

Case Report

Prosthodontic Management of an Epileptic Patient: A Case Report and Treatment Planning

Nandeeshwar D. B., Neha Arora

Department of Prosthodontics and Implantology, Bapuji Dental College and Hospital, Davangere

Abstract:

Tooth loss is a very common complaint in epileptic patients. Prosthodontic rehabilitation for these patients is a challenge to a clinician, but epilepsy should not be a barrier to obtain prosthetic treatment. Certain modifications in the clinical procedures can improve the outcome of the treatment. Patient should be motivated for regular dental visits to check for the retention and stability of the denture. Hereby, we are presenting a case report of an epileptic patient and his prosthodontic rehabilitation using cast partial denture.

Key Words: Epilepsy, Management, CPD, Cast Partial.

Corresponding Author: Dr. Neha Arora, Department of Prosthodontics and Implantology, Bapuji Dental College and Hospital, Davangere

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Introduction:

Epilepsy is a disease that involves seizures which are characterized by an alteration of perception, behavior and mental activities, as well as by involuntary muscle contractions, temporary loss of consciousness and chronic changes in neurological functions that result from abnormal electrical activity in the brain.¹⁻³ Epileptic seizures are reversible and recur frequently.⁴ Epilepsy is a disease that is frequently encountered by oral and maxillofacial surgery practices.⁴ It is thought to affect millions of people worldwide, and has a prevalence of 0.5% - 0.9% in the general population.⁴⁻⁶ Chapman et. al. have reported that, epileptic seizures are the second most common medical incident in dental surgeries. They have stated that statistically every dentist notice in his/her

professional life 1.5 times generalized tonic-clonic seizures by the patients.⁷ Therefore, we are presenting a case report of prosthodontic management of an epileptic patient.

Case Report:

A 35 year old male patient reported to the department of prosthodontics with the chief complaint of missing teeth in upper front region of mouth since 2 years, and wanted them to be replaced with artificial set of teeth. (Figure 1) History of present illness dates back to 2 years when he got extraction of his upper front teeth due to increased mobility. Medical history revealed that the patient was epileptic since 10 years. The patient gave history of epileptic attack accompanied by giddiness, loss of touch with

surroundings and post-ictal sleep. He was under medication for the same since 8 years.



Figure 1: Pre - operative photograph.

The CT head report by the radiologist revealed no focal neurological deficit and it was diagnosed as the case of generalised tonic-clonic seizures. The patient gave history of last epileptic attack 8 months back. Dental history revealed that the patient underwent treatment for drug induced phenytoin gingival hypertrophy, 2 months back. General physical examination and extraoral examination were non contributory. On intra-oral examination, mild gingival inflammation was present with respect to the mandibular anterior teeth. Clinical attachment loss was present with respect to the both maxillary and mandibular teeth. Intra-oral soft tissue examination revealed no significant finding with respect to buccal mucosa, labial mucosa, palatal mucosa and tongue. Hard tissue examination revealed edentulism with respect to 11, 14 and 25. A working diagnosis of maxillary partial edentulism with Kennedy's class III Modification 2 type, opposing completely edentulous mandibular arch was given and the patient was also a case of generalised periodontitis.

Panoramic radiographic examination revealed generalised bone loss with respect to maxillary and mandibular teeth and edentulism with respect to 11, 14 and 25. (Figure 2) Crown to root ratio was calculated for the abutments to be used for fixed prosthesis i.e. 12, 21, 13, 15, 24 and 26.

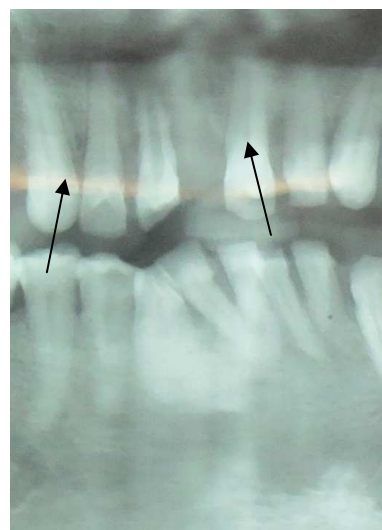


Figure 2: OPG of the patient (Cropped), Note the amount of bone loss with respect to 12 and 21 (Arrows).

The ratio was found to be more than the 2:3 at which the teeth can be used as abutments for fixed prosthesis due to generalised periodontitis. So the treatment option was rejected. Dental implants was another option that can be used in this case by placement of individual implant with respect to the edentulous space in the arch, but due to risk of peri-implantitis and higher treatment cost, the treatment option was rejected. Third treatment option, cast partial denture was considered in the present case. The Co-Cr metal framework was used due to its superior properties like rigidity and strength.

Clinical procedure:

Diagnostic impressions were made with irreversible hydrocolloid (alginate). The impression was poured in type III dental stone. Then, the casts were mounted in centric relation in semi-adjustable articulator using face bow transfer method. Diagnostic casts were surveyed; block out of undesirable undercut was done. The metal framework was designed on diagnostic cast. The mouth preparation for cast partial denture was done intraorally.



Figure 3: Components of LiWaxer Set



Figure 4: Cast partial denture trial.

The proximal guide planes were prepared with respect to 12,21,15,13,24 and 26 and mesio-occlusal rest seats were prepared with respect to 15,26 and disto-occlusal rest seats were prepared with respect to 24 and cingulum rest seat was prepared with respect to 13. Gingivally approaching I-bar was planned with respect to 13 followed by final impression with multiple mix technique using light body and heavy body in custom tray. Critical areas of impression were poured in type IV die stone followed by type III dental stone. Surveying of master cast was done and an application of a prefabricated light-polymerizing plastic pattern (LiWa wax) to construction of removable partial denture framework without the use of a refractory cast was made. (Figure 3 and 4) A plastic pattern for maxillary Kennedy's class III Modification 2 was adapted on the master cast of partially edentulous patient. The pattern was polymerized in a light chamber. The

framework was carefully removed from the master cast and trial was done in mouth directly. Investment of wax-pattern was done using phosphate bonded investment for the subsequent procedures. An excellent fit of the framework in the patient's mouth was observed in the try-in. (Figure 5) Then recording of jaw relation, followed by teeth arrangement and try-in and finally acrylisation was done. (Figure 5)



Figure 5: Teeth arrangement in fully adjustable articulator.

At the insertion of the denture, the rests, minor and major connectors showed excellent contacts with adjacent rest seats and proximal surfaces of the abutments. (Figure 6) Patient was advised to have regular dental check for the intimate fit of the cast partial denture. The patient is still under follow up and no complication has been reported till date.



Figure 6: Insertion of cast partial denture.

Discussion:

The prosthetic rehabilitation of an epileptic patient can be done by removable or fixed prosthesis. The patient must however be

advised about the danger of inhalation or swallowing of the denture during a seizure. For this patient who is partially edentulous, ideal treatment option is a fixed prosthesis. This can be in the form of bridges or implants. A cast partial denture was constructed for this patient as crown to root ratio of abutments was not appropriate for bridge construction. Moreover, increased risk of peri-implantitis and higher cost factor of implant supported prosthesis made us to select a cast partial denture as an appropriate treatment option for this case.

According to Fabian and Fejerdy classification of partially edentulous arches, this came out to be class 1A in maxillary arch in which all abutment support was available and it was fully tooth-supported. Rigidity was increased due to the use of Horseshoe major connector as posterior teeth were present so there were no chances of flexing the prosthesis. Here the minor connector connecting the denture base was of mesh type for retention of acrylic resin. For the cast partial denture design, good retention, stability, adequate support and comfortability, aesthetics must be ensured which provided the ideal tissue support need for the denture. The result suggests that use of LiWa wax method minimizes laboratory cost and time for partial denture construction.⁸The technique was effective in simplifying the fabrication process by performing the waxing step directly on the master cast. The potential causes for ill-fitting of the cast frameworks may include dimensional changes in the investment materials, solidification shrinkage, and distortion of the wax pattern.^{9,10}

Conclusion:

Epilepsy should not be a barrier to obtain prosthetic treatment. Regular visits are essential to check that the denture is retentive, stable and that the mucosa and adjacent standing teeth are healthy.

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