Accuracy of Multislice Computed Tomography in Presurgical Evaluation of Impacted Mandibular Third Molar Position

(Comparative Study Using Digital Intra Oral Imaging System)

A THESIS

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Abstract

The procedure of removing lower third molar which require information of its relative position. As the development in x-ray modalities increased so the diagnosis accuracy of those new modalities must be evaluated such as Computed Tomography scan in pre and post surgical removal of impacted lower third molars. The aim of this study is the diagnostic accuracy of multislice computed tomography in evaluation of the position of impacted lower third molar in comparison with digital intra oral imaging technique ,total sample was 40 impacted lower third molars from 20 male with age range from 20-25 years from the student of Tikrit University suffering from bilateral impaction of lower third molar ,for the period from November 2011 to April 2012, digital periapical bisecting line angle image and scanning by Computed Tomography machine was done, the evaluation was according to certain classification systems which include angulations of tooth ,relation to adjacent second molar, relation to ramus, depth of impaction ,nature of overlying tissue ,root morphology (length, width, shape and curvature), and relation to inferior dental canal .All the measurements recorded in a specially prepared case sheet for each patient , all the data analyzed using SPSS version 13 program loaded on computer machine ,the statistic analysis used include:

1- Degree of agreement test between Computed Tomography scan and digital intra oral radiography for each classification system used in this study , when degree of agreement is below 100%,Kappa test done to test percent of agreement beyond chance,and P(McNemer test) to test whether this difference in agreement was significant or not.

2- Performance test to compare sensitivity ,specificity, accuracy, positive predictive value ,and negative predictive value of digital intra oral radiography for each classification system used in this study to Computed Tomgraphy scan .

The result revealed that the degree of agreement between Computed Tomography scan and digital intra oral radiography was varies from 87.5% to 100% with non significance different between the two modalities used in this study, except for the classification system of the relation of lower third molar to inferior dental canal which give degree of agreement was 80% , P (McNemar test) was 0.008, Kappa was 61.4%P<0.001, sensitivity 68, specificity 100,and accuracy 80, Digital intraoral radiograph gives an over-estimate of the distance from Inferior Alveolar Canal in 8/40=(20%). It can be concluded from this study that Computed Tomography scan revealed an accurate diagnostic tool to assist in proper treatment planning for impacted lower third molar specially in cases that impacted lower third molar is close or in contact to inferior dental canal .