

**Computed Tomographic Measurement of  
Maxillary Sinus Volume and Dimension in  
Correlation to the Age and Gender  
(Comparative study among Individuals  
with Dentate and Edentulous Maxilla)**

A thesis

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## **Abstract**

**Background :** Although development and progress in various diagnostic methods, but still identification of remnants of skeletal and decomposing parts of human is one of the most difficult skills in forensic medicine . Gender and age estimation is also consider an important problem in the identification of unknown skull .

**The aims of study :** To estimate volume and dimension of maxillary sinus in individuals with dentate and edentulous maxillae using Computed Tomography scan, and to correlate the maxillary sinus volume in relation to gender and age .

**Materials and Methods :** This study included (120) patients ranged from (40-69 years), divided into two groups, dentate group with fully dentate maxilla and edentulous group with complete edentulous maxilla, and each group composed of 60 patients (30 males and 30 females) who admitted to spiral Computed Tomography scan unit in X-ray Institute in Baghdad to have Computed Tomography scan of the brain and paranasal sinuses from October 2011 to June 2012, who had complaints of headaches or with suspicion of sinusitis but without pathological findings in maxillary sinuses. The maxillary sinus volumes and dimensions (width, depth, height) were measured with the help of the computer software in Spiral Computed Tomography scan system .

**Results :**The statistical analyses of maxillary sinus measurements for dentate and edentulous groups showed that the volume and dimensions of maxillary sinuses in both groups were larger in males than females and they tend to decrease with the older age, in addition it is found that there was no significant differences in measurements of maxillary sinuses between dentate and edentulous groups, but the exception was in height measurements which were significantly higher in edentulous than dentate group for both genders.

**Conclusion :** It's found that the volumes and dimensions of the maxillary sinuses were larger in males than in females, in addition to that they tend to be less with the older age, so the Computed Tomography measurements of maxillary sinuses may be useful to support gender and age determination in forensic medicine.