

Oral Session O10/Growth and Development – Orthodontics 2

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Orthodontic correction of a maxillary canine-premolar complete transposition

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Introduction: Transposition is defined as an unusual type of ectopic eruption where a permanent tooth develops in the position normally occupied by another permanent tooth. Transpositions can be complete, with crowns and roots transposed and parallel, or incomplete, with the crowns transposed, but the root apices in a relatively normal position. The following case show the orthodontic correction of a complete transposition between a maxillary canine and a first premolar.

Case reports: The eleven-years old boy, who had complete transposition between a maxillary canine and a first premolar came to the department of Pediatric Dentistry, Yonsei university dental hospital. For treatment, removable appliances were used for anchorage, traction the teeth and space gaining. Button was bonded on the buccal side of the canine and elastic chain was applied to this button. After that, alignment and leveling were accomplished by using fixed appliances to obtain correct intercuspation, ideal torque, and root parallelism. The procedures were performed about 35 months.

Comments: Complete transposition between a maxillary canine and a first premolar can be corrected orthodontically, but the mechanics are complex, treatment time is long, and damage is possible to the supporting and dental tissues. But, this approach would provide a functional occlusion with good intercuspation. Patient compliance, the practitioner's skill and experience, esthetics, and function should all be considered when deciding whether treatment of the transposition should involve tooth extractions, tooth alignment in the transposed order, or complete correction of the transposition orthodontically.

Keywords: Complete transposition, Ectopic eruption, Maxillary canine.

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An approach of orofacial myology on digit-sucking-related anterior open bite

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Background: Approximately 10% of children have maintained a digit sucking habit which is associated with anterior open bite and other malocclusions. Effects and costs of appliances developed to correct the oral habit and the consequent malocclusions remain controversial.

Aim: To conduct a case-control study of digit sucking behaviour in a sample of 4-to-12-year-olds in Australia, with a special interest in the effect of orofacial myology management on cessation of the oral habit and correction of the consequent anterior open bite.

Design: With appropriate ethics approval, patient records from a local clinic were de-identified and screened. Children having displayed digit sucking behaviour and anterior open bite were included. A 3-month management programme containing daily placement of a stomahesive wafer on the incisive papilla, behaviour shaping, reward charts and supportive phone calls was carried out. Data collected included age, gender, digit sucking behaviour and anterior open bite. A paired-samples t-test was used to examine occurrence of digit sucking behaviour and anterior open bite over the 3-month course.

Results: Twenty-one (67.7%) girls and 10 (32.3%) boys completed the programme. There was no difference in age distribution between girls and boys ($t = 1.434$, $df = 29$, $P = 0.162$). Upon completion, twenty-six out of 31 children (83.9%) gave up digit sucking behaviour ($t = 12.490$, $df = 30$, $P < 0.001$). Occurrence of anterior open bite reduced from 19 patients (61.3%) to five patients (16.1%) ($t = 4.971$, $df = 30$, $P < 0.001$).

Conclusion: The 3-month programme of orofacial myology management is effective in cessation of digit sucking behaviour and correction of digit-sucking-related anterior open bite. Future investigation is indicated.

Keywords: Digit sucking, Open bite, Incisive papilla.

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A new approach to measure performance of dental age estimation methods

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Background: The accuracy of dental age estimation methods is usually measured as the mean difference between dental and chronological ages, however this does not reflect performance over an age range.

Aim: The aim of this study was to measure performance of dental age estimation methods across age categories as well as an average value.

Design: This was a retrospective study of archived dental panoramic radiographs of 946 children aged 3–16. Dental age estimation methods tested include dental maturity scores (Demirjian, Willems, Nolla), pictorial charts (Schour and Massler, Ubelaker and the London Atlas) and two methods of individual second permanent molar (M2) stages. Mandibular left teeth (excluding third molar) were assessed using each method and dental age estimated for all dentally immature individuals. Accuracy of dental age estimation methods was calculated as the mean difference and absolute mean difference between dental and chronological ages. A new measure of performance was devised as the number of 1 year categories with at least 50% of children correctly assigned.

Results: The London Atlas performed best in all measures. Several methods (Willems, the two individual M2 stages) had good accuracy but attained only at least 50% correct age category assignment in 4 or 5 age categories. The number of age categories with at least 50% correctly assigned children ranged from one (Demirjian) to nine (London Atlas).