Customized Alveolar Ridge Splitting Technique in the Atrophic Posterior Mandibular Edentulous Sites

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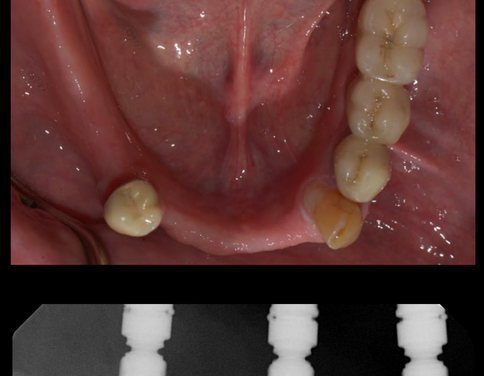
SUMMARY

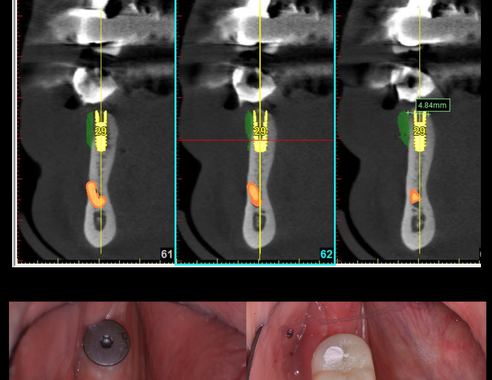
Introduction: The atrophic posterior mandible is often associated with high components of cortical bone, reduced vascular supply, superficial muscle attachment, lack of keratinized gingiva and is subjected to high masticatory forces. All these factors contribute to non-predictable and technique sensitive ridge augmentation procedures. Currently, there are a number of techniques used to augment bony defects with limited degrees of success and predictability. Successful placement of dental implants in the atrophic posterior mandible usually requires significant bone augmentation. Custom alveolar ridge splitting technique is a less invasive augmentation procedure that creates a site-specific defect surrounded by bony walls. This method converts an extraosseous defect into an intraosseous defect yielding a highly successful regenerative result and adequate room for dental implant placement. The purpose of this case report is to document the surgical technique and restorative procedures in a case of a severely atrophic edentulous posterior mandible.

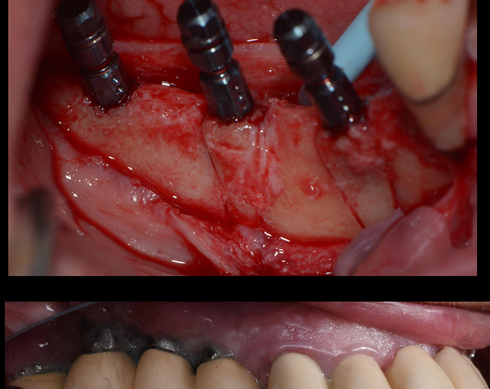
Method: Clinical data in this study was obtained from the Implant Database (ID) at New York University College of Dentistry (NYUCD). This data set was extracted as de-identified information from the routine treatment of patients at the Ashman Department of Periodontology and Implant Dentistry at New York University College of Dentistry. The ID was certified by the Office of Quality Assurance at New York University College of Dentistry. This study is in compliance with the Health Insurance Portability and Accountability Act (HIPAA) requirements. A 79-year-old male presented with a chief complaint of an unstable removable denture extending to his right posterior mandible. Due to anatomical and prosthetic limitations, the most viable treatment option presented to the patient was a three-unit implant-supported prosthesis together with horizontal ridge augmentation through customized alveolar ridge splitting. All risks and benefits of the treatment were discussed with the patient and the patient understood and agreed to start treatment.

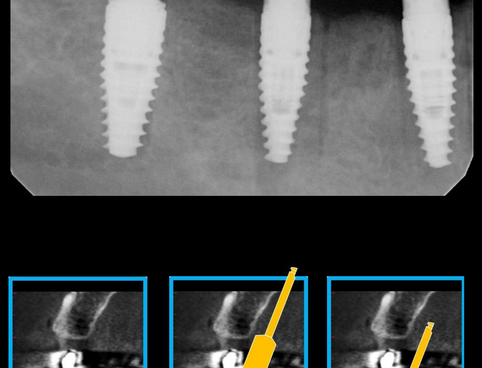
Results: Two bone-level implants were placed in edentulous sites #29 and #30 together with customized alveolar ridge split (CARS) augmentation technique and restored with a screw-retained fixed restoration. The patient presented uneventful healing upon follow-up and the implants were restored with a screw-retained fixed restoration. The patient's chief complaint was addressed; both functional and esthetic demands were achieved and the patient was satisfied with treatment.

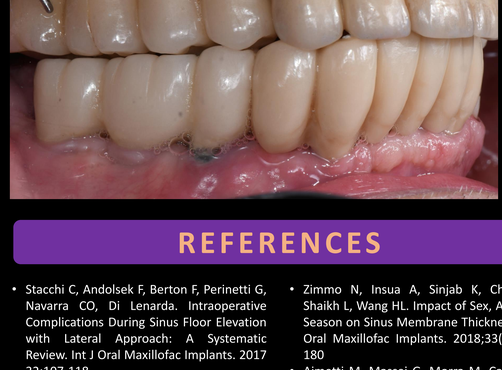
Conclusion: Custom alveolar ridge split technique has paved the way for more predictable results in gaining alveolar ridge width. The results of this case report demonstrate both success and reproducibility. Proper case selection and treatment planning also play a role in achieving patient satisfaction and optimal results.

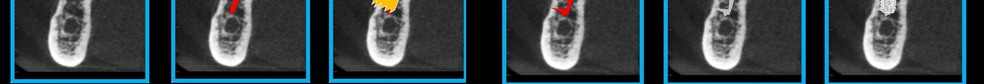












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