T-Bar Clasp-Retained Removable Partial Denture as an Alternative to Implant-Based Prosthetic Treatment

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This article reports the case of a 55-year-old female patient who presented with unsatisfactory temporary crowns in the right mandibular premolars and molars, and a premolar-to-molar fixed partial denture in the left side. The clinical and radiographic examinations revealed a fracture of the left first premolar that was a retainer of the fixed partial denture and required extraction. Initially, the acrylic resin crowns were replaced by new ones, and a provisional RPD was made using acrylic resin and orthodontic wire clasps to resolve the problem arising from the loss of the fixed partial denture. Considering the patient’s high esthetic demands, the treatment options for the definitive prosthetic treatment were discussed with her and rehabilitation with implant-supported dentures was proposed because the clinical conditions of the residual alveolar ridge were suitable for implant installation, and the patient’s general health was excellent. However, the patient did not agree because she knew of a failed case of implant-retained denture in a diabetic individual and was concerned. The patient was fully informed that implant installation was the best indication for her case, but the arguments were not sufficient to change her decision. The treatment possibilities were presented and the patient opted for a clasp-retained removable partial denture (RPD) associated with the placement of crowns in the pillar teeth. The temporary RPD was replaced by the definitive RPD constructed subsequently. Although RPD was not the first choice, satisfactory esthetic and functional outcomes were achieved, overcoming the patient’s expectations. This case report illustrates that the dentist must be prepared to deal with situations where, for reasons that cannot be managed, the patient does not accept the treatment considered as the most indicated for his/her case. Alternatives must be proposed and the functional and esthetic requirements must be fulfilled in the best possible manner.

Key Words: removable partial denture, prosthetic planning, free end saddle.

INTRODUCTION

Despite all efforts to overcome the esthetic and functional problems related to the construction of removable partial dentures (RPDs) (1-7), these prostheses are not the first choice of a large number of patients due not only to esthetic impairments, but also to the discomfort related to their base extension (8). Clinical situations requiring the replacement of multiple teeth or bilateral posterior edentulous spaces are the classical indication for RPDs. However, when anterior teeth must be used as retainers for an RPD, it is a great challenge to achieve an esthetic outcome with circular or T-bar clasps (9). In view of these shortcomings, many patients are adverse to RPD treatments (10,11).

Implant-supported dentures have presented as a successful treatment option in oral rehabilitation, offering improved esthetics and biomechanical advantages. The increase in their clinical indications has determined a considerable reduction in the use of RPDs. Nevertheless, some patients do not accept prosthetic treatments based on implant systems alleging health, financial, psychological or anatomical hindrances (12,13).

When, for whatever reason, RPD is the treatment of choice, the dentist must try to meet as close as possible the patient’s functional needs and esthetic

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expectations in the same way as it would be done in the case of a more sophisticated denture. Therefore, RPD planning should consider the benefits of using adhesives for attachment and bonding or composite resin for preparation of strategic areas on pillar teeth, irrespective of the wear process (14-17). The placement of a provisional denture, which is part of more sophisticated treatments (18), should also be used between the initial phase of extracting hopeless teeth and the final case. In addition to providing a short-term esthetic improvement (19), the fabrication of a provisional denture can contribute to the treatment planning by revealing important details for the definitive denture.

This article presents a clinical situation where the indication of a provisional RPD with unilateral free end resolved the immediate esthetic problem and was essential for the definitive prosthetic planning. The treatment was conducted according to esthetic and biomechanical principles and proved to be the best possible option for a patient that refused implant-supported denture.

CASE REPORT

A 55-year-old female patient presented with great concern about the perspective of using a RPD after the loss of a posterior tooth that supported a fixed partial denture (FPD) in the left mandible. The FPD comprised a retainer and a pontic in cantilever sectioned from the posterior retainer that had been extracted. Extraction had occurred a few months earlier, causing the FPD dislodgement from the supporting teeth.

The clinical examination revealed the presence of

Figure 1. Clinical photographs. A= Unsatisfactory provisional acrylic resin crowns on the right side at the patient arrival; B= Left first premolar with a longitudinal root fracture at the patient arrival; C= New provisional acrylic resin crowns placed on the right side; D= Temporary removable partial denture placed before extraction of the fractured mandibular left premolar.
unsatisfactory provisional acrylic resin crowns on the mandibular right premolars and molars. On the left side, the mandibular first premolar that supported the FPD was fractured longitudinally and also required extraction (Fig. 1A and 1B). Initially, the acrylic resin crowns were replaced by new ones, and a provisional RPD was made using acrylic resin and orthodontic wire clasps, which were installed before premolar extraction. This procedure essentially resolved the problem caused by the loss of the FPD, but the patient complained about the visible clasps and the base color of the provisional RPD (Fig. 1C and 1D), revealing high esthetic expectations.

The treatment options were discussed with the patient and rehabilitation with implant-supported dentures was proposed as the best option due to the clinical conditions of the residual alveolar ridge were suitable for implant installation, and her general health was excellent. However, the patient did not agree because she knew a failed case of implant-retained denture in a diabetic individual and was concerned. The patient was fully informed that implant installation was the best indication for her case, but the arguments were not sufficient to change her decision. Other possibilities were discussed and the patient only agreed with the placement of a RPD, but demanded that it should be retained by attachments that were not exposed on smiling.

The severe crowding between the left canine and the lateral incisor, that was harmonious to a similar condition on right side, caused difficulties for crown preparation in terms of the attachment arrangement and even for the trial of extra-coronal attachment fixation through an adhesive retainer (Fig. 2). Since the patient refused implant placement, but agreed with a RPD, the treatment proposed included the fabrication of metal-
ceramic crowns on the right side milled for arrangement of geminated retainers for the RPD, and the use of canine clasp positioned strategically to achieve an esthetic result (Fig. 2). The metal-ceramic crown preparations to receive the RPD included the preparation of long guide planes on the lingual and proximal surfaces with retentive niches next to the occlusal edge of guide planes on the mesial surface of the first molar and on the distal side of the second molar (Fig. 2D). A cingulum rest was prepared on the lingual surface of the canine with composite resin and a retentive area was made on the buccal surface in order to hide the elevation of the clasp, which could occur if the mesiobuccal surface was used, as had occurred with the provisional denture.

In order to make the denture as comfortable as possible, no indirect retainer (20) was introduced in an...
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