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Simplified complete dentures

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Complete dentures are as much a part of clinical dentistry today as they were 50 or 100 years ago. Although it is true that the relative percentage of edentulous patients decreased markedly during the later part of the twentieth century, the absolute number of edentulous patients has remained the same or possibly even increased because a higher proportion of the population is over 65 years of age now than at any time in recorded history. Increased lifespan and the aging of the population assures that the average general dental practice will see an increasingly aged patient pool over the next 30 to 40 years. Because tooth loss tends to increase with advancing age, the need for complete dentures should be relatively constant during this timeframe. The practitioner must be able to treat the completely edentulous patient and to offer high-quality complete denture service. This article describes a fabrication technique for a complete denture that is an abbreviation of the technique traditionally taught in dental schools but that should, if carefully followed, yield an acceptable complete denture service for the straightforward edentulous patient. It also attempts to provide the clinician with guidelines that will identify patients who may require a more complex treatment regimen. Referral to a prosthodontist may be indicated for these cases.

Diagnosis and treatment planning

It is necessary to perform a comprehensive examination of every potential denture patient. Many unsuccessful dentures are the result of the dentist's failure to identify potential problems before beginning therapy. A thorough examination must be conducted in an organized fashion to avoid

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overlooking possible health, emotional, or anatomic issues that may compromise the final treatment outcome.

Medical history

Common sense dictates that a healthy denture patient has a better chance for success than one with significant medical issues. Unfortunately, a substantial percentage of persons wearing complete dentures have complicated medical histories. Many elderly patients take multiple medications, and many of these drugs can cause xerostomia. Any pharmaceutical or physiologic factors that decrease salivary flow will negatively affect the patient's ability to tolerate complete dentures. Patients with uncontrolled diabetes, nutritional deficiencies, or other debilitating diseases may present with mucosa that are not ideal for supporting dentures. These patients may be more prone to sore spots resulting from the fragile quality of the mucosa, and they may also suffer from delayed wound healing. Factors that affect neuromuscular control, such as history of a stroke or Parkinson's disease, may compromise the patient's ability to control the dentures intraorally and maintain adequate oral hygiene. A complete understanding of the patient's medical history facilitates a realistic prognosis that allows the dentist and patient to work together toward a common goal.

Dental history

Understanding the patient's previous dental experience is as critical to the success of complete denture treatment as a complete review of the patient's medical history. Certain basic areas must be explored for all patients. Some fundamental questions that should be asked are

1. What led to your tooth loss?
2. How long have you worn dentures?
3. How many dentures have you had made/worn?
4. What problems have you had with your previous dentures?
5. What would you like corrected in your new dentures?
6. What do you like about your current dentures?

If the patient has had several sets of dentures made in the past year or so, the dentist should proceed cautiously. It is likely that the patient will be extremely difficult to satisfy. The last prosthesis made should be carefully evaluated to determine if the patient's criticisms can be correlated to inadequacies in the prosthesis. Often this evaluation reveals the nature of the patient's problem. It is wise to record the patient's comments to prevent duplicating the same errors in the new dentures to be constructed. If the patient's complaints seem to be substantially exaggerated or to have no basis whatsoever, the dentist should proceed with caution. Unless the dentist and patient can agree on realistic expectations for the new dentures, it would be

unwise to begin treatment. In some instances, the patient may need to be referred for counseling.

Extraoral examination

The temporomandibular joint should be palpated, and the range of mandibular movement should be evaluated. Limitations in opening may compromise the construction of the complete dentures and create difficulties for the patient on insertion and removal of the prostheses. Facial asymmetry may be a result of a stroke or other neurologic disorders. The cause should have been revealed during the review of the medical history. The severity of the asymmetry may directly affect the patient's ability to tolerate and manipulate the new dentures. Asymmetry also may complicate the esthetic results achieved. This possibility should be pointed out to the patient early in treatment.

The dentist should be diligent in examining the patient for possible skin lesions. Many patients see their dentist more frequently than their physician. It is critical to screen patients for lesions both intraorally and extraorally that might otherwise be missed.

The patient's appearance and demeanor should be observed as part of the extraoral examination. Several decades ago, House developed a classification system based on patient personality and attitude toward treatment. Although without scientific basis, this system provides insight into approaching different patient types. He classified patients as philosophic, indifferent, exacting, or hysterical. The philosophic patient is the ideal patient who approaches treatment with a desire for success and confidence in the dentist. The remaining patient types are aptly described by their one-word appellations and present a greater challenge for achieving a successful end point.

Intraoral examination

The entire oral cavity must be examined using a mouth mirror and digital palpation. The dentist should follow a definite sequence, starting in one place and finishing in another so that no area will escape attention.

The contours of the residual ridges should be evaluated with regard to shape, height, and possible areas that may require modification. Ideal ridges are rounded and without undercuts. Sharp, boney prominences, tori, and large or undercut tuberosities generally require removal before fabrication of dentures. If the patient is recently edentulous, the dentist should verify that there will be sufficient interarch space to allow for denture bases and teeth. High muscle attachments, significant ridge resorption, and knife-edge residual ridges can compromise the outcome.

Mucosa that is hyperplastic or erythematous should be addressed before the fabrication of new dentures. All soft tissues should be thoroughly evaluated to rule out the presence of oral cancer. The quantity and quality

of the saliva is critical to the success of new dentures. Minimal saliva or thick, ropey saliva creates an environment that is unfavorable for retention of the dentures and for patient comfort.

Evaluation of current dentures

The dentures the patient is currently wearing should be carefully evaluated as to occlusion, border extension, retention, speech, and esthetics. The dentist should attempt to correlate the patient's complaints about the dentures with the dentist's clinical findings. If the dentist finds a direct relationship, it is likely that improvements can be made in the new dentures. On the other hand, a lack of correlation between the patient's complaints and the dentist's clinical examination should raise serious doubts concerning the potential successful outcome and management of the patient.

To treat or not to treat

Once the patient's history has been reviewed and a thorough examination of the patient has been completed, the dentist must decide whether it is more appropriate to treat the patient or to refer the patient to a specialist. The American College of Prosthodontists (ACP) has developed a classification system for complete edentulism that can assist the dentist in this decision [1]. This classification system allows objective evaluation of the patient. Four physical categories are examined: (1) mandibular bone height; (2) jaw relationship; (3) maxillary residual ridge morphology; and (4) muscle attachments. Patients are classified on a scale of I to IV, with class IV being the most debilitated edentulous condition (Fig. 1). Class I patients present with favorable residual bone height in the mandible, a class I jaw relationship, favorable maxillary residual ridge morphology to provide adequate stability, support, and retention, and muscle attachment levels that will not interfere with the fabrication of a successful denture. The patient's physical and emotional health is also favorable, and a positive prognosis for treatment is likely in this classification. According to the ACP classification system

> Class II patients present with the noted continuation of the physical degradation of the dental supporting anatomy and in addition [are] characterized with the early onset of systemic disease interactions and patient management/lifestyle considerations. Class III is characterized by the need for surgical revision of supporting structures to allow for adequate prosthodontic function. Additional factors play a significant role in treatment outcomes. The dentist should consider referring this patient to a prosthodontist. In the Class IV patient, surgical reconstruction is almost always indicated but cannot always be accomplished due to the patient's health, desires, past dental history and financial considerations. When surgical revision is not selected, prosthodontic techniques of a specialized nature must be used to achieve an adequate treatment outcome. The dentist should consider referring this patient to a prosthodontist.

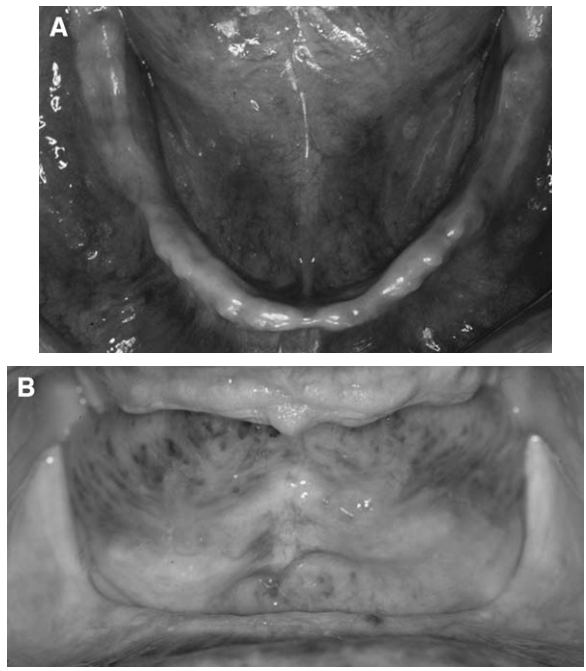

Fig. 1. The American College of Prosthodontists has developed a useful tool for classifying the edentulous patient from straightforward (I) to complex (IV). (*A*) This edentulous mandible with low muscle attachments and good alveolar ridge height would be a class I. (*B*) Minimal residual ridge height places this patient in the more difficult category of III or IV.

Treatment

Modification of existing dentures

Once the decision to progress with treatment has been made, it is critical to have the denture-supporting tissues in optimal health. The presence of inflammatory papillary hyperplasia, epulis fissuratum, or other hyperplastic tissue responses should be addressed by eliminating the etiologic factors, instituting antifungal therapy where applicable, and improving the fit of the denture with a tissue conditioner.

Many patients present with a loss of vertical dimension caused by alveolar ridge resorption. These patients also may have significant wear of the existing denture teeth, which compounds the loss of vertical dimension. The addition of a soft liner on the intaglio surface of the existing dentures and acrylic resin to the occlusal surfaces of the denture teeth can improve the fit and comfort for the patient while the new dentures are being fabricated. Additionally, these modifications can be used to guide the established vertical dimension of occlusion for the new prostheses. It is essential to obtain written permission from the patient before making any

changes to the patient's current dentures. If the dentist and patient do not agree on the goals of modifying the patient's existing dentures, a difficult patient may claim that the dentist has ruined the dentures and demand some form of financial compensation.

Impressions and record bases

The traditional technique for making impressions for complete dentures requires a preliminary impression that is typically made with either alginate or compound. A custom tray is fabricated on the cast generated by the preliminary impression. The custom tray is border molded, and a final impression is made with polysulfide, polyvinyl siloxane, or polyether impression material. Record bases, made of either light- polymerized or autopolymerizing (cold-cure) acrylic resin, are then fabricated on the master cast.

An alternative to this traditional technique is to fabricate heat-processed acrylic resin denture bases directly on casts obtained from alginate impressions made in stock trays [2]. This technique requires a high-quality alginate impression that records all critical anatomic landmarks. In the maxilla, the impression must capture the hamular notches, the foveae palatinae, all frena, and vestibular areas. In the mandible, the impression must capture the entire retromolar pad, all frena, and vestibular areas. Significant voids or tray show through are unacceptable.

Tray selection is one of the critical factors in the success of this technique. Stock edentulous metal trays frequently provide an acceptable impression. When metal trays do not fit or are unavailable, plastic stock trays can be easily modified to fit almost any edentulous patient. Typically, the flanges on plastic stock trays need to be ground down so that the flanges will not show through the alginate impression. It is wise to place a band of rope wax on any adjusted border to cover any sharp edges that may result from trimming. Plastic trays may also be heated with a controlled flame and bent or molded to fit unusual patient anatomy. Tray adhesive must be placed on all plastic trays and allowed to dry to prevent pullaway and distortion of the alginate. The Accu-Dent system (Ivoclar-Vivadent, Amherst, New York) of denture impression trays and alginate materials is an excellent alternative to standard stock trays and may be considered for the practice with a relatively high volume of denture patients.

Regular or fast-set alginate may be used to make the impression. Regardless of alginate type, the mix must be smooth, incorporating all powder. There is no need to alter powder/water ratios for this technique. Once the material has been mixed, approximately one-third of a 60-cc syringe should be filled as well as the selected tray. The material in the syringe is injected into the vestibule starting at one hamular notch and progressing to the midline; then the other side is syringed. It often is helpful to syringe a small amount of material into the depth of the palatal vault to

avoid trapping air this area. Immediately after the material is syringed, the tray should be fully seated. A delay between syringing the alginate and delivering the tray to the mouth results in different setting times in the two areas, creating an unacceptable impression.

After the impression has been removed from the patient's mouth and is determined to be acceptable, it should be disinfected. Immediately after disinfection, the impression should be poured. Wrapping the impression and sending it to an outside laboratory is unacceptable. Alginate will not remain dimensionally accurate beyond the disinfection timeframe of approximately 12 minutes. The master cast must be free of voids and preserve all the anatomy captured in the alginate impression (Figs. 2 and 3).

The master cast is sent to laboratory for fabrication of record bases and occlusion rims. The dentist determines the border extensions for the denture bases and marks them on the master cast (Fig. 4). The borders are determined by visualizing the point where the alveolar process begins to turn into vestibule—where horizontal meets vertical. The posterior extension of the denture is arbitrarily marked at the fovea palatinae and extends bilaterally through the hamular notches. The posterior palatal seal is carved into the cast with its deepest aspect most posteriorly. The shape should resemble a Cupid's bow (Fig. 5). When outlining the extent of the posterior palatal seal, it is better to make it too large rather than too small. If the posterior border of the denture must be shortened, a narrow posterior palatal seal will be lost during adjusting. A wider posterior palatal seal will ensure contact.

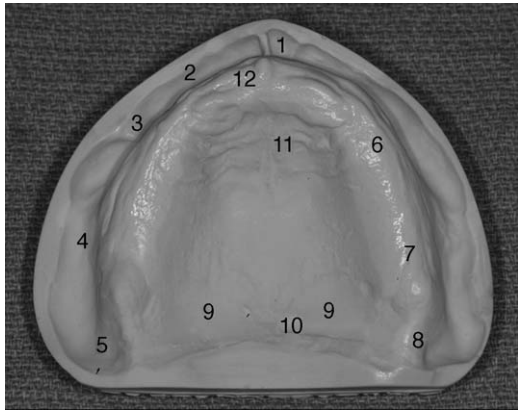

Fig. 2. An ideal maxillary edentulous cast. The following landmarks must be recorded accurately: (1) labial frenum; (2) labial vestibule; (3) buccal frena; (4) buccal vestibule; (5) coronoid contour area; (6) residual alveolar ridge; (7) posterior tuberosity; (8) hamular notch (bilaterally); (9) posterior palatal seal area; (10) foveae palatinae; (11) rugae; and (12) incisive papilla.

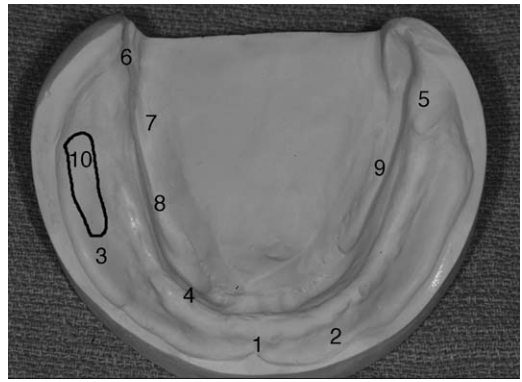

Fig. 3. An ideal mandibular edentulous cast. The following landmarks must be recorded accurately: (1) labial frenum; (2); labial vestibule; (3) buccal vestibule; (4) residual alveolar ridge; (5) retromolar pad (bilaterally); (6) pterygomandibular notch; (7) retromylohyoid area; (8) mylohyoid area; (9) lingual vestibule; and (10) buccal shelf area.

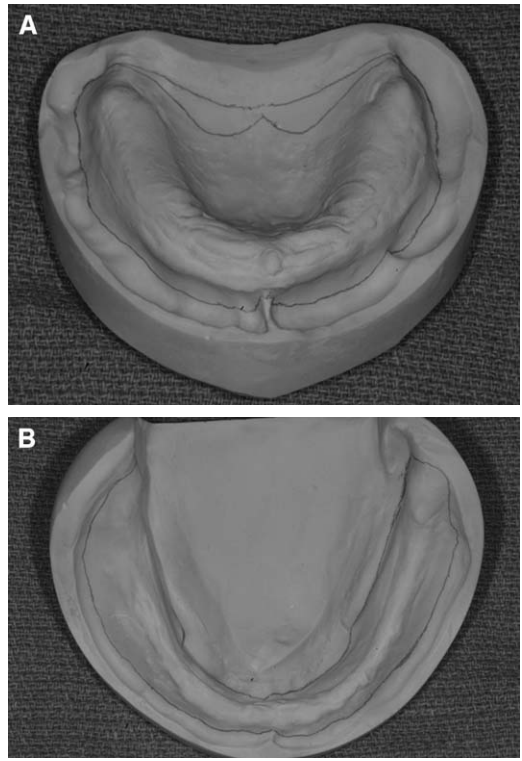

Fig. 4. Lines are drawn on the maxillary (*A*) and mandibular (*B*) casts to delineate the final denture base extensions. The location of the line is at the mucobuccal fold or where horizontal meets vertical. The bases are made to adapt closely to the frena, and necessary adjustments are made chair side.

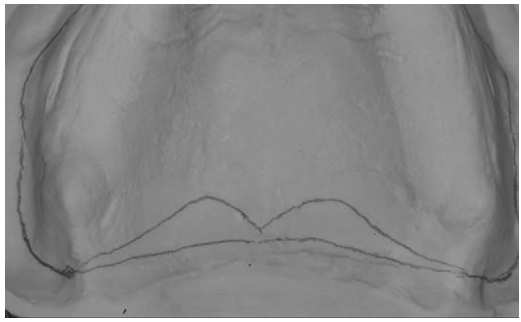

Fig. 5. The posterior palatal seal area should be a Cupid's-bow shape. The size varies according to patient anatomy.

Another technique for making the final impression is to use a duplicate of the patient's previous denture as a custom impression tray. Frequently the patient's existing dentures are reasonably adequate in border extension, and this information can be used to the clinician's advantage. Duplicating the existing dentures in autopolymerizing resin will yield accurate, appropriately extended final impression trays. The duplication of the dentures is done quickly with an alginate duplication flask. This process takes less than 5 minutes from the time the denture is taken to the laboratory and an alginate mold is made of the denture. The denture can then be returned to the patient, and the mold can be filled with resin by the assistant or technician. The trays are adjusted to remove any internal undercuts and are then ready for use at the next visit. A light body-impression material such as light polysulfide (rubber base) should be used for this technique, because the space inside the tray for impression material is minimal.

Record bases may be fabricated from autopolymerizing acrylic resin, or they may be heat processed and used as the final denture bases. Processed denture bases allow assessment of the fit of the final dentures at the jaw relationship record appointment. If the denture bases are found to be less than ideal, plans can be made to reline the denture at the delivery stage. Typically, however, the processed denture bases provide a stable fit and allow more reliable jaw relationship records. If processed denture bases are requested from the laboratory, the dentist should also request mounting casts because the master casts will have been destroyed during breakout of the bases. Processed bases should have a thickness of approximately two thicknesses of baseplate wax (3 mm), and the borders should maintain that thickness after processing. Overly thinned borders are a frequent cause of loss of retention of the denture base.

Occasionally, there may be an indication for autopolymerizing acrylic resin record bases. If the patient is only recently edentulous, it is possible that little bone resorption has occurred. In these circumstances, there will be little room to set denture teeth. Processed bases can be ground, but they cannot be perforated because the master cast is no longer available for final

processing. Autopolymerizing record bases can be ground through to provide maximum flexibility for setting teeth. These record bases can be perforated because they will be replaced by new base material when the dentures are processed.

Although the use of light-polymerized record-base materials eliminates the use of free acrylic resin monomer, it has several disadvantages over traditional autopolymerizing acrylic resin. The material is brittle and is prone to fracture. It frequently pulls away from the palate during polymerization, creating a record base with poor stability and retention. Grinding it creates debris that is difficult to clean from the operatory and the record base itself. The photocured bisphenal A glycidyl methacrylate materials also tend to be hydrophobic, further compromising their usefulness in removable prosthodontics. For these and other reasons, the authors prefer bases fabricated from either heat-polymerized or autopolymerized acrylic resin.

Jaw relationship records

If a final alginate impression technique has been used, the second visit is for recording jaw relationships and tooth selection. The first step is to evaluate retention and stability of the processed bases, which is done with a pressure-disclosing paste. Tissue adaptation and border extensions should be evaluated and adjusted to provide the dentist with an early determination of the stability and retention of the final dentures. If retention or stability is found to be lacking, plans can be made to include a laboratory relining as part of delivery.

Once the denture bases have been adjusted, jaw relationships can be recorded. If the patient has existing dentures, these should be used as a guide as to what should be duplicated and what should be altered. Esthetics and vertical dimension of occlusion, when acceptable in previous dentures, can be used as a guide for measurements in the new dentures. The wax rim of the maxillary denture base can be adjusted to resemble the labial contour and incisal length of the existing denture before it is even tried in the patient's mouth.

An arbitrary facebow, although possibly intimidating in dental school, is a labor-saving device for mounting the maxillary cast on the articulator. More important, any changes in vertical dimension of occlusion can be accomplished by adjusting the pin height on a semiadjustable articulator and resetting the teeth (provided the casts have been mounted with an accurate centric relation record). Accurate changes in the vertical dimension cannot be made on a simple hinge articulator. Tooth selection is easiest when the patient has dentures that are esthetically satisfactory, because the dentist can simply match what the patient presents with (Fig. 6). Preextraction records, such as diagnostic casts, can be used to assist in tooth selection and positioning. Photographs of the patient with natural teeth are also helpful when no other information is available. Although posterior

Fig. 6. Whenever possible, the patient's existing denture should be used as a guide for selecting teeth for the new denture.

tooth selection seems less critical, cusped teeth provide a more natural appearance in the finished denture.

Esthetic try-in

The esthetic try-in appointment should be approached in the same stepwise fashion as jaw relationship records. It is clearly the most important appointment in the treatment sequence and should never be relegated to auxiliary staff. A general sense of the esthetics and appropriateness of the teeth selected should be briefly evaluated. The shape, shade, and tooth position should harmonize with the sex and age of the patient. If the teeth do not esthetically fit the patient, an additional try-in appointment will be needed, but the dentist should still complete the initial esthetic try-in to evaluate the overall setup. Avoid letting the patient see the trial dentures until the clinician is satisfied that the setup is correct mechanically and the only thing remaining to do is to gain patient approval of the size, shape, and arrangement of the denture teeth.

Next, lip support and incisal edge position are evaluated for both esthetics and phonetics. The amount of tooth exposed with the lip at rest and when the patient is smiling should include consideration of maxillary and mandibular anterior teeth through the first premolar. When the patient is speaking, teeth in both arches are usually visible. The incisal edges of the maxillary anterior teeth should make a definite contact a few millimeters inside the lower lip, at the wet-dry line, when the patient is pronouncing the "F" and "V" sounds. This line provides a guide for both labio-lingual and inciso-gingival positioning of the maxillary incisors. If the sound is not natural and a "V" is pronounced more as a "P", the maxillary incisors are probably set incorrectly and need to be intruded. When evaluating the mandibular anteriors, the incisal edges should be slightly lingual to the maxillary incisal

edges. Approximately a 1-mm space should be present in a normal mandibular relation when the patient is pronouncing the letter "S".

A final assessment of esthetics is not done until the vertical dimension of occlusion and centric relation have been verified. If either is incorrect, the posterior teeth must be reset. This resetting may effect the evaluation of speech and may influence the amount of overlap between the maxillary and mandibular anterior teeth. It is important, however, to begin with a general assessment of esthetics before proceeding to evaluate and modify the posterior tooth arrangement.

After evaluating the anterior teeth, the vertical dimension of occlusion and centric relation must be verified. It is imperative that the vertical dimension be evaluated first, so that any desired change can be incorporated if a new centric relation record requires that the mandibular cast be remounted.

Several methods are available for evaluating the vertical dimension. The dentist may begin with measurements to establish the vertical dimension of rest and then determine the vertical dimension of occlusion as 2 to 4 mm less. At the esthetic try-in, however, it is important to observe and interact with the patient. If the patient seems to have difficulty closing his or her lips or trouble swallowing, the vertical dimension of occlusion may be too great. Speech is a useful method of evaluating the vertical dimension. There should be 1 mm of clearance between the denture teeth when the patient is pronouncing "S" and "CH" sounds. Having the patient read aloud or count are convenient ways to evaluate this closest speaking space. If the teeth contact during speech, it is likely that the vertical dimension of occlusion is too great or that tooth position is incorrect. To determine whether the tooth contact during speech is caused by excessive vertical dimension or improper tooth position, the dentist should evaluate the vertical dimension by another technique, such as measuring the vertical dimension of the rest position and comparing it to the vertical dimension of occlusion. Normally there is a 3- to 4-mm difference between rest and occlusal vertical dimensions.

Centric relation is verified after the vertical dimension of occlusion is evaluated. One of the least expensive materials available to record centric relation is Aluwax (Aluwax Dental Products, Grand Rapids, Michigan). Aluwax has the additional advantage that it has no setting time; thus, there is less opportunity for operator or patient-induced error while waiting for other materials to set. The technique is simple. The wax is warmed over a flame, and two thicknesses are placed over the mandibular posterior teeth bilaterally. The teeth must be completely dry, and the wax must be pressed firmly on to the teeth to prevent saliva from getting between the wax and the teeth and loosening the wax. The patient is manipulated into centric relation and guided to close just short of tooth-to-tooth contact. The wax is chilled in very cold water, and the dentures are repositioned on the mounting casts in the articulator.

The condyles on the articulator are locked, and the maxillary member of the articulator is closed until the maxillary teeth contact the wax. If the

maxillary teeth fit perfectly into the record, the centric relation is verified. If the centric relation is not correct, then it is re-recorded in the mouth and checked on the articulator as previously described. If the record still seems to be correct, the original centric relation registration or mounting can be considered faulty. In this case the mandibular cast must be remounted using the new record.

The necessity for an additional esthetic try-in appointment depends on the amount of corrections required and, quite frequently, on the patient's personality. Significant changes in tooth position that cannot be made chairside will require another visit. If the patient or dentist is dissatisfied with the shade or mold of the teeth, all the teeth must be reset, and both parties must agree that the change is satisfactory. When the vertical dimension of occlusion is off by more than 1.5 to 2 mm, the patient should be seen again to verify that the required change in vertical dimension has been achieved. A change in the midline may require a second esthetic try-in because all the teeth must be reset.

The dentist should be able to make minor changes in tooth position of the anterior teeth chairside. Doing so allows immediate input from the patient and precludes the need for another try-in appointment. Any additional factors that may enhance the esthetic qualities of the dentures should be considered and added at this time if the patient agrees. Diastemata may be used between the maxillary anteriors to develop an individual look for each tooth. Grinding the incisal edges of the maxillary and mandibular incisors can simulate attrition. The mandibular anterior teeth can be jumbled or crowded to create a more natural appearance.

Patients should view themselves in a large mirror from a distance of 4 to 5 feet. They should be allowed to evaluate themselves and their dentures at a normal speaking distance. Only dentists evaluate teeth from a distance of less than 1 foot! Looking in a small hand mirror can be misleading because the patient is not viewing himself or herself as others see him or her.

If the patient expresses any doubts regarding the arrangement of the teeth or has other concerns, a second try-in is indicated. Be certain, however, that the patient's concerns are realistic. A patient who requests teeth to be moved to eliminate wrinkles around the lips or to make the lips look fuller should be referred to a plastic surgeon. The patient should be encouraged to bring a family member or friend whose opinion may be critical to the patient's acceptance of the prostheses. Both the patient and the dentist must be certain that the dentures are acceptable both esthetically and mechanically before processing to avoid costly complications at the time of delivery.

Delivery

If all previous steps in the fabrication of the new dentures have been performed with attention to detail, the delivery visit should be quick and smooth. It should not, however, be relegated to the dental auxiliary. The

dentist must verify that the dentures are acceptable and that the patient is properly educated in their care and use. It is inappropriate that such a critical visit be handled by anyone other than the treating dentist.

When processed bases have been used, the delivery is generally straightforward. The fit of the bases was evaluated at the jaw relationship record appointment, so only minimal adjustments are typically required to the intaglio surface or border extensions. After the teeth are processed to the bases, the technician is able to reseat the completed dentures directly onto the mounting casts. This step allows the technician to adjust more accurately any occlusal discrepancies resulting from the dimensional change of acrylic resin during processing. A clinical remount is rarely needed to adjust the occlusion in dentures made with processed bases.

Instructions to patient

Anyone familiar with the physiology and biomechanics of oral anatomy and the masticatory apparatus must agree that it is one of the most complicated mechanisms in the human body. Unlike a patient who has lost a limb, the typical denture patient is lucky if he or she receives minimal instructions on how to function and care for the new prostheses. Providing the new denture patient with an informational booklet on what to expect with the new dentures and how to care for them is only part of the dentist's responsibility.

The dentist should explain that the patient might experience an increase in saliva flow, which is the body's reaction to something foreign in the mouth. This increase is only temporary and will probably return to normal within a week or two. The patient should be instructed to start with eating soft foods and taking small bites. Chewing should be done on both sides of the mouth, if possible, to aid in the stability of the dentures. Speech may be altered for a time. It often is helpful to have the patient read aloud from a book or the newspaper to practice with the new prostheses. The patient should know that sore spots are normal with new dentures, and adjustments will be needed.

The patient should be instructed on how to care for the new dentures as well as the tissues supporting them. Contrary to what previous generations of dentists told denture patients, it is beneficial to remove the dentures for extended periods. Ideally, the patient should not sleep with the dentures. If sleeping without the dentures is not possible, the patient should be told to remove the dentures for several hours each day to allow the tissues to recover. The patient should also be instructed either to brush the mucosa with a soft toothbrush or to use a washcloth. The dentures must be cleaned daily as well. A toothbrush with soap and water is ideal. Dentifrice should be avoided because of the abrasives it contains. They will wear the acrylic resin over time. Effervescent cleansers can be used if the patient desires, but they are not necessary. A solution of one part bleach to nine parts water is

ideal for disinfecting the patient's dentures, especially if the patient has had difficulties with candidal infection. Straight bleach should be avoided. If not thoroughly rinsed, a denture soaked in bleach may harm the mucosa. Additionally, if kept in bleach for prolonged periods, the denture base resin will lose its color over time.

Many patients may need or want to use denture adhesives. The patient should be shown the proper use of denture adhesives, emphasizing that the proper amount is the smallest amount that will provide the patient with a comfortable level of retention [3]. Pastes and powders work equally well, and the decision should be based on patient preference. Adhesive pads must be avoided because they can drastically alter the fit of the patient's dentures. Regardless of the adhesive used, it is important that the patient be diligent in keeping both the denture and soft tissues clean. Adhesives can be very tenacious, and if they are not completely removed from the denture and the mouth, they can harbor organisms harmful to the patient's oral health.

Recall appointments

The patient should be seen 24 hours after delivery of the dentures to address any difficulties or to answer any questions the patient may have. Recall appointments should also be scheduled 1 week and 1 month after delivery for the same purpose. Certainly, if the patient requires, additional adjustment visits may be needed. Once the patient is comfortable with the dentures, a yearly recall schedule is adequate for a completely edentulous patient.

It is good practice to establish the number of adjustment and recall visits that are considered part of complete denture treatment before start of fabrication. By establishing that limit at the start of treatment, later conflicts may be avoided. The demanding or lonely patient may request an inordinate number of adjustment visits. If a set number is established at the outset, the dentist may begin to charge for visits beyond that point if necessary.

Relinings

Relinings are indicated in dentures that do not fit the supporting tissues ideally. It is recognized that some dentures made using the technique described in the previous sections will require relining at delivery. This determination will be made during the jaw relationship records appointment when the processed bases are initially tried in and adjusted.

A functional impression is made with a soft tissue conditioner. The patient should wear the denture with the tissue conditioner for a minimum of 1 hour. Ideally, however, the patient should be sent home with the tissue conditioner in the denture for a 24-hour period. This longer period ensures a more accurate evaluation of the improved fit of the denture by the patient and dentist.

The denture is taken from the patient after the functional impression has been evaluated to determine that the borders are adequate and that the fit of

the denture has improved. The denture is then relined with either heat-polymerized acrylic resin or autopolymerizing resin. Autopolymerizing acrylic resin undergoes less dimensional change during processing than heat-polymerized acrylic resin. It also requires less processing time. Both of these features make it a more favorable material than with heat-polymerized acrylic resin. One disadvantage of pink autopolymerizing acrylic resin is its tendency to discolor overtime and turn orange. A solution to this problem is to use clear autopolymerizing resin. If clear acrylic resin is used, however, the dentist must evaluate the patient's smile line. The dentist must be certain that the junction between the original denture base material and the clear reline will not be revealed.

The relined denture is evaluated and adjusted in the same fashion as the traditional delivery appointment. A similar recall schedule also is recommended.

Summary

Complete denture fabrication can be an enjoyable and profitable facet of a dental practice. The key to success is a thorough diagnosis, understanding the patient's desires and expectations, and following a standardized sequence of treatment. This article describes a modified complete denture technique designed to minimize chair time but maintain sound principles of denture construction.

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