



Cusil Denture -The Last Resort before Complete Denture

¹Dr. M A Eswaran, ²Dr.Devanand, ^{3*}Dr. T. Hima Preethi*, ³Dr. Veena S Nair

¹ Professor, ² Senior Lecturer, ³ Senior residents

Department of Prosthodontics, Thaimoogambigai dental college and hospital, Dr MGR Educational and research institute, Chennai.

Corresponding Author:

* T. Hima Preethi, Email id: tiruhp06@gmail.com

ABSTRACT:

Cusil denture is a newer form of transitional denture. It can be fairly called the simplest and gentlest removable denture.⁽¹⁾ The clasp is replaced with a gentler elastomeric gasket or liner which surrounds the neck of natural tooth. Its major concern is the preservation of teeth and vertical dimension of underlying bone. It promotes positive attitude as the patient is psychologically happier to have a few natural teeth and avoid extractions.⁽²⁾

KEYWORDS: Cusil denture, Transitional denture, Soft liner or elastomeric gasket, Preservation, Proprio-sensitivity, Vertical dimension, Alveolar bone.

INTRODUCTION:

According to Muller De Vans Dictum's golden statement "Perpetual preservation of which remains is more important than the meticulous replacement of what has been lost".⁽³⁾ 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 leads to major oral morphological problems like residual ridge resorption.⁽⁴⁾ Treatment option for patient have ranged from simple treatment such as transitional denture to over-denture requiring significant tooth modification to the more invasive one like extracting remaining teeth and replacing with conventional immediate denture or implant supported fixed/removable prosthesis. Over-denture necessitate endodontics and added cost and time. Patient may not be willing or physically fit to undergo total extraction and have immediate denture. Implant too may be restricted in their use for economic concern and for a chronically ill patient unfit for surgical procedure.⁽⁵⁾

The transitional prosthesis is a mainly tissue supported prosthesis. The retention is achieved by adhesion and without clasp. Neuro-muscular mechanism tends to stabilize and retain the appliance during function.⁽⁶⁾ By the interruption of remaining natural teeth transitional denture unlike a CD can't take advantage of a complete peripheral seal for stability and retention. A relatively newer type of transitional denture termed Cusil partial denture have overcome this disadvantage by employing a design which is essentially a full denture with holes through which natural tooth emerge into the oral cavity through the denture.⁽⁷⁾

These holes are surrounded by gasket of silicon rubber which covers the natural teeth, without destroying the suction. The rubber gasket allows natural suction to form under the denture in addition to the mechanical stability offered by immobility of natural teeth. No further laboratory procedures or tooth preparation are necessary for the manufacture of Cusil dentures. Future tooth loss could be accommodated by modifying an existing denture to fill the gap. Transitional cusil dentures are the best option for older patients with very few remaining natural teeth. This is given usually in patients who have periodontally compromised natural teeth and for increased stability, retention and protection of underlying bone and tissues. It improves the patient's overall oral health quality of life. It also enhances the aesthetics and phonetics of patient, thus having a positive effect on the patient's attitude.

Case Report :1

A 55 year old male patient reported to department of Prosthodontics Crown & Bridge, Thai Moogambigai Dental College and Hospital, Chennai with the chief complaint of inability to chew food due to his missing teeth and wanted to replacement. On clinical examination it was found that the patient was completely edentulous in maxillary arch. In mandibular arch 34, 35, 44, 45 were the only teeth present. Thorough intra-oral clinical

examination revealed that the patient is having smokers palate. And a brief dental history stated that the missing teeth were extracted due to caries. It was planned to fabricate a single complete denture for maxillary arch and a transitional denture (CUSIL DENTURE) for mandibular arch as the patient was not willing for extraction of his remaining teeth. Fig-1 shows the teeth setting done in the cast. The wax- try in patient's mouth shows in Fig-2. Insertion of cusil denture intra-orally and the patient's happy smile post operatively shows in Fig-3 & 4.

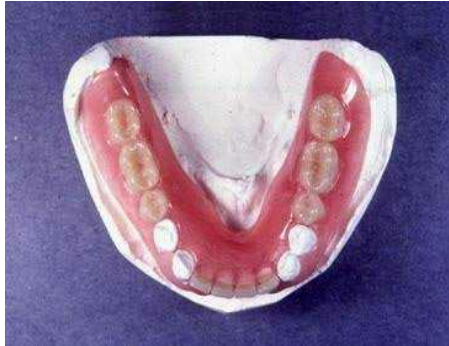


Fig 1:Teeth setting



Fig 2: Wax try-in



Fig 3: Denture insertion intra-orally



Fig 4: Post- operative smile

Case Report : 2

A 63 year old female patient reported to Prosthodontics crown & bridge department TMDCH Chennai with the desire of replacement of her missing teeth in order to be able to eat better and having pleasing facial appearance. On clinical examination it was found patient was partially edentulous in mandibular arch. In maxillary arch 27 is the only tooth present. Dental history revealed that the missing teeth were extracted due to caries. It was planned to fabricate a partial denture for mandibular arch and a transitional denture (Cusil denture) for maxillary arch as the patient was not willing for extraction of his remaining teeth. The main aim is to advise the patient for cusil denture to preserve the periodontally strong tooth and alveolar bone. Fig-5 and 6 shows maxillary and mandibular alginate diagnostic impressions. Fig-7 and 8 shows maxillary and mandibular master impression with green stick compound border moulding and PVS impression material. After beading and boxing, maxillary and mandibular master cast was made in Fig-9 and 10. Jaw relation with bite-registration and wax try-in respectively in Fig-11 & 12. Followed by Fig-13 shows that insertion of cusil denture in patient's mouth.



Fig 5: Maxillary alginate impression



Fig 6: Mandibular alginate impression



Fig 7:Mandibular secondary impression



Fig 8:Maxillary secondary impression



Fig 9:Mandibular master cast



Fig 10: Maxillary master cast



Fig 11:Jaw relation with bite registration



Fig 12: Wax try-in



Fig 13:Insertion of cusil denture

DISCUSSION:

Cusil denture is designed as a treatment plan for patients who are not ready to get their few remaining natural teeth extracted. The natural teeth were preserved which in turn helps protect the remaining alveolar bone. 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.⁽⁸⁾ They are usually not indicated for people who have numerous teeth remaining. There are various advantages and disadvantages.

Indications of cusil denture include periodontally compromised teeth, need for gentle approach, elimination of extraction, presence of single or isolated teeth, poor prognosis of complete denture.⁽⁹⁾ Contra-indications of cusil denture include presence of too many teeth, presence of anterior teeth and severe under-cuts.⁽¹⁰⁾

Advantages of cusil denture are include no need for special preparation, no need for adjustment required on insertion, quite comfortable, vertical dimension and original bite is maintained, affordable, rejuvenation of previous bite, more stability and retention, elimination of clasp and easy conversion of cusil denture to a complete denture prosthesis. Disadvantages of cusil denture include need for excellent maintenance of denture, use of special anti-microbial agents, denture cleansers and frequent replacement of soft liners.

PROCEDURE:

Dual impression technique and dental stone are used to create impressions of the maxillary and mandibular arches. Alginate (an irreversible hydrocolloid impression material) is used to take primary upper and lower impressions. Then the study cast is obtained. The temporary denture base is made from auto-polymerize acrylic resins.

Auto-polymerizing resin was used in the special tray. Dental Products of India (DPI) green stick compound was used for the border moulding, while light body was used for the impression in the mouth and alginate was used for the pickup impression. Secondary cast was created followed by occlusal rims fabrication, jaw relation and then bite registration. Then the set-up is mounted onto the articulator. The arrangement of the teeth and the try-in are done routinely. With the exception of the holes corresponding to the remaining teeth, the maxillary denture is waxed up in the same way as a complete denture. After that, heat-cure acrylic resins are used to cure dentures. The denture is then polished and completed.

A clearance of 4-5 mm is provided around the remaining teeth by widening the area around the maxillary partial denture. Silicone adhesives are used to fill the area between natural teeth and dentures by applying silicone to the denture by mixing silicone soft liner base and catalyst. The denture is placed and held in position. The denture is removed once the material has set. Once more it is placed within the patient's mouth and the extra liner material is trimmed. Post-insertion instructions are given after checking for occlusion.

At the time of insertion if the patient is at ease, the follow-up appointment is given after two weeks. Since there is a possibility of fungus growing on the soft liner material, maintaining proper oral and denture cleanliness requires careful attention. It was advised to use denture cleaner with antimicrobial ingredients. Additionally, the patient has been instructed to switch out the silicone liner for a new one every 8 to 12 months.

SUMMARY:

The preservation of natural teeth that are still there is currently dentistry's top priority for a successful treatment.⁽¹¹⁾ Fewer teeth in the oral cavity support the integrity of the alveolar ridge, maintain proprioception, and benefit the patient psychologically. For patients who want to replace their missing teeth while keeping their few remaining teeth, a transitional denture offers us an alternate treatment strategy. Cusil dentures are a more recent variety of transitional dentures. A cusil denture is a denture having holes coated with a silicone rubber gasket, allowing any remaining natural teeth to erupt through the denture into the oral cavity. The simplest detachable partial denture is the cusil one.⁽¹²⁾

Cusil denture is an alternate form of treatment preferred over implant supported dentures and over-dentures. The life of periodontally compromised teeth is increased and their proprioceptive nature stays intact. The elastomeric gasket (liner) surrounds the tooth and forms a natural suction, under-neath the denture, thus providing a better seal. No special armamentarium is required, and it is very cost effective and time saving too. It eliminates wear, stress, torque of metal clasps. It provides good seal preventing accumulation of food and fluids. It provides cushioning and splinting effect of natural teeth from hard underlying denture-base.⁽¹³⁾

It is considered as one of the most economical and time saving denture that provide the patient with comfort and improved occlusion without causing any psychological distress or trauma. Also according to the study done by Va Crum and Rooney⁽¹⁴⁾, presence of some natural teeth leads to less alveolar bone loss as compared to completely edentulous patients. And Cusil denture helps in preservation of teeth thereby preserving alveolar ridge integrity and proprioceptive ability of periodontium which in turn has a positive psychological effect on patients.

Patients with too many teeth showing unfavourable undercuts would make the fabrication and placement of the denture difficult, and making too many holes to accommodate natural teeth would weaken the final denture, to name a few critical clinical points that a practitioner typically finds with this transitional denture.⁽¹⁵⁾ In Cusil dentures, the soft liner material needs to be corrected frequently.

The rate of plaque buildup accelerates once the gingival margins of all remaining teeth are completely coated.⁽¹⁶⁾ Patients with para-functional habits like bruxism, severe undercut areas, and patients with high smile lines should not wear cusil dentures.⁽¹⁷⁾

CONCLUSION:

Cusil denture is a comfortable alternate treatment for patients in whom there are a one or very few remaining natural teeth. They rest on the soft tissues offering a comfortable fit over existing healthy tooth structure. An elastic gasket covers the neck of the existing teeth and gives a stable fit and enhances retention. Also hypersensitivity is maintained and teeth are preserved. It improves the retention of the denture with maintaining the existing vertical dimension and without requirement of any attachment device.

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