CASE REPORT

Modified technique of soft liner application

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Professor Neeta Misra,
neeta4lko@gmail.com**SUMMARY**

Soft liners are materials that can be advocated successfully to manage clinical situations like atrophic edentulous ridges with flabby displaceable tissues and in cases of severely resorbed ridges which adversely affect the retention and stability of complete dentures and further enhance bone loss. Soft liner provides a cushioning effect and distributes uniform occlusal forces to compromised residual ridges. In this paper a modified technique of soft liner application in mandibular denture has been discussed.

BACKGROUND

One of the most difficult and unrewarding treatments in dentistry is said to be complete denture fabrication. Such a treatment becomes more difficult if the residual ridges are severely resorbed especially the mandibular one. Soft denture liners are applied for denture wearers who complain of masticatory pain because they cannot tolerate a hard-based denture due to a thin and non-resilient oral mucosa and/or severe alveolar resorption.¹ When functional forces are transmitted to the basal seat mucosa through a hard denture base during mastication, the thin oral mucosa is injured, which will cause sore spots, masticatory pain, further resorption of alveolar bone and so on. The soft liner material distributes and absorbs masticatory forces by means of the cushioning effect. Soft denture liners are not necessary for patients having resilient basal seat mucosa and sufficient residual ridges because they adjust well to wearing the dentures.

In a 6-year retrospective study, 93% of edentulous patients felt more comfortable when the denture was lined with a soft liner.² Clinical trial also demonstrated that the application of soft denture liners to mandibular complete dentures improved masticatory ability of edentulous patients and decreases problems affecting the alveolar ridge during the first adjustment.^{3 4}

The clinical effect of soft denture liners is considered to be influenced by their bond strength to denture bases, setting characteristics,⁵ water absorption, solubility,^{6 7} and especially viscoelastic properties and durability.^{8 9} Clinical success of the material depends both on their viscoelastic properties and on durability.

The autopolymerised silicone permanent soft liners are supplied in the form of a two-paste cartridge. These silicone products are based on a polyvinylsiloxane system and are similar to that used in additional silicone rubber impression materials.^{3 10} These materials do not produce by-products after setting and thus have a stable nature. Heat-polymerised silicone permanent soft liners are supplied as a one-paste system with a free radical initiator. This product

consists of a polydimethylsiloxane polymer with pendant or terminal vinyl group for cross-linking. The acrylic permanent soft liners demonstrate viscoelastic behaviour while silicone permanent soft liners demonstrate elastic behaviour.¹⁰ The improvement in masticatory function is greater in dentures lined with acrylic materials than in those lined with silicone products. However, the acrylic materials exhibit a more marked change in viscoelastic properties and loss of cushioning effect over time than silicones.¹¹⁻¹³

From the standpoint of durability, silicones are preferred.

CASE PRESENTATION

A 65-year-old patient presented to the Department of Prosthodontics of BBD College of Dental Sciences for replacing his previous dentures. The patient had been wearing his old denture for the last 2 years and had complaints of frequent ulcers in the mouth, along with unstable, loose lower denture. Upper arch of patient had firm resilient basal seat mucosa and sufficient well-round residual ridge; whereas lower arch was more resorbed and flabby. The patient was suggested for fabrication of a new set of complete dentures with a soft liner in the mandibular denture.

TREATMENT

In this modified technique of placing the soft liner, 2 mm space for the soft liner was created with the help of putty. The technique is as mentioned below:

1. After trying in visit flasking of trial dentures was done in Hanau flask.
2. After dewaxing, a 2 mm uniform layer of putty is prepared with the help of a glass slab and placed on the mandibular cast at the time of packing of acrylic dough (figure 1).

Figure 1 1Uniform 2 mm spacer of putty.

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Figure 2 Denture base resin is packed along with putty spacer.

3. Trial packing of high-impact denture base resin in flask with 2 mm silicone putty spacer was done (Figure 2). Dentures were heat cured as per the recommendations of the manufacturer.
4. After separating the flasks, the putty layer is removed from the mandibular denture, to create space for the soft tissue liner.
5. Separating media are applied on the mandibular cast and coated with bonding agent supplied with soft liner (UFI-Gel P, Voco—Germany) on the impression surface of the cured denture.
6. Soft liner components were mixed and placed on tissue surface of the mandibular denture where 2 mm space was created with putty (Figure 3).
7. The flask was closed after application of separating media on master cast for trial closure and packed for 24 h.
8. The denture was removed and the excess was cut with scissors and sharp scalpel and finishing was done with silicone finishing trimmer and discs.
9. At the time of insertion glazing was done at the junction of the denture and the soft liner for enhancing the bond between both.

Figure 3 Soft liner packed on tissue surface of lower denture.

OUTCOME AND FOLLOW-UP

Twenty-four hours postinsertion checkup and adjustments were performed. The patient was given instructions for proper maintenance of hygiene of dentures and recalled for postoperative adjustments every 6 months. Soft liners provide immediate relief and comfort and also enhance masticatory efficiency of the patient.

DISCUSSION

There are several methods for creating uniform space for a soft liner by removing approximately 2 mm of the denture base material after denture fabrication.¹¹ Baseplate wax may be used for spacer construction over the surface of the master cast which will provide adequate space for a soft liner.^{14 15} Many other lining materials are also available which enable the patient to attempt to improve the fitting of ill-fitting dentures or to provide a soft cushioning effect to the fitting surface but these are of short-term treatment options, long-term use of these products can lead to harmful effects on oral tissues.

Learning points

- The greatest virtue of soft liners lies in their versatility and ease of use.
- Their biggest flaw is that they are so easily misused.
- Soft liners provide immediate relief and comfort and also enhance masticatory efficiency of the patient.
- This modified technique of soft liner application offers a simple, easy and tidy laboratory procedure, which avoids the need for grinding of tissue surface of the denture, which is at times uneven.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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