

Immediate Reactivation of a Modified Haas Expander after Full Screw Expansion

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Although rapid maxillary expansion is widely used for patients with transverse growth deficiencies,¹ a single expansion device may not be sufficient for complete correction of a severe case.²⁻⁴ This article describes the steps involved in immediate reactivation of a modified Haas expander after full screw expansion.⁵

Case Report

An 8-year-old male in the mixed dentition presented with a Class I malocclusion associated with bilateral posterior crossbite (Fig. 1). Pretreatment dental casts revealed a restricted maxillary intercanine width (22mm) and intermolar width

(35mm) compared to the norms for this age group.⁶

A fixed modified Haas expander with a 7mm expansion screw* was placed (Fig. 2). After eight days of activation according to the protocol recommended by Haas,¹ the maximum expansion capacity of the screw had been reached without sufficient correction of the posterior crossbite (Fig. 3).

We decided to continue the rapid maxillary expansion by reactivating the modified Haas expander. The following procedure was performed; for the steps involving the use of acrylic resin,** a different shade (orange) was used to illustrate the insertion of new material.

Procedure

1. Holes were drilled for stabilizing wires in the anterior and posterior regions of each acrylic half of the expander, using a high-speed round carbide bur.*** The original stainless steel wires were left in the acrylic (Fig. 4).
2. The distances between the anterior and poste-

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Fig. 1 8-year-old male patient with Class I malocclusion and bilateral posterior crossbite before treatment.



Fig. 2 Placement of modified Haas expander with 7mm expansion screw.

rior holes were measured with a caliper and transferred to 1mm stainless steel wires,* which were bent into goalpost shapes at these marks (Fig. 5). The bars were then inserted into the holes and fixed with self-curing acrylic resin.

3. According to Silva Filho and colleagues, acrylic should be removed from around the fully activated expansion screw on the side where the expansion screw's support bars leave a void in the acrylic.⁵ In this case, the entire acrylic surface covering the expansion screw on the left end was slowly and carefully removed with a cylindrical diamond bur*** to avoid damaging the screw



Fig. 3 Full activation of modified Haas expander; radiograph shows opening of midpalatal suture.

(Fig. 6).

4. A sickle-shaped cement remover was positioned beneath the screw and against the acrylic surface, and leverage was applied to the expansion screw to release it from the lingual portion of the acrylic (Fig. 7).

5. The expansion screw was completely deactivated (closed), creating a space between the screw and the acrylic on the released side, with

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Fig. 4 Four holes drilled in acrylic of expander for placement of stabilization system.

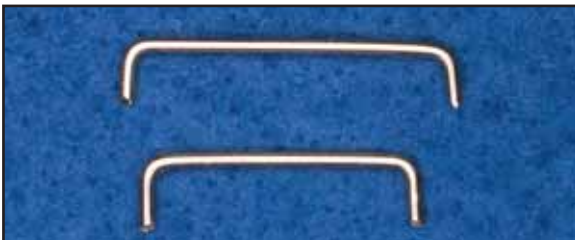


Fig. 5 Stabilization wires inserted into acrylic.



Fig. 6 Unilateral removal of acrylic from screw.

the screw closer to the embedded side (Fig. 8).

6. To keep the new acrylic from overflowing and contacting the palatal mucosa, pink wax** was placed between the two halves of the expander. Using a brush, the space between the expansion screw and the released acrylic was refilled with a small amount of acrylic resin, covering the screw (Fig. 9).

7. The stabilizing wires were detached, excess acrylic resin was removed with a high-speed

round carbide bur*** (Fig. 10), and the holes for the stabilizing wires were filled with acrylic resin. The remaining excess acrylic was removed during finishing and final polishing with a low-speed felt disk and pumice.

8. The modified Haas expander was immediately reactivated to complete the rapid maxillary expansion (Fig. 11).

Discussion

Patients with maxillary transverse deficiencies can be treated with various types of rapid palatal expanders. The Hyrax device, which has no palatal acrylic pads, is usually selected for patients

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Fig. 7 Application of leverage to remove screw from lingual portion of acrylic.

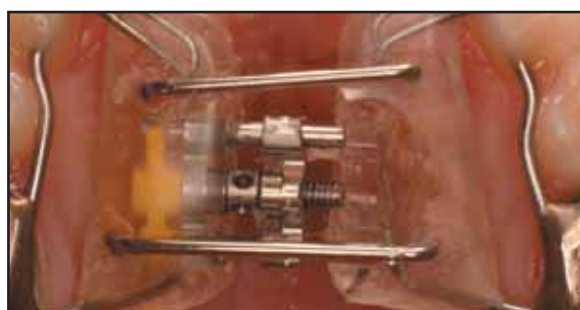


Fig. 8 Deactivation (closure) of expansion screw.



Fig. 9 Refilling of space around expansion screw with acrylic resin.



Fig. 10 Removal of excess acrylic before final polishing.



Fig. 11 A. Reactivation of expansion screw. B. One month after reactivation of expansion screw. C. One year after removal of expansion screw.



with severe maxillary restriction, but these patients may require additional expansion after full activation. The need to fabricate a new appliance can be avoided by using a Haas expander and reactivating the screw.

The capacity of an expansion screw depends on its type and length. In the present case, the screw had a capacity of 7mm, and each full turn of the screw created .8mm of maxillary opening. Therefore, the screw could undergo 8.75 turns, corresponding to nearly nine days of activation. Activation beyond the capacity indicated by the manufacturer could have detached the screw from its base, according to Silva Filho and colleagues, who used a screw with the same characteristics as in the present case.⁵

The procedure described in this article requires only about 45 minutes—much less time than would be needed to replace the appliance. The greatest advantage is that it is performed entirely with the appliance in the mouth. Although this may have discouraged some orthodontists from attempting it, we have found it a simple, safe, and convenient treatment option in cases involving inadequate correction of transverse growth deficiency.

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