

APOS Trends in Orthodontics

Clinical Pearl

Second molar eruption after resistance factor removal

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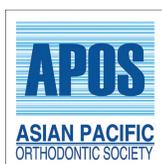
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ABSTRACT

The eruption of the second molars may delay the therapy and lengthen the treatment time. To minimize excessive treatment prolongation, the principle of resistance factor elimination was applied to the unerupted second lower molar through a surgical incision on the occlusal gingival tissue. The 3.7 was successfully erupted and easily bonded the following month, to allow the archwires sequence.

Keywords: Lower second molar, Eruption, Bonding time, Surgical-assisted eruption

Second molars bonding is mandatory to achieve good occlusion and marginal ridges alignment.^[1] Sometimes, second molars eruption could stop the therapy progress and lengthen the treatment time.^[1] Matthews and Kokich recommended an alternative technique to promote the canines disimpaction, which consists of resistance factors removal to facilitate the teeth eruption.^[2,3] This concept of resistance factors removal was applied to the unerupted second molar to avoid excessive treatment prolongation.

A 14-year-old Caucasian female patient presented skeletal Class I malocclusion, hypodivergent facial pattern, and deep bite. At the beginning of the treatment, the elements 1.7, 2.7, and 4.7 were close to erupt, while tooth 3.7 did not yet exhibit complete root formation. After 17 months of treatment with a labial fixed appliance a successful alignment and leveling of the arches were achieved; however, element 3.7 was still unerupted [Figure 1] even if the eruption path seemed favorable [Figure 2]. Nevertheless, after 4 months of waiting, the lower left molar position remained unchanged [Figure 3].

After 22 months from the beginning of the treatment, the molar was not erupted yet, leading to the decision to incise gingival tissue on the eruption path. The incision was made under local anesthesia with a surgical scalpel to a depth that eliminated occlusal gingival tissue hindering eruption. [Figure 4]; contrary to other case reports, no flaps, no osteotomies and no dental elevators were required since element 3.7 was not covered by bone and it presented a correct vertical orientation.^[4,5]

Chlorhexidine mouthwash was prescribed for the 3 days after surgery.

The following month the 3.7 was finally erupted and easily bonded with the insertion of a.016" Copper NiTi archwire for initial alignment [Figure 5].

The 0.019 × 0.025 Copper NiTi [Figure 6] and SS [Figure 7] archwires were inserted to complete the sequence and after 8 months from the surgical procedure, the molars marginal ridges were aligned and leveled.

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Figure 1: Occlusal lower arch view showed a 4.7 completely leveled and an unerupted 3.7.



Figure 4: Gingival tissue incision on 3.7 eruption path.

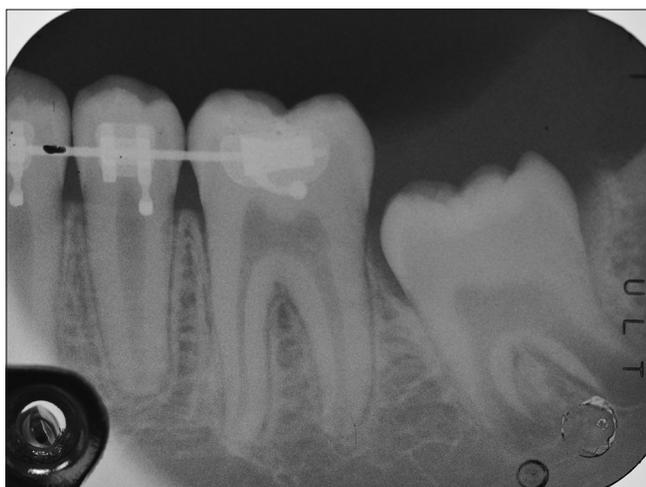


Figure 2: 3.7 initial X-ray.



Figure 5: 3.7 Eruption and bonding, with the insertion of a 0.016” Copper NiTi archwire.



Figure 3: Four months later 3.7 X-ray.



Figure 6: Insertion of a 0.019 × 0.025 Copper NiTi archwire.

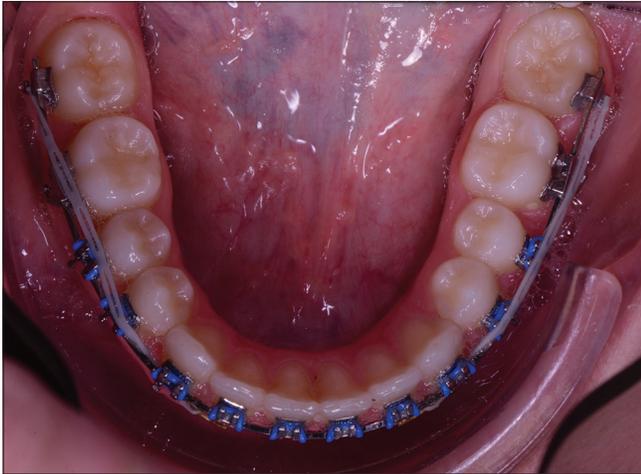


Figure 7: Insertion of a 0.019 × 0.025 SS archwire.

The total treatment time was 34 months; therefore, element 3.7 delayed the end of the case for almost 1 year. Although, the treatment time would have been further prolonged if resistance factors had not been removed to facilitate the eruption of the left lower second molar.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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