

## Deciduous Molars a Useful Source of Anchorage

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### Abstract

**Aim:** The aim of this study is to make evidence of the advantages of using RPE in deciduous dentition or early permanent dentition.

**Methods:** RPE appliance was cemented on primary second molars and there was a period of 14 days of activation.

**Results:** Widening of the maxilla by RPE provides correction of posterior or anterior crossbites and gain in arch perimeter.

**Conclusion:** Expanding the maxillary arch as early as detected by using deciduous second molars as source of anchorage has several advantages. By increasing maxillary arch perimeter mandibular arch can benefit as well.

**Keywords:** early treatment, crossbite, RPE, deciduous dentition

### 1. INTRODUCTION

Cross-bite regardless of the location and number of teeth affected is an anomaly often encountered in orthodontic practice. One of the main causes and with a significant impact on the severity is the transversal maxillary deficiency.

It has already been proven that widening of the maxilla is the proper way to treat a posterior uni or bilateral posterior cross bite accompanied or not by an anterior crossbite [1].

The first attempt to widen the maxilla dates back to 1860 when E.H. Angell applied to a 14-year-old patient a screw that had extensions on both premolars of one side and the second premolar of the other side. The patient was instructed to do two screw rotations per day. Angle defines the results as follows: "The instructions were followed with precision and at the end of the two-week activation period the jaw was opened so much by creating a space between the two incisors, indicating that the maxillary bones were separated and the left lateral incisor that was in crossbite had overpassed it" [2].

Nowadays the modification of the device construction and the evidencing of the efficiency of this way of treatment have made the rapid maxillary expander to find a very wide use.

The principle of using the rapid maxillary expander consists in the application of heavy forces capable of opening the palatal suture [3]. With the aging process the suture continues to ossify so that its opening becomes difficult making it impossible to open. Usually, the first permanent molars are used as anchors of this device, which are vestibularized in the continuation of the widening. The literature describes cases with exostoses, denticles or resorptions of the roots of the first permanent molars after the application of heavy forces [4].

Cross bites of any type are not self-correcting and should be treated as soon as possible [5]. In young patients with severe cross-bite forms the maxillary rapid expander may be anchored to the second deciduous molars after verifying no root resorption. In this way, the expansion is done in the proper time and the possible damages of the first permanent molars are avoided.

The aim of this study is to make evidence of the advantages that rapid maxillary expansion has by using the second deciduous molar as source of anchorage.

## 2. MATERIALS AND METHODS

The device is constructed on two metal bands which are adapted to the second deciduous molars (**Figure 1**).



**Figure 1.** Schematic of the Angle expander

After fitting and instructing the parents on the way how to activate the screw, the expander is cemented. The activation period depends on the amount of maxillary arch constriction. Two activations per day are recommended for two

weeks. At the two-week control was evaluated the need for further activation.

After the end of the active phase, the device is locked. The device should be held in the mouth until the eruption of the laterals. (**Figure 2**)



**Figure 2.** Intraoral view

## 3. RESULTS

By the application of heavy forces, the separation of the palatine suture creates a diastema between the two maxillary centrals, which is an indication that the apparatus has

functioned properly [2] (**Figure 3**). The inter-incisive diastema closes subsequently as a result of retraction of the transeptal fibers but the skeletal expansion created as a result of suture opening is not lost [6].



**Figure 3.** Frontal views before and after expansion

Holding the device in the mouth and checking periodically the patient for possible

decementation of the metal rings, is very important to avoid skeletal recurrences.

The widening provided by the suture opening is more pronounced in the region of the incisors by correcting the anterior crossbite. However, the

effects are also good in the posterior region by correcting the crossbite [6] (**Figure 4**).



**Figure 4.** Lateral views after expansion

#### 4. DISCUSSION

The expansion of maxilla in young patients is a treatment method often used in orthodontic practice [7]. It has been proven that cross-bite despite the number of teeth it involves and their localization does not have the ability to self-correct. Based on this fact, there is no doubt about its early treatment and there are even authors who recommend this treatment in deciduous dentition [8].

Early treatment carries the risk of prolonging treatment duration so clinical cases must be carefully evaluated before starting an early treatment.

Applying the rapid expander at the beginning of mixed dentition anchoring to the deciduous molars has several advantages. The prognosis of such treatments is good and the prediction of expected results is high. It does not require the cooperation of the patient as the device is attached. It can be used for the treatment of unilateral or bilateral crossbites, severe anterior crowding or for the pseudoclass III. After expansion, even the newly erupted permanent molars overcome the crossbite.

#### 5. CONCLUSION

Rapid maxillary expander can be successfully used in the early mixed dentition phase by applying the rapid expander to the second deciduous molars.

This type of treatment applied correctly and in the proper time enables the treatment of:

- Posterior crossbites of permanent molars.
- Crossbite and the crowding of permanent laterals.
- Maxillary arch constriction
- Pseudoclass III.

Advantages of this treatment include:

- Does not affect the first permanent molars,
- It does not require cooperation from the patient as the device is attached,
- Less clinical working time.

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