

**Craniometric Asymmetry Assessment  
In Class I and Class II Skeletal  
Relationship Patients Using Helical  
Computed Tomography  
Sample Aged Between 18-35 years**

A thesis

Submitted to the council of the College of Dentistry at the  
University of Baghdad, in partial fulfillment of the  
requirements for the degree of Master of Sciences in Oral and  
Maxillofacial Radiology

By

***Uday Abdul-Rahim Taha***

B.D.S

Supervised by

***Assist. Prof. Dr. Lamia H. Al-Nakib***

B.D.S., M.Sc.

(Oral Radiology)

2013A.D.

1434A.H.

# Abstract

Asymmetry assessment is an important component of orthodontic diagnosis and treatment planning. Several studies attempted to find the relationship between craniometric asymmetry and skeletal jaws relationship and many authors found some extent of asymmetry in individuals with normal jaws relationship. The use of Computed tomography (CT) allows for the assessment of asymmetry on a dimensionally accurate volumetric image. The aim of this study was to determine if there is a difference in craniometric asymmetry between patients with a skeletal class I ANB angle compared to patients who have a skeletal class II using CT images.

The sample was collected at the Institute of X-ray of Baghdad Hospital and it consisted of 90 individuals with clinically symmetrical faces and aging 18-35 years , divided into two groups , class I group consisted of 31 individuals (18 males and 13 females) and class II group consisted of 59 individuals (35 males and 24 females ). Anatomical landmarks were defined and reference planes were established to determine the variance of the landmarks using a coordinate plane system. Sagittal radiographs were used to determine the amount of the ANB angle. Asymmetry was analyzed by calculating the linear measurements and asymmetry indices of the anatomical landmarks by using coronal and axial radiographs in both classes. Ten randomly selected patients were reanalyzed to assess reliability of the method.

The results revealed clinically symmetrical faces demonstrated a computed tomographic significant asymmetry with the vertical dimensions being significantly larger than the bilateral dimensions and the amount of asymmetry was more at the level of the mandible and less at the maxillary area. The craniometric structures in terms of size and shape were larger in males than in females. The amount of asymmetry was independent on gender and skeletal jaws relationship and age .