CU-SIL Dentures for Partial Edentulism: Preserving Function and Teeth – A Clinical Report Series

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Submission date: 27-Jun-2025 12:22PM (UTC+0700)
Submission ID: 2690338851
File name: IJAR-52483.docx (1.61M)
Word count: 1332
Character count: 7503

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INTRODUCTION:

MM DeVan has rightly said that "Perpetual preservation of what is remaining is more important than the meticulous reconstruction of what is lost".(1) The primary goal of contemporary dentistry is to preserve teeth in order to maintain the integrity of the alveolar ridge and the periodontium's proprioceptive capabilities.(2) Alveolar ridge height can be preserved even in cases where an arch has one healthy tooth. Studies by *Va Crum* and *Rooney* have demonstrated that, in comparison to edentulous patients, there is comparatively much less alveolar bone resorption when some teeth are present.(3) Additional benefit of maintaining natural teeth means keeping your proprioceptive sense intact of periodontium and this offers the patient psychological advantages. The remaining natural teeth are treated with overdentures, transitional dentures, or immediate dentures. However, Cu-Sil dentures are the most straightforward kind of partially edentulous treatment accessible during the transitional period for patients who are afraid of full extractions.(4) Rehabilitation of patients with Cu-Sil denture for the maxillary partially edentulous arch and a removable partial denture for the mandibular arch is covered in this clinical report.

CLINICAL REPORTS:

Case 1

A 56-year old male patient reported to our department with chief complaint of difficulty in chewing and also complaints of poor esthetic appearance and wanted replacement of missing teeth. On intra-oral examination the patient had a Kennedy's class I edentulous space in maxilla with presence of only 11 (Fig. 1) and Kennedy's class II modification 2 edentulous space in mandibular arch (Fig. 2) with missing 31, 32, 35, 36, 37, 41, 42, 43, 46 & 47. On examination of individual teeth 11 had gingival recession and the mandibular teeth were supra-erupted with a full metal crown in 45 and amalgam restoration in 47. A brief dental history stated that the missing teeth were extracted due to caries. It was planned to fabricate a transitional denture (CU-SIL denture) for maxillary arch and a removable partial denture in mandibular arch as the patient was not willing for extraction of his remaining teeth.

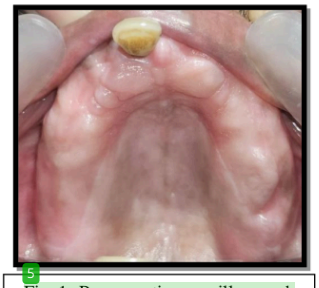

Fig. 1- Pre-operative maxillary arch

Fig.2- Pre-operative mandibular arch

Treatment Procedure: In the first appointment, diagnostic impression of maxilla and mandible were made using irreversible hydrocolloid (Zhermack Tropicalgin alginate impression material). Followed by fabrication of custom tray with full coverage spacer design on the diagnostic cast on maxilla using autopolymerizing acrylic resin was done (DPI RR Cold cure, DPI India). In the second appointment, border molding using green stick compound (DPI pinnacle tracing sticks, DPI India) and secondary impression was made with light body impression material (HUGE PERFIT Elastomeric Impression Material, Light Body- Type 3). Master cast was prepared (Fig. 3) and occlusal rims fabricated on which bite registration was recorded on the third appointment.

Fig. 3- Maxillary master cat

Fig. 4- Maxillary final prosthesis

Fig. 5- Maxillary and Mandibular final prosthesis; A- Left view, B- Front view, C- Right view

The wax try-in was done in both maxillary and mandibular arch, evaluation of occlusion, dental esthetics, facial esthetics were examined and proceed with acrylization. The denture was finished, polished and insertion was done in maxillary and mandibular arch. (Fig. 5) the patient was recalled on a periodic review (1st week, 1 month, 3 week, 1month, 3rd month& 6th month) which showed that the patient was comfortable in using the denture.

Case 2

A 50-year old female patient reported to our department with chief complaint of difficulty in chewing and also complaints of poor esthetic appearance and wanted replacement of missing teeth. On intra-oral examination the patient had a Kennedy's class I modification 1 edentulous space in maxilla with presence of only 13, 21 (Fig. 6) and Kennedy's class I edentulous space in mandibular arch (Fig. 7). On examination of individual teeth 13 & 21 had gingival recession. It was planned to fabricate a transitional denture (CU-SIL denture) for maxillary arch and a removable partial denture in mandibular arch as the patient was not willing for extraction of his remaining teeth.

Fig. 6- Pre-operative maxillary arch

Fig. 7- Pre-operative front view of maxilla & mandible at occlusion

Treatment Procedure: In the first appointment, diagnostic impression of maxilla and mandible were made using irreversible hydrocolloid (Zhermack Tropicalgin alginate impression material). Followed by fabrication of custom tray with full coverage spacer design on the diagnostic cast on maxilla using autopolymerizing acrylic resin was done (DPI RR Cold cure, DPI India). In the second appointment, border molding using green stick compound (DPI pinnacle tracing sticks, DPI India) and secondary impression was made with light body impression material (Fig. 8) (HUGE PERFIT Elastomeric Impression Material, Light Body- Type 3). Master cast was prepared and occlusal rims fabricated on which bite registration was recorded on the third appointment.

Fig. 8- Secondary impression of maxillary arch

Fig. 9- Post-operative image with denture in maxillary and mandibular arch with CUSIL denture

The wax try-in was done in both maxillary and mandibular arch, evaluation of occlusion, dental esthetics, facial esthetics were examined and proceed with acrylization. The denture was finished, polished and insertion was done in maxillary and mandibular arch (Fig. 9). The patient was recalled on a periodic review (1st week, 1 month, 3 weeks, 1month, 3rd month& 6th month) which showed that the patient was comfortable in using the denture.

DISCUSSION:

The case report describes a treatment modality for partially edentulous patient with few remaining teeth. It describes the use of an innovative technique for fabrication of transitional partial dentures based on the design for Cu-sil dentures. The vertical height of bone and proprio-sensitivity is preserved. There is no requirement of a special armamentarium and main advantage is that if a tooth is lost in future the existing denture can be modified accordingly.(2) They should be avoided in patients with bruxism, severe undercut areas and patient with high smile line.(5) soft liners are used as a relining in cu-sil denture. Due to its viscoelastic properties, they provide cushion like effect which can distribute forces more evenly by absorbing energy.(6) Thus, the use of soft liner cushions and splints the remaining teeth which provide added stability. Moreover, it is also easy to manage a smooth transition to edentulousness. As teeth are lost, the existing prosthesis can be modified to replace them. It is thereby the simplest, gentlest way to postpone or eliminate total loss of mobile, isolated, elongated or periodontally involved teeth.(1) However, such transitional partial dentures can be used in selected cases only. Its use in patients with too many teeth and/or those exhibiting unfavourable undercuts would hinder with its fabrication and placement. Creating too many holes to accommodate natural teeth would compromise the strength of the denture, especially the mandibular one. Severe undercuts like those surrounding some natural teeth would also warrant the use of a thin denture flange and a resultant weak denture, more prone to fracture. Last, but not the least, in patient with retained maxillary anteriors and a high smile line, esthetic needs to be inadvertently compromised. Lip fullness due to the underlying flange can also result in such patients.(7)

CONCLUSION:

Cu-Sil dentures offer a conservative, patient-friendly approach to managing partial edentulism, especially in individuals unwilling or unsuitable for full extractions. By preserving the remaining natural teeth, they maintain proprioceptive feedback, contribute to better alveolar ridge preservation, and provide psychological benefits to the patient. This clinical report series highlights the practical utility and adaptability of Cu-Sil dentures as an interim solution, enabling comfortable

function and esthetics while delaying or avoiding complete edentulism. However, careful case selection, regular follow-up, and meticulous hygiene maintenance are vital for long-term success.

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