

# Periosteal Flap Stretch Technique for Lateral Ridge Augmentation: A Case Report

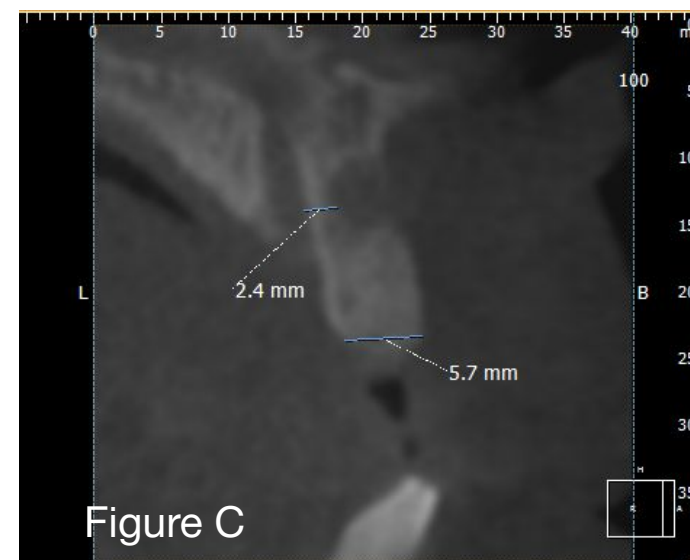
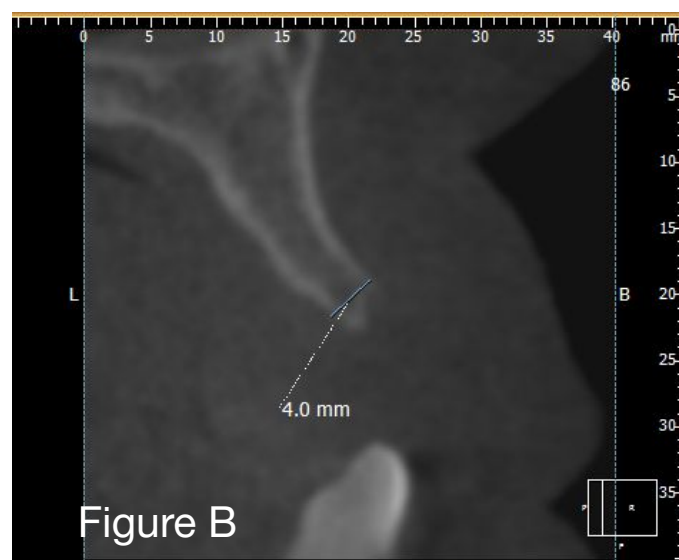
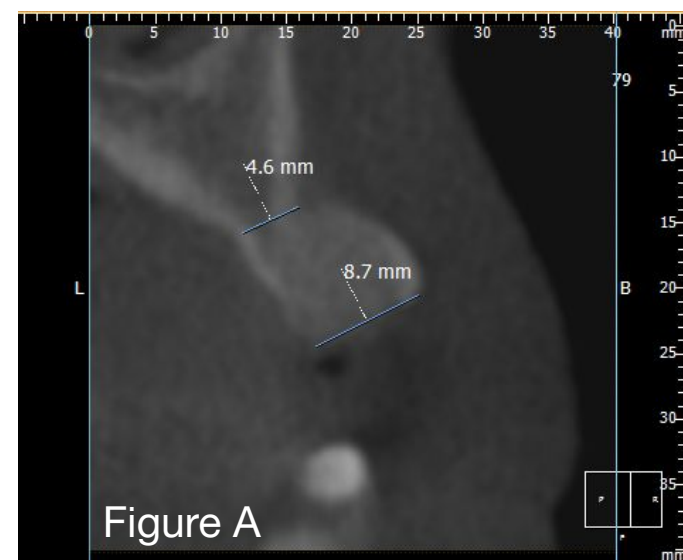
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## Introduction

Bone augmentation procedures are routinely performed for implant site development. The overlying soft tissue must be carefully managed during these surgical procedures to attain tension-free primary soft tissue closure. The Periosteal Flap Stretch technique that is described in this case report is a simple technique that facilitates achieving passive and predictable primary flap closure. This technique is performed using a blunt surgical curette that is moved against the periosteum in a coronal and outward direction.

## Materials and Methods

A forty-eight year old male presents to the Dental Care Center at Stony Brook University with a Seibert Class III alveolar ridge deficiency in the anterior maxilla. A CBCT scan was taken and revealed insufficient alveolar ridge dimensions to support implant placement at the maxillary anterior sextant. The decision was made to conduct a lateral ridge augmentation for implant site development. The surgical method involved making a full thickness flap beyond the mucogingival junction. The flap was prepared using Periosteal Flap Stretch technique to ensure achieving tension-free primary soft tissue closure. Lateral ridge augmentation was performed using a cortico-cancellous allograft and cross-linked resorbable collagen membranes. Passive tension-free primary closure of the flap was achieved.



Figures A, B, and C show pre-operative CBCT bone dimensions at proposed implant sites #6, #7, and #9 respectively prior to lateral ridge augmentation procedure.



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Figure D



Figure E

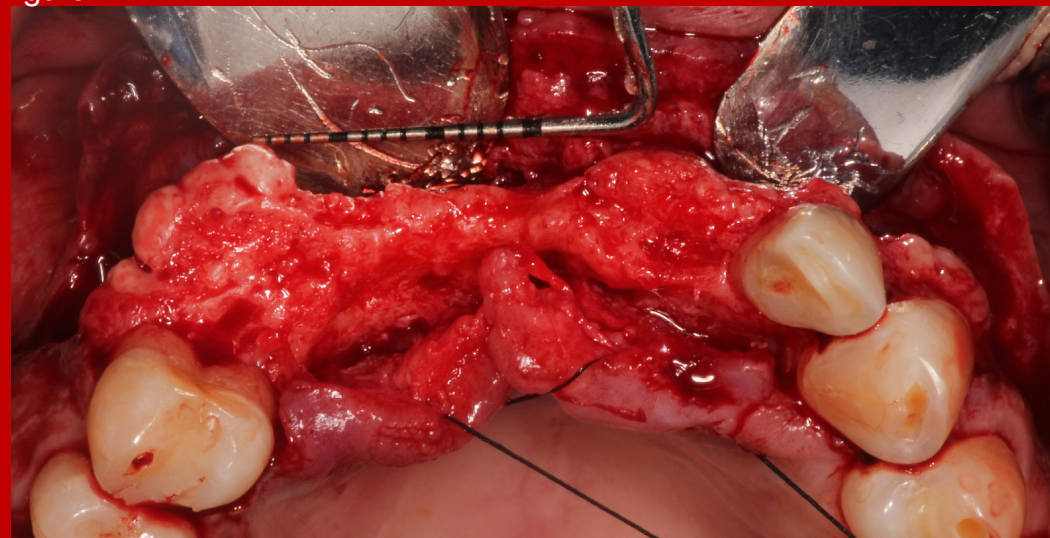


Figure F

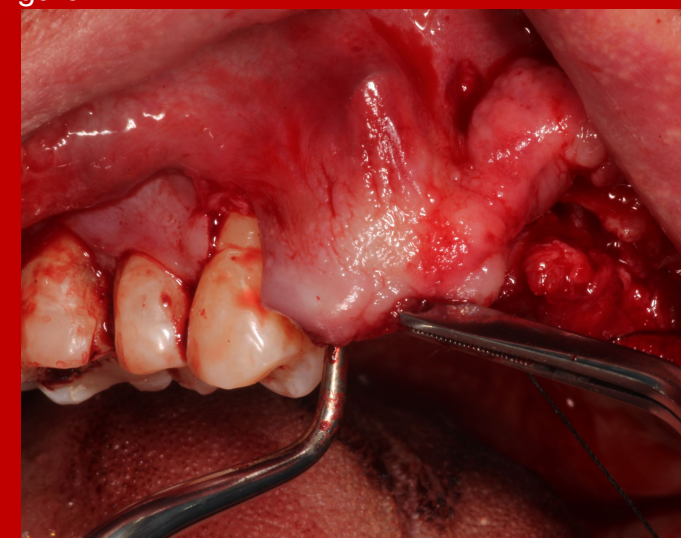


Figure G

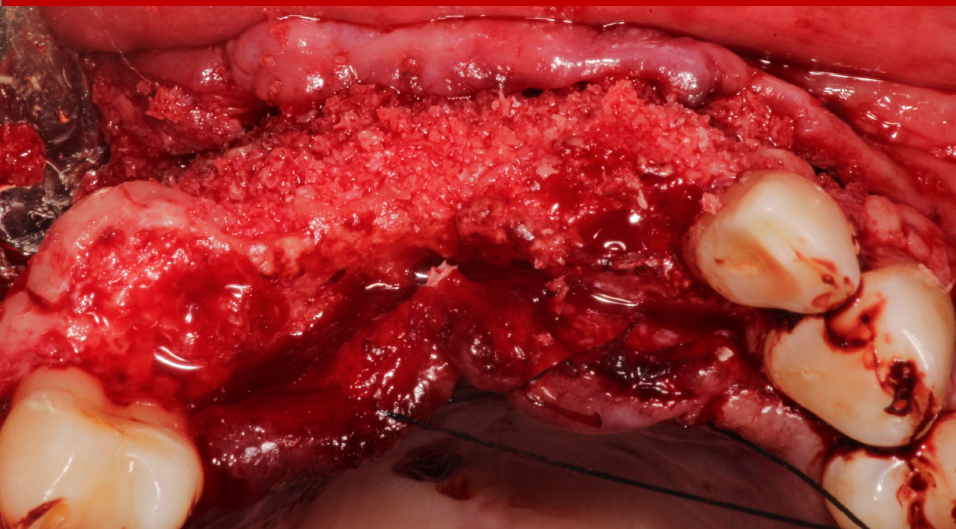


Figure H

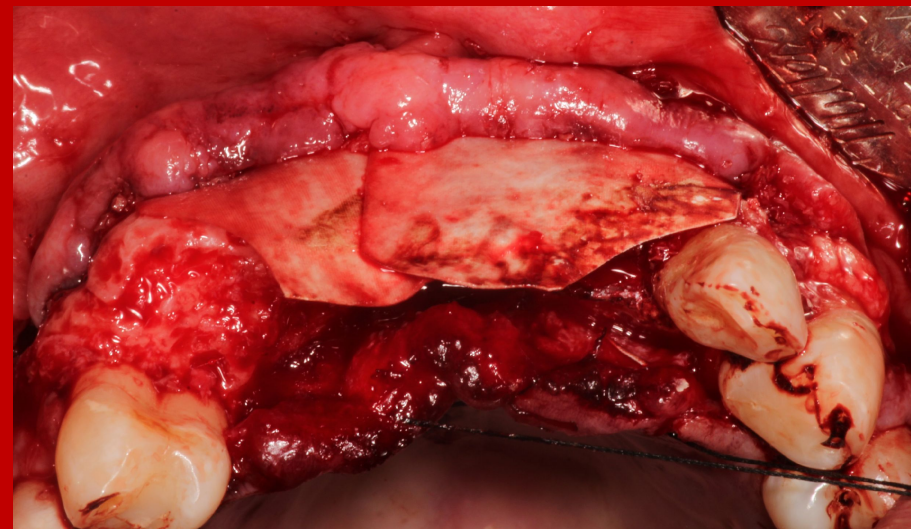


Figure I



Figure D: preoperative image of Seibert Class III alveolar ridge deficiency. Figure E: approximately 20mm length alveolar ridge deficiency was measured mesiodistally after a full thickness mucoperiosteal flap was raised past the MGJ. Figure F: Periosteal Flap Stretch Technique was utilized using a blunt instrument to obtain appreciable coronal flap advancement. Figure G: Addition of cortico-cancellous allograft particulate. Figure H: Cross-linked resorbable collagen membrane was placed into the flap and over the allograft particulate. Figure I: The flap was advanced coronally and passive tension-free primary closure was achieved using horizontal mattress and simple interrupted sutures.



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## Results

**A CBCT scan was taken seven months after lateral ridge augmentation and confirmed significant alveolar ridge augmentation which could support placement of dental implants at sites #6, #7, and #9. Clinical evaluation after flap elevation showed similar findings. All implants were placed in ideal prosthetically driven three-dimensional positions.**

Figure J



Figure K

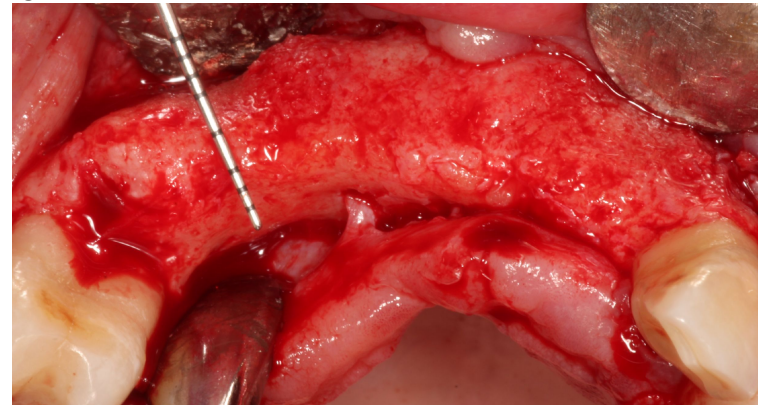


Figure L

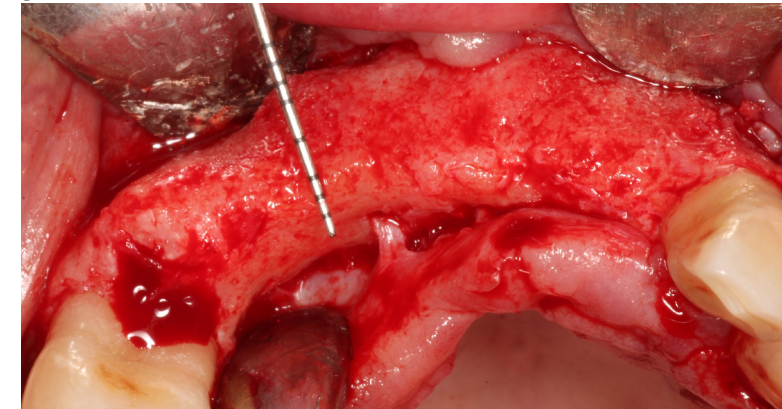
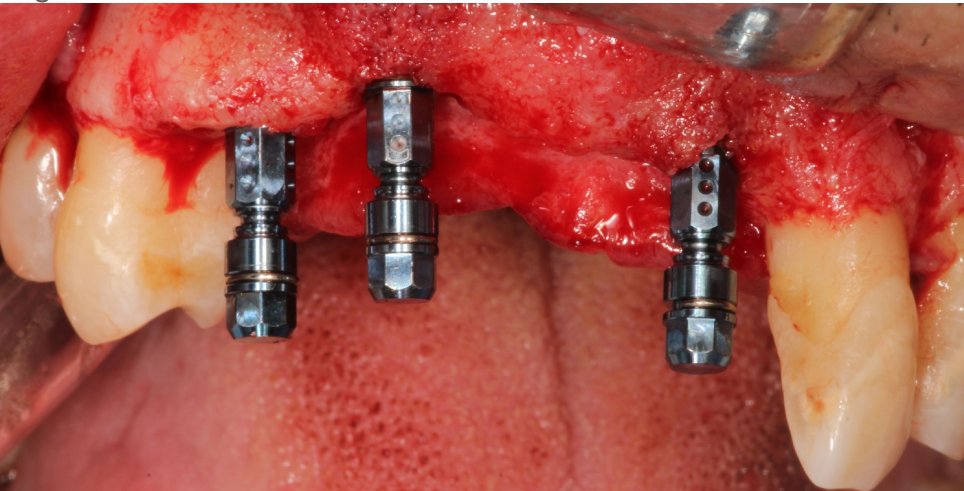


Figure M



## Conclusion

**When using bone augmentation procedures, it is vital to achieve tension-free primary soft tissue closure. The novel Periosteal Flap Stretch technique provides the clinician with the benefit of achieving tension-free primary soft tissue closure with ease. Future clinical studies are needed to evaluate the efficacy of this technique.**

## References

**Abed PF, El Chaar E, Boltchi F, Bassir SH. The Novel Periosteal Flap Stretch Technique: A Predictable Method to Achieve and maintain Primary Closure in Augmentative Procedures. Journal of the International Academy of Periodontology. 2020 Jan 1;22(1):11-20.**

Figure J: Pre-operative image prior to implant placement at sites #6, #7, #9.  
Figure K & L: Measurement of alveolar ridge shows increase in ridge width seven months after LRA using Periosteal Flap Stretch Technique. Figure M: Implant placement at sites #6, #7, and #9.