

## AN INNOVATIVE TECHNIQUE TO PRESERVE THE NATURAL TEETH WITH REMOVABLE PROSTHESIS (CU-SIL DENTURE) : A CASE REPORT

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### Abstract

According to De Van, the preservation of what remains is of utmost importance rather than the meticulous replacement of what has been lost. Need based use of unconventional approach is a growing demand in prosthodontics in India. The increasing demands of the patients have led to innovative techniques for fabricating complete dentures. Conventional techniques may provide satisfactory results in most patients but may not be suitable in all cases. Cu-sil denture is one of the transitional dentures which is easy to fabricate, saves time as well as reduces the cost of treatment. These dentures provide a psychological boost to the patients and serve as a viable alternative. They not only promote the alveolar ridge integrity but also help in retaining the proprioceptive ability of the periodontium. This paper presents a case of fabrication of Cu-sil denture in a patient with two teeth remaining in the maxillary arch.

**Keywords:** Cu-sil denture, Transitional denture, Alveolar ridge

### INTRODUCTION

Dentistry has long understood that the presence of teeth helps to keep the alveolar ridge in place. Thus, the primary goal of modern dentistry is to preserve the teeth and periodontium.<sup>1</sup> Partially edentulous patients who present with few remaining natural teeth present a treatment challenge. Earlier it was considered that extraction of all remaining natural teeth followed by complete denture replacement is inexpensive and permanent solution for management of missing teeth which led to psychological trauma, reduced stability, and retention, compromised masticatory function, under mined aesthetic appearance and major oral morphological problem like advanced residual ridge resorption (RRR).<sup>2</sup> Nowadays, several treatment options are available for patients having very few remaining natural teeth which includes over dentures, transitional dentures, immediate dentures and implant supported prosthesis.

Cu-sil denture is a type of transitional denture that is used as a treatment option for patients who wish to save a few remaining natural teeth and do not want to undergo extraction because of its mutilating effect on their psychology.<sup>3</sup>

Cu-sil denture is basically a complete denture with perforations that allow the remaining natural teeth to come through the denture. The perforations are encircled by a silicone soft relining material that hugs the neck of natural teeth, creating a natural suction under the denture.<sup>4</sup>

### INDICATIONS

1. Any patient with grade 1 mobile, isolated, or periodontally sound teeth whose last resort seems to be an immediate full denture.
2. A patient who does not want to lose his remaining teeth, however, cannot be adequately treated with fixed or other

removable partial dentures could be a Cu-sil denture candidate.

3. A patient with a number of remaining teeth whose mucous membrane, supporting bone, or general health, suggests a poor prognosis for complete dentures.
4. When natural maxillary teeth are to oppose a mandibular complete denture.<sup>5</sup>

### CASE REPORT

A 50-year-old female patient reported to the Department of Prosthodontics, Guru Nanak Dev Dental College and Hospital, Sunam, with the chief complaint of replacement of missing teeth. The patient presented with only four natural teeth remaining (17,27,37,47) and all other teeth were extracted 1 year ago. Those remaining teeth were in occlusion and periodontally sound. After clinical examination, treatment plan of cusil denture was formulated and was explained to the patient



Fig.No 1: Pre-operative appearance of the patient



Fig No.2:pre-operative intraoral view

## PROCEDURE

### 1) Preliminary Impression making-

Stock trays were selected in accordance to the patient's alveolar ridge and an impression was made with the thermoplastic impression compound. Once the impression was made, it was again put in water bath to soften the compound in the tooth region and then enlarged with the finger or with the help of back end of the mirror. Then, a wash impression was made using irreversible hydrocolloid material (alginate)(fig.3) and casts were poured in dental stone.

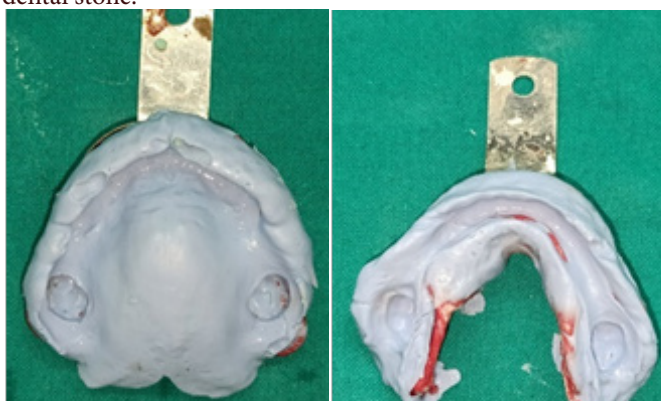


Fig. No.3 Preliminary diagnostic impression

### 2) Making of final impression-

To make the final impression, a custom tray was fabricated on the primary cast using cold cure acrylic resin. Border moulding was done with low fusing modelling impression compound (DPI green stick) and final impressions were made with light body elastomeric impression material to record the appropriate anatomic position of the teeth and casts were poured in dental stone. (fig. 4)

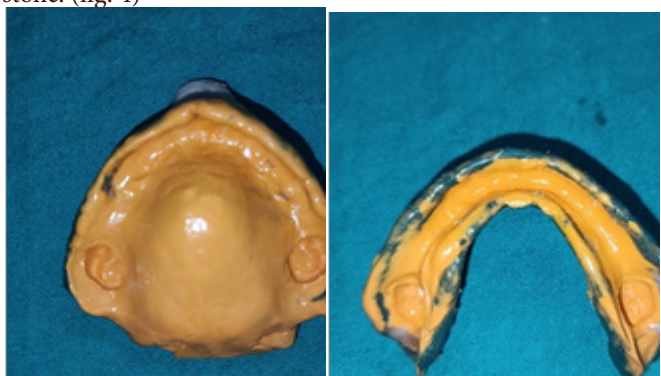


Fig. No.4 Final impressions recorded

3) On obtained master casts, record bases and occlusal rims were fabricated.Face bow transfer was subsequently done and centric relation was recorded and mounted on semi adjustable articulator(fig. 5).

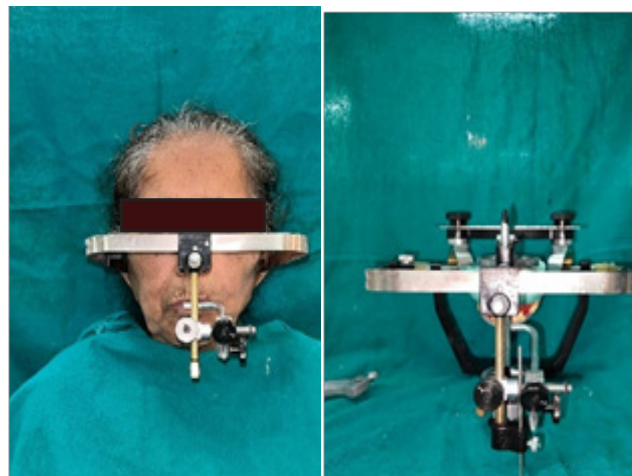


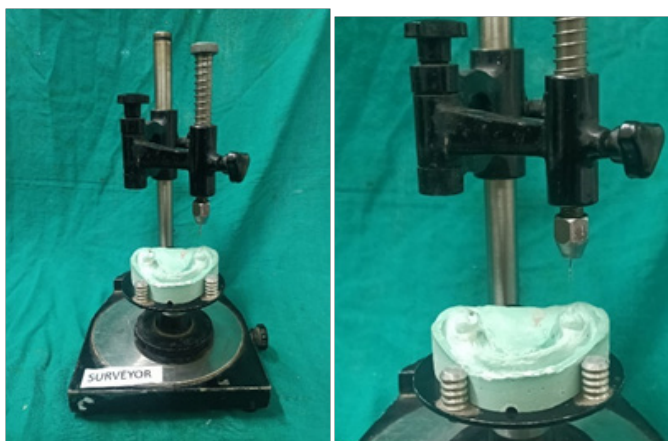
Fig. No. 5. Face bow transfer

4) Teeth arrangement was done in conventional manner, try in was completed and wax-up was done to enclose the sulcus beyond the remaining teeth(fig. 6).



Fig. No. 6: Try In showing occlusion on the right-hand side, left-hand side and frontal planes.

5) Before flasking, mechanical undercut of the remaining natural teeth was examined with the help of a surveyor and blocked out using dental plaster (fig. 7).



**Fig. No. 7 :Surveying done to evaluate and block out the undercuts.**

6) During packing procedure, a layer of permanent silicone soft liner (Molloplast B) was added within the denture bases to enhance retention. Because it is elastic, it stretches during prosthesis insertion and removal over bony prominences and undercuts without causing tissue trauma, and then spring back into close contact with the undercut area, boosting retention (fig. 8).



**Fig. No. 8: Molloplast put around the teeth region.**

7) Post operative view



**Fig. No. 9: Patient after delivery of prosthesis**

Insertion was done. Patient was educated about the insertion, removal and care of the prosthesis, patient was very happy with the prosthesis.

#### Discussion

The case report outlines a treatment approach for a partially edentulous patient with few surviving teeth. It discusses an innovative process for fabricating transitional partial dentures based

on the Cu-sil denture design.

Transitional dentures made in this manner are conservative and successful because they keep natural teeth while preserving the peripheral seal. These facts have been used to highlight the primary benefits of such a design. Keeping natural teeth retains the PDL (which maintains proprioception, naturally controlled jaw reflexes, and neuromuscular control), prevents residual ridge resorption, provides a psychological advantage, and maintains the vertical dimension.<sup>6</sup>

The soft liner fits around the natural teeth, completing the peripheral seal. Resilient liners are well known for their viscoelastic qualities, which provide a cushioning effect. They help to disperse forces more equally by absorbing energy.<sup>7</sup> Thus, soft liner cushions and splints the remaining teeth, providing additional stability. Furthermore, it is simple to ensure a smooth transition to edentulousness. As teeth are lost, the current prosthesis can be adjusted to replace them. It is thus the simplest and gentlest method for delaying or eliminating total loss of mobile, isolated, or periodontally affected teeth. However, these transitional partial dentures can only be utilized in certain situations. Its use in patients with too many teeth and/or unfavourable undercuts would complicate fabrication and insertion.<sup>8</sup> Creating too many holes to allow natural teeth would weaken the denture's strength, particularly the mandibular one. Severe undercuts, such as those found around some natural teeth, would likewise require the adoption of a thin denture flange, resulting in a weaker denture that is more prone to fracture.

#### Conclusion

Transitional dentures like Cu-sil denture serve as an alternative treatment for patients with very few remaining teeth. It improves the retention of the denture with maintaining the existing vertical dimension and without requirement of any attachment devices. Cu-sil denture helps in preservation of teeth, thereby preserving alveolar ridge integrity and proprioceptive ability of periodontium which has positive psychological effect on patient. Patients who do not want to undergo the treatment option for overdenture or extraction of remaining natural teeth, transitional denture like Cu-sil denture is one of the best treatment options for preservation of remaining natural teeth.

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