Effect of Gender, Age and Tooth Loss on The Dimensions of Incisive Canal, and Buccal Bone Anterior to The Canal (Computed Tomography Study)

A thesis
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Abstract

Back ground:

The incisive canal is an anatomical structure with an important location in the anterior maxilla, analyzing this canal characteristics and evaluated its relation to the bone anterior to the canal is necessary during dental implantation of maxillary central incisors. CT scan image for this region can provide accurate features about the border, position of incisive canal and status of buccal bone anterior to this canal.

Aim of the study:

To study for the effect of gender, age and tooth loss in area of maxillary central incisors teeth on the dimensions of the incisive canal and buccal bone anterior to the canal using spiral computed tomography.

Subjects, Materials and Methods:

The sample consisted of prospective study for 156 subjects of both gender. The sample were divided into two groups, 120 dentate group (60 male and 60 female) with age ranging from (20-70) and 36 edentate group(with missing both maxillary central incisor) (18 male and 18 female) with age ranging from (50-70), which was further divided into two group according to the duration of maxillary central incisors teeth loss, long duration (5+) years which consists of 26 subjects and short duration (<5 years) which consists of 10 subjects. All subjects attended to Baquba Teaching General Hospital in Diyala for Computed Tomographic scan investigation for different Maxillofacial diagnostic purposes from November/2013 to April/2014.

Using sagittal section of computed tomography scan, the following measurements were done:

A-The diameters of incisive canal were measured at crestal, middle and apical level and the total mean value of canal diameters was calculated.

B-The length of incisive canal.

C-The distance of buccal bone anterior to incisive canal at crestal, middle and apical level and the total mean value of buccal bone distances was calculated.

D- The length of buccal bone anterior to incisive canal from the apical measurement of buccal bone to the alveolar crest.

The measuring unit was in millimeter in all measurements.

Result:

Gender had moderately strong effect on the dimensions of incisive canal and buccal bone anterior to this canal, the mean values begin generally higher for male as compared to female for both control and cases group. Absence of maxillary central incisors decreased incisive canal length and buccal bone dimensions with mean values begin higher in control group than that in cases group, the effect of teeth loss on these selected measurements seem to be strong ;however, canal diameter remain unchanged with dental status and there was no effect of teeth loss on this parameter .There was a moderately strong to strong effect of the duration of maxillary central incisors teeth loss on canal length and buccal bone dimensions with mean values being significantly lower in long duration (5+) years than that in short duration (<5 years) while it had weak effect on incisive canal diameter for both gender. The results showed that there was no significant linear correlation between age and all selected measurements in male and female for both control and cases group.

Conclusion:

CT scan is a valuable tool to evaluate the anatomic variation at the examined area in the current study, gender and dental status are important factors that can affect incisive canal characteristics and amount of bone anterior to the canal. Clinicians should perform careful planning using CT scans before performing dental implant surgeries in premaxillary region.