



Cu-Sil Denture : A Novel Approach For Prosthetic Rehabilitation Of Young Ectodermal Dysplasia Patient

¹ Dr. Aasmita K.kabade, ² Dr. Kishor M. Mahale, ³ Dr. Shankar P. Dange, ⁴ Dr. Smita A. Khalikar

¹ Post graduate student, ² HOD , Professor & Guide, ³ Dean & Professor, ⁴ Professor
Government dental college and hospital, Aurangabad, Maharashtra , India

***Corresponding Author:**

Dr. Aasmita K.kabade

Government dental college and hospital, Aurangabad, Maharashtra , India

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Abstract

The oral manifestation of ectodermal dysplasia include anodontia or hypodontia, hypoplastic conical teeth, underdevelopment of the alveolar ridges. Patients with this disease often need complex prosthetic treatment. The options for a definitive treatment plan may include fixed, removable, or implant-supported prostheses, singly or in combination. However, financial constraints &/or compromised clinical findings can prevent patients from choosing the most desirable treatment. This clinical report describes an interim removable partial cu-sil denture in an 21-year-old girl with ectodermal dysplasia.

Keywords: Ectodermal dysplasia, cu-sil denture , soft liner

Introduction:

Ectodermal dysplasia is a hereditary disorder that can affect several ectodermal structures and result in a number of oral problems. The dental characteristics of this syndrome include anodontia or hypodontia of the primary or permanent teeth, hypoplastic conical teeth, and underdevelopment of the alveolar ridges[1]

Hypohidrotic ectodermal dysplasia (HED) is a hereditary disorder of ectodermal origin and affects approximately 1 to 7 per 100,000 births. HED is manifested as a triad of defects that includes hypohidrosis (diminished perspiration), hypotrichosis (decreased amounts of hair), and hypodontia (abnormal tooth development). Patients with HED usually have skin that is soft, thin, and dry, with either a complete or partial absence of sweat glands. As a result they cannot perspire normally and may

have heat intolerance and hyperpyrexia. Hair follicles and sebaceous glands are often defective or absent, and the hair of the scalp and eyebrows tends to be fine, scanty, and blond. Oral manifestations of HED are of particular interest to the dentist, because patients with this disorder invariably have missing or misshapen teeth. It can affect both the primary and permanent dentition. Because of partial development of teeth or the absence of teeth in patients with HED, the restoration of the dentition to proper form and function can be a significant challenge to the dentist, particularly if the patient is young[2]

Prosthetic treatment of ED patient can include fixed / removable / implant supported prosthesis. This treatment can be used individually or in combination to provide optimum results.

Case Report :



Figure 1. Extraoral picture of the ectodermal dysplasia patient



Figure 2. Intraoral picture of the patient showing compromised alveolar ridges

A 21 year old female patient who had hypohidrotic ectodermal dysplasia reported to department of prosthetics of Government Dental College and Hospital, Aurangabad with a chief complaint of replacement of missing teeth. On intraoral examination she revealed presence of only 2 teeth, conical shaped 13 & 36 with severely compromised residual alveolar maxillary and mandibular ridges (fig2). On further examination of alveolar ridge revealed flabby mandibular ridge with flabby alveolar ridge in maxillary anterior region. Patient also had reduced mouth opening. Treatment plan was formulated keeping patients age & intraoral conditions in mind. It was decided to preserve remaining natural teeth as it is to prevent further bone loss, to maintain proprioception and to aid in retention as well as for horizontal stability of the denture. Thus the interim cu-sil denture was planned for the patient. The procedure of fabricating the dentures was as follows:

1. Maxillary and mandibular primary impression was made using irreversible hydrocolloid impression material (GC Impreced)
2. Maxillary border molding was performed using low fusing type -1 impression compound (DPI, Mumbai) and to record flabby tissue in undistorted form, anterior region of custom tray was perforated and wash impressions were made in light body condensation silicone impression material (Zetaplus, Zhermack)

3. Mandibular final impression was made with all green technique followed by wash impression with light body condensation silicone impression material (Zetaplus, Zhermack).
4. Master cast was poured in dental stone.
5. Record base was encircled over the remaining natural teeth & wax rims were made.
6. Jaw relations with proper vertical dimension and centric relation were recorded.
7. For the try in, waxed denture were first tried for occlusion and esthetics.
8. Conical canine in 1st quadrant looked very unesthetic to the patient so composite buildup was done with it for esthetic purpose.
9. Fabrication of the denture was carried out conventionally.
10. Denture trial was done. Minor adjustment was done to accommodate remaining natural teeth in order to ease of insertion & removal of the denture. Space created in the 13 and 36 region of 4–5 mm around the tooth in which acrylic-based soft liners (GC temporary soft liner) were placed. The denture was inserted in patient's mouth and held in position. Following setting of the material, denture was removed and excess was trimmed.
11. Post-insertion instructions were same as for any removable prosthesis. As there are chances of fungal growth on the soft liner material, special care was taken regarding maintenance of

excellent oral and denture hygiene. The use of denture cleanser with antimicrobial agents was

recommended.



Figure 3. Maxillary & Mandibular Cu-sil



Figure 4. Extraoral view of patient with Cu-sil

Discussion :

Ectodermal dysplasia (ED) is a hereditary disorder characterized by abnormal development of certain tissues and structures of ectodermal origin. Freire-Maia defined the nosologic group of ED as any syndrome that exhibits at least two of the following features: (1) trichodysplasia (abnormal hair), (2) abnormal dentition, (3) onchodysplasia (abnormal nails), and (4) dyshidrosis (abnormal or missing sweat glands). Certain oral and facial characteristics may also be associated with the syndrome. Because there are more than 100 different ED syndromes, clinical manifestations depend on the specific syndrome afflicting an individual. The most frequently reported ED syndrome is Siemens-

Touraine syndrome, which affects one to seven individuals per 10,000 live births. Orofacial characteristics of this syndrome include anodontia or hypodontia, hypoplastic conical teeth, underdevelopment of the alveolar ridges, frontal bossing, a depressed nasal bridge, protuberant lips, and hypotrichosis.[3] Prosthetic treatment is important because it can affect their self-esteem. Numerous clinical reports have demonstrated the importance of prosthetic dental treatment in ED patients for physiologic and psychosocial reasons. Thus in this clinical case report we tried to fabricate interim cu-sil denture for the young girl to improve self confidence & social well being of the patient.

- Cu-sil denture

The Cu-sil denture has holes for natural teeth. These holes are surrounded by a gasket of stable silicone rubber. Cu-sil dentures are not the best simplest answer for individuals with numerous, evenly distributed, and stable natural teeth. They are republicised largely as “transitional” dentures.[4]

• Indications for the Cu-sil overdenture

1. Any patient with mobile, isolated, or periodontally concerned teeth whose last resort seems to be an immediate full denture.
2. A patient who does not need 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.[4]

• Advantages of Cu-sil overdentures

1. There is less time, effort and precision required in chairside and laboratory procedures. No special tooth preps or impression techniques are required.
2. Cu-sil cases require no adjustments on insertion and no post-insertion adjustments. Comfort is quickly and easily achieved on seating since tissues and acrylic tissue bearing Cu-sil partials adapt to each other more readily.

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3. Vertical dimension and original bite are automatically maintained.
4. The Cu-sil denture is more affordable since endodontic therapy is not needed. Extraction costs are also reduced.
5. Previous bone loss is rejuvenated. Tissue response is exceptional. Denture stability and retention are achieved even is only one or two teeth are retained.
6. Propriosensitivity is maintained, potential psychological impact is avoided, and less trauma is realized when patient is not rendered totally edentulous.
7. Cu-sil partial dentures eliminate clasps and preserve dentition. They stabilize, cushion and splint teeth with an elastomeric gasket that provides retention and seals out food. Stops trauma, stress, and wear to teeth caused by torque-inducing metal partials.
8. A Cu-sil denture will stabilize loose teeth, and with care, will extend their lives. It’s additionally simple to replace lost natural teeth on the Cu-sil denture.[4]

Conclusion:

In this case report, we have taken an effort to enhance patient’s facial appearance with interim cu-sil denture improving aesthetics and psychological wellbeing of the patient in a very cost effective and simple way. Preserving natural teeth of the patient maintains proprioception, prevents further bone loss, give horizontal stability to the denture& also the patient was satisfied with the denture.

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