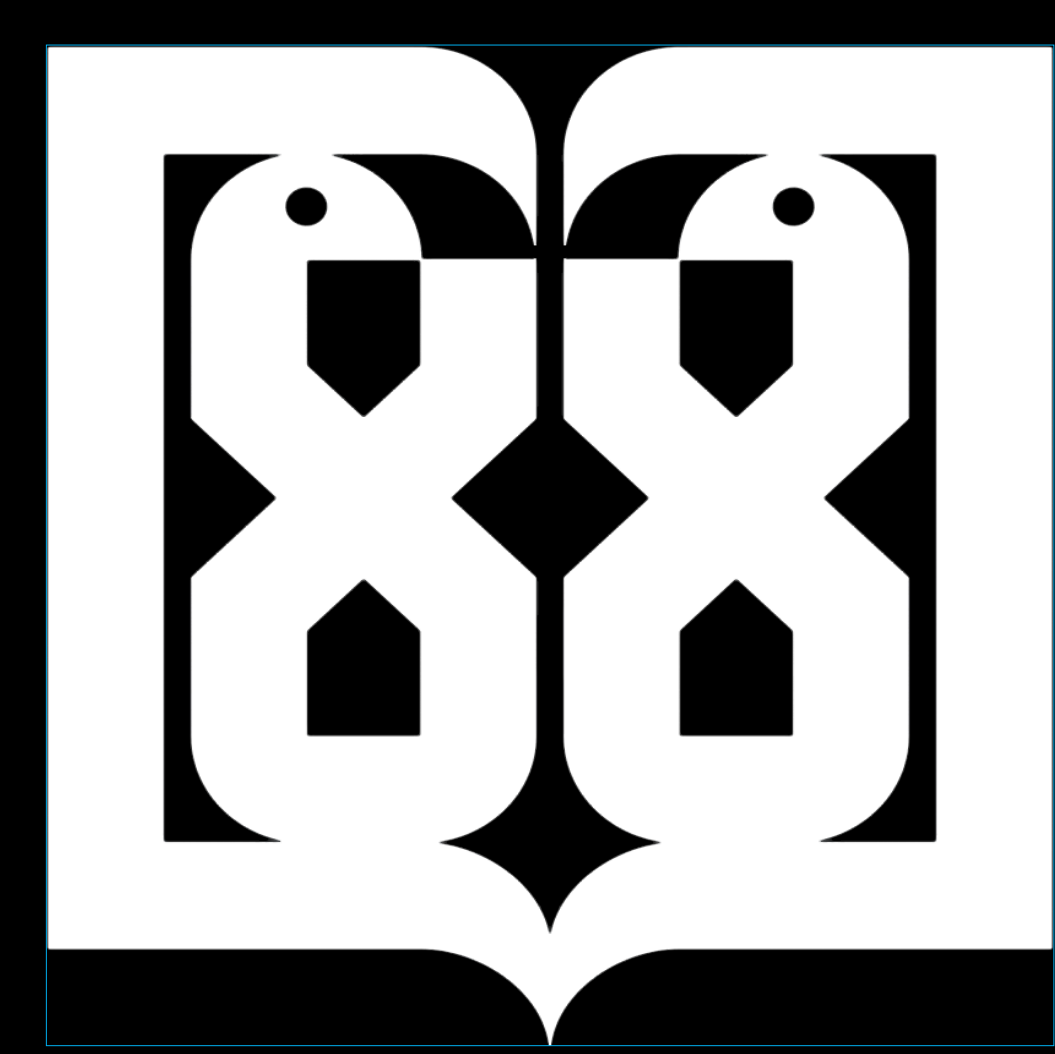
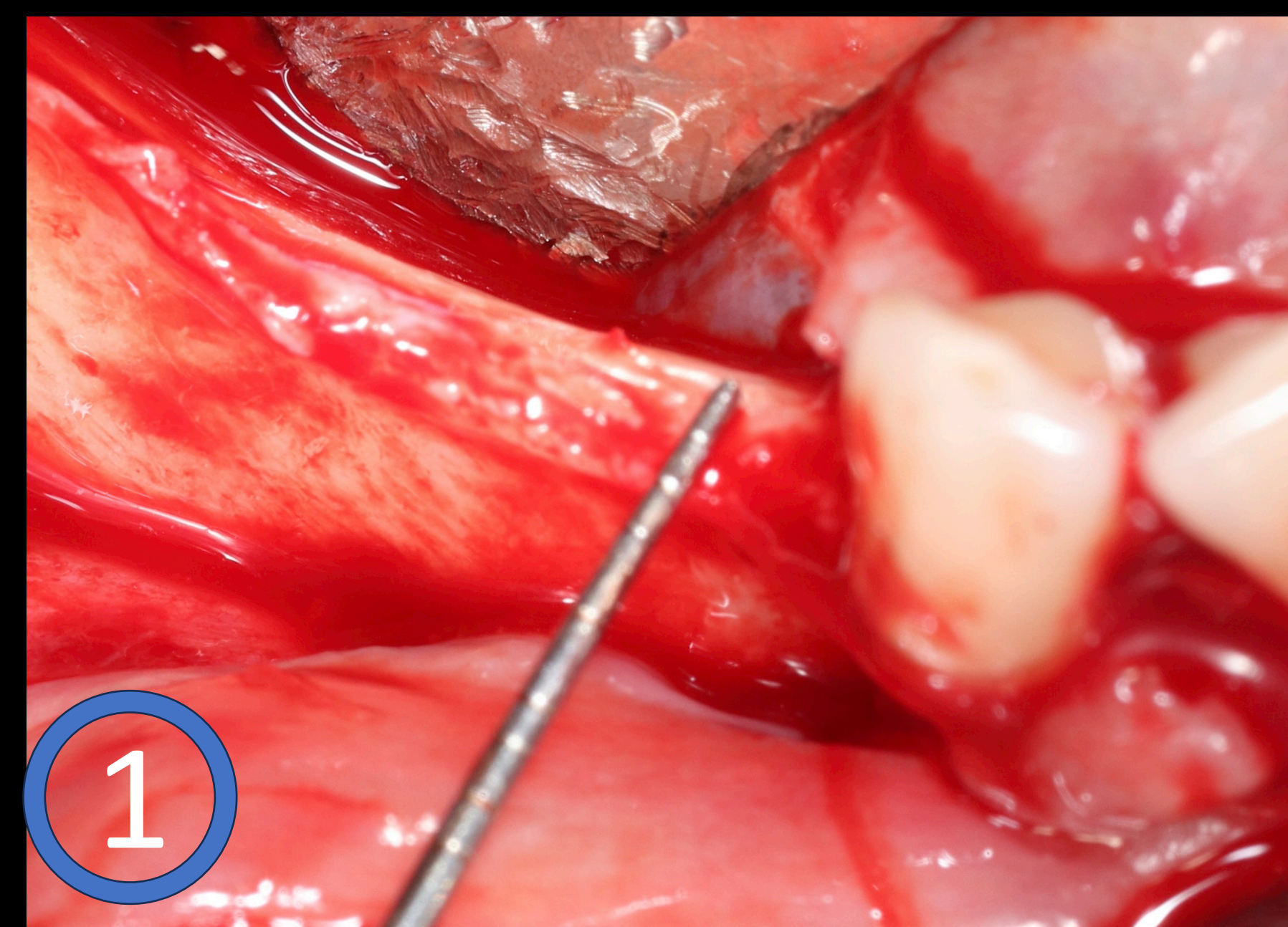
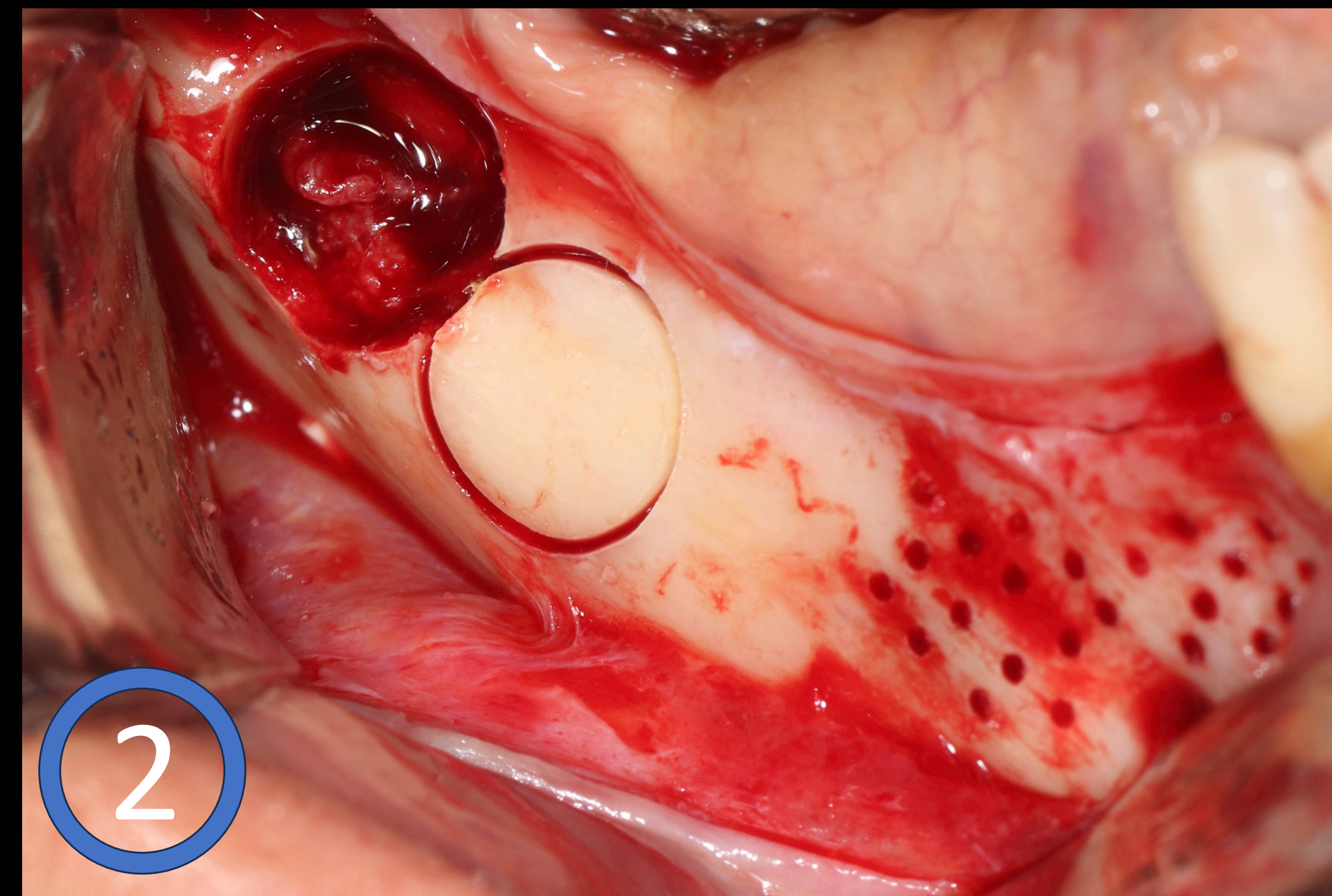
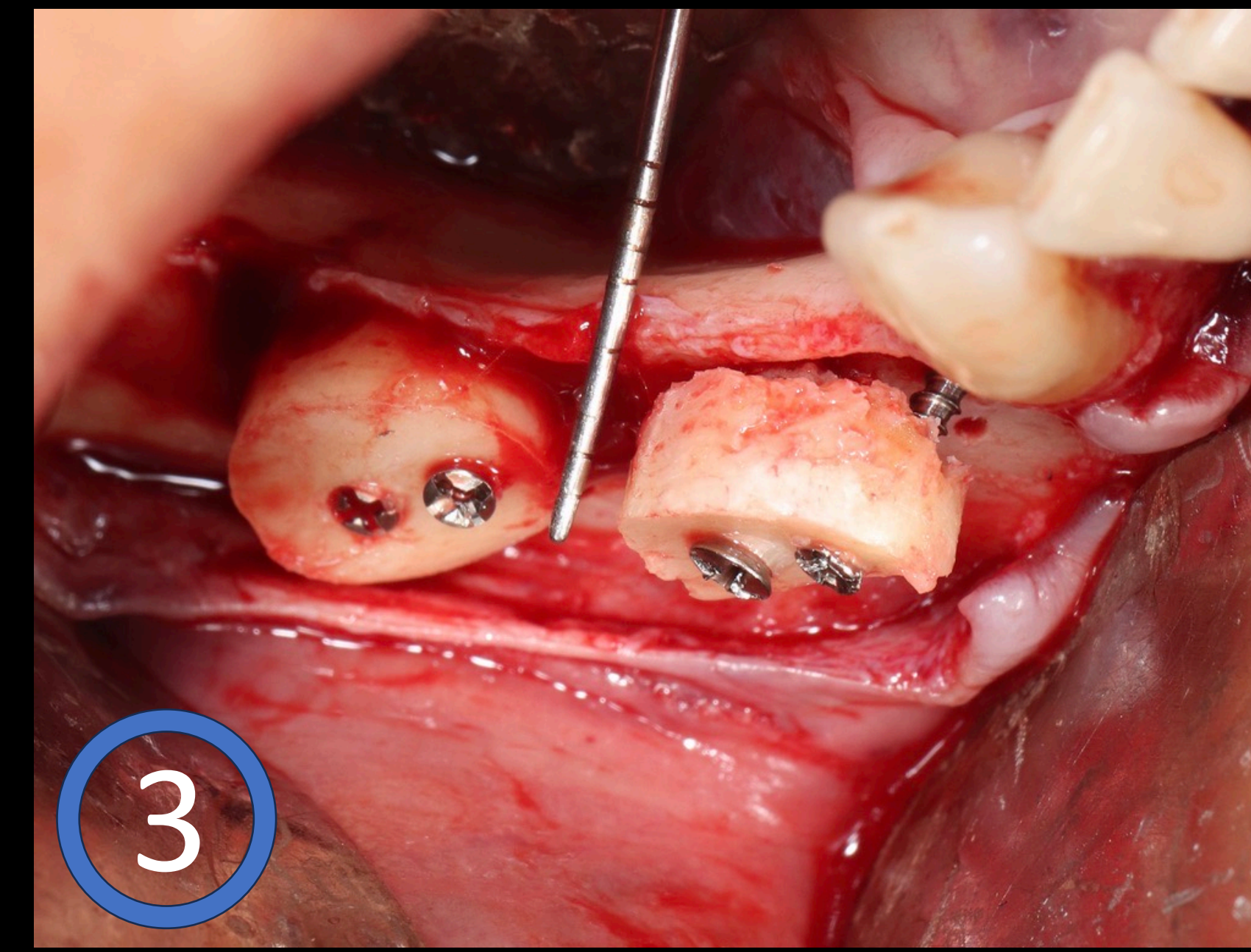
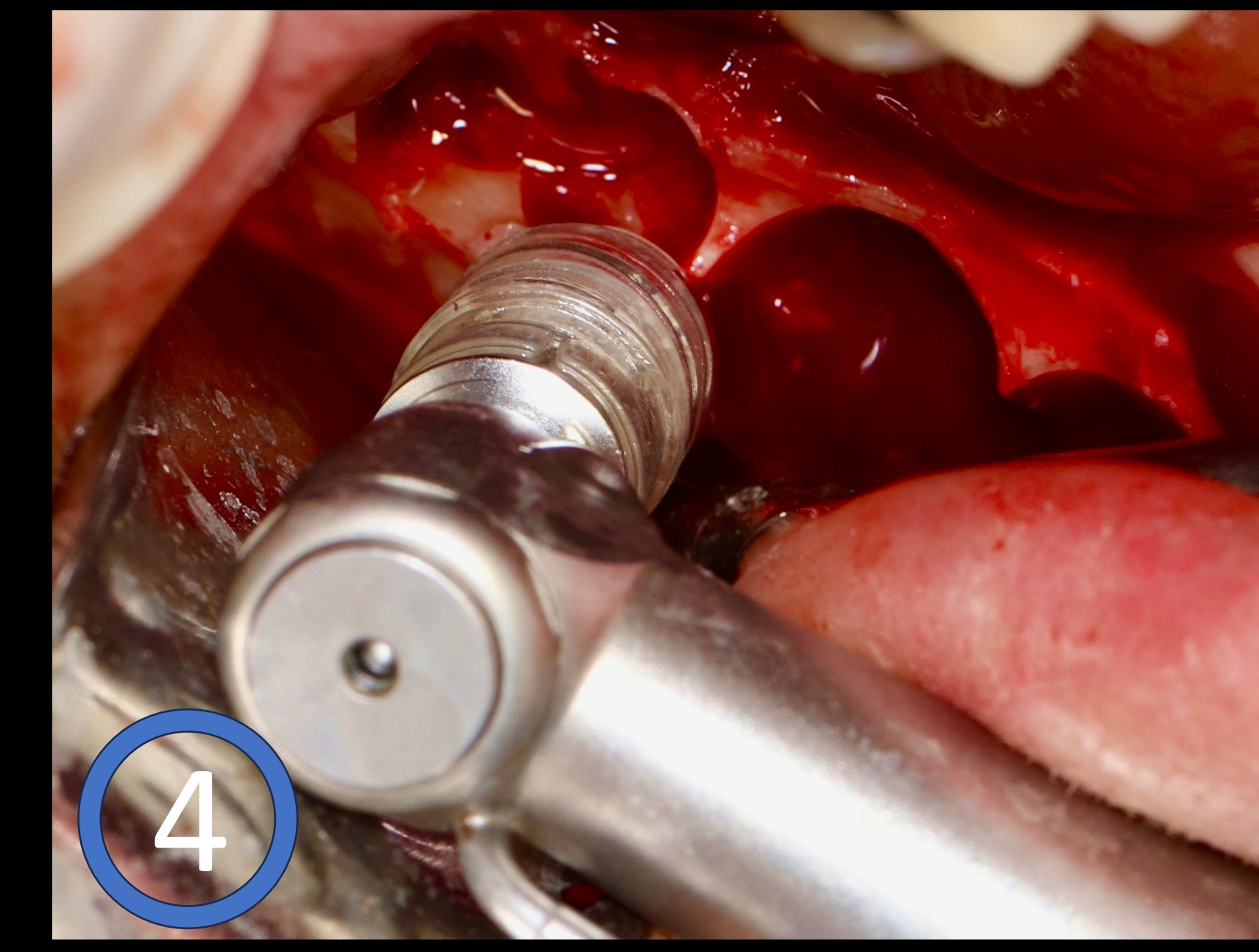
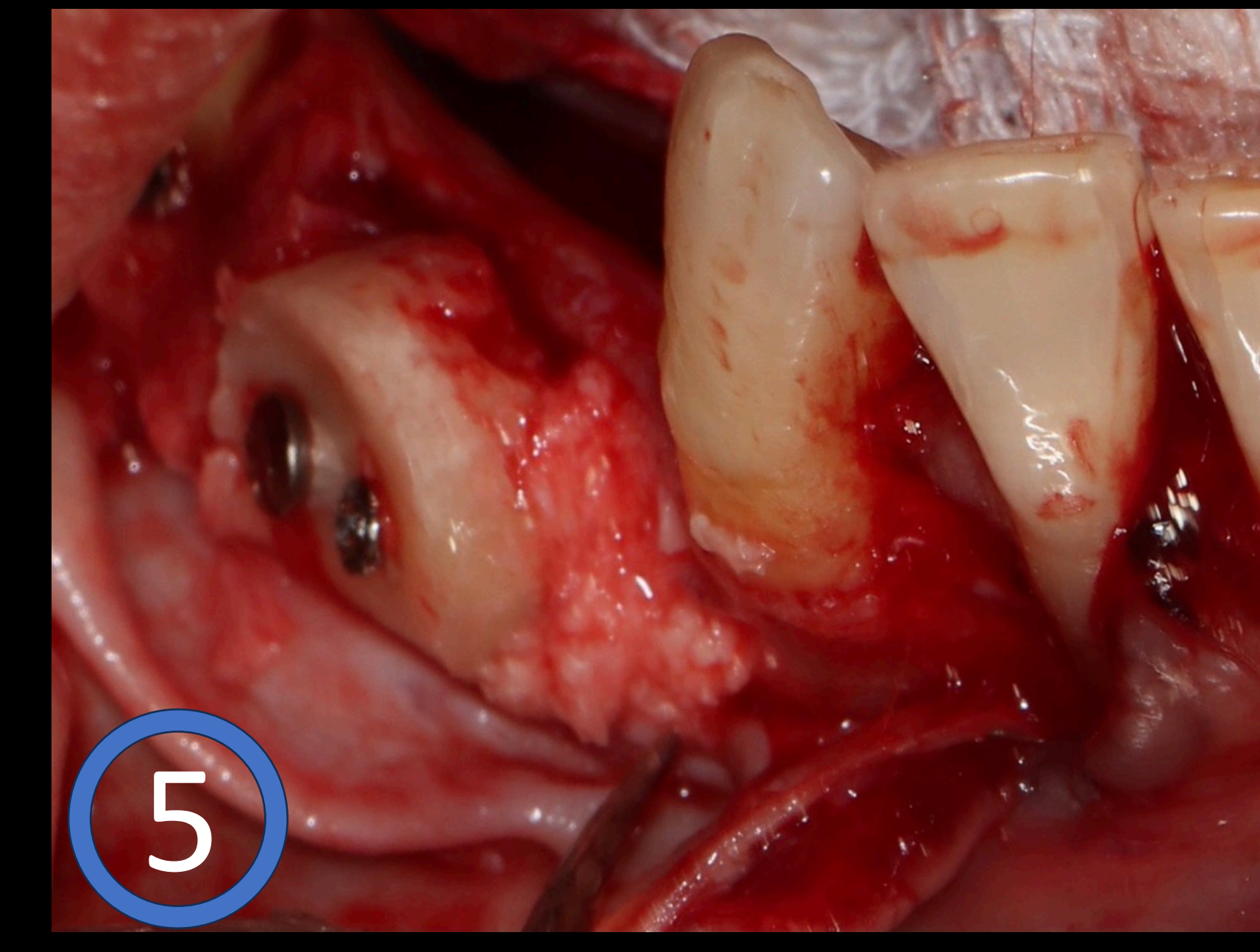
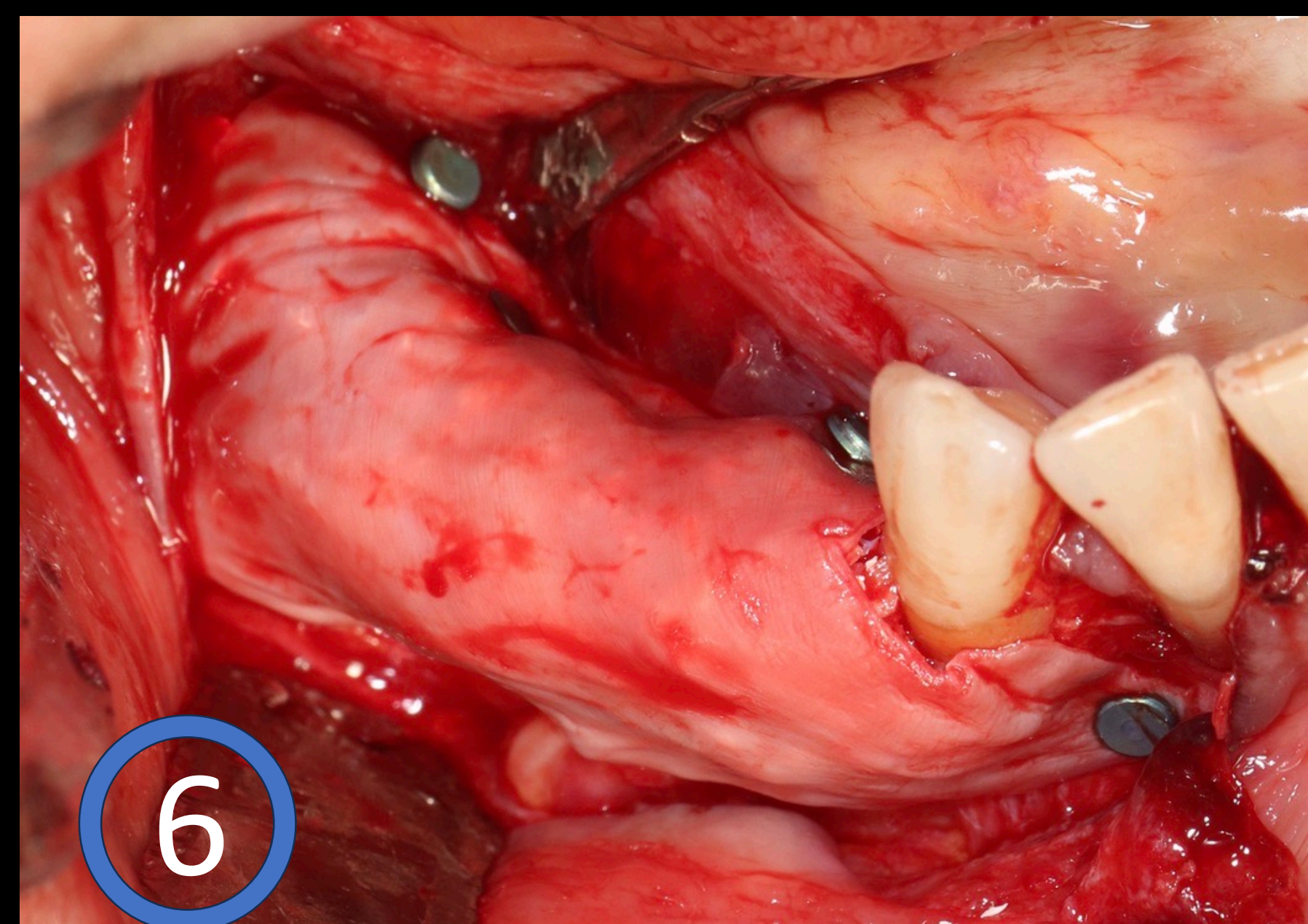
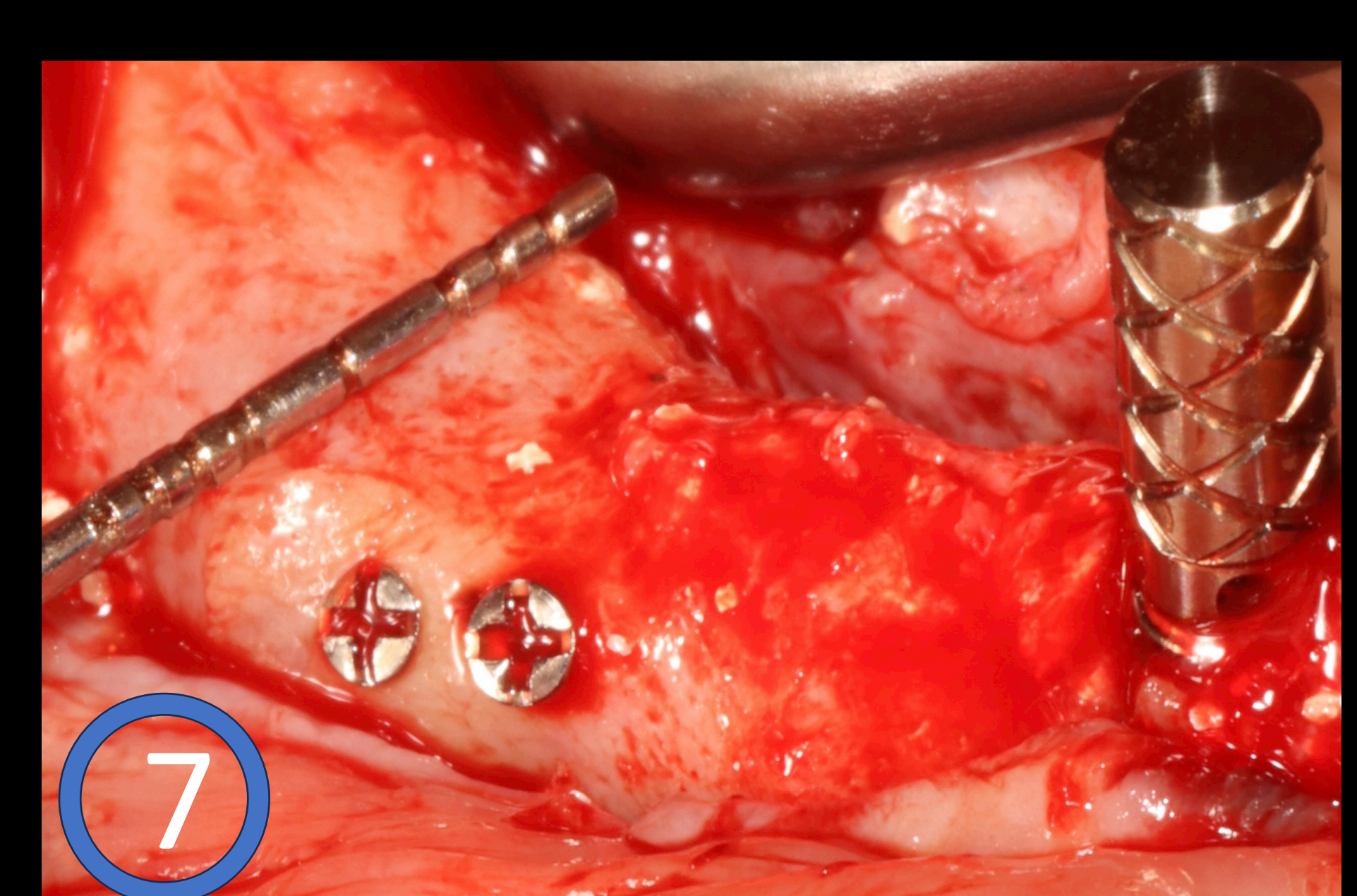
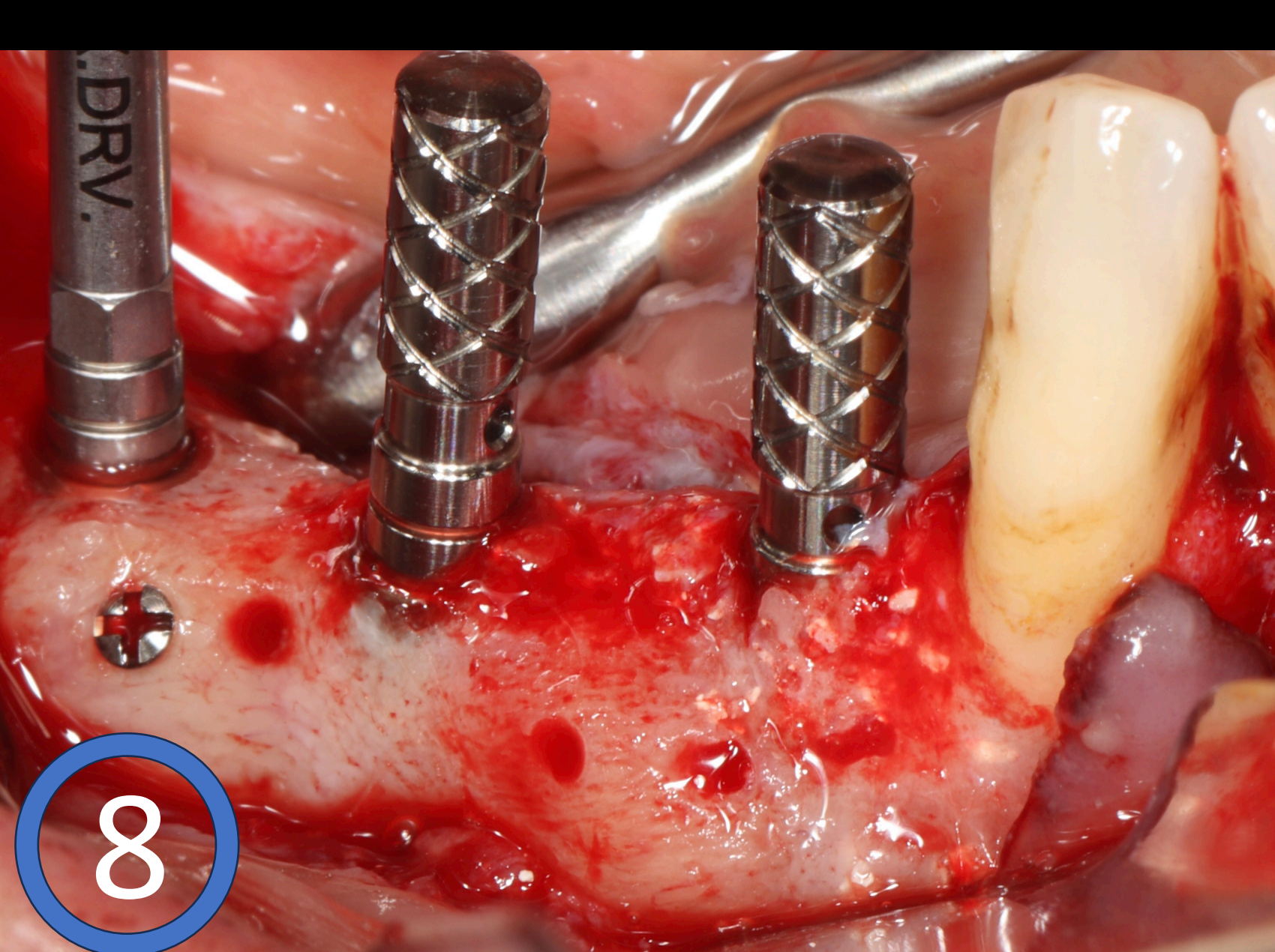
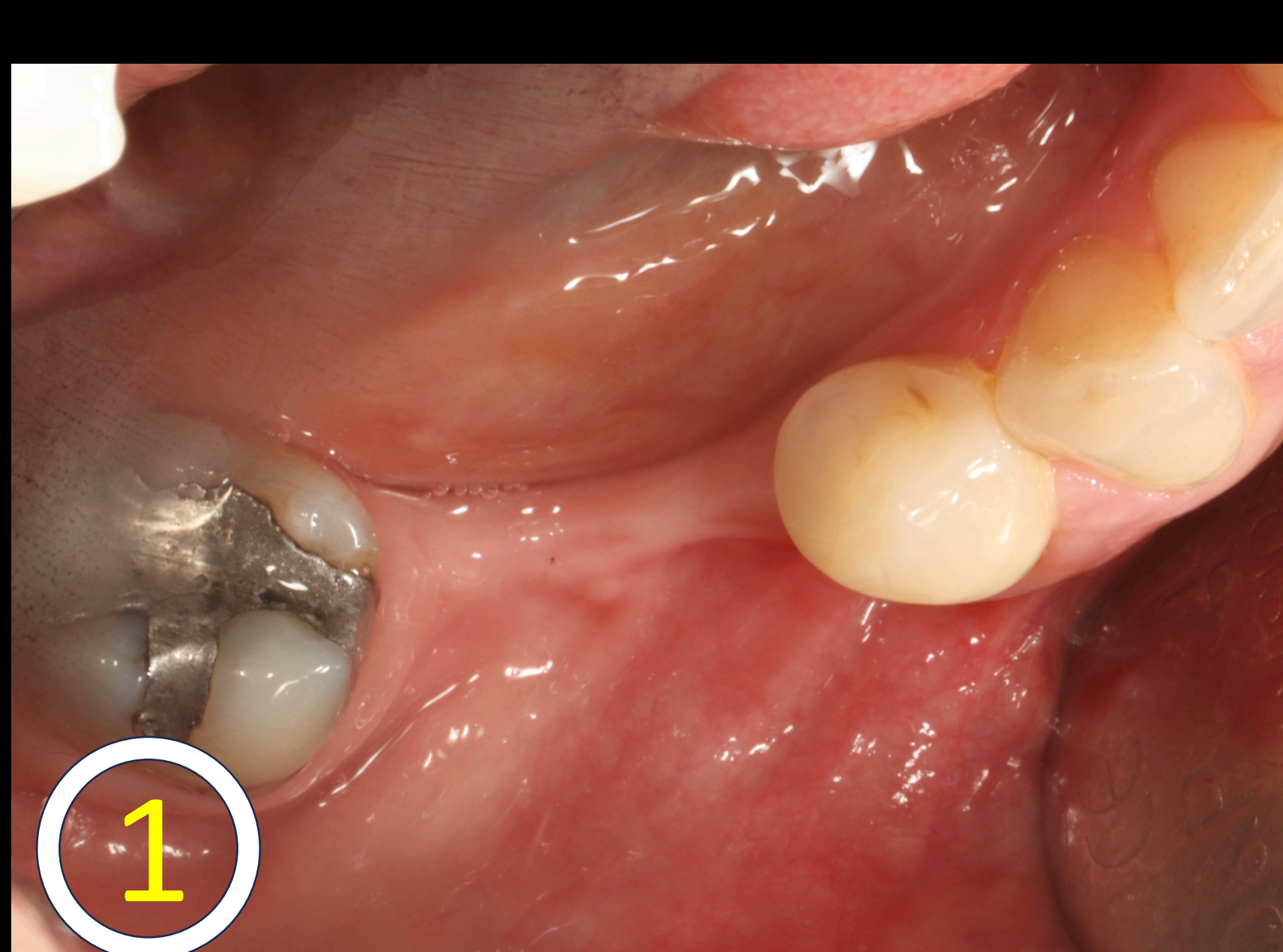
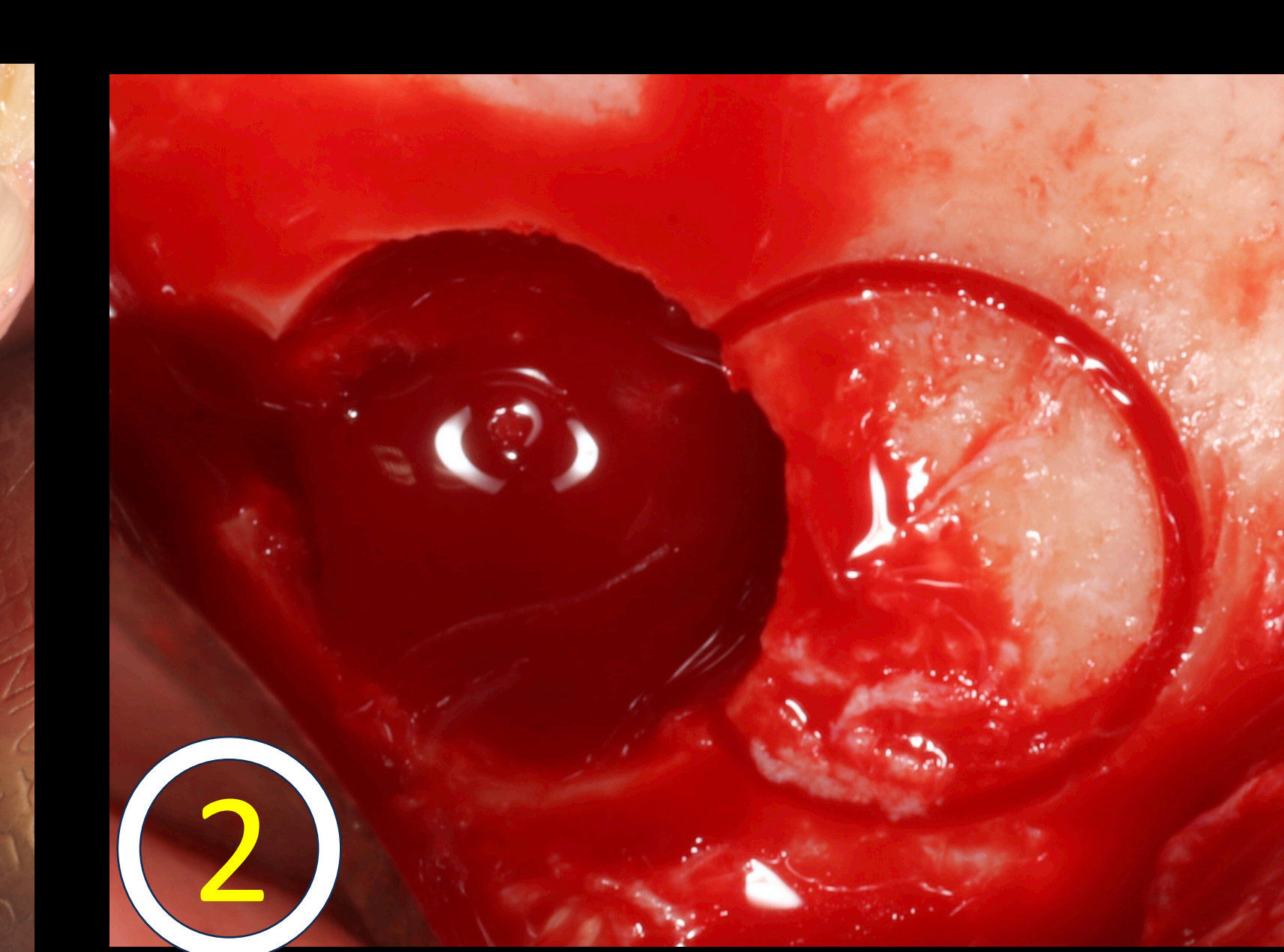
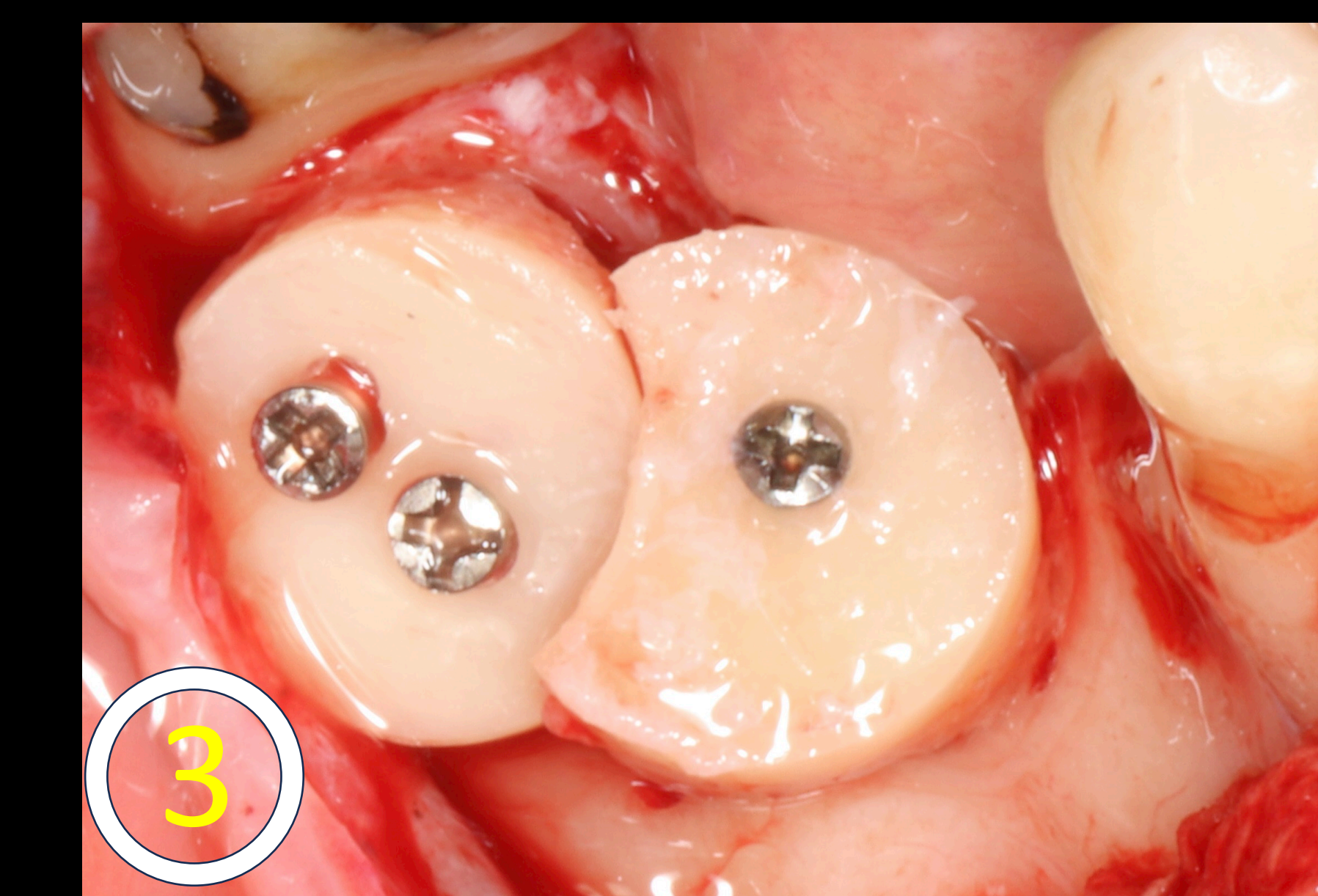
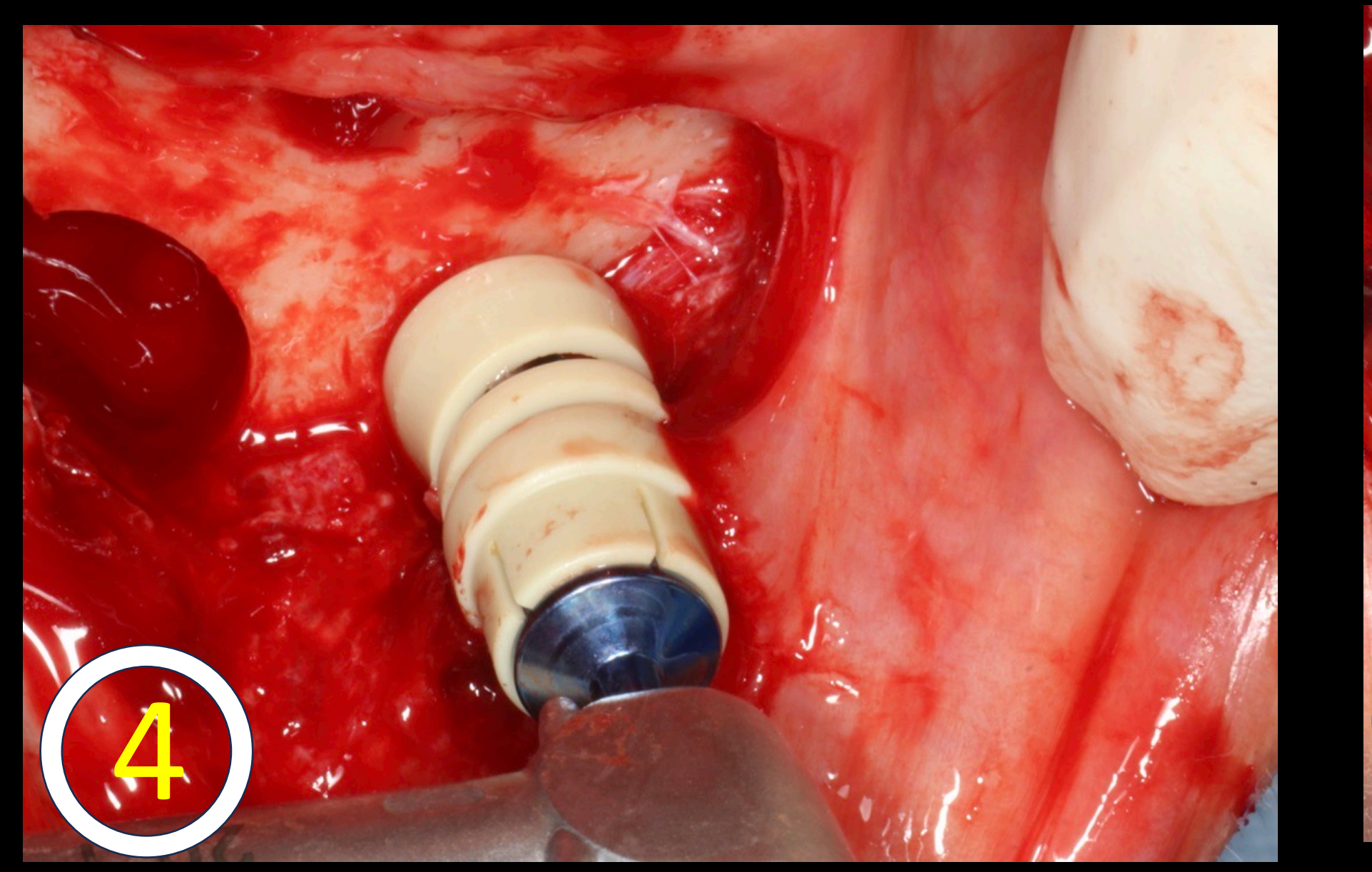
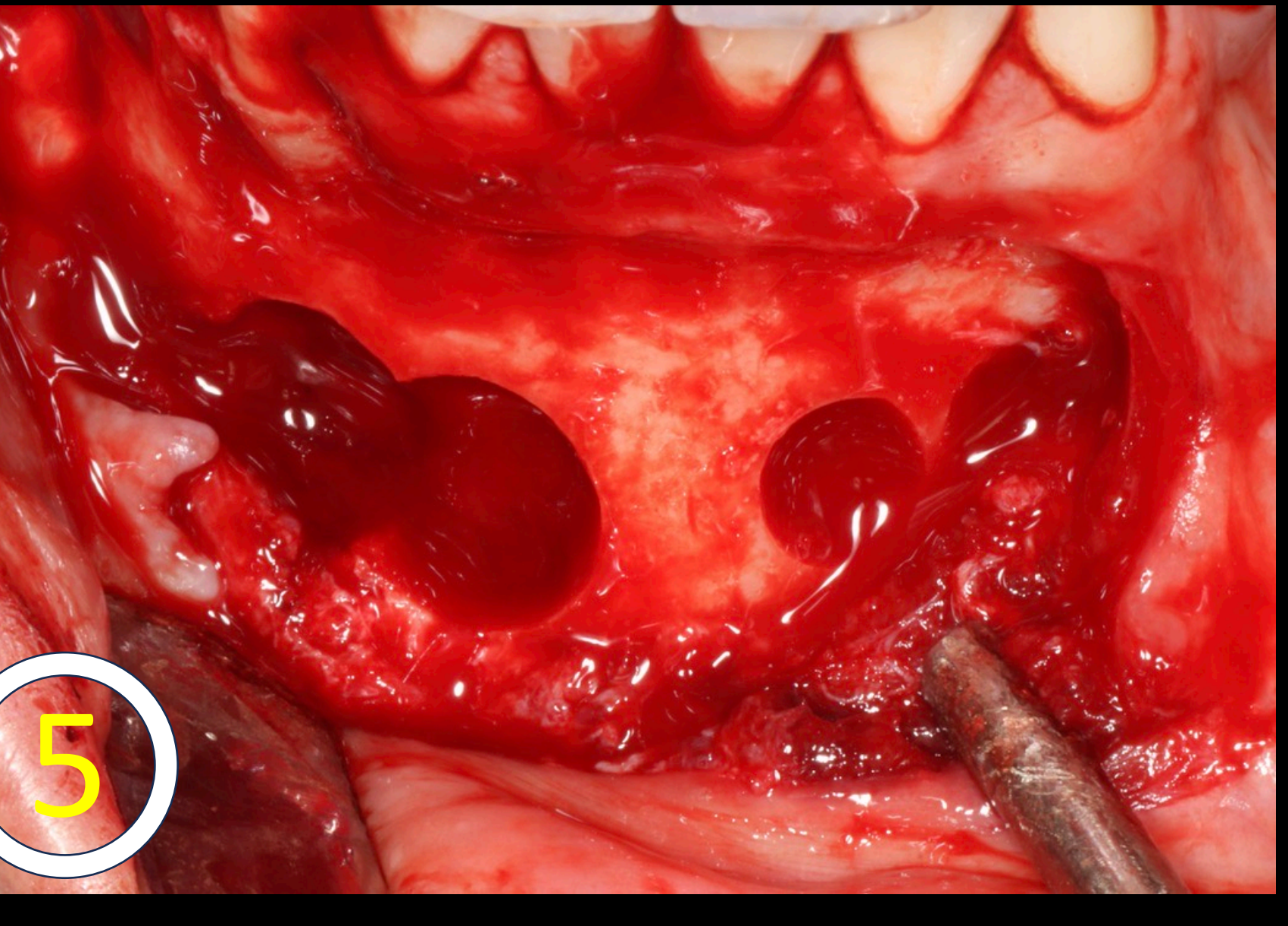
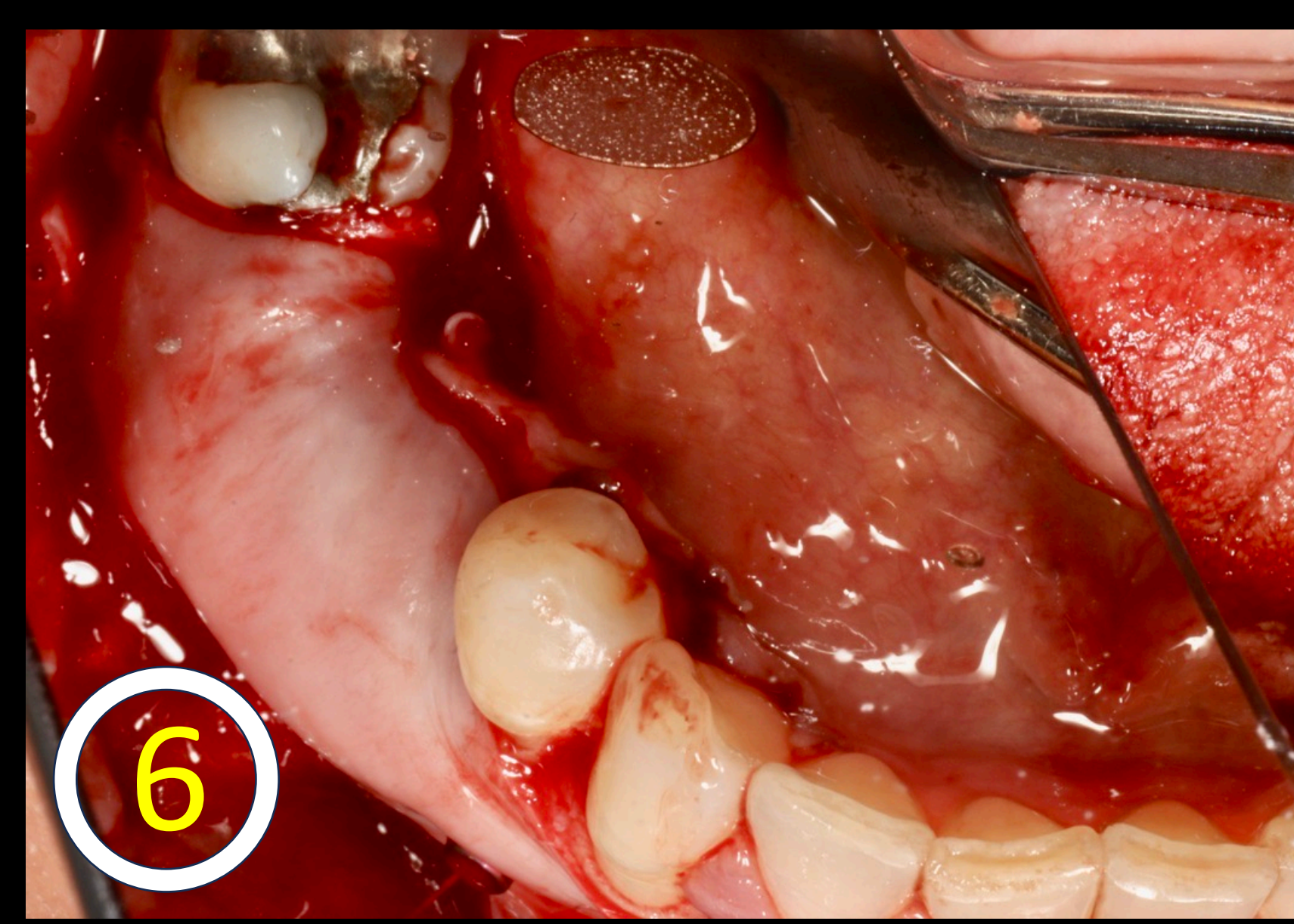
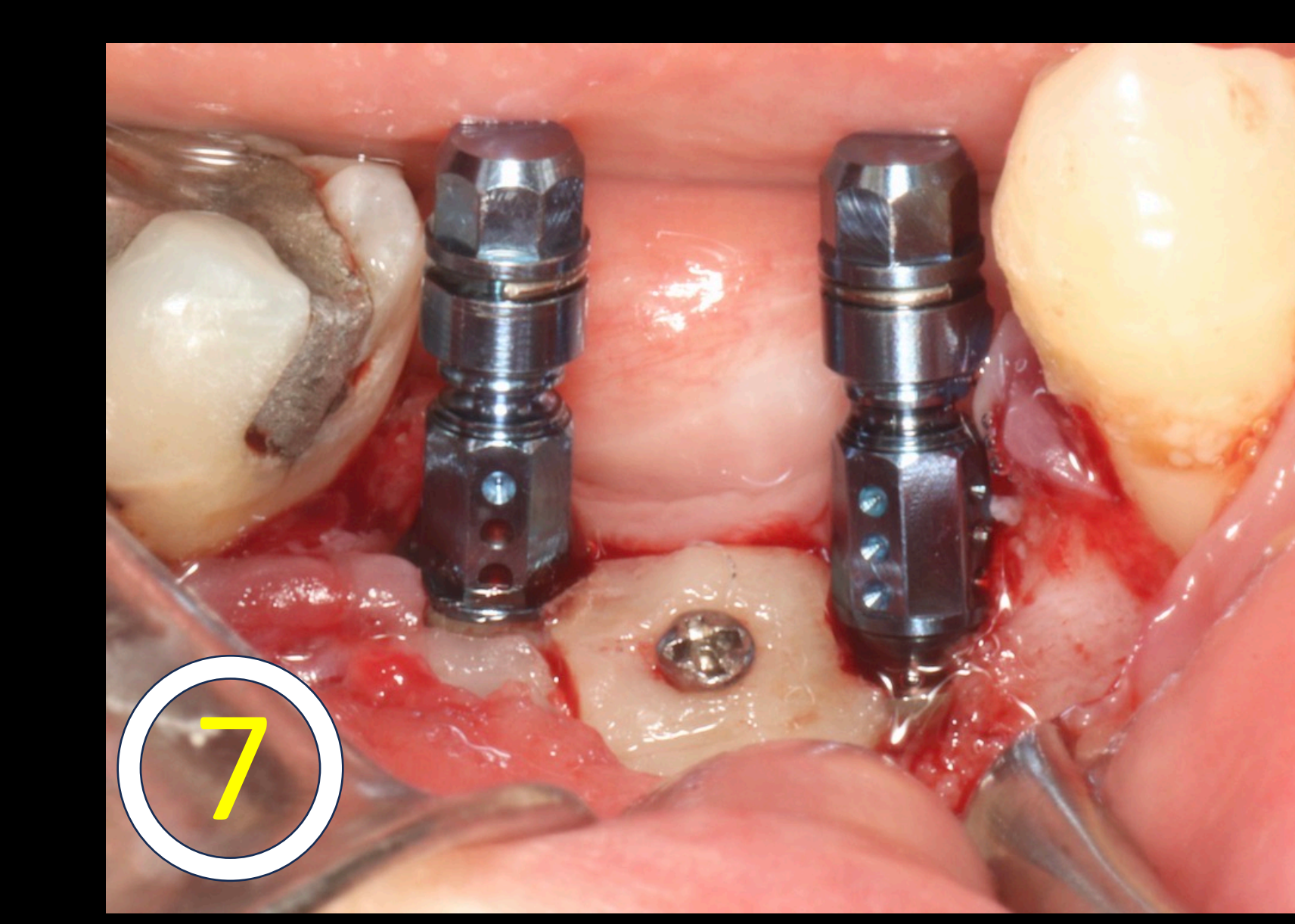




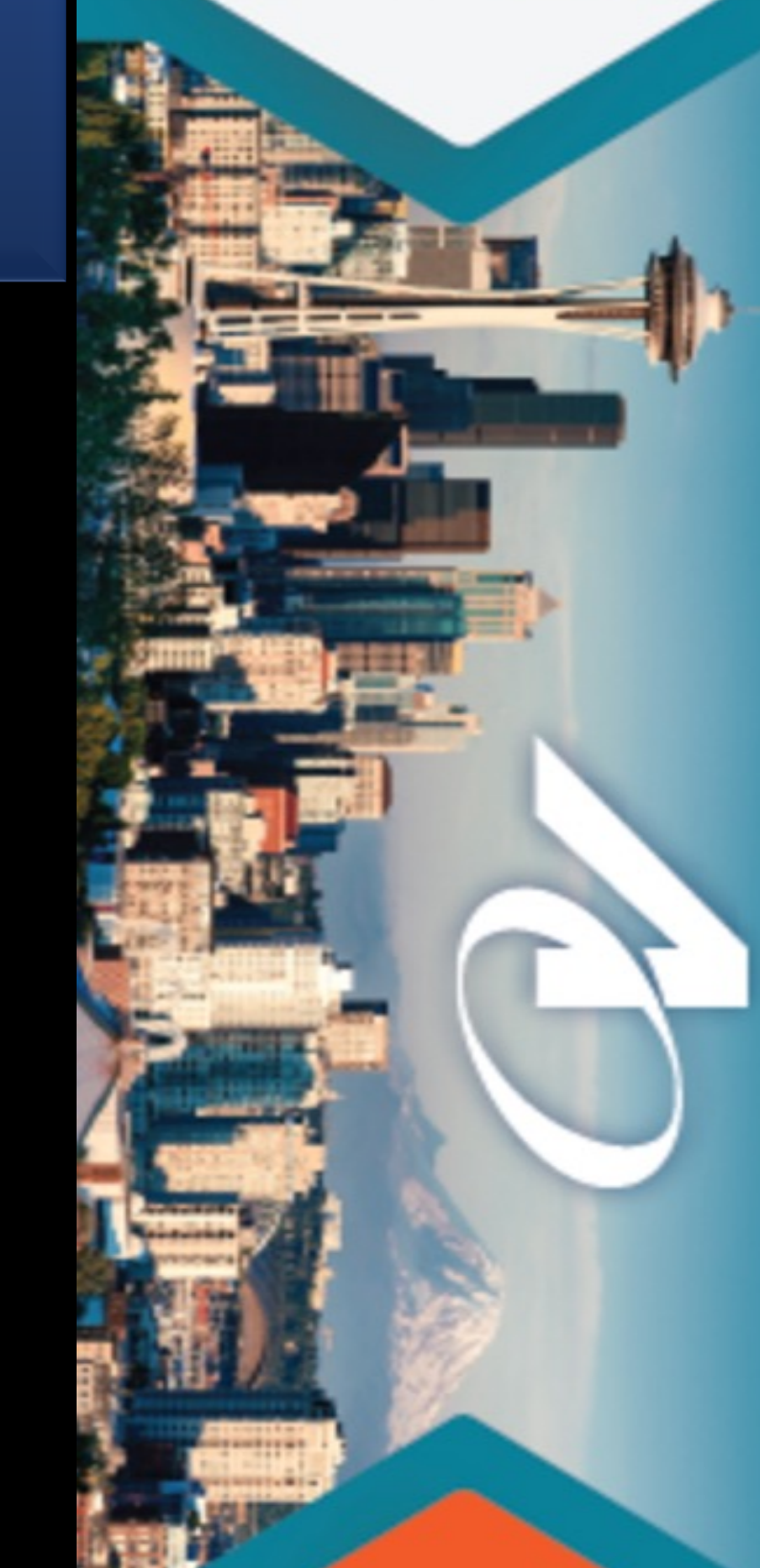
The combination of block and particulate graft harvesting by trephine and bone collector for lateral and vertical augmentation

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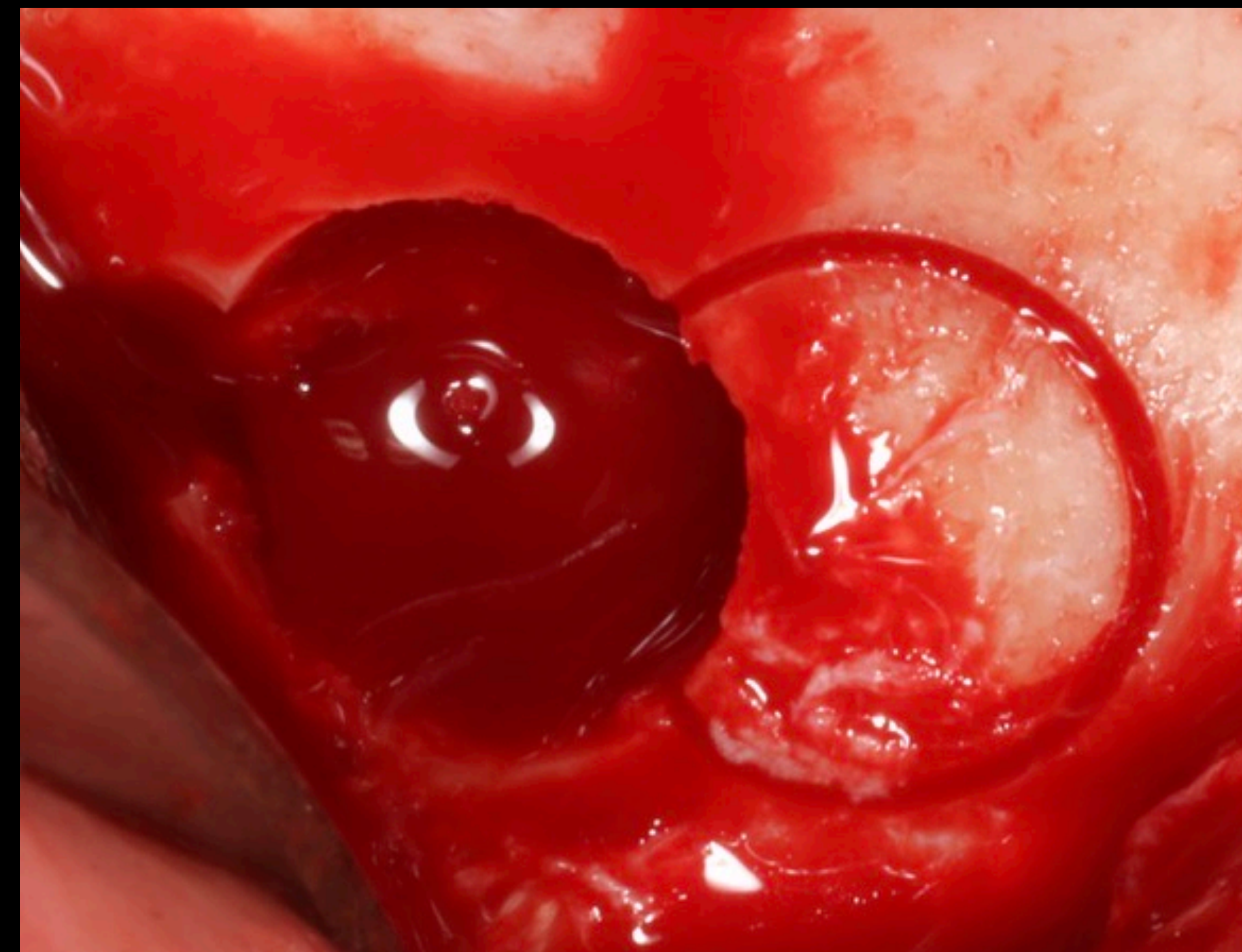
The combination of block and particulate graft harvesting by trephine and bone collector for lateral and vertical augmentation

INTRODUCTION

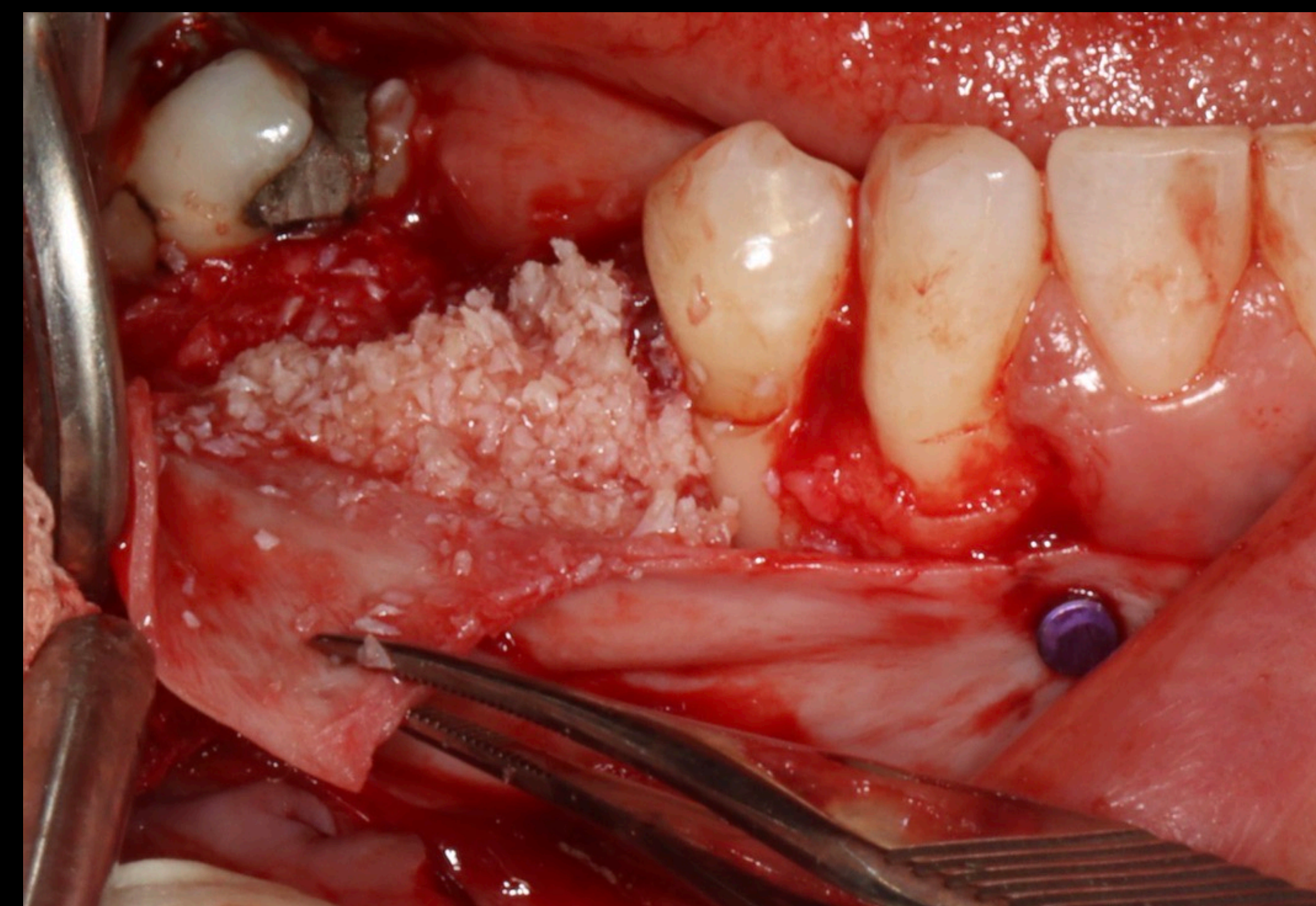
After tooth extraction, the alveolar ridge undergoes significant changes in both quality and quantity, leading to alterations in its dimensions—both horizontally and vertically. These changes can compromise the predictability and feasibility of implant treatments. To address these challenges, it is essential to implement specific procedures prior to implant insertion to enhance success and survival rates, as well as improve functional, biological, and aesthetic outcomes. In this session, we present the use of autogenous ring augmentation as the gold standard bone substitute for alveolar reconstruction, in conjunction with particulate bone graft materials, to achieve adequate vertical and horizontal ridge dimensions before implant placement.

METHODS

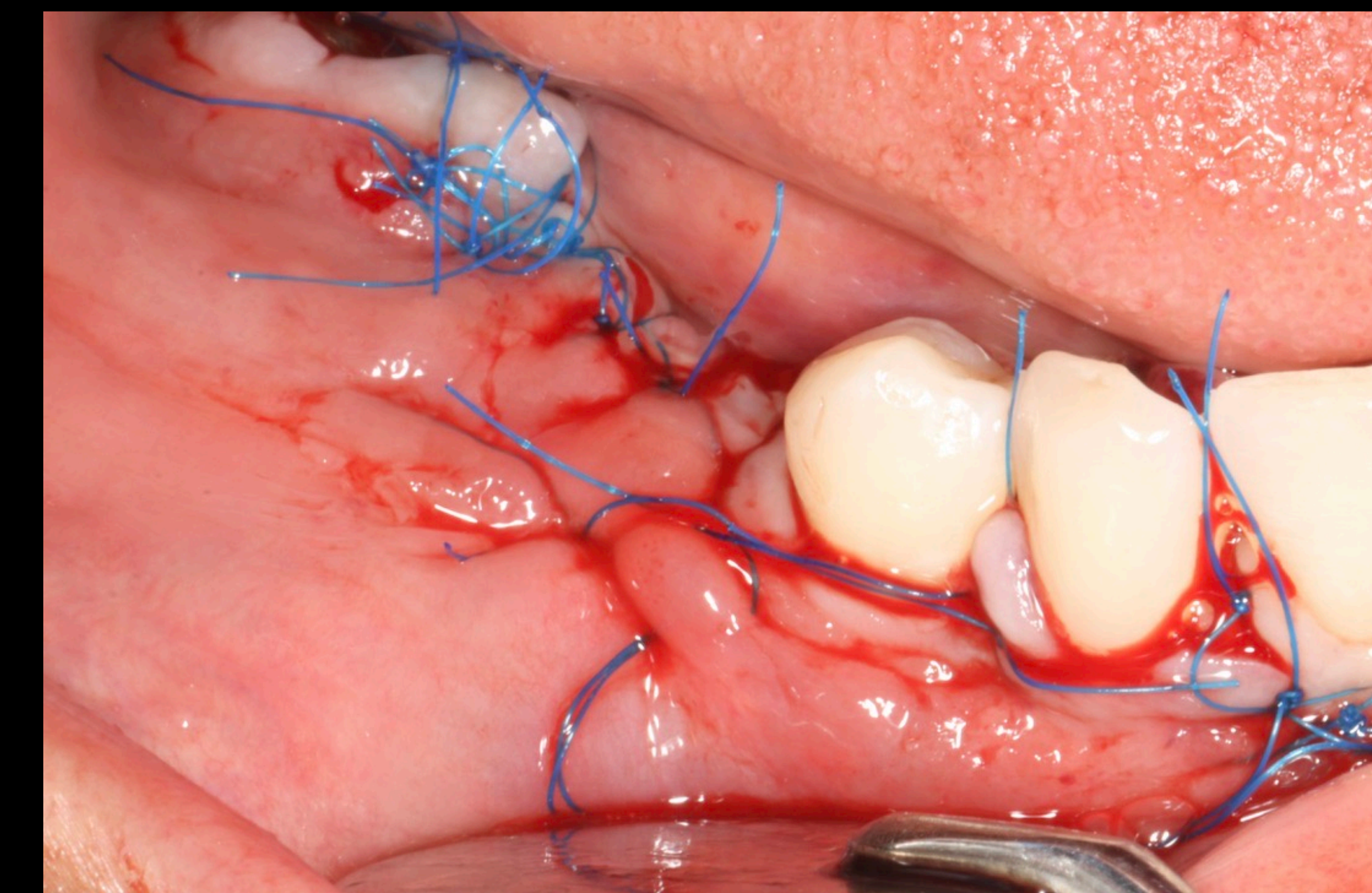
Two patients with vertical, horizontal, or combined defects were treated in our department. Based on the defect's size and morphology, at least two ring block grafts were harvested using a trephine bur from the chin or ramus area. The harvested ring blocks were secured in place with screws. To reconstruct the alveolar defect both vertically and horizontally, additional particulate bone substitute was collected from the chin or ramus to fill the gaps between the blocks. An absorbable membrane was adapted at the reconstruction site, and the flap was closed. After approximately six months, implant placement was performed following a controlled drilling sequence and torque protocol.



Ring block harvesting from chin area by trephine



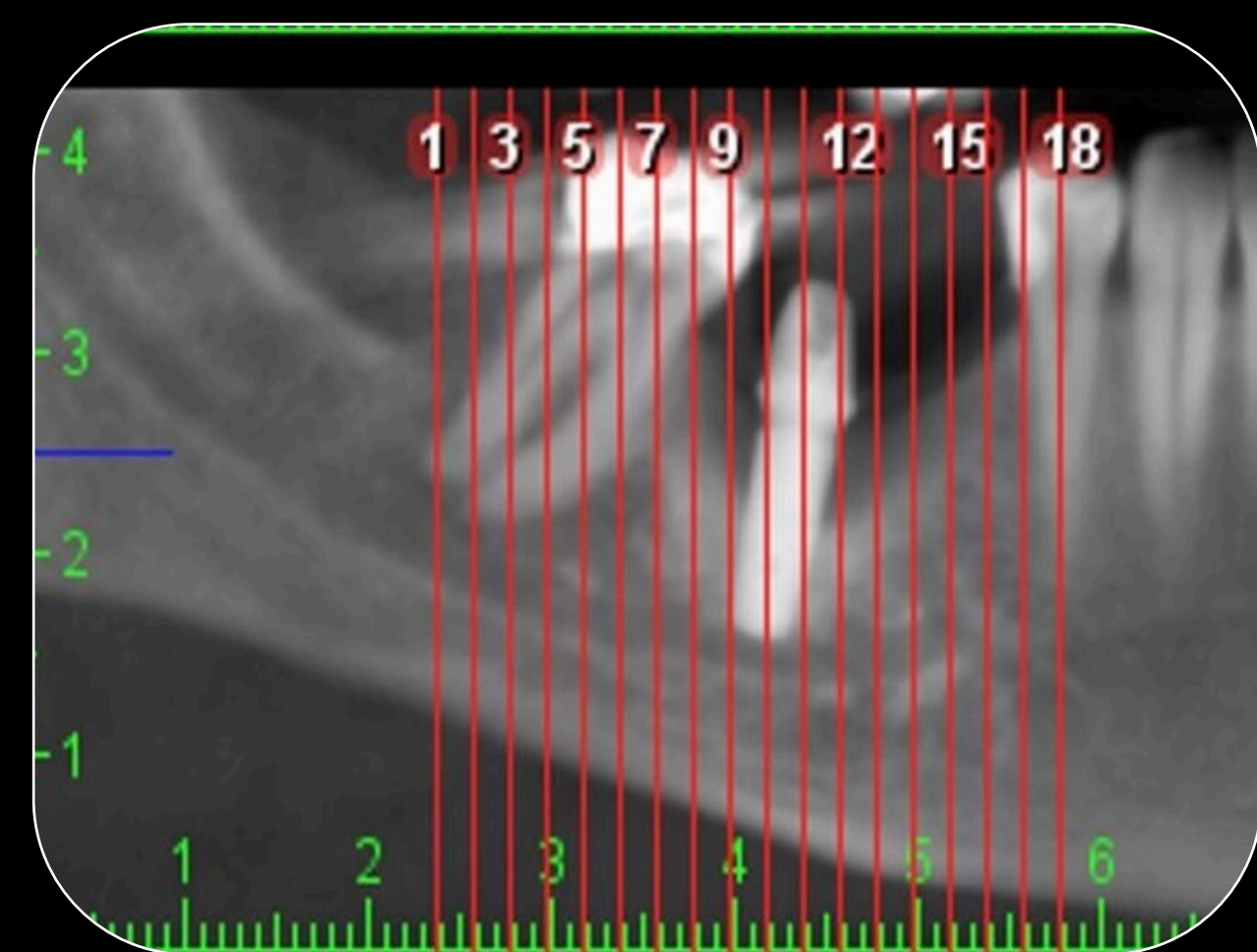
Particulate bone substitute was gathered by bone collector from chin or ramus and mixed by xenograft to fill the gaps between the blocks.



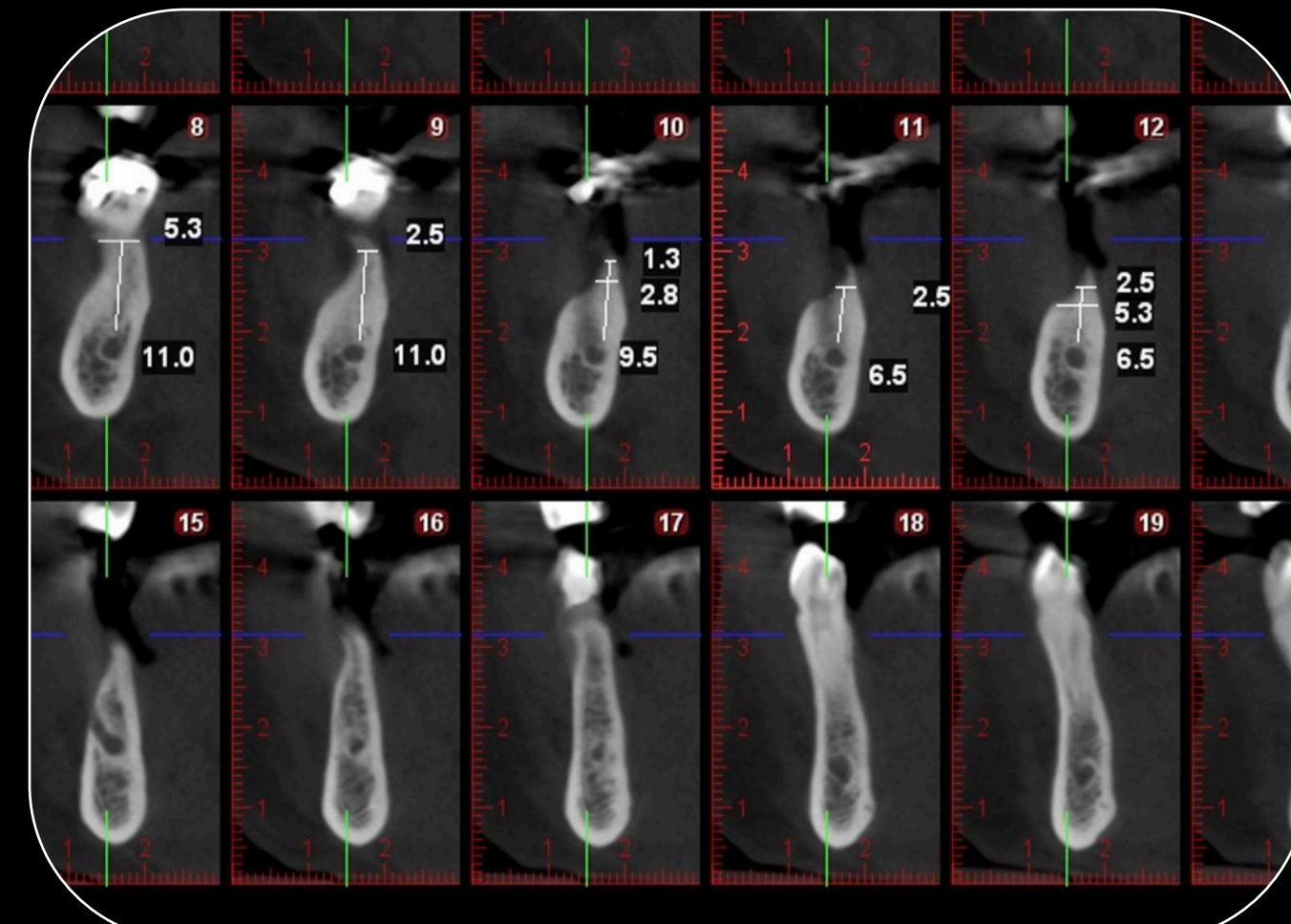
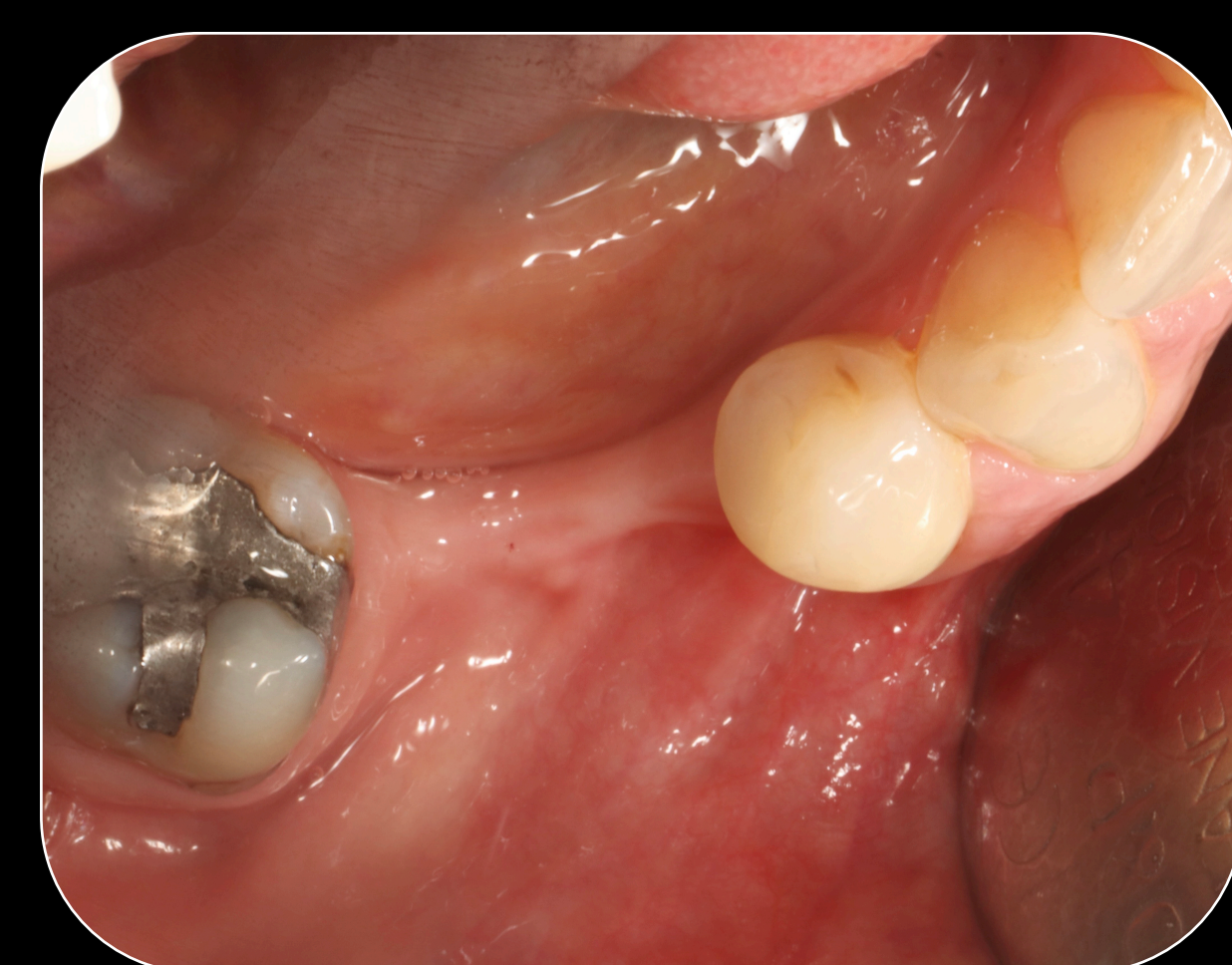
Flap closure by GBR suture



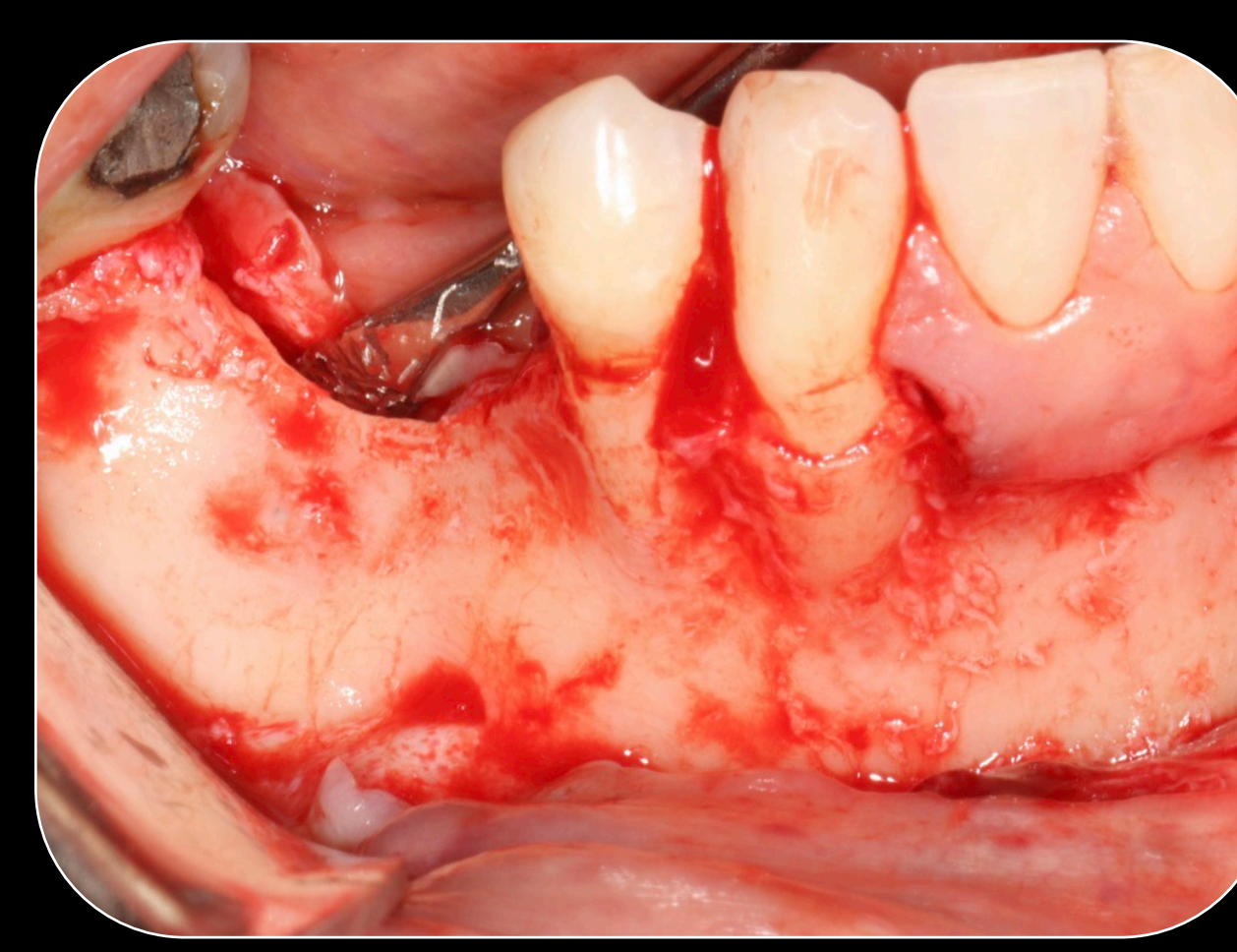
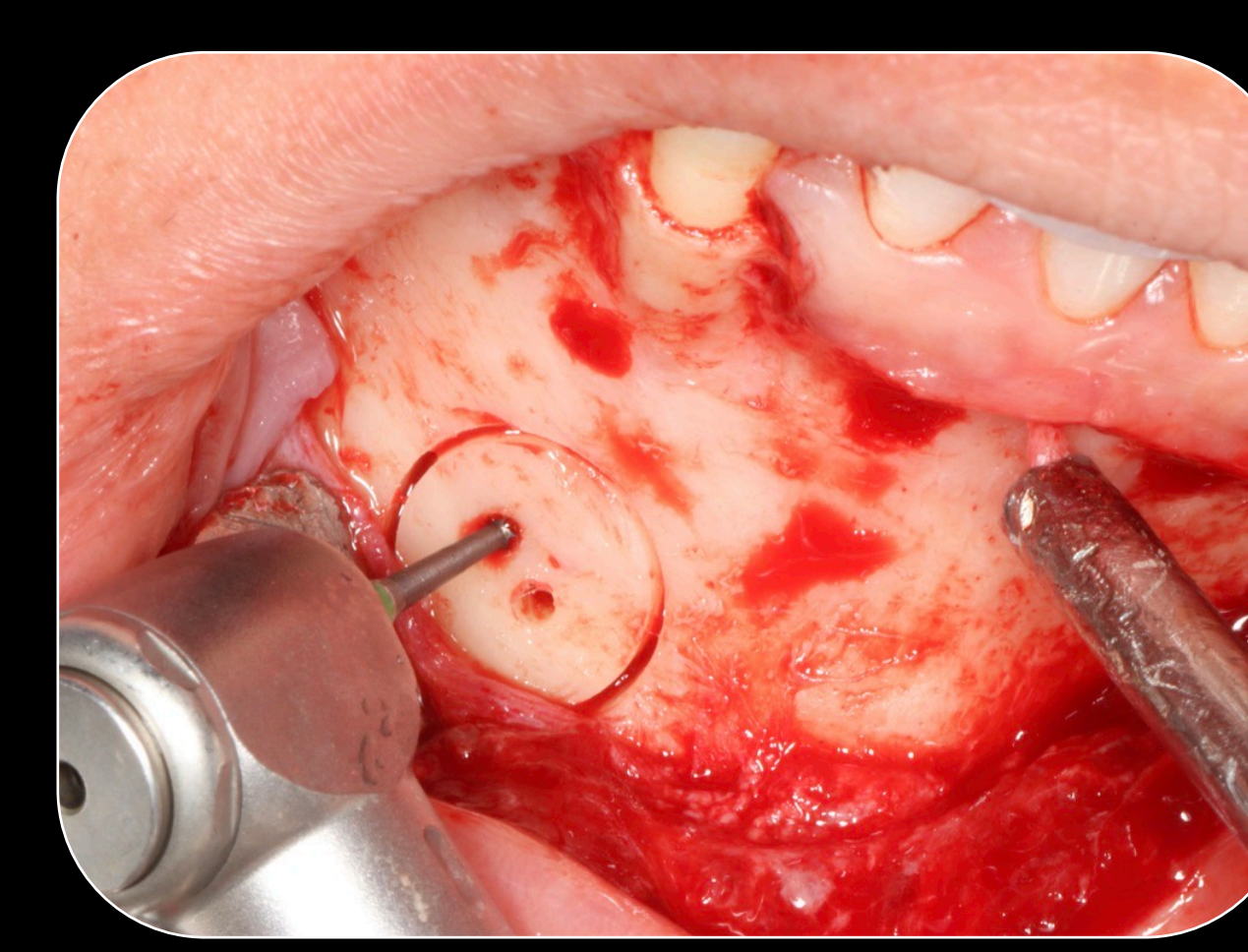
The combination of block and particulate graft harvesting by trephine and bone collector for lateral and vertical augmentation



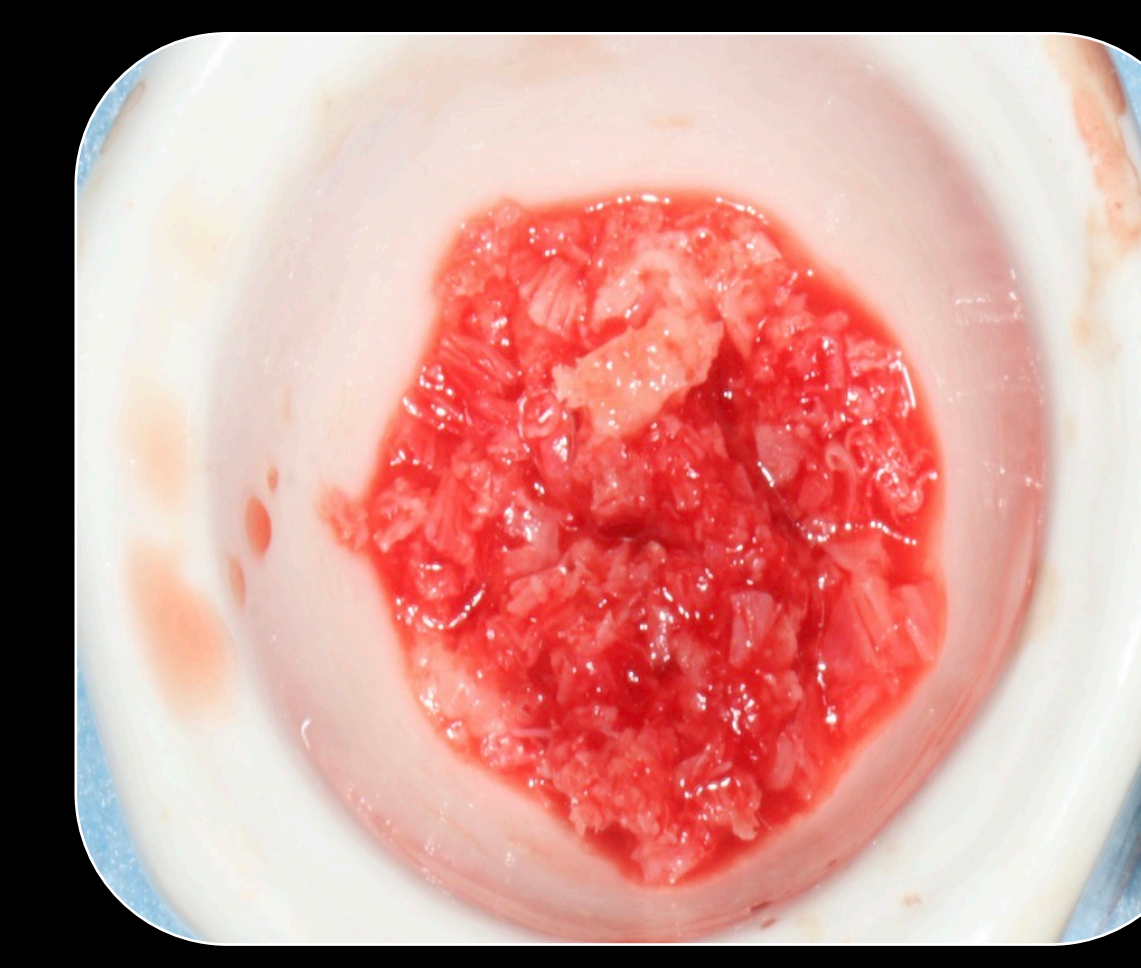
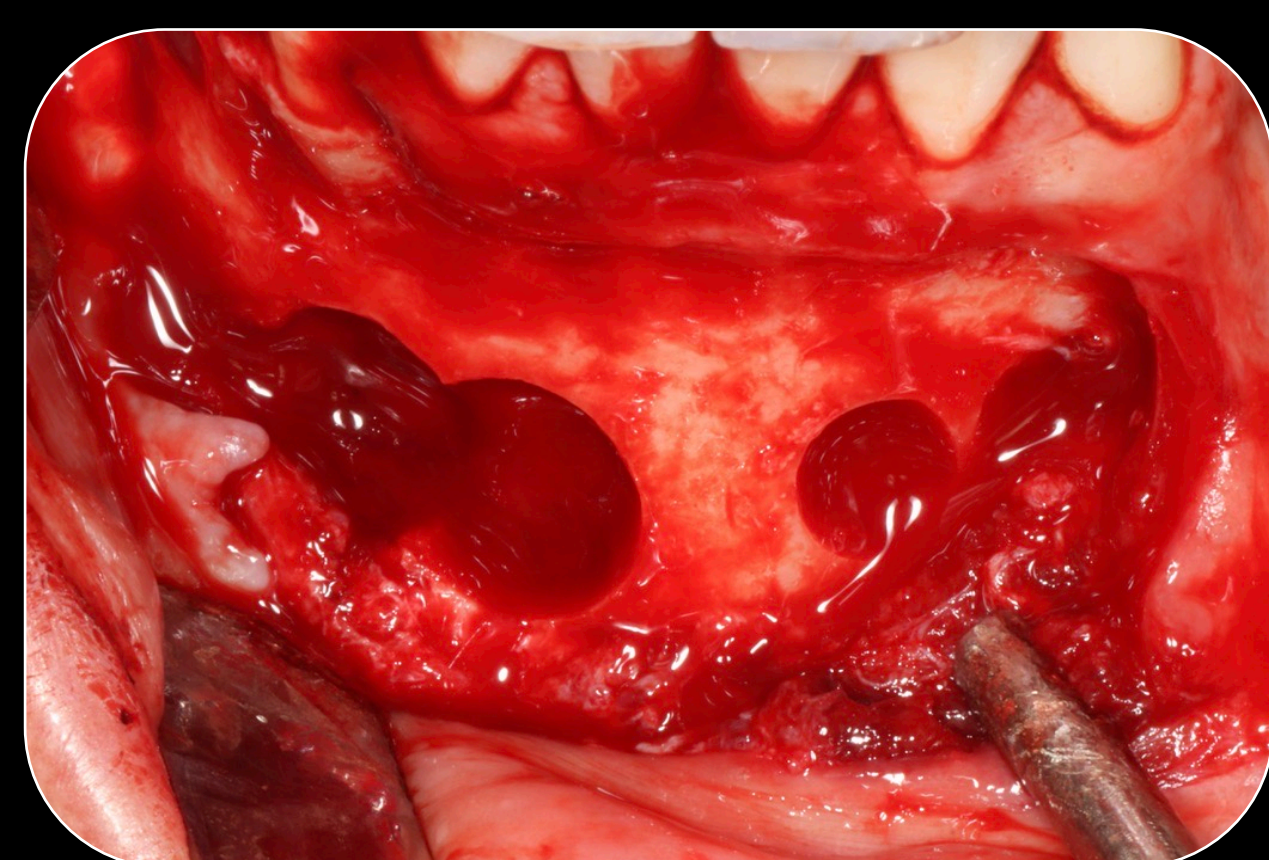
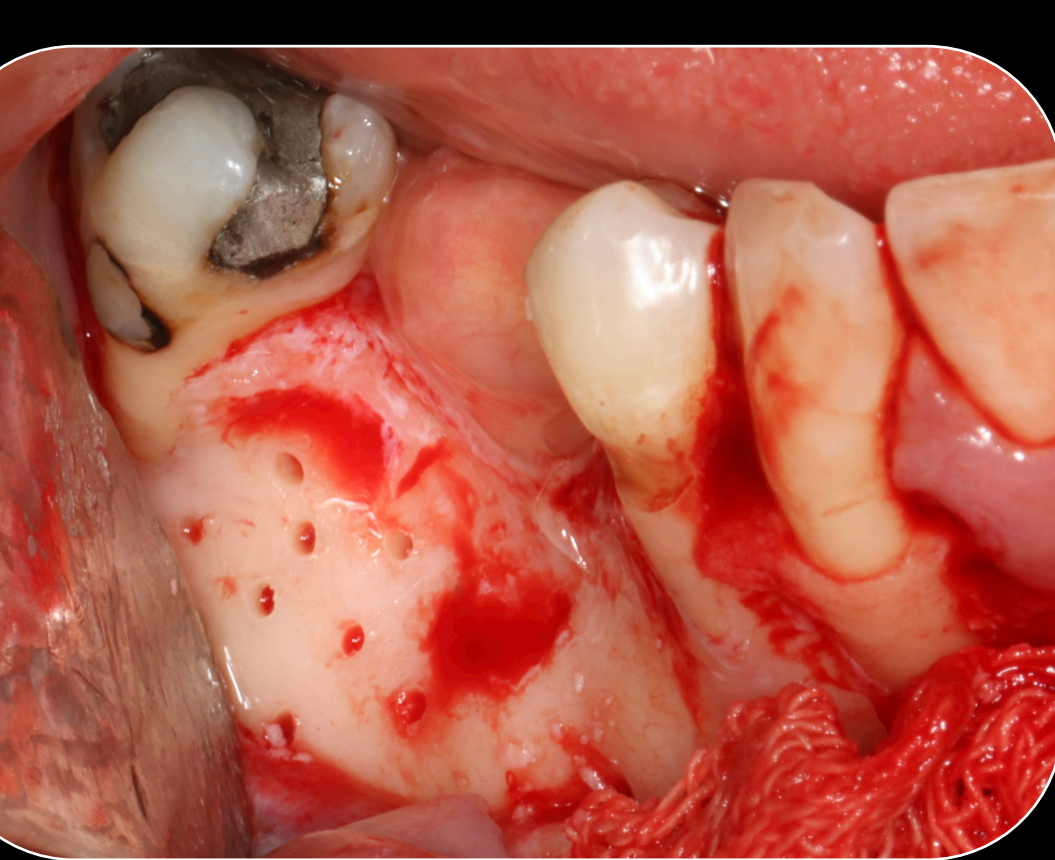
CASE 1: Female, 59 y/o



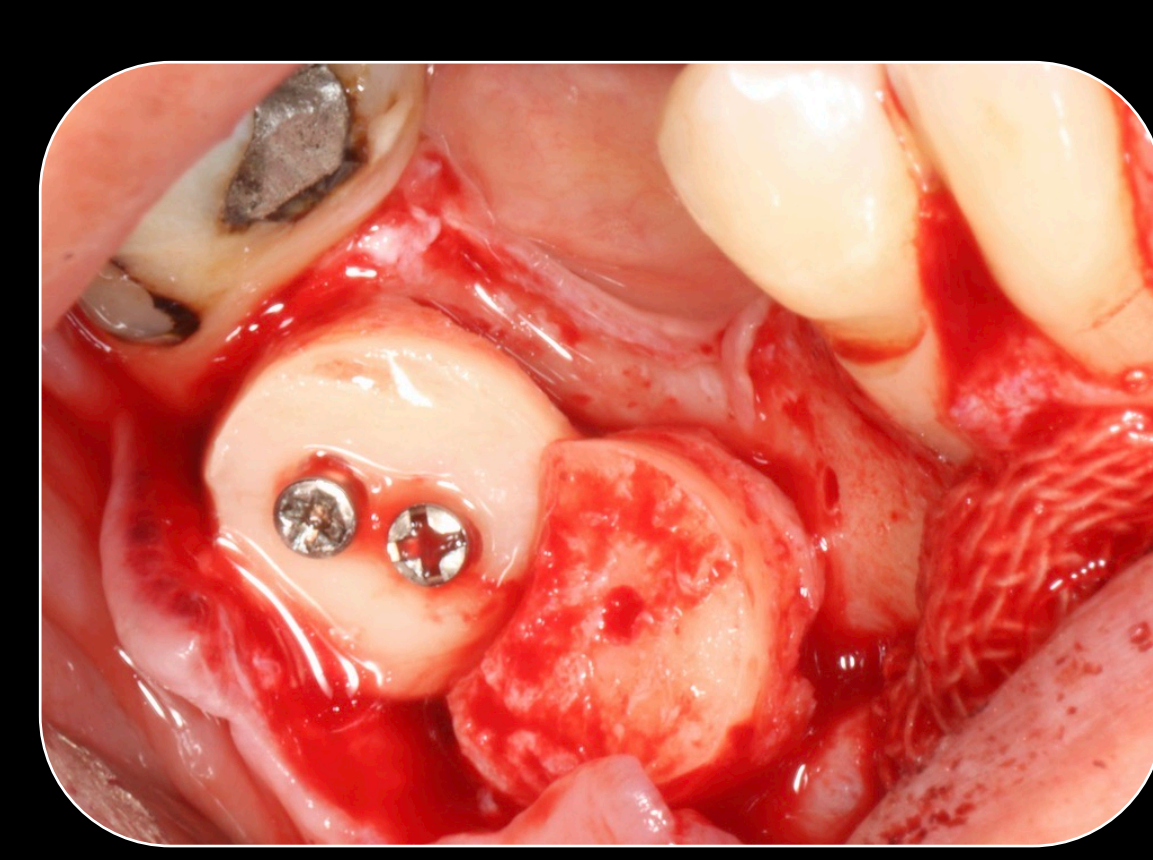
Initial photography



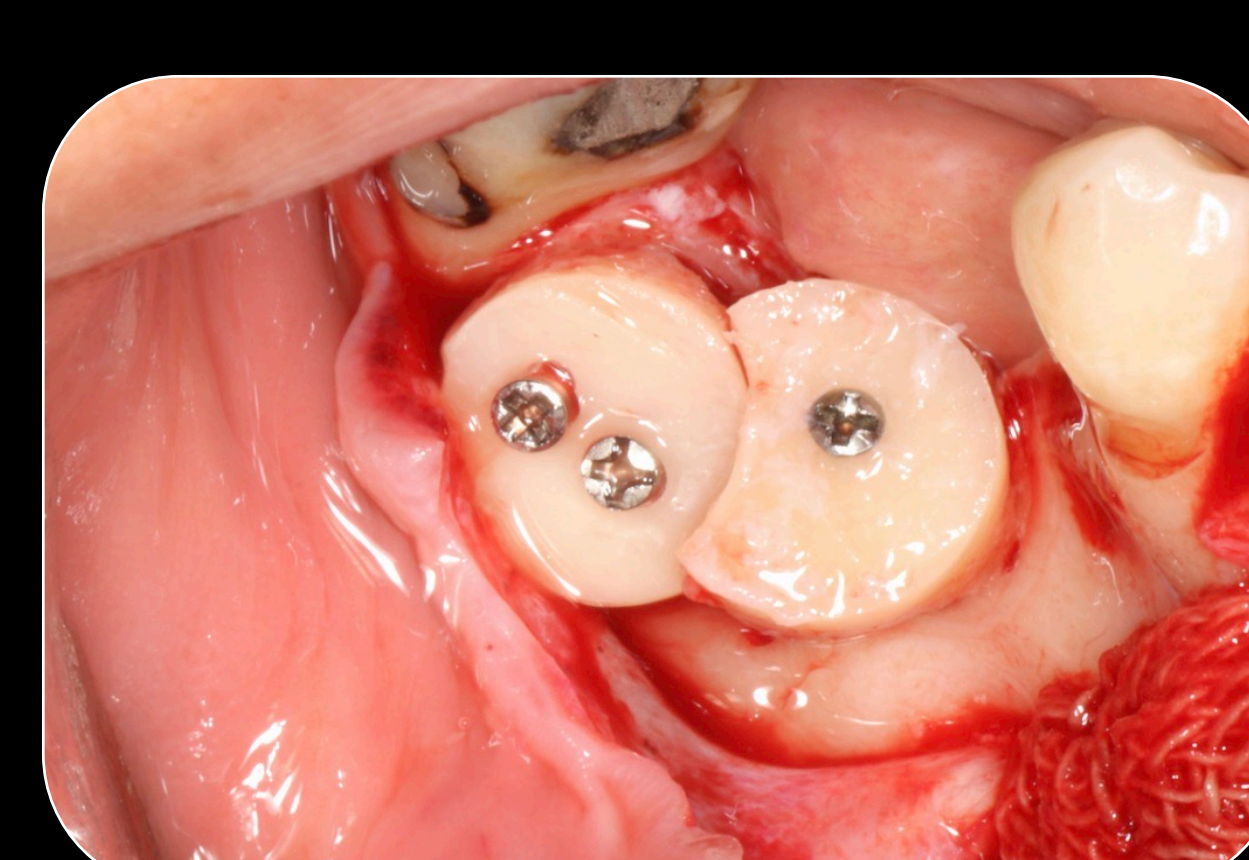
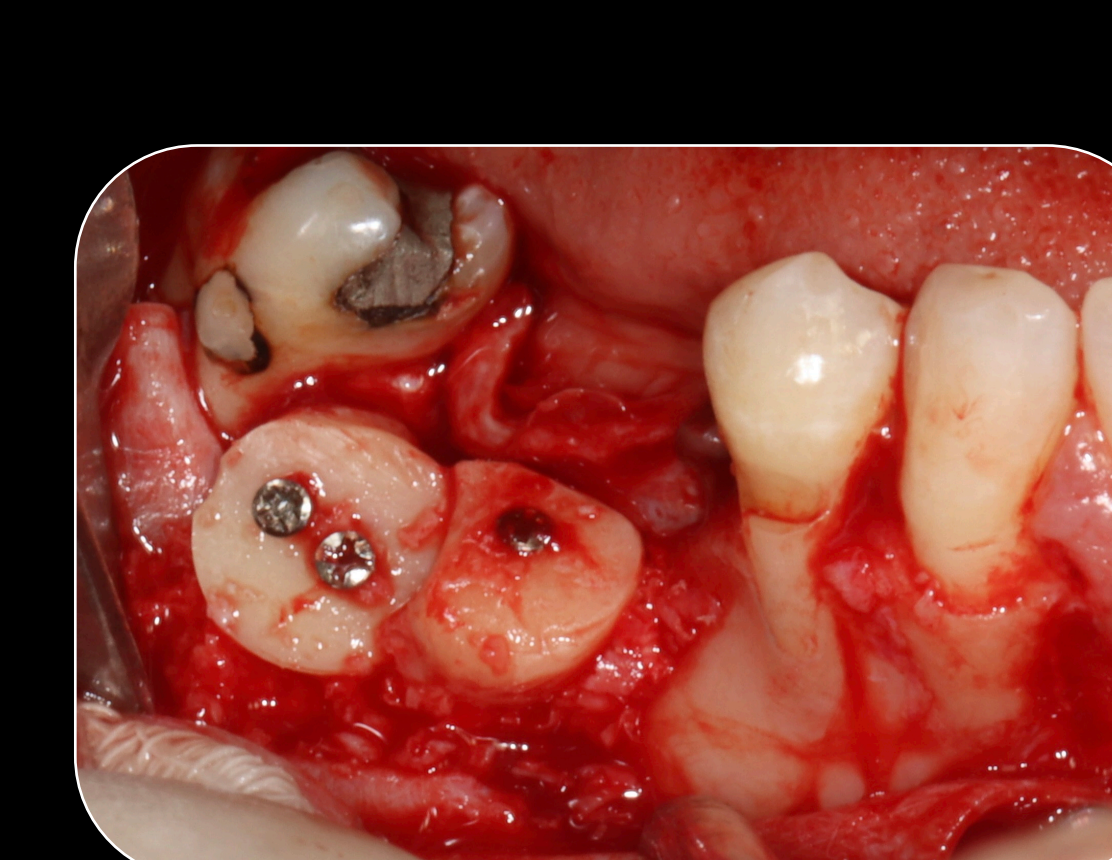
Bone gathering by bone collector



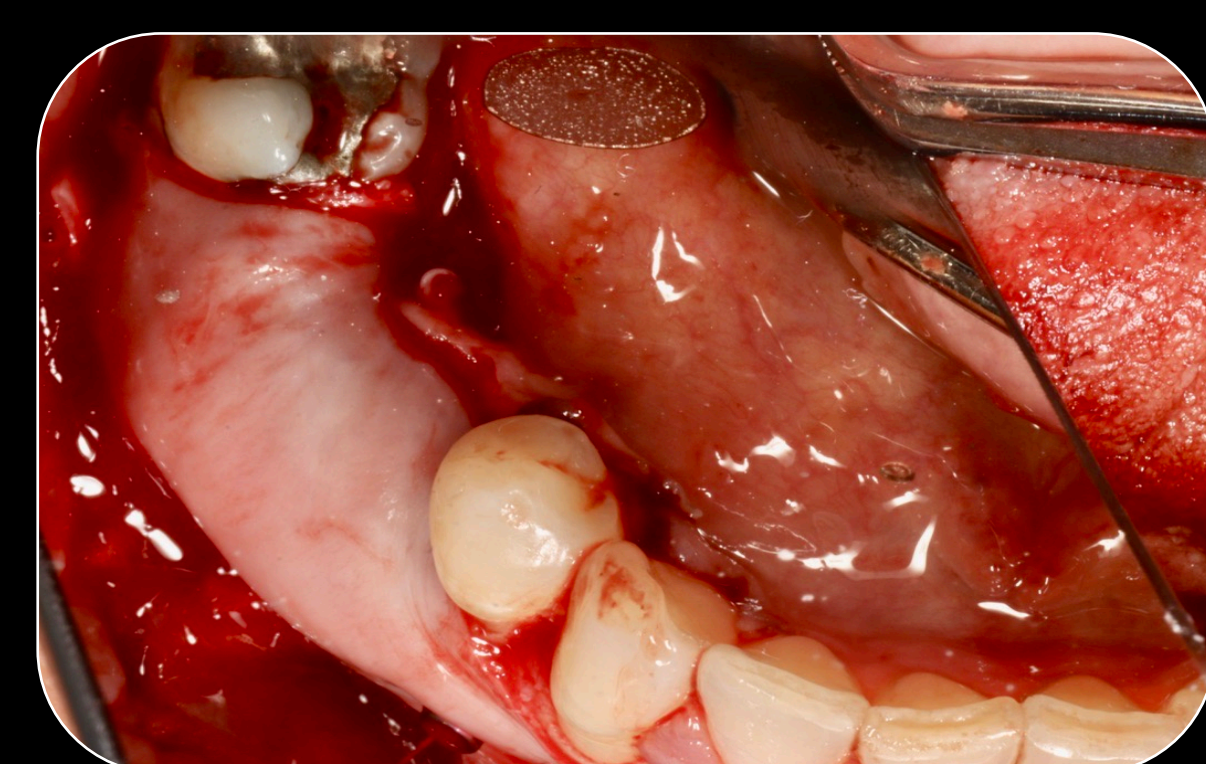
Decortication



Ring fixation by screws



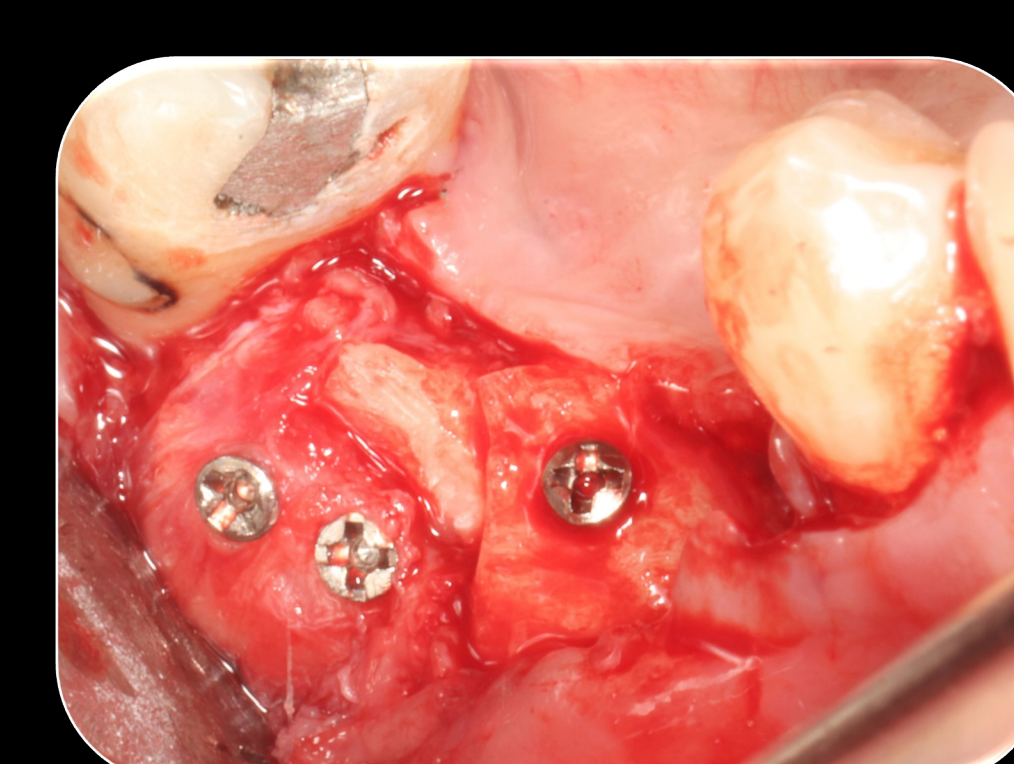
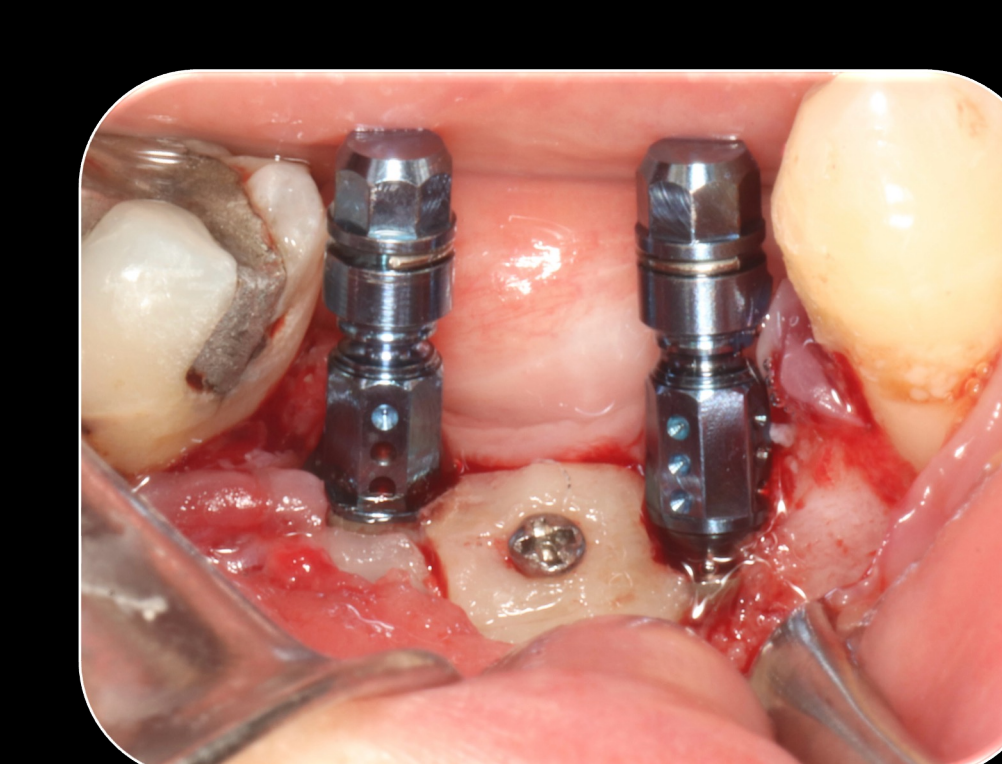
Gap filling



membrane fixation



Flap advancement and closure

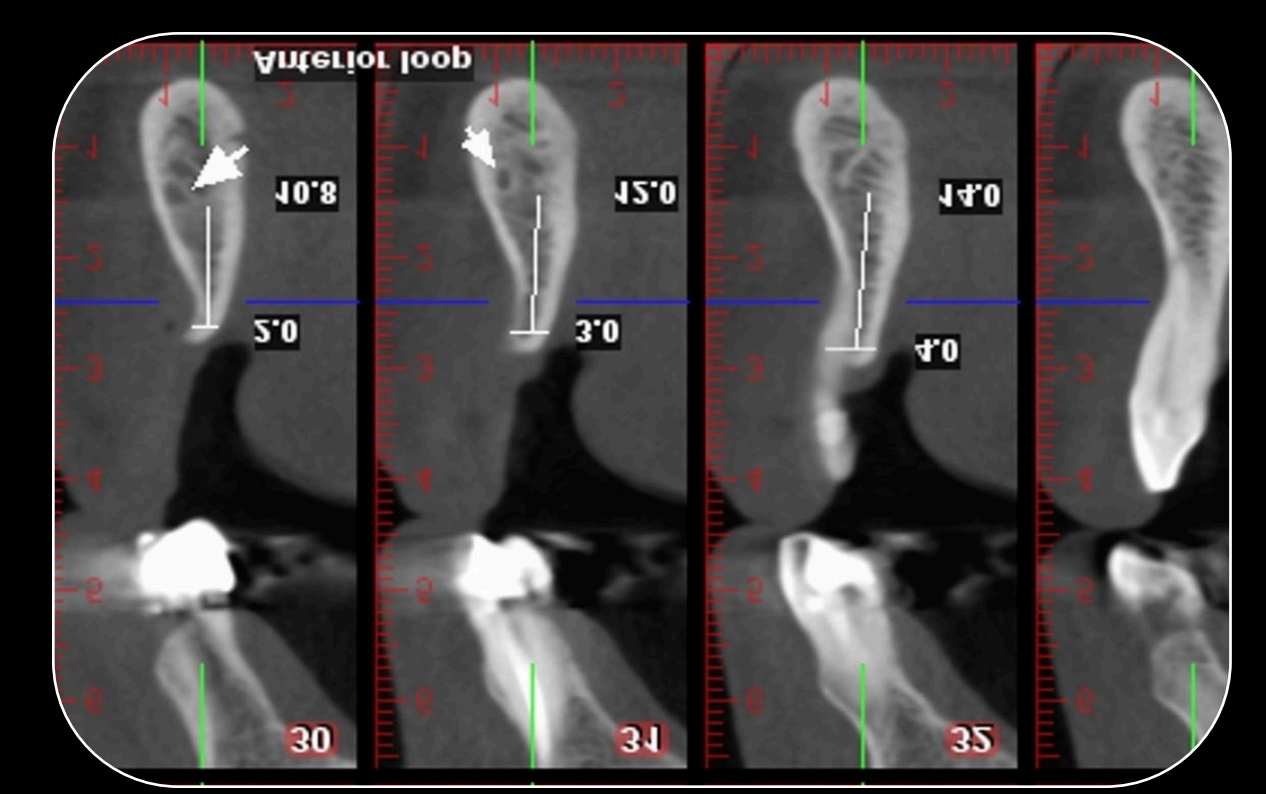


Implant insertion

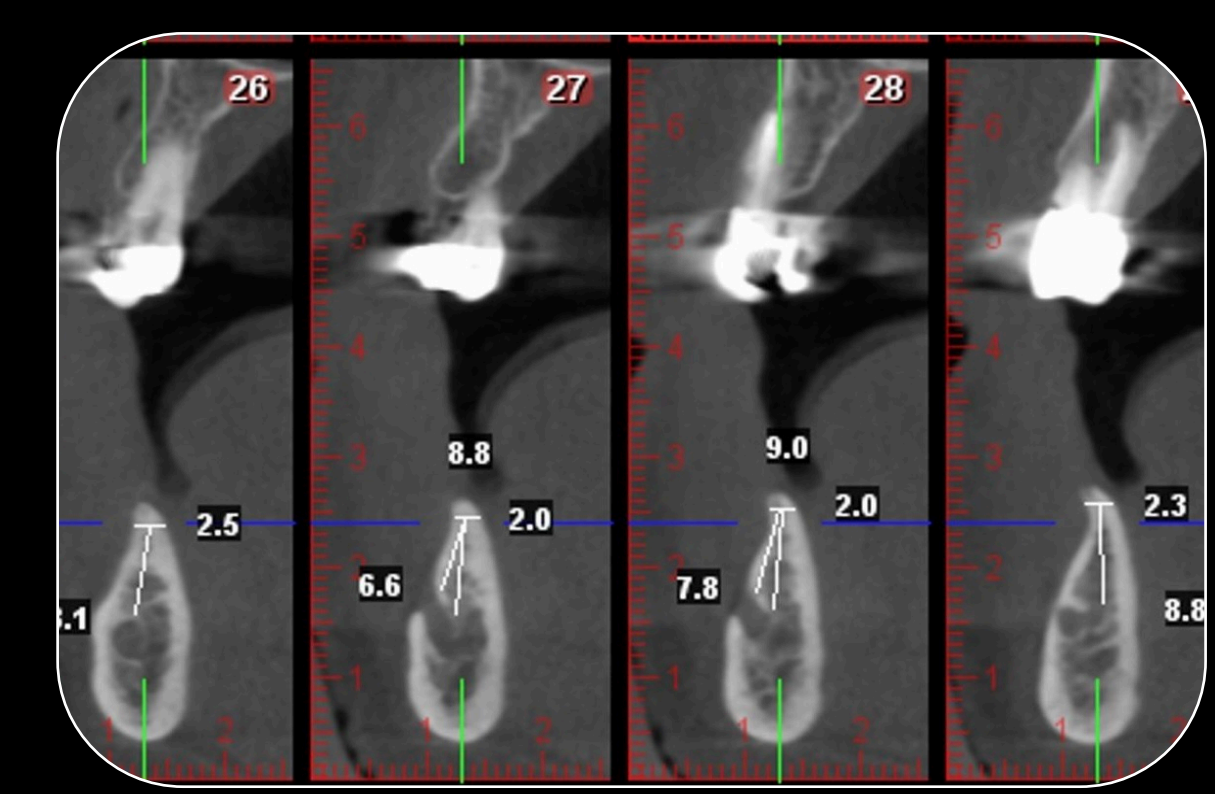
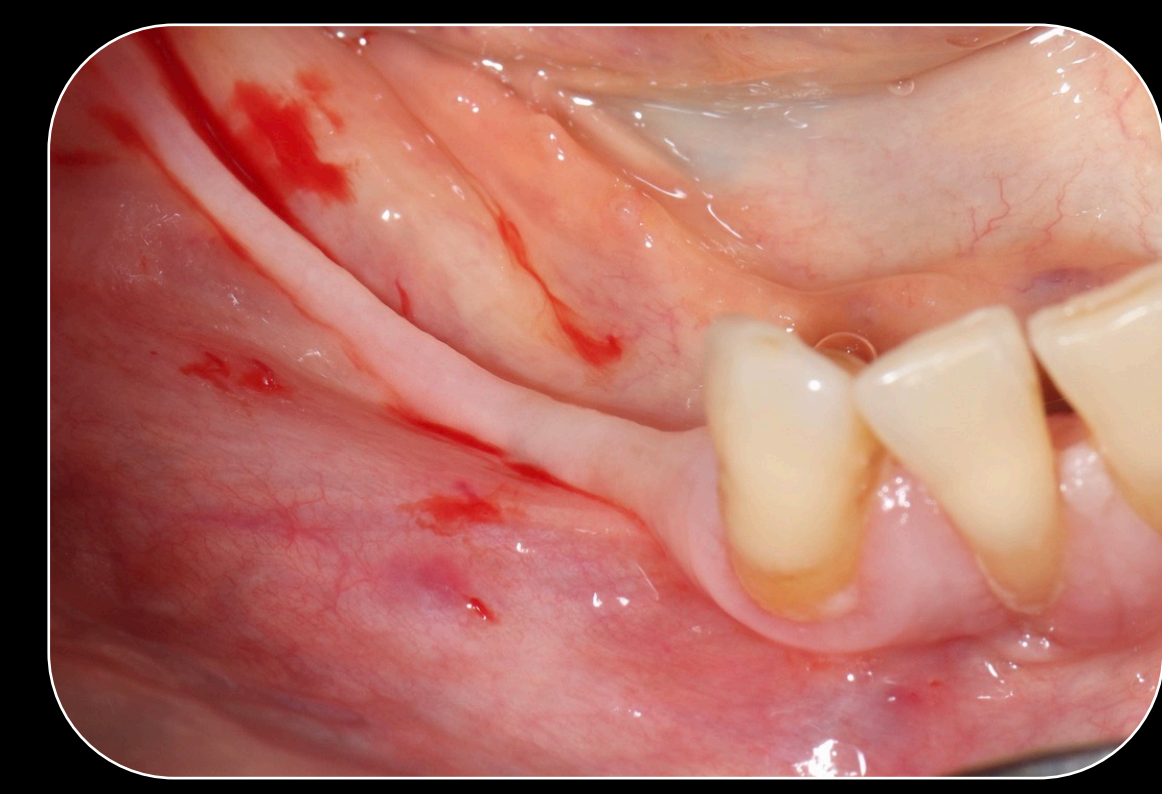




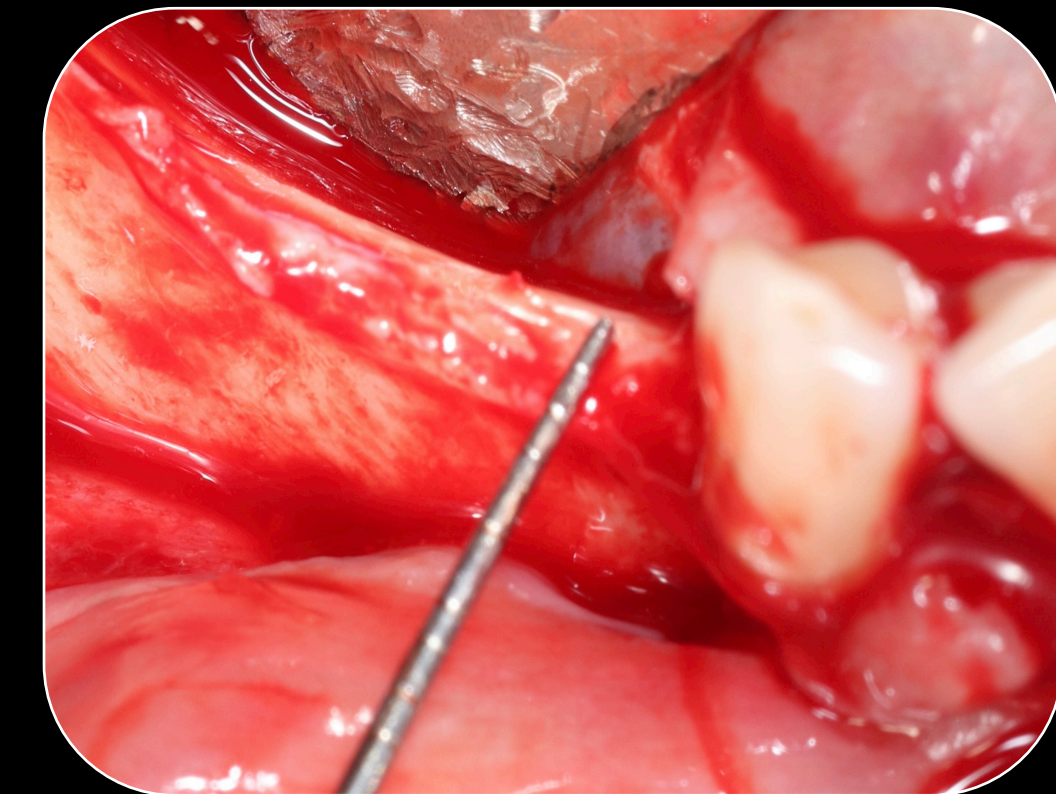
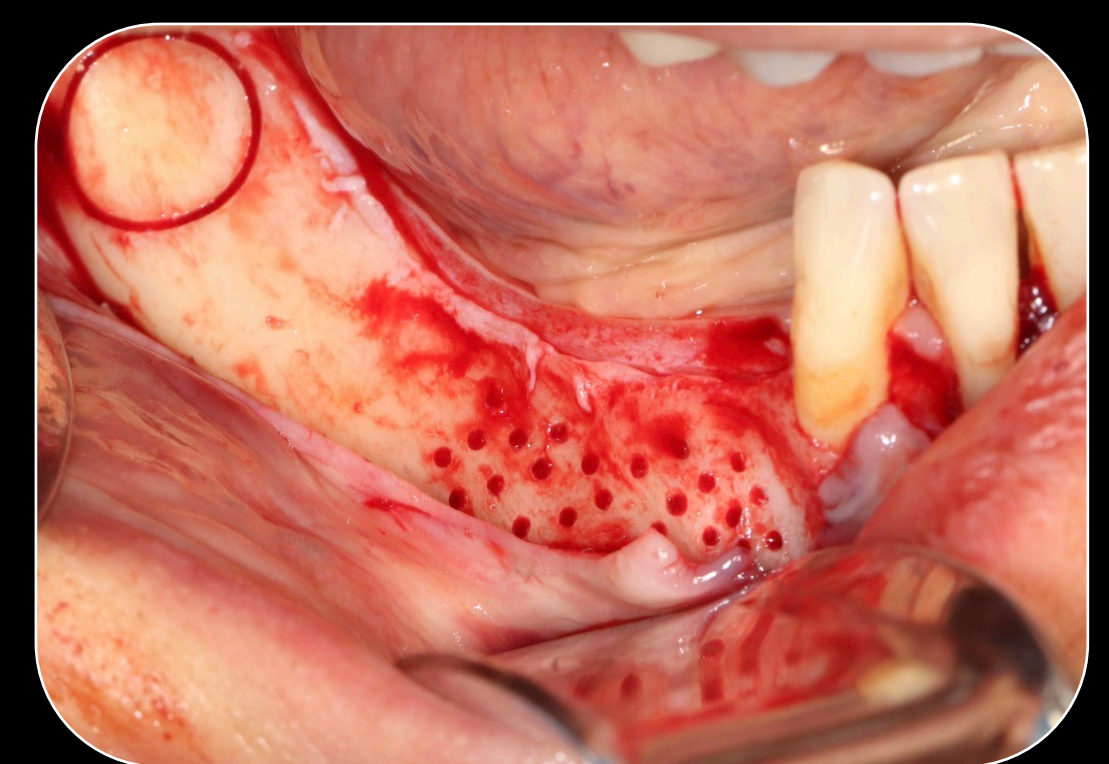
The combination of block and particulate graft harvesting by trephine and bone collector for lateral and vertical augmentation



CASE 2: Female, 44 y/o



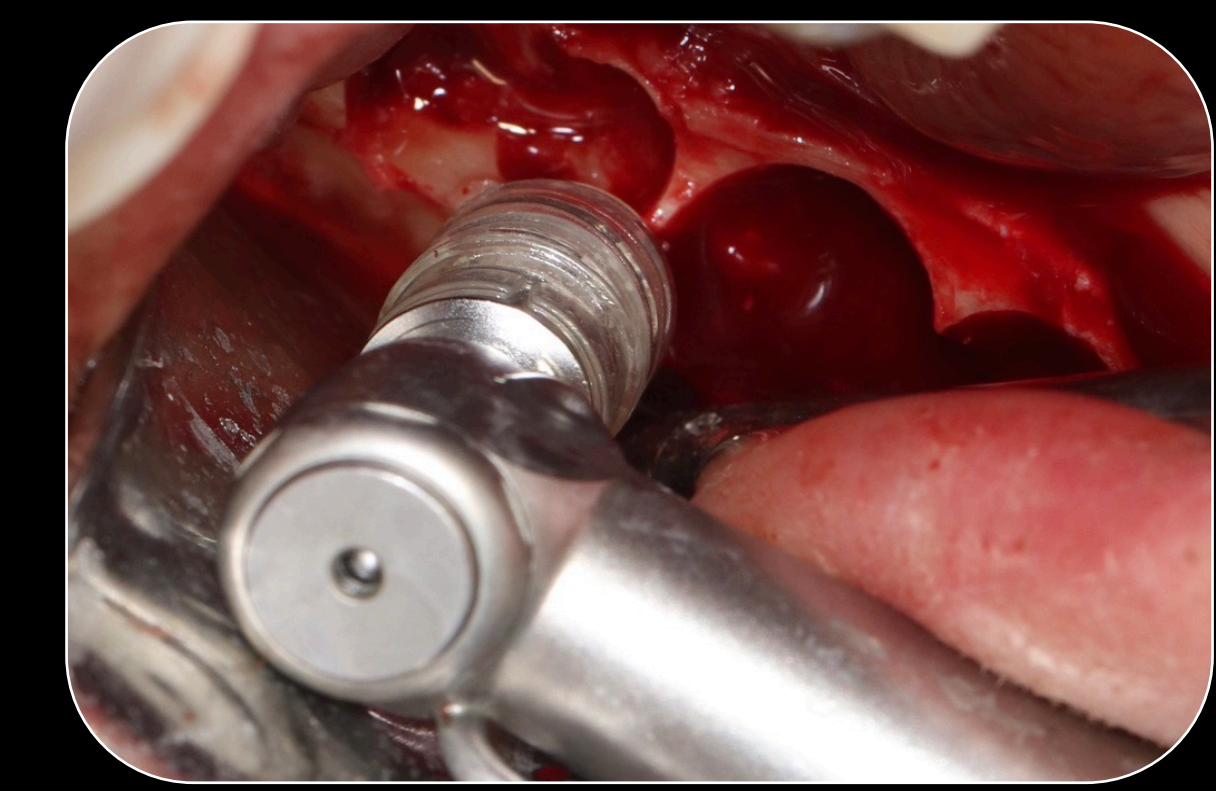
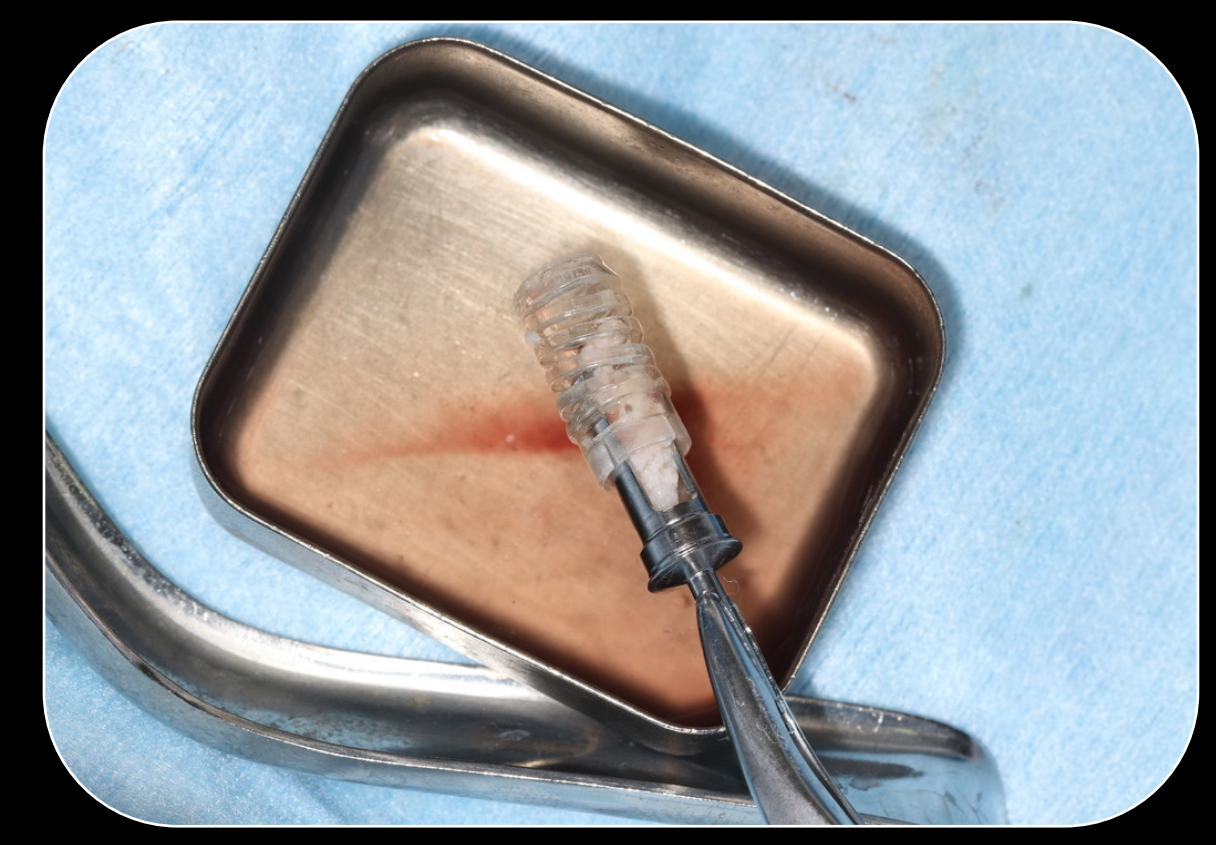
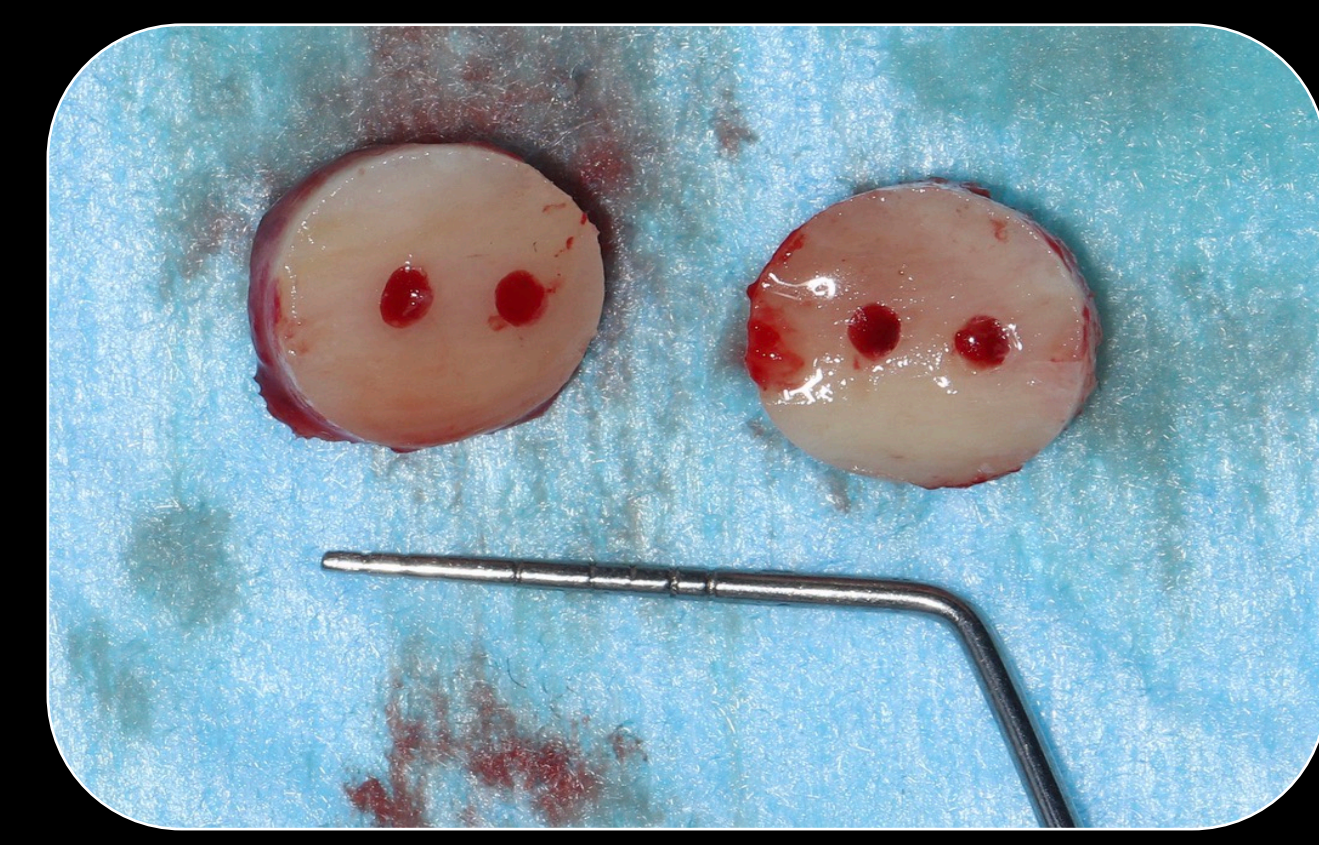
Initial photography



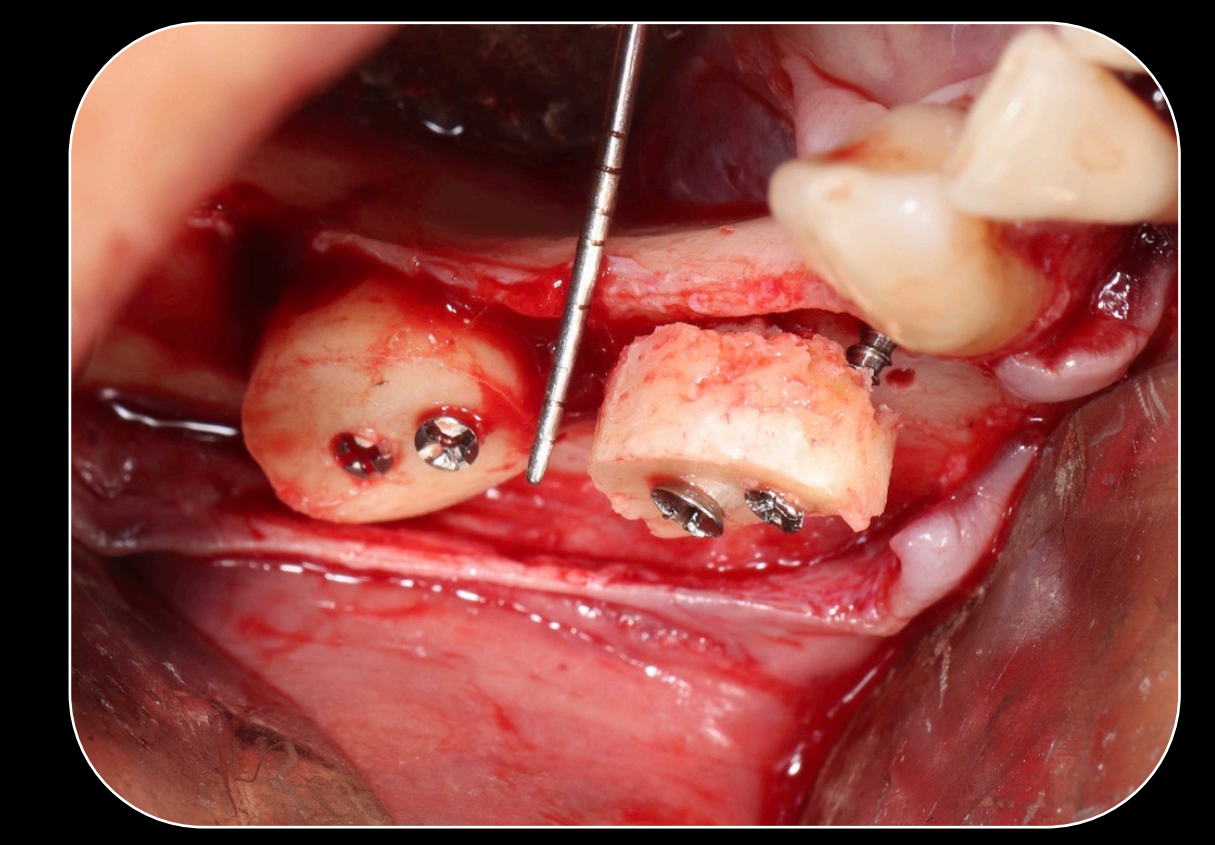
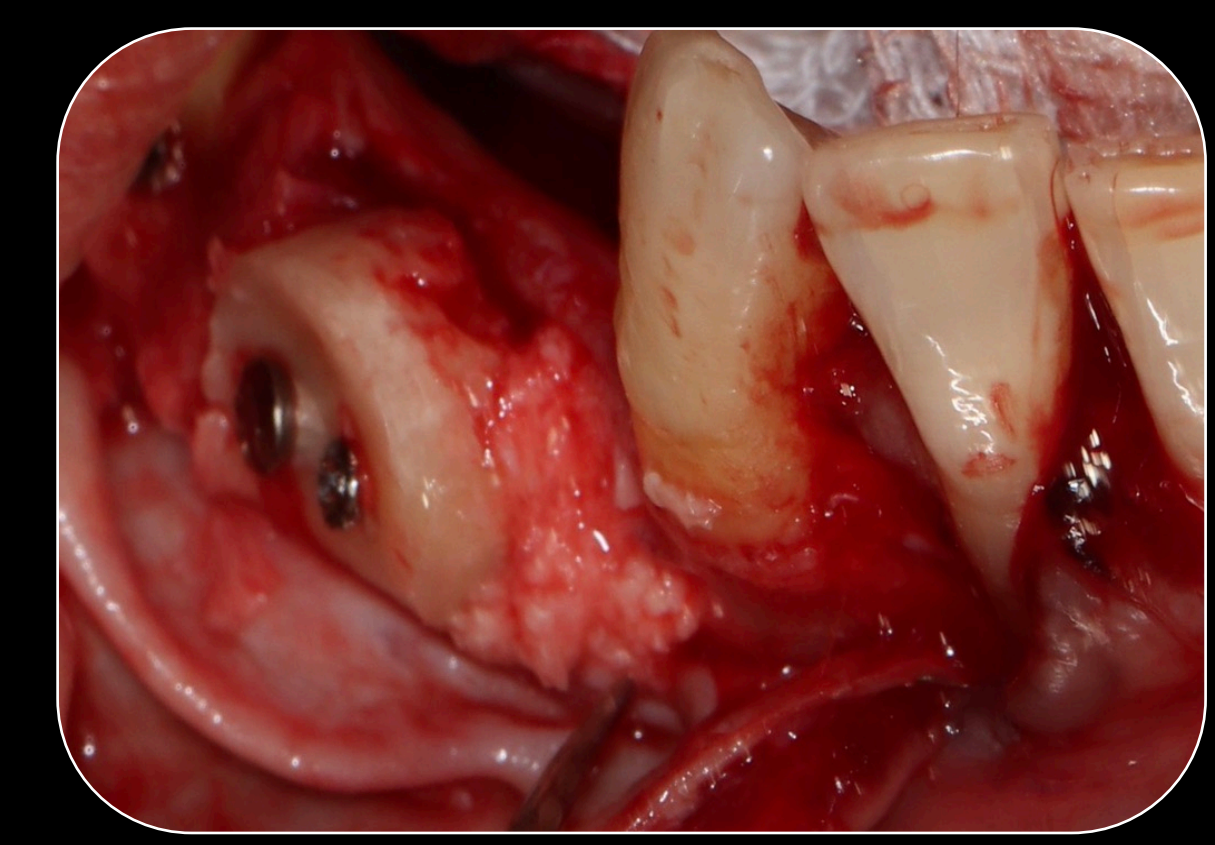
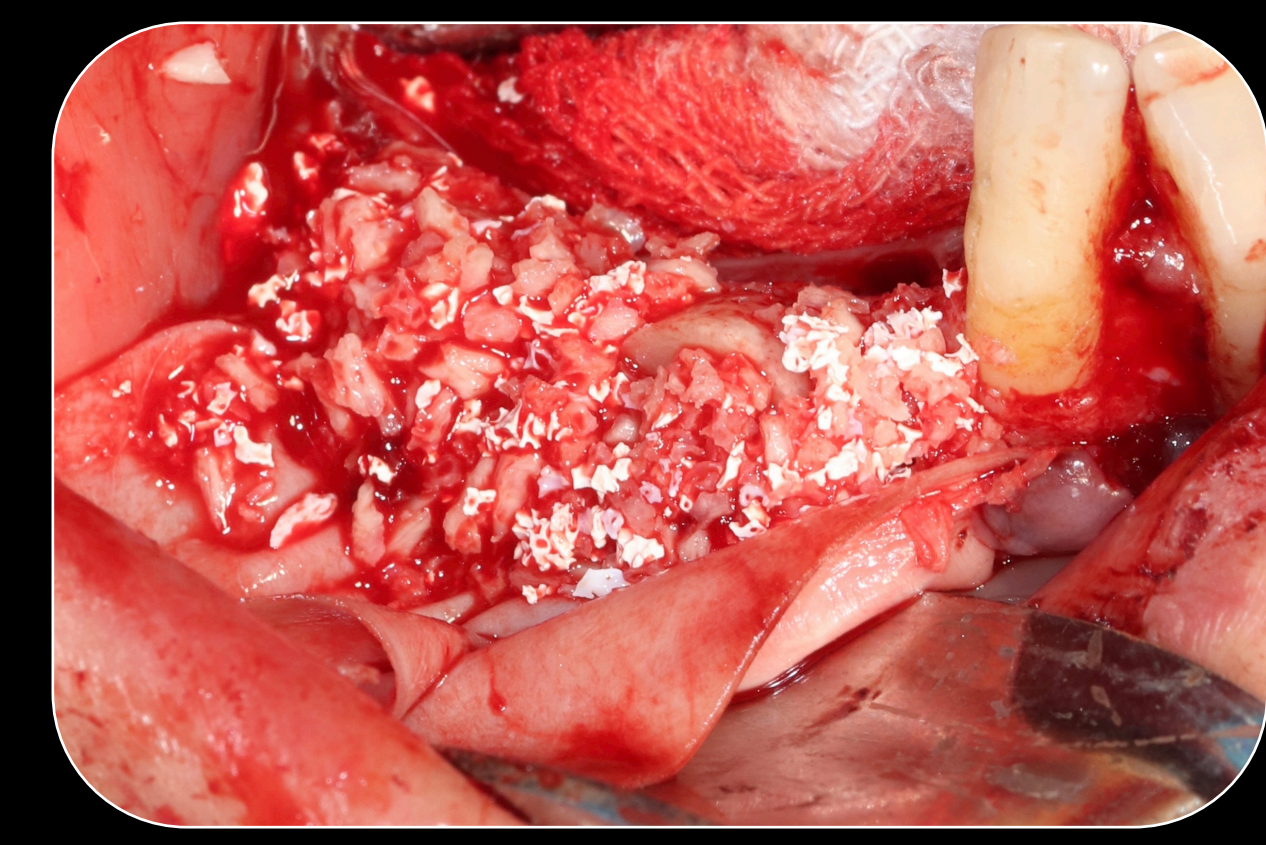
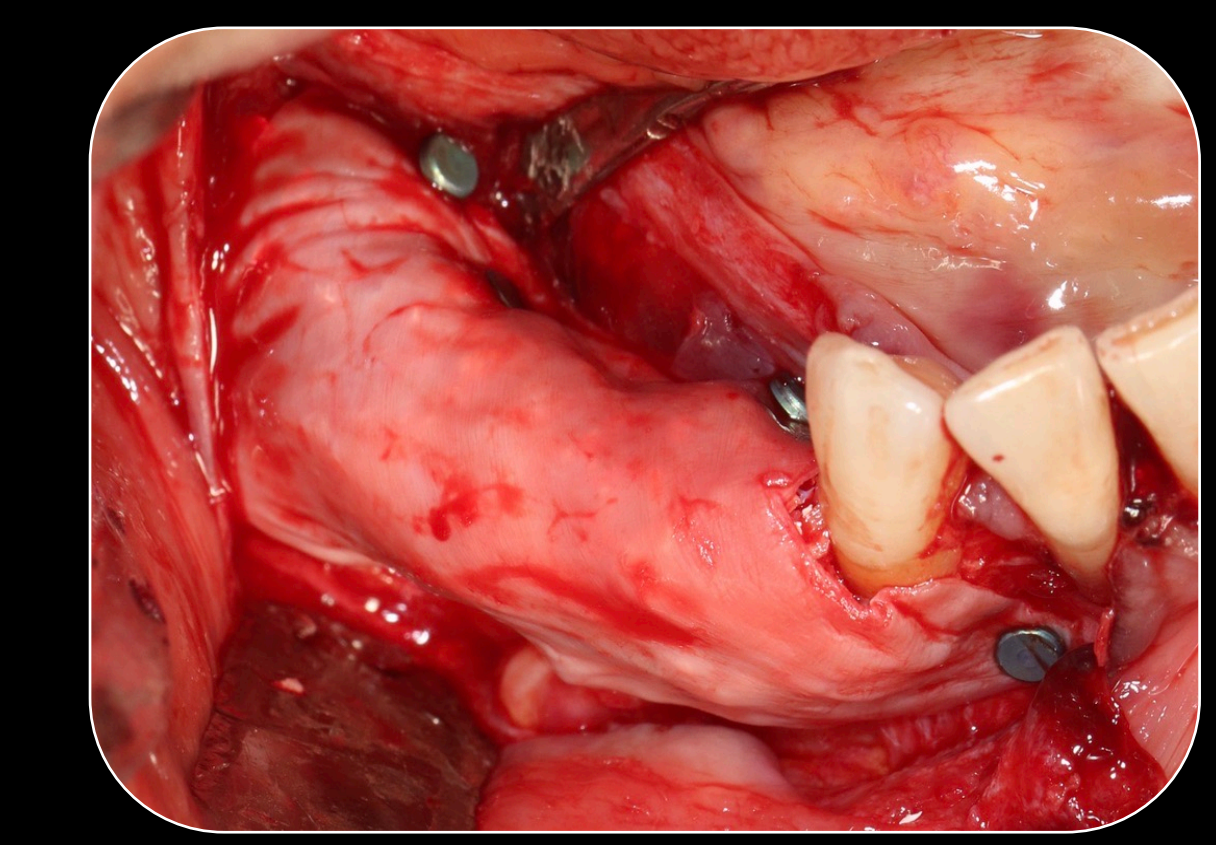
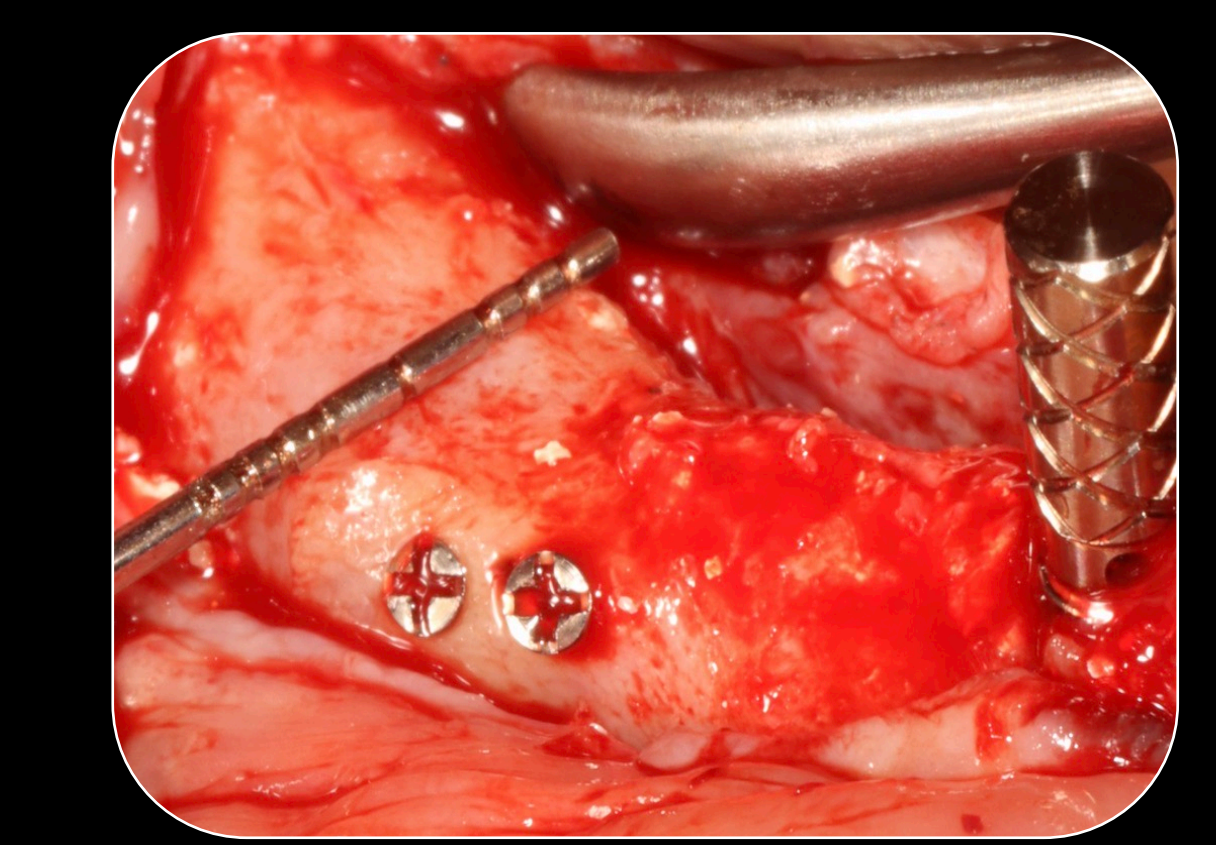
Decortication



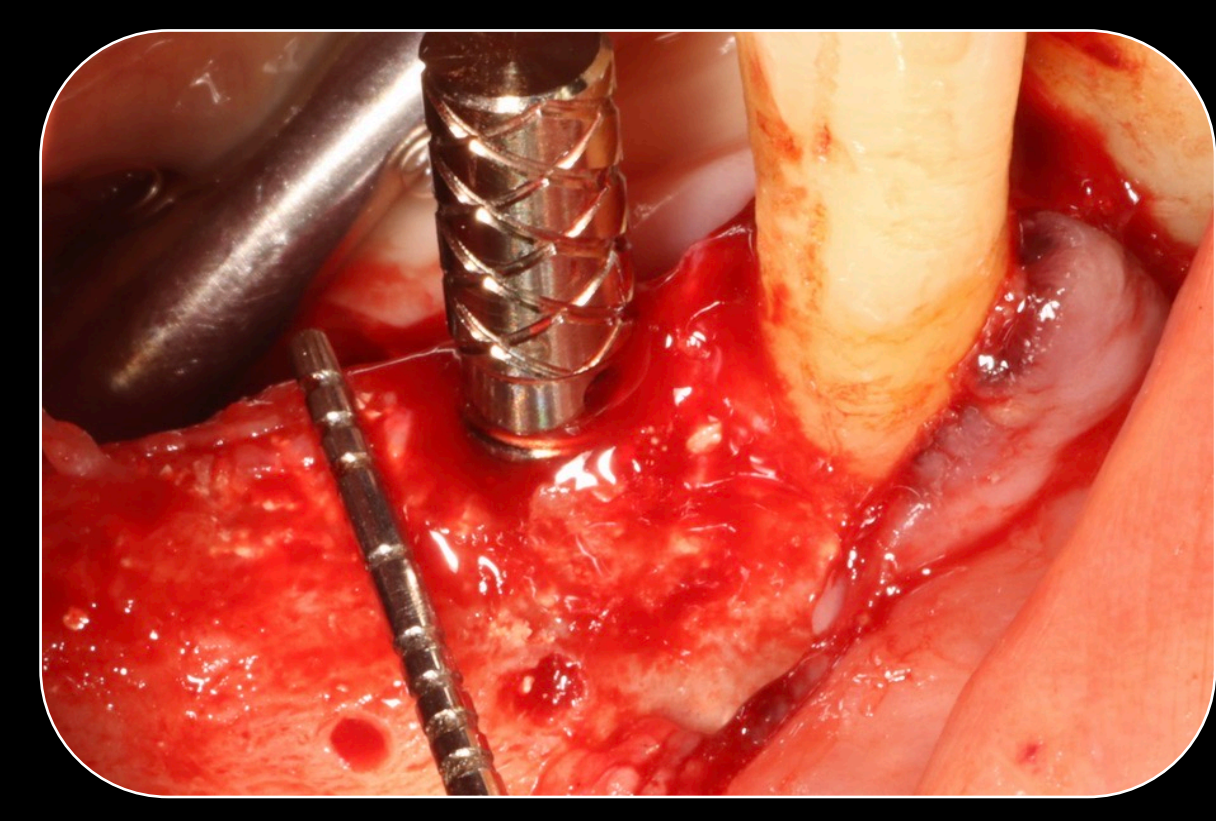
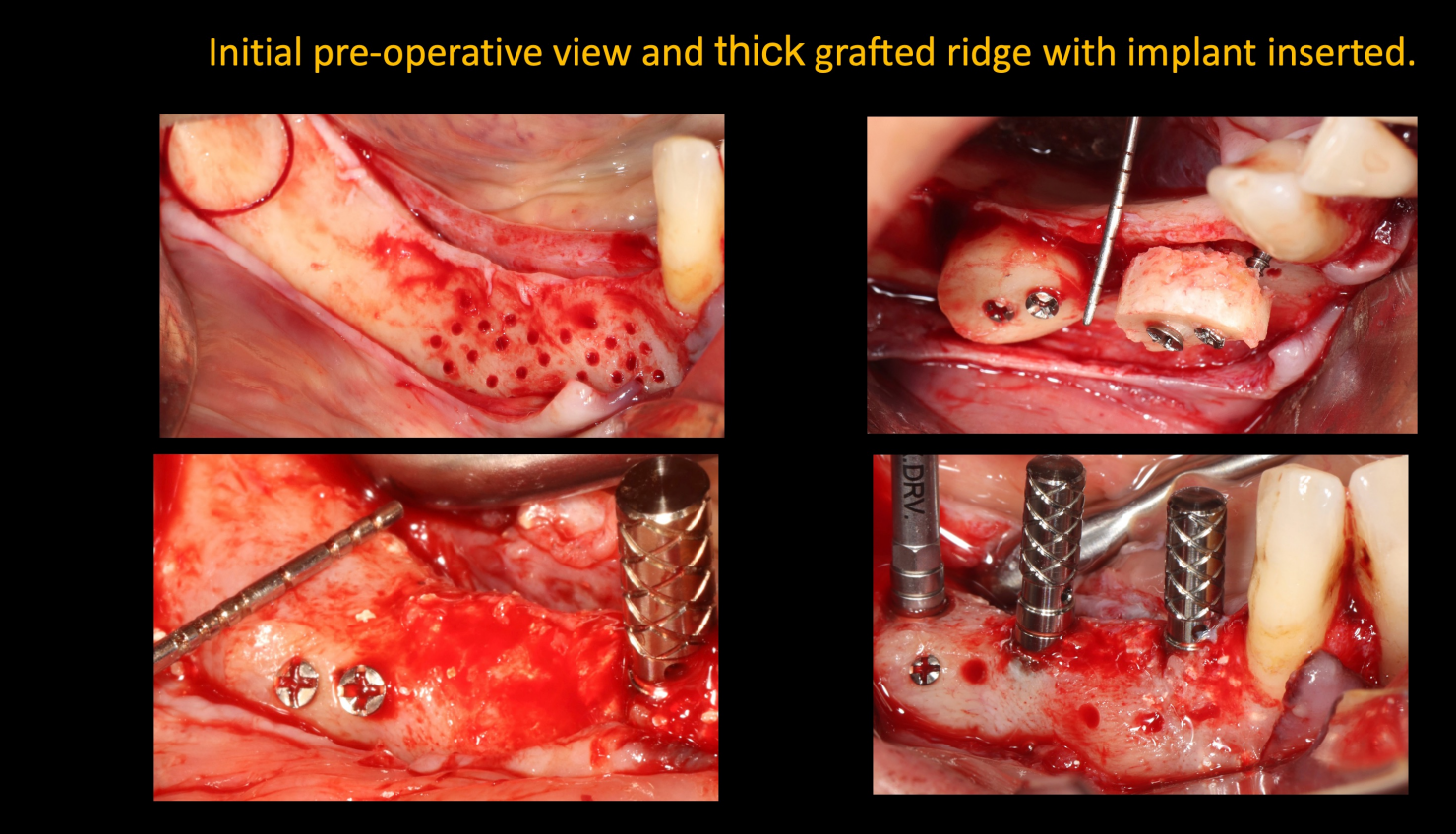
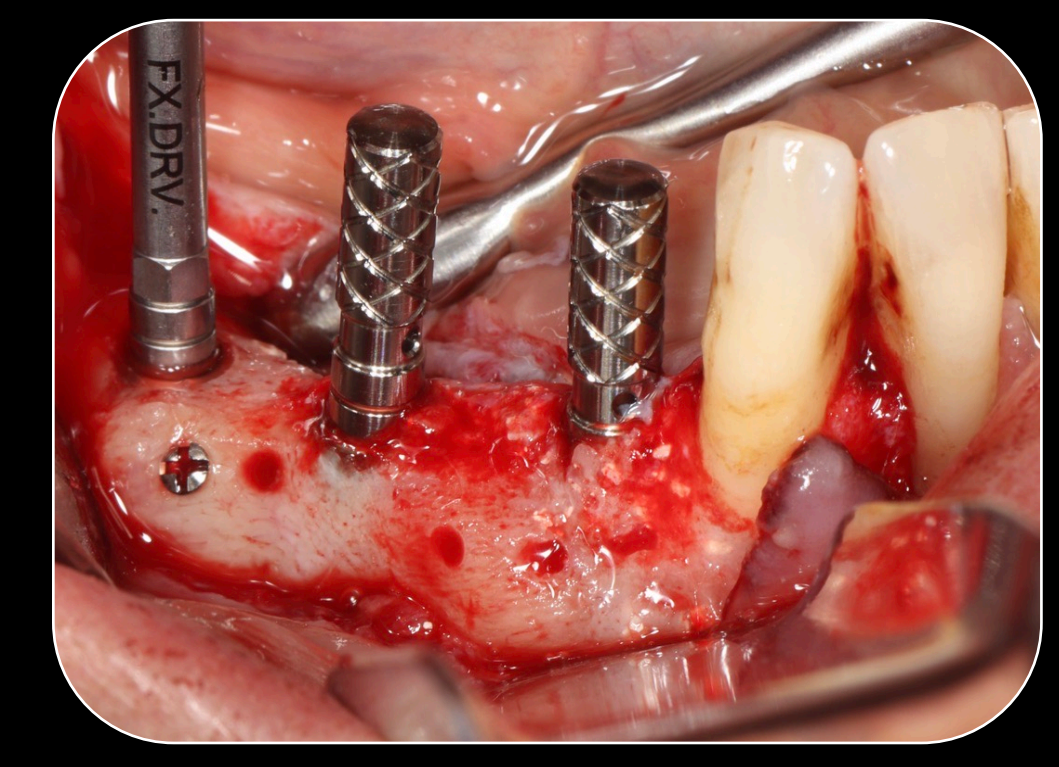
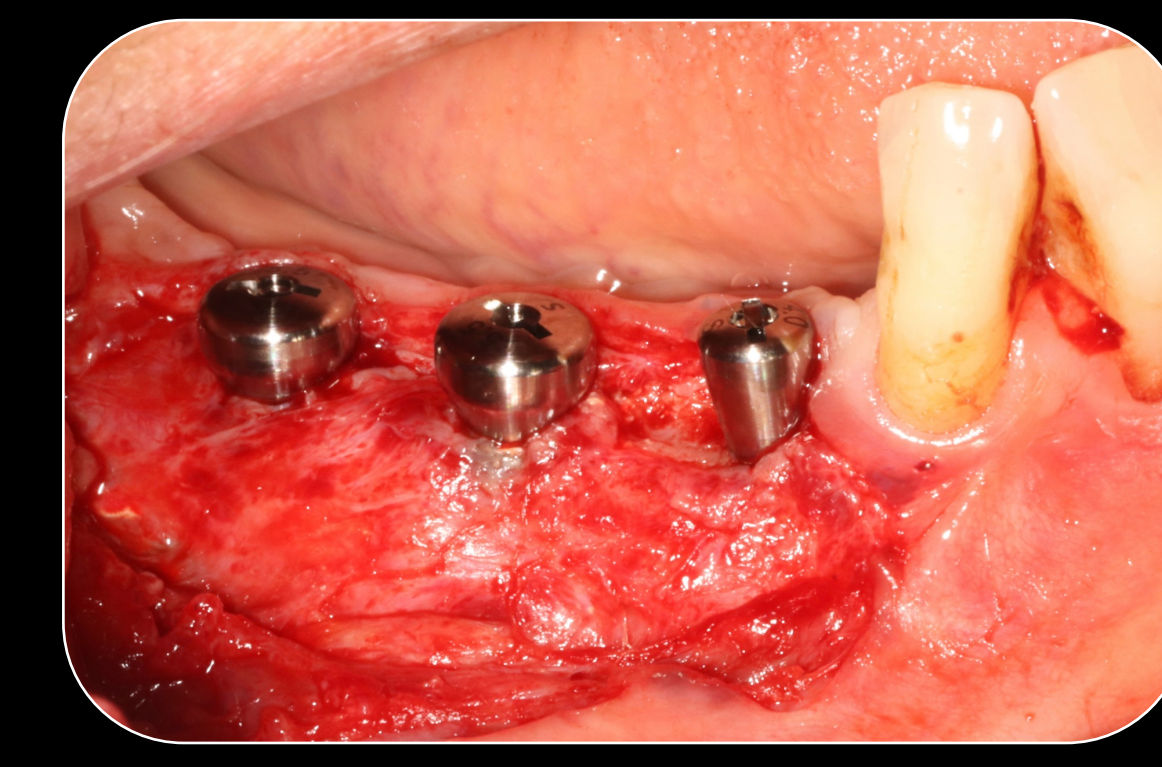
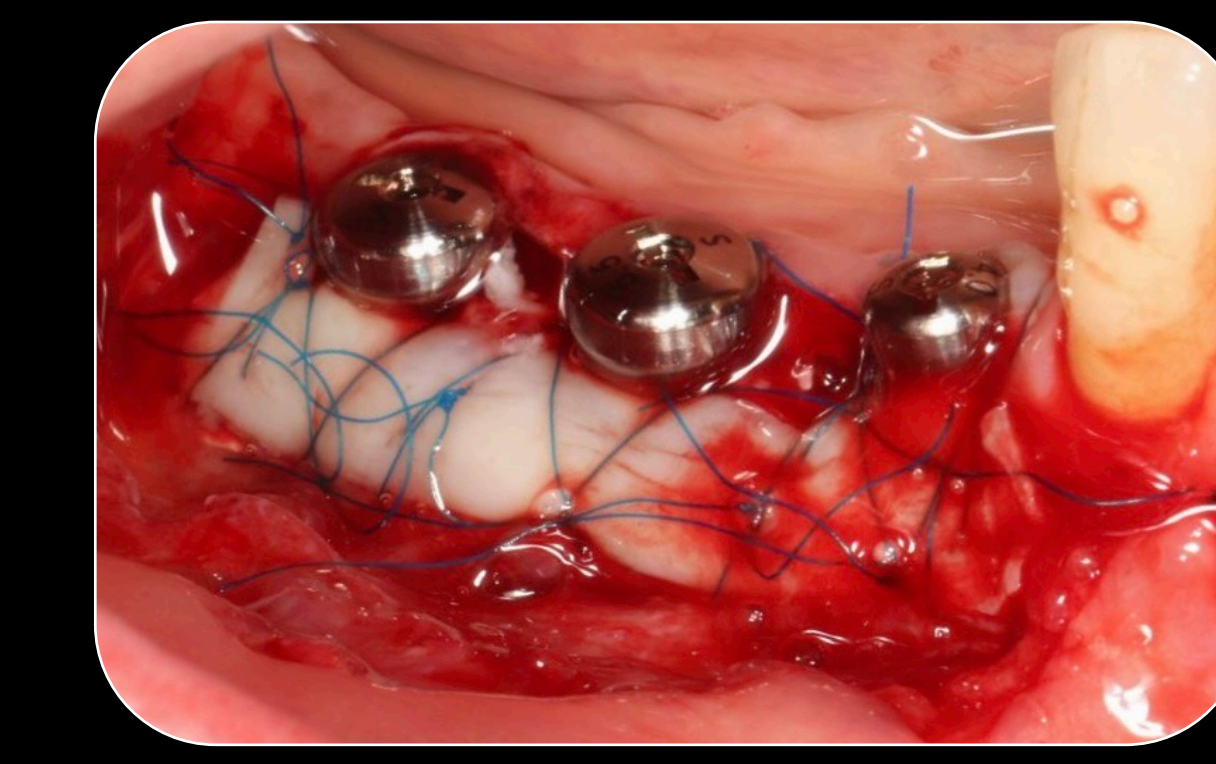
Bone gathering by bone collector



Ring gathering and fixation by screw

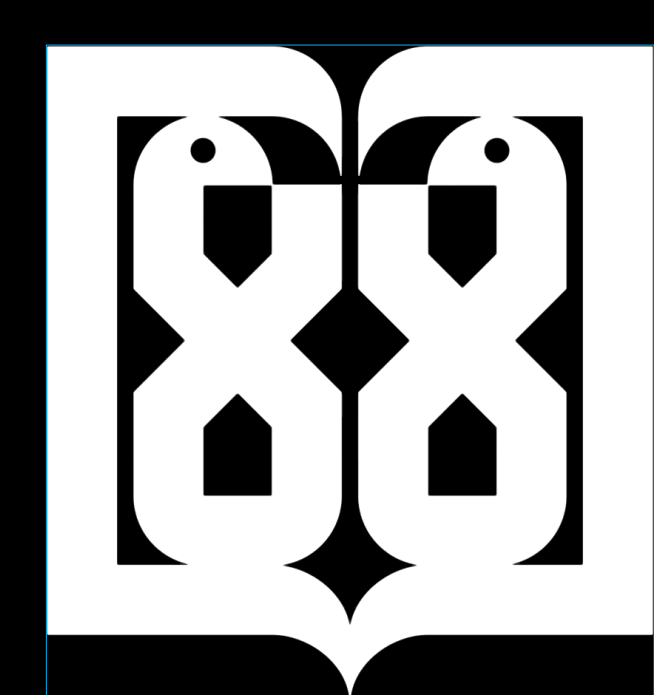


Gap filling and membrane placement



Implant and healing abutment placement

Free gingival graft



The combination of block and particulate graft harvesting by trephine and bone collector for lateral and vertical augmentation

RESULTS

The use of autogenous ring grafts offers a multidimensional solution for addressing implant recipient area challenges. The ring block technique facilitates effective reconstruction of bony defects in both horizontal and vertical dimensions, often simultaneously. Accurate clinical examinations and radiographic assessments, particularly using precise cone beam computed tomography (CBCT), are crucial for identifying the configuration and dimensions of bony defects, ultimately leading to an appropriate treatment plan for subsequent implant placement.

CONCLUSION

Alveolar ridge reconstruction prior to implant placement is a vital step for ensuring implant success. Innovative techniques, such as the ring block method, can yield multiple positive outcomes in implant treatment and enhance the long-term prognosis of dental implants.

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1. Alami M, Ntovas N, Penne G, Teughels W, Quirynen M, Castro A, Temmerman A. Ten-Year Follow-Up of Oral Implants in Bone With Limited Bucco-Oral Dimensions: A Prospective Case Series. *Journal of Clinical Periodontology*. 2024 Sep 25.
2. Andre A, Ogle OE. Vertical and horizontal augmentation of deficient maxilla and mandible for implant placement. *Dental Clinics*. 2021 Jan 1;65(1):103-23.
3. Monje, A., A. Roccuzzo, D. Buser, and H. L. Wang. 2023. "Influence of Buccal Bone Wall Thickness on the Peri-Implant Hard and Soft Tissue Dimensional Changes: A Systematic Review." *Clinical Oral Implants Research* 34, no. 3: 157–176.