

Transient Neurosensory Disturbances After Skeletonization of the Mental Nerve in Ridge Augmentation Surgery

A Case Series

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Controlling flap tension is the most critical factor in preventing early soft tissue dehiscence (1,2), which is the most common complication in vertical ridge augmentation surgery. After isolating the mental nerve, it is suggested to deviate the periosteal incision coronally.



Figure 1: Periosteal incisions have to be performed apical to the gingiva



Figure 2: Distance from gingival margin and mental foramen approximately 4mm.

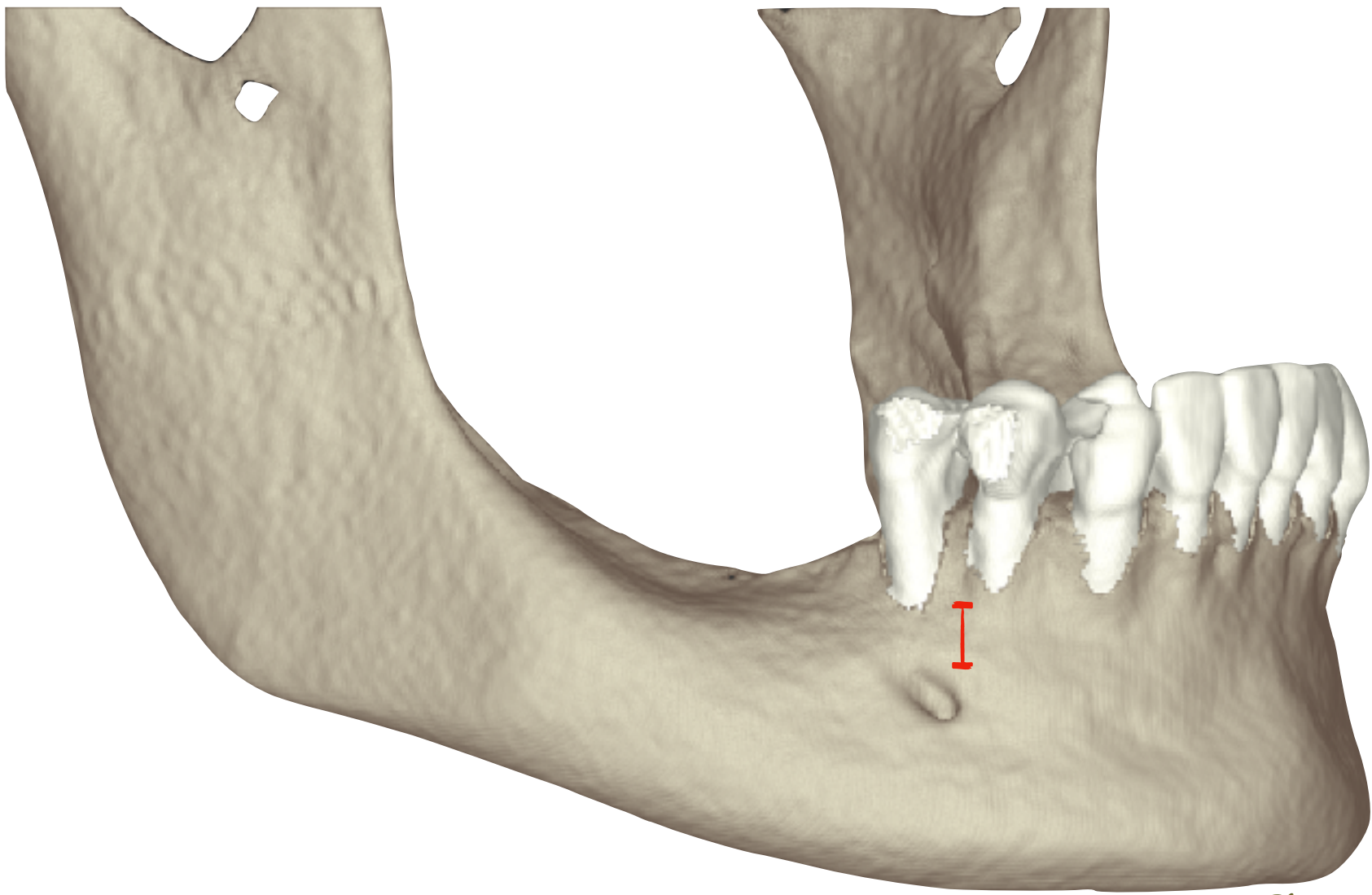


Figure 3: Bone segmentation showing the proximity of the mental foramen to the bone of tooth #29.

However, there are cases where significant hard and soft tissue loss has occurred and has affected the premolars as well. In those instances, there is often significant gingival recession, resulting in the gingival margin being near the mental foramen . Furthermore, the connective tissue of the most coronal keratinized part of the flap cannot stretch, even if the periosteum is excised. Advancing the flap without separating it from the mental nerve will also lead to the application of tension to the nerve, which may cause neurosensory disturbances.

To facilitate flap passivation, a combination of sharp and blunt dissection using elevators and scissors in open motion is used to skeletonize the mental nerve and separate it from the buccal flap (Fig. 4 - 6)

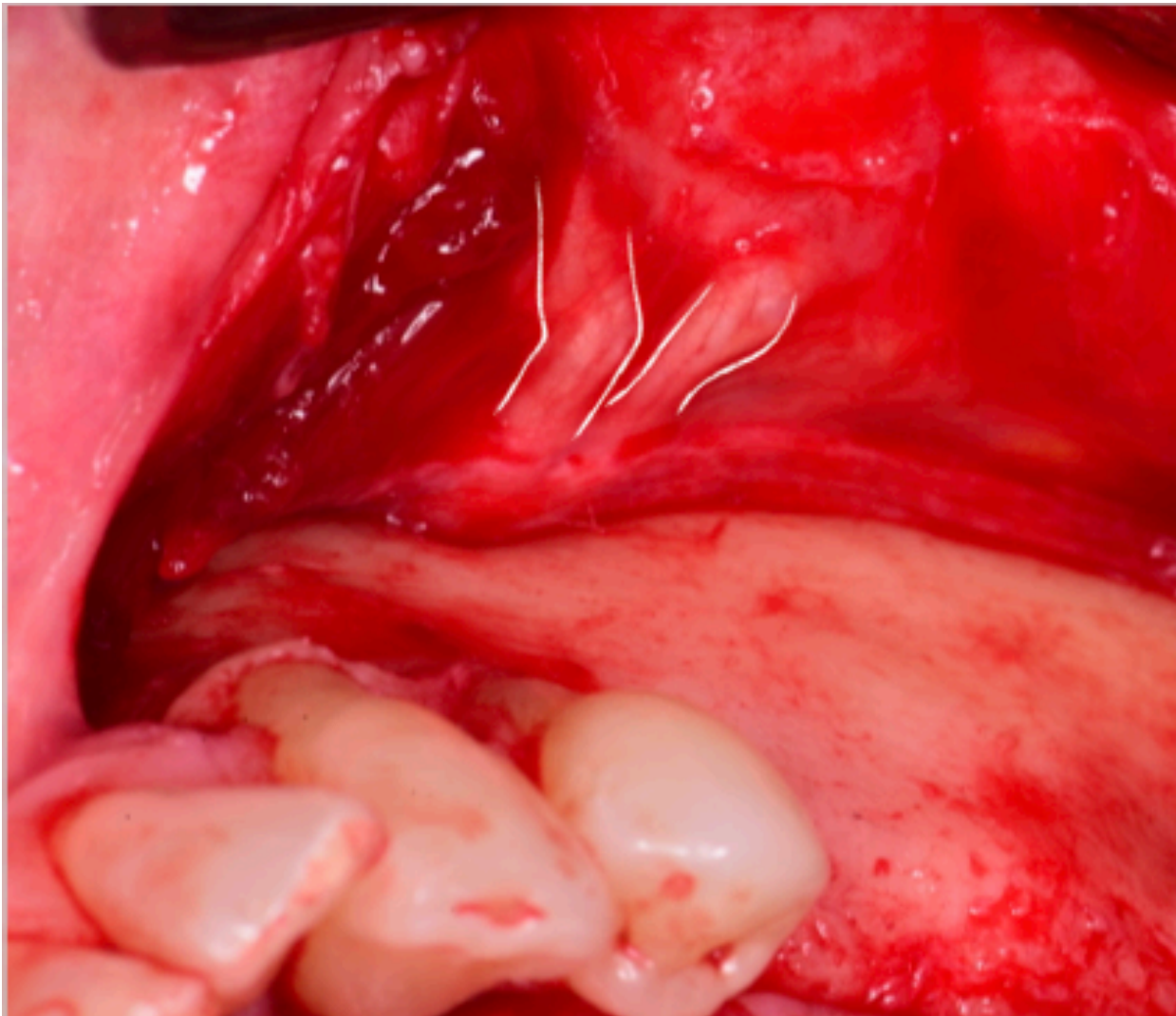


Figure 4: Mental nerve bundles.

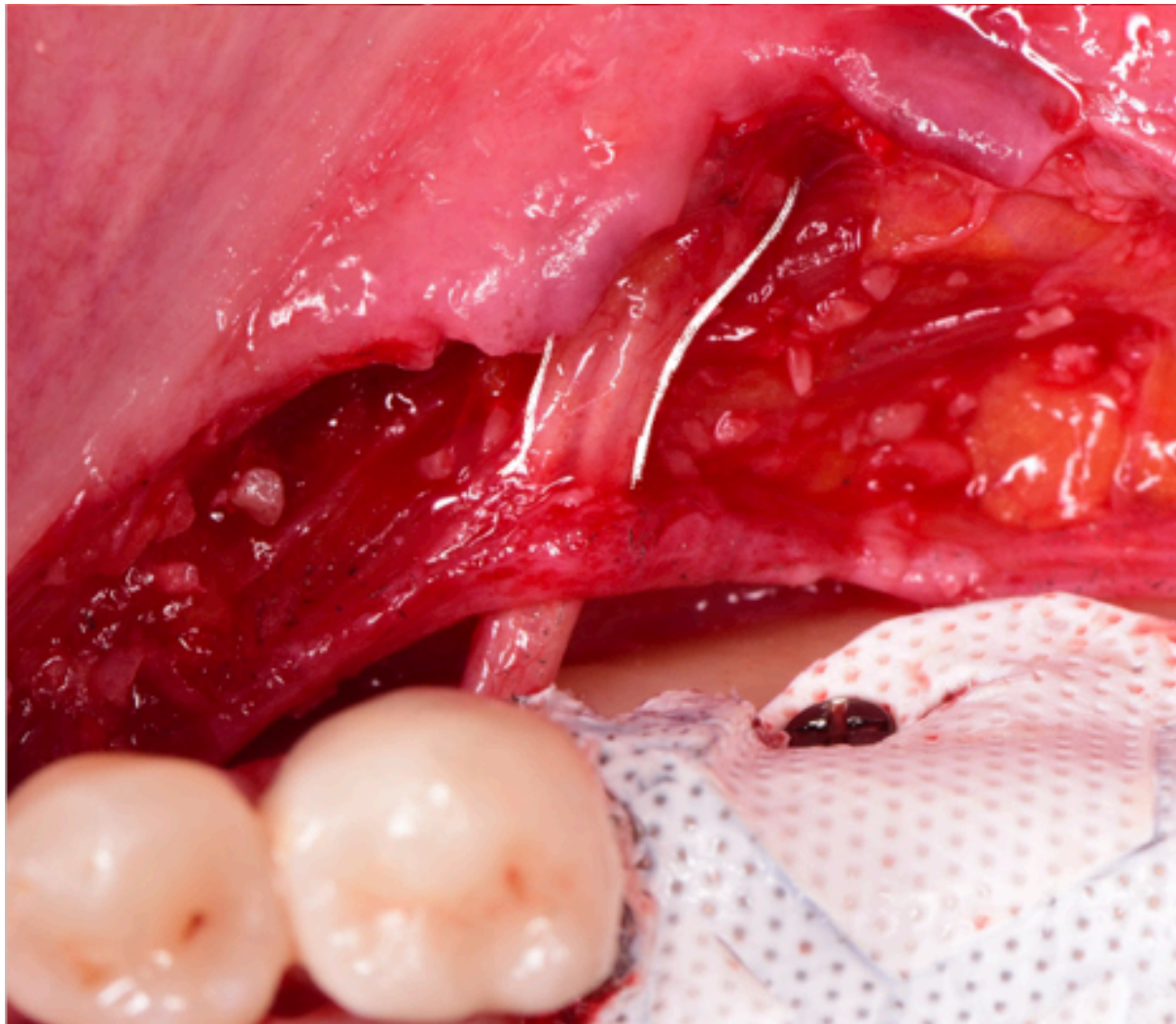


Figure 5: Mental nerve skeletonized.

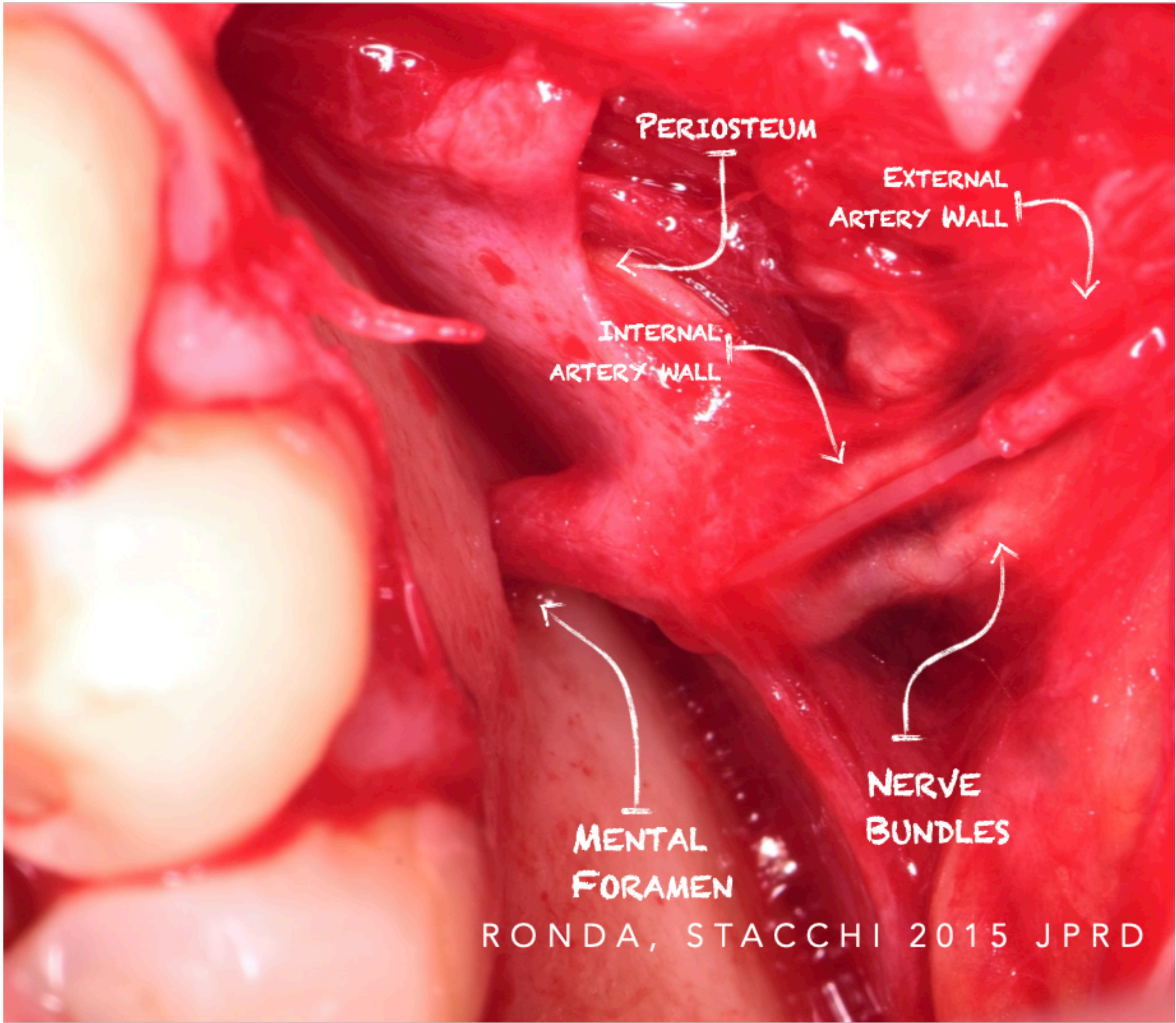


Figure 6: Sharp dissection during skeletonization of the mental nerve resulted in the separation of the outer layer of the artery.

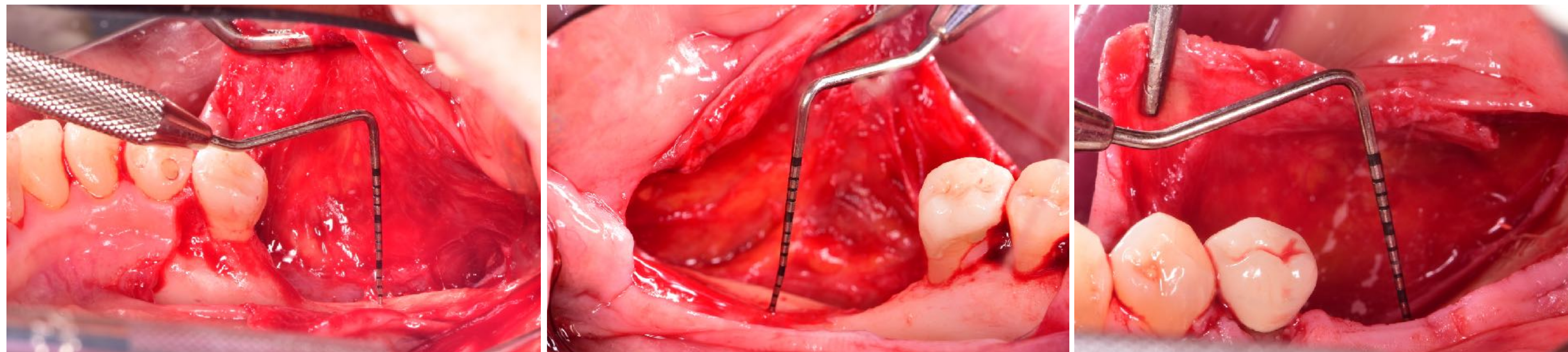


Figure 7: Buccal flap release that exceeds 25mm.

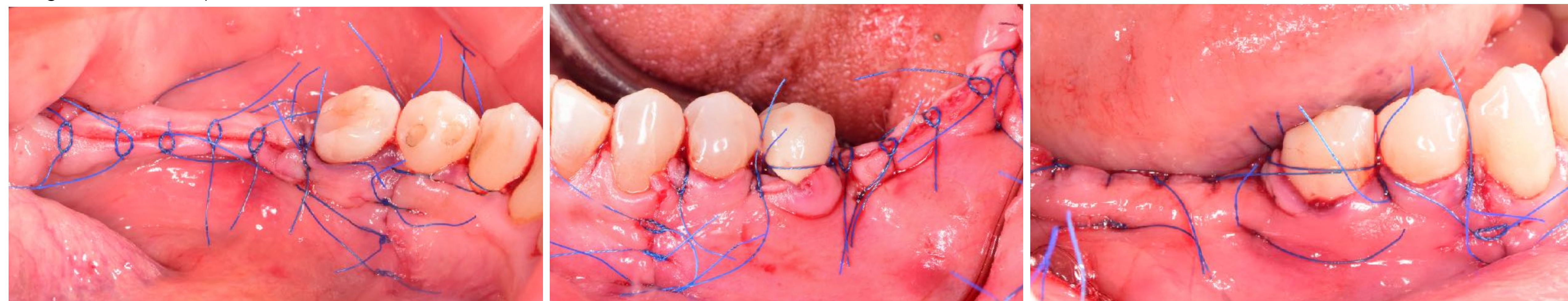


Figure 8: The passivation from the buccal and lingual flaps allows a passive layered closure that results in tissue eversion.

Case	Follow-up	Flap Dehiscence	Neurosensory disturbance	Site	Duration	Intensity (VAS score 1-10)
1	9 months	No	Yes (numbness /altered sensation)	LL Lip	2 days (numbness) / 3 weeks (altered sensation)	5
2	9 months	No	Yes (numbness)	LL Lip	5 days	5
3	6 months	No	Yes (numbness)	LR Lip	3 days	2-3
		No	Yes (numbness)	LL Lip	3 days	1-2
4	6 months	No	No	N/A	N/A	N/A
5	3 months	No	Yes (numbness)	LR Lip	2 days	2
6	2 months	No	Yes (numbness)	LL Lip	2 days (numbness) / 2 weeks (altered sensation)	3

A total of 6 patients contributing to 7 cases are included. All patient were treated under IV sedation, and were seen for a post-op 2, and 4 weeks later.

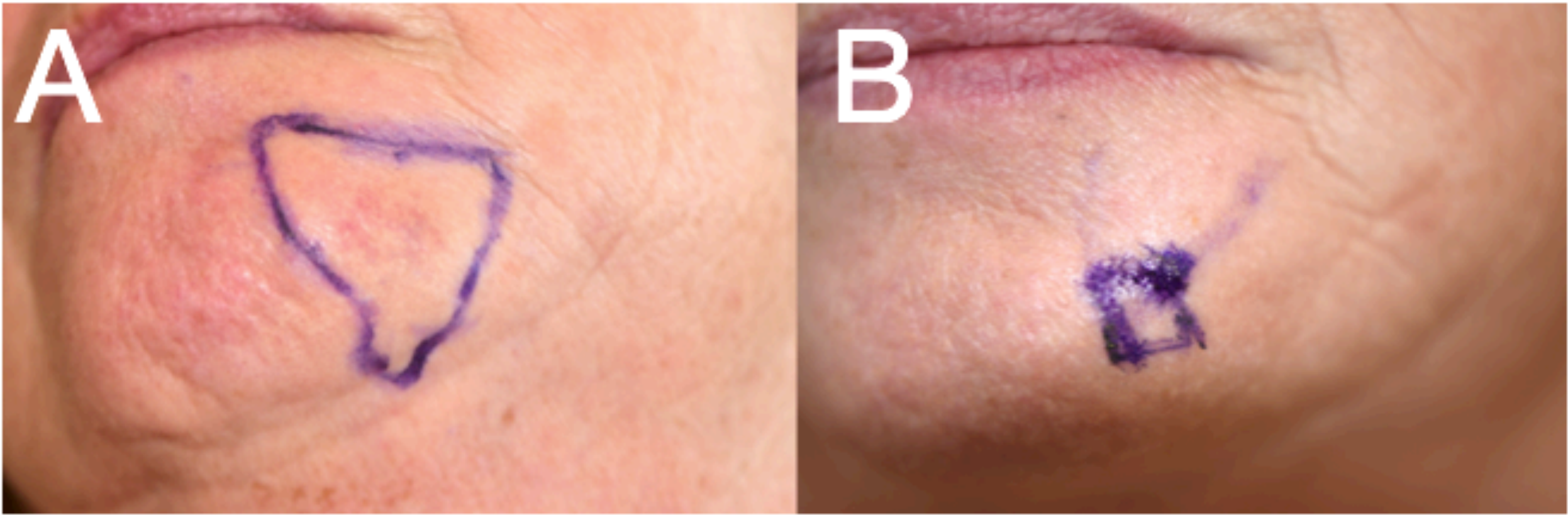


Figure 9: Mapping of the affected area (Case 1) associated with a hematoma in the chin. (2- and 3- weeks post-op)

Careful sharp, and blunt dissection around the mental nerve safely provides sufficient release of the buccal flap. Partial numbness of the lower lip that resolves within a few days should be expected. Patients tolerated this complication well.

1.Burkhardt R, Lang NP. Role of flap tension in primary wound closure of mucoperiosteal flaps: A prospective cohort study. Clin Oral Implants Res. 2010;21(1):50–4.
2.Rocchietta I, Fontana F, Simion M. Clinical outcomes of vertical bone augmentation to enable dental implant placement: A systematic review. In: Journal of Clinical Periodontology. 2008. p. 203–15.