論 文 要 旨

Influence of surgical orthodontic treatment on masticatory function in skeletal Class III patients

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Patients with skeletal Class III exhibit malocclusion characterised by Angle Class III and anterior crossbite, and their occlusion shows total or partially lateral crossbite of the posterior teeth. Most patients exhibit lower bite force and muscle activity than non-affected subjects. While orthognathic surgery may help improve masticatory function in these patients, its effects have not been fully elucidated. The aims of the study were to evaluate masticatory function before and after orthognathic treatment in patients with skeletal Class III in comparison with control subjects with normal occlusion. Jaw movement variables and EMG data were recorded in 14 female patients with skeletal Class III malocclusion and 15 female controls with good occlusion. Significant changes in jaw movement, from a chopping to a grinding pattern, were observed after orthognathic treatment, rendering jaw movement in the patient group similar to that of the control group. However, the grinding pattern in the patient group was not as broad as that of controls. The activity indexes, indicating the relative contributions of the masseter and temporalis muscles changed from negative to positive after treatment, becoming similar to those of control subjects. Our findings suggest that orthognathic treatment in patients with skeletal Class III improves the masticatory function. However, the chewing pattern remains incomplete compared with controls.