

# Biologic Enhancement of Guided Bone Regeneration: The Role of Platelet-Rich Fibrin in a Staged Approach

David Seiler DDS, PGY3, Air Force Post Graduate Dental School



*Before*



*After*

# Biologic Enhancement of Guided Bone Regeneration: The Role of Platelet-Rich Fibrin in a Staged Approach

David Seiler DDS, PGY3, Air Force Post Graduate Dental School

## Introduction

Managing combined hard and soft tissue defects remains challenging. To optimize implant site development, biologics can reinforce the P.A.S.S. principles of regeneration. Platelet-rich fibrin (PRF) promotes angiogenesis and graft integration, enhancing predictability in complex esthetic cases with atrophic maxillary ridges.

## Methods

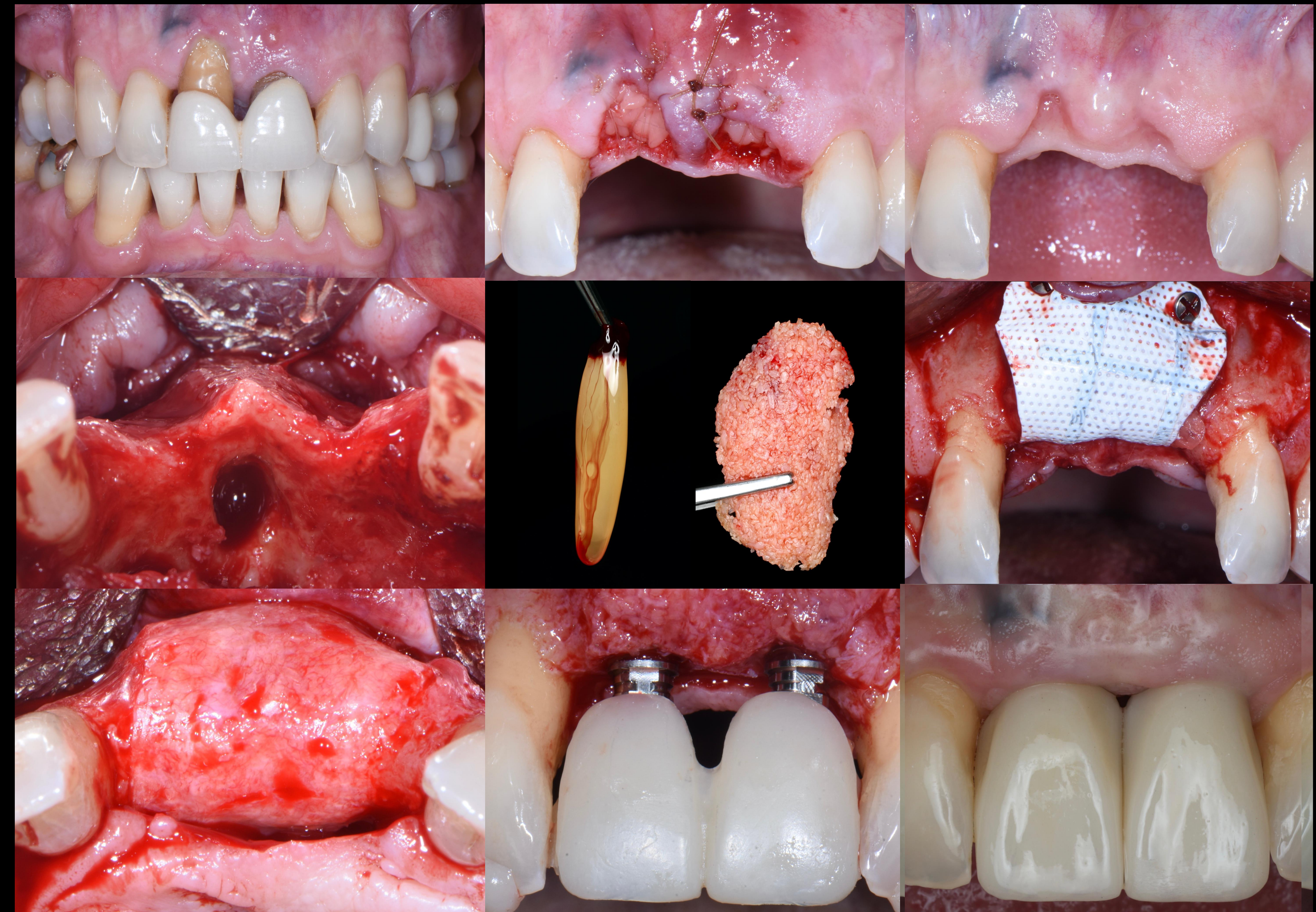
A staged guided bone regeneration (GBR) protocol was utilized. L-PRF membranes were placed as monotherapy at extraction. After 10 weeks, GBR was performed using mineralized/demineralized allograft mixed with PRF membranes beneath a titanium-reinforced cytoplast PTFE membrane. After five months of healing, implants were placed using a fully guided approach.

## Results

A Boolean subtraction model reported a significant increase in horizontal bone gain at both 1 mm and 3 mm subcrestal ( $\Delta$  6.61 mm,  $\Delta$  8.45 mm; respectively) to the proposed implant sites. The augmented ridge form allowed for implants to be placed in a prosthetically driven position while achieving 50 Ncm torque at the time of placement. Chairside immediate splinted provisionals were delivered, with the patient reporting high esthetic satisfaction at placement and after six months of function.

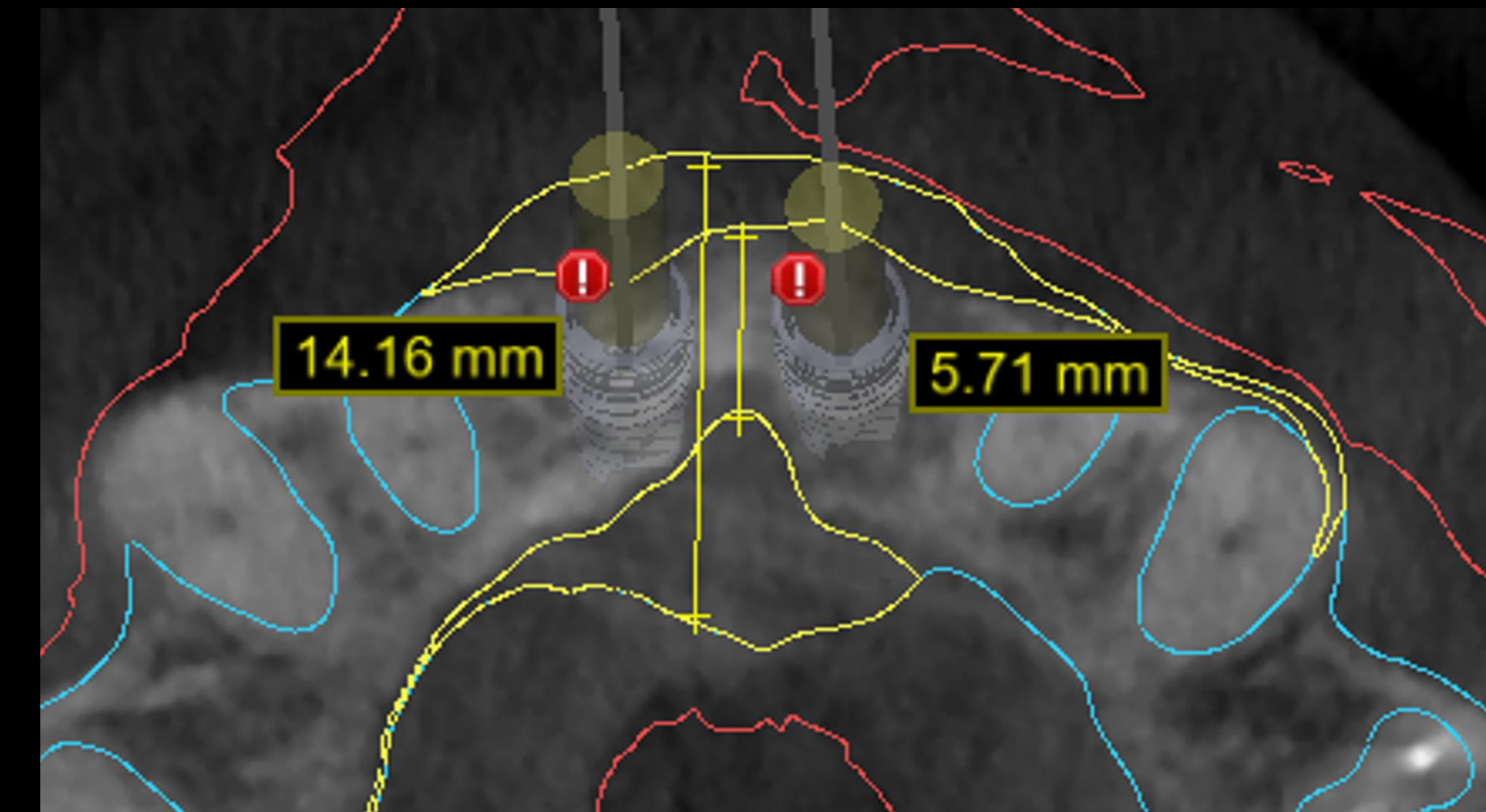
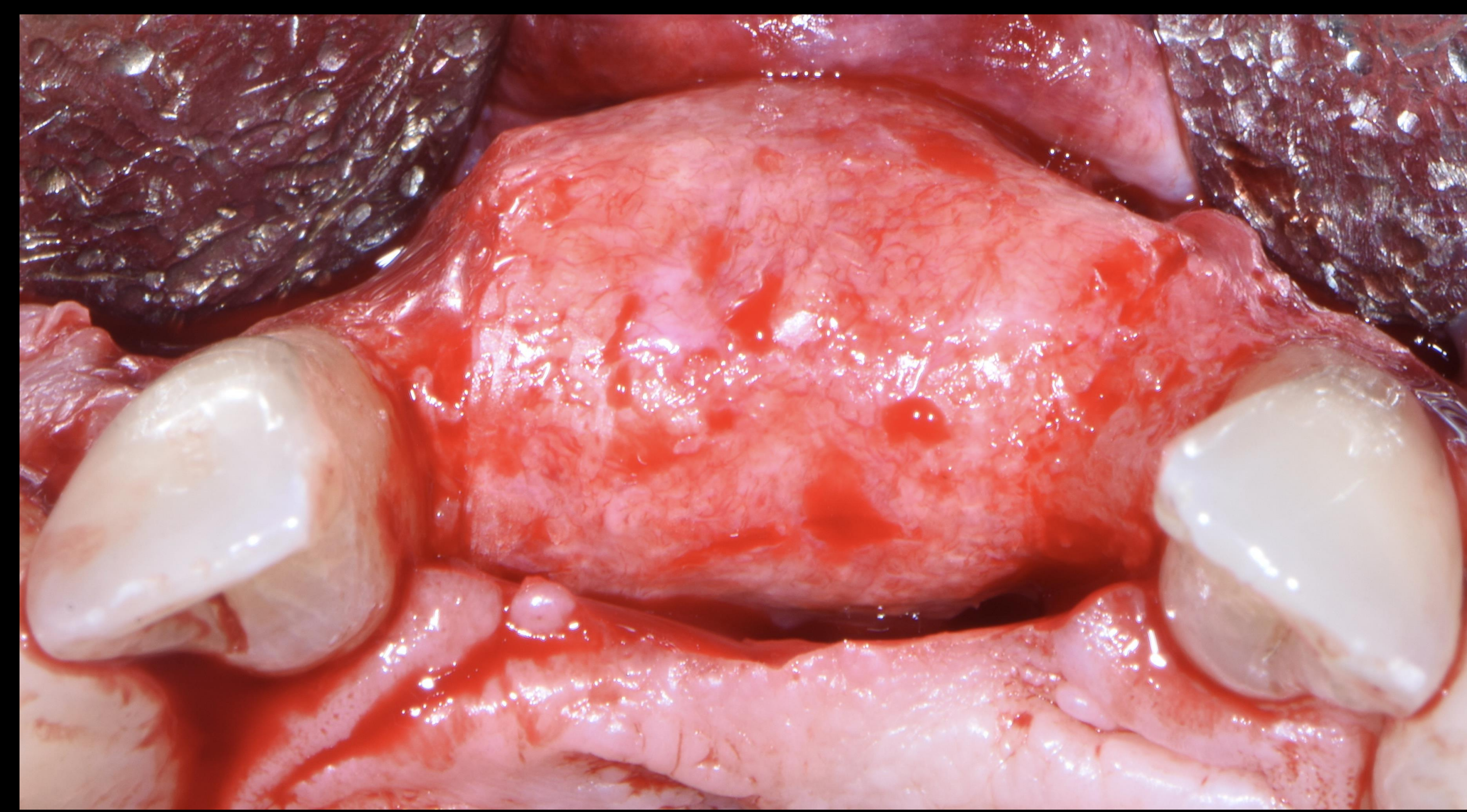
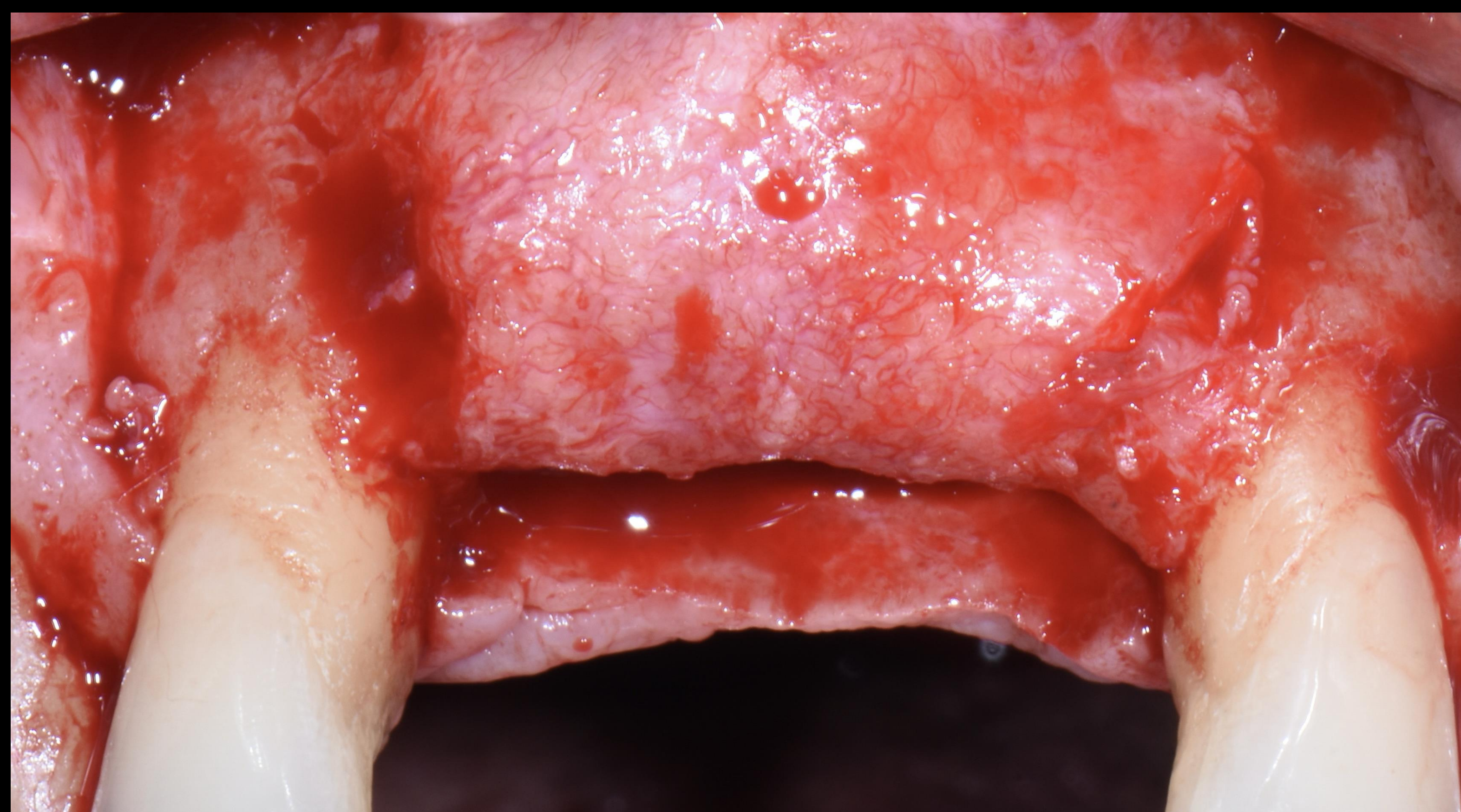
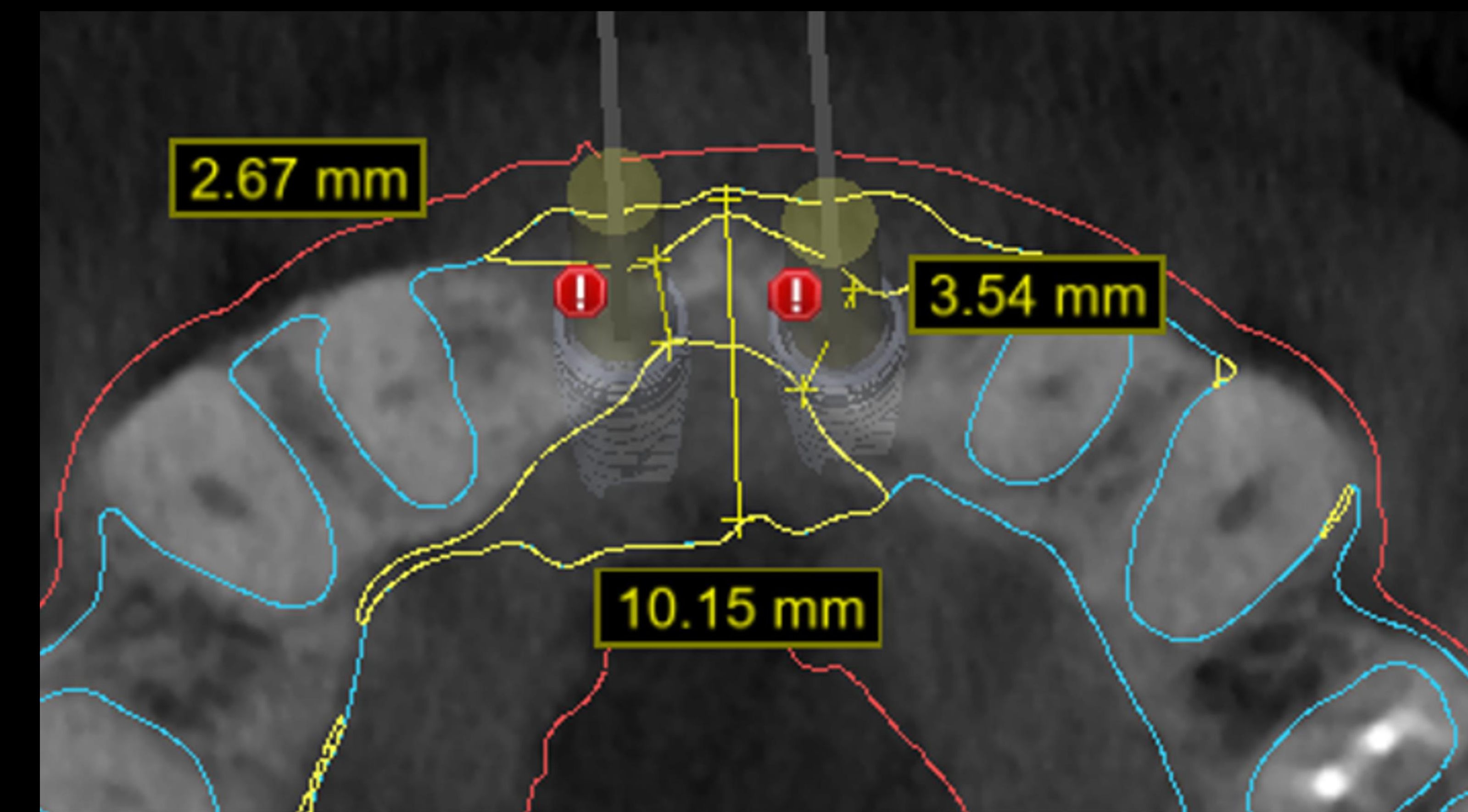
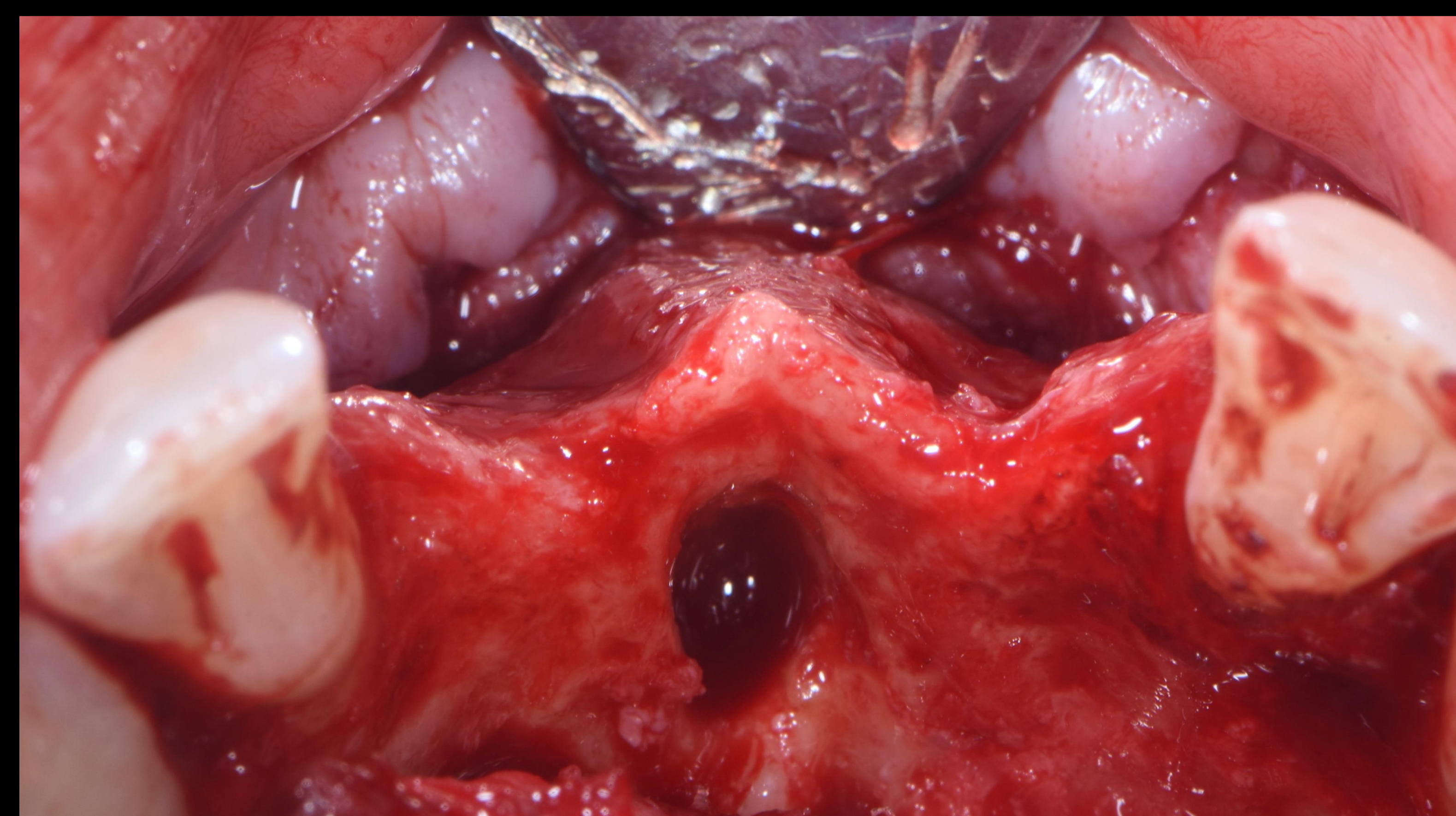
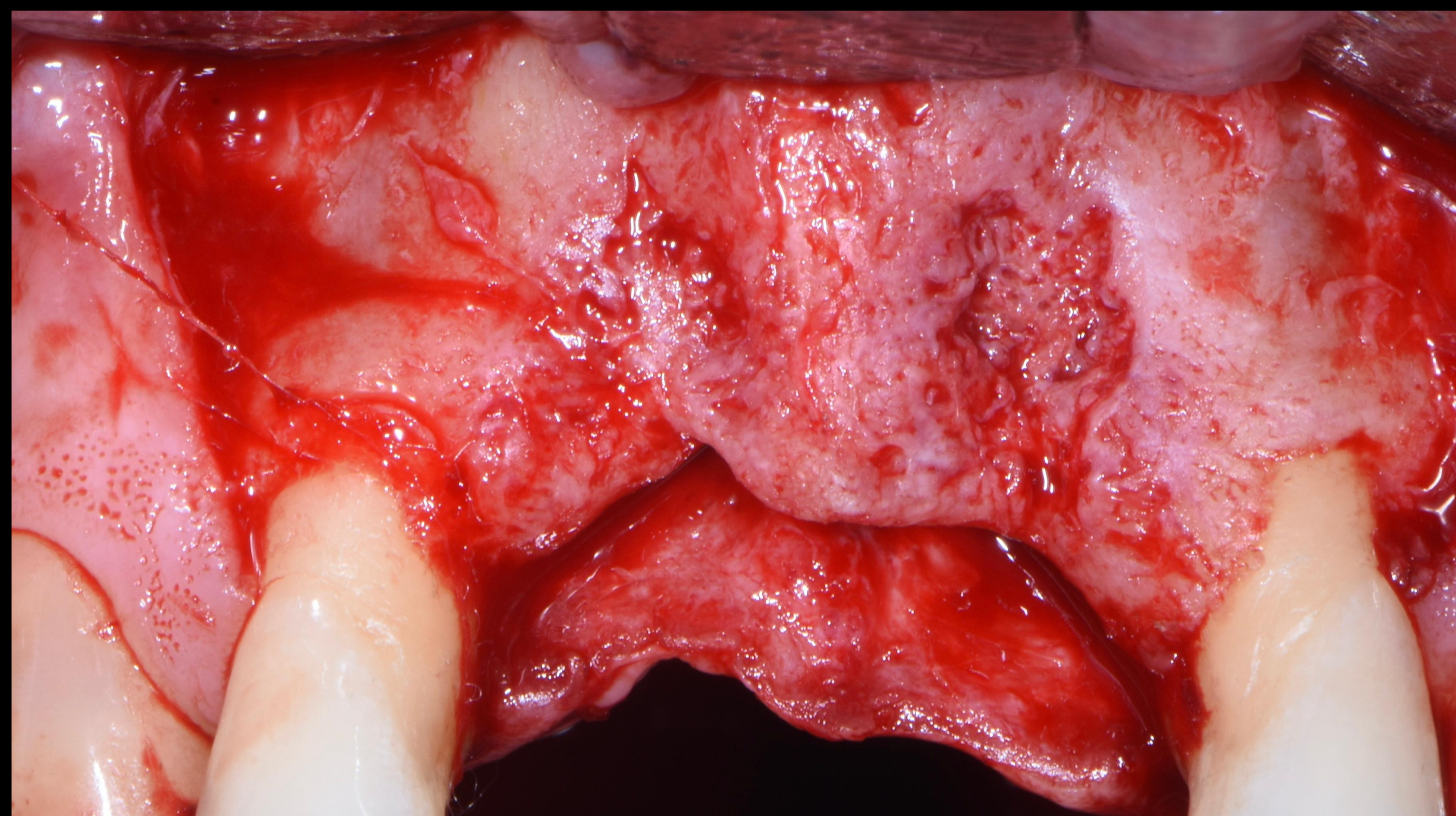
## Conclusion

Incorporating PRF into a staged GBR protocol yielded stable peri-implant tissues and favorable esthetic outcomes, demonstrating predictable management of a challenging severely atrophic maxillary defect.



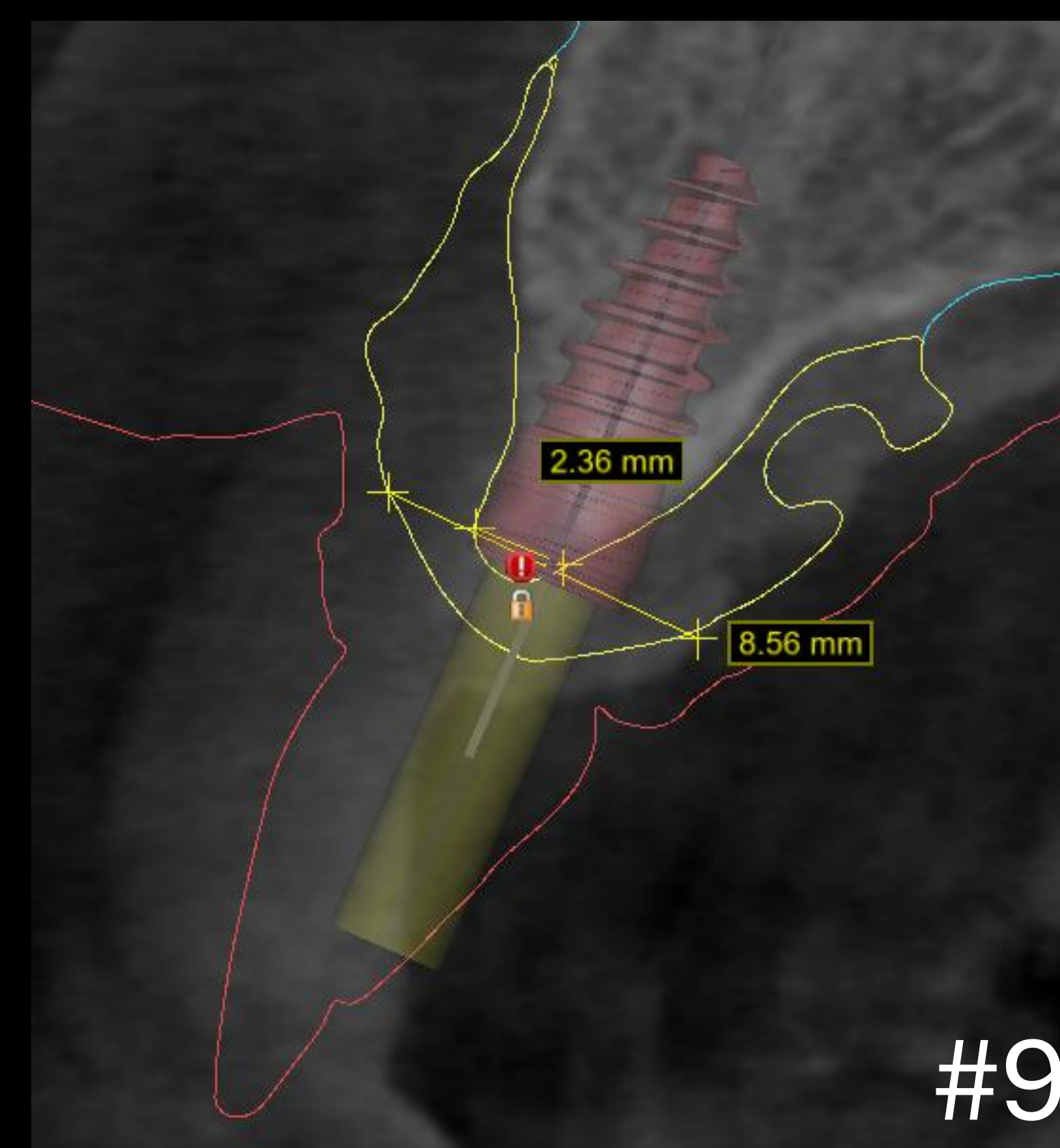
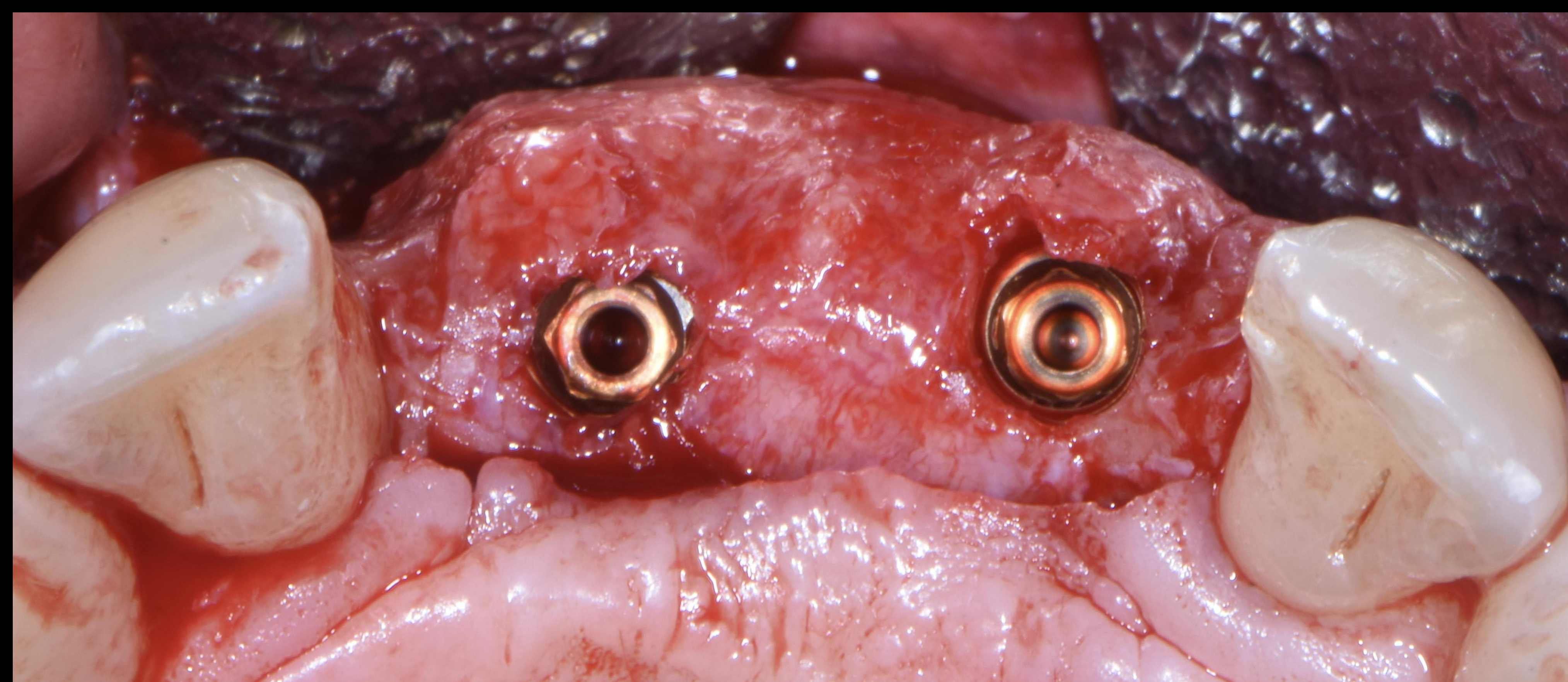
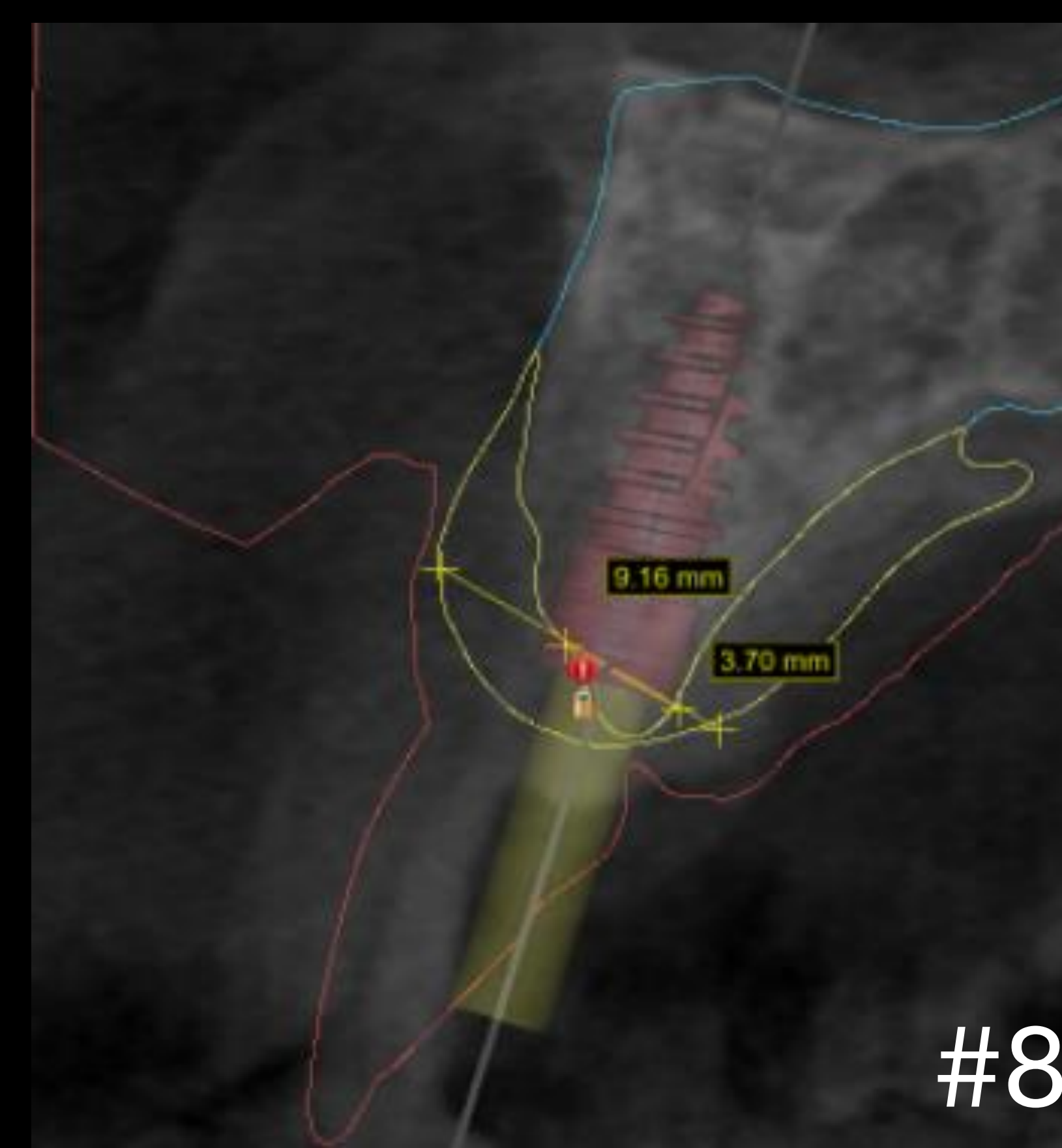
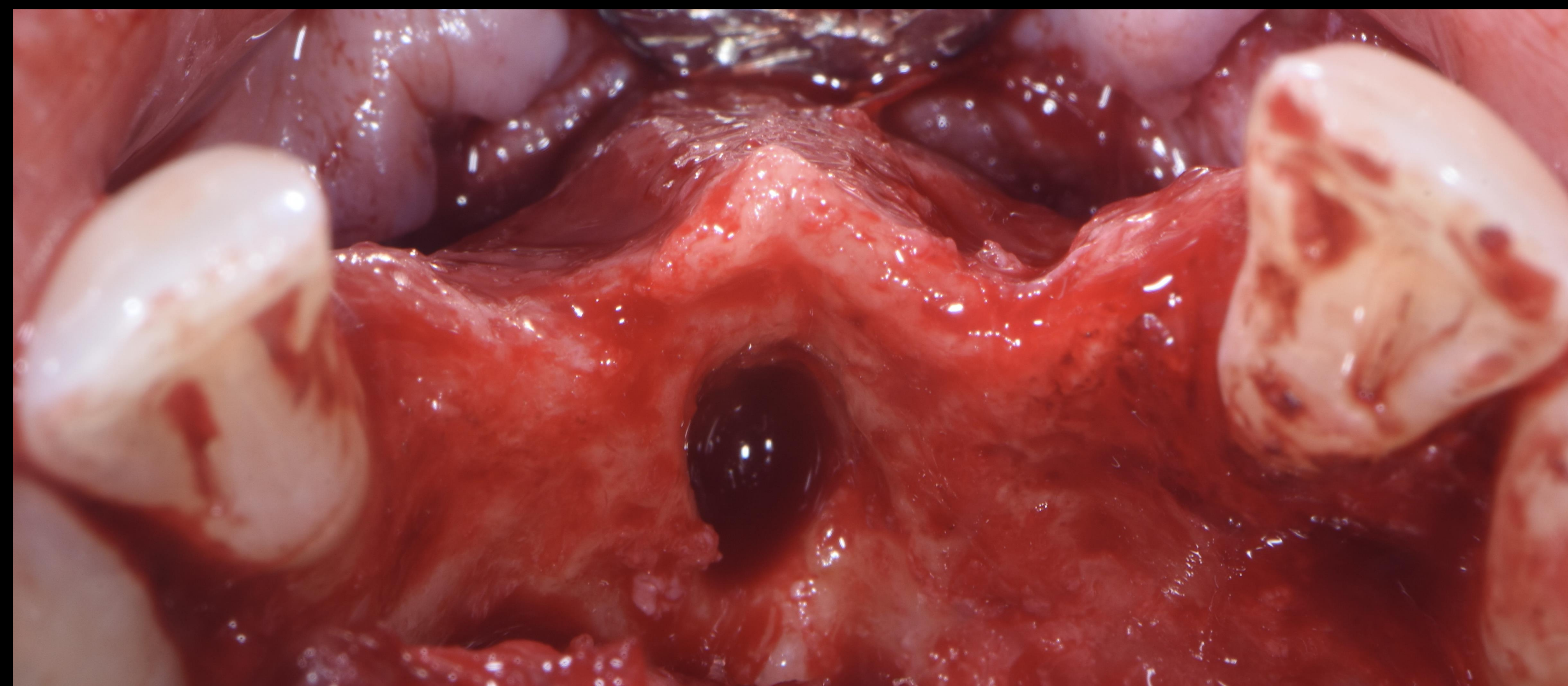
# Biologic Enhancement of Guided Bone Regeneration: The Role of Platelet-Rich Fibrin in a Staged Approach

David Seiler DDS, PGY3, Air Force Post Graduate Dental School



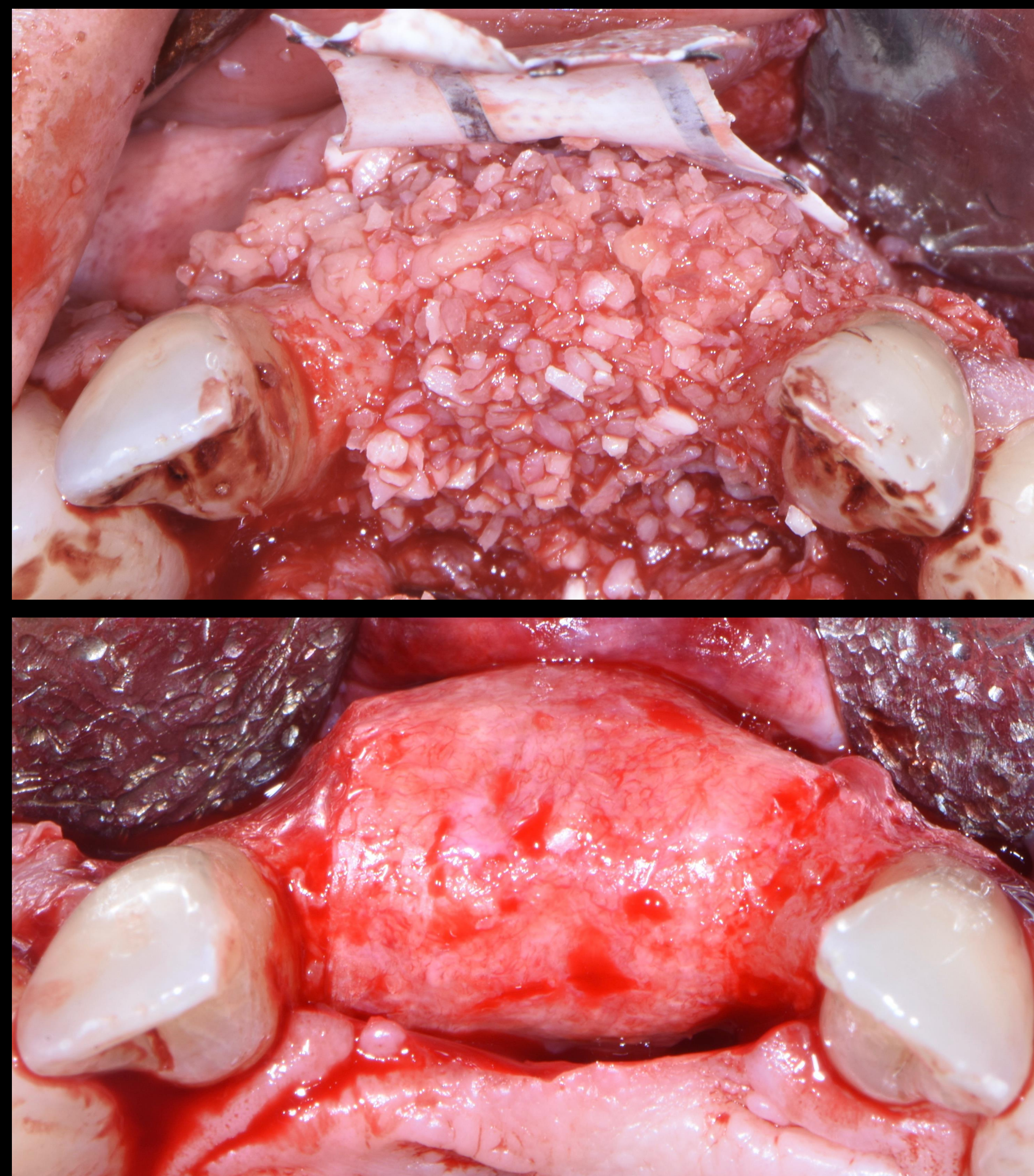
# Biologic Enhancement of Guided Bone Regeneration: The Role of Platelet-Rich Fibrin in a Staged Approach

David Seiler DDS, PGY3, Air Force Post Graduate Dental School



# Biologic Enhancement of Guided Bone Regeneration: The Role of Platelet-Rich Fibrin in a Staged Approach

David Seiler DDS, PGY3, Air Force Post Graduate Dental School



A staged guided bone regeneration approach facilitated prosthetically driven implant placement. A boolean subtraction model shows a significant increase of alveolar bone width at 1 mm ( $\Delta = 6.61$  mm) and 3 mm subcrestal ( $\Delta = 8.45$  mm) from planned implant placement. Platelet-rich fibrin proved to enhance soft tissue thickness and optimize angiogenesis to regenerate a severely atrophic maxillary alveolar defect.