Relining a complete denture is often mistakenly assumed to be a simple procedure; however, problems such as incorrect vertical dimension of occlusion and errors in centric occlusion can occur when the procedure is poorly performed. By definition, relining is resurfacing the intaglio surface of a complete denture with new material. This procedure is indicated after ridge resorption, abrasion, or over-adjustment of the intaglio surface of the denture base, or after a recent extraction. Before relining a denture, the clinician should verify whether the jaw relationship, vertical dimension of occlusion, and esthetics are acceptable on the existing dentures. If not, remaking the dentures should be the treatment option.

A denture can be relined with an open-mouth or closed-mouth technique. Many clinicians prefer the closed-mouth technique to minimize the change in occlusal relationship. Both techniques emphasize the importance of removing the undercut and relief on the intaglio surface of the denture to provide a space for the impression material. Some clinicians suggest creating holes on the palatal area or removing part of the palatal portion of the denture to improve the seating of the denture during impression, especially on the maxillary denture. To improve the border seal of the dentures, the extension of the flange may be reduced and remolded with different materials. To avoid displacement of the denture, different low viscosity impression materials have been suggested. Even by using the above techniques to minimize the change in the vertical dimension of occlusion or the displacement of the denture during the relining impression, a relined denture may still be displaced. This article presents a patient whose maxillary denture was relined previously, but the position was altered after the relining. The diagnosis and procedures for correcting the displaced denture are also presented.

ABSTRACT

The position of a complete denture may change after relining, especially in the maxillary arch. This report reviews relining techniques and presents a situation with anterior displacement after the relining of a maxillary complete denture. Instead of providing a new denture, the displaced denture was repaired and the original tooth arrangement maintained. (J Prosthet Dent 2015;114:13-16)
metal housings. He returned to the clinic every 6 months after the delivery of the dentures. Eighteen months after the delivery of the dentures, he started to feel loosening in both dentures. The blue inserts of the attachments were replaced, and the maxillary denture was relined with the closed-mouth impression technique and polyvinyl siloxane (PVS) impression material (Aquasil Ultra Monophase; Dentsply Caulk). The impression material was replaced with heat-polymerizing acrylic resin (Lucitone 199 Denture Resin; Dentsply Intl). He returned for a follow-up visit the next day.

Six months after the delivery of the relined denture, he came to the clinic for the follow-up appointment with the previously mentioned chief complaints. An intraoral examination revealed a significant horizontal overlap on the anterior teeth (Fig. 3). He stated that after the delivery of the relined denture, he felt the denture to be bulky and that the thickness on the border had been trimmed at the 24-hour follow-up appointment. He expected the bulky feeling would gradually go away; however, he still felt the border was too thick at the 6-month follow-up appointment. The vertical dimension of occlusion was acceptable as verified with the phonetics and physiologic rest position techniques. The diagnosis was anterior displacement of the maxillary denture after relining.

Because the patient was satisfied with the size and tooth arrangement before the relining, the treatment plan was to reposition the teeth to the original positions and to perform occlusal adjustment. A centric relation (CR) occlusal record was made with PVS material (Regisil PB; Dentsply Caulk). The undercut on the intaglio surface was relieved, and the border of the denture was reduced by 2 mm. Border molding procedures were performed with green modeling plastic impression compound. Two holes were created at the middle anterior palatal part of the denture. The relining impression was made with low-viscosity PVS impression material (Aquasil Ultra LV; Dentsply Caulk) and the closed-mouth technique with an occlusal record (Fig. 4). The vibrating line was marked at the junction of the movable and immovable soft palate and transferred to the impression. The midline of the face was marked on the mandibular denture.

The maxillary denture with the impression was boxed and poured with a Type 3 dental stone (Microstone; Whip Mix Corp). After the stone had set, the maxillary denture with the stone cast was mounted in a
A semiadjustable articulator (Hanau Wide-Vue; Whip Mix Corp) with a facebow transfer (Spring-Bow; Whip Mix Corp). A remount cast was fabricated for the mandibular denture, and this denture was oriented to the maxillary denture with the CR record. The maxillary denture was removed from the stone cast, and the postpalatal seal area was carved in the cast according to the vibrating line transferred from the impression.

The impression material and modeling plastic impression compound were removed from the denture. The denture teeth with acrylic resin were cut from the denture. The teeth block was centered with the midline mark and oriented to the mandibular denture to a maximum intercuspation position and secured with sticky wax. The horizontal overlap for the anterior teeth decreased from 4.5 mm to 2 mm. An index was fabricated with PVS putty (Splash; DenMat Holdings, LLC) on the facial and buccal surfaces of the denture teeth. The intaglio surface of the teeth block was adjusted until there was no contact between the stone cast and acrylic resin when the upper member of the articulator closed.

Two layers of baseplate wax were added to cover the stone cast and to connect the teeth block. The thickness of wax was measured with a periodontal probe to avoid a bulky denture base. The denture was processed with the conventional technique. At the delivery appointment, the intaglio surfaces were evaluated by a pressure-indicating paste (Pressure Indicating Paste (PIP); Keystone Industries), and the dentures were remounted with a new CR record for occlusal adjustment. The patient returned to the clinic for a 24-hour follow-up, and no sore spot was noticed. At the 6-month follow-up, he was satisfied with the retention and comfort of the maxillary and mandibular dentures.

**DISCUSSION**

The fit of a denture decreases with use because of ridge resorption or the wear of the acrylic resin base by daily brushing. However, no guidelines exist to assist clinicians in determining when a denture should be relined. Patients may not be aware of the change and have no regular postdelivery appointments with clinicians until improved retention is needed. In this report, the patient returned to the clinic for regular follow-up appointments every 6 months, and the relining request was initiated by...
the patient 2 years after the delivery because of the lack of retention on the maxillary arch.

When a displaced relined denture is identified, a clinician may either remake or repair the denture. Remaking a denture usually requires more appointments and additional costs. Using this presented technique will decrease the number of appointments. Although the intaglio surface of a denture is relieved before making the relining impression, the amount of relief is an estimate and will be uneven in different locations. The denture may be seated at an unstable position if the intaglio surface is relieved aggressively. When the denture is loaded with an impression material, even with a low viscosity one, the material still may push the denture away from the original position. The displacement may be more significant when a soft liner type of material is used because of the viscosity of liner material.

The denture is easily displaced forward, and the vertical dimension of occlusion is increased if too much material is used. Using an occlusal record may not ensure the original position because the mandible could move to a different position to fit the record. Removing the palatal portion of a denture will minimize the hydraulic pressure from the impression material but will also decrease the stability of the denture during the impression procedure and create another challenge to record the palatal area accurately through the impression. In this report, only holes were created on the palatal area to prevent voids on the impression. Because the denture was displaced forward, the border of the denture was no longer accurately adapted to the range of muscle movements. The border extension was reduced and remolded with modeling plastic impression compound. When making the impression, the denture was seated in the anterior part of the ridge first and the posterior part rotated up to the ridge to avoid displacement from the undercut of the anterior ridge. To evaluate whether the denture has been displaced anteriorly, a clinician can measure the distance between the center of incisive papilla to the anterior teeth with a Boley gauge or an Alma gauge (Dentsply Intl) before and after the relining impression. In addition, the thickness of impression material at the distal buccal corner should be similar to the dimension of the molded modeling plastic impression compound. If the polymerized impression material on this area becomes thinner than the dimension of modeling plastic impression compound, or becomes unsupported from the modeling plastic impression compound, the denture was not seated to the position where the border molding procedure was performed and the impression will not be accurate.

If cusped denture teeth are used, the 2 opposing dentures may be oriented with the existing cusp-to-fossa relationship without an occlusal record. For nonanatomic teeth, the dentures should be placed according to the horizontal relationship of the posterior teeth to avoid the cheek-biting problem. The thickness of the baseplate wax has to be measured with a sharp instrument or a periodontal probe to ensure the ideal thickness of the denture base. In this report, the maxillary denture was placed according to the cusp-fossa relationship and the midline mark on the mandibular denture. A relined denture must be mounted on an articulator for occlusal equilibration because of the discrepancy of position. The limitation of this reported technique is that if the occlusal surfaces of the denture have been ground too aggressively after the initial relining, a new denture is indicated.

CONCLUSIONS

Relining impression may result in a displaced denture. If a displaced denture is identified, a clinician could use the presented technique to avoid remaking the denture.

REFERENCES


Corresponding author: Dr Yung-tsung Hsu
1919 7th Avenue South, Rm 534
Birmingham, AL 35294
Email: ythsu@uab.edu