



February 2017

Published by Global Dental Implant Academy

GDIA

Dental Implant CASE REPORT

Improving the Outcome of Removable Partial Denture Treatment with the Use of Implants



Tony Daher, DDS, MSEd, FACP, FICD

- Diplomate, American Board of Prosthodontics
- Private Practice, La Verne, California
- Co-Director of GDIA

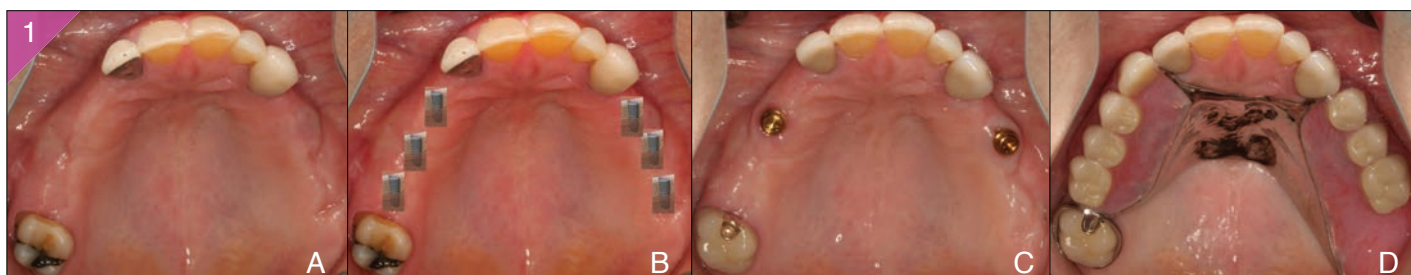


Figure 1a-d. a) Partially edentulous situation is needing restorations. Decision to be made between b) implant fixed restoration (6 implants) and c) implant removable restoration using 2 implants placed in the residual ridges rendering this option economical and affordable by some patients. d) the outcome of this RPD treatment is improved with the use of implants that helped the support and the retention of the prosthesis by turning the prosthesis from a tooth-tissue borne to a tooth-implant prosthesis. This will improve the outcome of the RPD treatment and it will render it affordable by the patient.

Introduction

When treating partially edentulous patients, several factors come to play when choosing between a fixed or removable partial denture. Greater numbers of implants and bone grafting procedures are generally required for the fixed prosthesis as compared to the removable prosthesis treatment option. Economic, treatment time, and hygiene practices tip the scale for a removable partial denture (RPD) option (Figure 1). RPDs are classified as either tooth-borne prosthesis or tooth-tissue-borne prosthesis. A tooth-borne prosthesis can be considered a “removable fixed bridge” because it is the easiest to design, most accepted by patients, and has a longer survival rate than the tooth-tissue borne prosthesis.¹

The tooth-tissue-borne RPD is not well understood by many dentists, and its complexity depends on the span length of the edentulous area and the type of arch involved. Chewing and parafunctional forces act as destructive forces that may act on the RPD abutment teeth and the residual alveolar ridges.² The problem is how much support is required from teeth and how much support is required from the residual ridges. Patients tend to function and use the areas where the prosthesis is stable (for example, the tooth-borne side of a tooth-tissue-borne prosthesis). A common clinical problem confronting restorative dentists is the planning and maintenance of tooth-tissue supported Removable Partial Dentures (RPD).³



Brudvick and Keltiens et al reported that dental implants can be used to resolve problems when designing tooth-tissue supported RPDs in a cost-effective manner.^{4,5} Therefore, dentists can turn a tooth-tissue-borne situation into a tooth-borne situation using a dental implant on the edentulous side away from the abutment tooth,⁶ or can opt to not replace the missing teeth at the extension base with a prosthesis. In addition to this previous mechanical advantage, placing an implant under the RPD distal extension base has a physiological advantage.³ The amount of bone loss of the distal edentulous area is reduced because of its physiological stimulation by the implant.⁷ Even one implant per edentulous area and a simple attachment technique can yield a stable distal extension RPD.⁸



Figure 2a-b. a) Placing one implant in the middle of the edentulous ridge improve the stability of the RPD by making it a tooth-implant supported prosthesis. b) The RPD in the patient's mouth.

This case report document describes some clinical situations where implants could improve the biomechanical aspect of removable partial dentures and render the treatment affordable by many patients.

1. Case of the Mandibular RPD Opposing Maxillary Natural Teeth.

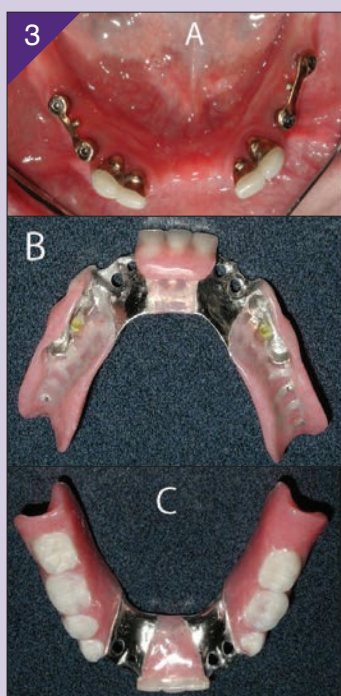


Figure 3a-c.

a) Occlusal view showing 4 implants connected with Hader bars. Patients wanted to keep all 4 remaining mandibular anterior teeth. Cingulum rests are placed on the anterior crowns to participate with the implants in the support of the prosthesis. The retention of the prosthesis is giving by the Bredent™ ball attachments placed on the lingual surface of the bars, and by the mechanical friction of the metal frame of the intaglio surface of the framework with the vertical surfaces of the bars.
 b) Intaglio surface view of the RPD showing the metal frame detail where it is in contact with the implant bars.
 c) Cameo surface view of the RPD. It is important to plan the inter-arch space to prevent thinning and breakage of the artificial teeth over the bars.

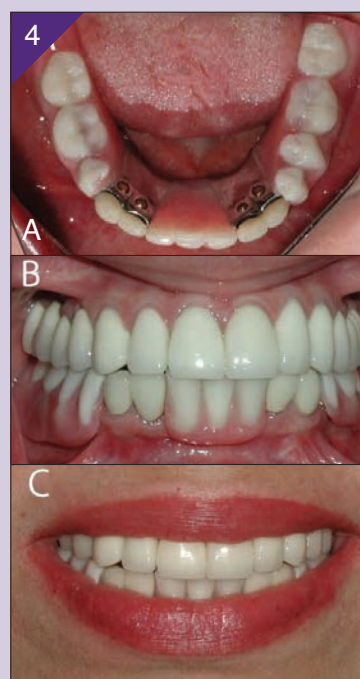


Figure 4a-c.

a) Occlusal view of the prosthesis in the mouth.
 b) Frontal view of the completed mouth restoration in centric occlusion.
 c) Frontal view of the final patient smile.

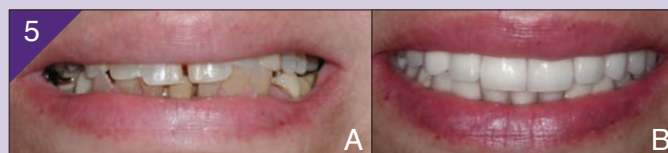


Figure 5a-b.

a) Frontal view of the smile before restoration.
 b) Frontal view of the smile after restoration.

2. Case of a Mandibular RPD Opposing a Maxillary Implant Overdenture.

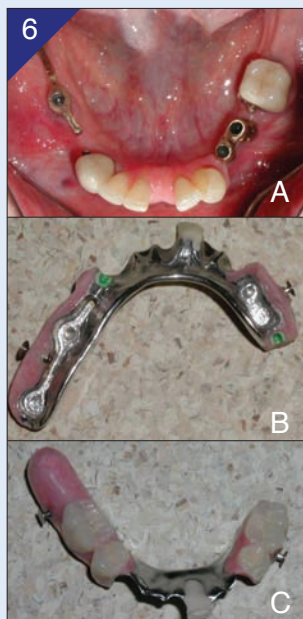


Figure 6a-c.

- a) Occlusal view of 2x2 connected implants. Remaining mandibular teeth are periodontally sound. The crowns on the left molar and the right canine have Bredent™ ball type attachments. These attachments help in the support and the retention of the prosthesis. Also, the prosthesis is retained at the implant level with 2 snap pin attachment by Bredent™. The plunger of these attachments goes into a hole drilled in the bars between the two implants.
- b) Intaglio surface view of the prosthesis showing the metal frame and the short flanges adequately designed to prevent any food impaction.
- c) Occlusal view of the so-called “removable bridge” prosthesis.

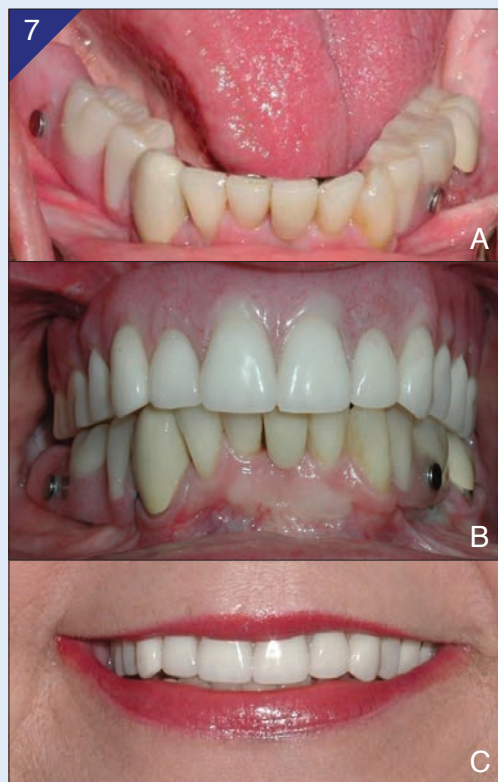


Figure 7a-c.

- a) The prosthesis in the patient's mouth.
- b) Frontal view of the maxillary overdenture and the mandibular prosthesis in centric occlusion. Acceptable articulation for this type of situation is either group function or balanced.
- c) photo of the final smile.

3. Case of Resorbed Maxillary Anterior Ridge:

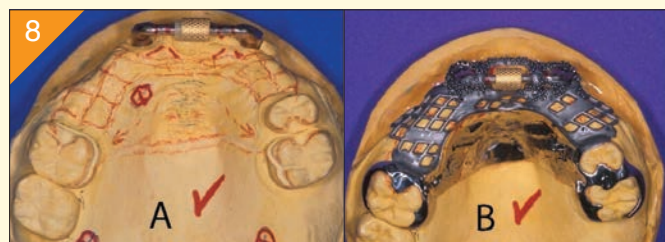


Figure 8a-b.

- a) Occlusal view of a maxillary resorbed anterior ridge. 2 treatment options are available: 1) fixed prosthesis using soft and hard tissues grafting and implant procedures rendering the treatment expenses and lengthy; or 2) removable overpartial prosthesis using 2 implants connected with a Hader bar.
- b) RPD Metal framework is shown. The use of these implants that are connected with Hader bar, is rendering the RPD an implant-tooth supported prosthesis and can be called a “removable fixed bridge”.

Please note the 2 positive rests on the teeth and the 2 metal-to-metal contacts on the bar by the RPD framework. These positive “metal-to-metal” contacts are taking the occlusal load off the plastic Hader clip.



Figure 9a-b.

- a) Frontal view of the implant Hader bar.
- b) Occlusal view of the implant-tooth supported removable partial denture.

References

1. Vermeulen A, Keltjens H, van't Hof MA, et al. Ten year evaluation of removable partial dentures: Survival rates based on retreatment, not wearing and replacement. J Prosthet Dent. 1996;76:267-272.
2. Kratochvil FJ, Caputo AA. Photoelastic analysis of pressure on teeth and bone supporting removable partial dentures. J Prosthet Dent 1974;32: 52-61.
3. Daher T, Hall D, Goodacre CJ. Designing successful Removable Partial Dentures. Compendium / March 2006 Vol. 27, No. 3
4. Brudvik JS. Implants and removable partial dentures. In: Brudvik JS, editor. Advanced removable partial dentures. Chicago: Quintessence Publishing Co;1999. p.153-9.
5. Keltjens HM, Kayser AF, Hertel Rm Battistuzzi PG. Distal extension removable partial dentures supported by implants and residual teeth: considerations and case reports. Int J Oral Maxillofac Implants 1993;8: 208-13.
6. Kuzmanovic DV, Payne AG, Purton DG. Distal implants to modify the Kennedy classification of a removable partial denture: A clinical report. J Prosthet Dent. 2004;92:8-11.
7. Wyatt CC. The effect of prosthodontic treatment on alveolar bone loss: A review of the literature. J Prosthet Dent. 1998;80:362-366.
8. Ohkubo C, Kobayashi M, Suzuki Y, Hosoi T. Int J Oral Maxillofac Implants 2008;23:1095-101.

Products Used



1) Sterngold.com
Hader Bar kit.



2) Kerator Korea;
overdenture@kerator.com



3) XPDent.com/ Bredent attachments



LIVE-PATIENT SURGICAL TRAINING PROGRAM IN BAJA CALIFORNIA, MEXICO

BUILDING CONFIDENCE IN IMPLANT SURGERY • 3-DAY PROGRAM • GDIA 101 • 28CEUs

- How to read and interpret using 3D CBCT Images
- Treatment planning concepts
- Fundamentals of implant surgery
- Basic surgical principles: suturing, incisions, flap design, etc.
- Extraction and socket preservation
- A minimum of 15 implant placement by group of two participants on live patients

Date & Time July 29 - 31, 2017

Tuition \$7,500

Fast Track to Fellowship Credentials • 4-DAY PROGRAM • GDIA 202 • 38CEUs

- World Academy of Ultrasonic Piezoelectric Bone Surgery(WAUPS) certified program
- Sinus Augmentation techniques : classic lateral window, crestal, HPISE and LISA
- Complex guided bone regeneration techniques
- Ridge split and bone expansion techniques
- Piezoelectric bone surgery
- Various clinical applications of autologous CGF, PRF, ASAP and Sticky Bone™ protocol
- Individualized approach to ICOI & WAUPS FELLOWSHIP requirements

Date & Time November 11 - 14, 2017

Tuition \$16,500

Please contact GDIA Staff at **(323) 617 - 4141** to register for the program.

Scan this QR code for more details

