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Effectiveness and Efficiency of Molar Distalization in Orthodontic Treatment

Molar distalization is a frequently used non-extraction option for orthodontic camouflage. Extraoral appliances such as headgear, and intraoral appliances such as pendulums, have been used and achieved effective results. The effect of extraoral appliances depend on patients' co-operation, and intraoral appliances can have side effects like distal tipping, rotation and anchorage loss. Therefore, anchorage loss can be resist through skeletal anchorage devices in conjunction with intraoral movers. In addition, clear aligners have become common alternatives under aesthetic and comfort considerations, providing Class II correction with high predictability through continuous distalization. However, molars can only be distalized with adequate bony envelope to house the roots, exceeding which will result in dehiscence, root-resorption and even tooth mobility. The boundaries of molar distalization refers to the posterior alveolar region. To date, there is no universal consensus describing the posterior alveolar regions of the maxilla in the context of molar distalization. We then quantitatively analyzed the influence of vertical growth patterns on retromolar regions of mild skeletal Class II patients through measuring cone-beam computed tomography (CBCT) images of 60 patients with hypo-, hyper- and normo-divergent. After standardized orientating images in Mimics 16.0 software, the available distance between second molar root and inner/outer cortical bone as well as the bone volume of reconstructed slices were measured. The results showed significant differences in the maxilla among three vertical growth patterns. In conclusion, vertical growth patterns affect distalization potential, and the patient with hyperdivergent growth pattern is indicative of less potential for distalization.

Biography

Dr. Xianglong Han completed PhD from West China School of Stomatology (WCSS), Sichuan University, and postdoctoral studies from Baylor College of Dentistry, Texas A&M University. Dr. Han is a professor in department of orthodontics of WCSS, fellow of International College of Dentists, member of Edward H. Angle Society of Orthodontists, and committee of Chinese Orthodontic Society. He conducts 5 projects supported by National Natural Science Foundation of China, and has published 90 peer-viewed publications and 18 patents.