

## Murad-bridge Dentures in Severely Reduced Dentitions A Case Series

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### Abstract

Since it is a new patent, Murad-bridge dentures, has not been widely reported. In this article, we present 2 periodontal-prosthetic cases in which teeth of periodontally questionable or hopeless prognoses were included in fixed but tooth/tissue-supported Murad-bridge denture units in severely reduced dentition patients (4 or less teeth). The cases were followed-up for 3~4 years, and none showed any further periodontal breakdown and the dentures were functionally successful and aesthetic.

**Keywords:** Severely reduced dentition, Murad-bridge denture

### Introduction

The proportion of partially dentate adults is increasing in many populations [1], survey data have indicated that at least one quarter of a million people under the age of 40 have removable partial dentures [2]. Many investigators indicated that oral health-related quality of life (OHRQoL) in a group of removable partial denture (RPD) wearers was generally not optimal and found to be strongly associated with oral health [3]. However dentures should maintain the health of the remaining dentition and surrounding oral tissues in addition to be functional and aesthetic.

Murad-bridge dentures -which is supported by both: natural teeth and the alveolar ridge - is a treatment choice that could be used to support dentures and restore the functional and aesthetic demands of the patients, since it was introduced in the 2013.

Murad-Bridge denture contains “Murad-pontics” - pontics made of acrylic resin - , this kind of pontics provide several advantages to the denture: 1-The denture will be less in weight, 2- the occlusal forces will be reduced on the abutments due to the tissue support. Murad-pontic can be used as an alternative option in some special clinical cases such as: Lack of the bone support on the dental abutments, Long bridges, Cantilever bridges and all on four technique with dental implants. Thus, a fixed prosthodontics can be provided that reduces the occlusal forces on the abutments and reduces the cost compared with other available solutions such as implants.

This type of dentures provides easy access for oral hygiene around the abutment teeth as well as easy handling of the over dentures. The relative high retention leads to an acceptable function in mastication, phonetics and restore the aesthetic demands of the patients. They have also advantages in over-dentures which includes teeth with questionable long-term prognosis, by giving the opportunity to modify the denture after extraction.

A Swedish group demonstrated that periodontally treated abutment teeth with extensive loss of osseous support can successfully support cement- fixed bridges for 5~10 years if meticulous plaque control and professional maintenance are carried out [4]. In those retrospective studies, although the total periodontal support of the abutment teeth was less than that required by Ante’s law by 50% or even more, the failure rate was less than 8%. Such studies encouraged to create Murad-bridge dentures to deal with specific cases.

The forces applied to the abutment teeth and their effects are very important considerations when designing and constructing Murad-Bridge dentures. Adequate planning of the denture requires an understanding of the forces generated during mastication and their distribution to supporting structures. If definite principles are followed when planning and constructing the prosthesis, the stresses will be safe within the range of tissue tolerance, thus enabling it to improve the periodontal health [5].

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We report here two cases that patients' satisfaction was improved at the point of comfortable wearing, aesthetic aspect and the function, using Murad-bridge denture.

### Case 1

This patient was a 58 years old Syrian male with advanced chronic periodontitis of his lower dentition. No systemic problems were reported but the patient was heavy smoker. The periodontal examination included full-mouth charting and a radiographic survey. Most of the teeth on the mandibular fit the criteria of a hopeless prognosis because of >75% bone loss and probing depths of 8~10 mm around each tooth. The mandibular right canine, wright lateral incisor in addition to the central incisors fit a questionable prognosis because of 50% bone loss [6].

Dental implants were not an option due to the lake of distance to the mandibular nerve canal <4 mm.

The initial periodontal treatment covered oral hygiene instructions, scaling/root planing, occlusal analysis, and extraction of the mandibular hopeless teeth.

After completing the periodontal therapy and extraction the patient wore a temporary RPD for 3 months then Murad-bridge was fabricated (Figures 1-6).

### Case 2

A 61 years male, had uncontrolled diabetes type 2 and blood hypertension, wanted a fixed denture and was unable to afford the cost of dental implants. Murad-bridge is made for the upper jaw using three remaining teeth as abutments. This bridge consisted of 14 pieces to restore the upper missing teeth and help the patient improves his mastication, aesthetic and reducing occlusal forces on the abutments.

A traditional crown preparation was performed on the three



Figure 1: The metal core on the model.



Figure 2: Testing the metal bridge in the mouth.



Figure 3: Adding porcelain layers.



Figure 4: Adjusting the occlusal in the mouth.



Figure 5: Finishing of the murad bridge.



Figure 6: Fixation in the mouth.

remaining teeth with 1.2 mm shoulder; an impression with a custom tray then we started the denture fabrication.

In this case we managed to have the advantages of the lighter weight of Murad- bridge than the traditional RPD to provide this patient with a fixed prosthetic solution with low cost (Figures 7-10).

### Discussion

In current dentistry, dental implants are undoubtedly the optimal choice of treatment for many complicated prostheses.



Figure 7: Murad bridge on the model.



Figure 8: Testing the bridge in the mouth before adding the pontics



Figure 9: Finishing.



Figure 10: Cementing in the mouth.

However, a lot of people cannot afford the high cost of dental implants, which was the reason that our second patient looked for other alternatives, whereas in first patient there was a lake of distance to the mandibular nerve canal  $< 4$  mm.

In the present cases prosthetic techniques were sensitive; however, patients with a history of heavy smoking, diabetes, poor plaque control, or serious systemic problems which may compromise the periodontal health.

It is known that partially edentulous patients were not in favor of wearing removable partial dentures (RPDs) at the points of comfortable wearing, aesthetic aspect and the function, thus we managed to deal with these points using Murad-bridge dentures design.

These cases were selected based on that this treatment may be the last resort for having a fixed prosthetic, and saving the remaining abutments by reducing the occlusal forces which is applied on them. This type of dentures was favorable, because it is less in weigh, reducing the occlusal forces on the abutments and providing tissue support to the denture.

A tissue/teeth-supported dentures has long been considered the treatment of choice for dentition with reduced periodontal support [7]. The rationale includes 1) avoidance of secondary trauma from occlusion on weak abutments with a tissue-supported design, 2) excellent retrievability if restorative and laboratory repair are needed, 3) easier plaque control, and 4) lower costs.

Murad-Pontic has the characteristic that should be in any other pontics type; so it is aesthetics, hygienic and distributes the mastication forces, In addition, it has its own characteristic because it is made of acrylic resin: such as its lighter weight, lower cost and not causing abrasion to the opposite teeth [8].

## Conclusions

This case series demonstrates that Murad-bridge dentures may be used successfully for the support of fixed dentures. Further studies with a larger number of cases and longer periods of time are necessary to validate these findings and to allow for final conclusions on the long-term predictability of this treatment approach.

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