

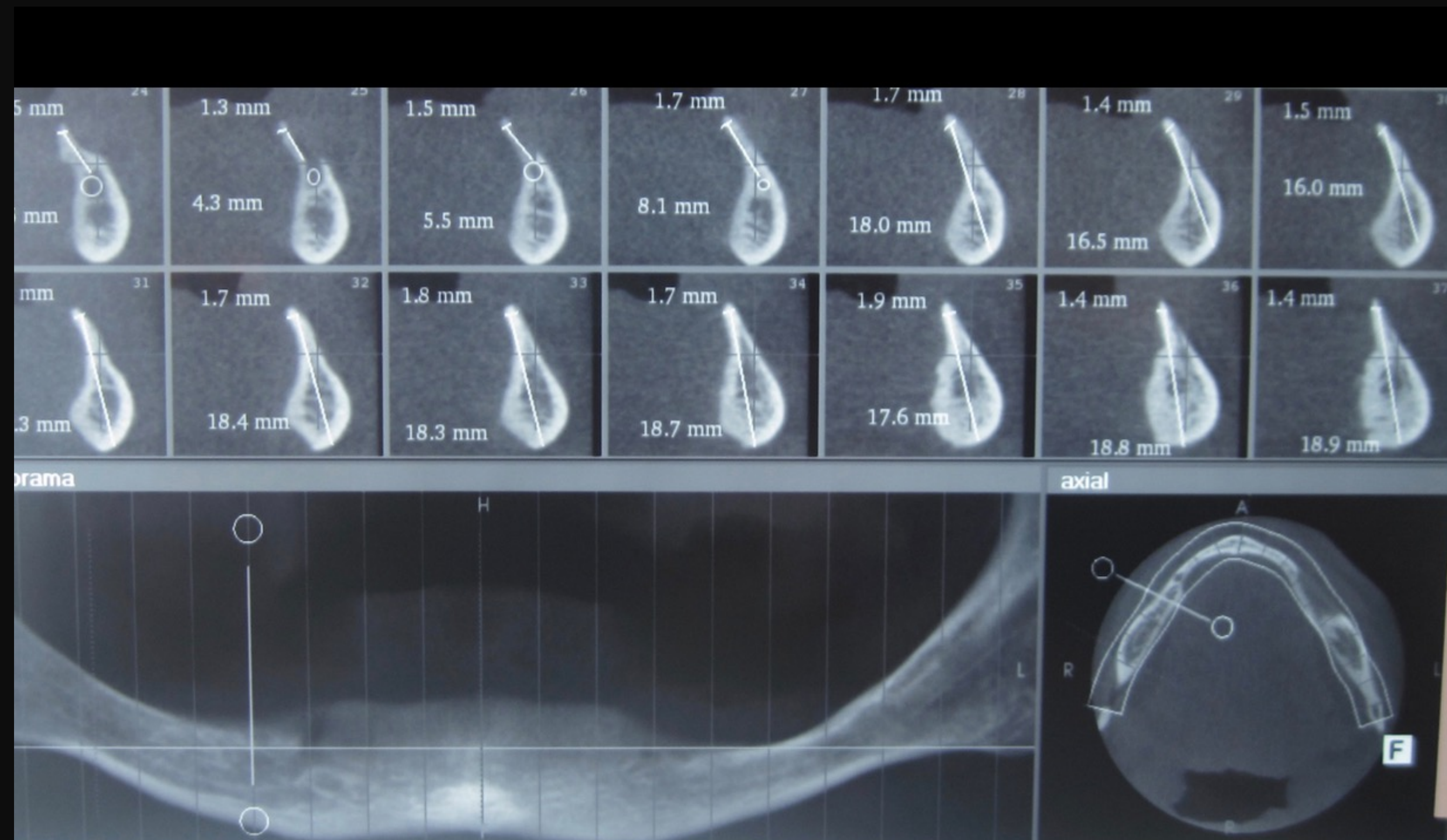
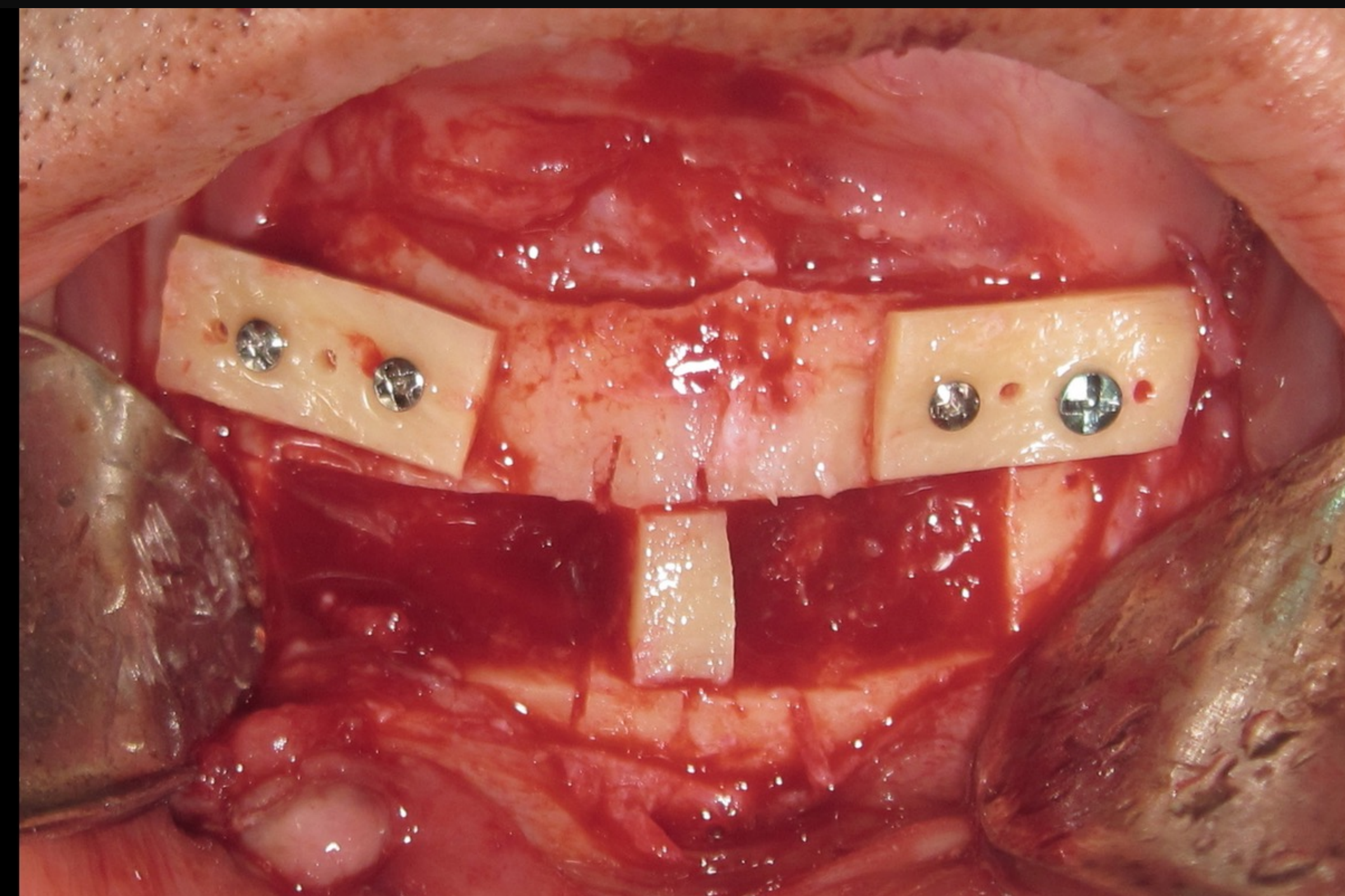
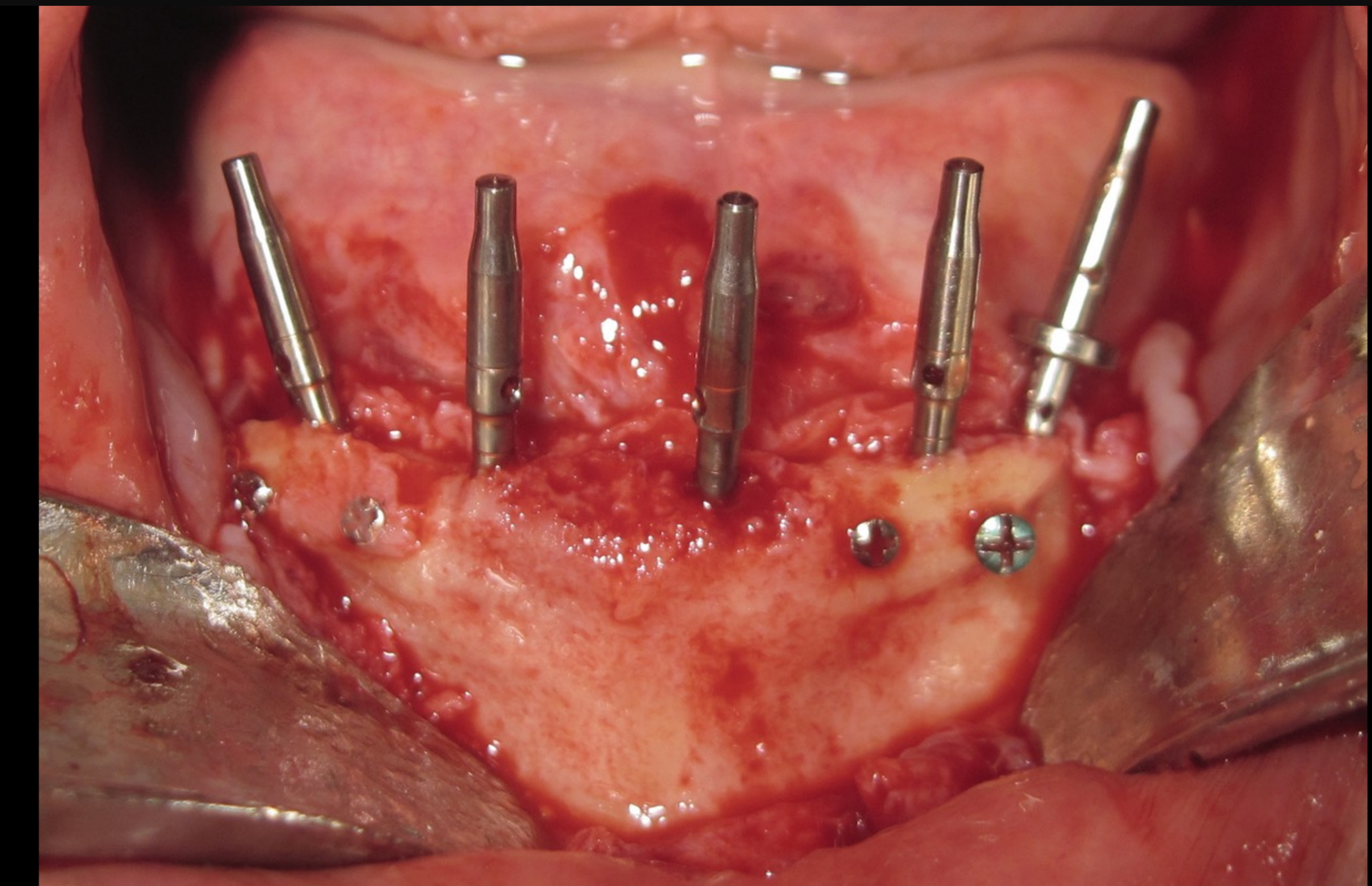
A Novel Technique for Alveolar Ridge Augmentation using Intraoral Bone Blocks as a Tent (a case series)

Mohseni Salehimonfared, Seyedhossein¹; ; Poursafar, Farzaneh¹; Etemadi, Mahsa¹

Department of Periodontology, Tehran University of Medical Sciences, Tehran, Iran Email:salehimo@tums.ac.ir

INTRODUCTION

Using intraoral block bone autografts is a reliable technique for augmentation of local alveolar defects before implant placement. Extraoral autogenous bone graft sites are often necessary to reconstruct large defects. However, a significant but uncontrollable resorption rate of iliac bone graft could affect the stability of the augmented bone. We present 3 cases with severe atrophic mandibular bone that were augmented using intraoral block bone autografts as a tent.



A Novel Technique for Alveolar Ridge Augmentation using Intraoral Bone Blocks as a Tent (a case series)

METHODS

For reconstruction of severely resorbed knife-edge mandibular or maxillary ridge, round (case 3,2) or rectangular (case 1) shaped cortical autogenous bone blocks were harvested from the chin (case1, 2,3). Cortical perforation of the recipient site was performed, and cortical blocks were fixed using titanium screws to serve as a tent. The surrounding gaps were filled with particulate allograft and a resorbable collagen membrane was placed. Implant insertion was performed 4 months later.

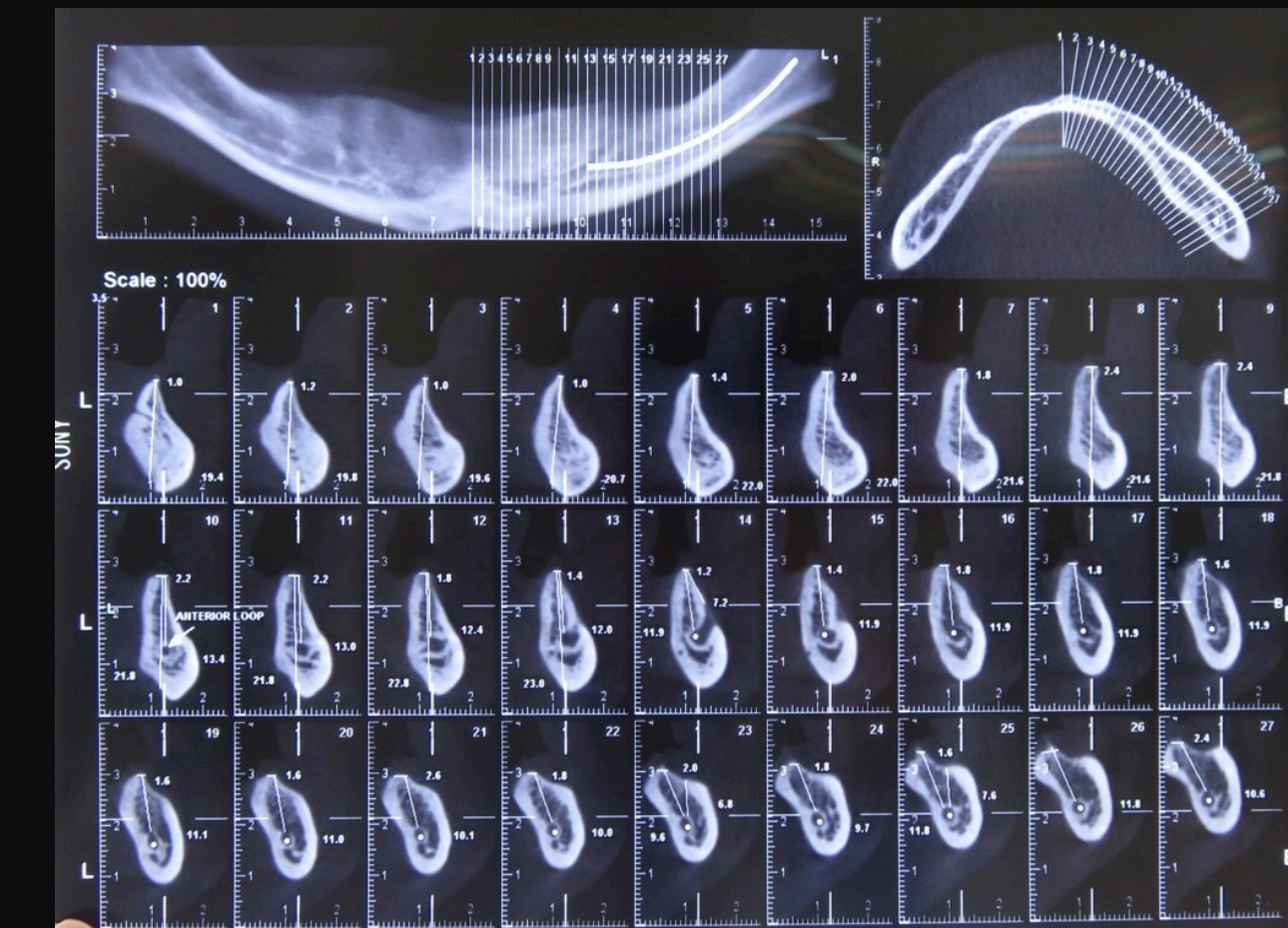
Case 1



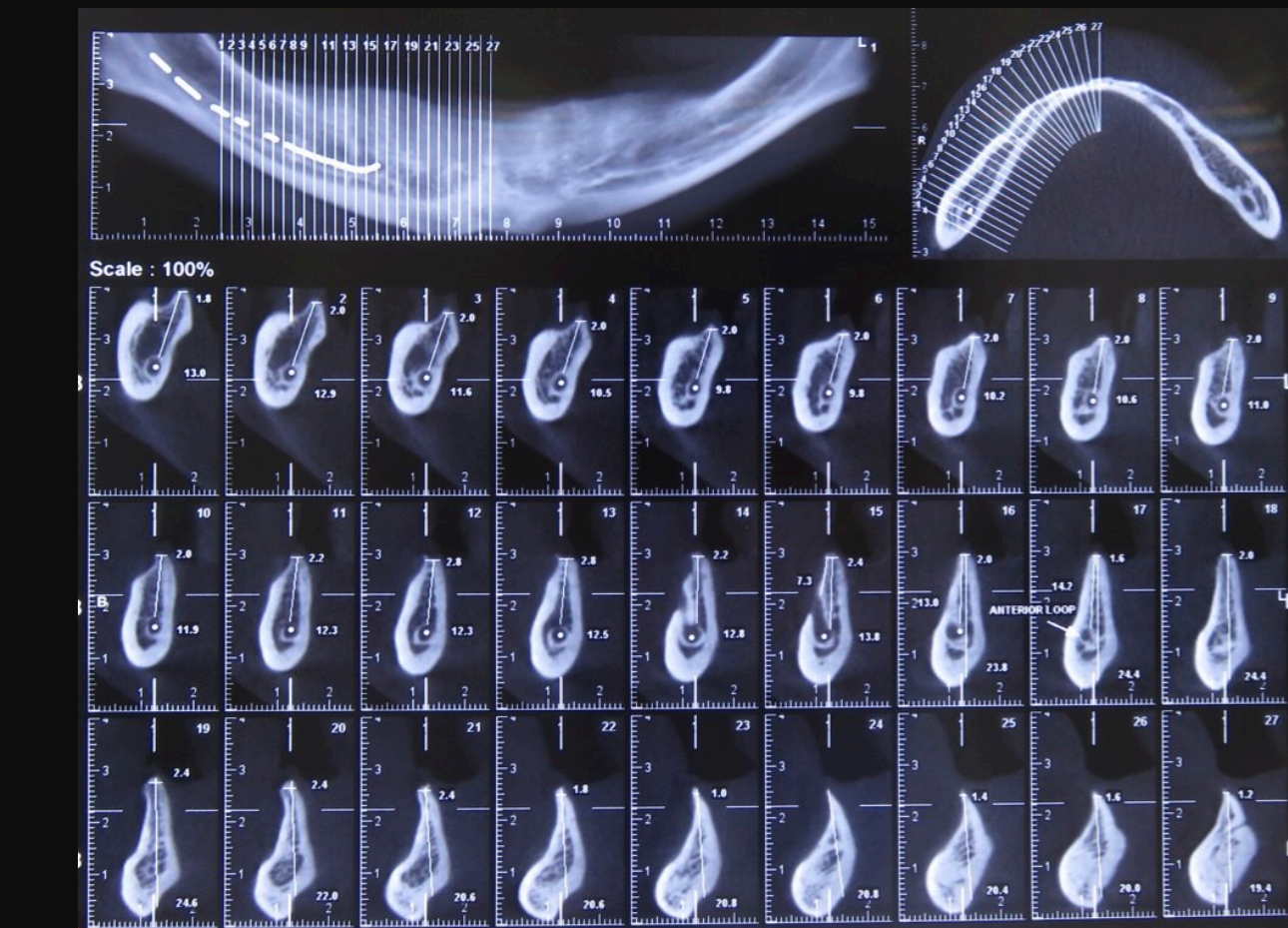
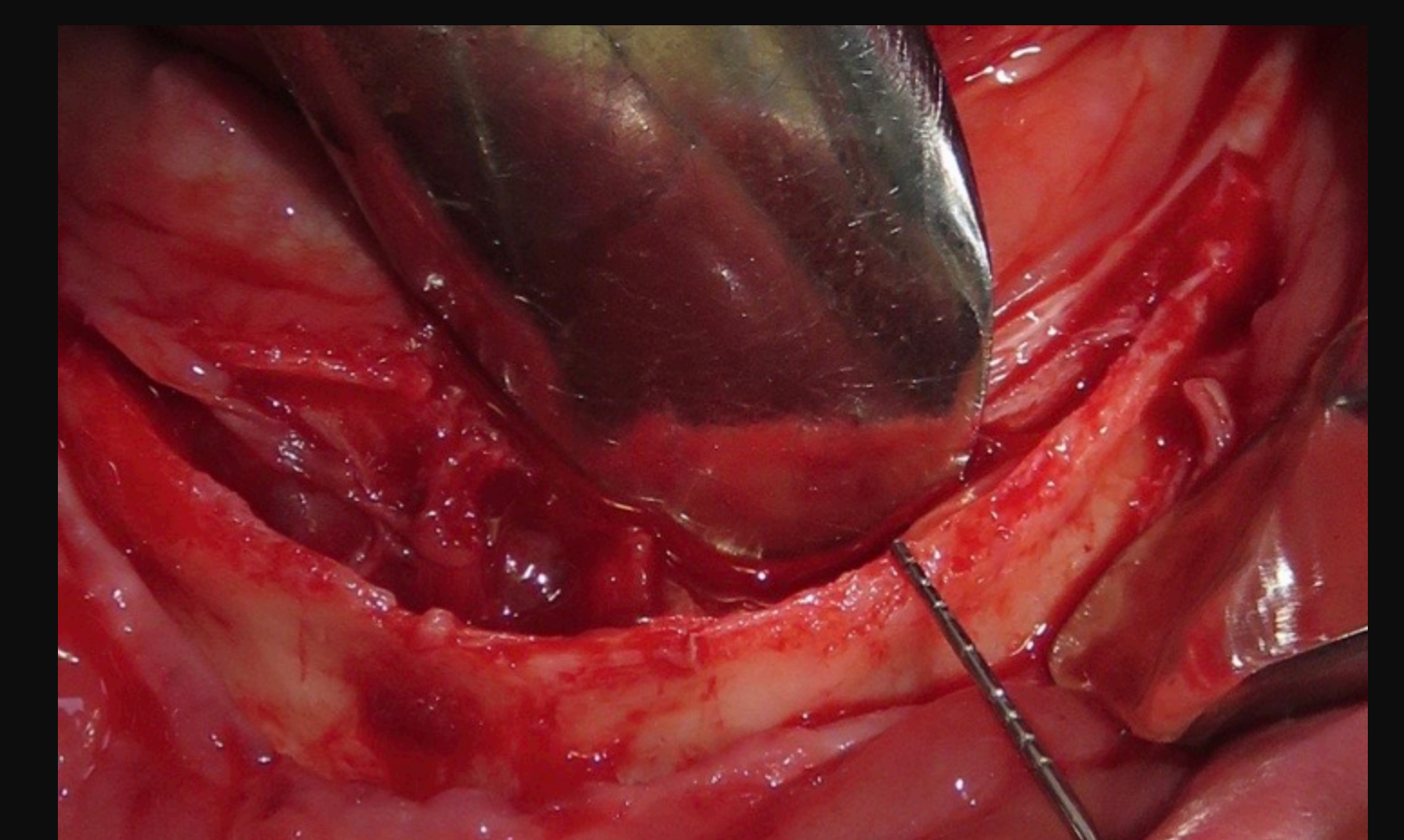
A twenty-year old edentulous male patient with the history of generalized aggressive periodontitis



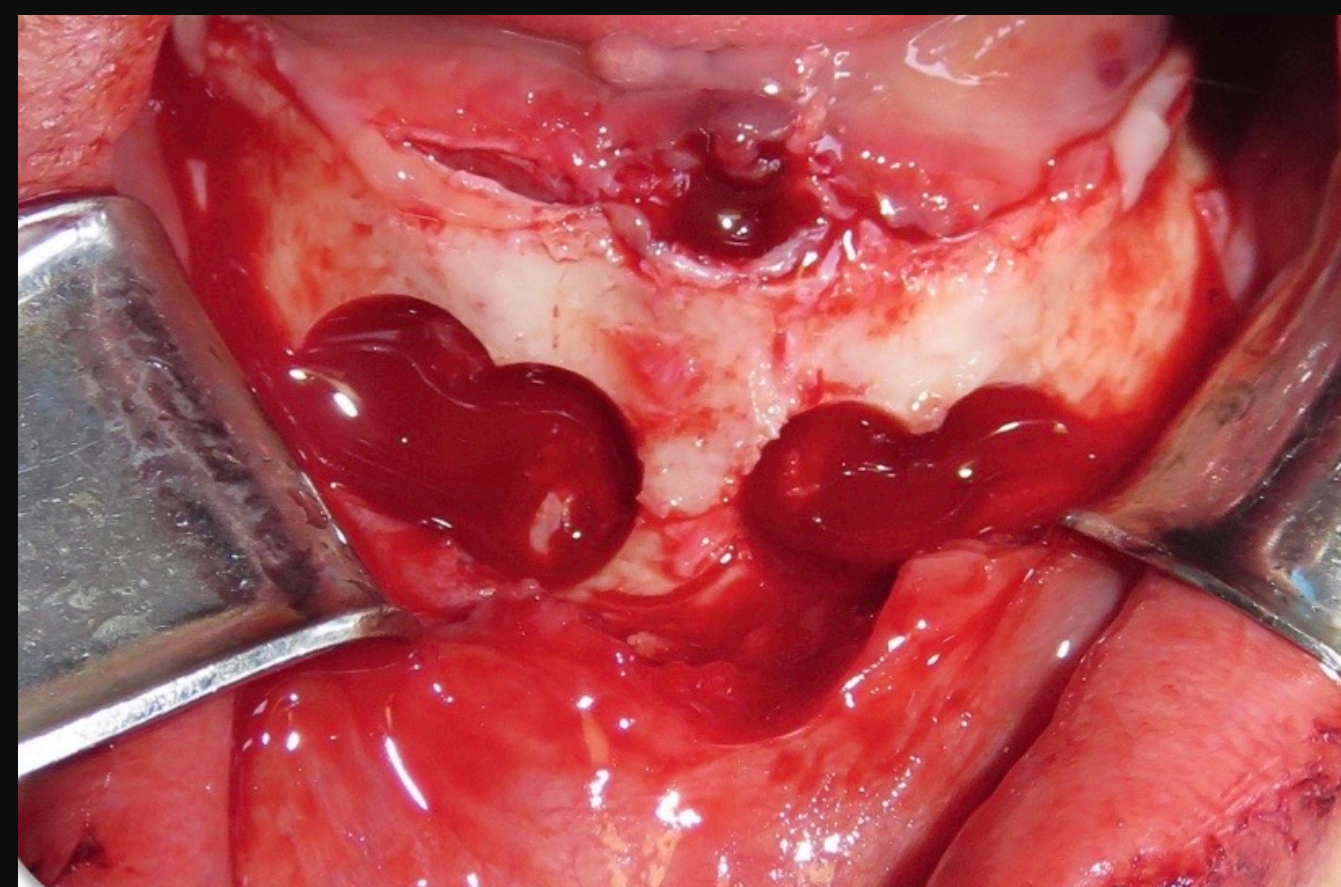
Radiographic view: Aggressive bone loss



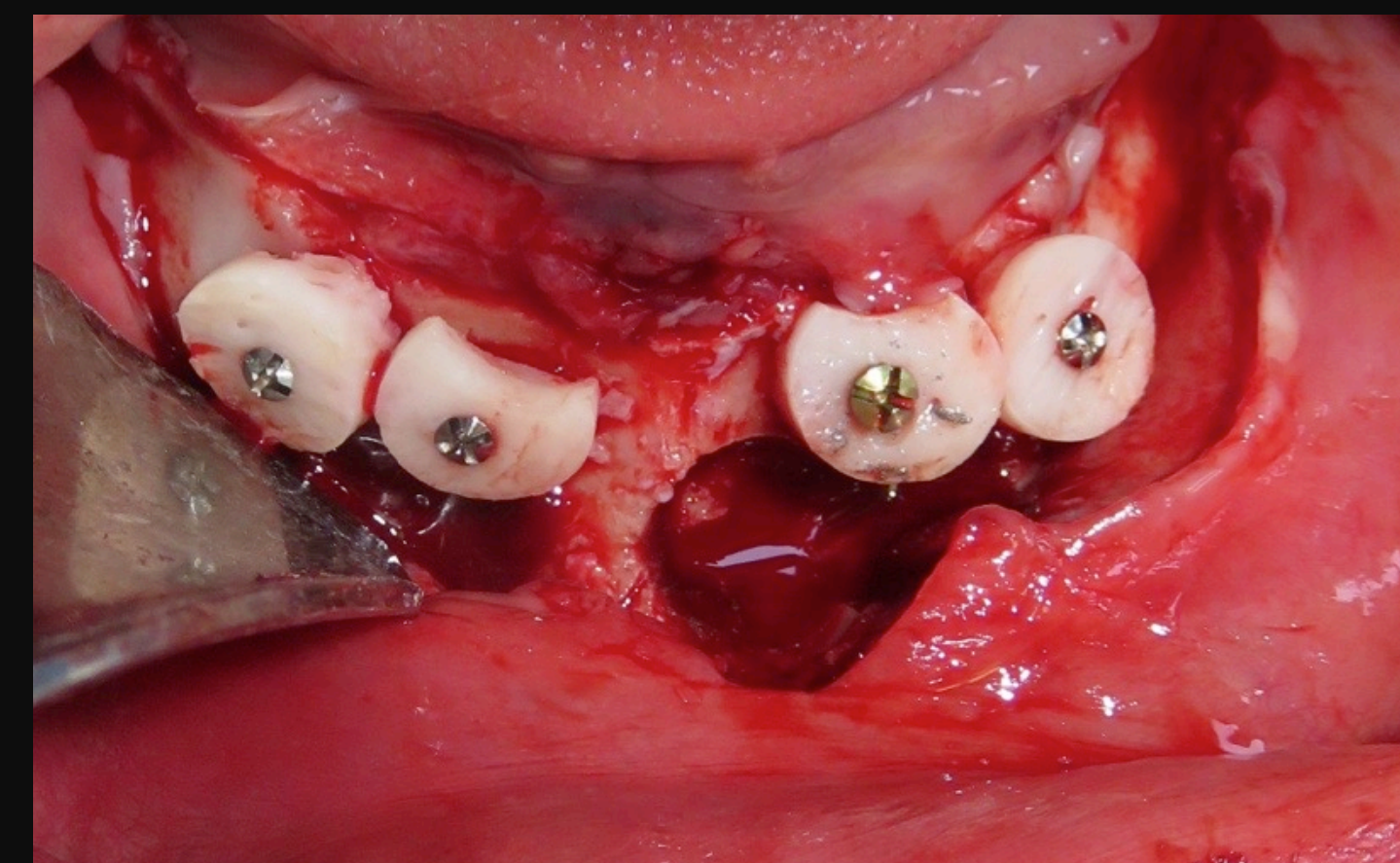
Thin Coronal Bone : Anterior of Mandible



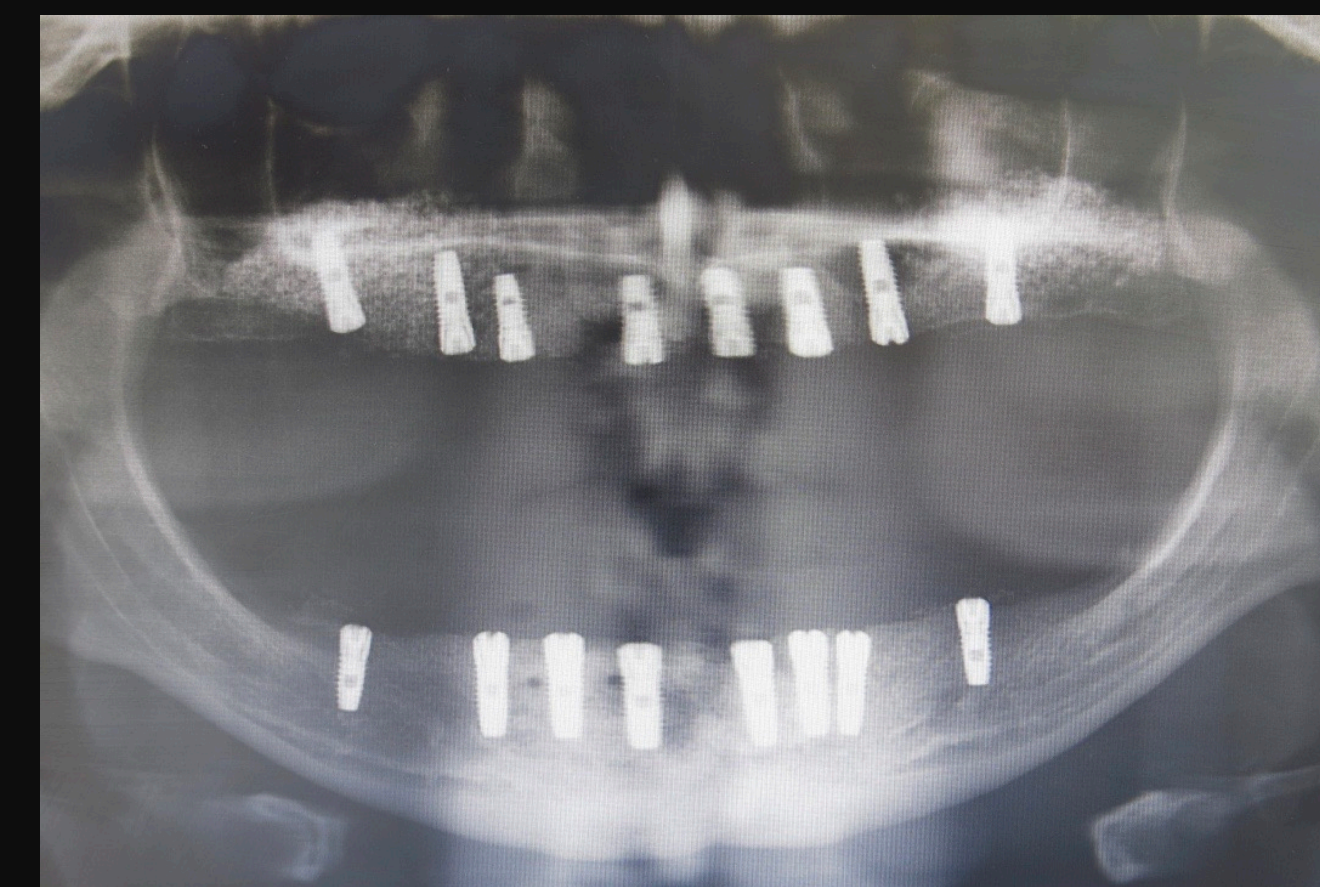
Clinical view of thin bone



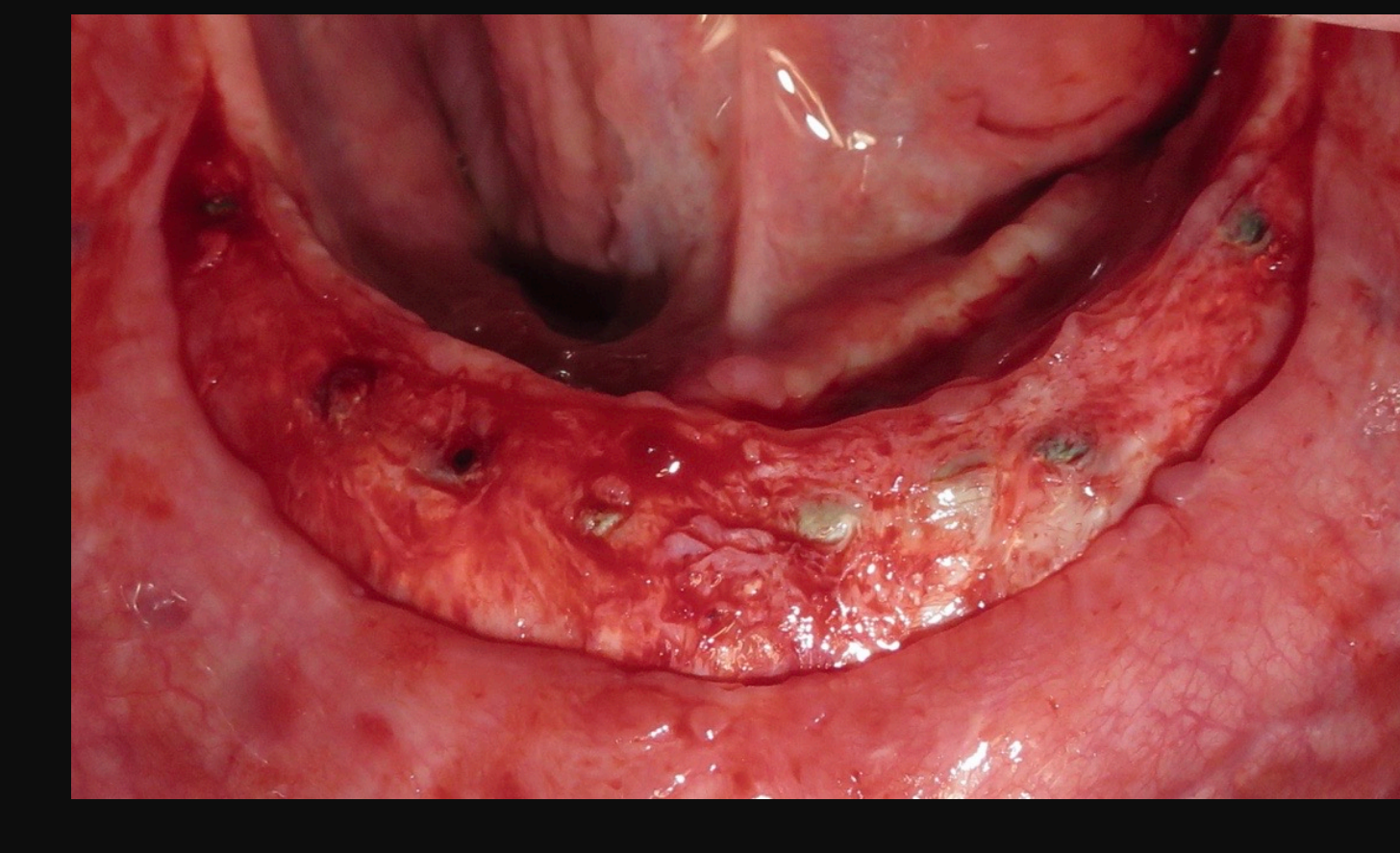
Autogenous Bone harvesting



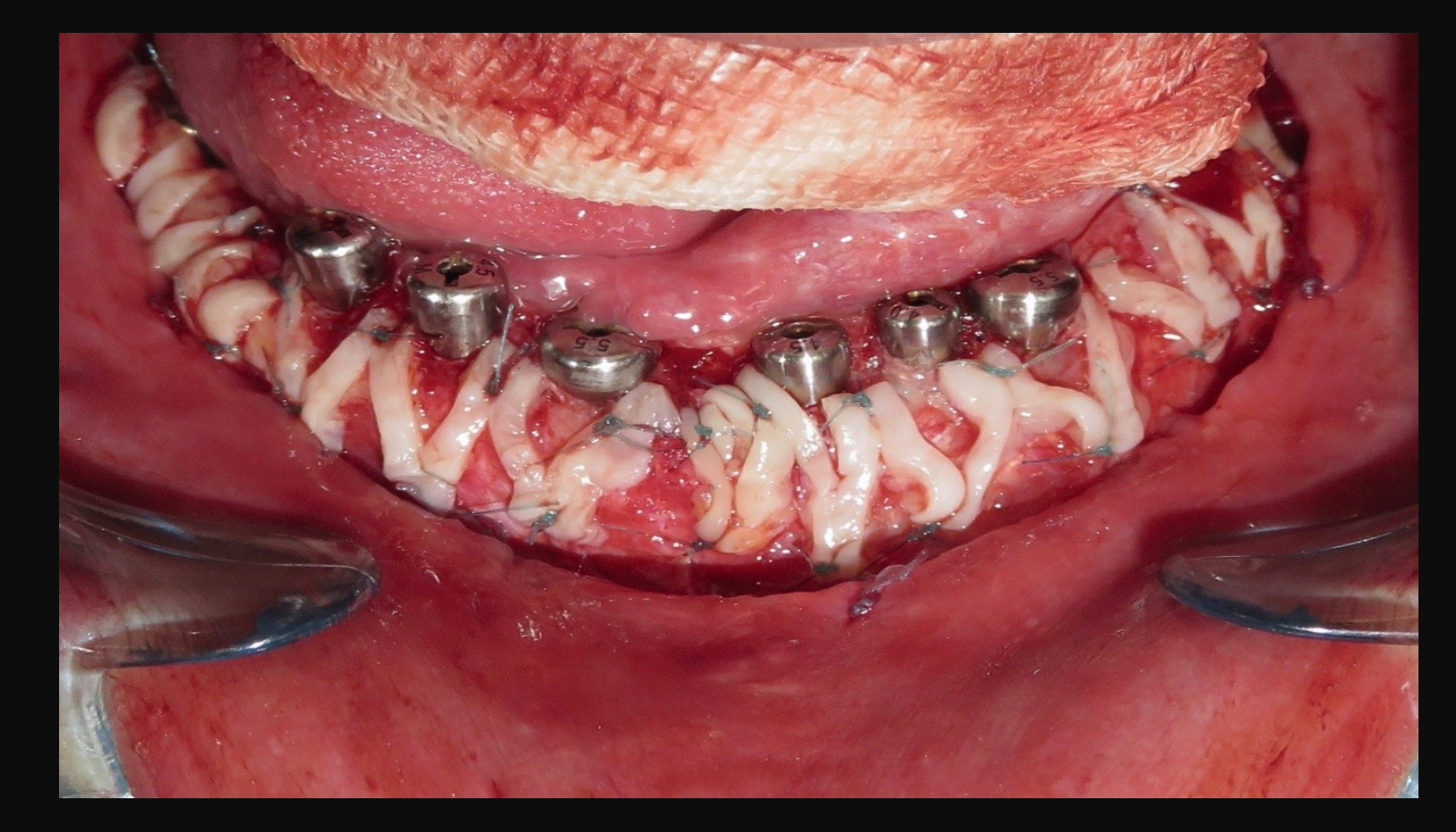
Autogenous Bone as a tent



Radiographic view of implants in



Partial Thickness reflection



Suturing the accordion graft

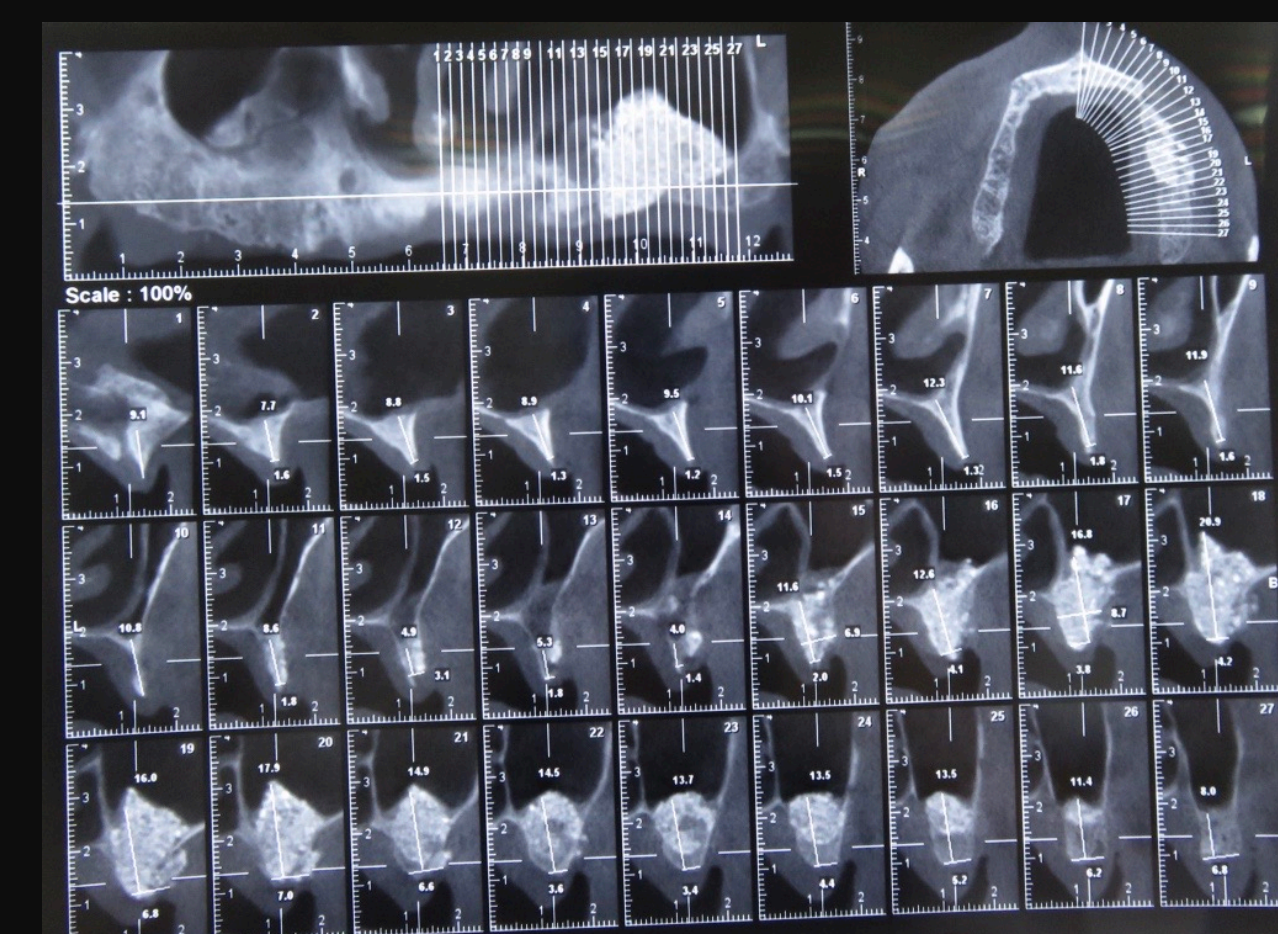
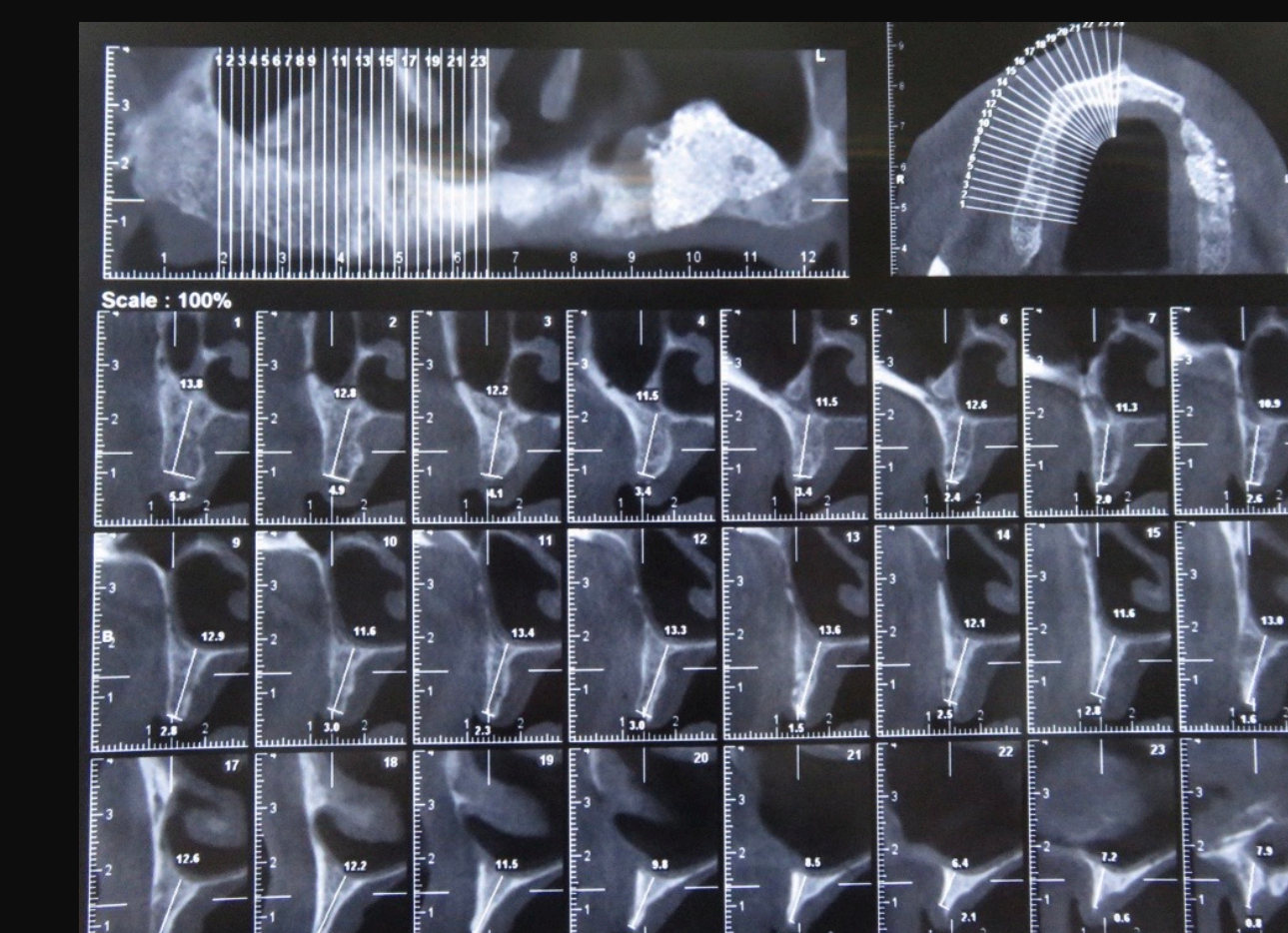
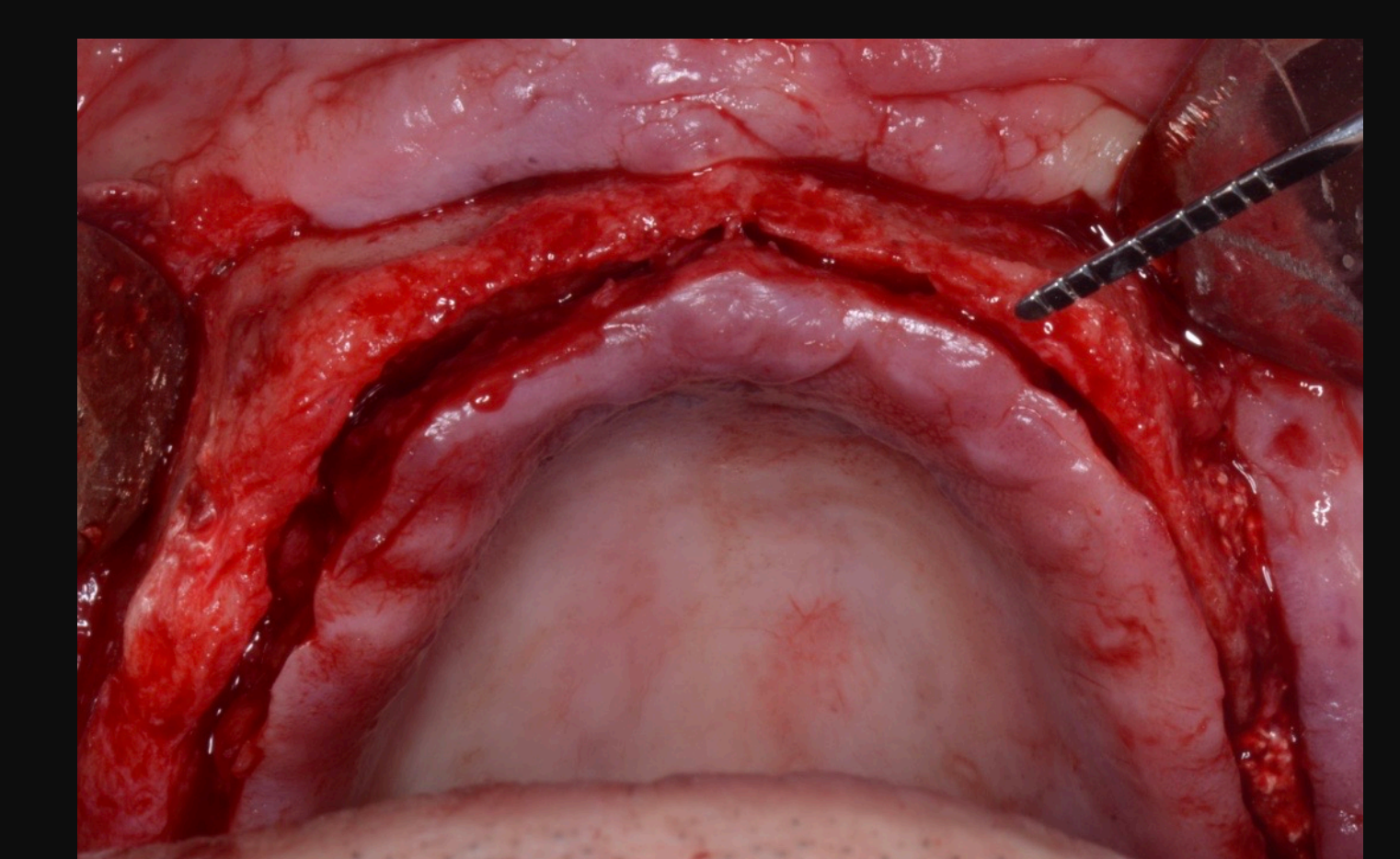


Healing after 2 months

Case 2



CBCT showing severe atrophy in an edentulous maxilla.

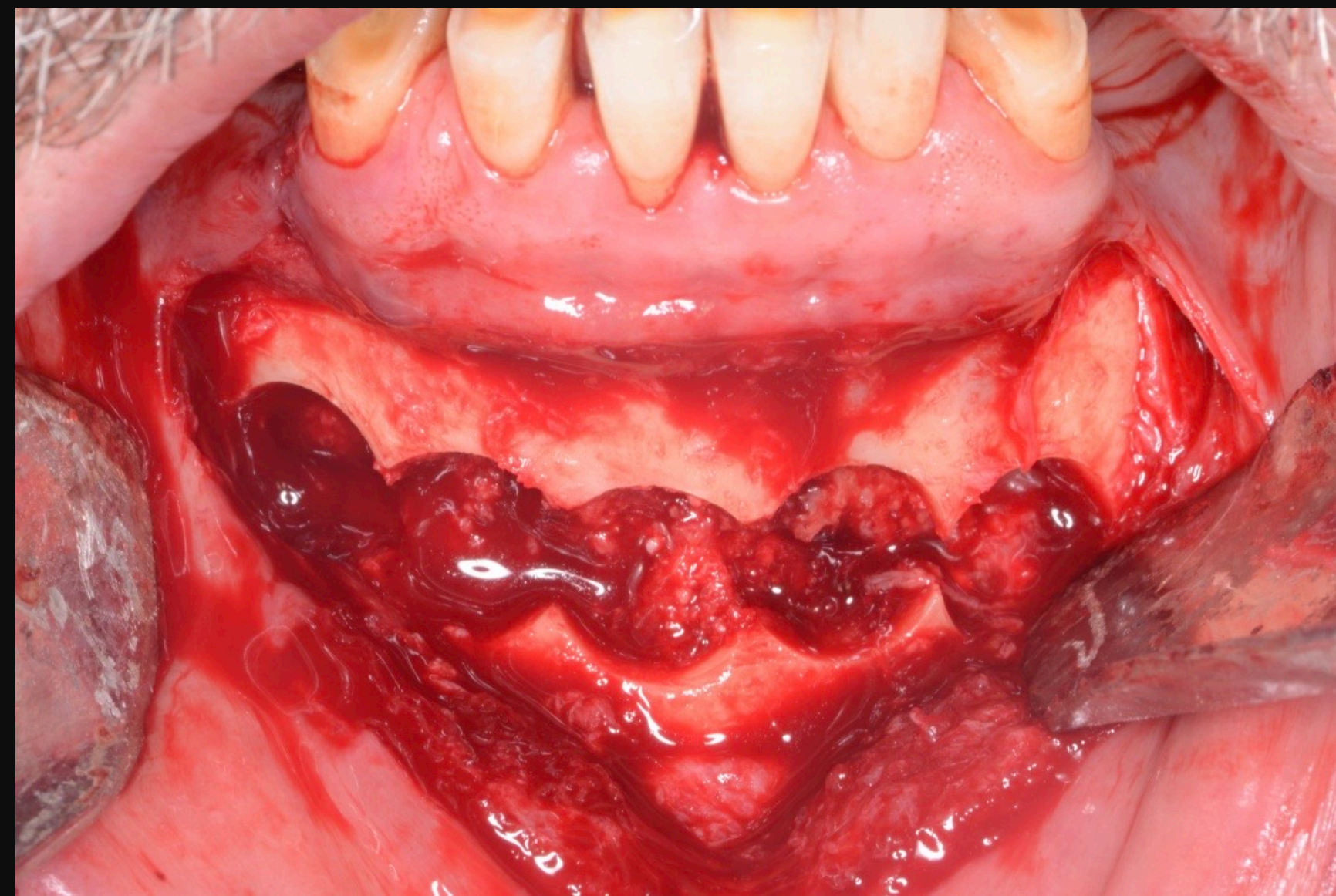
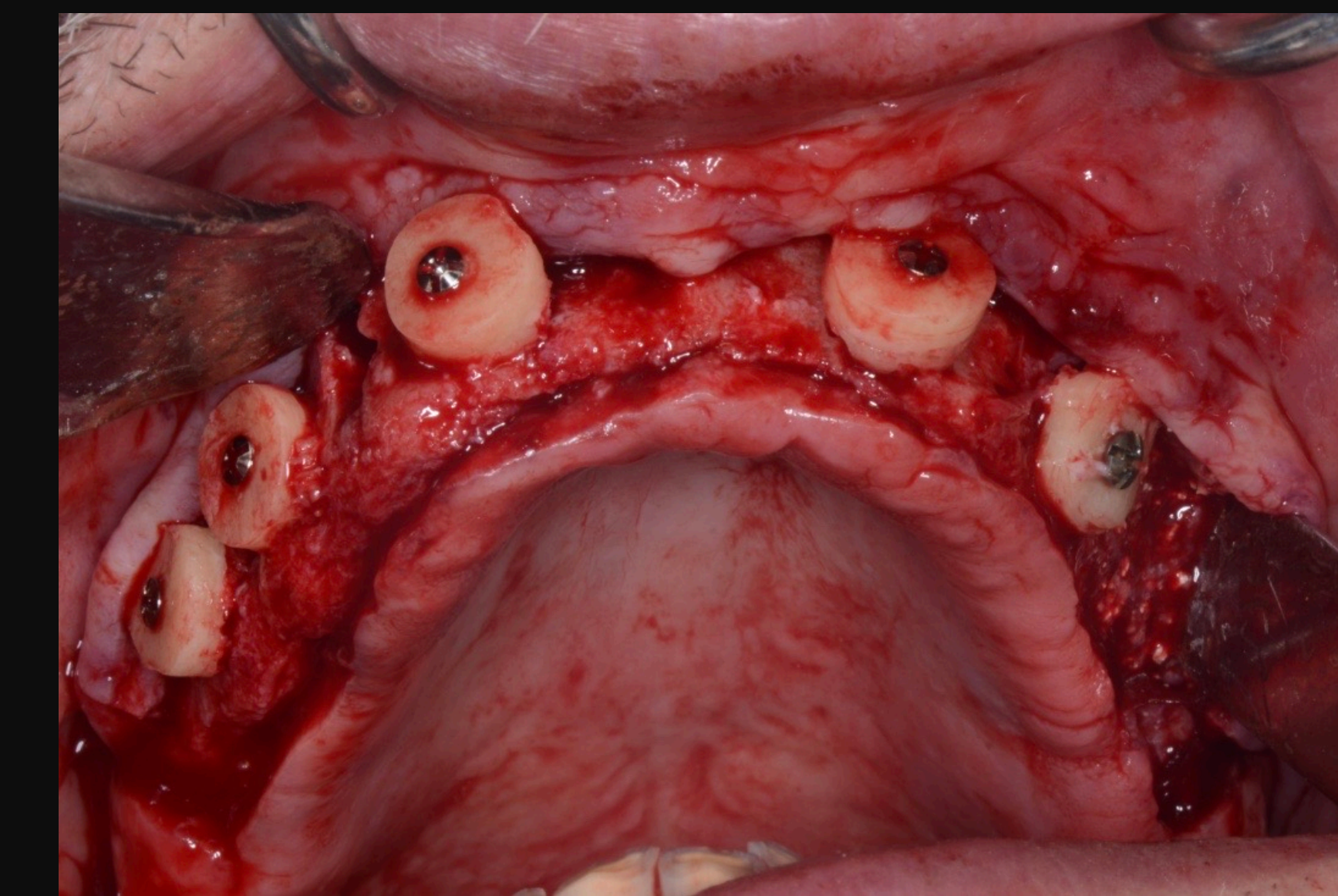
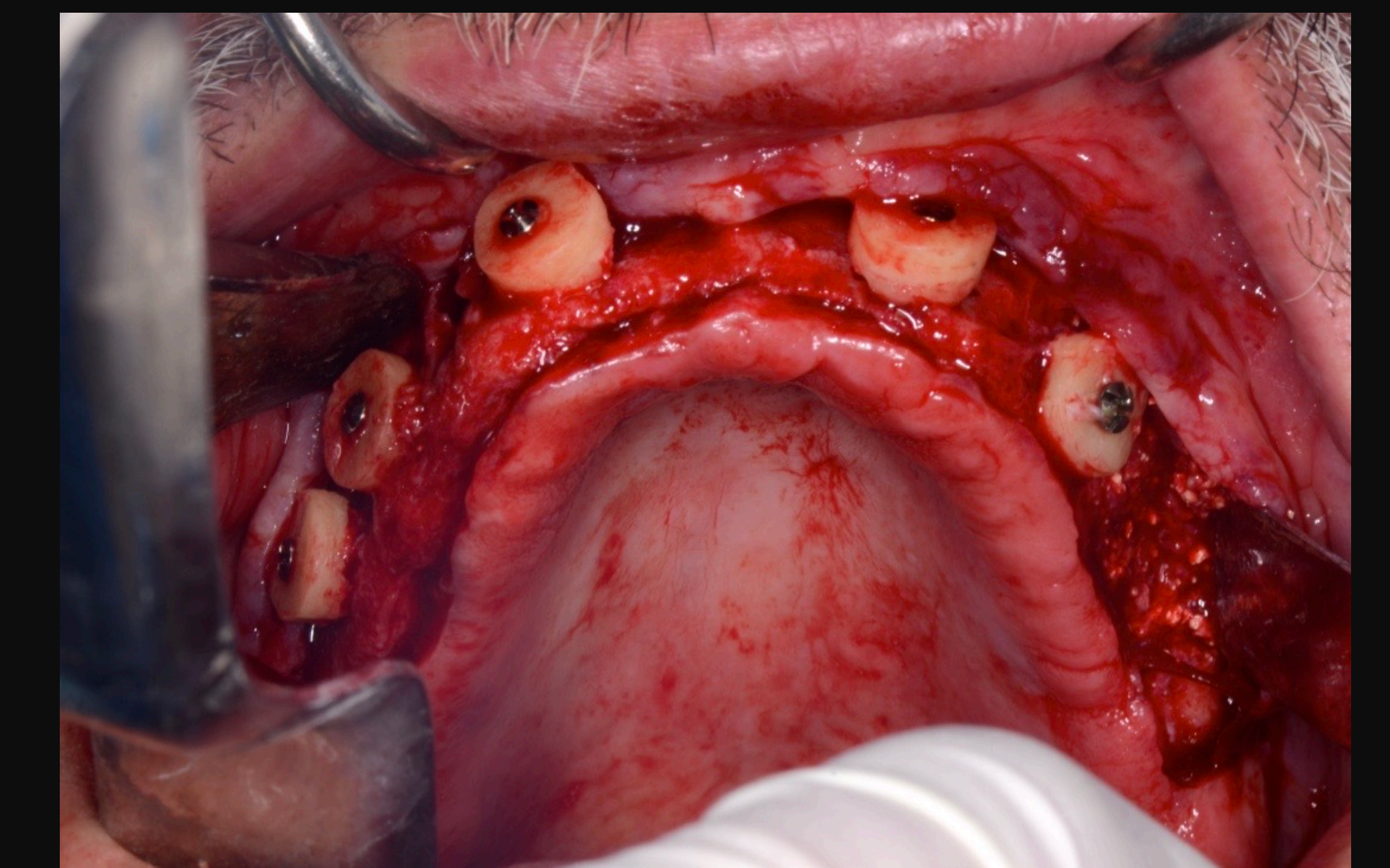


Clinical view of coronal thin bone

A Novel Technique for Alveolar Ridge Augmentation using Intraoral Bone Blocks as a Tent (a case series)



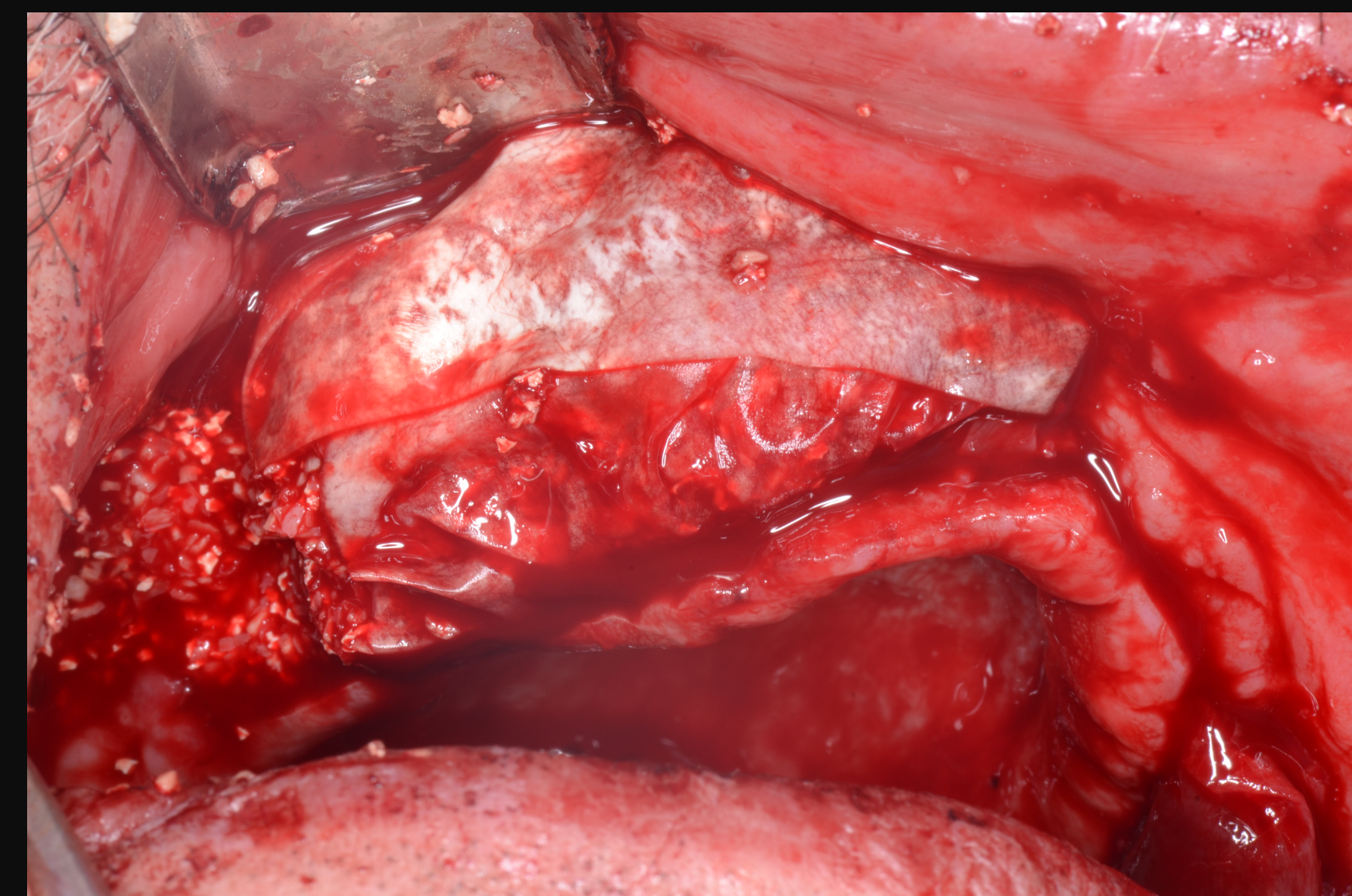
harvesting of autogenous Bone ring shape



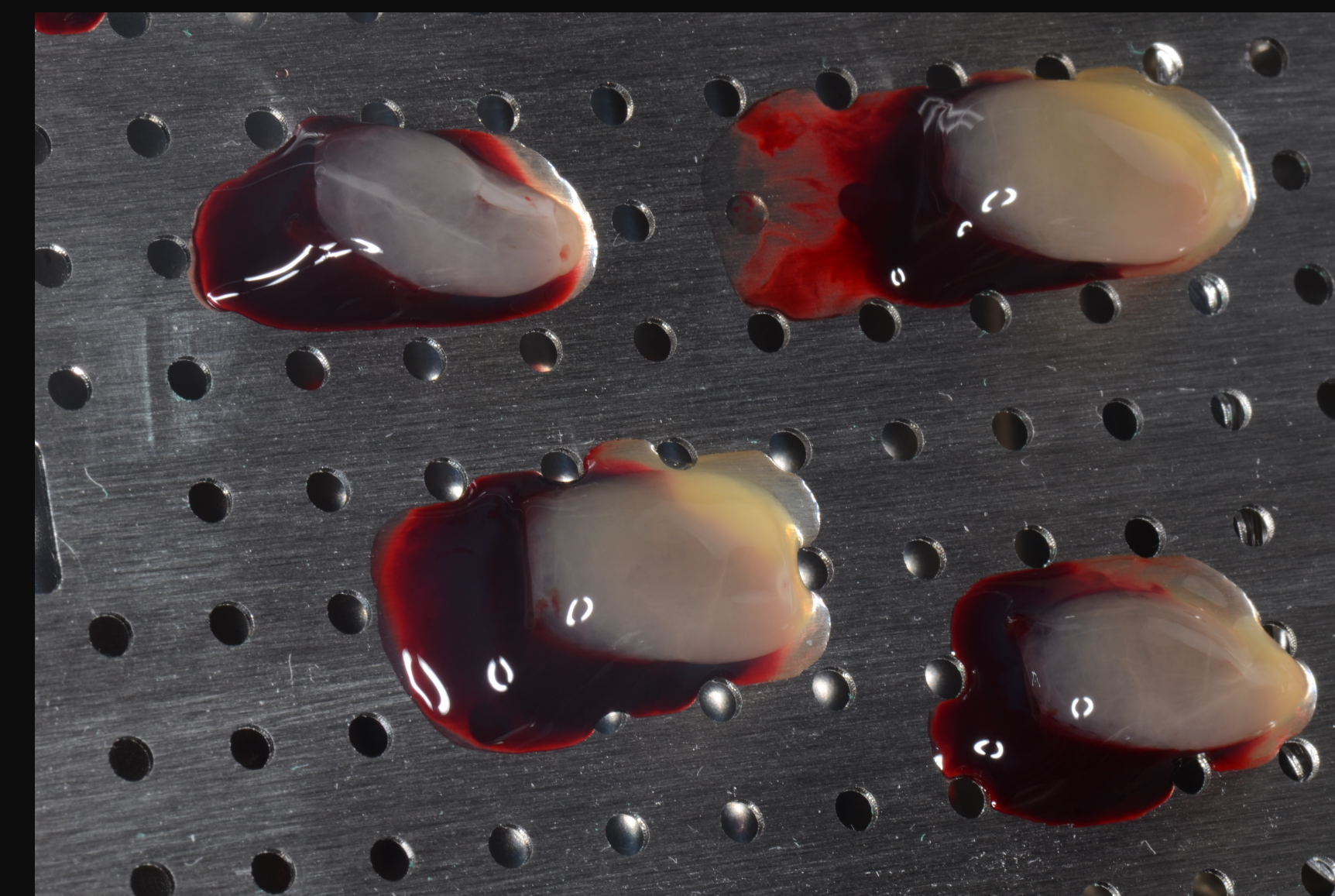
Autogenous Bone as a tent



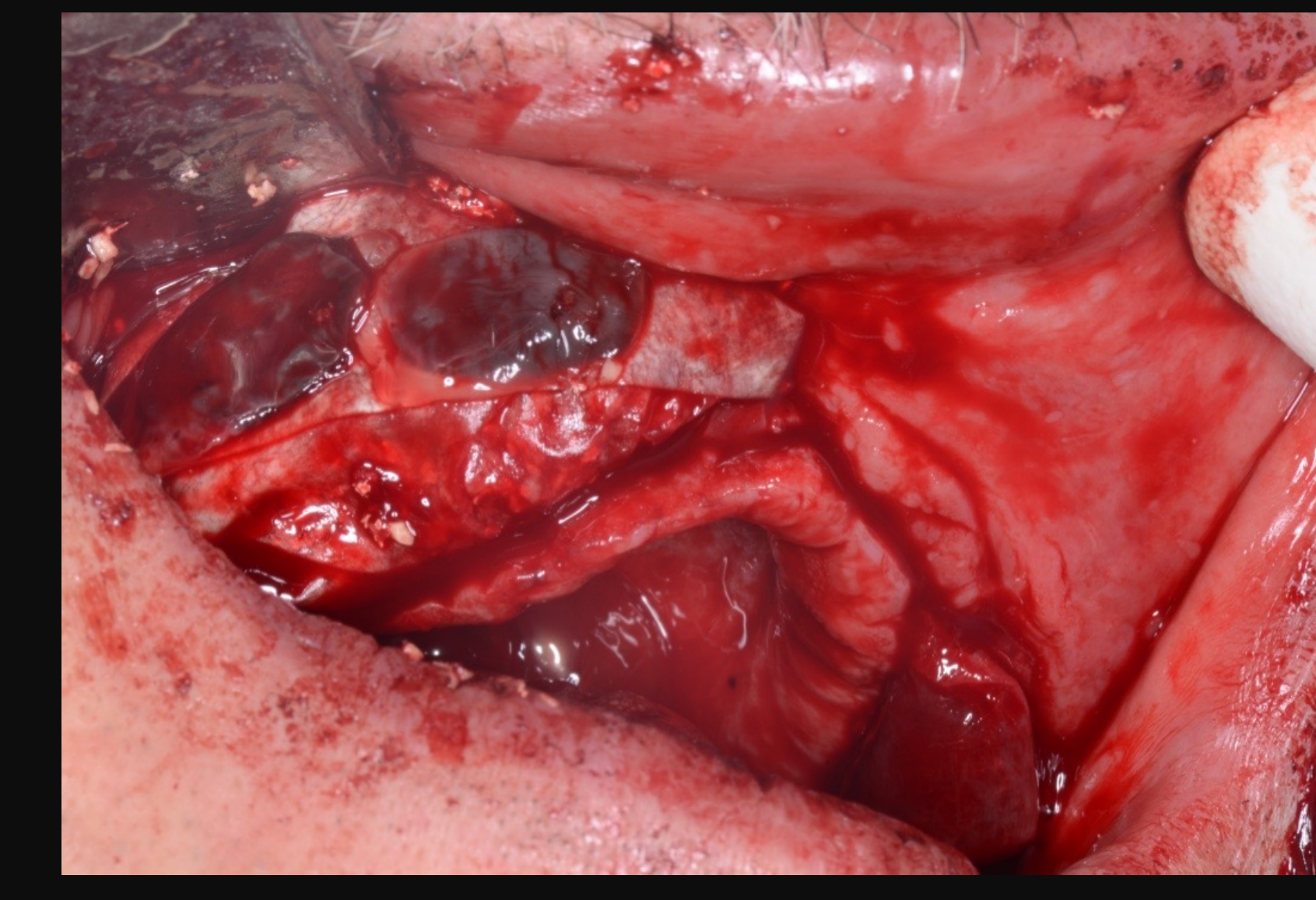
Composite of xenograft and allograft



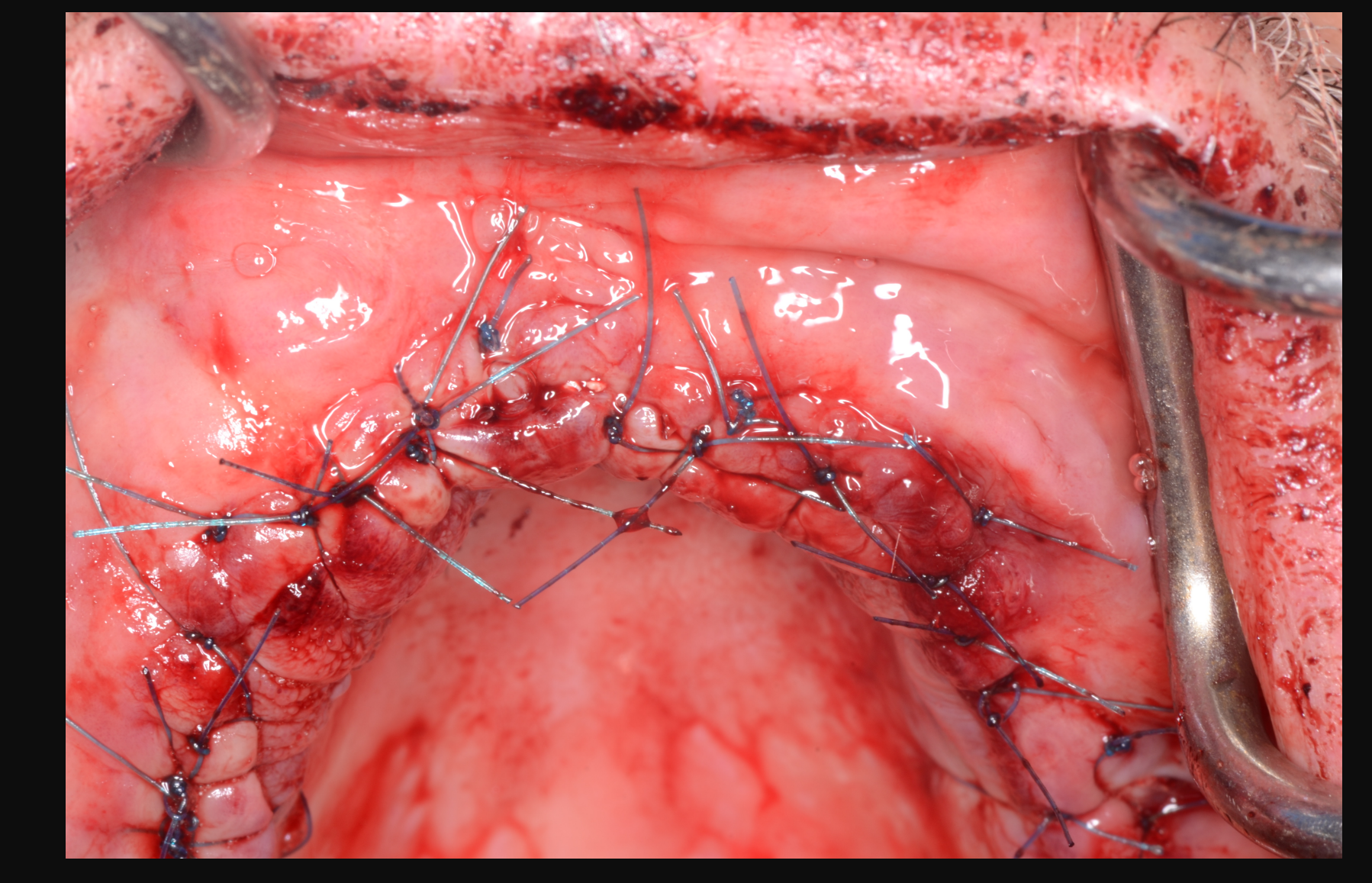
GBR



L-PRF preparation

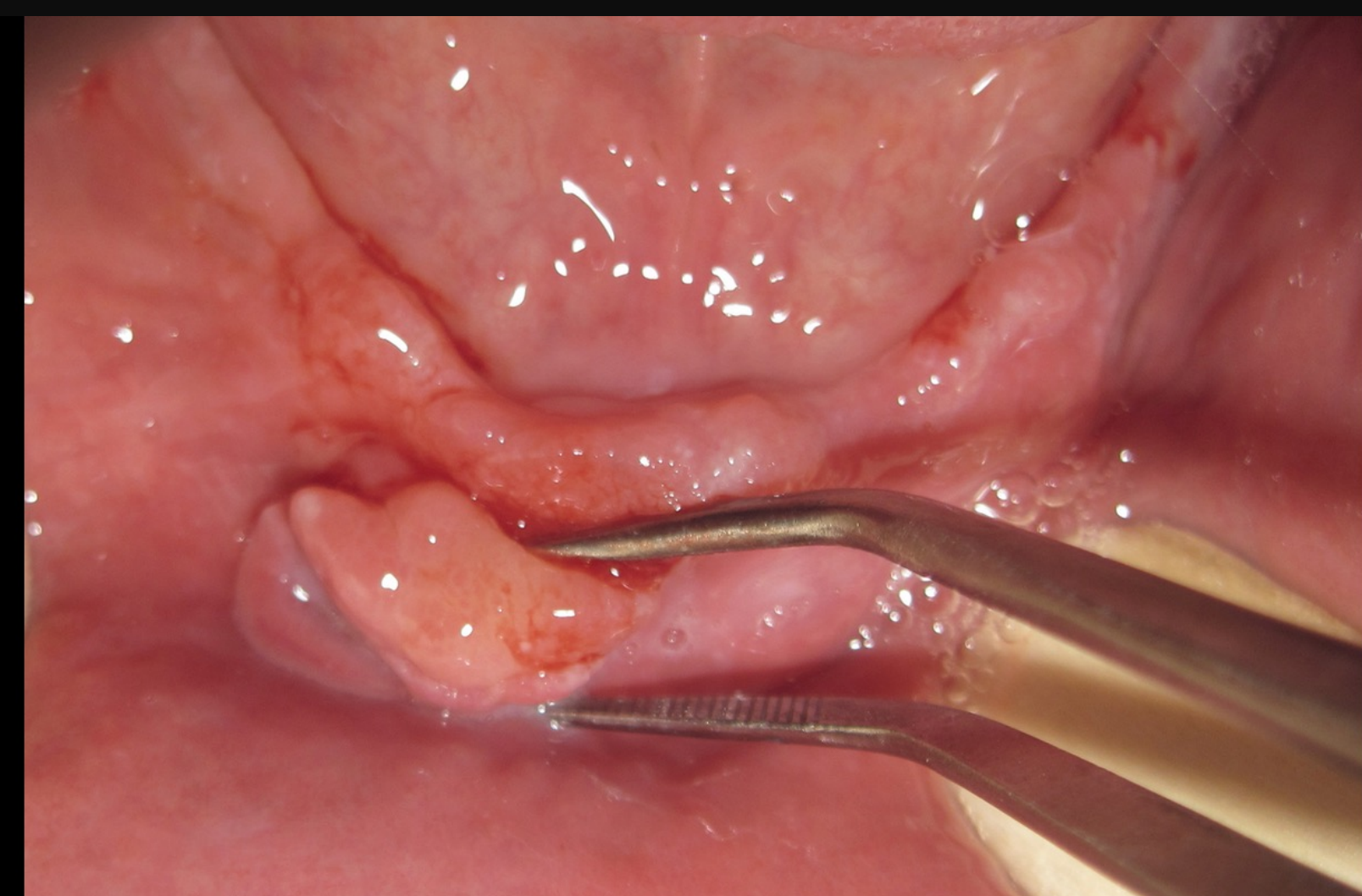


L-PRF was used on the GBR

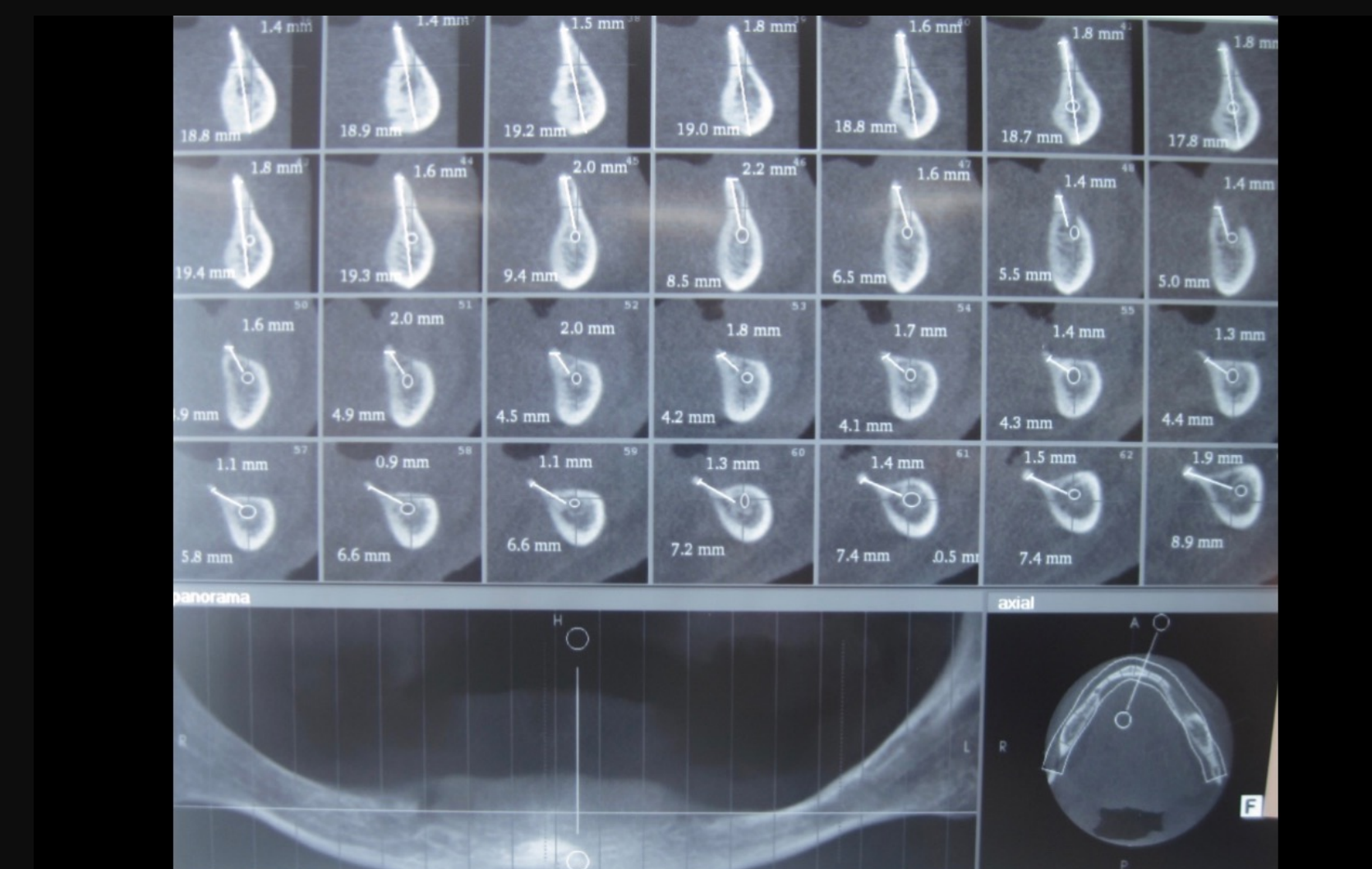


Healing After 2 months

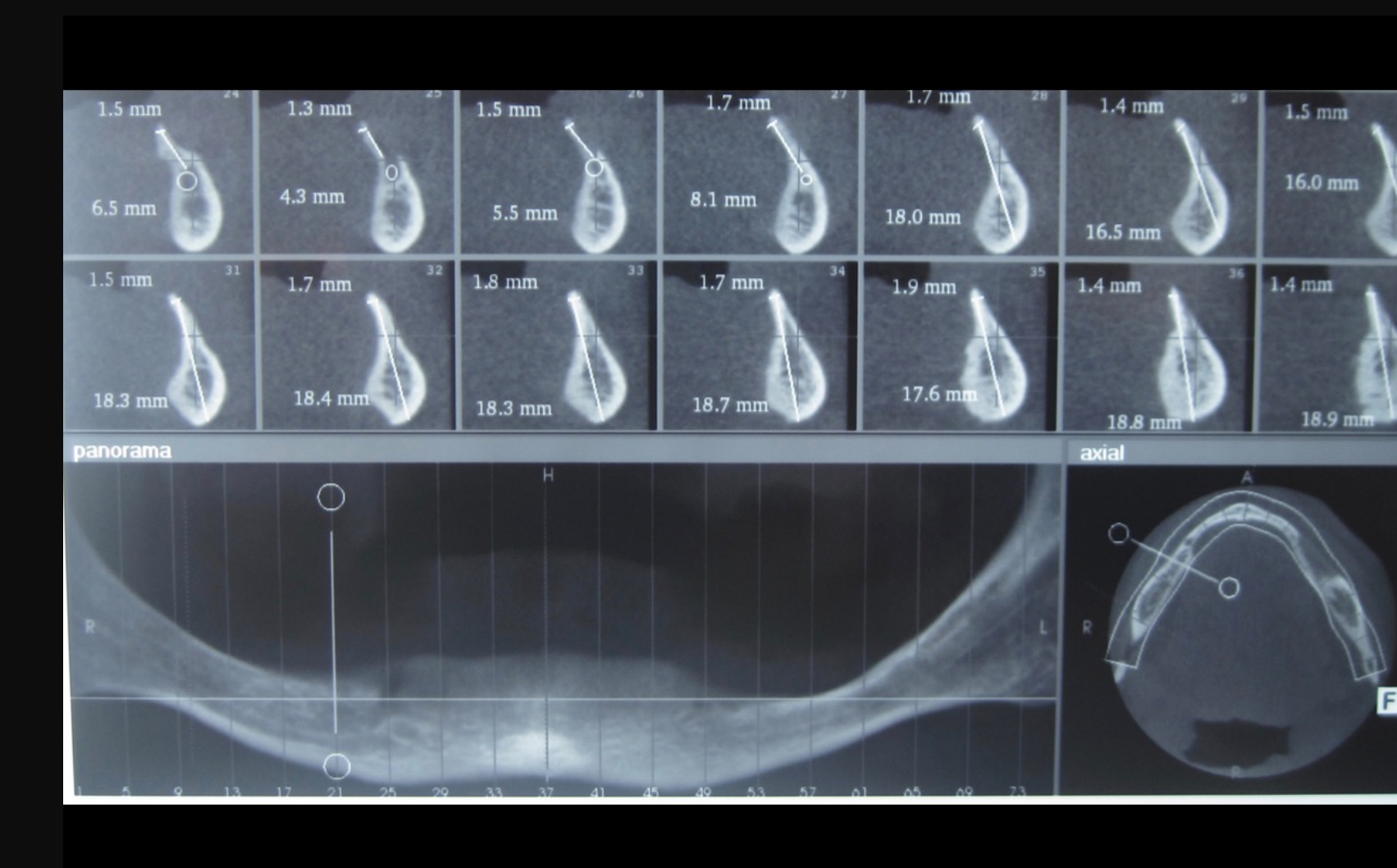
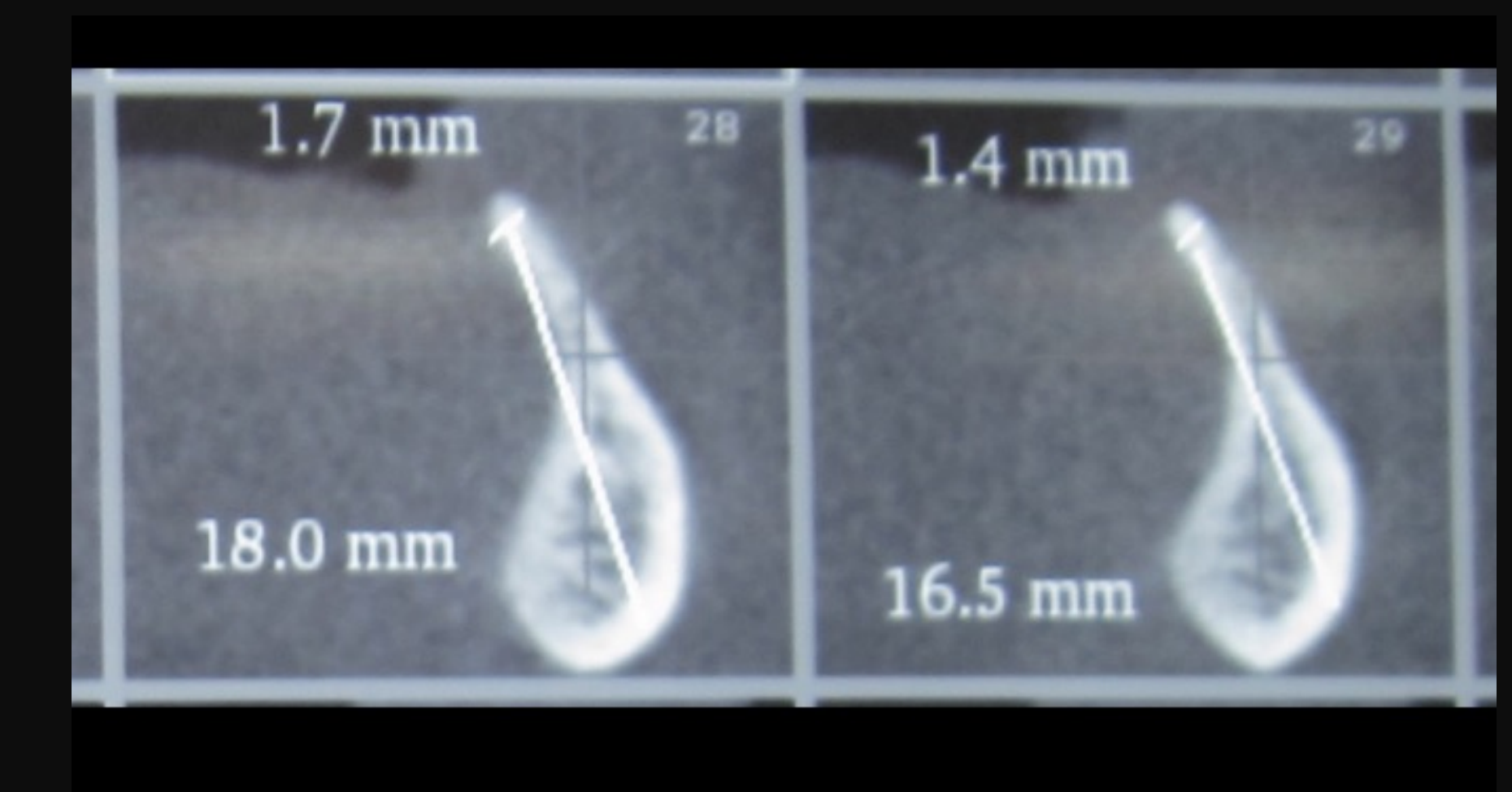
Case 3



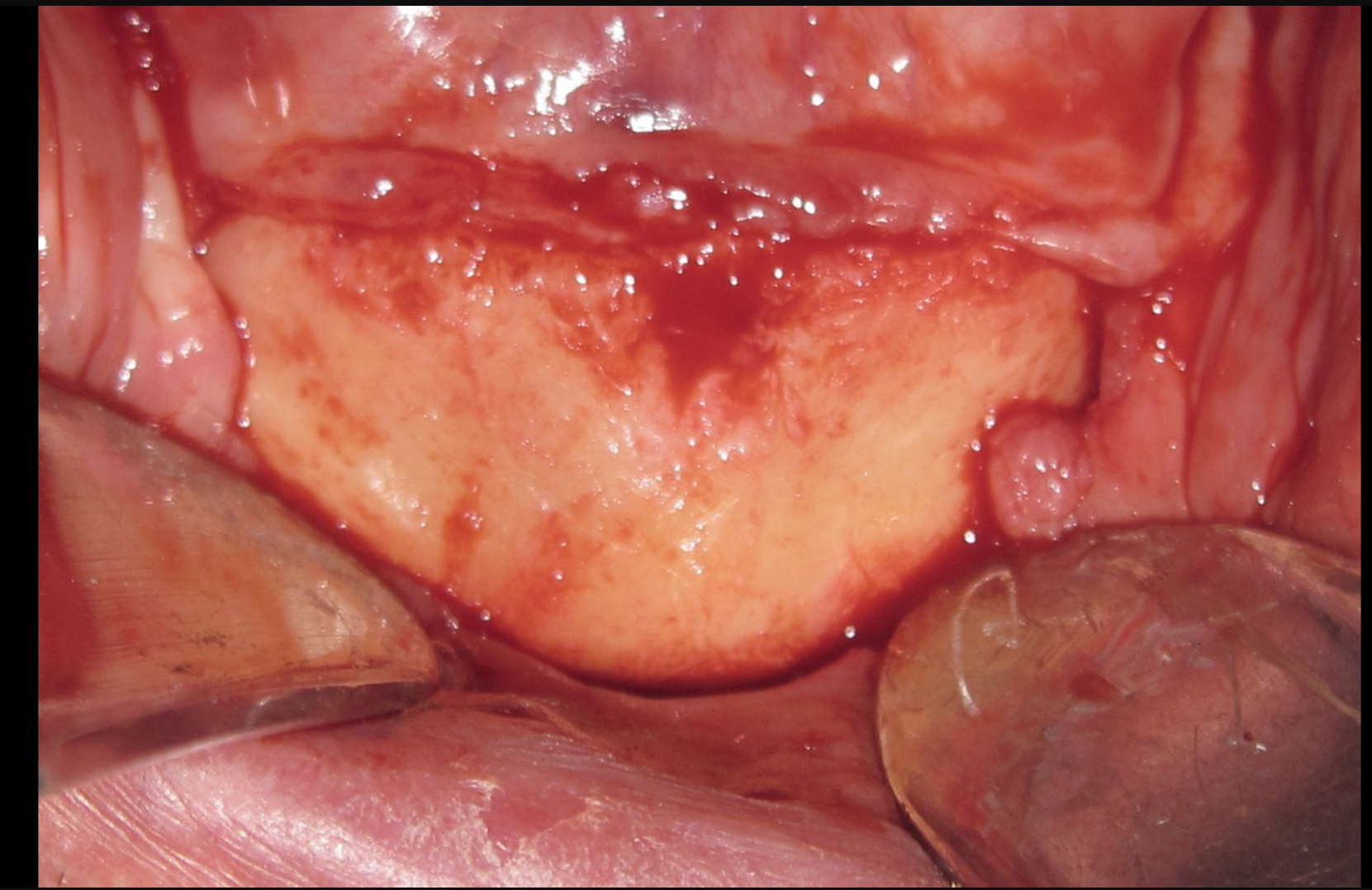
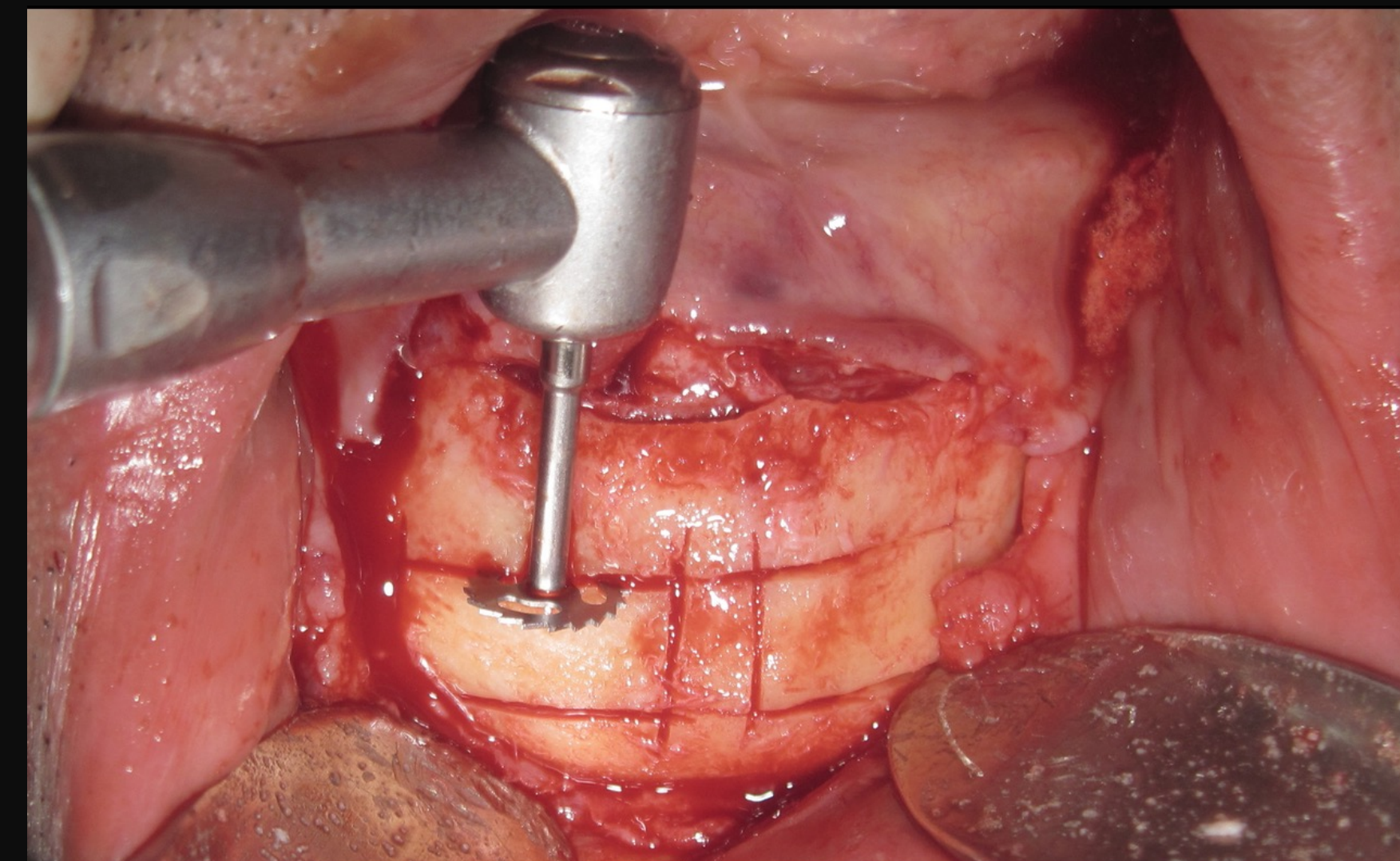
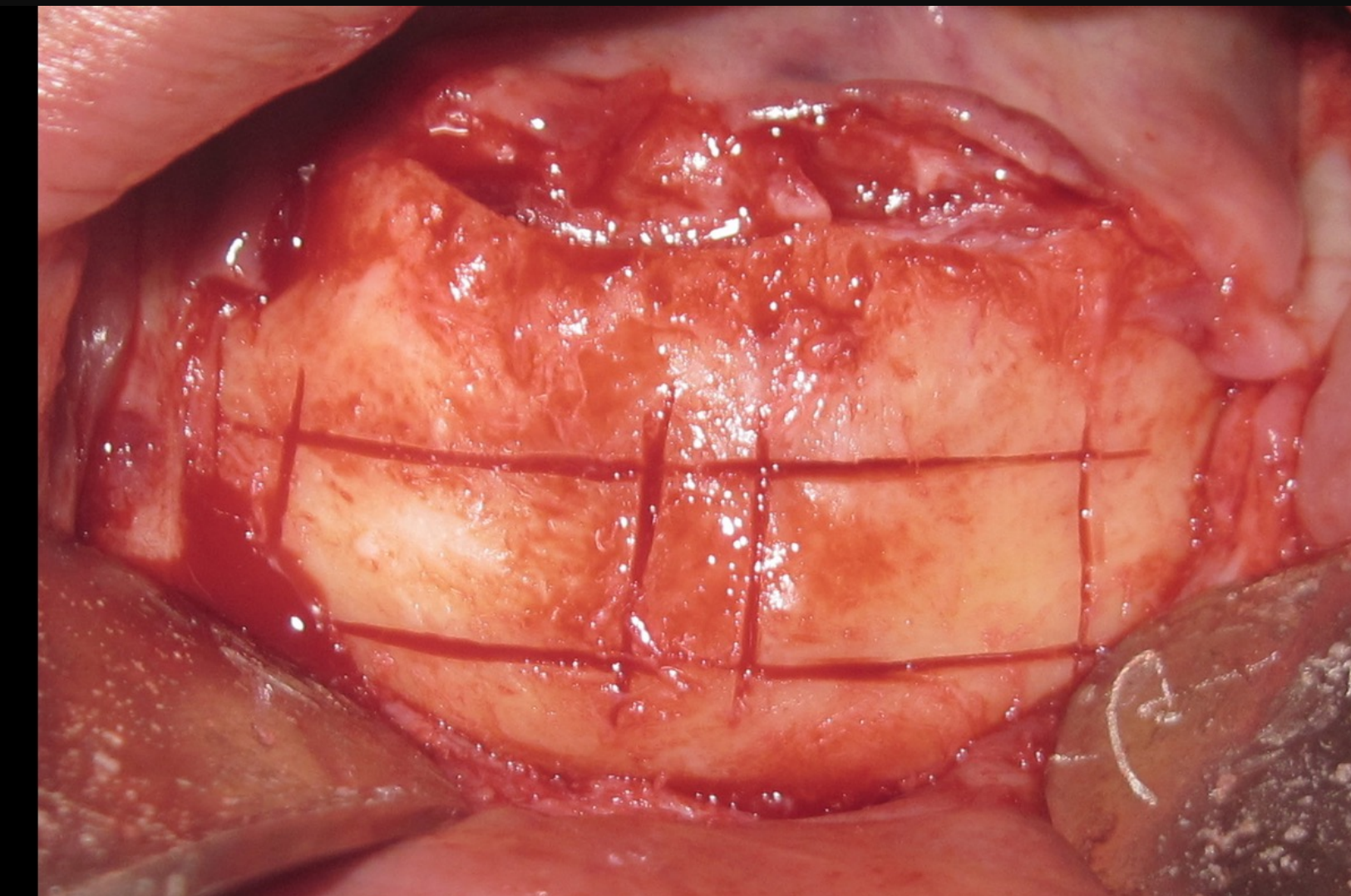
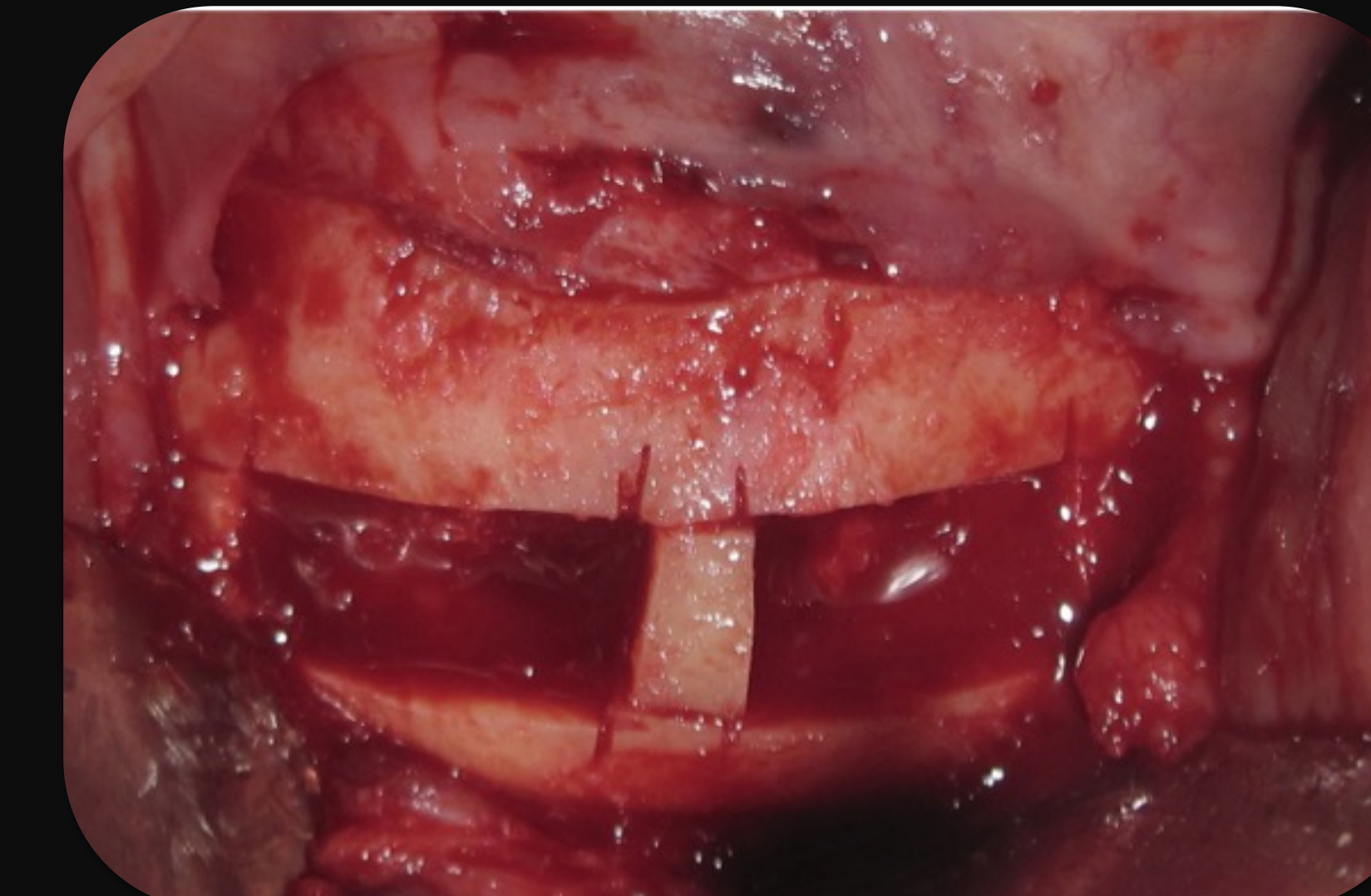
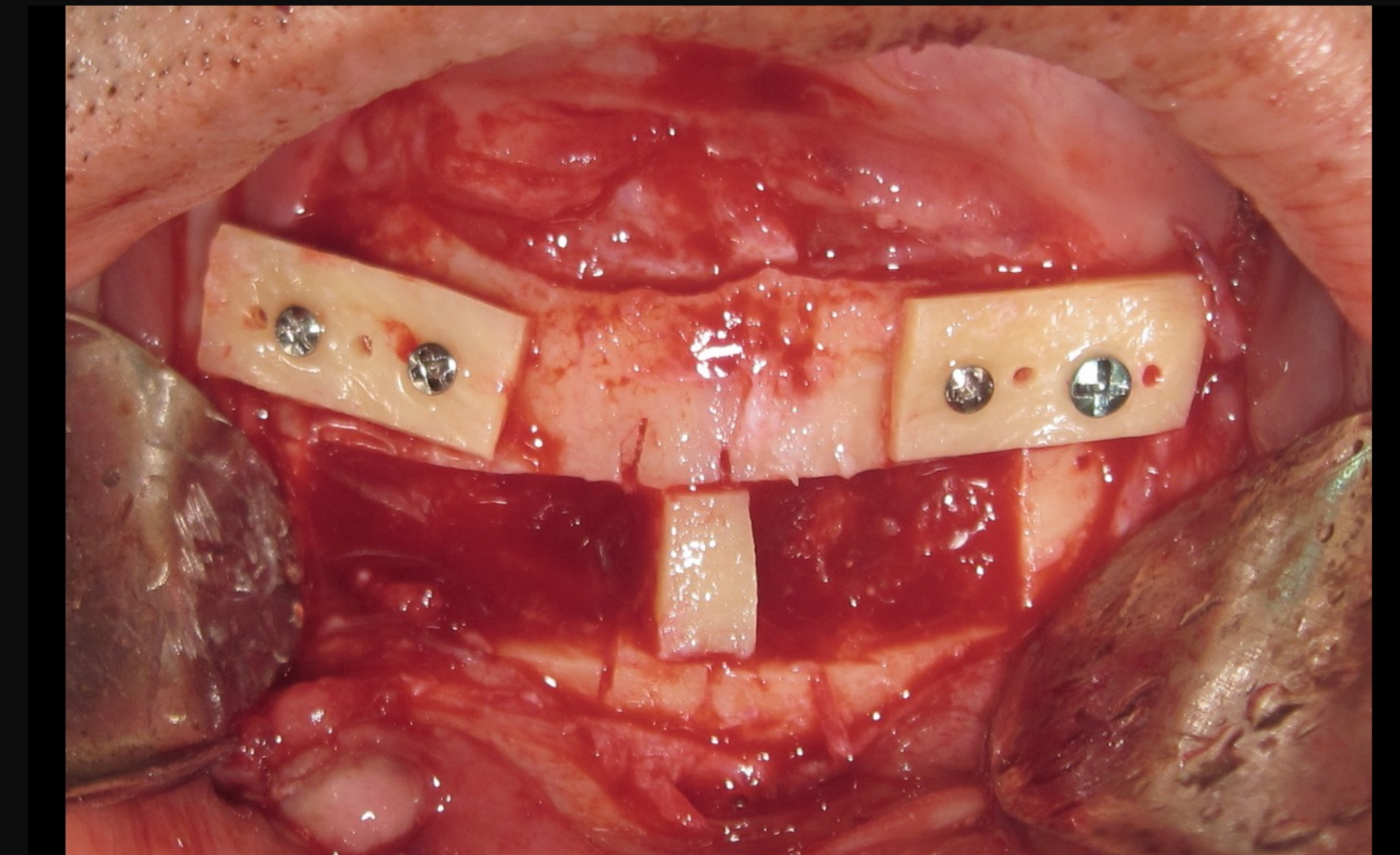
Forty years old male with severe bone resorption



CBCT showing severe atrophy in an edentulous mandible.

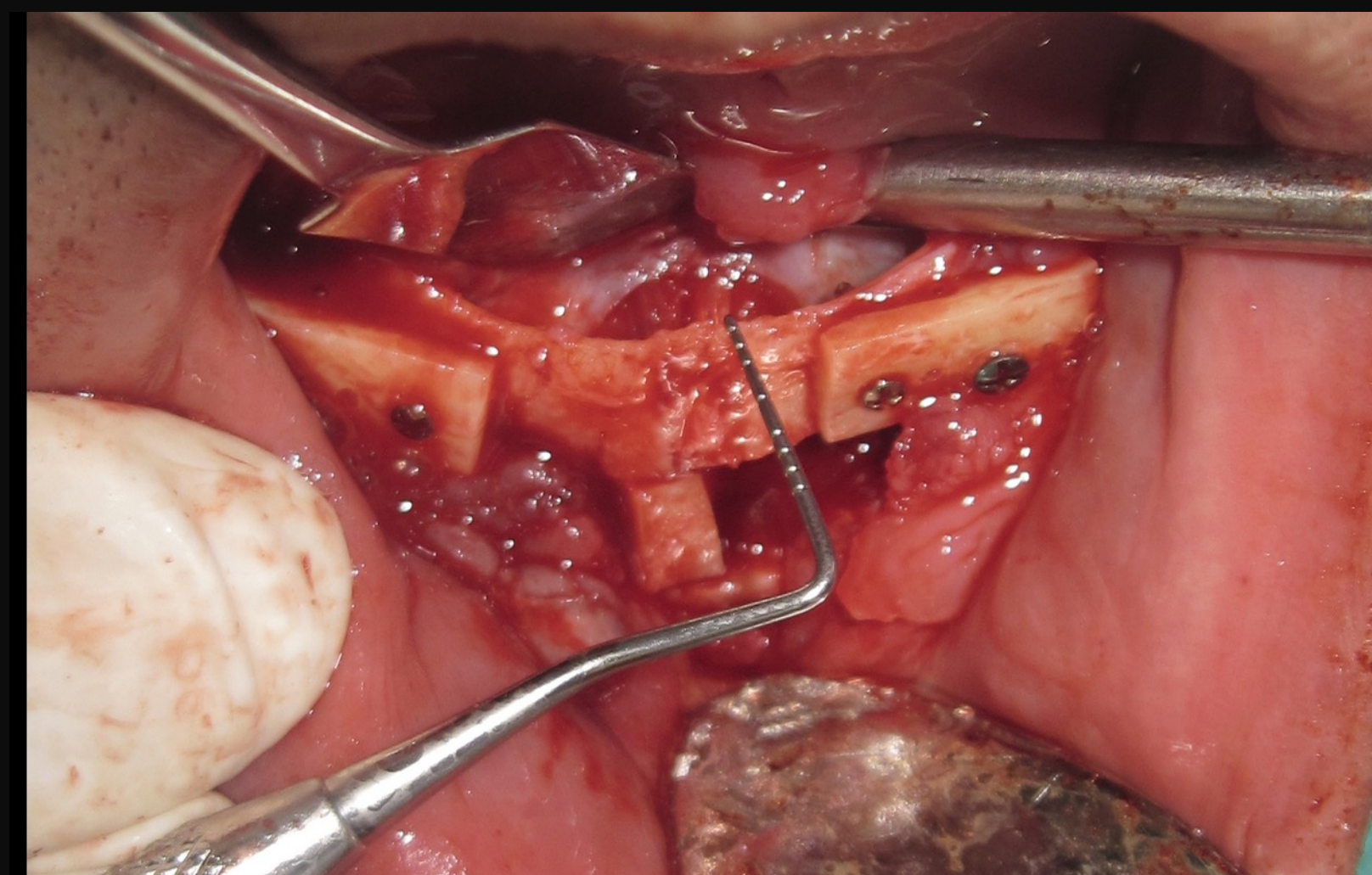
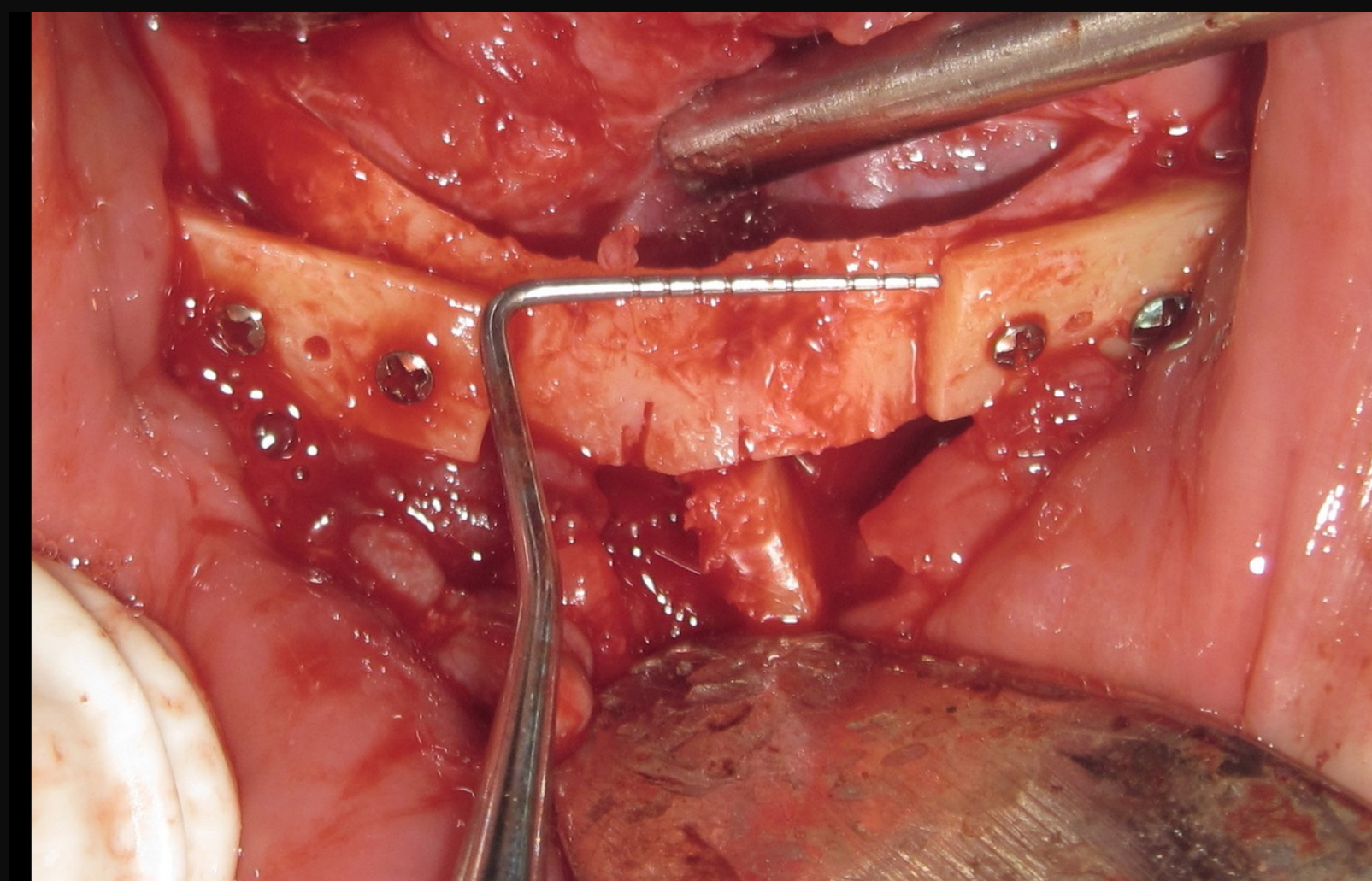
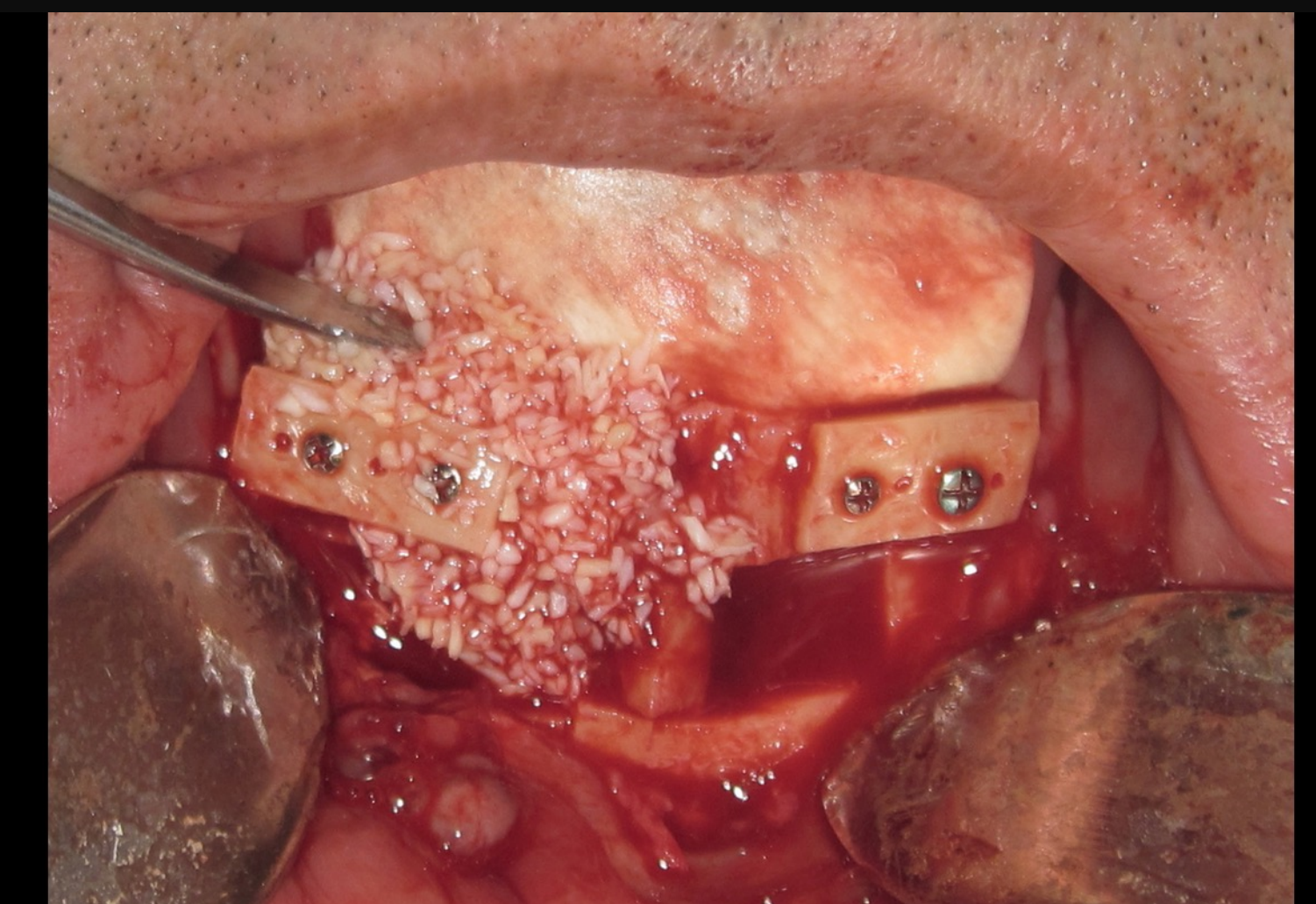
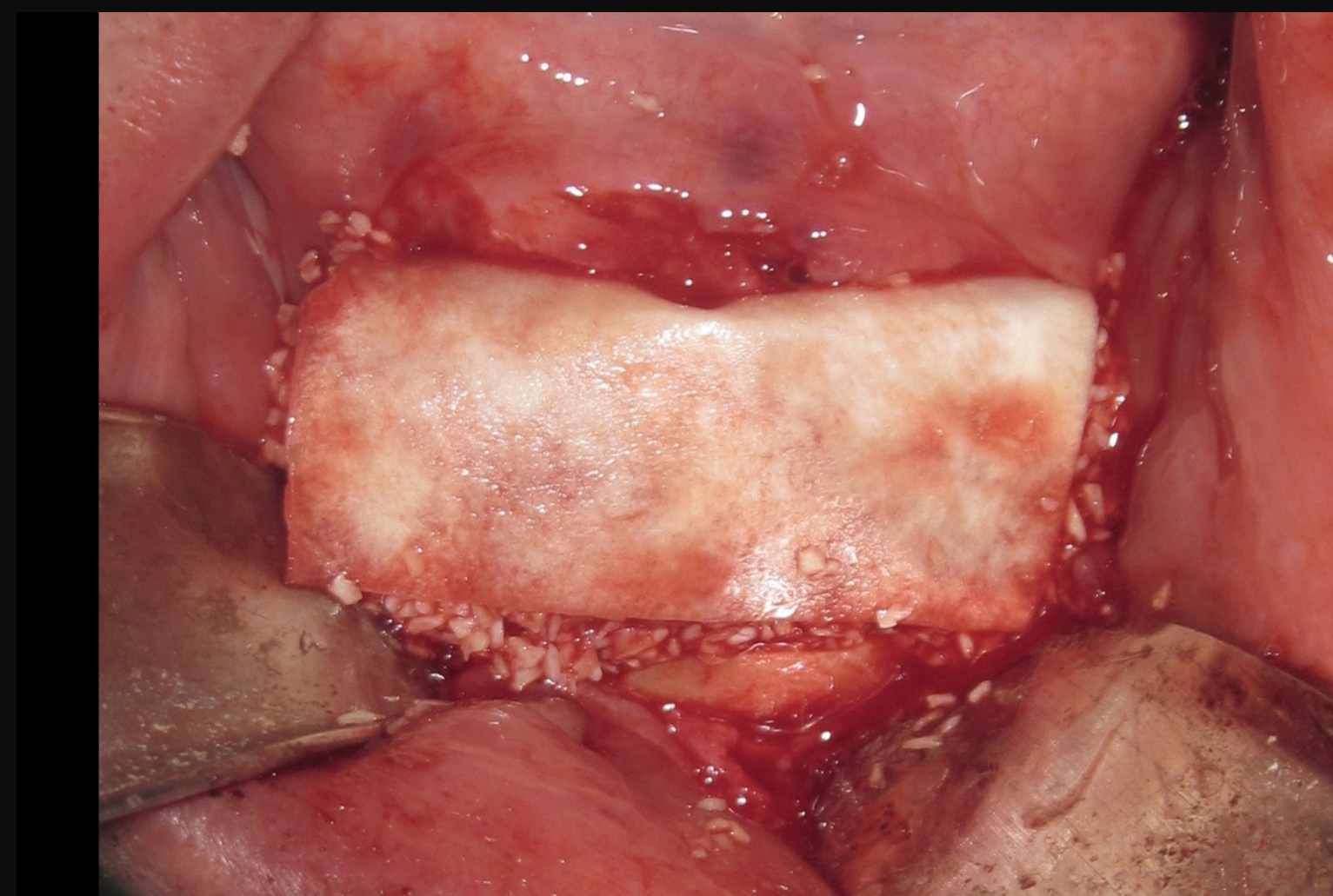
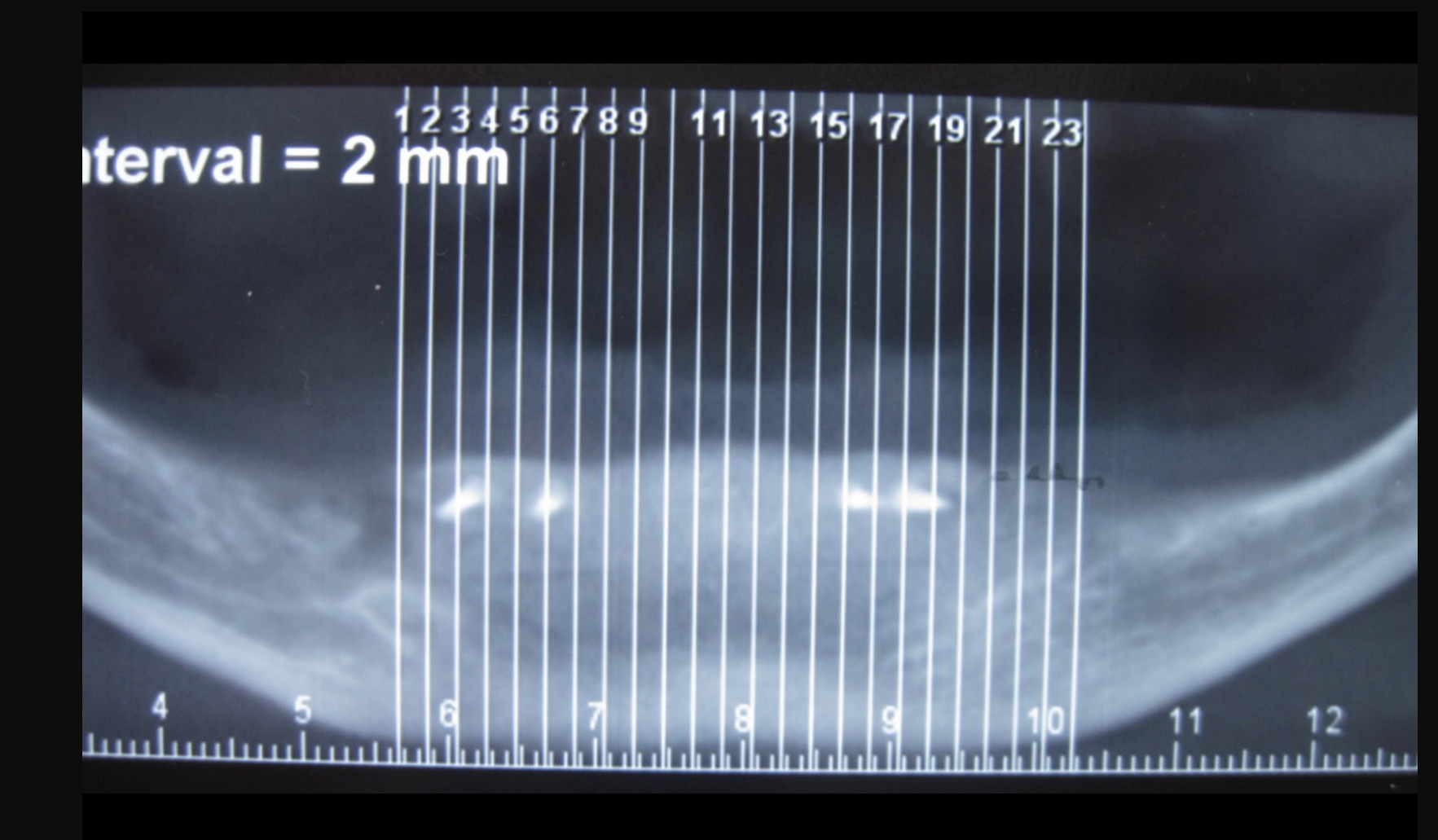


A Novel Technique for Alveolar Ridge Augmentation using Intraoral Bone Blocks as a Tent (a case series)

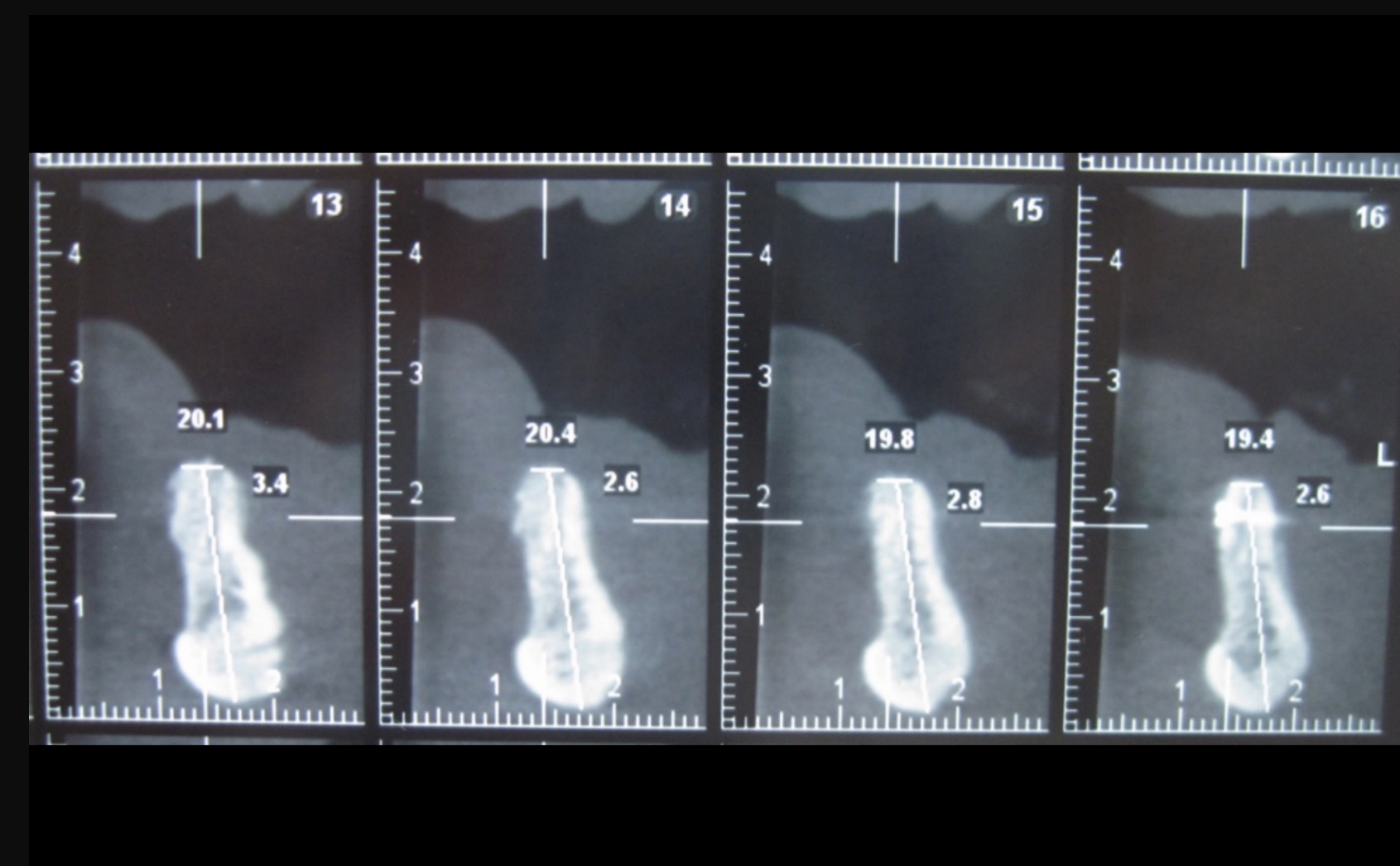
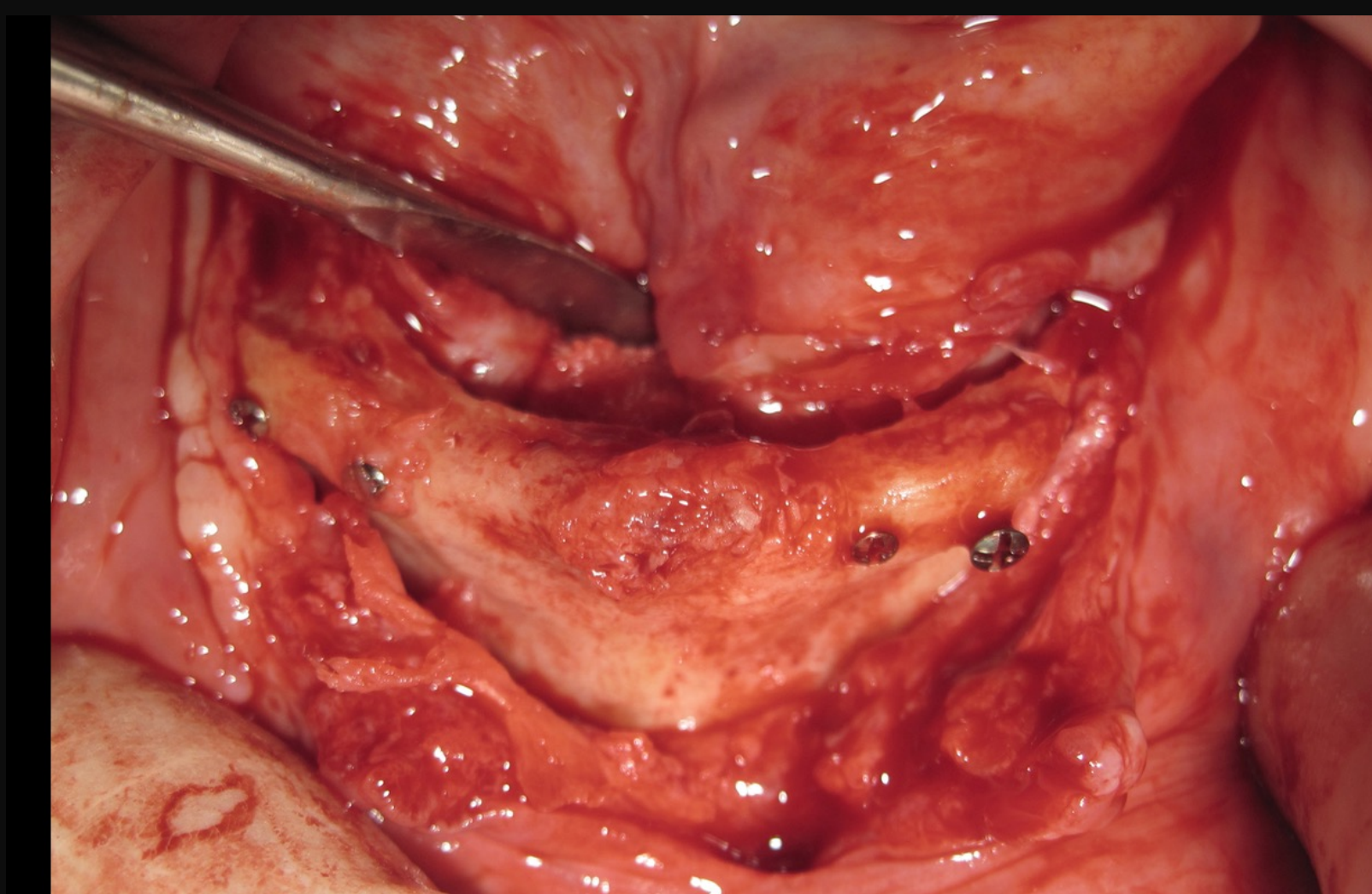
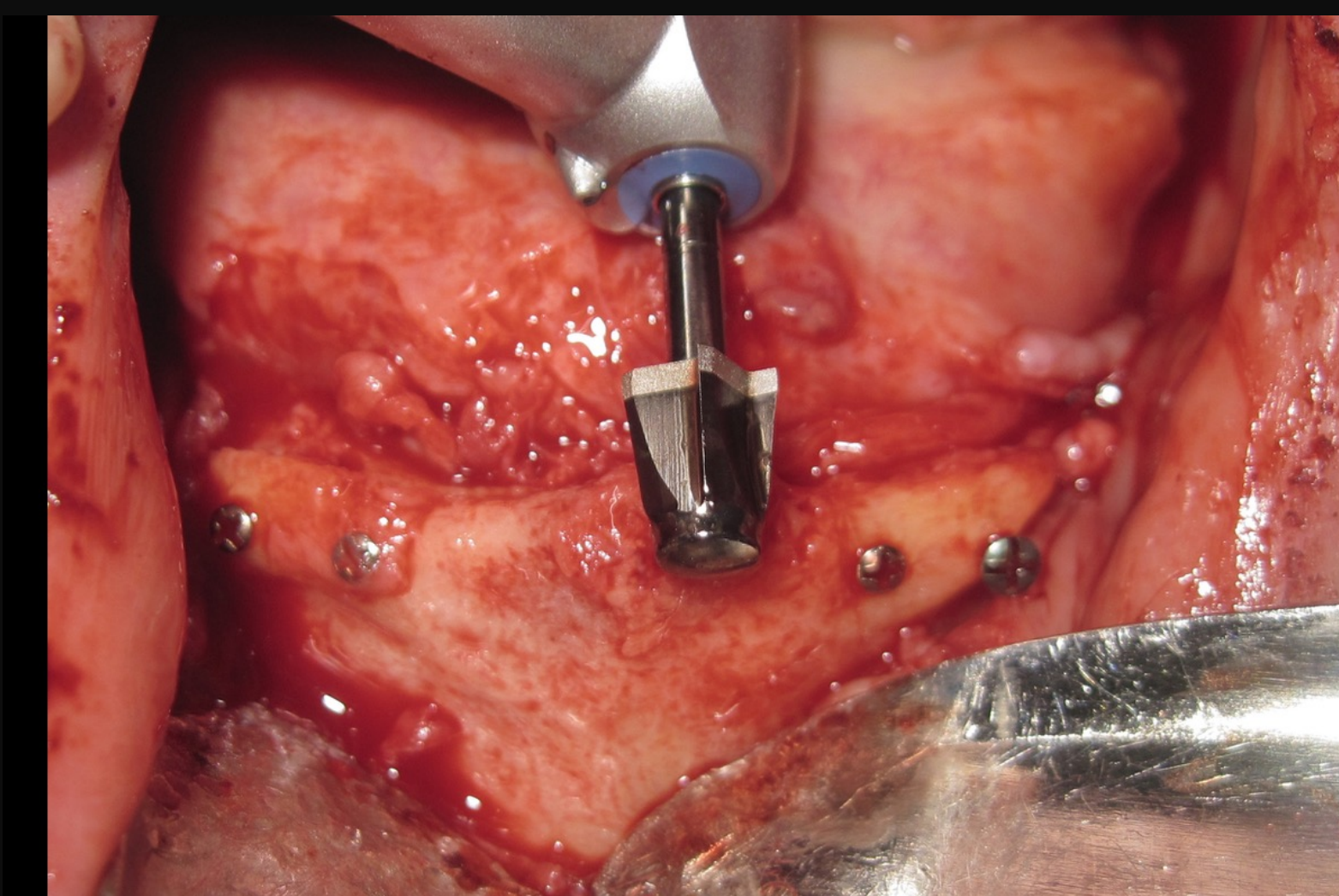
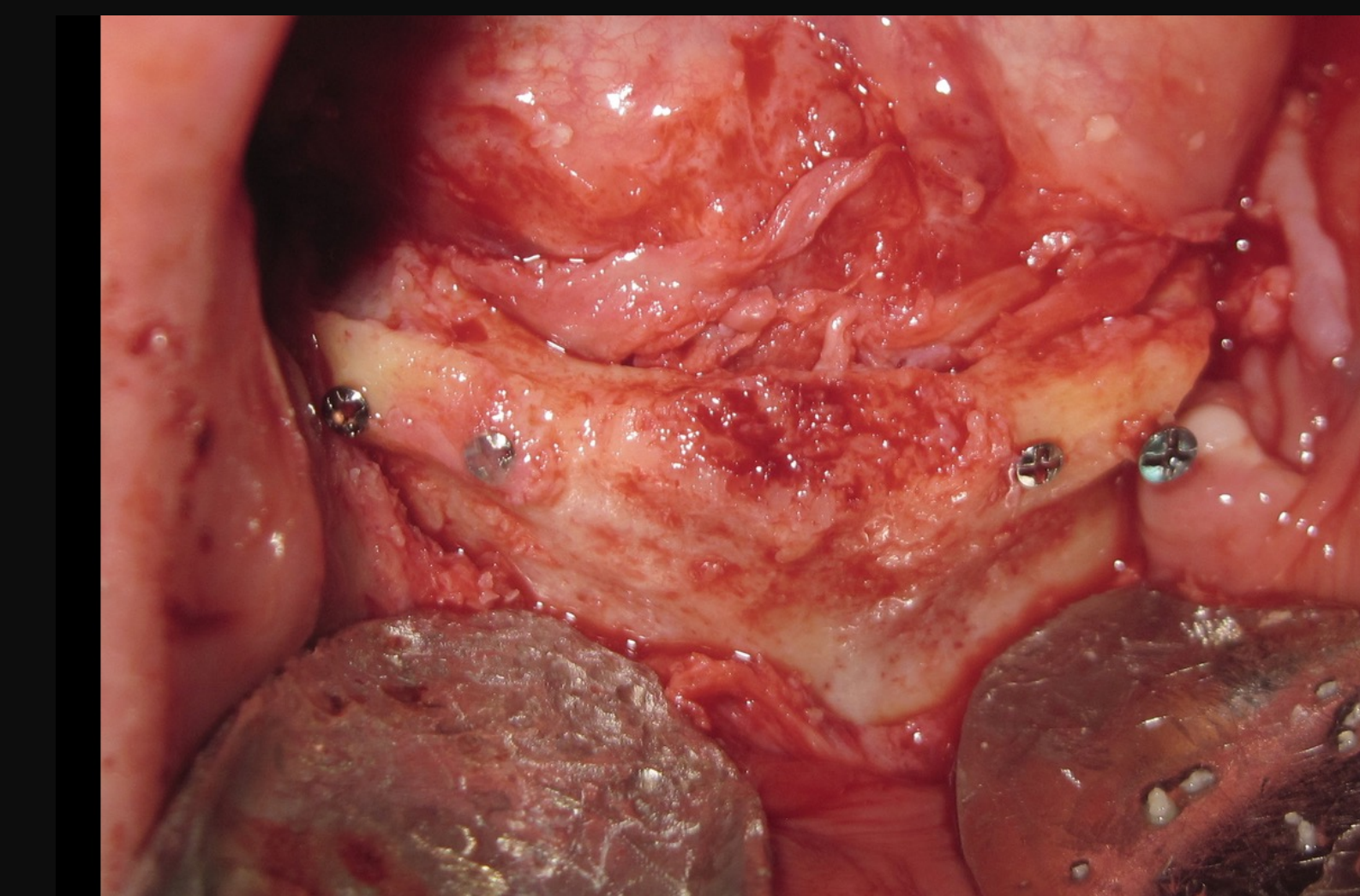
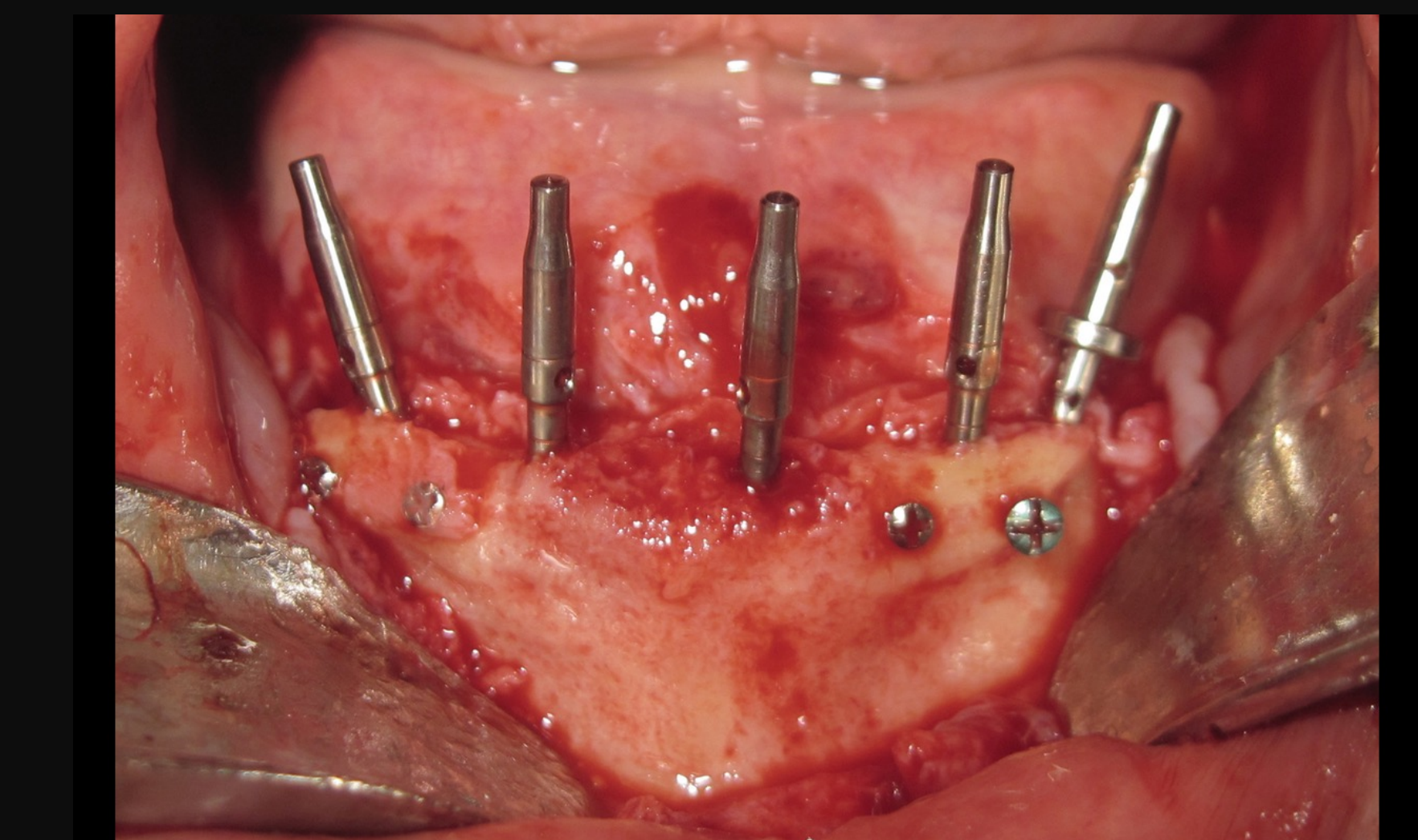


Two mono cortical block grafts harvested from interforaminal area.

Block grafts fixed in desirable areas.

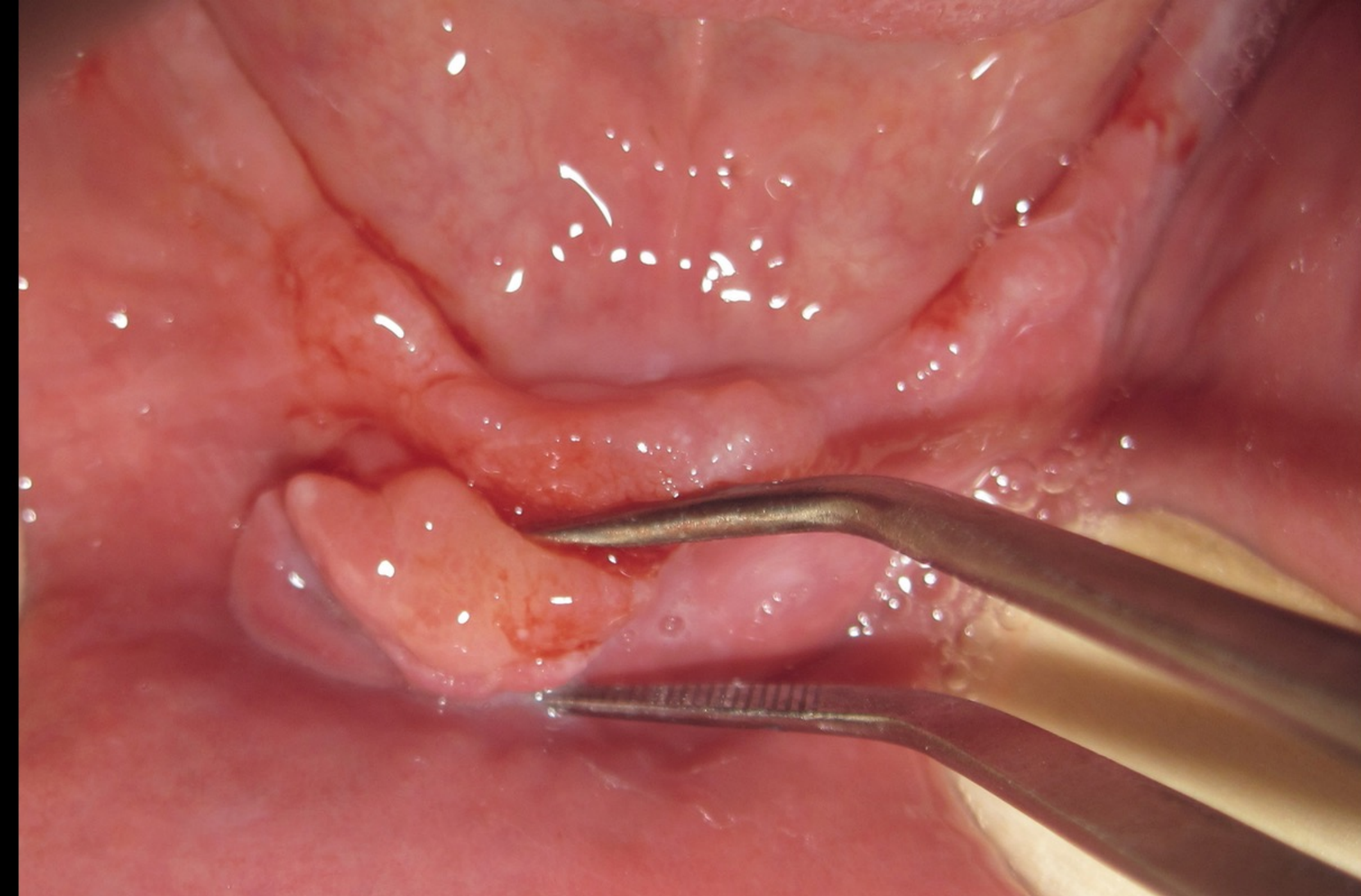
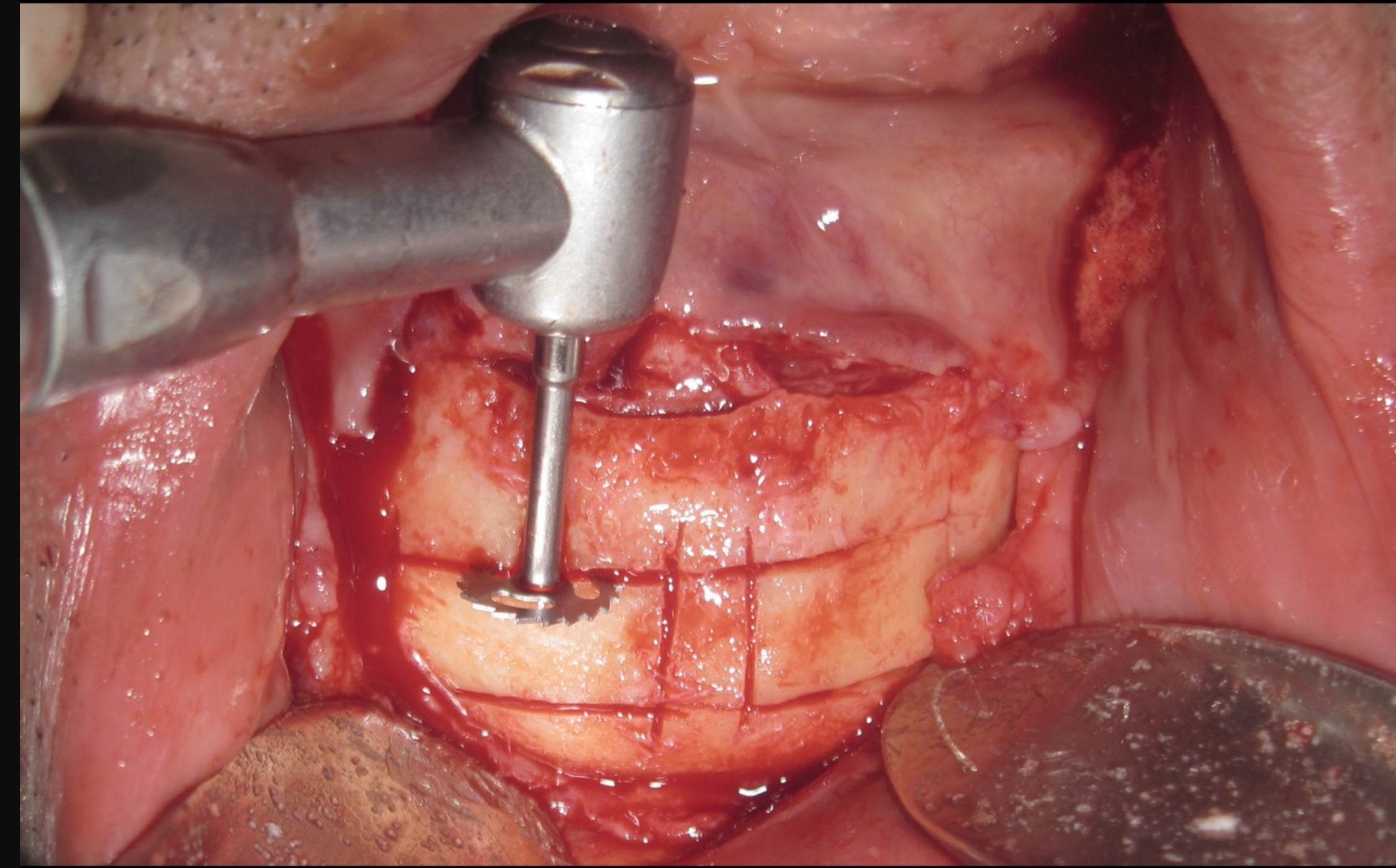
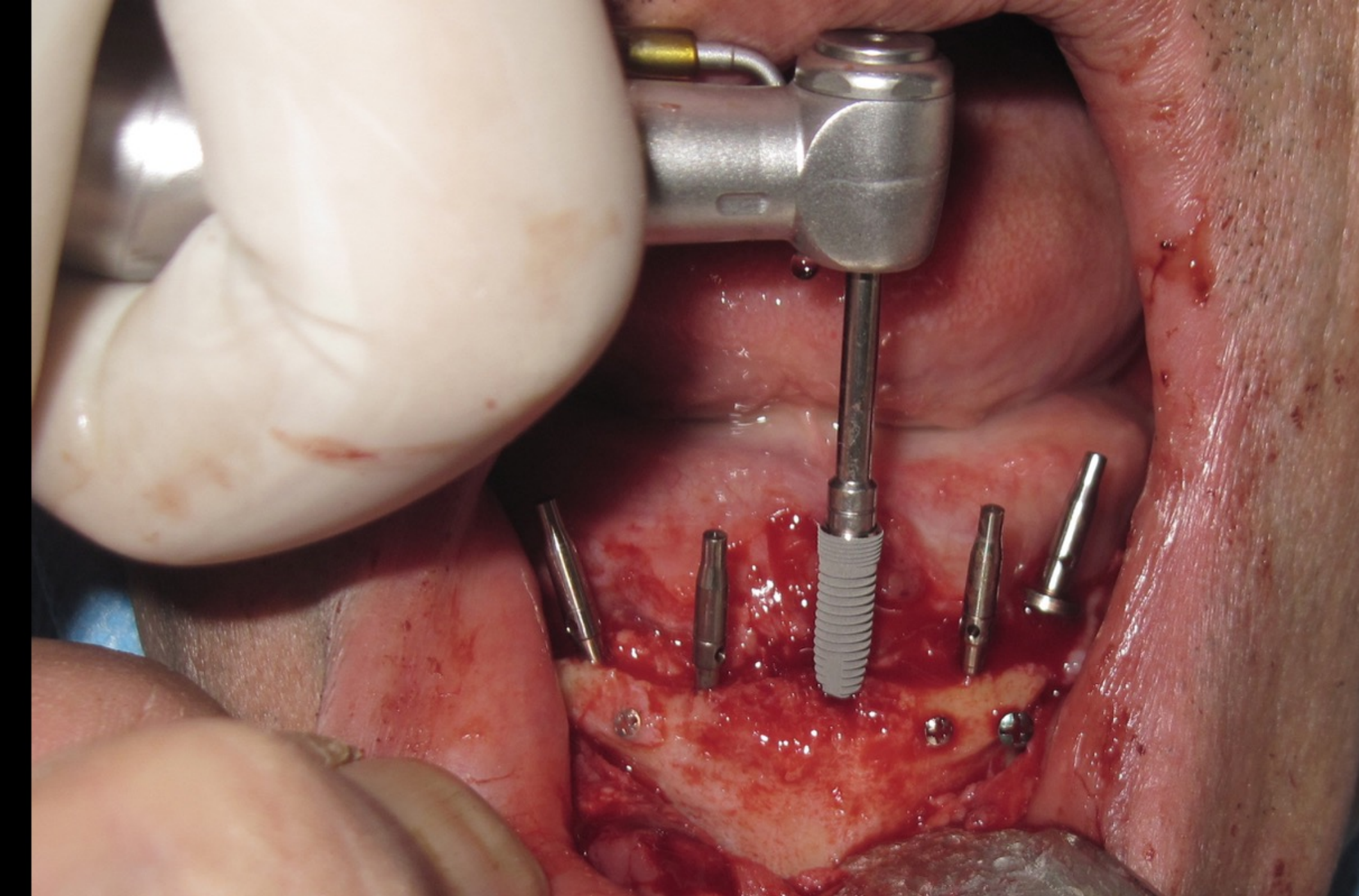


Particulate allograft material filling the gaps and resorbable membrane for protecting the graft.



Reopening the area after 6 months.

Inserting five implants in the reconstructed ridge.



RESULTS

Significant horizontal bone volume was obtained, and implants were successfully Osseo integrated at all grafted sites.

Final fixed restoration in both jaws.

CONCLUSION

In these cases, cortical autogenous bone blocks act as a tent to separate the soft tissue and periosteum from the native bone. Slow resorption of the cortical block provides space maintenance that is crucial for bone regeneration. Using particulate allograft, the augmented ridge will be more uniform. This technique allows large defect reconstruction without the need for extraoral sites.

REFERENCES

1. Aloy-Prósper A, Carramolino-Cuéllar E, Peñarrocha-Oltra D, Soto- Peñaloza D, Peñarrocha-Diago M. Intraoral onlay block bone grafts versus cortical tenting technique on alveolar ridge augmentations: a systematic review. *Medicina Oral, Patología Oral y Cirugía Bucal*. 2022 Mar;27(2):e181.
2. Morad G, Khojasteh A. Cortical tenting technique versus onlay layered technique for vertical augmentation of atrophic posterior mandibles: a split-mouth pilot study. *Implant Dentistry*. 2013 Dec 1;22(6):566-71.
3. Hares JK, Mohamed SS, Noureldin MG. Cortical tenting technique for vertical augmentation of atrophic posterior part of the mandible (clinical trial). *Alexandria Dental Journal*. 2021 Apr 1;46(1):15-22.
4. Rahpeyma A, Khajehahmadi S. Mandibular ramus cortical tenting graft and particulate allograft in the management of unilateral alveolar cleft. *Annals of Maxillofacial Surgery*. 2019 Jul;9(2):355.