



Clinical Advantages of Custom Alveolar Ridge Splitting Technique for Single Esthetic Implant Placement

Surawan Bannawat, Adam Joshua Herskovits, Jeffrey Scolnick, Stuart Froum, Sang-Choon Cho, Leena Palomo
Ashman Department of Periodontology and Implant Dentistry, New York University, College of Dentistry



INTRODUCTION

Guided bone regeneration (GBR) is considered one of the most widely accepted procedures for alveolar ridge augmentation. This technique offers favorable outcomes in terms of bone augmentation with long-term follow up after implant placement. Its predictability has been demonstrated for many years enabling adequate regeneration of the bony defects and rendering proper esthetic and function to the dental implant prosthesis. Depending on the morphology and extension of the defect, different variations of GBR have been described. In addition, onlay block grafting (OBG), distraction osteogenesis (DO), ridge splitting (RS) and mandibular interpositional grafting (MI) have also been documented as viable options for proper bone regeneration. However, the conventional GBR technique may present drawbacks and limitations including membrane exposure, infection of the site, resorption of the materials and the need for additive augmentation procedures due to unpredictable results.

As an alternative to these approaches, the recently introduced Customized Alveolar Ridge Splitting (CARS) technique may represent a viable augmentation technique for horizontal bone defects. This

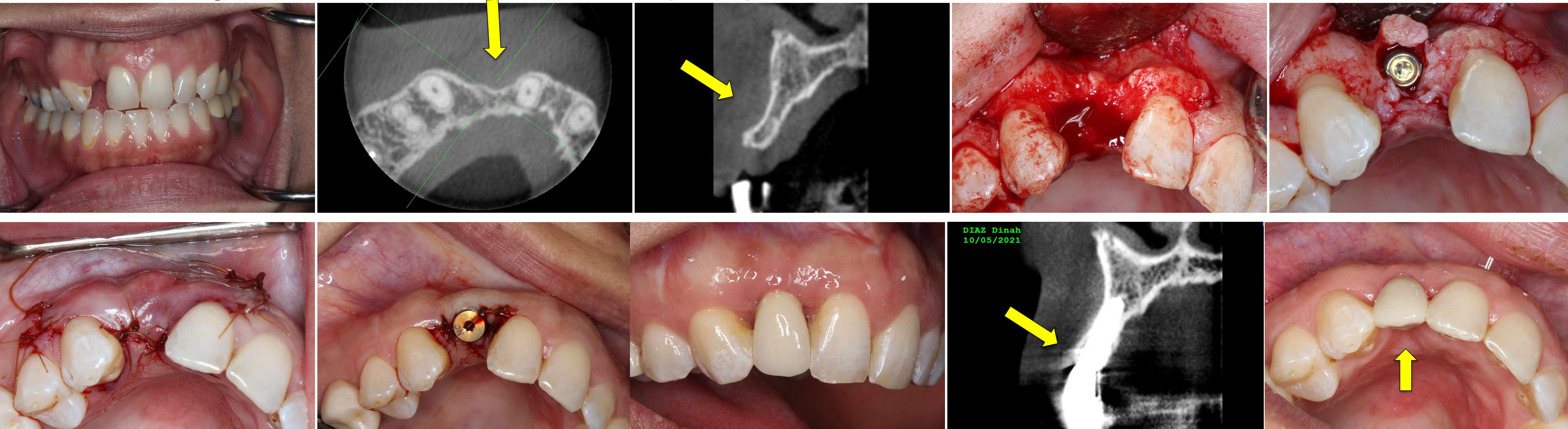
customized alveolar ridge splitting technique is indicated for treating severely atrophic horizontal ridges with only cortical bone remaining and with a reduced blood supply that oftentimes would require multiple surgeries to obtain the necessary of horizontal bone volume to successfully place dental implants. The goal of this technique is to convert an extraosseous defect to an intraosseous one with the aid of a trephine drill and is based on the buccal gap distance described by Greenstein et al. for immediate extraction sockets. If the distance between the implant and the buccal plate is less than 3 mm, additional bone graft material is not indicated. The only indication to place graft material is in esthetic cases where a xenograft material is placed externally to enhance additional contour and prevent further resorption of the cortical plate in accordance with Hom-lay Wang et al. As described by Froum and Kadi et al., CARS has similar success rate compared to the conventional ridge splitting technique but demonstrated reduced patient morbidity, a shorten treatment time and a minimized the ridge split as the expansion is localized in the ideal planned implant site.

SEQUENCE OF PROCEDURE

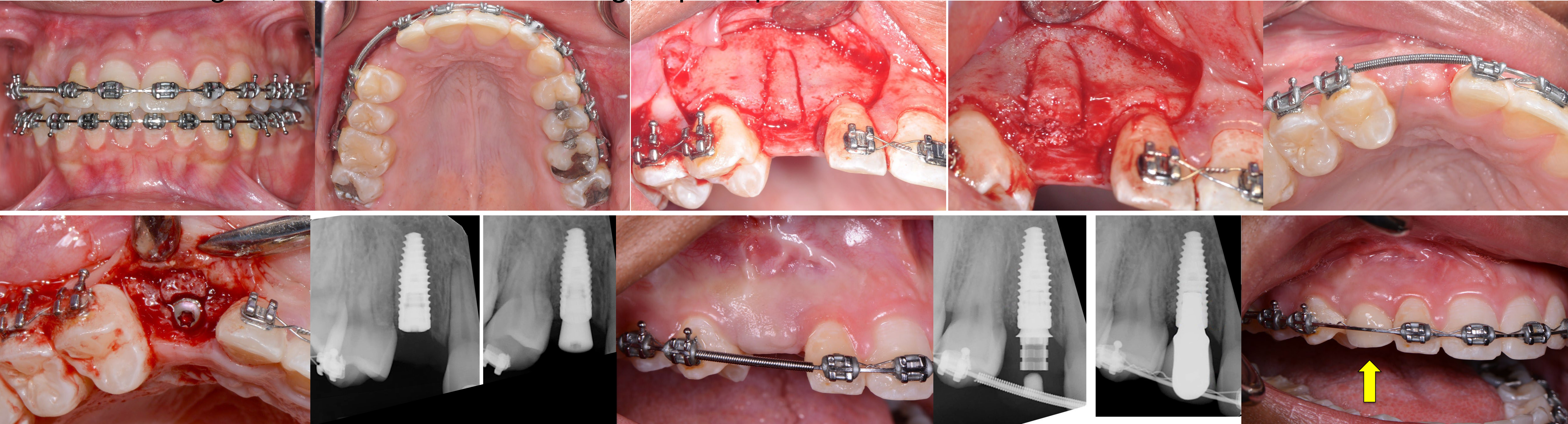
Case 1: Missing #10, CARS and simultaneous implant placement, Grafting during stage 2 surgery



Case 2: Missing #7, CARS and simultaneous implant placement



Case 3: Missing #6, CARS, 2 months healing, implant placement



Pt No	Implant site	Age	Gender	Filling material	Implant placement	Loading time
1	10	29	F	Bio-oss small particles	Simultaneous	38
2	7	19	F	Bio-oss small particles	Simultaneous	32
3	6	21	F	Bio-oss small particles	Staged	30
4	8	35	M	Bio-oss small particles	Simultaneous	26
5	8	45	M	Bio-oss small particles	Simultaneous	24

CONCLUSION

As an alternative to these approaches, the recently introduced Customized Alveolar Ridge Splitting (CARS) technique may represent a viable augmentation technique for horizontal bone defects. This customized alveolar ridge splitting technique is indicated for treating severely atrophic horizontal ridges with only cortical bone remaining and with a reduced blood supply that oftentimes would require multiple surgeries to obtain the necessary of horizontal bone volume to successfully place dental implants.

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