

**SAVING ONE IS BETTER THAN NONE- TECHNIQUE FOR CU-SIL LIKE DENTURE-
A CASE REPORT**¹Meenakshi Khandelwal
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² Senior Lecturer^{1,2}Department of Prosthodontics, Darshan Dental College and Hospital, Udaipur, Rajasthan, India**ABSTRACT**

The prime focus of present day Dentistry is on preservation of teeth, thereby preserving alveolar ridge integrity and proprioceptive ability of periodontium. It also has positive psychologic effect on patient. Transitional dentures serve as one of the treatment option for patients presenting with very few remaining teeth, in compromised condition. A relatively newer type of transitional dentures is Cu-Sil dentures. A Cu-Sil denture is essentially a complete denture with holes lined with a rubber gasket, allowing the remaining natural teeth to protrude through. Cu-Sil dentures require special armamentarium and material for their processing. This case report presents an alternative technique to fabricate Cu-Sil like dentures in normal dental set-up as a lab procedure or chairside procedure using commonly available long term soft liners.

KEY WORDS: Cu-Sil Denture, Cu-Sil like Denture, Transitional Denture.**INTRODUCTION**

Dentistry have long recognized the difference that the presence of teeth makes to preservation of alveolar ridge integrity. Therefore the prime focus of present day Dentistry is on preservation of teeth and periodontium. Some of the consequences of total loss of teeth followed by complete denture wearing include psychological trauma, lack of stability, lack of retention, residual ridge resorption, undermined esthetic appearance, compromised masticatory function etc.^{1,2,3} The preservation of even a single healthy tooth in the oral cavity can stabilize an otherwise unstable denture.

Various researchers including Crum and Rooney⁴ and Van Waas et al⁵ have concluded in their studies that there is relatively far less resorption of alveolar bone when some teeth are present as compared to alveolar resorption found in edentulous patients. Another advantage of preserving natural teeth is maintenance of proprioceptive ability of periodontium. It also has positive psychologic effect on patient.

The treatment options for patients having very few teeth remaining includes overdentures or transitional dentures or immediate dentures following complete extractions.³ Overdentures

cannot serve a solution for all such cases because of contraindications, need for prerequisite treatment, poor positioning of remaining teeth, requirement of more patient visits and economic reasons.^{1,2,6} Most of the patients defer getting all their teeth extracted as it has a mutilating effect on their psychology. Thus transitional dentures serve as treatment option for many of such patients. A relatively newer type of transitional dentures is Cu-Sil dentures.

A Cu-Sil denture is essentially a complete denture with holes allowing the remaining natural teeth to protrude through. Normally the key to retain a complete denture is the suction that is obtained by intimate contact of denture to tissues and adequate peripheral seal. A hole allowing a tooth to protrude through disturbs the peripheral seal and breaks the suction. The Cu-Sil denture is unique because the hole that surround the natural teeth are lined with a rubber gasket which snugly holds the teeth while allowing a natural suction to form under the denture in addition to the mechanical stability offered by immobility of natural teeth. Even a single remaining teeth increases the stability of denture several times. But fabrication of Cu-Sil dentures requires special armamentarium and material which makes it technique sensitive, time consuming and expensive.



Fig.1. Preoperative view showing teeth in occlusion



Fig .2. Putty adapted around cervical region of remaining teeth on maxillary cast



Fig. 3. Trial closure for maxillary denture being done

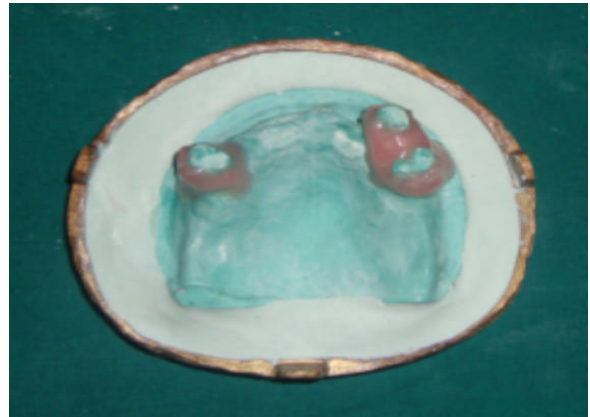


Fig.4. Adaptation of acrylic based long term soft liner around remaining teeth



Fig.5. Tissue surface of maxillary denture with holes for remaining teeth lined by acrylic based soft liner



Fig. 6. Postoperative view in occlusion showing maxillary Cu-Sil like denture and mandibular RPD in place

Here we are reporting the management of a case of a 48 year old male patient with mandibular Kennedy's class I mod.1 partially edentulous arch and maxillary three teeth remaining. An alternative technique to fabricate Cu-Sil like dentures in normal dental set-up as a lab procedure or chairside procedure using commonly available long term soft liners is described.

Case report

A 48 year old male patient reported to the department of Prosthodontics, Darshan Dental College and Hospital, Udaipur, for replacement of missing teeth. Dental history revealed that the missing teeth were extracted due to periodontal reasons. The patient had already undergone periodontal therapy for remaining teeth. Systemic history revealed no significant finding. A preliminary examination revealed mandibular Kennedy's class I mod 1 partially edentulous arch with missing mod 1 37,41,44,46,47. In maxillary arch only three teeth were remaining; that were 14,23,25 (**Fig.1**). All the teeth were affected periodontally by generalized recession. Mandibular anterior teeth were supra-erupted and had grade II mobility. Mobility of all other teeth was grade I. Oral hygiene was fair. Extraoral examination showed no significant finding. Radiographic examination revealed generalized bone loss of all teeth upto middle third of root.

Because of compromised state of existing teeth; a definitive treatment plan could not be worked out for this patient. Thus it was decided to fabricate a treatment partial denture for the mandibular arch and a transitional denture for maxillary arch. Transitional RPD in maxillary arch could not be fabricated due to drifting of remaining teeth and undesirable undercuts. Thus it was decided to fabricate a Cu-Sil like denture (complete denture with holes for remaining teeth) for maxillary arch with a different technique.

Procedure

Diagnostic impressions were made with irreversible hydrocolloid. Custom trays were fabricated with autopolymerizing acrylic resin. Mandibular final impression was made by pick up impression technique. Maxillary final impression was made by Campagna's technique⁷ used for immediate denture impressions. This technique

provides advantage of recording the limiting structures as for complete denture impressions. Jaw relation recording and try-in procedure was executed in routine manner. Wax-up and processing for mandibular removable partial denture was done.

Wax-up for maxillary cusil-like denture was done similar to wax-up of complete denture extending upto all limiting structures and around teeth that were present.

Processing of maxillary denture:

Maxillary cusil-like denture can be fabricated using the following materials-

1. Acrylic based long term soft liners
2. Silicone based long term soft liners

Technique 1

This is used for acrylic based soft liners. Wax-up around the remaining teeth in maxillary cast was made thick. Flasking and wax elimination was performed. After wax elimination, around the remaining teeth on the maxillary cast an inert material like putty or hard wax was adapted near the cervical region, in adequate thickness(**Fig.2**). Separating media was applied on both parts of mould, packed with acrylic resin and trial closure was done with putty placed around remaining teeth on the cast (**Fig.3**). The placement of putty around teeth provided space for soft liner material. After trial closure putty index was removed from the teeth. Freshly mixed acrylic based long term soft liner (Permasoft soft denture liner, Dentsply India) was adapted around the remaining teeth on the cast to occupy space created by removal of putty index (**Fig.4**). Flask was closed and curing done. The denture retrieved after deflasking was a complete denture having holes for natural teeth lined by soft liner (**Fig.5**). It was finished, polished and inserted in the patient (**Fig.6**).

Technique-2

It is a chairside procedure used for silicone based soft liners. The maxillary trial denture was processed by normal procedure of flasking and processing. After the denture was finished and polished, the space in the denture for remaining teeth was widened to give clearance of 4-5 mm.



Fig.7. Space created in denture for chairside procedure



Fig.8. Finished maxillary denture with silicone based long term soft liner around remaining teeth

around the teeth (**Fig.7**). Silicon adhesive was applied to denture. Denture was inserted in patient's mouth and held in position. Silicone soft liner base and catalyst (Ufi Gel, Voco, Cuxhaven Germany) were mixed and adapted to occupy space between denture and natural teeth. After setting of the material denture was removed, trimmed and finished with silicone finishing agents (**Fig.8**). Silicone glaze was applied for polishing and denture inserted in patient's mouth.

Post insertion instructions were same as for any removable prosthesis. As there are chances of fungal growth on the soft liner material, special care has to be taken regarding maintenance of excellent oral and denture hygiene. Use of denture cleansers with antimicrobial agents can be recommended.

Discussion

Cu-Sil like dentures are designed to preserve the remaining natural teeth and thus the alveolar bone. They have a dramatic effect on retention and stability of dentures. In addition to this it gives the patient psychologic satisfaction of retaining the natural teeth as they were, i.e. without any modification. Vertical dimension and proprioception is maintained by retained natural teeth. Attachment devices are avoided entirely.

This treatment modality does not require any tooth preparation and extra patient visit. It can be processed with routine steps or as a chairside procedure, and does not require any special

armamentarium and material as Cu-Sil dentures. It also has economic advantage over Cu-Sil dentures. Future add-ons and relines are possible. If a tooth is lost in future, existing denture can be modified to occupy its place.

These dentures are to be used in cases when the natural teeth are poorly distributed across the dental arch or when the remaining natural teeth are likely to be lost. They serve as a solution for single standing or isolated teeth present in dental arch. They are not indicated for patients with large number of teeth evenly distributed across the dental arch. They should be avoided in patients with heavy bite and habit of bruxism.

These dentures are associated with some disadvantages. The functional duration of elastic material used is short. It needs frequent corrections. Entire gingival margin of remaining teeth is covered leading to plaque accumulation.

CONCLUSION

Cu-Sil like dentures serve as a viable treatment alternative for patients with very few remaining teeth. They rest on the soft tissues while provide a snug fit over existing, healthy tooth structures. An elastic gasket seals itself around the cervical part of each tooth, thereby providing a stable and healthy fit. It promotes healthy stimulation to maintain alveolar bone. Retention is improved, attachment devices are avoided, vertical dimension and

proprioception are maintained. Factors to be considered during treatment planning include number of teeth present, their distribution across the arch, periodontal status and undercuts.

References

1. Zarb-Bolender: Prosthodontic treatment for edentulous patients, 12th ed. Mosby.6-23,160-176,190-208
2. Sheldon Winkler: Essentials of complete denture prosthodontics, 2nd ed. Ishiyaku EuroAmerica Inc.U.S.A. 22- 34,384-402
3. George A. Zarb, Charles L. Bolender, Judson C. Hickey, Gunnar E. Carlsson. Boucher's Prosthodontic treatment for edentulous patients, 10th ed. Mosby.71-99
4. Crum RJ, Rooney GE Jr: Alveolar bone loss in overdentures- a 5 year study. J Pros Dent 1978;40:610-13.
[doi:10.1016/0022-3913\(78\)90054-9](https://doi.org/10.1016/0022-3913(78)90054-9)
5. Van Waas MAJ, Jonkman REG, Kalk W et al: Differences two years after tooth extraction in mandibular bone reduction in patients treated with immediate overdentures or with immediate complete dentures. J Dent Res 1993;72: 1001-1004.
[doi:10.1177/00220345930720060101](https://doi.org/10.1177/00220345930720060101)
PMid:8496472
6. Ivy S. Schwartz and Robert M. Morrow: Overdentures- Principles and Procedures. The Dental Clinics of North America 1996: 40-1:169-94.
7. Richard R. Seals, Jr, William A. Kuebkar and Kenneth L. Stewart: Immediate Complete Dentures. The Dental Clinics of North America 1996: 40-1:151-67.

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