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Enhancement of molar anchorage with X buccal tube

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Abstract

Protection of molar anchorage is critical in fixed appliance orthodontic treatment. It is emphasized in both Edge-wise technique and Begg technique that proper steps should be taken to maintain the anchorage. Generally tip-back bend would be applied to archwire to resist mesial molar tipping. Straight wire appliance is developed from Edge-wise appliance and has been the mainstream technique over decades. In this technique NiTi wires are widely used for alignment of teeth at the initial stage of treatment because of the property of good elasticity. However they are too elastic to be bent which makes it impossible to make use of the classical tip-back bend to preserve molar anchorage. X Buccal Tube (XBT) is developed to solve this dilemma. It is uniquely designed with a tip-back tube and an archwire slot. The moment to resist molar mesial tipping will be generated through insertion of the first archwire to the tip-back tube till the end of alignment. Molar anchorage will be enhanced without archwire bending. To evaluate the effect of XBT on preservation of molar anchorage a clinical trial was conducted. 11 patients treated with XBT were selected. Study models of upper dentition were taken before and after orthodontic treatment. Linear and angular movements of upper first molars were evaluated via 3D model analysis and cephalometric superimposition respectively. The result indicated that average movement of 22 upper first molars was 1.81° distal tipping, 2.38mm mesial movement, 0.73mm extrusion and 0.46°buccal tipping, which could meet the request of maximum anchorage. Application of XBT could be an effective and convenient way to preserve molar anchorage without using extra affiliated anchorage enhancement appliances.

Biography

Dr. Si Chen completed her MSD and Certificate in Orthodontics in 2006 and PhD in 2009 at Peking University School and Hospital of Stomatology. She has been actively involved with orthodontic research and her research interests include application of new techniques into Orthodontic treatment and the use of cone beam CT scans to investigate diagnostic factors and treatment outcomes.