

## Cephalometric analysis of Hyoid bone position in different jaw dysplasia

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### Abstract

**Background and Aim:** Hyoid is the only bone that has no bony articulation. It is connected to muscles and ligaments. Therefore, its position can be associated with head posture and different oral functions. The aim of this study was to evaluate the hyoid bone position in different vertical and sagittal jaw dysplasias.

**Materials and Methods:** In this descriptive study, standard digital lateral cephalograms of 200 patients in the age range of 18 to 25 years were selected and subjects were divided into 5 groups based on vertical and horizontal facial growth pattern: group 1: Class I, normal face, group 2: Class II, normal face, group 3: Class III, normal face, group 4: Class I, short-faced, group 5: Class I, long-faced. Hyoid bone position was analyzed by View box4 software.

**Result:** The anterior-posterior position of the hyoid bone was significantly backward in groups 2 and 5 compared to groups 3 ( $P=0.001$ ) and 4 ( $P=0.001$ ). However, the sagittal position of this bone in groups 2 and 3 was comparable to groups 5 and 4. The vertical position of hyoid bone was significantly upward in groups 2 and 4 compared to groups 3 ( $P=0.001$ ) and 5 ( $P=0.001$ ) but this position was significantly downward in groups 2 and 5 compared to groups 4 ( $P=0.001$ ) and 3 ( $P=0.001$ ). The axial inclination of this bone was comparable among subjects with different sagittal jaw dysplasias. This inclination was significantly more horizontal in group 4 compared to group 1 whereas in group 5, hyoid bone was more oblique ( $P=0.001$ ).

**Conclusion:** Among subjects with different sagittal jaw dysplasias, the anterior-posterior position of the hyoid bone in Class II and Class III subjects was more posterior-superior and anterior-inferior compared to Class I subjects. Among subjects with different vertical jaw dysplasias, the hyoid bone in groups 4 and 5 was more anterior-superior and posterior-inferior respectively compared to normal-faced subjects.

**Keywords:** *hyoid bone, cephalometry, anatomic landmarks, jaw abnormalities*