Comparative Evaluation of Condylar Volume Between Patients With Unilateral Condylar Hyperplasia and Class III Dentofacial Deformity

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Purpose To compare the condylar volume of patients with unilateral condylar hyperplasia (UCH) with that of patients with a Class III skeletal relation. Materials and Methods Twenty cone-beam computed tomograms of patients were analyzed. Images were divided into 2 groups: 10 from patients with transverse asymmetry of the face and 10 from patients with a Class III facial deformity. Patients' ages ranged from 15 to 30 years. Volumetric data were reconstructed using Dolphin 3D software (Dolphin Imaging & Management Solutions, Chatsworth, CA). This software measured the condylar volume above the deepest point of the sigmoid notch, the lower arch midline deviation, and the overjet. Results The condyle with hyperplasia exhibited the largest volume (1.97 ± 0.52 cm3) and a statistically significant difference compared with the contralateral condyle (?2 = 14.30; P < .01). The Class III condyle exhibited relative symmetry of volume between the left and right sides. These condyles exhibited a larger volume compared with the non-hyperplastic condyles in the UCH group, with a statistically significant difference (?2 = 6.22; P = .013; ?2 = 5.50; P = .019). Conclusions Hyperplastic condyles were similar in volume to the condyles of patients with mandibular prognathism, suggesting that patients with a Class III skeletal relation could exhibit bilateral condylar hyperplasia.