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DIMENSIONAL CHANGES IN THE PALATE ASSOCIATED WITH EARLY TREATMENT OF POSTERIOR CROSSBITE

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Purpose: The purpose of this study was to evaluate palatal symmetry, initial palatal dimensional and molar angulation changes following slow maxillary expansion during the mixed dentition compared to untreated controls.

Materials and Methods: The treatment sample consists of 35 subjects who were treated for unilateral posterior crossbite with a functional shift with a Haas-type appliance at a private dental office. The control sample consists of 35 subjects from Oregon Health and Sciences University. The control and treated samples were matched for dental age and gender. Records were taken at two time intervals T1= before expansion (mean age of 7 years old), T2= after expansion (8 years old). Measurements of molar angulation, palatal surface area, width, volume were done on digitized models. Palatal surface area and volume were divided into 3 parts (anterior, middle and posterior) which were split in halves by the midpalatal plane to measure symmetry.

Results: All measurements showed changes following expansion. The mean intercanine width increase was 4.91mm while the intermolar width was 4.87mm. The mean increase in the total surface area was 115.66mm^2; the mean difference pretreatment between the anterior halves was 1.06mm^2 (Range= 1-9mm^2) and post treatment it was 0.6mm^2 (Range= 1-12mm^2); in the middle halves pretreatment it was 3.64mm^2 (Range= 1-7mm^2) and posttreatment it was 0.71mm^2 (Range= 3-15mm^2); in the posterior halves pretreatment it was 2.7mm^2 (Range= 1-8mm^2) and posttreatment it was 5.5mm^2 (Range= 1-19mm^2). The mean volume increased by 919.72mm^3; the mean difference pretreatment between the anterior halves was 13.3mm^3 (Range= 3-54mm^3) and post treatment it was 5.28mm^3 (Range= 3-66mm^3); in the middle halves pretreatment it was 3.01mm^3 (Range= 2-91mm^3) and posttreatment it was 14.89mm^3 (Range= 2-130mm^3); in the posterior halves pretreatment it was 17.7mm^3 (Range= 13-58mm^3) and posttreatment it was 37.96mm^3 (Range=3-214mm^3). The right molar mean buccolingual angular changes were 4.99° (Range= (-8°)- 8°) and the mean mesiodistal angular changes were 4.18° (Range= (-0.7°)- 9°). The left molar mean buccolingual angular changes were 5.65° (Range= (-3°)- 16°)and the mean mesiodistal angular changes were 4.32° (Range= 0.4°- 8°).

Conclusions: Early to conclude anything because these results are only based on a sample of 8 patients.