

PARTIAL DENTURE RELINING

Partial dentures differ from complete dentures, and they as well differ among themselves by the type of the saddle we are dealing with, some saddles are bounded, others are distally extended (free end saddles) and this depends very much on the number of the teeth remaining.

The Main problem that we are trying to treat is “loss of function”, now the quality of the treatment that we provide (partial dentures in this case) depends a lot on design of the partial denture itself and quality of the support (according to the saddle area whether it's bounded on one side, both sides or not bounded at all).

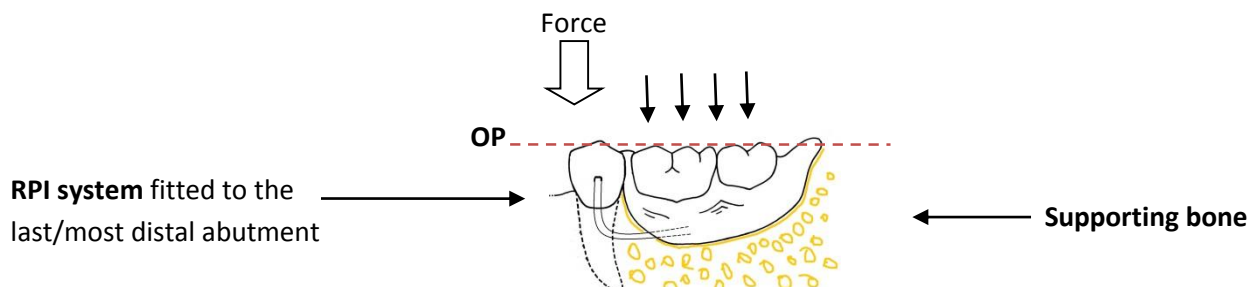
In Complete dentures (where there are no teeth) , all the support comes from the ridge, but in the case of partial dentures we still have teeth which can bear load, (the bite force in humans is about 25 kg for every cm which is a large force that fall directly on the ridge).

In the case of partial denture where the support is provided by teeth (class III or IV bounded saddle) teeth on both sides of the saddle will bear the load that's why we call it a Tooth Born Partial Denture , and we design it at the time we survey the model in a way to transfer most if not all of the load from the saddle toward the long access of the abutment teeth, in this case we don't need to relin or rebase the partial denture.

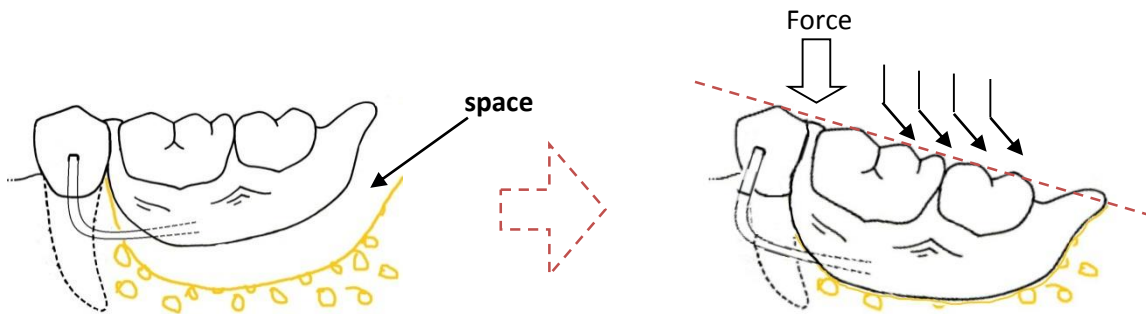
The problem starts with saddles which are free at one end (Tooth-Tissue Born dentures) When there is an unbounded saddle (Kennedy class I or II) unilateral or bilateral distal extension, in which the saddle itself is supposed to bear the load fallen on it from the opposing arch. With time, the ridge bone itself starts resorbing over the years so the support quality will degrade gradually, and because of the space created underneath the partial denture it will gradually will sink down.

In this lecture we'll talk about the techniques that we will use to treat cases of partial dentures with distal extension whether bilateral or unilateral in which resorption of the supporting ridge under the free end saddle had occurred.

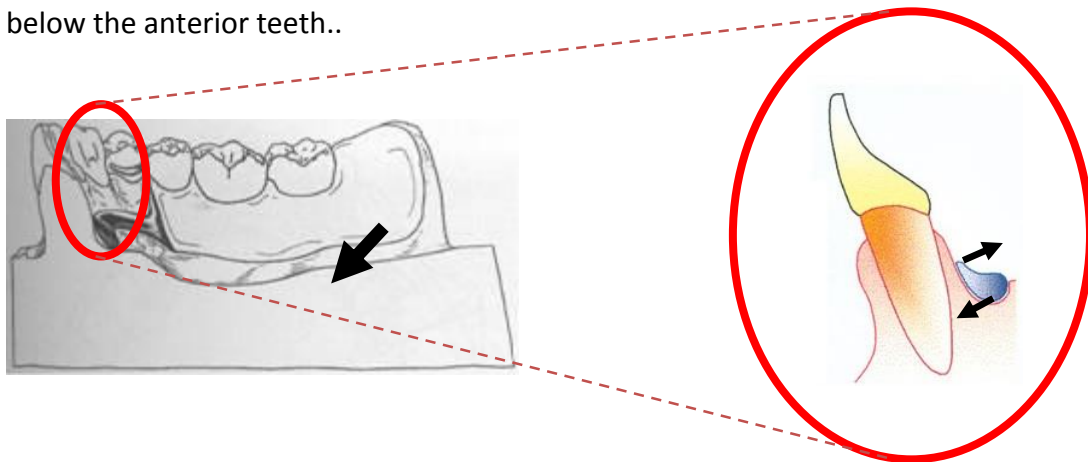
Diagrammatic representation of distally extended partial denture, in a case like this the occlusal plane that passes through the cusp tips of the natural teeth and then the artificial teeth of the denture in the free end saddle is horizontal :



After some time of using the quality of mastication will be impaired gradually and over the years bone resorption will happen, and a space will be created between the periosteum of the alveolar ridge and the fitting surface of the partial denture, which will make the partial denture sink down from one or both sides, now when the saddle sinks down the occlusal plan of the artificial teeth will go down as you go back (Posteriorly), this will open the contact between the partial denture artificial teeth and the opposing teeth in the maxilla (regardless if they were natural or artificial from another prosthesis). This open bite or open contact occlusally between the upper and lower teeth will make the patient complain of inefficient mastication which will be the chief complain when they attend the clinic along with other signs and symptoms.



Now if you imagine this kind of movement; swinging down of the entire partial denture from one end (posteriorly) around an imaginary fulcrum will make the anterior part of the partial denture (the major connector) move toward the sublingual tissues back and below the anterior teeth..



while the partial denture saddle is sinking down in the saddle will go down taking with it the inferior border of the major connector to go forward and labially into the sublingual tissues causing a trauma to the periodontium there , that way a retrograde pulpitis will start causing mobility to the anterior teeth.

Movement the major connector regardless bar or plate, while the saddle is sinking down will be as following ; the upper border of the major connector will be lift up and away from the tissue, while the lower border will dig into the tissue causing a traumatic pressure against the tissues covering the important teeth which provide not only aesthetic, but also they may be included in the design to provide indirect retention.

So it will cause trauma and laceration first, then it develops into an ulcer, retrograde pulpitis and finally bone resorption. Patients may come complaining of pain, or they may come later after mobility had already occurred and this depends on their pain threshold.

HOW TO CORRECT THIS PROBLEM?

We need to prevent the saddle/saddles from sinking down under pressure, this is done by relining these distally extending saddles and stopping their free rotational movement down toward the tissues which will also increase the load on the abutment teeth.

First of all we need to create a space wide enough to accommodate the impression material underneath the saddle because as you know for every and each relining or rebasing we use the denture itself or in this case the partial denture saddles as a special tray for making a new functional impression.

In order to provide space or to modify the fitting surface of the saddle and make them like a special tray, we need to eliminate all the undercuts, and after that we have to take 1mm layer from the fitting surface to accommodate the for volume of the impression material that we want to use.

We keep removing from the fitting surface until we reach the tissue stopper (a piece of metal placed by the technician under the frame work or in this case the ladder, to provide space for the acrylic base material). This will guarantee that the amount of impression material that we will use will be of sufficient and of uniform thickness.

Then the border extensions of the saddle -if deficient- should be corrected with law-fusing compound (border molding) in order to record the functional dimensions (height and width)of the sulcus, and this is very important to cover the widest possible area of the anatomical denture bearing area, including the buccal shelf in this case which is a primary load bearing structure. There is no need to go with the green stick to the major connector! We are just modifying the acrylic part of the saddles.

Q: do we need to do border molding just for the deficient extensions, or we have to do it even if it was fully extended?

If the borders were adequately extended we don't need to shorten them and do border molding, we just refresh the outer surface of the border, so we correct them just if they were short.

After the correction of the borders you can use the RPD as a special tray to make the final impression with Zinc Oxide Eugenol, or an elastomeric impression material, like polyether, polysulfide or silicon.

##To make the final impression you should return the RPD to the patient's mouth and **make sure that it's fully seated in its terminal position**, to do that you insert the partial denture then press and hold any rigid component of the RPD (major connector, minor connectors, rests.. etc.) but **not the saddle area**. also Do Not let the patient close his mouth while taking the impression, this is **not a close mouth technique**.

Then we take the impression out, and inspect it to make sure that no film of impression material has run or flew underneath the major connector, clasps or rests however thin it was; because it will be converted into acrylic later on, so this will traumatize the patient, and the RPD itself won't fit to its terminal position inside the patients mouth.

Make sure that all the areas that we need are there;

the Mylohyoid ridge groove

the buccal shelf

the retromolar pad → one of the areas that we need to see in our impression and later on the cast.

Now If everything is accurate and all the areas mentioned previously are present, we have to return it back to inside the patients mouth (because we need to know the relation between the RPD with the impression, and the other adjacent teeth), then we take an overall alginate pickup impression using a large stock tray to pick up the RPD and the ZOE impression in one step.

Make sure that there's no movement or what so ever of the RPD while you are taking it, which means that your mix of alginate shouldn't be too thick, it should be creamy enough to flow all over and sets there while gelation takes place.

Now you pour a model of the pickup impression with stone, It takes about one hour or 45 min for the stone to set, and we give it another half or one hour, then we can separate the alginate impression and get the mold out with the partial denture setting in its exact position and in its exact relation to the abutment teeth and the neighboring

soft tissue and structures of the arch, then we make sure to flask it right away (the same way you pour for relining and rebasing a complete denture, the model should not be separated from the ZOE impression but should be flaked immediately).

Under/during the flaking → this is the time we take the final (ZOE) impression past away and make sure that the clasps are in their place and are not moved during the procedure of flaking and deflaking, after that we go through the processing and polymerization, and the technician will prepare the relined RPD for you.

After that when you try the relined RPD in the patients mouth it won't sink anymore, and you will see that the RPD is now in occlusion with the opposing teeth because it's now raise up, and the occlusal plane is now at one level , the efficiency of mastication will be also back to normal, clasps are in their position, rests should be in their terminal position in the seats and the major connector is not causing trauma any more.

Again no excess material should go under the rests.

Q: do we need to retrieve or trim more acrylic from the fitting surface before we pack it with acrylic?

yes we might need to refresh the surface once or twice to make it more reactive with the new freshly mixed acrylic dough (it's the routine way for relining and rebasing).

وَحلاوة إن صار غيرك علقما	كن بلسماً إن صار دهرك أرقما
لا تبخلنْ على الحياة ببعض ما ..	إن الحياة حبتك كلَّ كنوزها
أَيَّ الجزاء الغيثُ يبغي إن همى ؟	أحسنْ وإن لم تجرَّ حتى بالتنا
أو من يثيبُ البلبل المترنما ؟	مَنْ ذا يكافئُ زهرةً فواحةً ؟
بهما تجدُ هذين منهم أكرما	عَدَّ الكرامَ المحسنين وقسهمُ
إني وجدتُ الحبَّ علما قيما	ياصاحِ خُذْ علمَ المحبة عنهما
عاشتْ مزممةً وعاش مزمما	لو لم تَفُحْ هذي ، وهذا ما شدا ،
إن شئتْ تسعد في الحياة وتنعما	فاعمل لإسعاد السوى وهنائهم