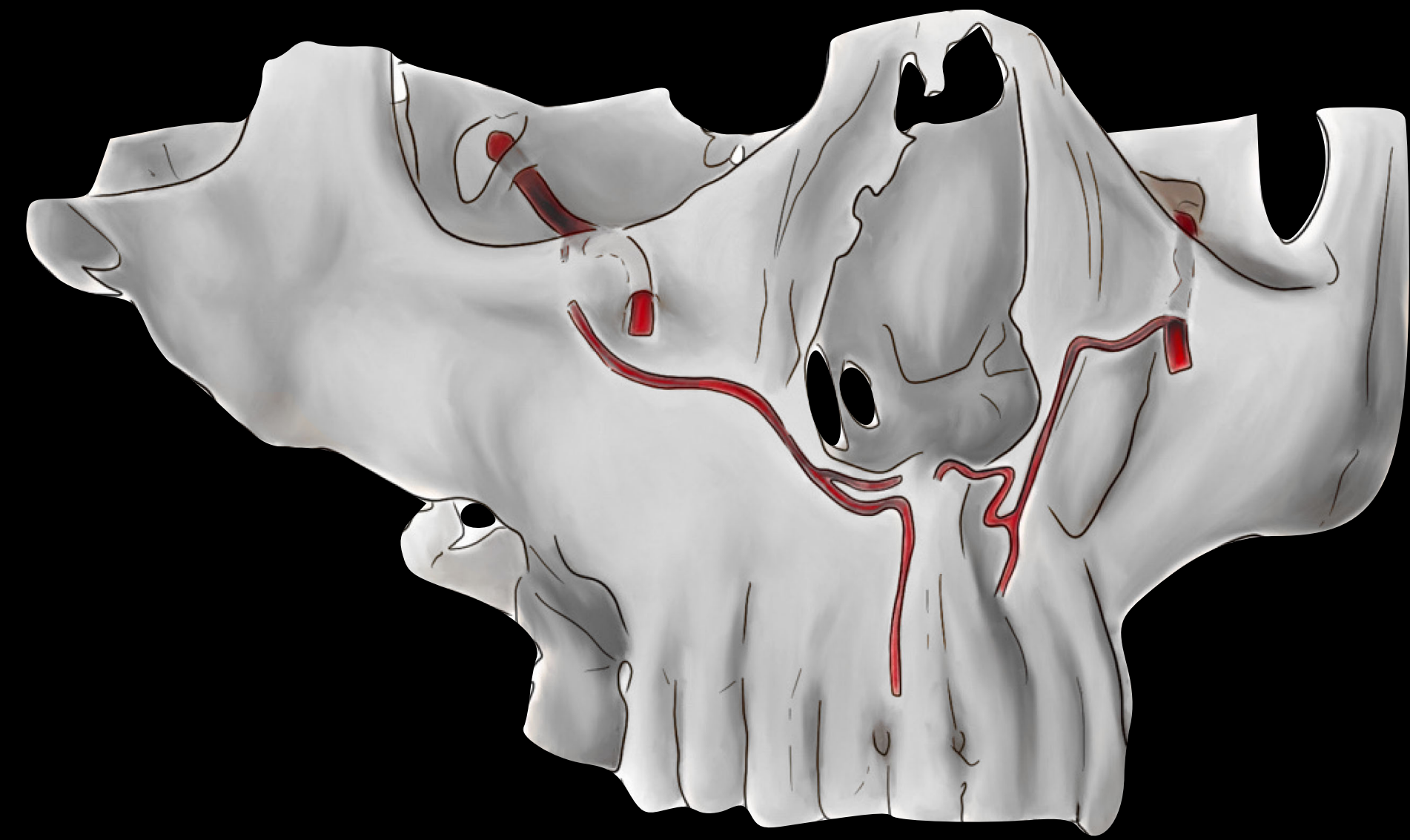
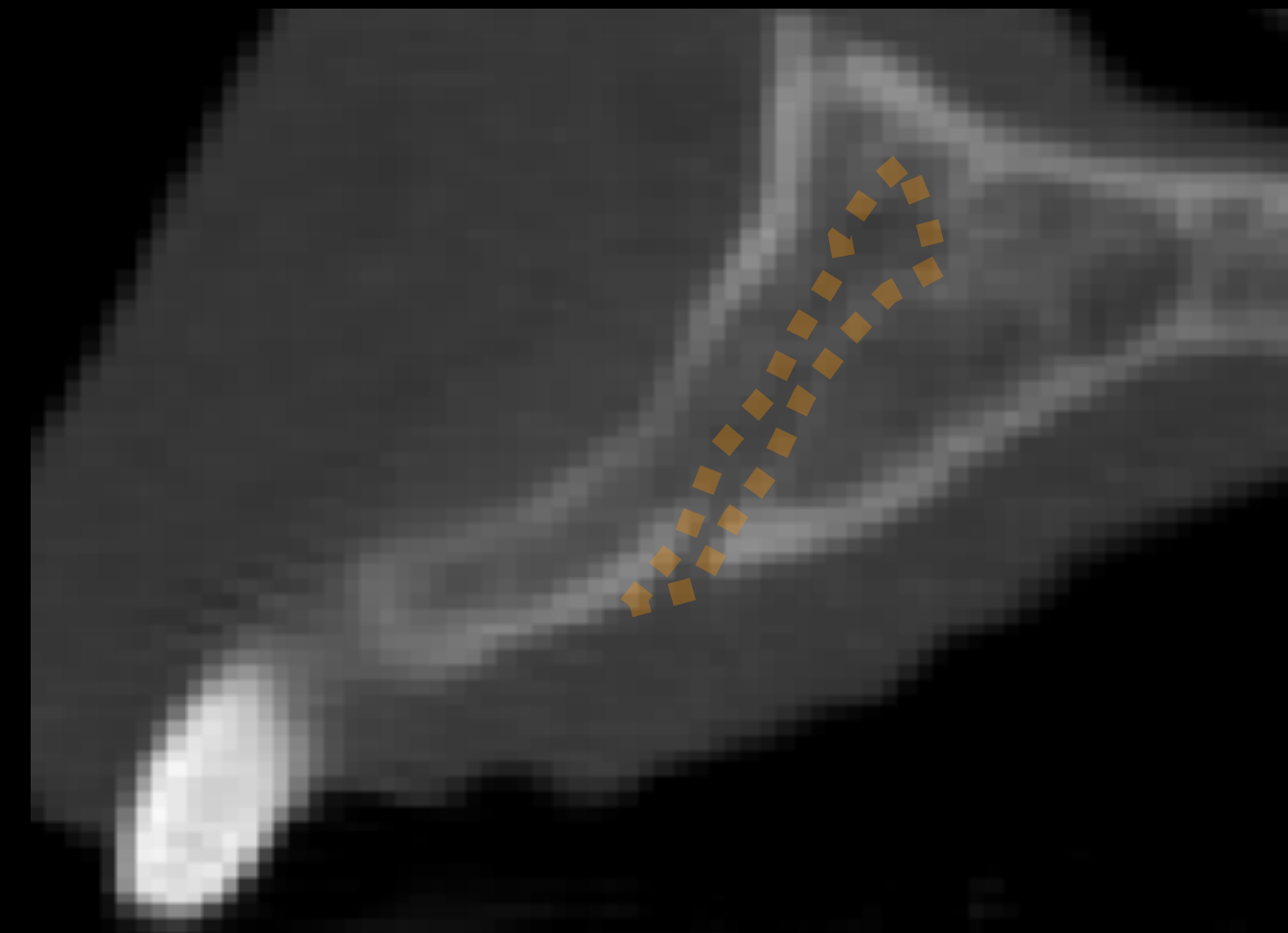
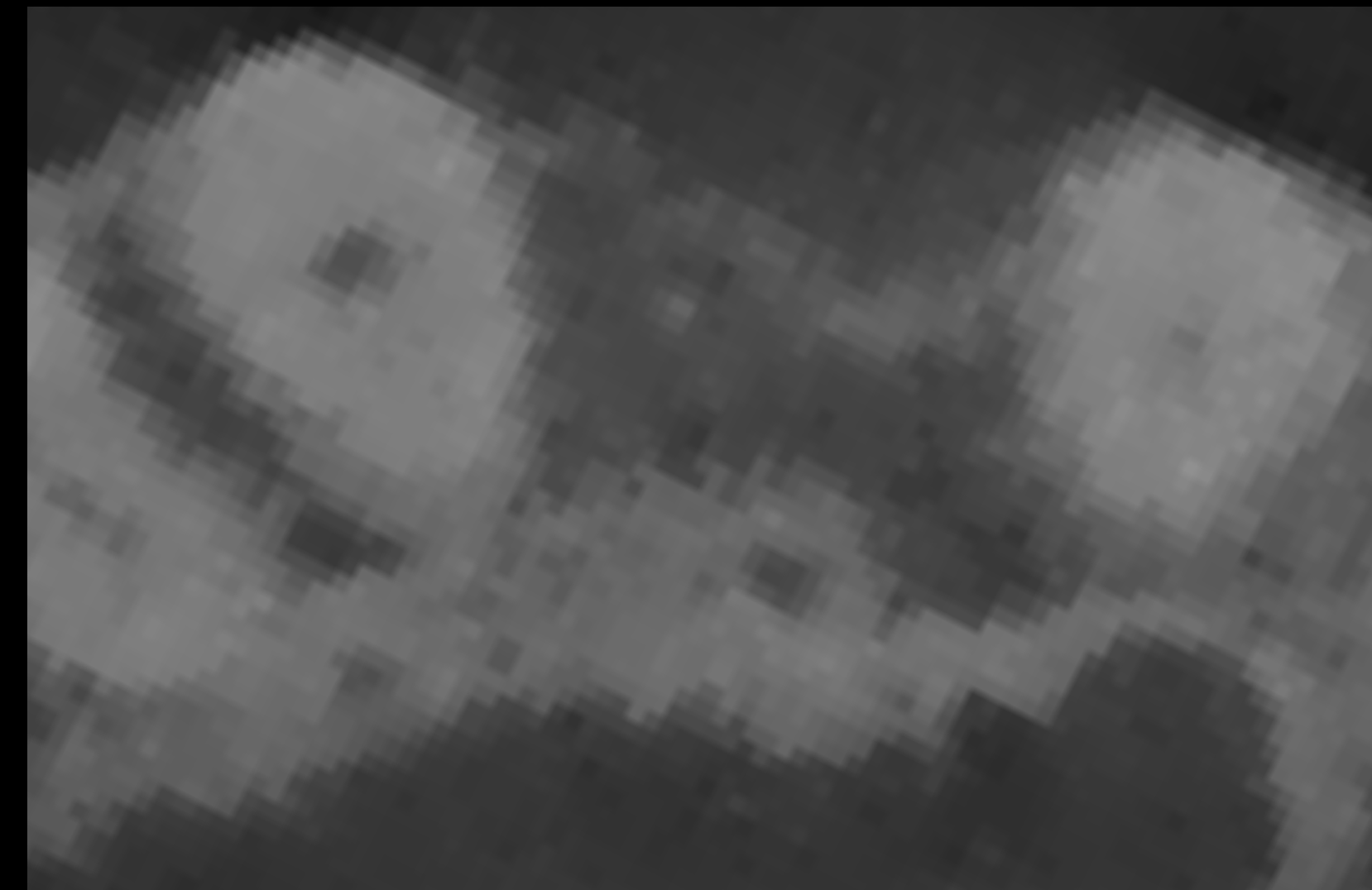
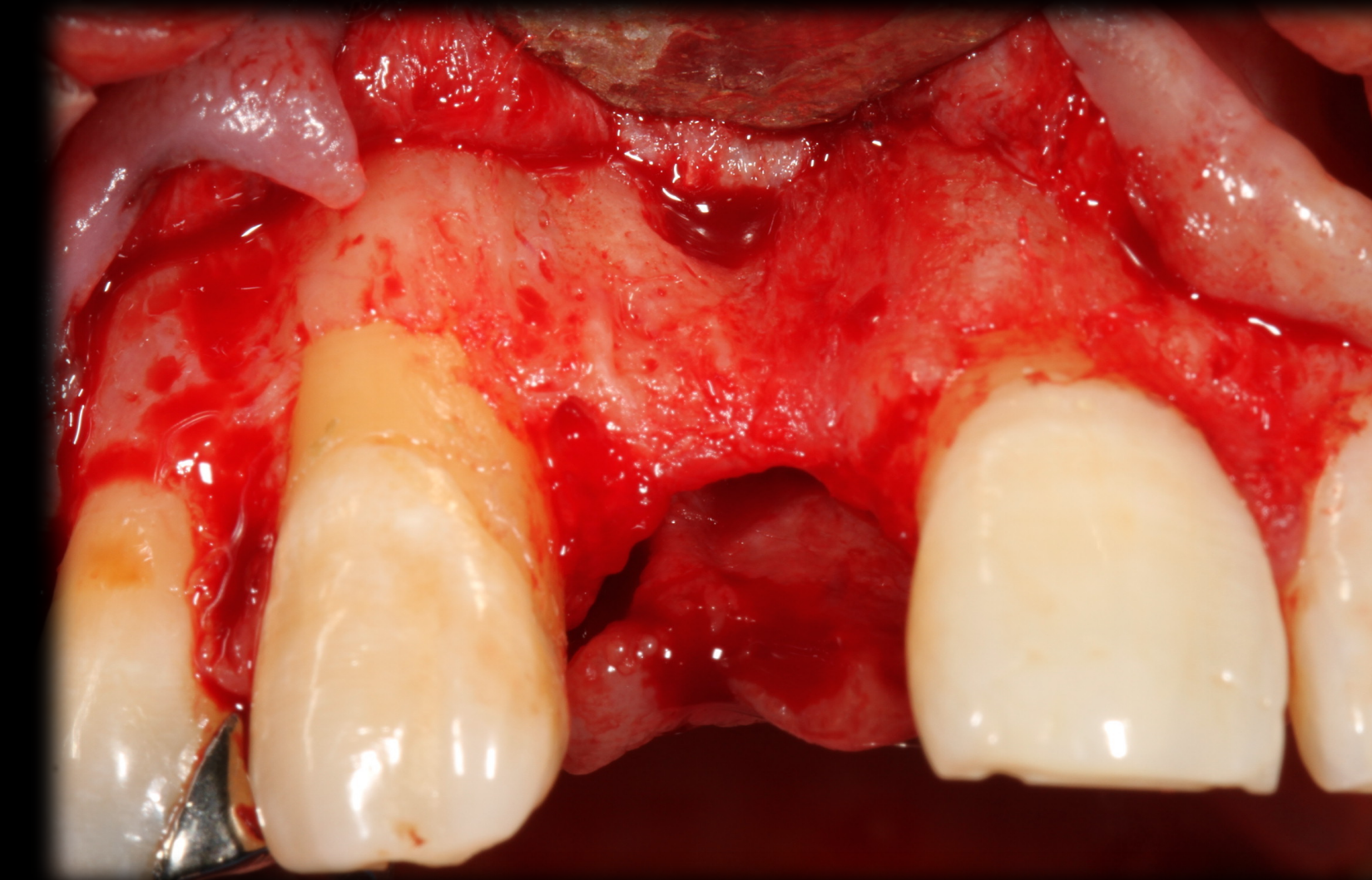
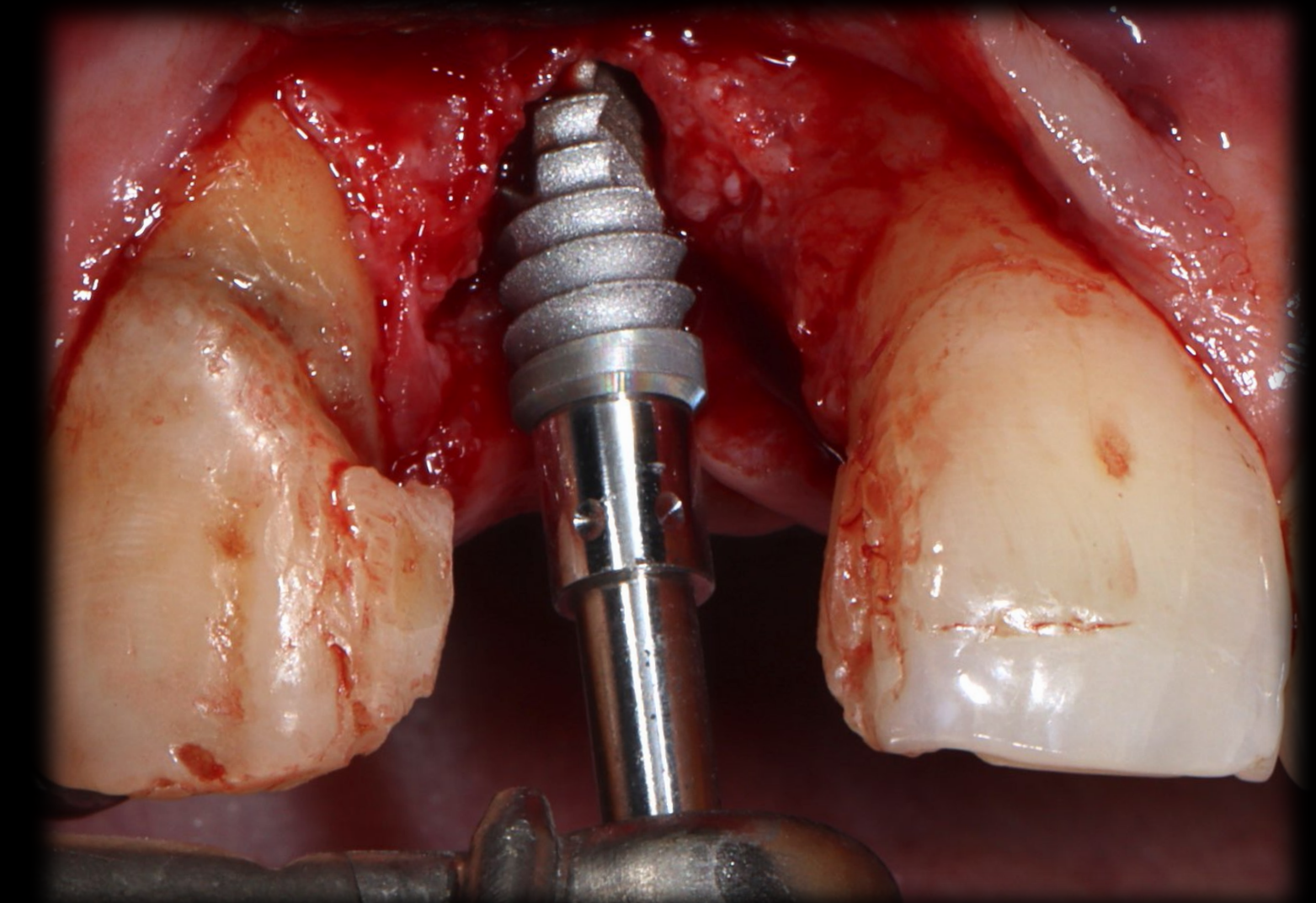




Canalis Sinuosus: A Rare Anatomical Variation Involving Oral Surgery and Dental Implant Placement. A Case Report

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References



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Introduction

Successful placement of dental implants is dictated by diverse criteria, which include absence of pain and avoiding invasion to close anatomical structures.^{1,2} Dental implant placement and oral surgery are procedures that are in close relation with these structures, i.e. nasopalatine canal, mental foramen and in some cases Canalis Sinuosus (CS).³ This is a tortuous bone channel with an anterolateral direction which contains an accessory branch of the anterior superior alveolar nerve.⁴ Its prevalence can be around 50% of the population and can go up to 88%, its diagnosis could result challenging⁵⁻⁷, so a possible invasion to this structure could arise post-operative complications^{4,8-11}. The goal of this case is to present diagnosis, treatment plan and procedures in a patient with CS in an edentulous zone.

Case Report

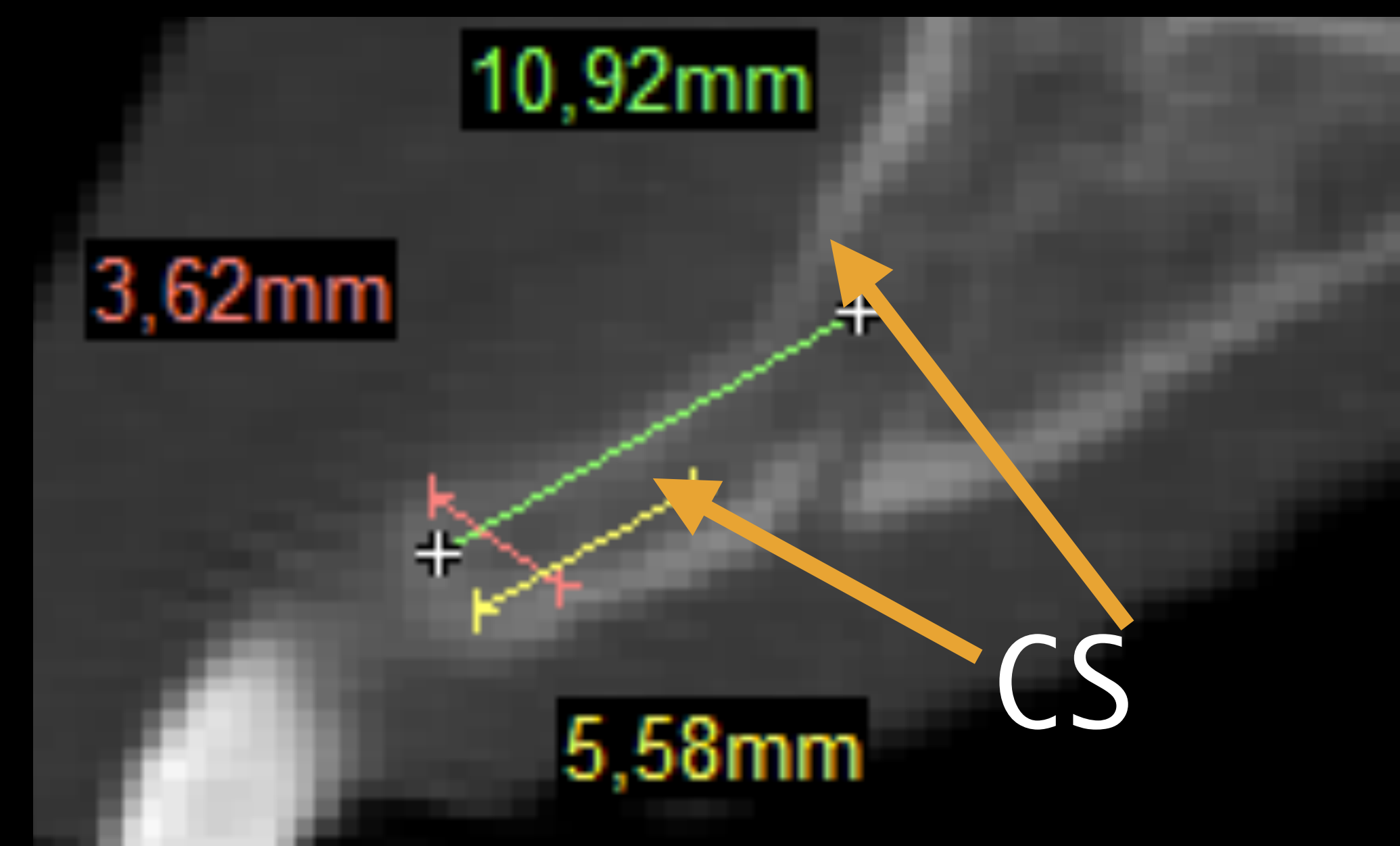
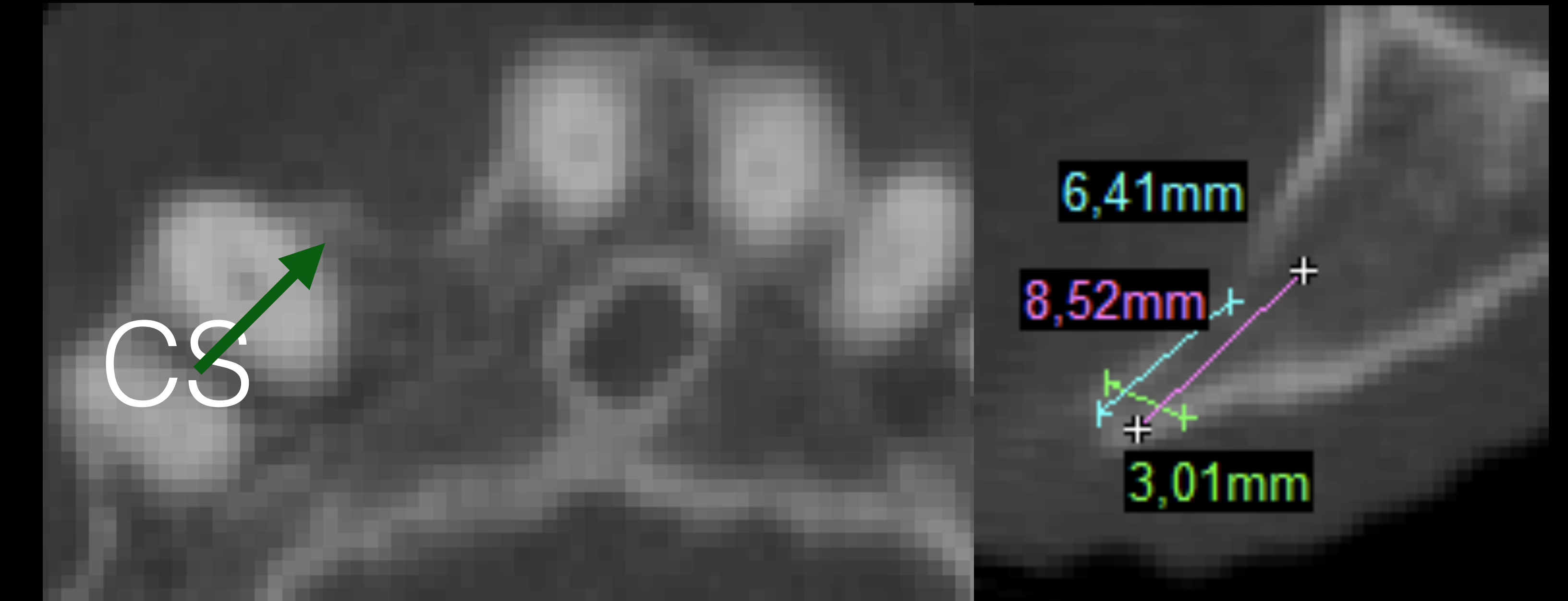
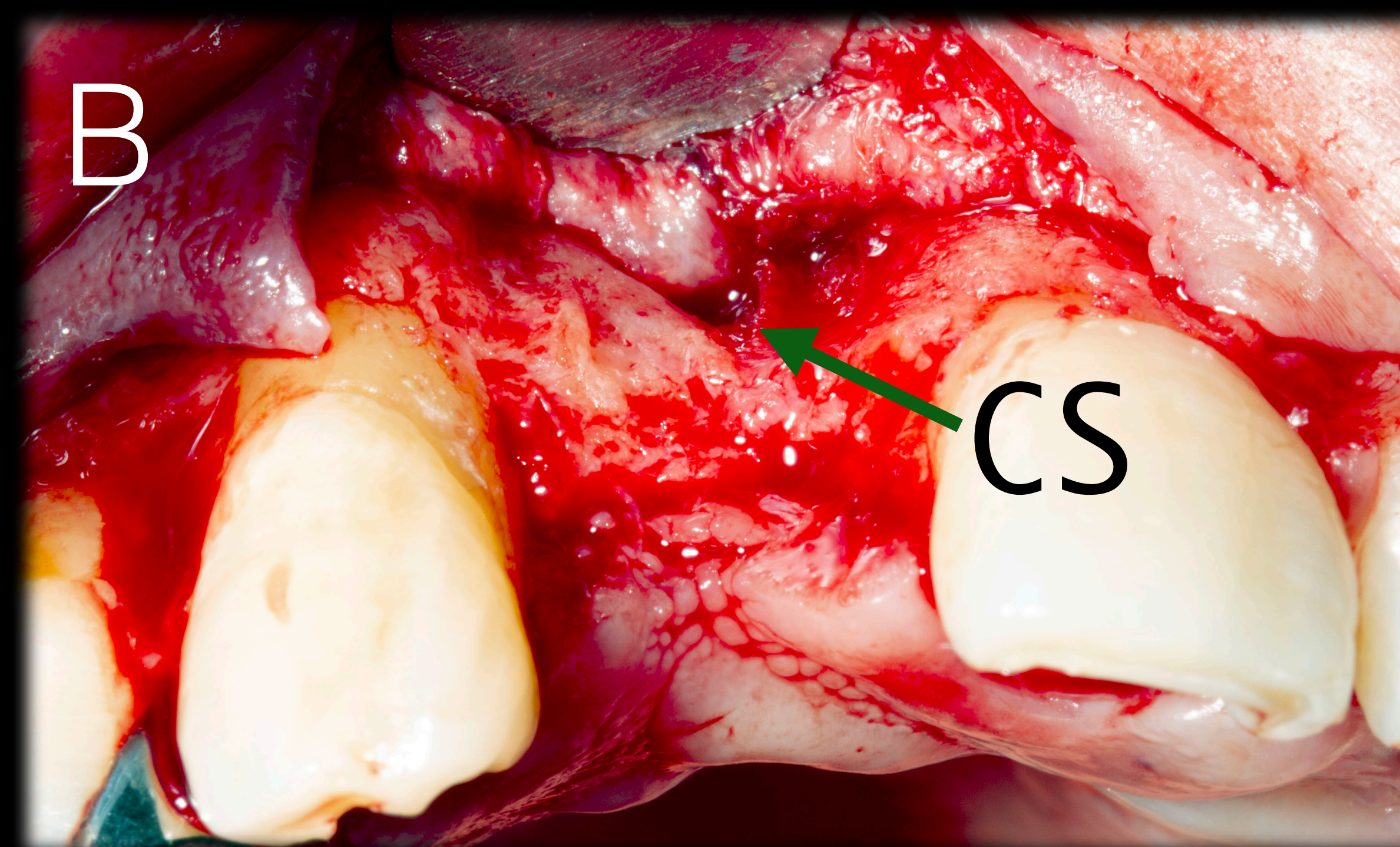
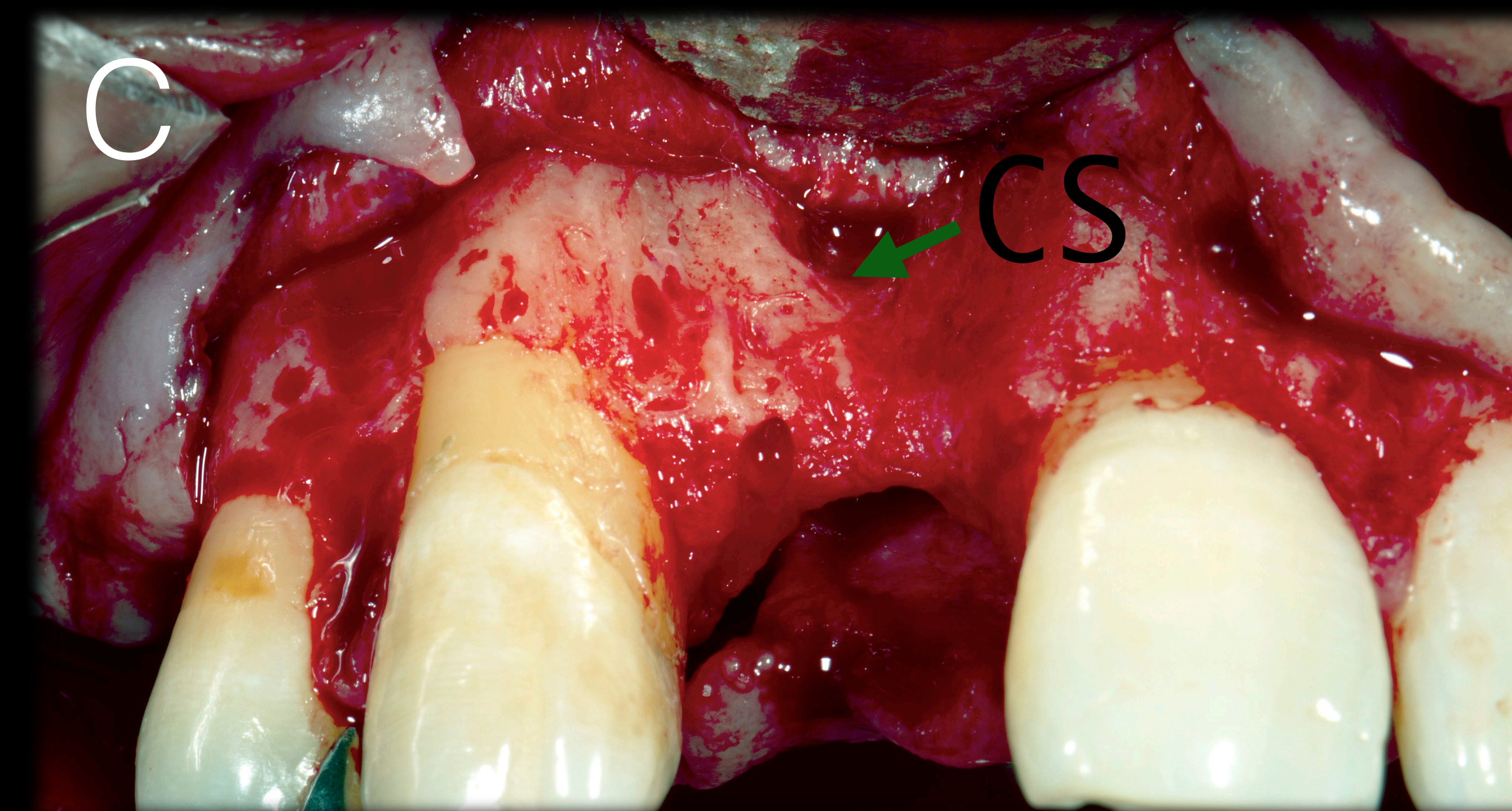
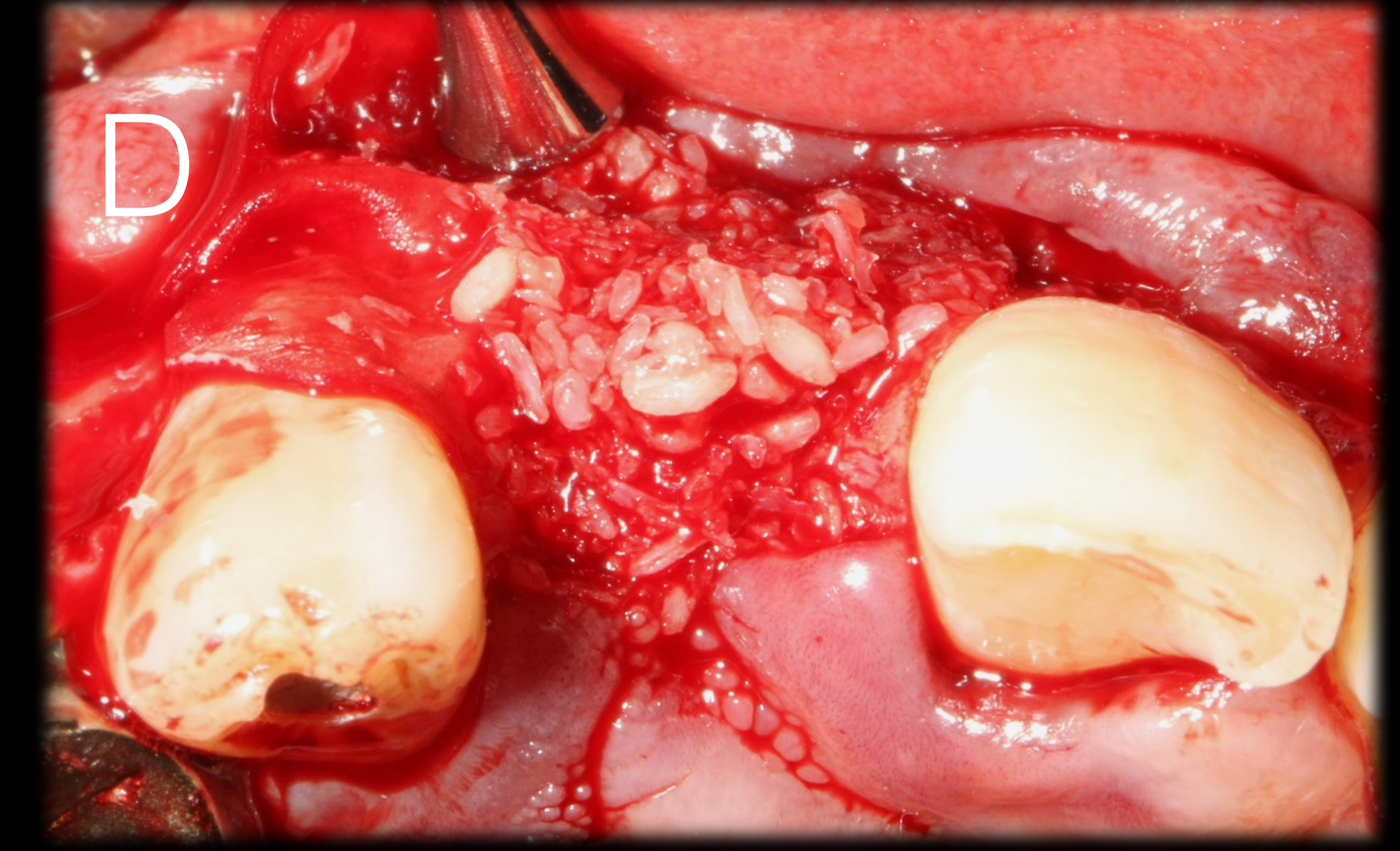
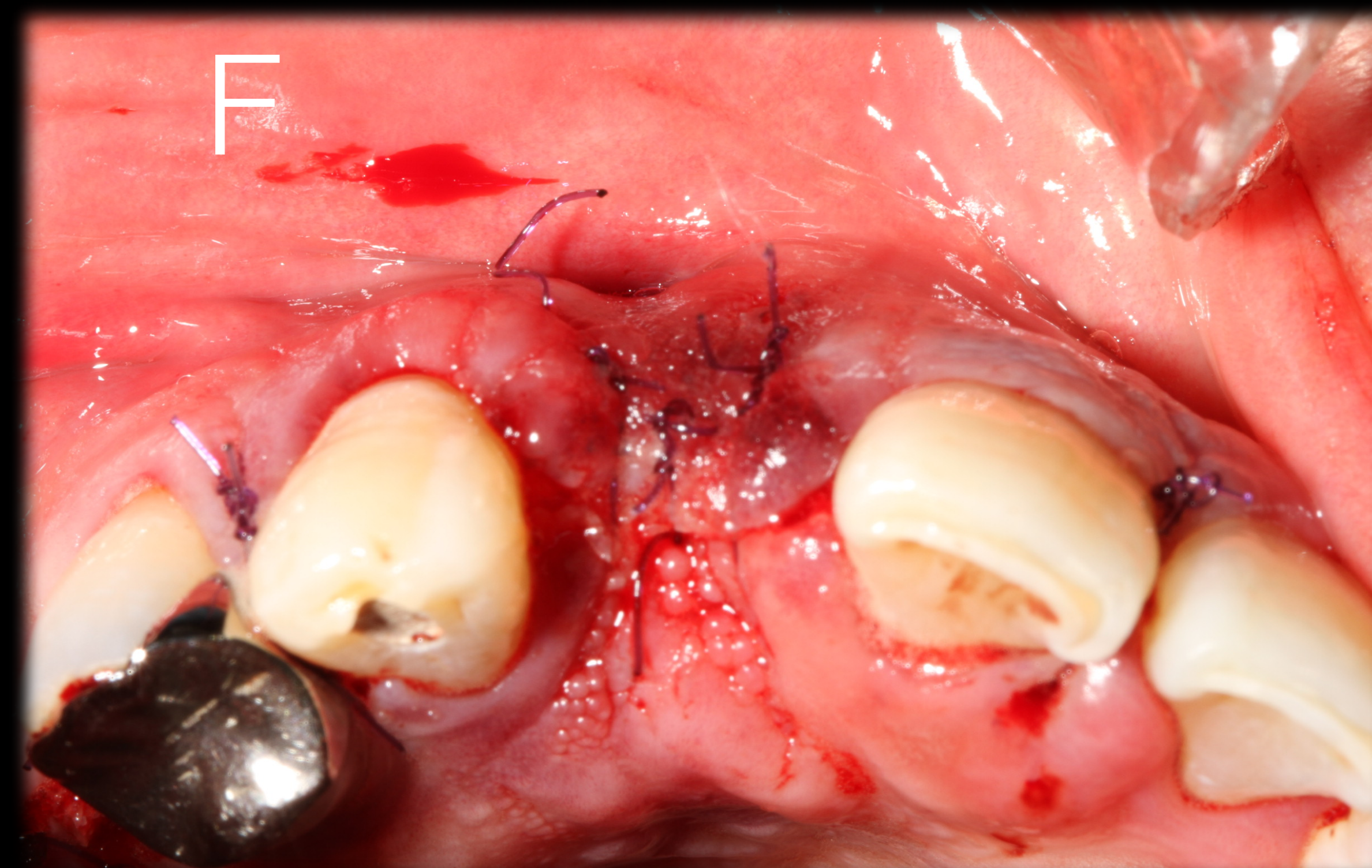
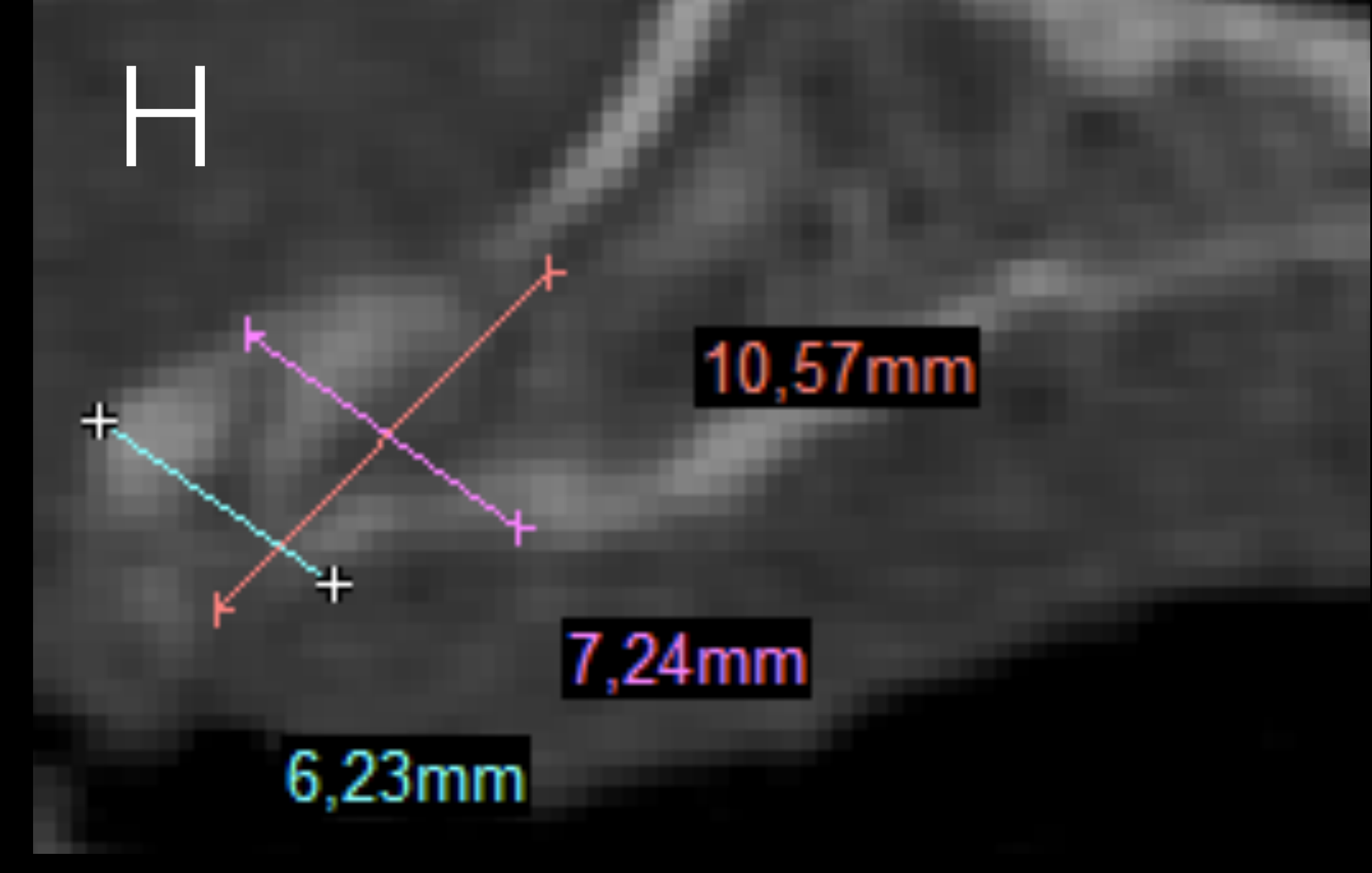
A 51-year-old patient came to the clinic asking to replace a lateral incisor lost at a young age with a dental implant. CBCT revealed a residual ridge with a maximum width of 3.63mm, showing a structure in the palate that could be confused with a chronic endodontic lesion. This resembled a canal-like structure than opened in the superior lateral incisor area at approximately the apical portion of neighboring teeth. After careful examination, CS was diagnosed in the area- The patient was informed about the anatomical condition and decided to carry-on with the treatment. Treatment plan was done accordingly to preserve CS neuromuscular bundles.



Treatment Plan

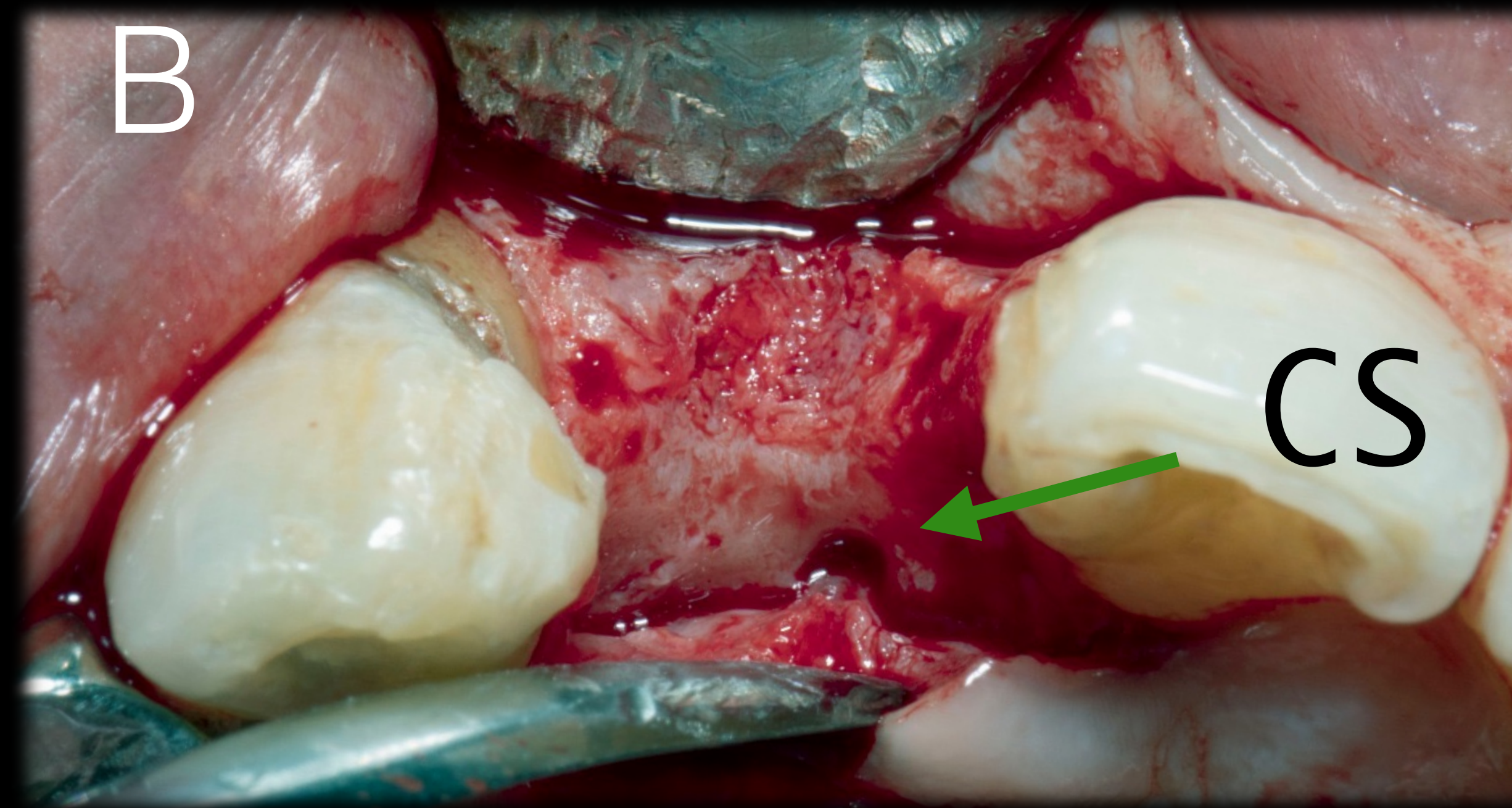
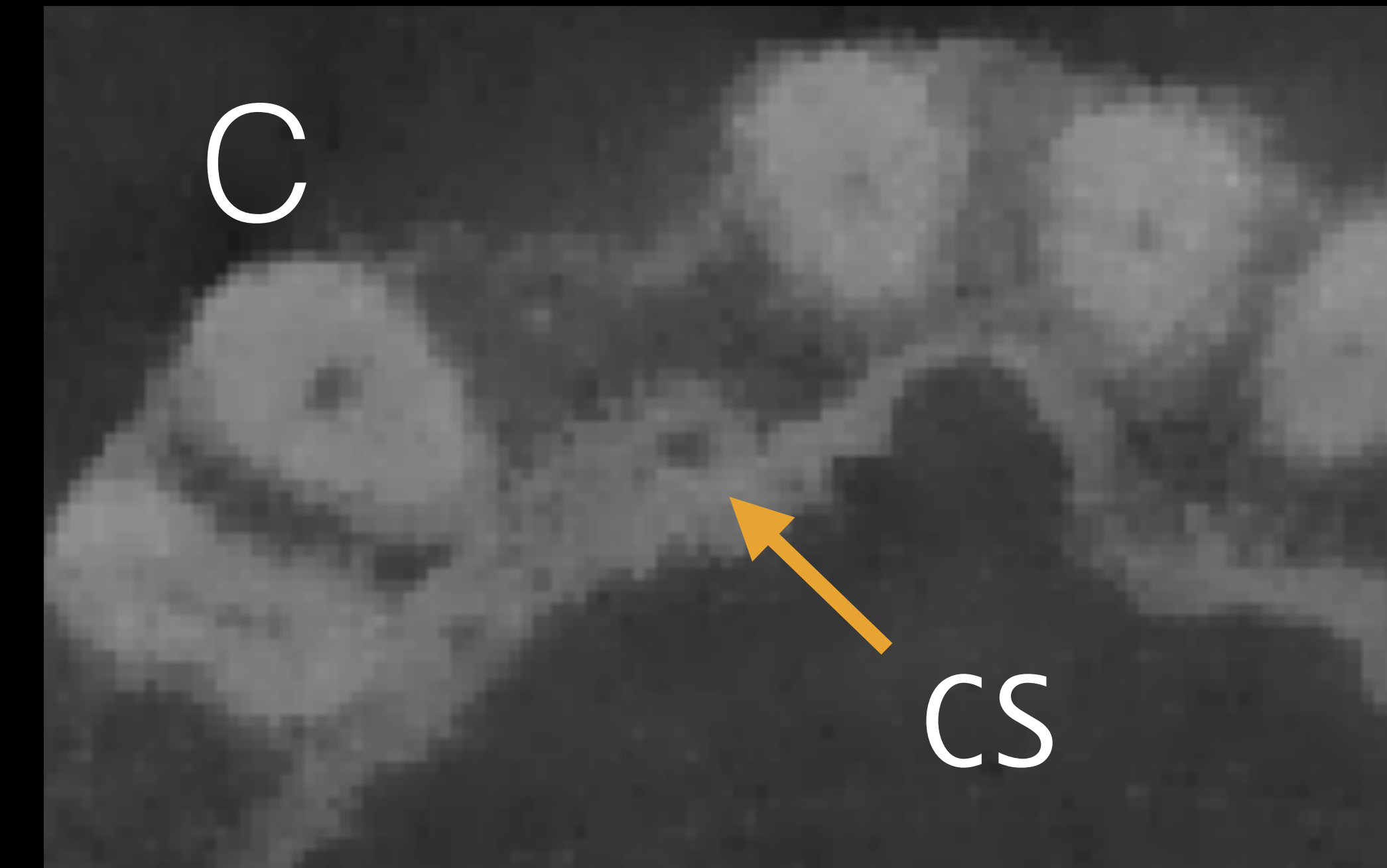
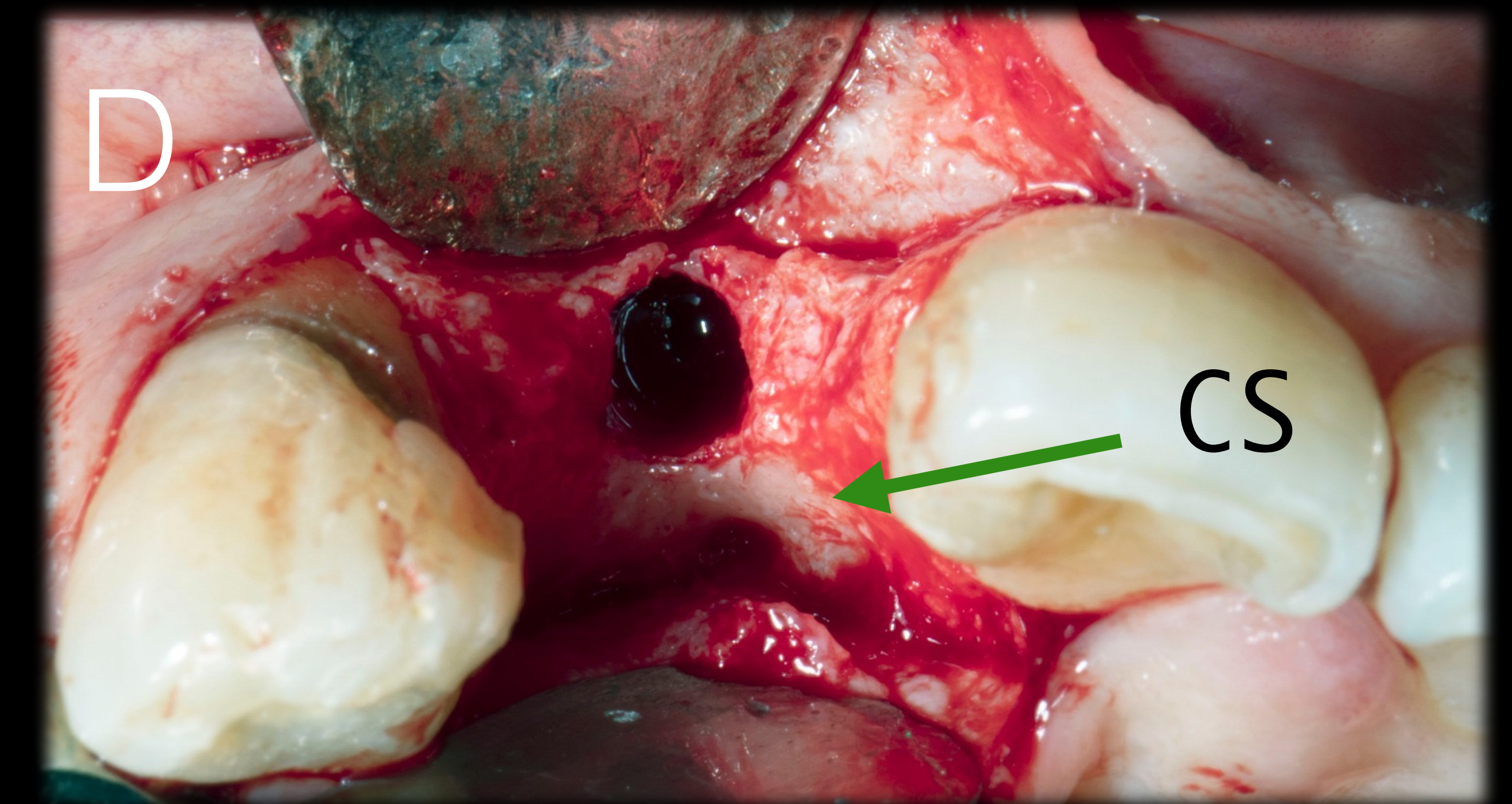
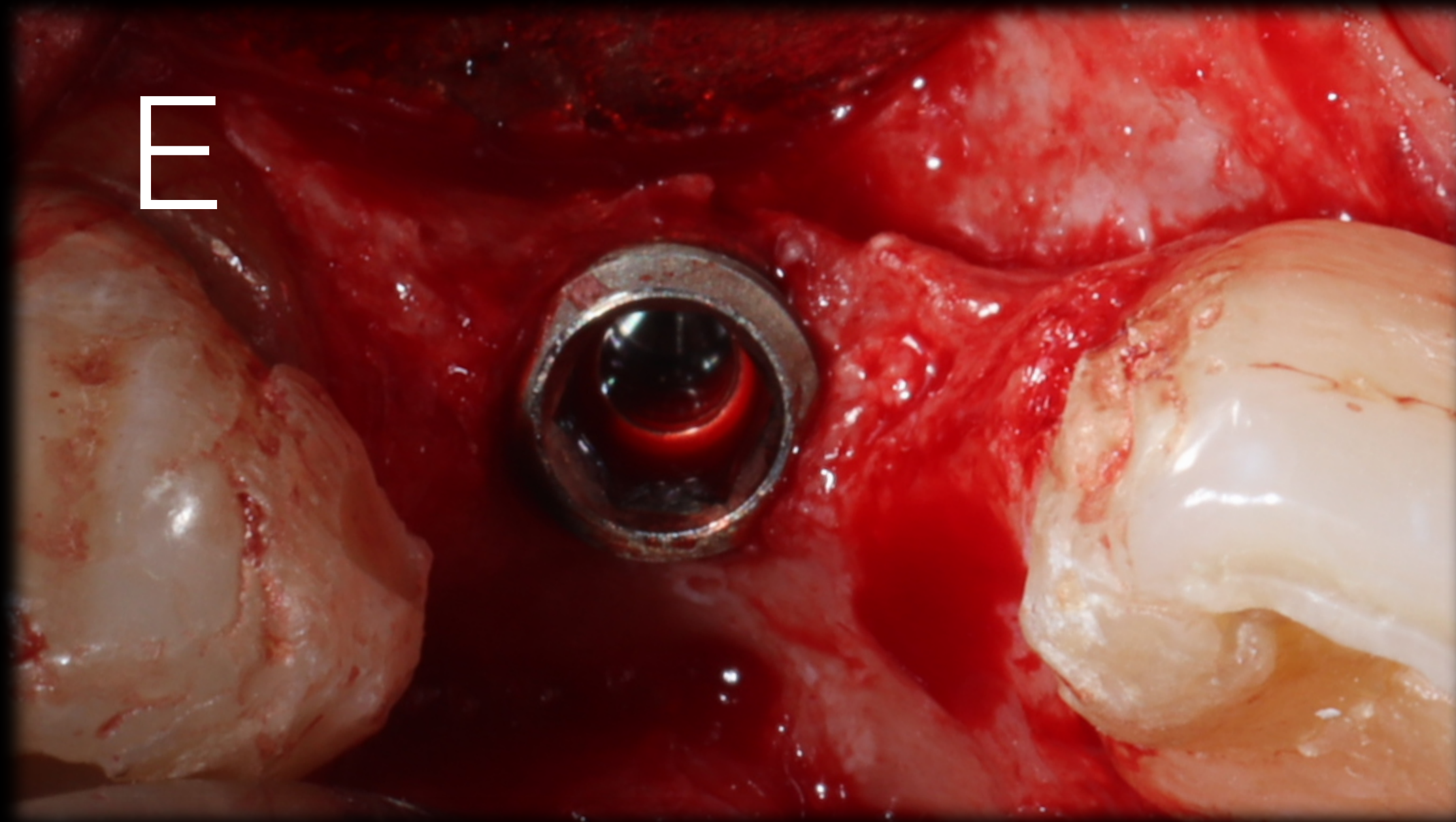
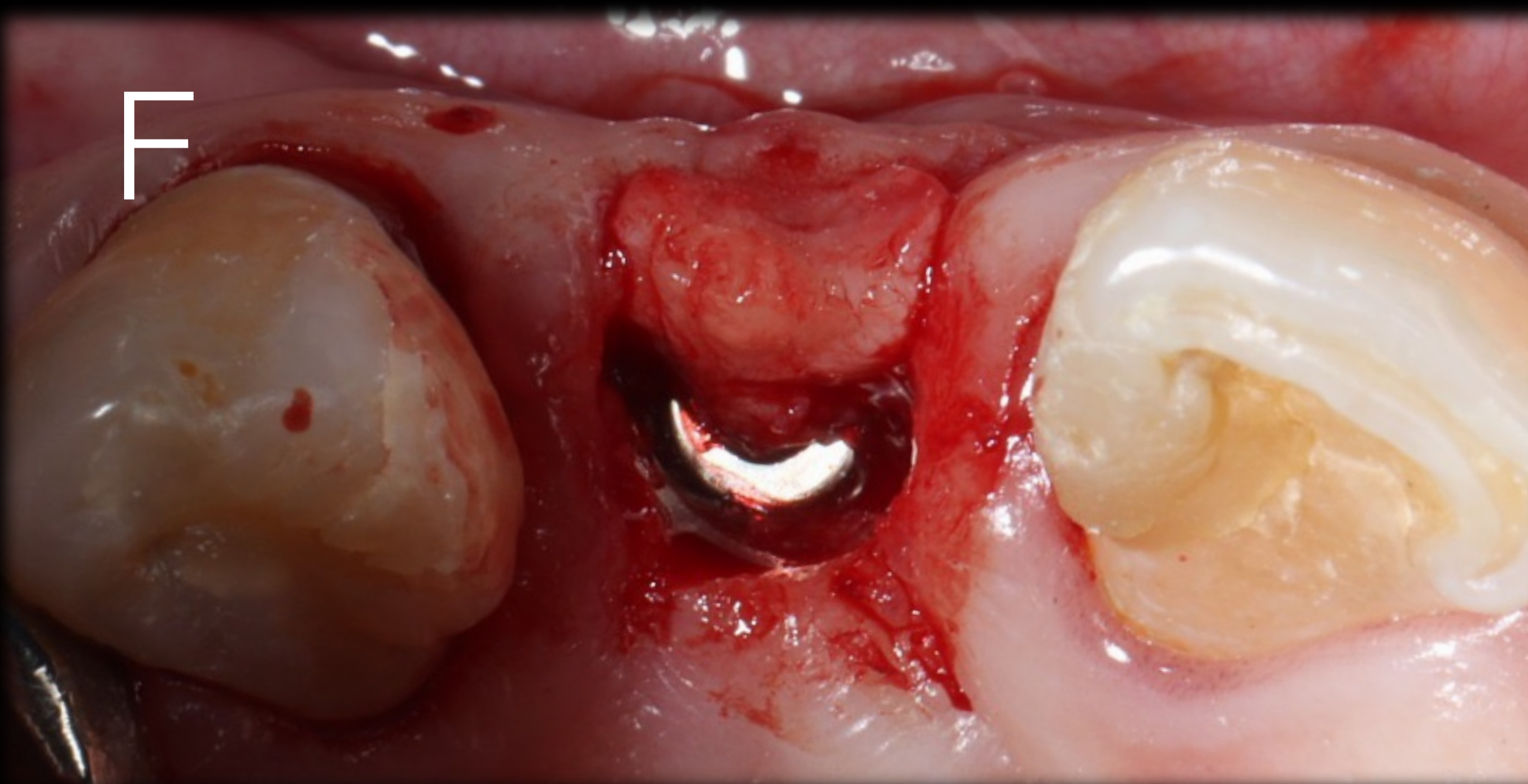
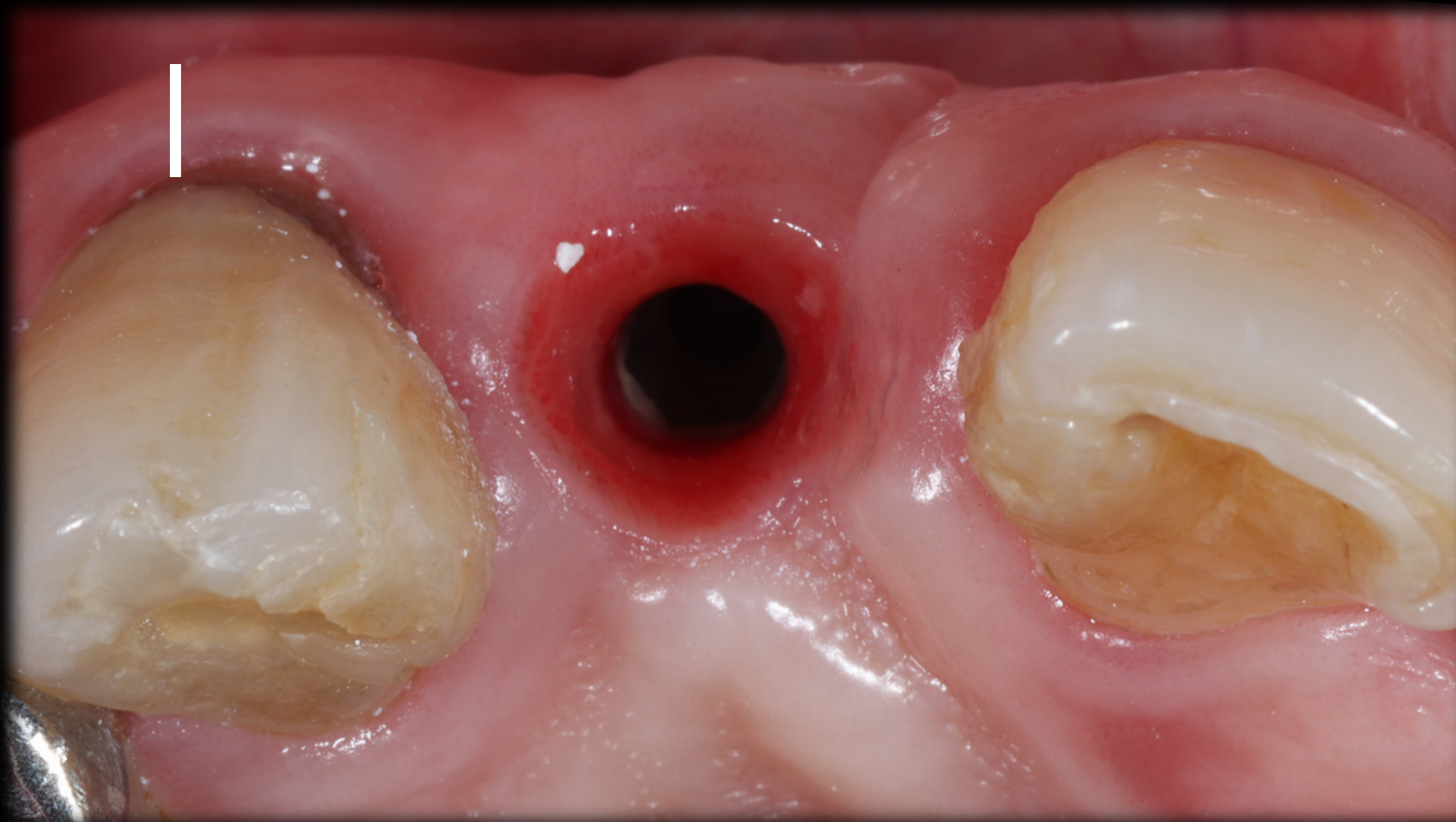
GBR was planned in the residual ridge that showed a maximum coronal width of 3.01mm. To avoid invading CSA, a 3.8 x 9mm implant was planned. This implant will receive a screw-cement retained restoration.

Guided Bone Regeneration

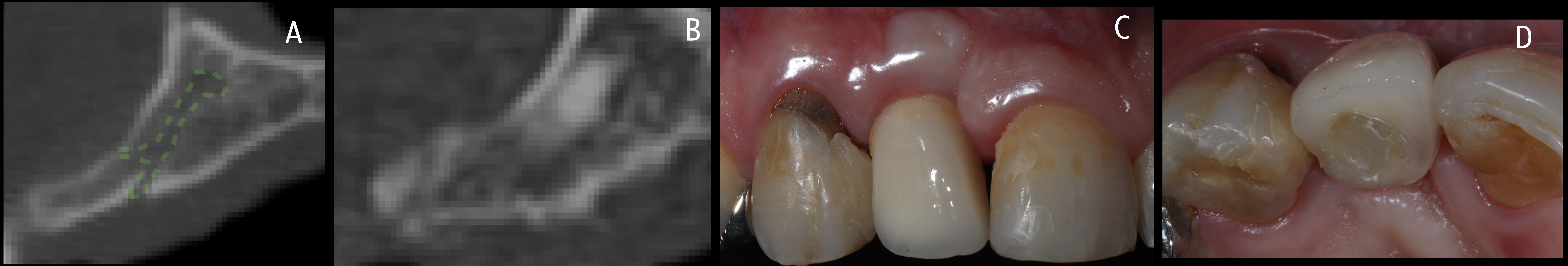


A) Pre-op view. B) Coronal view of flap elevation, CS opening through buccal aspect. C) Frontal view of flap elevation, buccal view of CS. D) Grafting with FDBA. E) Fixation of first bone tac and collagen membrane, which was trimmed in a "Y" like Shape to avoid opening of CS and bone tac placed also avoiding the structure. F) Suture. G) 1 month healing phase. H) 4 month post GBR

Implant Placement and Restoration



A) Pre-op view implant surgery. B) Clinical view of CS through palatal aspect. C) CBCT showing CS location clinical and tomographic appearance. D) Implant preparation avoiding CS. E) Implant Placement. F) 2nd stage surgery. G) Provisional restoration. H) One month healing with provisional restoration. I) Coronal view of emergence profile. J) Implant impression with soft tissue transfer. K) Cement-screw retained restoration. L) Final restoration delivery.



A) Pre-op tomographic view of CS with buccal and palatal opening B) Post GBR tomographic view. C,D) Final Restoration

References



Results

- Successful GBR with a final ridge width above 6.5mm in the coronal aspect, bone tac placement and membrane fixation was carefully done preserving and avoiding CS.
- Successful implant placement and restoration with survival until today.
- Overall successful treatment. CS was carefully dissected and preserved. The patient was monitored for any unusual symptoms that could signal nerve damage.

Conclusions

- Implant success is the main goal, achieved when an optimal diagnosis is done.
- Identification of abnormal structures or rare anatomical variations remains a very important factor that could determine survival or failure in dental implant procedures.
- In this case, an early diagnosis and a successful treatment plan was conducted in an area presenting CS, an anatomical variation related with high incidence of post-operative complications. It does not translates this case into a predictable outcome but it illustrates that an early and correct diagnosis could help the clinician identify and possibly overcome this limitations.