Dental Medicine 2017- A three-dimensional virtual analysis versus two-dimensional analysis in evaluation of the complex impactions- Ghada Amin Khalifa- Al-Azhar University, Egypt

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Abstract

Introduction: The radiographic images play a major role in detecting the position of the impacted teeth, shape, orientation, and their relation to the adjacent vital structure. Thus, they facilitate their surgical removal with minimal trauma and minimize the postoperative complications. Plain radiographs provide two-dimensional images that have certain drawbacks. In complex impactions, the missing of certain data may lead to postoperative complications. Objectives: The aim of this study is to compare between the radiographic results of three-dimensional computed tomography (3DCT) which inserted into Simplant software and that of two-dimensional orthopantomograms(OPGs). Material & Methods: A total of 50 abnormally positioned impacted teeth were studied. The shape, position, orientation, and the relation to the adjacent vital structures were studied by using OPGS and 3DCT scans. The correlation between the surgical findings during surgeries and radiographic results was also done. The dataset of the 3DCT scans was inserted and manipulated by Simplant technology to virtually visualize the impacted teeth. Results: Thirty cases were lower impacted wisdom molars, 10 cases were upper impacted third molar, while the impacted upper canine found in 5 cases, and the other 5 cases were impacted lower second premolar. There were no differences between the OPGs and 3DCT scans regarding the orientation of impactions. 3DCT scans were much more precise in determination of the exact location of the teeth in the jaw. The buccal, palatal, or lingual position of the teeth were difficult to be determined in OPGs. The configuration of the roots was better seen by using 3DCT scans. The results of 3DCT scans were also correlated with the surgical findings, during surgeries, more than those of OPGs. Conclusion: It could be concluded that the data which is obtained from 3DCT scans can meet the objectives of the diagnostic images much more than OPGs in diagnosis and determination of the surgical panning for the removal of the complex impacted teeth. Thus, they facilitate their surgical removal with minimal complications, and amplify the documentations that provided to the patient in the consent.innovation through finding new biological treatments, such as natural adult tooth growth with the contribution of laser stimulation, the addition of fluoride in public water, and the implementation of technology to aid treatment. This is important in dentistry to continuously enhance the care that a health care provider can give to patients.

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