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Neuro-occlusal rehabilitation by the Planas direct tracks method: case report

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Summary

Occlusions are among the problems of public health due to their high epidemiological dimension in the childhood phase and are considered by the World Health Organization the third odontological problem. Among them are the crossbites, which, if not treated early, may lead to craniofacial alterations in adulthood, compromising the structures of the stomatognathic apparatus. The objective of this study was to report the clinical case of a male child with a functional unilateral posterior crossbite, treated by the planas direct tracks technique. The clinical case refers to a 3-year-old patient, with a left unilateral posterior crossbite and with midline deviation. Following the protocol of neuro-occlusal rehabilitation with the use of Planas Direct Tracks, wearings were performed on the occlusal interferences of the 63 tooth and the confection of slopes in inclined planes using composite resin, which was installed on the upper tooth of the crossed side, in order to promote the occlusal balance. After 31 days of treatment, there was bite uncrossing and midline leveling. We conclude that the favorable clinical outcome has been achieved and that the Planas Direct Tracks technique is effective for the treatment of functional crossbites.

Key words: malocclusion, children, corrective orthodontics.

Introduction

The malocclusions can produce changes both from the aesthetic and functional points of view, affecting chewing, swallowing, breathing, phonation and the children's quality of life (1-4). Occlusions are among the public health problems due to their high epidemiological dimension in the childhood phase and are considered by the World Health Organization the third odontological problem, being preceded by periodontal disease and by dental caries (5-7).

Among the occlusions, the anterior and posterior crossbites stand out, being classified didactically in skeletal, dental and functional. The skeletal crossbite is the result of a discrepancy in the maxillary and/or mandibular bone structure. The dental is caused by an altered pattern of eruption of the teeth and the functional is characterized by the existence of premature contacts that depreciate the occlusion, causing skeletal changes if not treated early. The permanence of functional crossbite can lead to facial and postural asymmetry, temporomandibular and masticatory problems (8, 9).

Given these points, early corrective and preventive interception of crossbite in early childhood and the correct choice of treatment are essential. Neuro-Occlusal Rehabilitation (NOR), using the Planas Direct Tracks technique, elucidated by Pedro Planas, becomes attractive because of its orthopedic benefits. The NOR in its foundation is intended to remove occlusal interferences that cause physiological and morphological disorders in order to reprogram the patient's musculature (4, 6, 7, 9, 10).

The treatment with Planas Direct Tracks is a therapeutic resource, in which there is the addition of composite resins applied directly in the occlusal of the deciduous teeth, forming a barrier that prevents the return of the mandible to the deviation position in which it was accustomed, seeking the harmonization of the occlusal plane in relation to the Camper plane, and the altered vertical dimension pathologically (4, 6).

This technique is cited by many Authors as a way to treat functional crossbite because it presents advantages as a low cost when compared to orthopedic and/or orthodontic appliances, uses the function as growth stimulus, presents no risk of overcorrection, is fast and does not depend on the patient collaboration (6, 11, 12). However, despite the citations about the technique, there are few findings in the literature that contextualize the theme, making it difficult to study and disseminate it, and then being

almost unknown in the dental environment.

In this way, the present study aims to report the clinical case of a male child with a functional unilateral posterior crossbite, treated by the Planas Direct Tracks technique, in order to determine its efficacy and its occlusal stability.

Clinical case

The present clinical case was performed with a patient L.S.B., male, 3 years old, deciduous dentition. He was diagnosed in the initial clinical examination with left functional unilateral posterior crossbite, midline deviation, straight facial pattern, absence of dental caries lesions and soft tissue normality. The patient had a habit of using a baby bottle twice a day, and the caregiver was instructed to stop this habit (Fig. 1-3).

According to the NOR protocol, there was classified the functional unilateral posterior crossbite with manipulation of the mandible for the examination of the intermaxillary relation. This procedure evidenced

the mandibular deviation from the position of centric relation to maximum habitual intercuspation, characterized by the dental interferences.

No abnormal conditions were detected on panoramic radiographic examination. For differential diagnosis, it was used the data set obtained with the clinical and radiographic exams, study models, intra-buccal and postural photographs. In the anamnesis, it was verified that the patient was breastfed for 3 months, the chewing preference side was the left side and he was not in dental treatment at another location (Fig. 4). Initially, there were made removals of premature contacts and after that, the tracks were made in composite resin, following the protocol of adhesive restorations. Prophylaxis, relative isolation of the operative field, conditioning of the teeth with 37% phosphoric acid, application of the adhesive system and the confection of the tracks, with composite resin photopolymerizable. For this, the insertion of the composite resin in an inclined plane on 63 tooth was determinant to establish the correct neuromuscular excitation in the rehabilitation of the stomatognathic system.



Figure 1. Initial of treatment: left functional unilateral posterior crossbite.



Figure 2. Initial of treatment: left functional unilateral posterior crossbite.



Figure 3. Initial of treatment: left functional unilateral posterior crossbite.



Figure 4. Initial of treatment: postural photographs.

The restorative material selected was the composite resin Z100 (3M), in shade A1. It is a microhybrid resin that offers adequate resistance to masticatory efforts, while allowing good smoothness of surface and polishing, avoiding the accumulation of dental biofilm. The finishing was done with diamond tips numbers 1192F and 3118F in high rotation. The final configuration of the tracks must be wide enough to block the return of the mandible to the deflected position and thick enough for not to fracture when in function.

The patient was accompanied with 2 biweekly and 1 monthly controls for treatment evaluation and for occlusal adjustments. There was leveling of the midline and uncrossing of the bite, showing that the goal of the treatment was reached and, at the end of this period, the rebalancing of the stomatognathic apparatus (Figs. 5-8).

Discussion

The high prevalence of posterior crossbite in preschool children warns the need for prevention and early intervention, since this occlusion does not self-correct and causes physiological, social and psychological disorders (9, 13-15).

Among the main etiological factors of posterior crossbite, genetic factors, mouth breathing, neglect of breastfeeding and sucking habits can be highlighted (9, 16).

Since the 40's, Pedro Planas was concerned with the etiology and diagnosis of childhood occlusion disorders. The reduction in the number of children breastfed, in conjunction with what Planas called "civilized feeding", eliminates some of the stimuli needed for growth and changes the pattern of development of the respiratory system (6, 10). Moimaz et al demonstrated that the lack of stimulation caused by breastfeeding can lead to occlusions, including crossbite, a fact evidenced in this study, in which the patient's mother reported breastfeeding for only 3 months (16).

The NOR as a treatment of posterior crossbite was efficient due to the fast correction of the occlusion and because it was made in a single session. The treatment is favorable within 3 to 6 years old children because it corresponds to the stage of greater growth and development of the cranio-muscular. In the present study, the clinical case was performed in a 3-



Figure 5. Clinical case: 30 days after treatment.



Figure 6. Clinical case: 30 days after treatment.



Figure 7. Clinical case: 30 days after treatment.



Figure 8. Clinical case: 30 days after treatment.

year-old patient and used the adaptive capacity of the musculature as proposed by many Authors (4, 6, 7, 12, 17).

With diagnosis and early intervention, it is observed the reestablishment of normal patterns in facial growth and development. This is the objective of the treatment of functional crossbites, which aims to change the mandibular posture, by the association of the made tracks and selective wearings performed on premature dental contacts (4, 12, 18, 19).

In this way, it facilitates the deprogramming of the nervous and muscular centers, adapted to the deviation, with later remodeling to the appropriate position. The neural and muscular deprogramming obtained with the orthopedic treatment has as immediate consequence the need to stimulate the patient to adapt to the new mandibular position (6, 7, 11, 12).

The correction of functional posterior crossbite by the direct tracks reunites innumerable features that make its use advantageous. It is a resource that presents low cost, dispenses material or special equipment for its realization, and should be proposed for the public service, since occlusions are the third public health problem according to WHO. Moreover, it is the fact

that they do not require collaboration of the patient, since they are based on “adhesive restorations” and selective wearings that remain active in the stomatognathic system. As pointed out by Pinzan et al., the collaboration of the child in the use of the removable orthodontic appliance is one of the most critical limitations of his study because it interferes in the efficacy and time of the treatment (5-7, 12, 20, 21). In the clinical case, the patient obtained at the end of the NOR treatment, correction of crossbite, leveling of the midline and return of facial symmetry. Studies corroborate that facial asymmetries are generally more frequent in individuals presenting unilateral posterior crossbite in the deciduous dentition than those with normal occlusion. Given that, it is inferred the importance of the treatment in the growth phase of the individual, since this functional occlusal disharmony can cause changes in the skeletal structures generating after-effects in the adulthood.

Conclusion

The correction of functional unilateral posterior crossbite through the use of Planas Direct Tracks. The favorable clinical outcome was reached, because the intervention occurred at an early age and the child's tissue dynamics was still favorable for remodeling and accommodation of the stomatognathic apparatus.

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