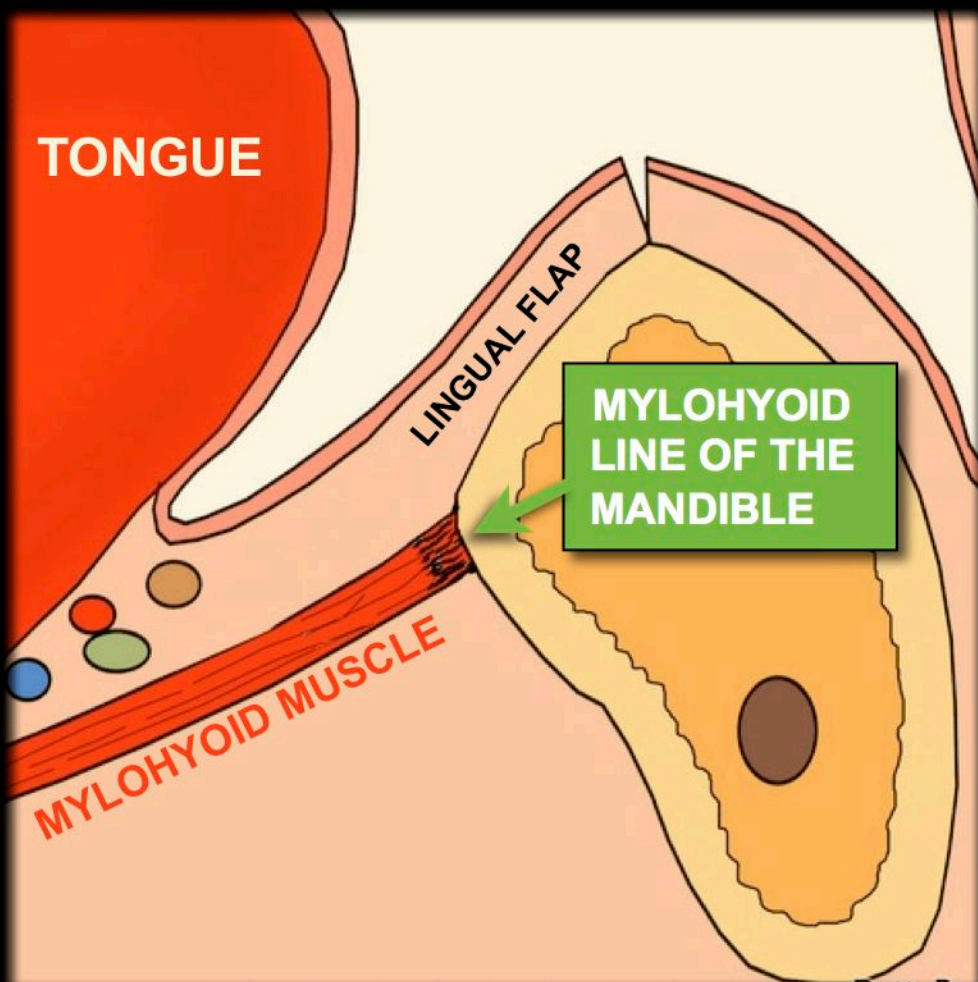


CORONAL ADVANCEMENT OF THE LINGUAL FLAP

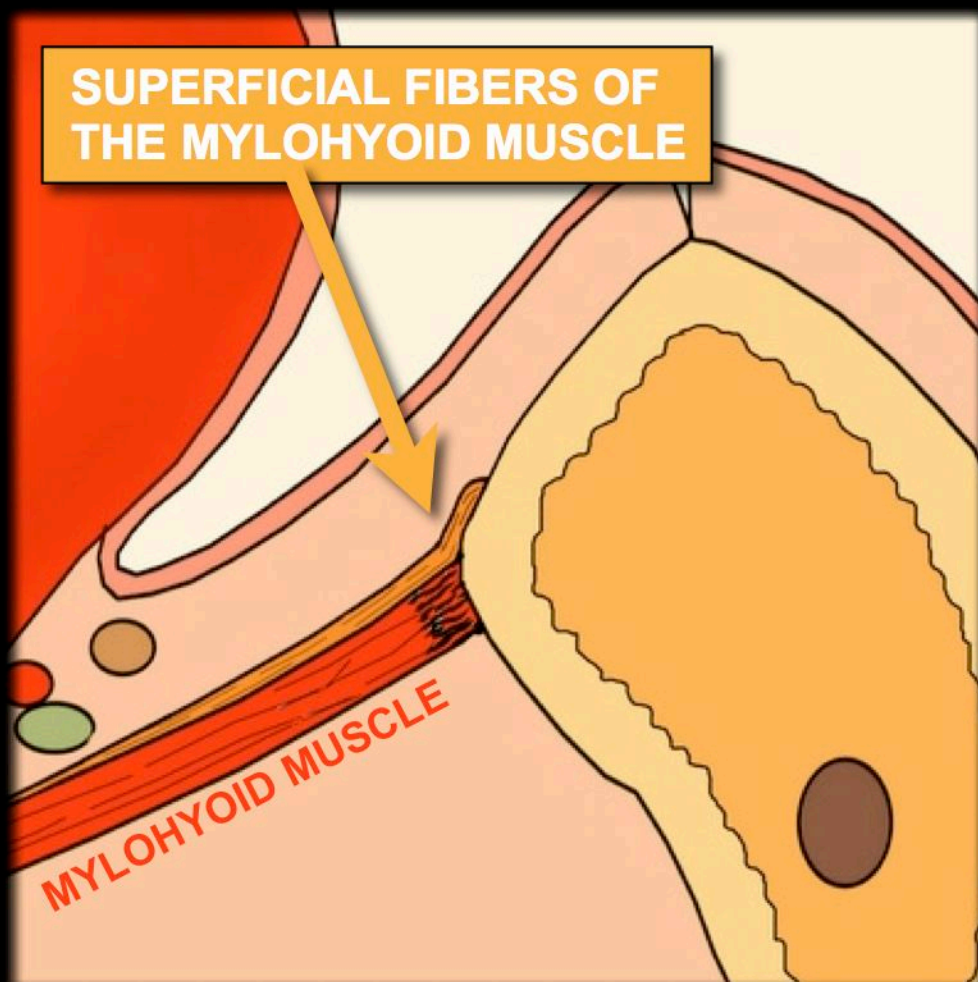
through the separation of the superficial fibers of the mylohyoid muscle in guided bone regeneration

In guided bone regeneration the reliable closure of the surgical wound is one of the key elements to achieve clinical success. This is obtained by releasing the tension of the soft tissue, through the coronal advancement of the flaps. While the coronal displacement of the buccal flap is a well-established technique, the coronal advancement of the lower lingual flap is an issue still under debate, due to the presence of sensitive anatomical structures that can be potentially damaged^{1,2}. This work shows the existence of a strict anatomical relationship between the mylohyoid muscle and a full-thickness lingual flap that has been elevated in the posterior mandible. This knowledge has been used by the author to set up a three-step technique for the coronal advancement of the lingual flap. The technique has been applied in seven cases of guided bone regeneration that healed uneventfully.

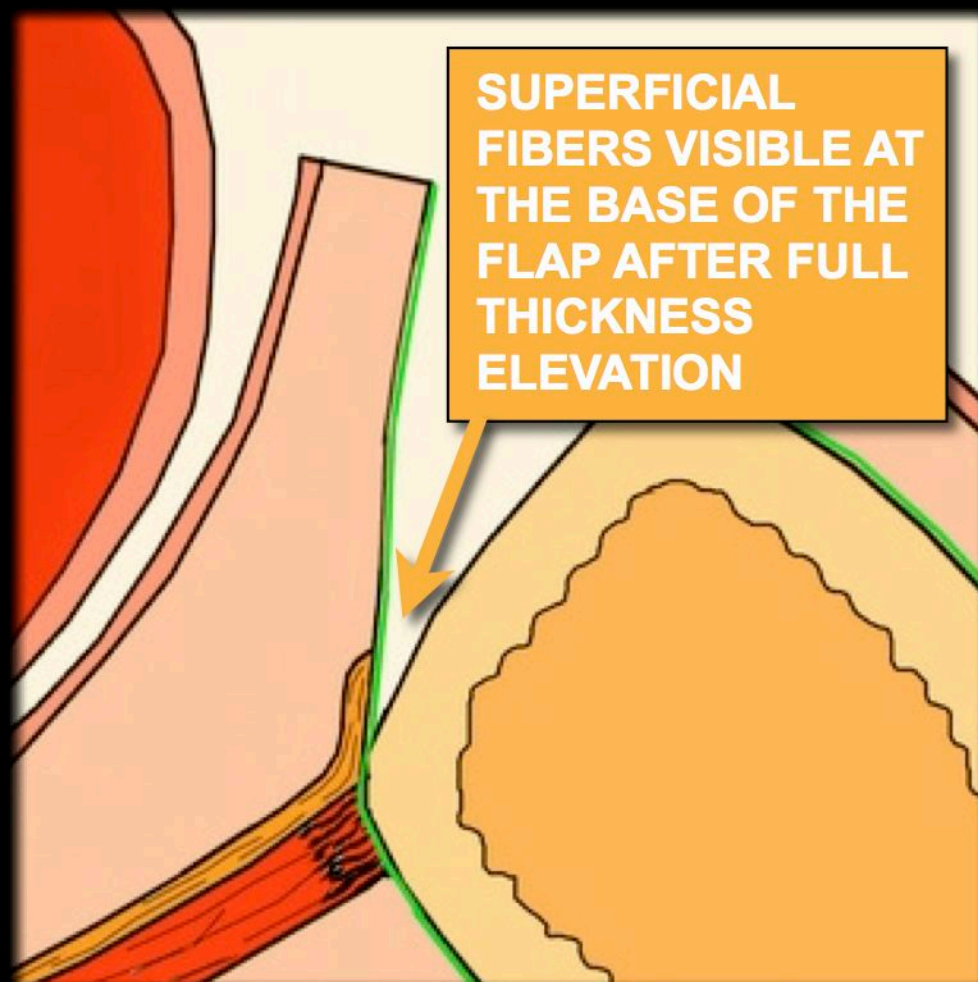
DR. PAOLO ROSSETTI - MILANO



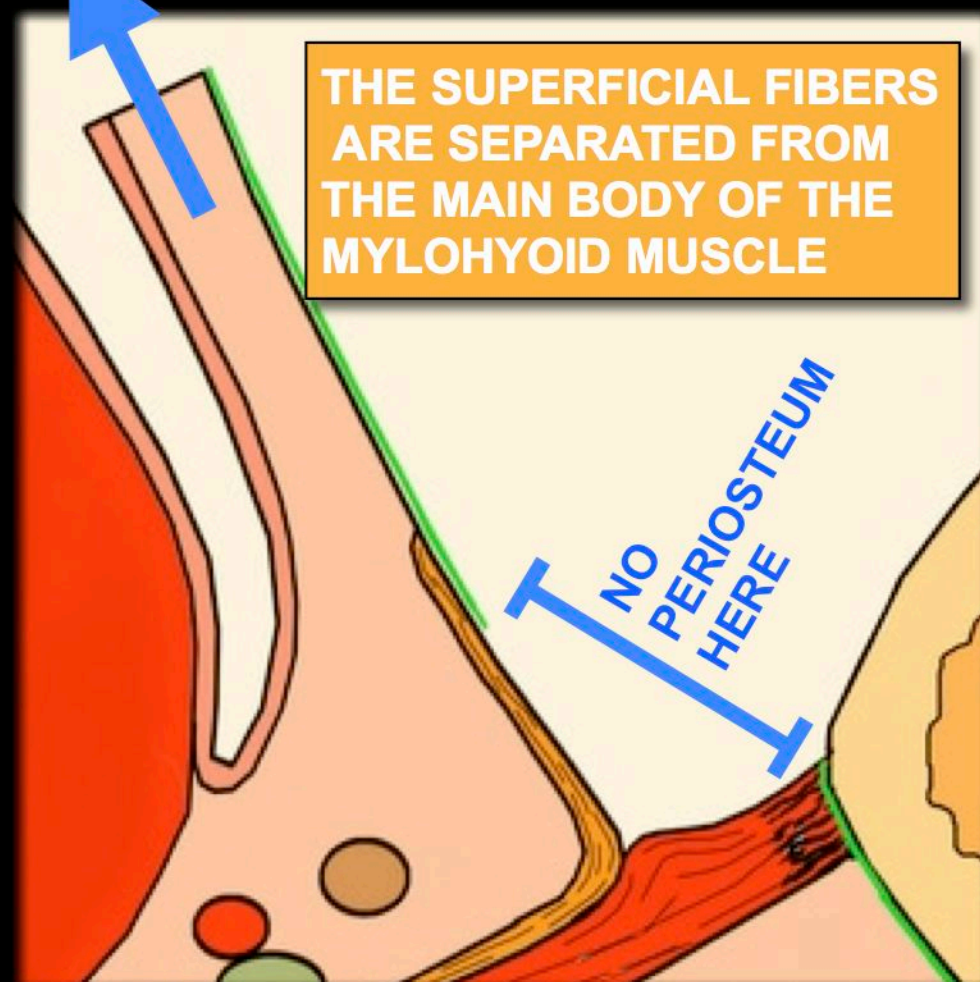
Cross-section of the mandible in the first molar area. The mylohyoid muscle is traditionally described as a muscle that arises from the mylohyoid line of the mandible (a tendon may be present in the area of attachment).



The author has consistently observed that a thin layer of muscle fibers exists, that attaches immediately coronally to the line. This layer (also "superficial fibers" of the mylohyoid m.) is firmly attached to the periosteum of the flap.



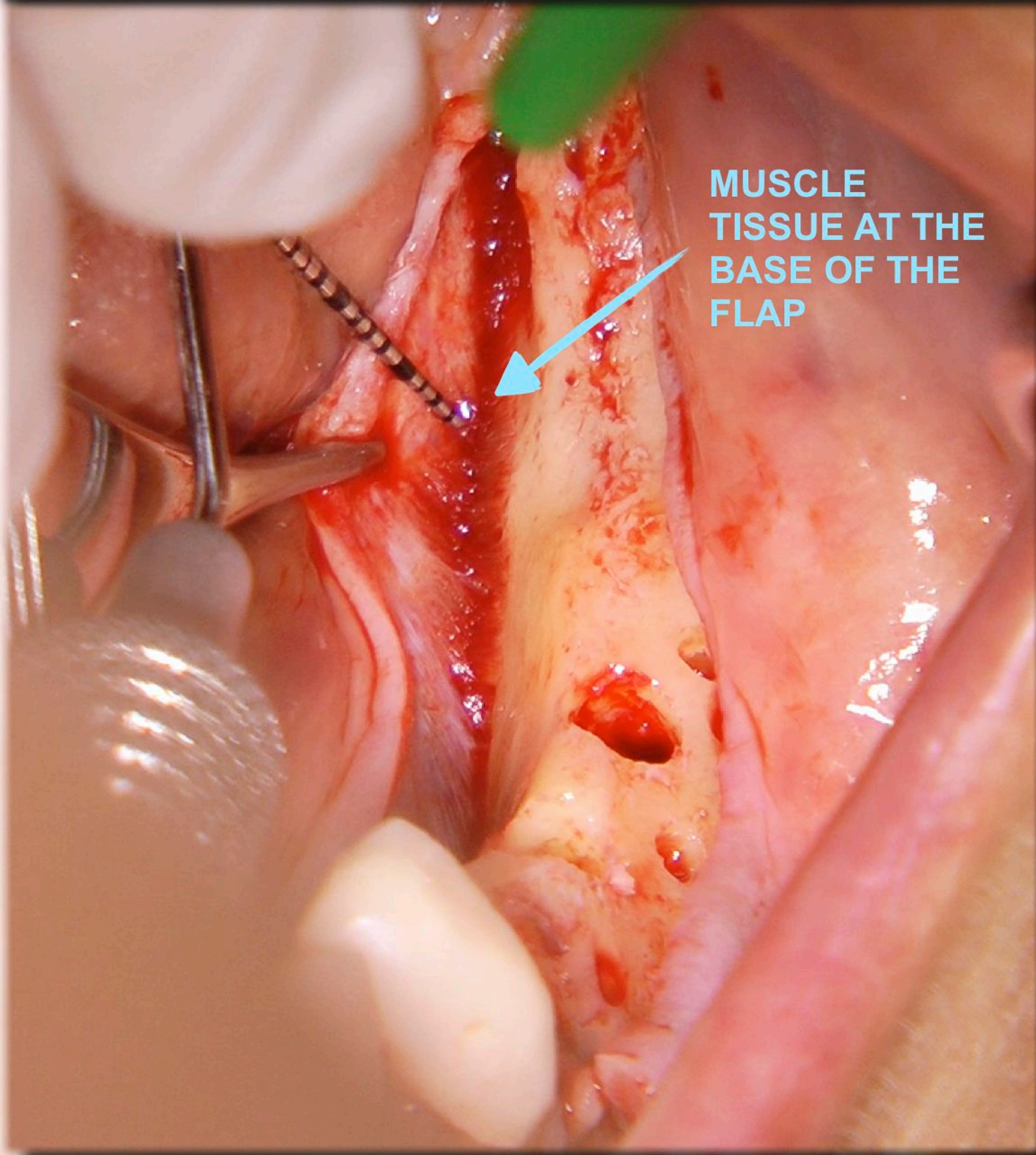
After having elevated a full-thickness lingual flap up to the mylohyoid line, the surgeon can see the origin of these fibers showing through the periosteum at the base of the flap. This detail can be observed just in the molar area.



By pulling the flap coronally and brushing the base of the flap with a blunt instrument, the surgeon can easily lacerate the periosteum and separate the superficial fibers from the main body of the mylohyoid m. The flap is now coronally displaced.

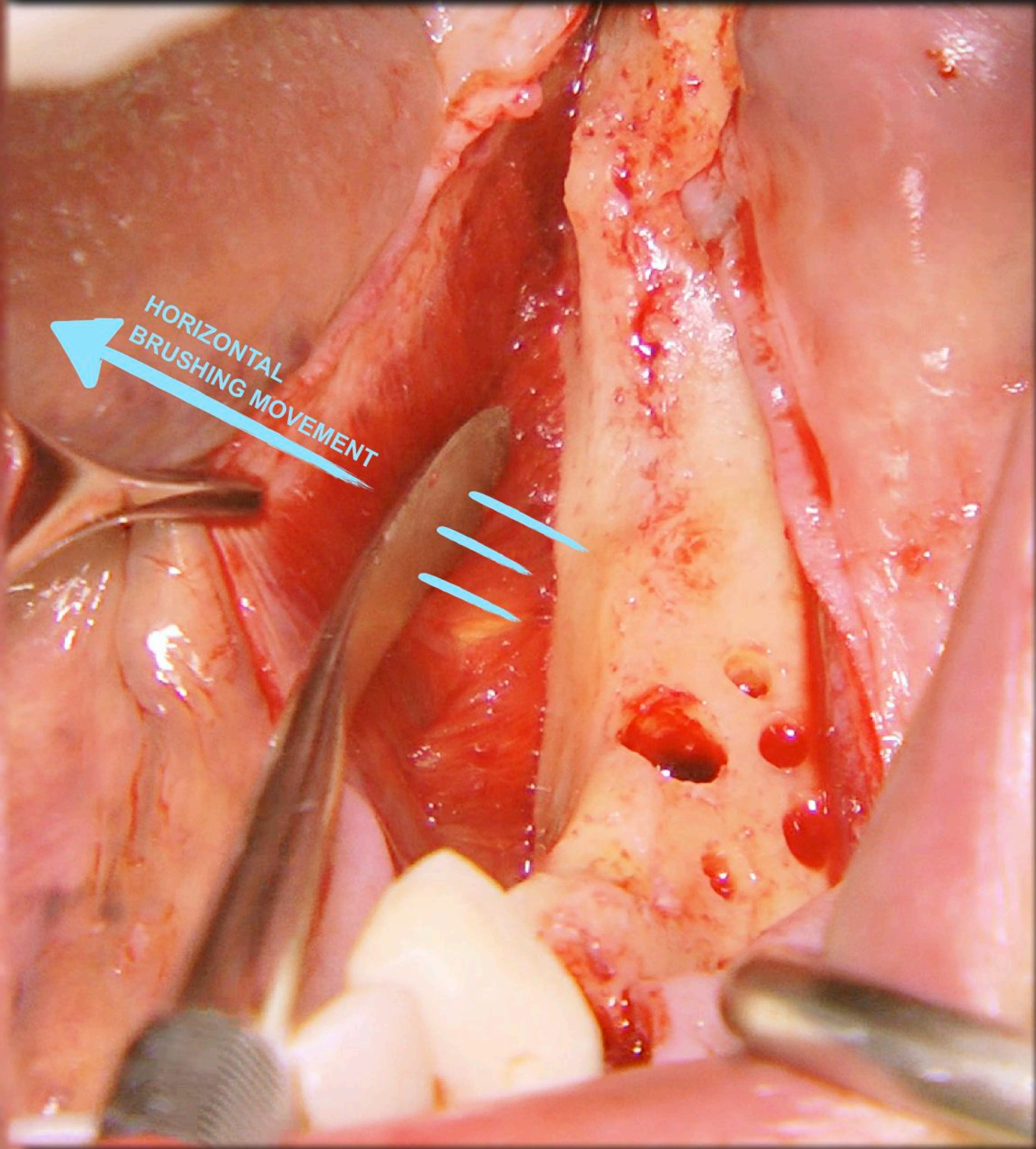
1
STEP

FULL THICKNESS ELEVATION OF THE LINGUAL FLAP UP TO THE MYLOHYOID LINE (VIEW FROM ABOVE).



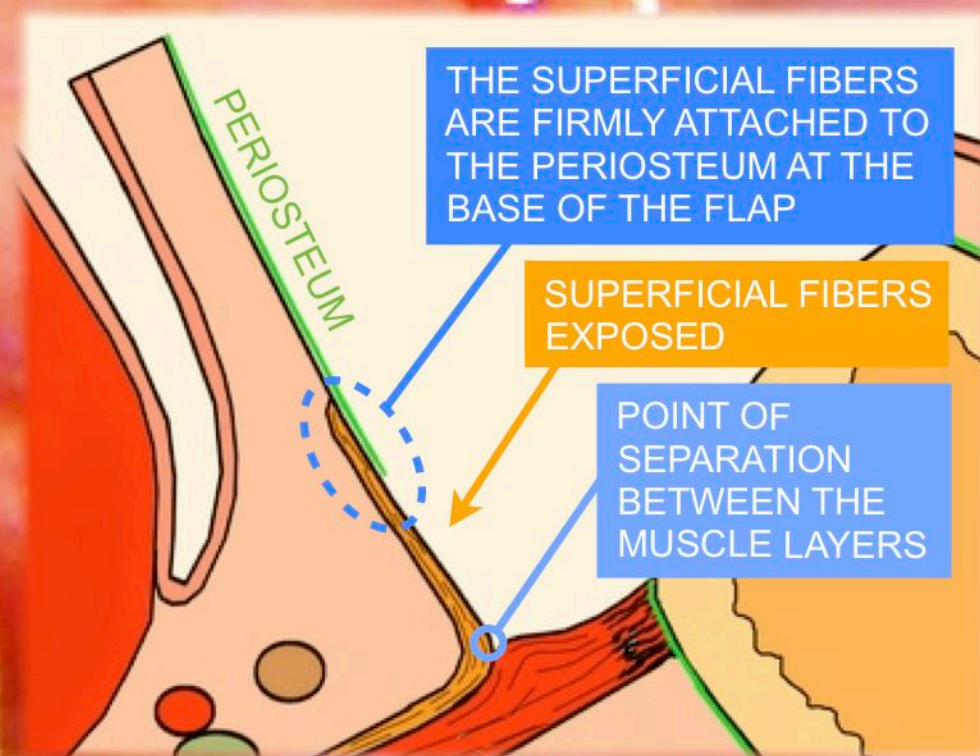
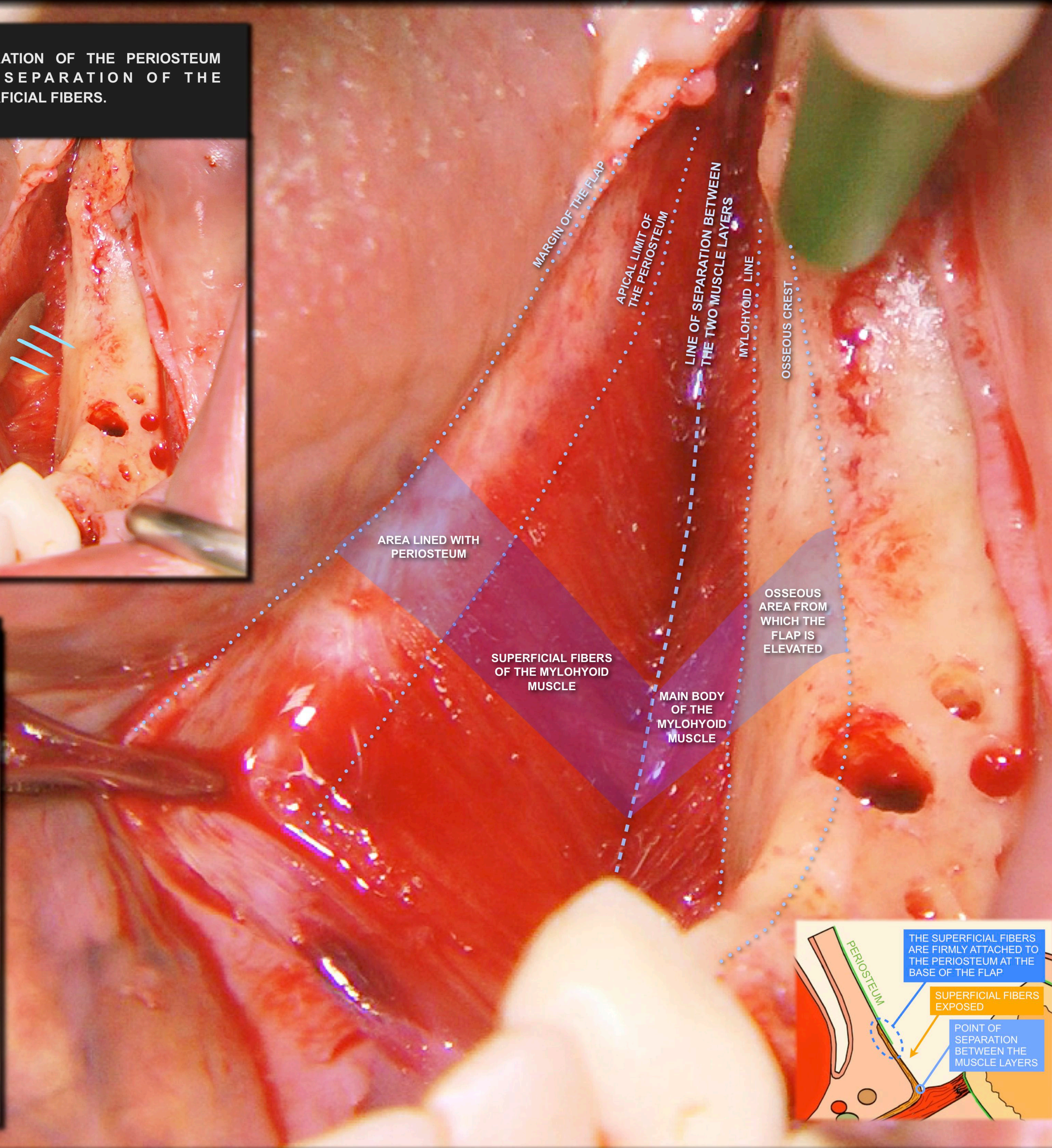
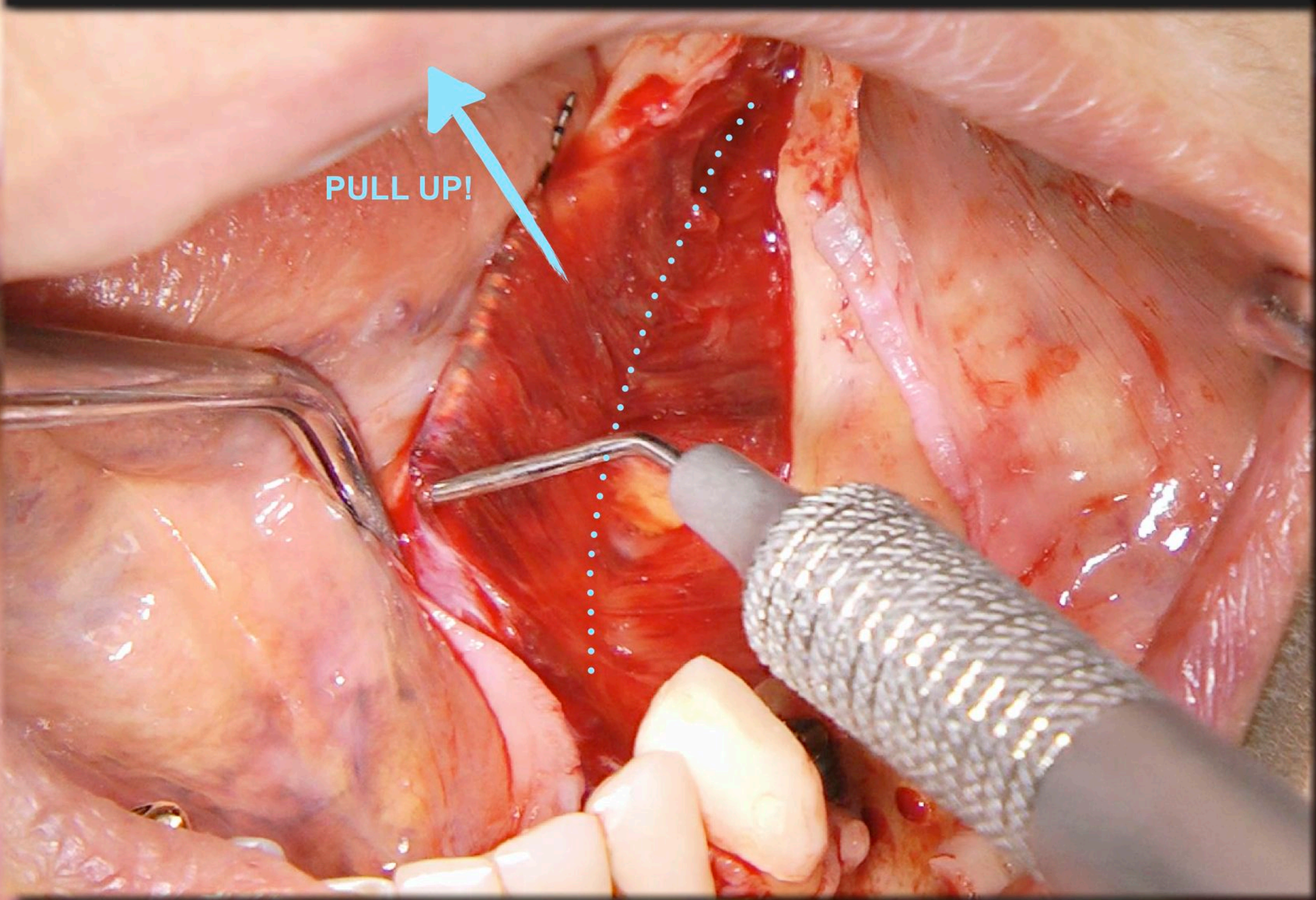
2
STEP

LACERATION OF THE PERIOSTEUM AND SEPARATION OF THE SUPERFICIAL FIBERS.



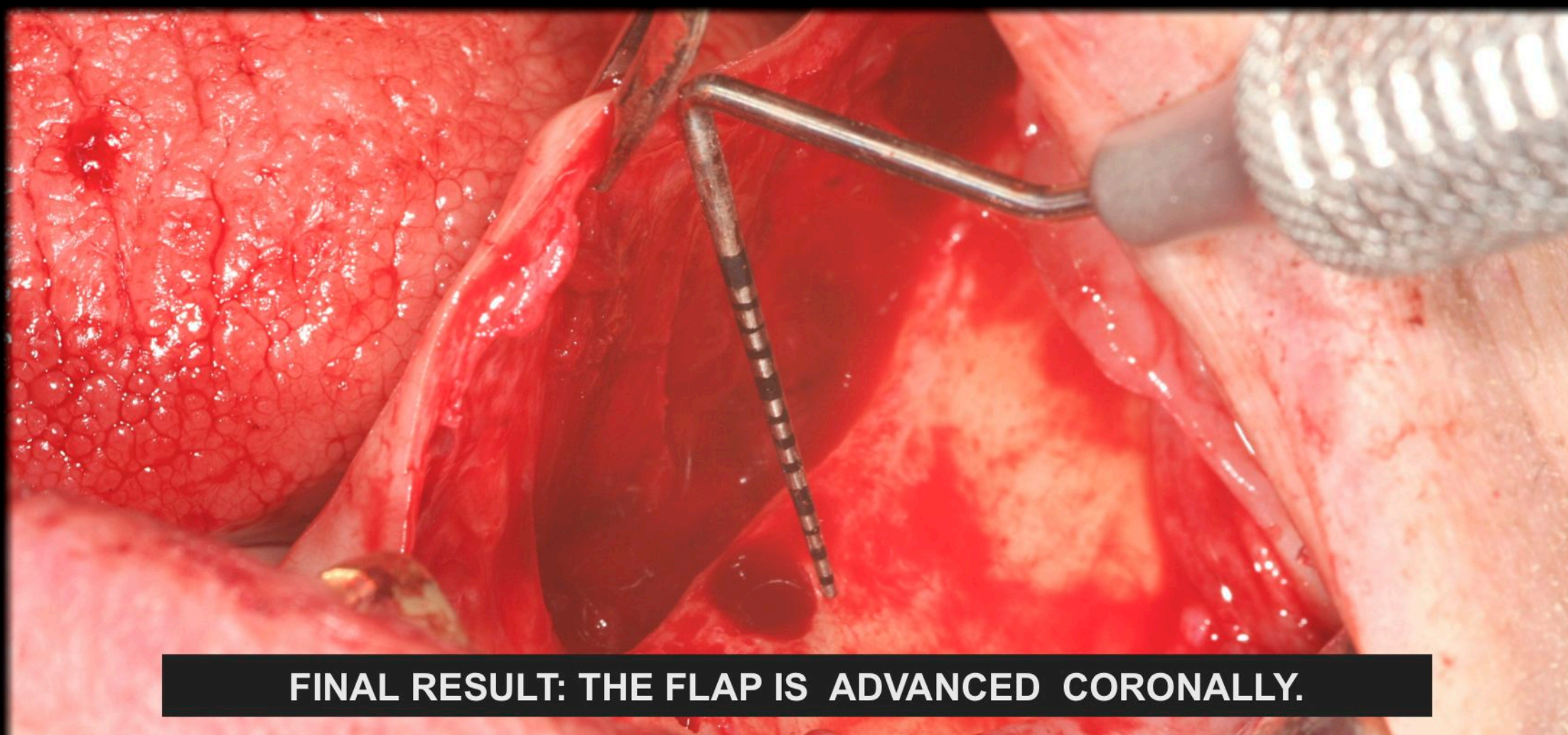
3
STEP

THE SUPERFICIAL FIBERS ARE STRETCHED IN A CORONAL DIRECTION TO ACHIEVE ADDITIONAL RELEASE.

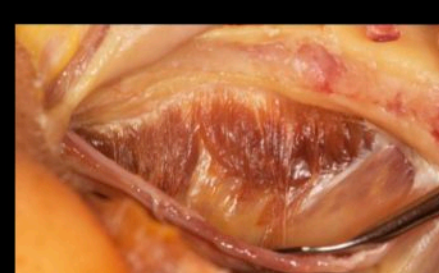


OVERVIEW: 7 surgeries. All patients were in good general health condition, non-smokers and affected by long term alveolar ridge atrophy in the posterior mandible. Age ranging from 62y to 75y. **Graft material:** dried mineralized allograft (cases 1,3,4), mineralized xenograft (cases 2,5,6,7). **Membrane type:** non-resorbable dPTFE Titanium reinforced (Osteogenics). **Time to second surgery:** 7-9 months.

RESULTS: all seven cases healed uneventfully, the defects were completely restored by the regenerative procedures. No wound dehiscence occurred. **CONCLUSIONS:** a sufficient coronal displacement of the flaps was achieved in all cases. An anatomical relationship of clinical interest between the mylohyoid muscle and the lingual flap is also documented.



FINAL RESULT: THE FLAP IS ADVANCED CORONALLY.



Special thanks go to dr. Luigi Grivet, head of the course "Advanced surgical and anatomical dissection" Institut d'Anatomie de Liège (BE), for his contribution.

You Tube

Freely available videos from the same author: **Anatomia chirurgica del lembo linguale**
How to release the lingual flap

1) Carlo Tinti, Stefano Parma-Benfenati "GBR Rigenerazione ossea guidata a scopo implantare" 2007, Ed. Nike.
2) Marco Ronda, Claudio Stacchi (2011) "Management of a coronally advanced lingual flap in regenerative osseous surgery: a case series introducing a novel technique." Int J Periodontics Restorative Dent 31: 5. 505-513 Sep/Oct.

