area after the depth of the sulcus horizontally .
 3. We have to go 2-3 mm from the full depth of the sulcus where the margins of the tray will be , and this will be completed with green stick and sec. imp. Material .
4. We have to block out all the undercuts by wax or plaster of paris in order to be easily removed from the patient's mouth and not to be stuck in .

***Materials that we use to construct our special tray:**

1. Polymethyl methacrylate; tow types---- self cure” chemical cure” or ----- heat cure “what we will use this year”
 2. Shellac base we didnt use it last year
 3. the light cure which is a good material, expensive, accurate, best one.
 4. night guard ; it's relatively soft , transperant , like what boxing players put in their mouth .
- Self cure acrylic resin: it takes time, same process as heat cure, it needs trimming after curing for the margins
 - Shellac base is the worst one, will be 2 or 3 layers, you have to put it on the flame in order to be usable so its dimensions will change; so it will be hard to handle it.

Techniques for a special tray:

1. Sprinkle on tech. :for chemical cure material or self cure – we have tow component monomer “liquid” and polymer “powder”
We put a layer on the cast then another layers until we reach a uniform thickness we put it in warm water until complete polymerization happened then we take it out, trim it.
2. Finger adapted tech.: for light cure material, sometimes the finger print take place on the tray, same amount of pressure should be applied on all the areas. Allergy can happen .
3. Vacuum tech. : by a machine , we have one in the hospital , we can use it for night guards
4. Shellac tech. : we put shellac plate and brush it with the flame and once it's shiny then you can adapt it with your fingers ; this tech. is used with shellac plates !

Requirements for a special tray:

1. Rigid but not bulky to discomfort the patient and not too thin to break . “shellac needs double layers”
2. Easy to construct regarding the shellac, around 5 min.
3. Dimensionally stable except shellac because it will melt when we put hot green stick on it .
4. Capable of accepting modification, trimming and smoothing.

Types of special tray:

1. Conventional – what we will do-
2. Biometric tray; on a specific measurements according to the bone resorption – as neutral zone tech. – قياسيه . it is time consuming and difficult.

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- The handle should be tall enough to be caught .
- If you want to be more precise; bisect your cast then put the handle in the middle. it should be smooth without any rough areas or edges with a protrusion.
- The tray should be stable on the cast without any rocking .
- we need to put stoppers on the premolar region of the lower tray to stabilize the tray by index finger of each hand or by using the index and the middle of one hand .
- In the upper we have to open for the frenum by an acrylic bur.
- We have to check the tray on the cast before check it in the pt. mouth, then it should be disinfected and no sharp areas then we check it inside the pt. mouth and check that the tray covers about 2/3 of the retromolar pad.
- Peripheral outline 2-3 mm shorter from the functional depth of the sulcus.
- Always correct the extension of the peripheries if it's over extended .
- Carry out all the tongue movements to test the stability of the tray in the pt's mouth.
- We put the lower tray and ask the pt. to protrude his tongue , if the tray comes out of its place upwards so its overextended in the lingual side .
- We ask the pt to touch the post area of the hard palate by his tongue; if the tray come upwards this means that the lingual frenum not opened.
- Let the pt to relax and left the cheeks and the lips to check if there is any overextension on the labial side.
- We put the upper tray and let the pt to move the tongue right and left and move his cheeks to the right and left too if the tray move downward this mean its overextended frm the buccal sulcus.
- Always hold the tray by a slight pressure in the premolar area.
- We don't want overextension posteriorly because when we put the impression material we may have gag reflex .
- We check the post. part by the mirror and there should be no space because this tray is close fitted.

Impression material that we use for the secondary impression:

1. Zinc oxide eugenol; used with close fitted trays, most popular, accurate, cheap
2. Impression wax, they used it in the past, easily distorted
3. Plaster of paris , king of master impression materials but if we have severe undercuts it can be loose it will break into pieces and it will desorbs if we put it in the disinfectant.

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4. Alginate: tray adhesive should be used, spacer needed, we don't use it for complete dentures.
5. Elastomeric material: -very expensive- a. Polysulfide. B. Silicon

You can use any of these materials without any criteria , the better is the one you feel confident while using it =)

- **Border molding and tracing:**

If you remember we divide the compound family in to two types:

1. Low fusing compound –green stick- most commonly used for border molding.
2. High fusing –compound impression material-.

Or we can use self or cold cure acrylic resin for border molding but it's expensive and could do irritation for the patient –put it on the margins of the tray- .

Elastomeric materials ; expensive and difficult to trim.

Impression wax ; distort easily and stick to the patient.

- **GREEN STICK:**

Green or white, black color, sticky. It contains wax to specific limit .. if it increases it becomes undesired like " Made in China " ones.

- The requirement of this material----- it should remain on the borders of the tray, Should not cause excessive displacement of the tissues – don't push the sulcus- green stick trimmed easily.

- **Low fusing compound :**

by green brother -1910- , from that day the American dental association expect it for border molding and tracing.

Green, brown, white , black with different working temperatures . once you put it on the flame it softens , and if it comes in contact with gloves they will burn.

- **ADVANTAGES:**

1. Soften easily
2. Correction and addition is easy
3. It used in highly resorbed lower ridges.

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- **DISADVANTAGES:**

1. Takes time especially with beginners.
2. May burn the pt if care is not taken.

We prefer after heating it on the Bunsen burner to put it in tap water to prevent burning the pt. –some drs prefer warm water , but Dr. salah opinion is tap water is better .

- **Border molding technique:**

1. Instrument and material

You have to have all you instruments with you in order not to get a violation .

2. Proper positioning of the pt . We already talked about it .
3. For beginners we do it segment by segment begin from anywhere you want .
4. Soften the end of the green stick on the flame; we hold it as pen grip then pass it over the flame of the Bunsen burner or alcohol flame in a rotational movement , once it's shiny this means it's ready for use ; put it on the top of the periphery of the tray with a uniform thickness, we add it layer by layer or one shot, then immerse it in a bowl of warm water or tap water to avoid burning of the pt.
5. Insert the tray in the pt mouth, carry out the functional movement by moving the lips and cheeks and the tongue right ,left ,out and ask the pt to half close his mouth for the coronoid process to go backward and get the full depth of the sulcus to prevent having under extended denture .
6. Remove the tray, rinse it under tap water, dry it by air syringe. It should be continuous all around , dull ... if it's still shiny this means under extension .

- **Requirement of green stick:**

1. Uniform, smooth, rounded, mutt appearance – if it was shiny this means that it's under extended, not touching the tissues-.

- **Management if there is any errors:**

Dry it then resoften it , add enough material, insert it again and do the functional movement again. If you let wet , it will not stick with each other when you add ' ma bimsik'

- The final area in the maxilla is the maxillary tuberosity .we have to compress at that area.

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- Once u complete border molding and insert the tray you will have high resistance and you will hear suction sound once you pull it from the occlusal plane and when u pull it from the post dam area. This suction sound we will hear it in the upper more than the lower cuz we have tongue. What we do to get it out is that we ask th pt to close his mouth and blow his cheeks or we releaf the peripheries ..

- **Tools that we need:**

Bowel, alcohol flame, cutter, spatula, wax knife, mirror, scissor, lacron carver, scalpel blade, acrylic bur, zinc oxide eugenol pase –brown is eugenol, white is zinc oxide- , orange or selevant spray –am not sure abt it- we spray it on a gauze and clean the patients face to prevent the zinc oxide eugenol from sticking on the patient’s face or by thin layer of Vaseline.

- Don't put green stick on the inner side or fitting surface ; only on the periphery except for the post dam area .

We use the scalpel to remove the excess material of the green stick or by the cutter, this excess material give us false or negative pressure . if we didn't , it will appear in the second. Cast and impression

We can use water path instead of the flame for softening of green stick

- **Final or master impression:**

1. Alginate, not accurate
 2. Plaster of paris, can't be used in severe undercuts and can't be sterilized if we put it in disinfectant it will melt , but it gives us excellent details .
 3. Elastomeric material, expensive
 4. Zinc oxide eugenol, easy, very common, cheap, setting time 2-3 mnts, capable for addition as compound. It is composed of tubes ; white and brown ; white is zinc oxide and brown is eugenol . for lower impression material roughly it requires 6 cm from each tube but the upper needs 8-10 cm according to the arch, some patient may complain from burning sensation from eugenol –redness and rashes- there is eugenol free pastes.
- We mix the 2 pastes by cement spatula or any metal spatula, we start mixing until we have a homogenous mixture pink in color.

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- **Procedure:**

1. Cover the patient's lips with thin layer of Vaseline not to catch any particles of imp. Mat.
 2. Mix the 2 pastes into homogenous mixture.
 3. Put a thin layer over the tray, some schools said that we put the zinc oxide on the periphery then take impression then we put on the inner side, but most of the dental schools use it as a one shot. Both are correct
 4. Before we put the impression inside the pt mouth, he should wash his mouth by any mouth wash or by water and swab the palate by a gauze to remove any mucous or thick saliva that would appear as voids in the impression
 5. Insert the tray in the pt mouth with constant firm pressure for 30 seconds.
 6. Carry functional movement.
 7. Remove, clean under the tap water, inspect.
 8. Pour it in stone .
- There is school that prefers by cobia pen to mark the vibrating line on the secondary impression, but other schools which that mark it in the primary impression or we can draw it on the patient mouth .the dr prefers master for some reasons !
 - Post dam area :from fovea palatina 1mm anterior to it and that will give u butterfly shape
 - Dr showed us a rubber impression material which is expensive.
 - Then after pouring we will do beading and boxing.
 - Voids are minor errors that could appear on the cast, we fill it with wax, but if it was major we have to repeat the cast.
But for voids in the impression ; if it's minor then we add wax , if it's major , we have to repeat it .

Good luck All =]