

Validity of Computed tomographic in  
assessment of genial tubercle and anterior  
mandible as a reference guide to locate  
osteotomy in genioglossus advancement

*A thesis*

*Submitted to the Collage of Dentistry Baghdad  
University in Partial fulfillment of requirement for  
the degree of Master of Science in Oral and  
Maxillofacial Radiology*

*Submitted by*

**Hanan Jawad Kadem**

**B.D.S**

*Supervisor by*

**Assistant prof.Dr.Ahlam Ahmed Fatah**

**B.D.S, M.Sc (Oral Radiology)**

***IRAQ – BAGHDAD***

**2013 A.D**

**1434 A.H**

## **Abstract**

### **Back ground:**

Genioglossus advancement is a surgical procedure to advance the tongue in some patients with obstructive sleep apnea syndrome. The important step in this procedure is that of accurately capturing the bone segment attached to the genioglossus muscle to avoid complications such as mandibular fracture, devitalization of the inferior incisor roots, and incomplete incorporation of the genioglossus..

### **Aim of study:**

Validity of Spiral computed tomographic in measurement of genial tubercle and anterior mandibular region as a baseline data helping for accurate location of osteotomy in genioglossus advancement .

### **Subjects, Materials, and Methods:**

Computed tomography scans were taken for 53 Iraqi adult patients (28 male and 25 female) range from (18-35) years with skeletal class I classification and intact anterior mandible dentition included in this study.

The study sample was collected from patients who attending Al- Karkh General Hospital in Baghdad city to have Spiral Tomographic Scanner for different diagnostic purposes from November 2012 to June 2013 using sagittal and axial sections. The following measurements were done for genial tubercle and anterior mandibular region:-

mandibular thickness, superior genial spine height and width., vertical distance from lower central incisor apices to superior margin of superior genial spine and distance from inferior border of mandible to inferior margin of superior genial spine.

All the data analyzed using Statistical Package for Social Sciences version 20 computer software in association with Microsoft Excel 2010.

**Results :**

The mean values of mandibular thickness , Superior genial spine height and vertical distance from lower central incisor apices to superior margin of superior genial spine were 11.6mm , 6.3mm and 5.6mm respectively significantly higher in males than in females.the effect of gender difference was evaluated as a strong effect

The mean value of superior genial spines width and distance from inferior border of mandible to inferior margin of superior genial spine were 6.6mm and 10.2mm respectively, slightly higher among males compared to females ,but the difference fail to reach the level of statistical significance. The effect of gender difference on this parameter was evaluated as a moderately strong effect.

The results showed that there was no effect of age on all selected measurements in male and female.

All selected measurements showed no statistically significant linear correlation with the age .

**Conclusions:** The variable position and dimensions of this bone segment among patients suggest the need for CT before attempting genioglossus advancement for exact localization, avoiding the expected surgical complication Findings in this study may therefore be of clinical importance as a starting for creating reference baseline data for genial tubercle and anterior mandibular region for further studies.