SPACE MAINTAINERS LABORATORIES

TIPS AND TECHNIQUES

TEMPORARY PARTIALS

DR. ROB W. VEIS, D.D.S.

Written exclusively for dentists.
Designated for one CE Contact Hour.

OVERVIEW

Every day we are faced with new challenges that impact how we deliver our care. By integrating removable appliance therapy into your armamentarium, you can gain the versatility you need to meet these challenges.

Temporary or interim appliances serve many useful purposes and are often an integral part of a prosthetic treatment plan. They are indicated when age, health, poor finances or lack of time precludes a more definitive treatment.

EDUCATIONAL OBJECTIVES

The overall objective of this course is to provide the participant with an evidence-based guide to the advantages, applications and proper procedural protocols for Temporary Partials in the dental office.

UPON COMPLETING THIS COURSE, PARTICIPANTS WILL BE ABLE TO:

- Recognize and evaluate the factors and conditions indicating a need for Interim, Transitional or Treatment Partials as part of a prosthetic treatment plan.
- Understand the health practice potential of removable appliance therapy, as well as the nature and importance of tissue treatment, surgical splints and controlling vertical dimension in treatment success.
- Appreciate the necessity of a detailed patient examination and accurate history.
- Discuss temporary partial treatment options and procedures with patients.



About the Author:

ROB VEIS, DDS.

Dr. Veis began practicing in 1984 as a solo general dentist and has been a part of both solo and group practices since then. A graduate of USC Dental School, he taught for 12 years at the University of Southern California as a Clinical Professor in Restorative Dentistry; is an internationally renowned lecturer (at locations including UNLV, Columbia University, Loma Linda University and NYU) on the topics of Dental Sleep Medicine, Orthodontics for the General Practice and Appliance Therapy; and has served on the faculty of the Las Vegas Institute of Advanced Dental Studies. He is the co-author of The Principles of Appliance Therapy for Adults and Children – considered one of the definitive texts on the subject – and has lectured extensively for the Academy of General Dentistry-sponsored mastership program. In 2014, he will embark on a world-spanning lecture tour encompassing Canada, Australia, Taiwan and the US.

AUTHOR DISCLOSURE:

Dr. Veis discloses that he is the CEO of SML™ Space Maintainers Laboratories.

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INDICATIONS:

Temporary partials are classified according to the purpose for which they are used: Interim, Transitional, and Treatment Partials.

A. Interim Partials

The interim partial denture is indicated when age, health, poor finances, or lack of time precludes a more definitive treatment.

Interim Partials are most often indicated in young patients who have suffered the loss of an anterior tooth or teeth. It may also be indicated for the young patient who – because of an accident, rapid caries, or hereditary partial anodontia – has missing posterior teeth.[2]



Anterior Interim Partial for a younger patient

Treatment usually consists of an interim partial denture or series of dentures (if necessary) until the teeth adjacent to the space have matured sufficiently to permit abutment preparations for a fixed bridge without the risk of mechanically exposing the pulpal tissue. Often the only other choice is to leave the edentulous spaces untreated. This can lead to a lifetime of dental ills caused by migration or over eruption.[2]

Elderly patients whose health contraindicates the lengthy and physically trying appointments needed to construct fixed replacements for missing teeth are also excellent candidates for interim restorations. These patients can usually tolerate the simple clinical procedures needed to construct and insert an interim partial.

Another indication for the interim partial denture may occur in patients who have suffered a temporary financial setback. The cost of this service is considerably less than for the definitive treatment that will eventually be required.

Other indications for an interim partial:

1) to maintain space.
2) to re-establish occlusion.
3) to replace visible missing teeth while definitive restorative procedures are being accomplished.
4) to serve while the patient is undergoing periodontal or other prolonged treatment.
5) to condition the patient to wearing a removable prosthesis.
6) when healing is progressing after an extraction or a traumatic injury.
7) to maintain function while accomplishing minor tooth movement.
8) to protect an implant site.



Interim Partial to distalize molar prior to bridge placement

B. Transitional Partials

The transitional partial denture is planned when some or all of the remaining teeth are beyond the point of restoration, but immediate extractions are not indicated for physiologic or psychological reasons.[2] For example this treatment plan can be used effectively on an elderly patient suffering from a chronic debilitating disease where multiple extractions could exacerbate the basic illness.

Another example where a transitional partial is appropriate would be for those who are psychologically unable to accept the loss of their teeth. In the mind of many people, the presence of teeth is related to sex appeal, youth, and happiness. If the patient is truly concerned over the loss of his or her teeth, but the loss is inevitable, treatment should be carried out over as long a period as possible. The use of a transitional denture will enable you to accomplish this goal.[2]



Transitional Partial allowing for gradual replacement of anterior teeth

C. Treatment Partials

The treatment partial denture may be used as a vehicle to carry tissue treatment material to abused oral tissue (as a splint following surgical corrections in the oral cavity) and to increase or restore the vertical dimension of occlusion on a temporary basis while the results of the increase can be observed.

Tissue Treatment:

When a prosthesis exerts excess force against soft tissue, adverse tissue reactions may take place. This is especially true if poor oral hygiene is also present. Soft tissue will respond in one of two ways: inflammatory hyperplasia may occur, or the tissue may recede.

The most frequently evidenced responses are prolonged marginal gingivitis leading to chronic periodontal disease, papillary hyperplasia, and the formation of an epulis fissuratum - a hyperplastic tissue response to an over extended periphery of a denture base. Treatment of these areas with a tissue conditioning treatment material (supported by a treatment partial denture) is usually needed to reverse these processes.

The mechanism of action of this procedure is a combination of distributing the forces more evenly, obtaining more intimate soft tissue contact, and the physical act of massaging the tissue as the soft material compresses and relaxes during function. Through this action, blood flow through the abused tissues is increased and edema and other byproducts of the inflammatory process are removed at a faster rate.[2]



Tissue-conditioning treatment partial

Surgical Splints:

The healing process of many surgical procedures performed in the oral cavity can be improved if the affected tissues are supported or protected by a temporary surgical splint.

The surgical sites that most commonly lend themselves to support by a splint are palatal tissues and tissues on the lingual aspect of the mandibular ridge. If the palate is not supported following reflection of a major portion of tissue, hemorrhage between the bony hard palate and the soft tissue can grossly deform the tissue.

Mucosa of the lingual aspect of the mandibular ridge is especially friable and sensitive. Protecting these tissues from the action of the tongue and from the effects of food being tumbled over them will greatly decrease the post surgical discomfort.

These protective splints may be lined with tissue conditioning material for a more intimate adaptation to the surgical site.

Establishing Vertical Dimension:



Controlling vertical dimension with a treatment partial

When extensive restorative work is being accomplished, the desired vertical dimension of occlusion can be established with a temporary prosthesis. As restorations are finished and cemented into place, segments can be eliminated from the treatment prosthesis on a tooth-by-tooth basis as they become superfluous.[3]

When the etiology of TMJ symptoms is suspected of having a basis in a decreased vertical dimension of occlusion, the level of the occlusion may be altered by attaching occlusal rims and acrylic resin overlays to a partial denture. The rims and overlays may be readily altered to increase or decrease the height of occlusion until clinical signs and subjective symptoms are eliminated.[3]

TREATMENT PROCEDURES:

1) After completing a thorough examination and determining your ideal treatment plan, it is important to take the time to talk with your patient. It is at this step that the patient's special needs e.g. financial, psychological, time constraints, etc. must be assessed.

2) All treatment (caries removal), that would prevent the delivery of an acceptable temporary partial should be done before taking the impressions needed for partial construction.

3) Take accurate alginate impressions of both arches. The impressions should be extended sufficiently to capture all supporting tissues. In the mandibular impression, the anatomy of the ridge lingual to the natural and missing teeth must be captured. In the maxillary impression, the impression tray must be altered to eliminate any excessive space between the tray and the hard palate. If this is not done, the impression material may sag resulting in a poorly fitting appliance.

4) The impressions should be poured immediately in a dense dental stone.

5) An accurate occlusal record should be taken to allow for the proper articulation of the casts.

6) Select a shade by matching the remaining teeth to any standard shade guide (Biotone type). The lab will pick the mold and size of the artificial teeth to be used by matching them to the remaining natural teeth on the master cast.

7) Determine the type of retention that will be necessary. Most patients can easily accommodate a partial denture that is retained by the adaptation of the denture base to the soft tissue. Slight interproximal undercuts can also add to the denture's retention. When this is not enough, retentive clasps may be used. The most common clasps for temporary partials are the ball clasp, "C" clasp, and the crozat clasp. All three are wrought wire clasps made out of orthodontic wire.

8) Make a detailed lab slip describing the type of partial you desire (see Lab Requirements). Sometimes a try-in for anterior esthetics is desired. Make sure you indicate on the prescription whether this stage is necessary.

9) At the delivery appointment, the tissue surface of the interim partial denture should be painted with pressure-indicating paste before attempting to place the denture in position. This will show any areas that may interfere with the denture being properly seated.

10) Carefully reshape these areas of interference. The goal is to get intimate contact between the denture base and the soft tissue without causing blanching or tissue ischemia.

11) The next step is to check the occlusion. The anterior teeth should be adjusted so only light contact is made in centric, lateral, and protrusive movements. The posterior occlusion desired is dependent upon the number of teeth involved, and the desired use of the partial. For example, when multiple posterior teeth are being replaced, normal occlusal contacts are usually necessary to provide the patient with a functional occlusion. On the other hand, when only a few posterior teeth are being replaced, light occlusal contact may be indicated.

12) The design for a transitional partial should be such that teeth may be added to the original framework – preventing the necessity of remaking the partial denture merely for the loss of a single tooth or several teeth.

13) Patients receiving transitional partial denture service should be seen on a regular recall system so that the remaining teeth can be closely monitored.

14) The clinical procedures for making a tissue treatment partial are basically the same as for the interim partial. The lab will leave space between the partial and the tissue for the treatment material.

15) When seating a treatment partial denture with treatment material, any plastic exposed through the material should be relieved and new material added. The best way to relieve the denture base is by coating the surface of the treatment material with liquid soap and cutting away the exposed plastic with acrylic burs. The liquid soap prevents the fragments of the denture base from attaching to the surface of the conditioning material. The soap and grindings are washed away and additional material is easily added to the relieved areas.

When the necessary adjustments have been made, the patient must be thoroughly counseled in the care of the temporary partial denture, remaining teeth, and soft tissues. Proper brushing techniques and the use of dental floss should be a routine part of the patient's home care before delivery of these appliances. No useful purpose is served when a removable partial denture is placed in an unclean mouth. This will only hasten the inevitable destruction of the remaining teeth and soft tissues.

APPLIANCE CARE:

1) Make clear to the patient that a partial denture – as well as the remaining natural teeth – can become a target for plaque accumulation. The use of disclosing tablets is an excellent way to show your patients the areas that are susceptible to accumulation of plaque and debris.[2]

2) Brushes that partial denture patients use routinely are: a regular tooth brush, a clasp brush, and a denture brush.

3) Material chosen as a cleaning agent is not as important as the physical act of brushing. A dental appliance cleaner can be used. Avoid abrasive scouring powders.

4) When brushing the appliance, the patient should be instructed to hold one side of the denture with his or her fingers while brushing the opposite side. Holding the denture completely in the patient's palm could cause the denture to break across the midline.

5) We recommend that the patient be instructed to brush the partial over a basin that is partially filled with water so that if the denture is dropped, little harm will be done to it.

LAB REQUIREMENTS:

1) an excellent set of stone casts.

2) an accurate inter-occlusal record to allow us to properly articulate the casts.

3) completed lab instruction sheet which should include the following:

a) tooth shade.

b) the type of retention desired.

c) a description of how teeth are to be set (abutted against the ridge, with or without a labial flange, overlapping of teeth, diastema, etc.)

d) the type of teeth. We recommend plastic teeth as they can be easily adjusted and reshaped.

e) the outline of the denture base and its extensions should be drawn and described.

f) indicate the need for an anterior try-in on the Rx.

Make sure you indicate the proposed purpose for the temporary denture. For example, when the lab is making a tissue treatment partial, we need to create the space necessary to hold the tissue conditioning material.

CONTRA INDICATIONS AND CONCERNS

A temporarily removable partial denture must never be unilateral. A unilateral partial denture offers a definite hazard – not only because the patient may swallow or aspirate the prosthesis, but because the denture fails to distribute forces over a sufficient area of the soft tissue and remaining teeth to prevent damage to these structures.[3]

When using clasps for retention, care should be taken not to interfere with the patients normal occlusal pattern. Occlusal interferences will usually cause the patient not to wear the appliance.[4]

Rapid resorption of the alveolar bone can take place if occlusal overloading is present. Occlusal rests can be incorporated and will provide sufficient resistance to vertical displacement of the prosthesis during function to protect the gingival tissue and alveolar bone from excessive trauma.

Ideally, interim and transitional dentures should not be worn during sleep. Soft tissue needs time to recover to its normal healthy architecture. Those patients that insist on wearing their prosthesis while they sleep should leave their partial out for several hours during the day.

Generally the younger patient is even more susceptible to caries when wearing a removable restoration. Adequate prophylactic measures e.g. fluoride treatments to prevent decalcification and caries in the teeth contacted must be taken.

It is especially important to align the midline formed by the central incisors. Deviation will result in an artificial appearance.

Every attempt should be made to achieve the best anterior esthetics possible. For example, if excess space exists, creating a slight diastema is more natural than adding an extra tooth. Where there is a lack of space, slight overlapping is preferred.

SUPPLY LIST

- ☐ Alginate
- ☐ Mixing Bowl and Spatula
- ☐ Impression Trays
- ☐ Dental Stone
- ☐ Vibrator/Model Trimmer
- ☐ Bite Registration Material
- ☐ Articulating Paper
- ☐ Pressure-Indicating Paste
- ☐ Acrylic Burs
- ☐ Biotone Shade Guide
- ☐ 139 Bird Beak Pliers
- ☐ OAP Cleaner

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