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Case Report

A 5 Year of Evaluation of the Maxillary Kennedy Class I Implant- Tooth–Supported Removable Partial Overdenture: A Case Report

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Abstract

Aim: The rotational movements of the distal extension denture base of partial removable dental prostheses mostly harm the prosthesis stability. This situation lead to discomfort during the function at Kennedy Class I. This case report case showed the use of distal implants with 'locater attachments' and anterior tooth semi-rigid connection to retain and support partial removable dental prosthesis.

Case: In this case report shows the fabrication of a maxilla Kennedy Class 1 removable partial denture supported by existing anterior teeth and 2 distal single implants with locator abutments, which prevented displacement of the distal extension of the partial denture.

Results: This case report shows us, distal implants with locater abutments have been showed to provide extra support and retention and prevent dislodgement of the patient's distal extension removable partial denture. This demonstrates a successful treatment approach to restore oral function and appearance for the patient.

Keywords: Implant Supported Removable Partial Denture; Implants; Kennedy Class I; Overdenture; Maxillary

Introduction

Removable partial denture (RPD) proceed to be prosthetic importance in oral treatments, in particular when the edentulous posterior area to a patient's surviving teeth are to be restored [1]. The patient of partial edentulous can be the treatment common range of prosthetic treatment options with the inclusion of conventional restorations, overdenture, fixed partial denture or dental implants [2].

For patients with bilateral edentulous in molar region, removable partial dentures with a bilaterally designed framework claimed to be less comfortable during mastication and speech, and the more profound effect is anticipated on patients' acceptance due to its relative simplicity [3]. However, clinical use of the bilaterally designed framework is criticized owing to the poor retention and stability compared with the removable partial denture with unilaterally designed framework [4]. Most of these problems could be solved with the posterior abutment. The mucosa and the periodontal ligament of the last abutment between of displacement are very different. Consequently, be carefully used the abutment of the distal extension removable partial denture if clinical treatment is to be successful [3,5]. The use of dental implant as a distal abutment can turn to a distal extension removable partial denture from a tooth- and tissue-supported prosthesis to a tooth- and implant- supported and maintained prosthesis. The placed implant to posterior, supply a certain stop and stability and out of the problems usually between with a tooth- and tissue-supported distal extension RPD [3]. Also, bilateral free end jaw can be treated by osseointegrated implant therapy. In such cases, poor bone quantity and the inferior alveolar nerve position make difficulties to placed to implants to posterior regions. in which case, the use of short implants may be indicated. Shorter implants show failure in the osseointegration treat. Also, some patients decrease or not able to complex surgeries, which anymore limits the indications for implant-supported prostheses. Some studies have shown an increase in the stability of RDP with the use of a few strategically placed implants for stability and reinforcement. The treatment supplies vertical stability and limited the rotation [4-6].

There is a paucity of studies concerning the combination of implants and removable partial dentures. This is surprising because in many partially edentulous usually choose the combination of implants and fixed restorations treatments [7]. Partially edentulous patients have been rehabilitated successfully with the implant-supported removable partial denture treatment.

Purpose

The purpose of this case report is to present a case where bilateral distal extension RPD was used in combination with anterior fixed implant prostheses with semi-precision attachments.

Case Presentation

The patient who is 65-year-old, female presented for treatment. The clinical and radiological examination were determined that the patient lost her teeth due to periodontitis. She had mandibular 1st.molar and that had high bone defects and mobilization. She has maxillary right central, left central, left lateral, left canine and mandibular incisor teeth (Figure 1). The maxillary left canine had to extracted because of high mobility. She doesn't have an habit such as parafunctional activity (grinding, clenching, etc). Scaling, root planing, oral hygiene instruction, restorative dentistry, and extraction (because of periodontal reasons) were made at the initial treatment phase. Stone casts were obtained from first impressions. Stone casts were adjusted in a semi adjustable articulator at the desired occlusal vertical dimension by using an arbitrary face-bow. The centric relation was recorded by prefabricated occlusal rims on stable record bases.

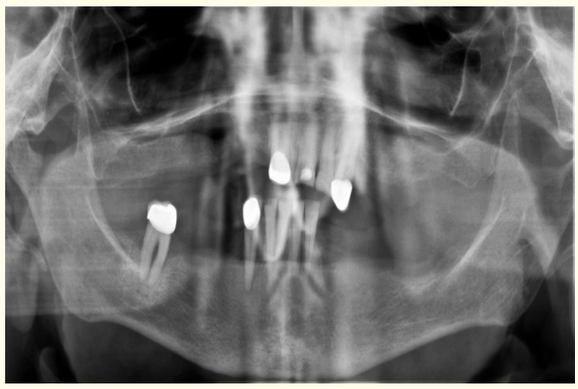

Figure 1: Initial panoramic X-ray.

Two solid screw implants (Nobel implants; No 29415, 12 mm in length, 4.3 mm in diameter, Nobel Biocare AG, Zürich, Switzerland) were placed in the maxillary left second molar and right second molar areas by surgical intervention. The low bone region did not allow to placement more implant at the maxillary posterior area. After this intervention, Kennedy classification of the partially edentulous arch was changed from Class I (tooth-tissue– supported) to Class III (tooth-implant–supported). We decided to insert 6 implants (Nobel implants, Nobel Biocare AG, Zürich, Switzerland) on mandibular for make fixed implant support restoration (Figure 2). The mandibular arch was reconstructed with metal-ceramic fixed implant support dental restorations, after the osseointegration about 12 weeks later (Figure 3). Maxillary teeth was be restored with crowns with semi-precision attachments. The maxillary RDP were made according to anterior semi-precision attachments crowns (Figure 4,5). A cobalt-chromium alloy (Dentorium; Labordental) was used to process maxillary RPD frameworks. The palatal strap and connection to semi-precision were consisted by using this design (Figure 6). The distal extension PRD acrylic resin base was relieved. The ball abutments were captured intraorally to activate seating of the attachment in the prosthesis intaglio (Figure 7). Despite the additional retention of the implant attachments, semi-precious retainers of the anterior crowns are maintained, assisting the RDP retention. Occlusal adjustments were the bilateral balanced occlusion (Figure 8,9). The bases of the RDP was polished. Metal ceramic crowns were cemented by using glass ionomer cement. Oral hygiene instructions and aids were provided to the home care of the splinted metal-ceramic restorations. We gave the information to patients about the survival rates of attachment- retained RPD and the need for matrix and patrix maintenance.

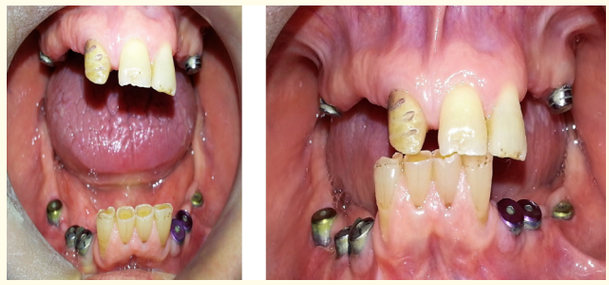

Figure 2: After the implant placement intraoral pictures.

Figure 3: Metal framework try-in.

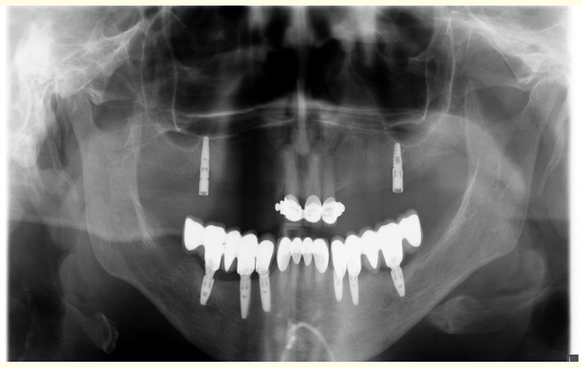

Figure 4: Finished the metal-ceramic crowns; panoramic x-ray view.

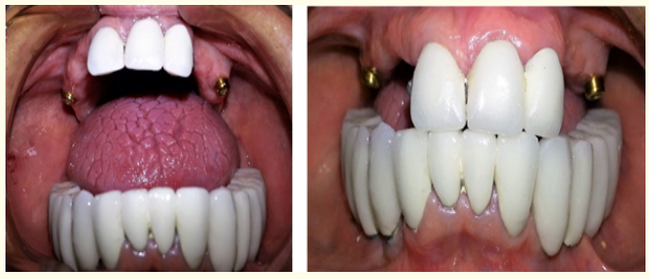

Figure 5: Maxillary and mandibular restorations after veneering.

Figure 6: The palatal strap and semi-precision at RPD.

Figure 7: Intaglio at the RPD for connection locater attachments.

Figure 8: Adjusting the bilateral balanced occlusion.

Figure 9: Intraoral facial view of the implant supported RPD.

Figure 10: Panoramic radiograph with RPD at 1-year recall.

Figure 11: Panoramic radiograph with RPD at 1-year recall.

Figure 12: Intraoral facial view at 5-year recall.

Discussion and Conclusions

The plan and stability of bilateral Kennedy classes I partial dentures present challenges for clinicians. Because of these prostheses require support from the underlying residual alveolar ridges, the mucosa, and the teeth. Especially, the distal-extension removable partial denture is exposed to vertical, horizontal, and torsional forces that may have adverse effects during functional and parafunctional activities. Contraindications can be based on anatomic factors, such as the mandibular nerve or extension of the maxillary sinus, or costs involved with implant treatment [8]. When overdentures are fabricated over a number of splinted implants, their vertical path of insertion demands a degree of prosthetic space, which may be unavailable. Although, dental implants to improve the support and retention and to enhance patient acceptance should be considered when treatment planning for removable dentures for partially edentulous patients.

Conflict of Interest

No conflict of interest exists.

Bibliography

1. Astrand P., *et al*. "Implant treatment of patients with edentulous jaws: A 20-year follow up". *Clinical Implant Dentistry and Related Research* 10.4 (2008): 207-217.

2. Rashid F., *et al*. "The effectiveness of 2-implant overdentures – a pragmatic international multicentre study". *Journal of Oral Rehabilitation* 38.3 (2011): 176-184.

3. Carr AB., *et al*. "Brown DT. McCracken's removable partial prosthodontics". 12th edition. St Louis: CV Mosby (2011): 24.

4. Fahmy A., *et al*. "Effect of using attachment on implant supported distal extension lower partial overdentures". *Cairo Dental Journal* 24.1 (2008): 1-5.

5. Ogeta A., *et al*. "Longitudinal study on torque transmitted from a denture base to abutment tooth of a distal extension removable partial denture with circumferential clasp". *Journal of Oral Rehabilitation* 19.3 (1992): 245-251.

6. Zinner ID., *et al*. "Stress releasing intracoronal attachment for extension base removable partial dentures". *General Dentistry* 46.4 (1998): 398-405.

7. Mekawy NH., *et al*. "Intracoronal Mandibular Kennedy Class I Implant- Tooth–Supported Removable Partial Overdenture: A 2-Year Multicenter Prospective Study". *The International Journal of Oral and Maxillofacial Implants* 27.3 (2012): 677-683.

8. Nogawa T., *et al*. "Comparison of treatment outcomes in partially edentulous patients with implant-supported fixed prostheses and removable partial dentures". *International Journal of Oral and Maxillofacial Implants* 31.6 (2016): 1376-1383.

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