

Introduction

Minimal invasive adhesive dentistry is on the rise as a predictable long-term solution to many problems affecting the natural dentition teeth. Bonding to enamel and the cemento-enamel junction (CEJ) location during the diagnostic phases are of utmost importance. However, locating the CEJ using the bone-sounding technique on patients with delayed eruption and congenital dental malformations like Amelogenesis imperfecta can be challenging. The Cone Beam Computed Technology (CBCT) can be a helpful tool for diagnosis and treatment planning with accuracy.

Purpose

Demonstrate the use of digital technology to facilitate the detection of the CEJ position during the diagnosis and treatment planning of a young patient with amelogenesis imperfecta and delayed passive eruption.

A 22 years old female patient diagnosed Amelogenesis imperfecta, altered passive eruption and malocclusion.



Figure 1. Initial frontal view in maximum Intercuspation.

Treatment plan:

1. Full mouth crown lengthening surgeries.
2. Establish tooth shape with Pre-orthodontic ceramic-reinforced complete coverage provisional restorations made in the laboratory.
3. Orthodontic treatment for molar intrusion and space consolidation.

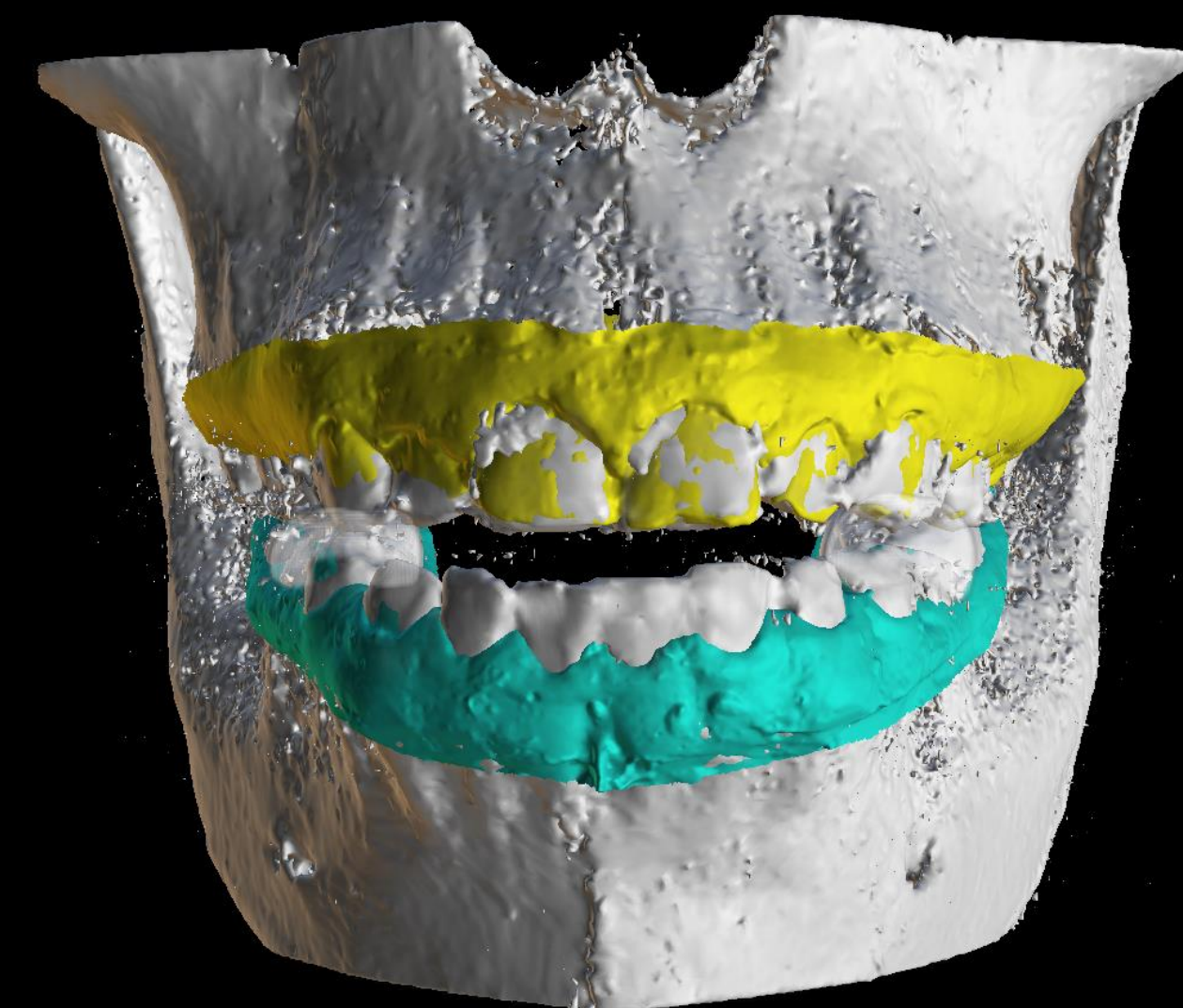


Figure 2. Merge of CBCT with STL models.

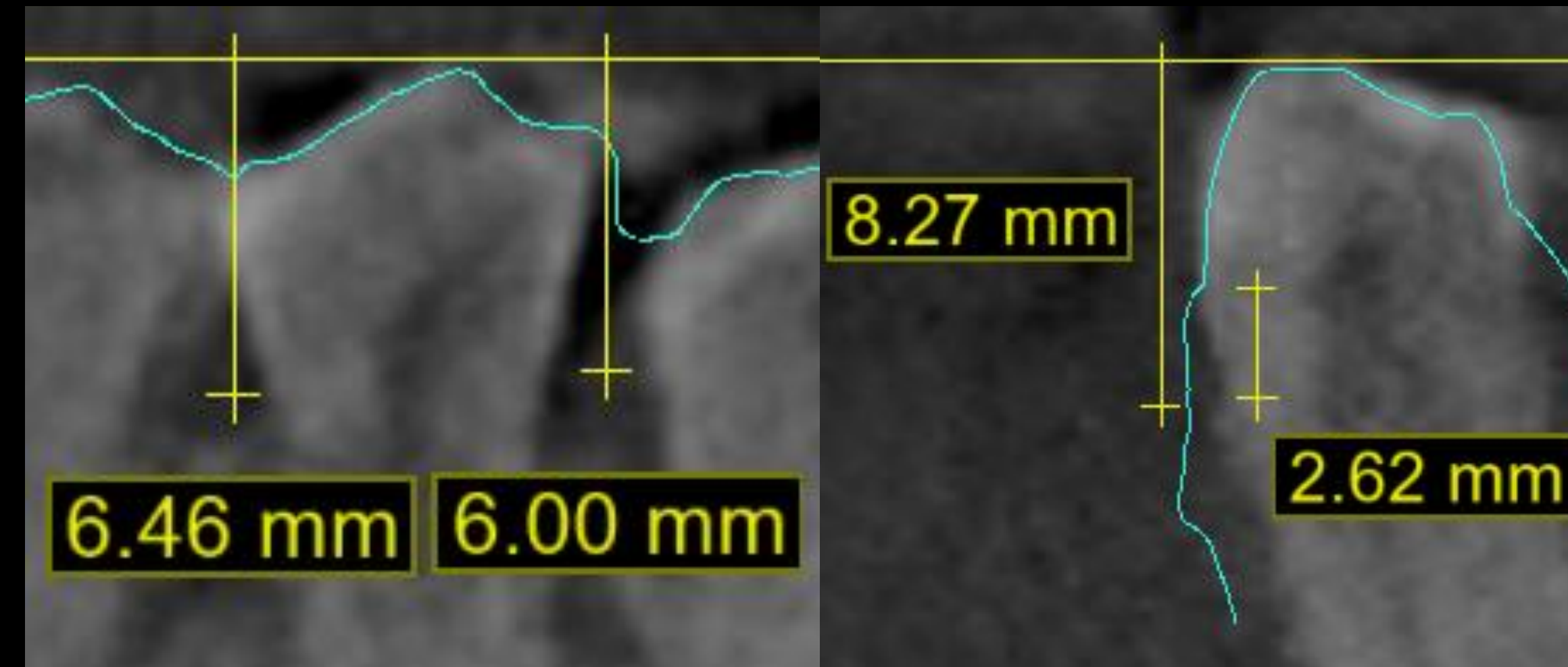


Figure 3. Digital assessment of the CEJ tooth #21.

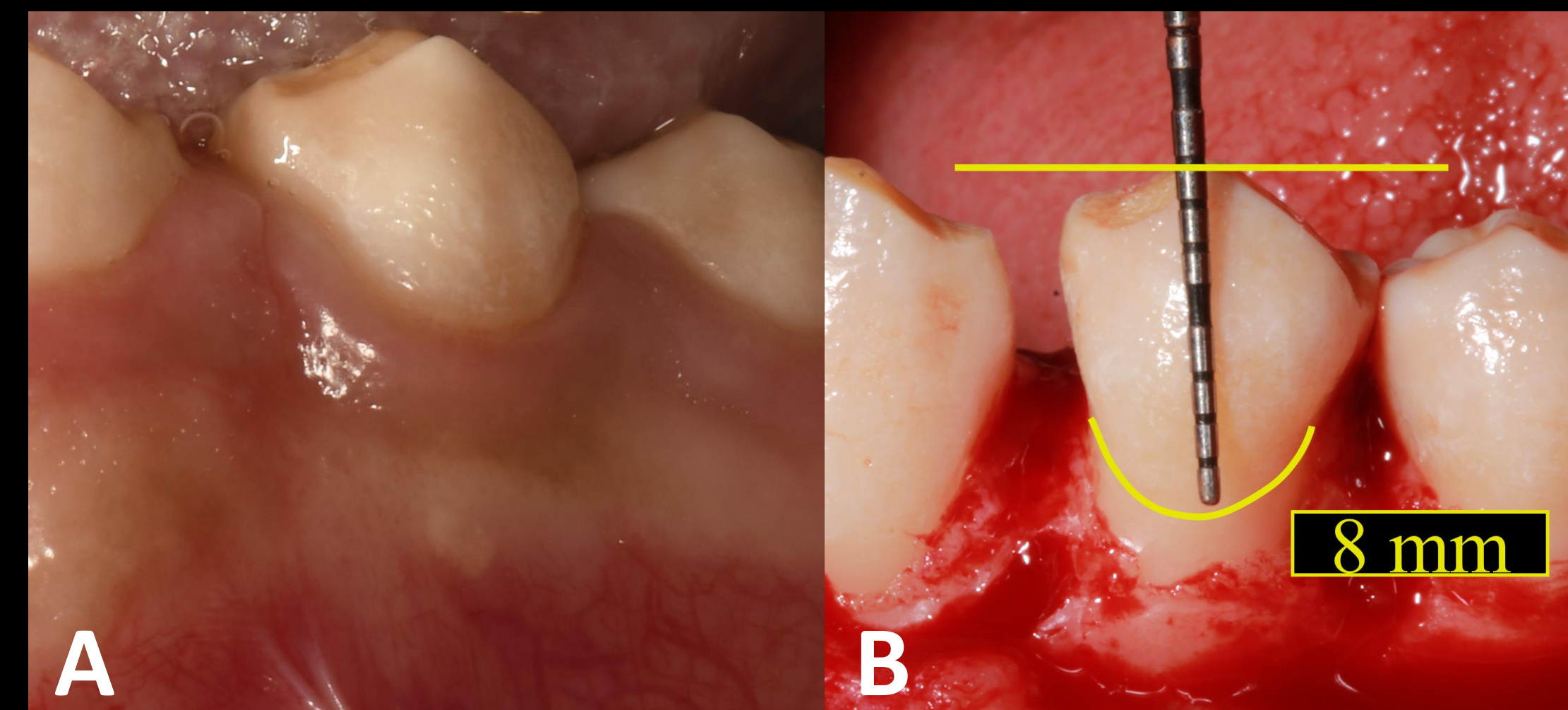


Figure 4. tooth #21 A, before crown lengthening. B, Clinical assessment of the CEJ, during surgery.



Figure 5. 3 month follow up.

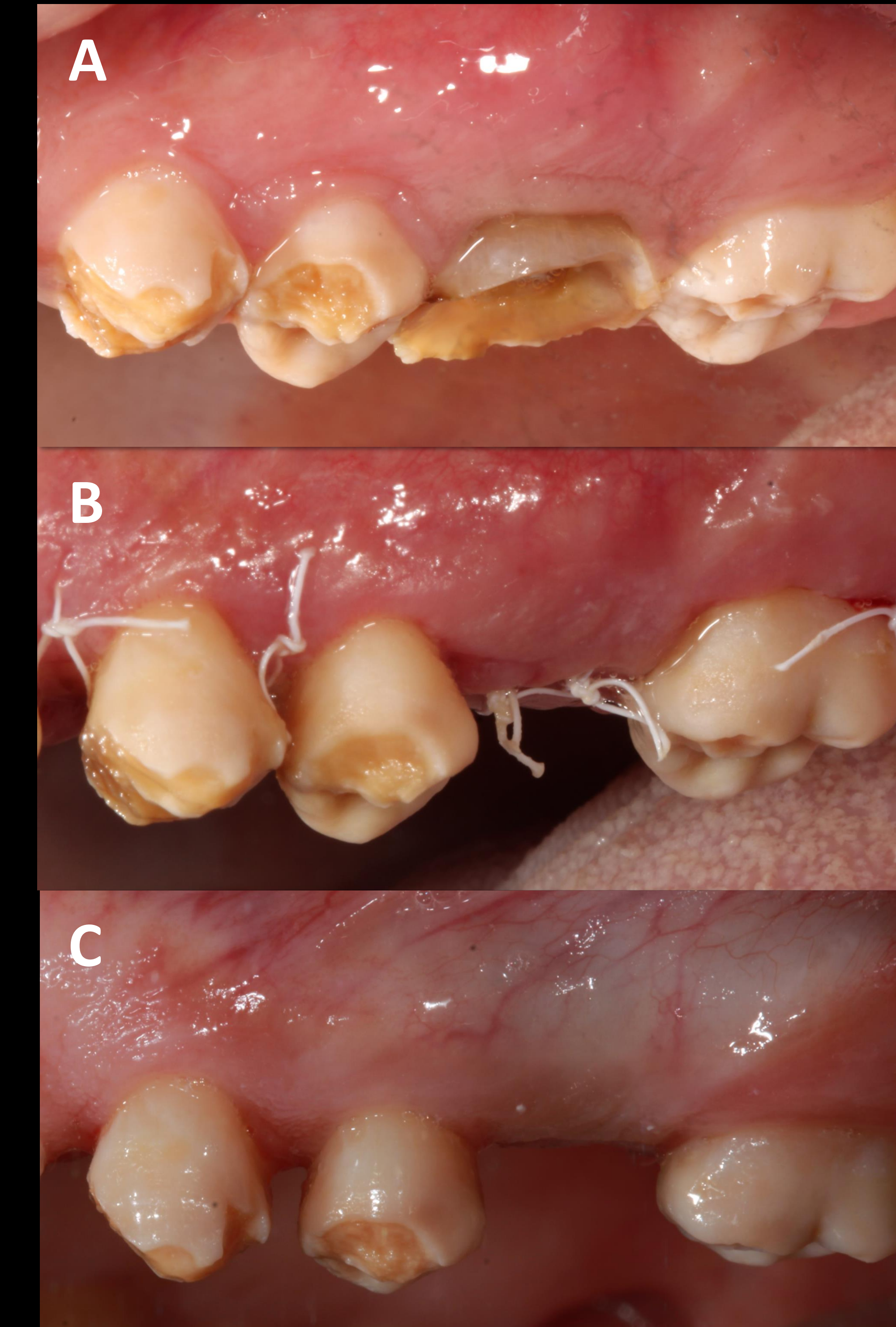


Figure 6. Maxillary left posterior sextant. A, before crown lengthening. B, One week follow up. C, 5 month follow up.

Results

CBCT technology for locating the CEJ

Advantages:

1. Reduces clinical time
2. No tissue distortion
3. Painless

Disadvantages

1. Quality of images can affect measurements.

Conclusions

Using the bone sounding technique for CEJ location could be difficult in most instances. Nevertheless, the use of CBCT and digital software are adjuvant options for the location of the CEJ and other anatomical landmarks in patients with malformed dentitions.

References

- Srebrzyńska-Witek, A., Koszowski, R., Różyło-Kalinowska, I., & Piskórz, M. (2020). CBCT for estimation of the cemento-enamel junction and crestal bone of anterior teeth. *Open medicine (Warsaw, Poland)*, 15(1), 774–781. <https://doi.org/10.1515/med-2020-0211>
- Spear, F. M., Kokich, V. G., & Mathews, D. P. (2006). Interdisciplinary management of anterior dental esthetics. *Journal of the American Dental Association* (1939), 137(2), 160–169. <https://doi.org/10.14219/jada.archive.2006.0140>
- Mendoza-Azpur, G., Cornejo, H., Villanueva, M., Alva, R., & Barbisan de Souza, A. (2022). Periodontal plastic surgery for esthetic crown lengthening by using data merging and a CAD-CAM surgical guide. *The Journal of prosthetic dentistry*, 127(4), 556–559. <https://doi.org/10.1016/j.prosdent.2020.09.041>