



Retreatment of a Patient with History of Maxillary Implant Cluster Failure



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Introduction

- Cluster implant failure: the loss of 2+ implants within two-years
- 2.1% prevalence and 25.2% of all implant failures are cluster failures
- History of cluster failure and implants in the posterior maxilla are the largest risk factors
- After failure, the chance of future success decreases 10%
- Implant failures destroy previously existing bone, making retreatment difficult

Case Description

- This case describes the successful retreatment of cluster implant failure of the maxilla
- 4 maxillary implants initially placed in 2010: 3 failed within weeks
- Patient presented with history of maxillary implant cluster failure, seeking maxillary Complete Arch Fixed Implant-Supported Prosthesis (CAFIP)
- 6 implants were placed: 2 axially engaging the nasal floor, 2 distally tilted engaging the piriform rim of the nose, and 2 axially engaging the pterygoid process of the sphenoid bone
- Two-stage surgical approach, with uncoverty and loading 6 months after implant placement
- Implants have been successful under load for 10 months

Initial Implant Placement

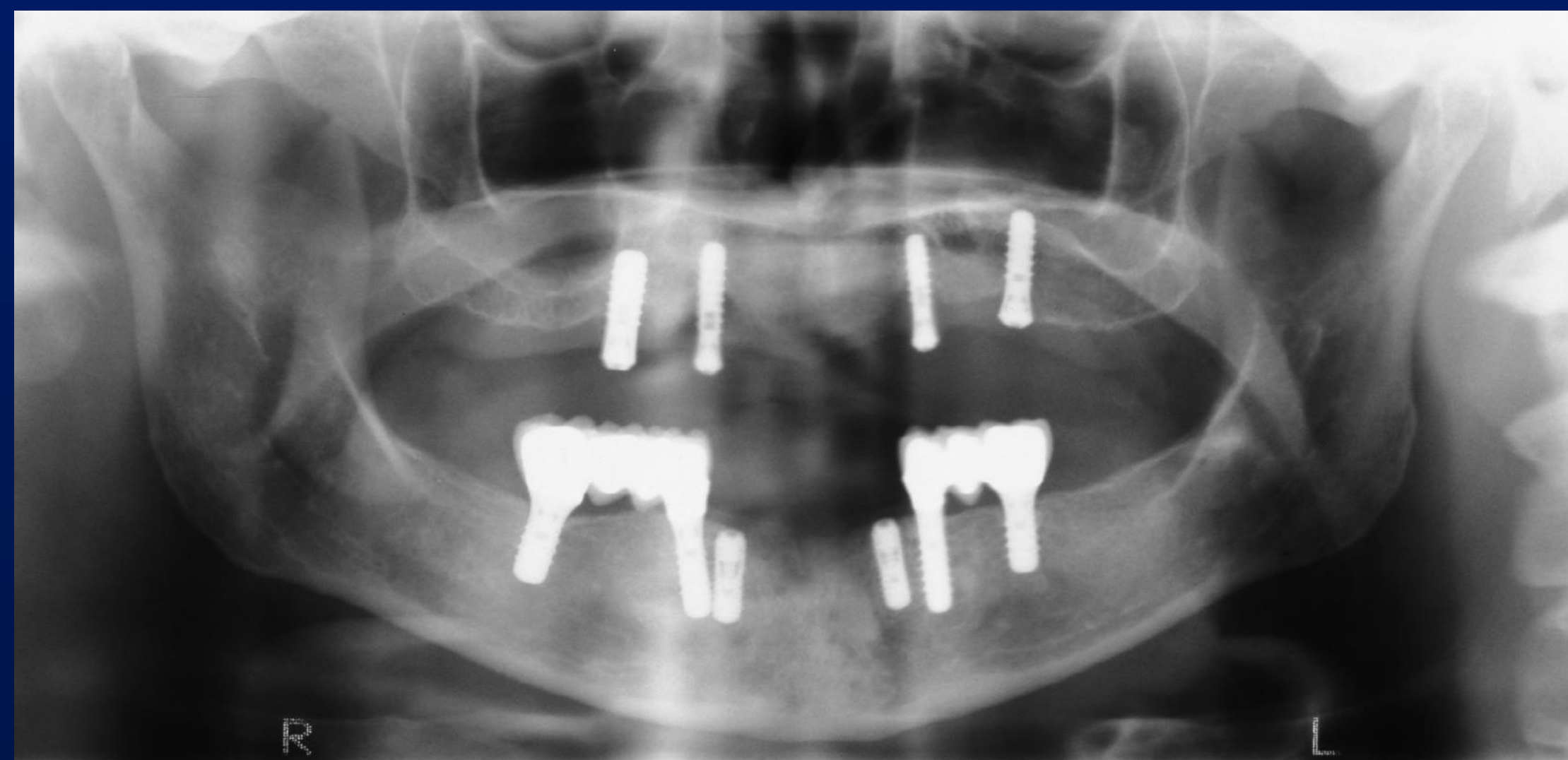


Fig. 1: Initial Maxillary Implant Placement, 8/13/2010

Initial Presentation

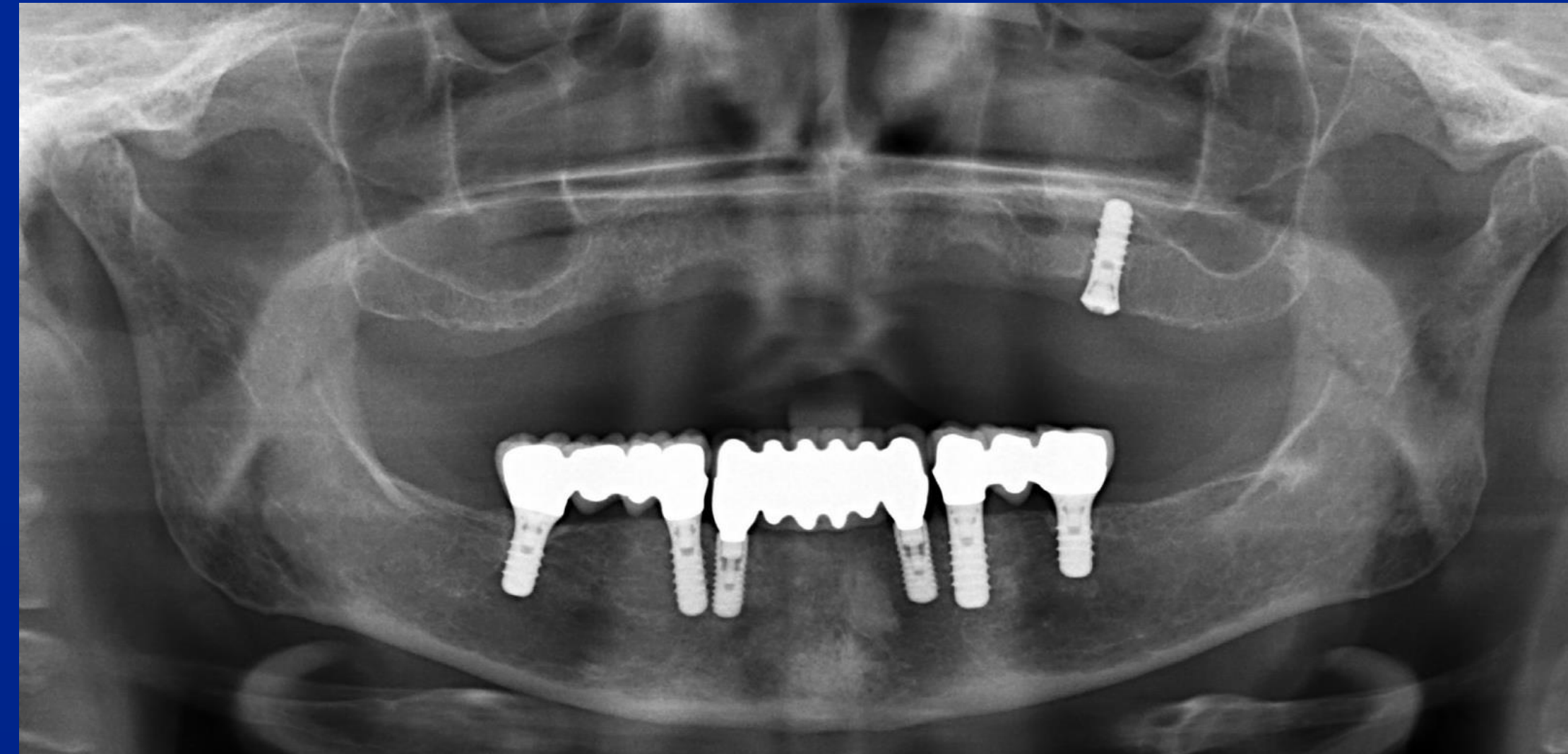


Fig. 2: Maxilla After Cluster Failure, 4/26/2021

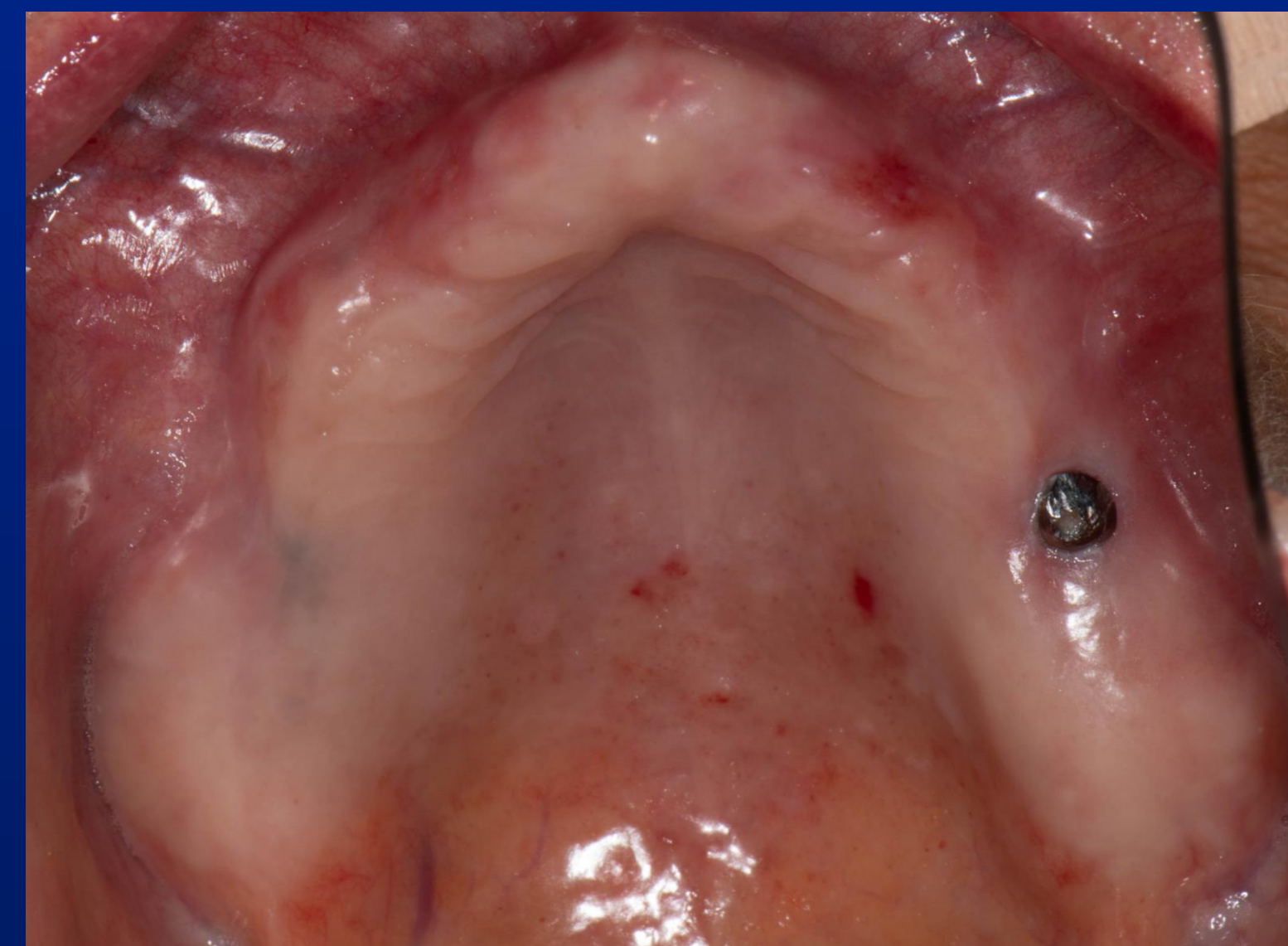


Fig. 3: Maxilla Prior to Retreatment, Occlusal



Fig. 4: Prior to Retreatment, Frontal

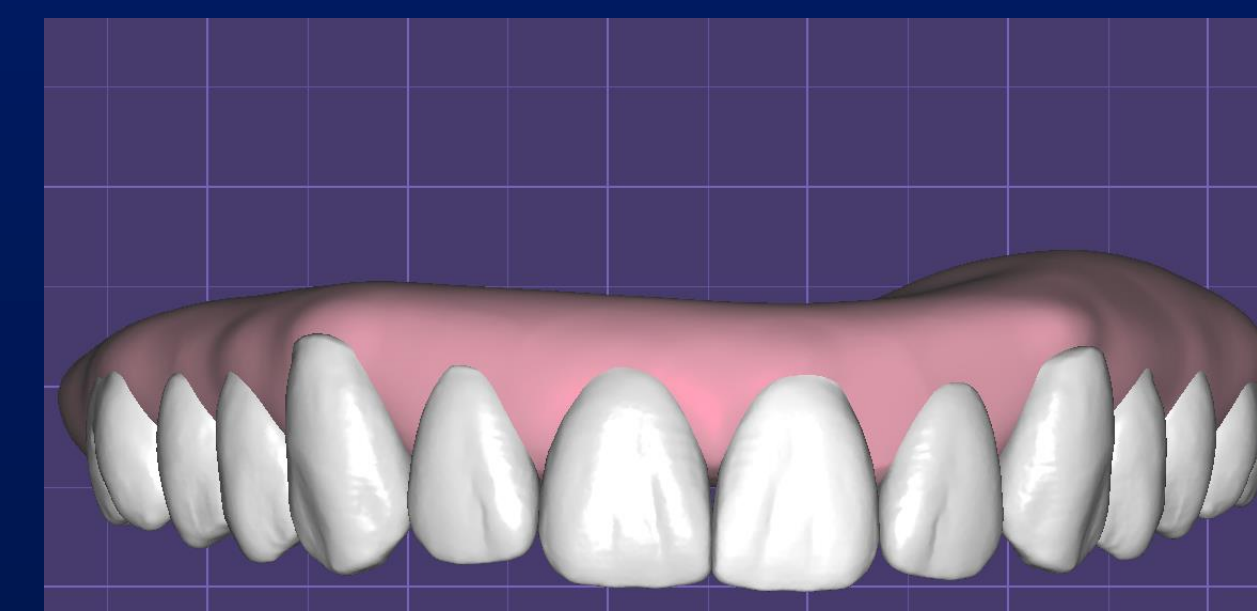


Fig. 5: ExoCAD Design

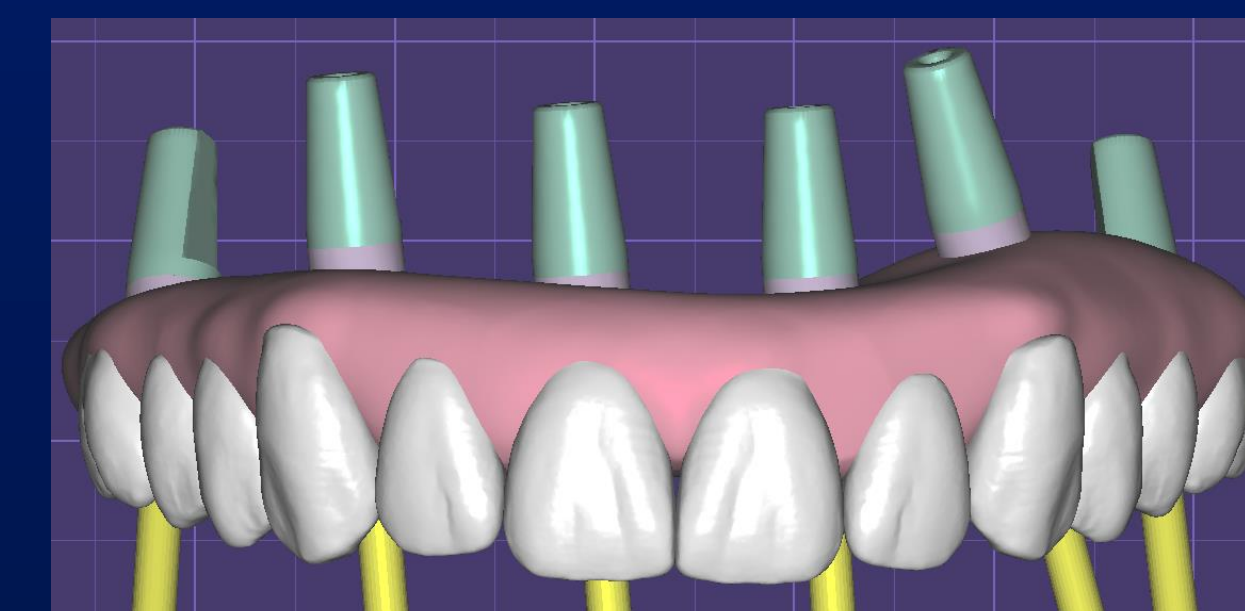


Fig. 6: ExoCAD Design with Analogs & Abutments

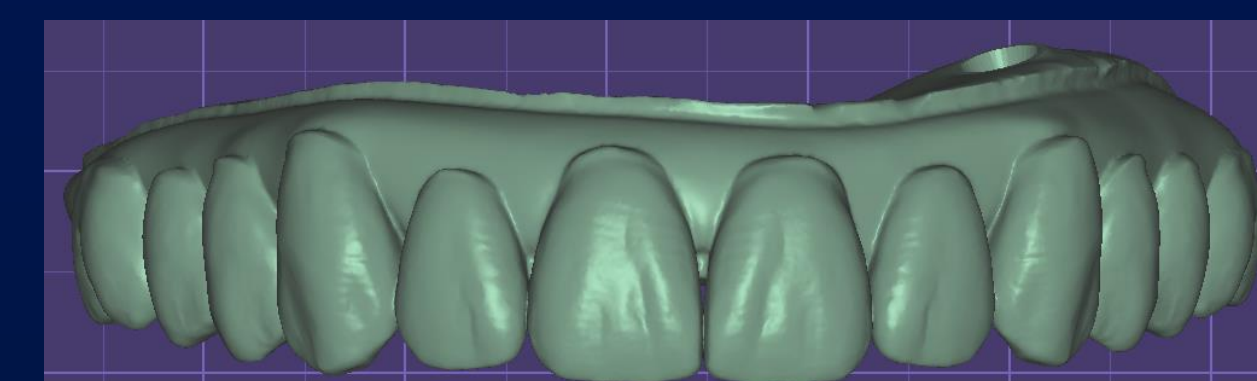


Fig. 7: Reduced ExoCAD Design

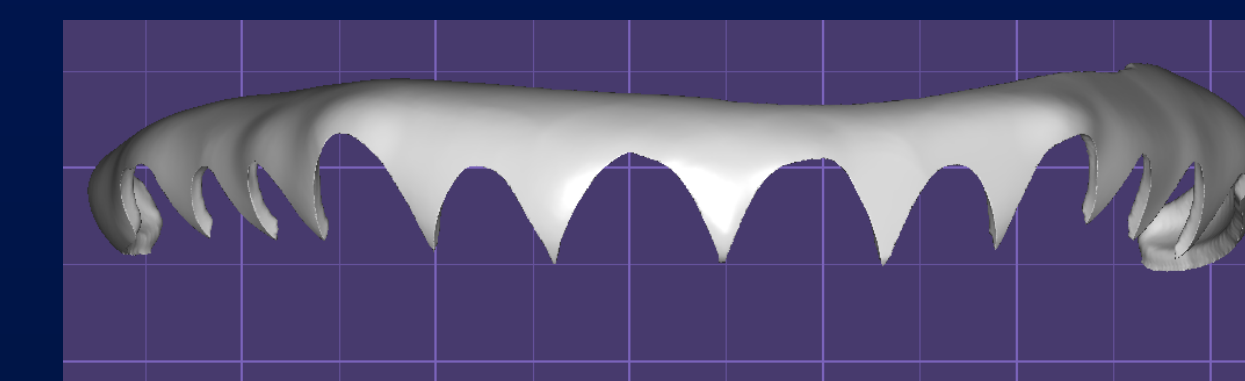


Fig. 8: Gingival Veneer

Conclusion

- Apical cortical bone can reinforce primary stability of implants
- Maxillary bicortical stability may be achieved through engagement of the pterygoid process of the sphenoid bone, piriform rim of the nose, or nasal floor
- Resulting stability may yield successful treatment outcome without sinus elevation or bone grafting, reducing perioperative morbidity and providing a less invasive approach.

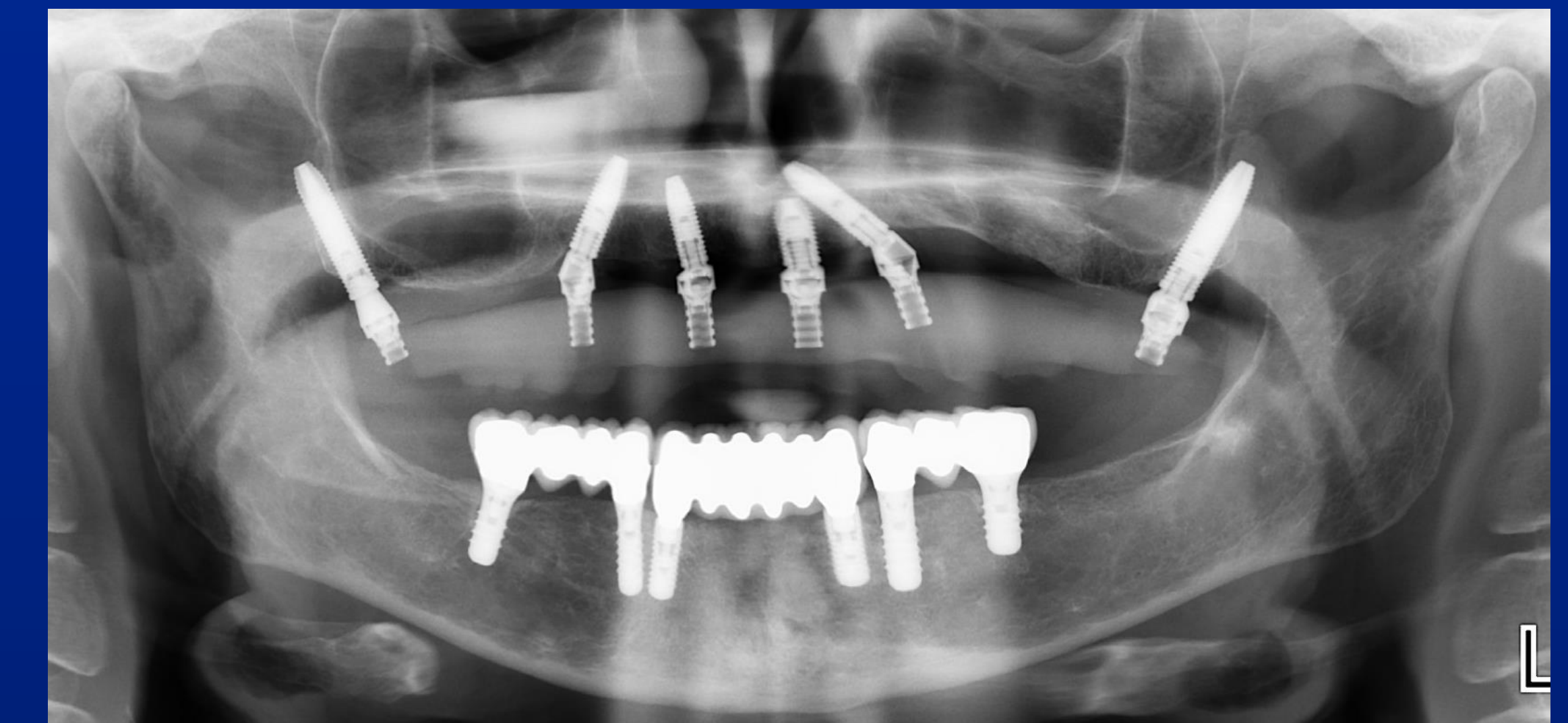


Fig. 9: Maxilla After Re-Implantation and Loading, 9/25/2024



Fig. 10: Maxilla 6 Months After Loading, Occlusal



Fig. 11: 6 Months After Loading, Interim Prosthesis Frontal

REFERENCES

- 1) Bidra, Avinash et al. *Cluster behavior in dental implant failure - A scoping review*. Journal of Prosthetic Dentistry. 2024;7(5)
- 2) Oh, Se-Lim. *Survival of dental implants at sites after implant failure: A systematic review*. Journal of Prosthetic Dentistry. 2020;123(1):54-60
- 3) Maló, Paulo et al. *The All-on-4 concept for full-arch rehabilitation of the edentulous maxillae: A longitudinal study with 5-13 years of follow-up*. Clinical Implant Dentistry and Related Research. 2019;21(4):538-549.