Cu-sil dentures – a novel approach to conserve few remaining teeth: Case reports
Jayesh Kumar Jain1, C R Allama Prabhu2, Mohammed Al Zahrane3, Mohammed Sayed Al Esawy4,
Sunil Lingaraj Ajagannanavar5, Kapil Singh Pal6

Contributors:
1Senior Lecturer, Department of Prosthodontics, College of Dental Sciences, Davangere, Karnataka, India; 2Senior Lecturer, Department of Public Health Dentistry, College of Dental Sciences, Davangere, Karnataka, India; 3Assistant Professor, Department of Dental and Oral Health, Prince Sultan Military College of Health, Kingdom of Saudi Arabia; 4Researcher, Department of Information Technology, College of Engineering, King Saud University, Riyadh 11433, Kingdom of Saudi Arabia; 5Senior Lecturer, Department of Public Health Dentistry, College of Dental Sciences, Davangere, Karnataka, India; 6Senior Lecturer, Department of Prosthodontics, RKDF Dental College and Research Centre, Bhopal, Madhya Pradesh, India.

Correspondence:
Dr. Jain JK. Om Nivas, 183/5-6, Vasanta Road, Davangere - 577 001, Karnataka, India. Phone: +91-9482834466/8970511944. Email: jayjain0606@gmail.com

How to cite the article:
Jain JK et al. Cu-sil dentures – a novel approach to conserve few remaining teeth: Case reports. J Int Oral Health 2015; 7(8):138-140.

Abstract:
The present prime concern in dentistry is on preservation of remaining natural teeth. Presence of few teeth in oral cavity help in preserving alveolar ridge integrity, maintain the proprioception, and gives psychological benefit to the patient. Transitional denture provides us with alternative treatment plan for the patients willing to replace their missing teeth while retaining their very few remaining teeth. A relatively newer type of transitional denture is Cu-sil denture. A Cu-sil denture is a denture with holes, lined by a gasket of silicone rubber, the holes thus providing space for remaining natural teeth to emerge through the oral cavity through the denture. Cu-sil denture is the simplest removable partial denture, but its fabrication requires special armamentarium and material. This case report represents a simple chairside technique to fabricate Cu-sil dentures in usual dental set-up.

Key Words: Cu-sil denture, partially edentulous arch, soft liners, transitional denture

Introduction
Dentistry has long recognized the difference that the presence of teeth makes to preserve the alveolar ridge in its place. Thus, the prime target of present-day dentistry is on preservation of teeth and periodontium. Several studies have shown that removal of all natural teeth and wearing of complete dentures for a long time generally results in alveolar bone loss.1 Extraction of entire dentitions followed by complete denture replacements leads to psychological trauma, reduced stability, and retention, compromised masticatory function, undermine esthetic appearance.2,3

Va Crum and Rooney have proved in their studies that there is relatively far less alveolar bone resorption when some teeth are present as compared to edentulous patients.2 Other advantage of preserving natural teeth is maintenance of proprioceptive ability of periodontium and gives psychological benefit to the patient.4

Treatment options for such arches with very few remaining teeth include overdentures, immediate denture, and transitional dentures. Transitional dentures prove to be a good treatment for patients who are not willing for any extraction or endodontic procedures. Cu-sil denture is one such transitional denture, which is opted for treatment in dental practice but can prove an easy and affordable treatment option.

Cu-sil denture is basically a complete denture with holes allowing the remaining natural teeth to emerge through the denture. The holes are surrounded by the gasket of silicone rubber which clasps the neck of natural teeth, thus allowing a natural suction to form under the denture.4 It is the simplest, gentlest removable partial denture, but the fabrication requires special armamentarium and material, which makes its technique sensitive, time-consuming and expensive. This case report describes an alternative technique to fabricate Cu-sil denture in normal dental set-up using commonly available long-term soft liners.

Case Reports
Case 1
A 62-year-old male patient was self-referred to the Department of Prosthodontics, College of Dental Sciences, Davangere with a chief complaint of poor esthetic, speech difficulty, and wanted replacement of missing teeth (Figure 1a). Dental history revealed that the missing teeth were extracted due to caries.

Patient presented with mandibular Kennedy’s Class III mod 2 partially edentulous arch with missing 36, 46, 45, 31, 41. In the maxillary arch, only four teeth were remaining; that were 13, 17, 18, and 23. Only 35 and 47 had Grade I mobility. Oral hygiene was fair. Patient was not willing for any extraction or endodontic treatment. A definitive treatment plan could not be worked out for this patient. Thus, a removable partial denture for the mandibular arch and a Cu-sil denture for the maxillary arch was planned.
Procedure
Maxillary and mandibular arch impressions were made using dual impression technique and poured with dental stone (Figure 1a). Temporary denture bases were fabricated using auto-polymerizing acrylic resins. Then, occlusal rims were prepared and bite registration was done. The setup was mounted on an articulator. Teeth arrangement and try-in procedures were executed in routine manner. The wax up of the maxillary denture was done similar to a complete denture except for the holes corresponding to the remaining natural teeth. The dentures were cured with heat-cure acrylic resin. After the denture was finished and polished, the space in maxillary partial denture around the remaining teeth was widened to give clearance of 4-5 mm around the teeth (Figure 2a). Silicon adhesive was applied to denture and mixing of silicone soft liner base and catalyst was done and placed into oral cavity to occupy space between denture and natural teeth. Denture was inserted in patient’s mouth and held in position. After setting of the material, denture was removed. The excess liner material was trimmed and denture was finally inserted in patient’s mouth (Figure 2b). Occlusion was checked and post-insertion instructions were given as same as for any removable prosthesis.

The patient was comfortable at the time of insertion and follow-up after two weeks. Due to the probability of fungal growth on the soft liner material, regular care has to be provided regarding maintenance of good oral and denture hygiene. Patient has been told to replace the silicone liner with fresh one every 8-12 months.

Case 2
A 42-year-old male patient came with the chief complaint of difficulty in mastication and poor appearance due to several missing teeth. The patient has been partially edentulous since 2 years. Intraoral examination revealed Kennedy’s Class I mod 1 condition with missing 17, 16, 27, 26, 11, 21. Only 37 present in the mandibular arch (Figure 3a). It was decided to fabricate a partial denture for the maxillary arch and transitional denture for the mandibular arch as the patient was not willing for extraction.

Figure 1: (a) Pre-operative view of case 1. (b) Maxillary and mandibular master casts of case 1.

Figure 2: (a) Completed Cu-sil denture with holes of case 1. (b) Final denture in the patient’s mouth of case 1.

Figure 3: (a) Pre-operative view of case 2. (b) Maxillary and mandibular master casts of case 2.

Figure 4: (a) Completed Cu-sil denture of case 2. (b) Completed Cu-sil denture in the patient’s mouth of case 2.
Impressions of both arches were made using dual impression technique and the same procedure as Case 1 has been followed (Figures 3b, 4a, 4b, and 5).

Discussion
The patients having very few remaining teeth can be treated by fabrication of over dentures or immediate dentures or transitional dentures. Over dentures may not always be a favorable option for all such cases due to contraindications, need of endodontic procedures, requirement of more patient visits and financial reasons. Many patients delay getting all their teeth extracted as it has a detrimental effect on their psychology. Thus, Cu-sil dentures serve as an amicable treatment option for such patients.

Cu-sil like dentures are aimed at preserving the remaining natural teeth and have a positive effect on retention and stability of dentures. It gives the patient psychological satisfaction of retaining the natural teeth. No special impression techniques or materials are required. Future add-ons and relines are possible.

The Cu-sil like denture can serve as conventional full denture if the patient later loses all the natural teeth. Cu-sil dentures serve as a solution for lone standing or very few remaining teeth present in the dental arch.

Cu-sil dentures are contraindicated for patients with numerous, evenly distributed natural teeth across the dental arch, this will result in a weak appliance. They should be avoided in patients with bruxism, severe undercut areas and patient with high smile line. The gingiva of remaining teeth is covered totally, which may lead to plaque accumulation, which can be avoided by regular check-ups and proper hygiene maintenance.

Conclusion
Cu-sil denture is not very common. Still, a Cu-sil denture is an acceptable option and serves as a viable treatment alternative in few situations. It is an excellent option for the patients who want to replace their missing teeth while retaining their very few remaining teeth.

References
1. Crum RJ, Rooney GE Jr. Alveolar bone loss in overdentures – A 5 year study. J Prosthet Dent 1978;40:610-3.
2. Bolender Z. Prosthodontic Treatment for Edentulous Patients, 12th ed. St. Louis, MO: Mosby; 2013. p. 6-23, 160-76, 190-208.
3. Zarb GA, Bolender CL, Hickey JC, Carlsson GE. Boucher’s Prosthodontic Treatment for Edentulous Patients, 10th ed. St. Louis, MO: Mosby; 1997. p. 71-99.
4. Khandelwal M, Punia V. Saving one is better than none: Technique for cu-sil like denture – A case report. 2011;03(01):41-5.
5. Gagandeep K, Sangeetha G, Deepika S. Cusil denture: A novel conservative approach- A case report. Unique J Med Dent Sci 2013;01(02):56-8.