Long-term silicone, direct soft linings

A report from Dr. Ulrich Eimer, Ettlingen, Germany

Introduction

Denture relining is one of the most common procedures in prosthodontics.

Severe atrophy of the jaw bone usually results in inadequate retention of the denture. Relining is indicated if the loss in vertical dimension does not exceed 2 mm and the abrasion on the artificial occlusal surfaces is not too severe. Otherwise, a new denture should be fabricated.

Recurring pressure spots and denture stomatitis can be treated very successfully with a soft lining. Up to 70 % of full denture patients suffer from stomatitis.

To produce a differential diagnosis, not only the substandard denture bases or incorrect vertical relation but also allergic reactions, candida or endogenic factors (diabetes mellitus, iron or vitamin deficiency) have to be taken into account.

The height of the alveolar ridge is reduced severely after extracting teeth. The mandible loses approximately 2 mm in 3 weeks, approximately 4 mm in 3 months and approximately 5 mm in 1 year. The mandible undergoes approximately double the atrophy experienced in the maxilla. Atrophy appears to slow down if a temporary restoration is worn.

Soft linings applied a few days after the operation, and again after 2 - 3 months, condition the mucous membranes and promote remodelling of the alveolar ridge to produce a healthy base for the denture.

Long-term soft linings tend to have a limited range of indications such as alveolar ridges which have undergone extreme atrophy. In the elderly, the alveolar processes shrink to such a degree that the pressure exerted by the denture base irritates (nervous tic) the mental nerve which exits the mental foramen and may cause trifacial neuralgia. Reducing the soft lining at this spot may obviate the need for an operation.

Applying soft linings directly in the dental practice

The problems encountered to date:
The temporary lining materials applied directly in dental practices always exhibited the same drawbacks – even linings applied to immediate dentures turned spongy after approximately 2 - 3 months, the shade faded and the material peeled off almost the entire base. The spongy surface was a perfect culture medium for bacteria – the patient suffered from bad breath and oral infections.

Some authors continue to quote the unpleasant taste and hardening effect as limiting factors in the range of indications for long-term soft linings. Difficult dispensing procedures, laborious mixing techniques and setting times which were difficult to control produced unsatisfactory results.

"A" silicones are easier to process and exhibit specific properties (e.g. do not irritate wounds) but have not been used for this indication so far.

Experience gained with MOLLOSIL plus

In April 1997, DETAX presented this new-type, "A" silicone, permanently soft liner.

I was provided with MOLLOSIL plus for testing – the drawbacks mentioned above appear to have been eliminated.

A permanently soft, silicone liner is especially indicated for remodelling the alveolar ridge to create a healthy base for the denture. To prevent the material flowing into the sockets during the first direct relining carried out a few days after the operation, the viscosity must not be too low. MOLLOSIL plus exhibits this property. Denture retention can also be enhanced by improving the functional periphery, sealing the palatal vibrating line or covering sharp bony ridges. A rough cortical layer also easily causes multiple pressure spots because loads are often exerted on specific spots. In such cases, a soft lining cushions and spreads the pressure.

Example of an indication

One of my female patients with a carcinoma of the floor of the mouth which has been treated with radiation therapy now suffers from xerostomia. She could not tolerate an acrylic denture base. Once the denture had been relined with MOLLOSIL plus, it no longer caused her problems. She was even able to dispense with artificial saliva.

An actual case

This is a female patient with a severely atrophied mandibular alveolar process. In the past, she complained of recurring pressure spots (Figure 1) and poor denture retention.

Figure 1

Procedure:

For materiological reasons, approximately 2 mm were trimmed off the underside of the denture (Figure 2).
Recent studies have indicated that a ledge (vestibular, lingual or dorsal) should be created as it facilitates trimming of the functional periphery (adhere closely to the instructions!).
The primer - which bonds the soft lining to the denture base acrylic - has been applied to the trimmed surface of the lower denture.

Figure 2

Approximately 2 minutes later, the MOLLOSIL plus should be extruded out of the double cartridge, applied to the denture base with a dispenser (Figure 4) and the denture fitted to the patient's mouth.If the occlusion is intact, I usually take a "closed-mouth" impression. It is convenient if the intercuspidation position coincides with an unforced retral contact position. Before the patient bites gently, his tongue has already begun with active myodynamic impression-taking. Once the patient has placed his teeth in contact, the impression is taken myodynamically (actively and passively) to reproduce the frenae and muscle attachments in the impression.
Whether the impression is taken with the mouth closed or open, not only depends on certain conditions, but also on the operator's specific preferences and experience. For example, the pressure can be checked if the impression is taken with the mouth open.
The material is in the mouth for 4 - 5 minutes while additional functional excursions are being carried out (Figure 5).
A scalpel and scissors are used to remove the bulk of the excess material (Figure 6).
The peripheries are then smoothed with the silicone trimmer supplied with the material (Figure 7).
The functional peripheries were then coated with MOLLOSIL plus glaze (allow to dry for 5 minutes).
The patient is very pleased with how the denture fits. No further pressure spots were observed during the ensuing period (Figure 8).

Figure 3

Figure 4

Figure 5

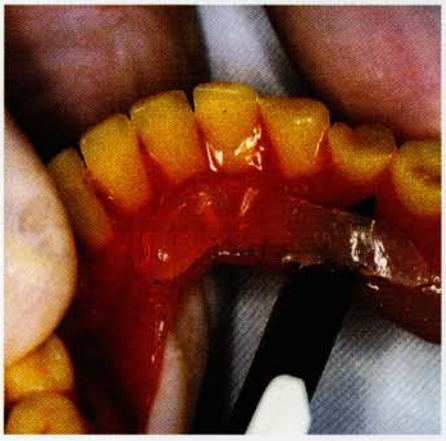

Figure 6

The indirect method

The reline should be invested in a two-part flask in the laboratory, the reline impression removed, a ledge created as described previously, the denture base conditioned with primer and the MOLLOSIL plus applied. Once the opposing section of the flask has been coated with separating agent, the flask should be closed and gentle pressure applied in a press for 30 minutes. The denture should then be trimmed as described previously and coated with glaze (Figure 9).

Figure 7

Figure 8

Conclusion

No incompatibility with the mucous membranes was observed during the observation period. The patients considered the dentures very comfortable and did not report adverse odours or tastes. The material is gingiva-coloured and no changes in the colour were observed.
Both the patient and dentist are pleased with the homogeneous and smooth soft lining.
I would like to express my thanks to Schelling Dentaltechnik, Ettlingen, Germany for completing the relining procedures in the laboratory.

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