

*A COMPARATIVE STUDY BETWEEN
MULTI-SLICE COMPUTERIZED
TOMOMOGRAPHY WITH THREE
DIMENSIONAL RECONSTRUCTION
AND CONVENTIONAL TOMOGRAPHY
IN THE ASSESSMENT OF
MAXILLOFACIAL FRACTURES*

THESIS

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DEDICATION

TO MY DAD, MUM, MY
LOVELY WIFE, KARIM
AND YOUSSEF.

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First of all thanks to **God**.

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**دراسة مقارنة بين التصوير ثلاثي الأبعاد بالأشعة
المقطعية بالحاسوب متعددة الشرائح والتصوير
المقطعي الاعتيادي في تقييم كسور الوجه والفكين**

رسالة مقدمة إلي
كلية طب الفم والأسنان – جامعة القاهرة
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مستخلص الرسالة (Abstract) باللغة العربية :

إن تشخيص الكسور الوجهية يتم عن طريق الدمج بين الفحص الإكلينيكي والتصوير الإشعاعي حيث أن الهدف الأساسي من تصوير المرضى ذوى الإصابات الرضحية بالوجه هو تحديد أماكن وطبيعة الكسور. إن طرق التصوير المعتادة مثل التصوير البانورامي مفيدة وغير مكلفة إلا أن هناك بعض المشكلات مثل التكبير الغير متساوي والانبعاج الهندسي بالصورة بالإضافة إلى تداخل بعض الأجسام ذات الأهمية الإكلينيكية كما شكل التصوير المقطعي بالحاسوب متعدد الشرائح القفزة فى تقنيات التصوير المقطعي حيث حول التصوير المقطعي من مجرد مقاطع عرضية محورية إلى صورة ثلاثية الأبعاد بالفعل يمكن تقطيعها فى أى مستوى بالإضافة إلى إظهارها كصورة مجسمة ثلاثية الأبعاد مما أدى إلى مكاسب عديدة لتقليل وقت الفحص وإمكانية زيادة الجزء المراد فحصه. هدفت هذه الرسالة إلى المقارنة بين التصوير المقطعي بالحاسوب متعدد الشرائح بالإضافة إلى إعادة التهيئة ثلاثية الأبعاد والتصوير المقطعي الاعتيادي فى تقييم كسور الوجه والفكين فى هذه الدراسة وجد أن التصوير المقطعي بالحاسوب متعدد الشرائح قد أظهر قدرة أعلى على التصوير البانورامي فى تحديد مختلف الكسور بينما أظهرت كلتا التقنيتين نفس النسبة فى تحديد كسور جسم الفك والجار ارتفاقية وهذه الاختلافات كانت معتد بها إحصائيا فيما عدا تحديد كسور جسم الفك والجار ارتفاقية حيث لا يوجد اختلاف.

Arabic keywords:

الكسور الوجهية- التصوير البانورامي- التصوير المقطعي- صورة ثلاثية الأبعاد- التصوير المقطعي بالحاسوب متعدد الشرائح

- مستخلص الرسالة (بالغة الانجليزية) :

The diagnosis of facial fractures is accomplished by a combination of clinical and imaging examinations. Conventional imaging, such as panoramic radiographs, is useful and cost effective but it is associated with some problems such as unequal magnification and geometric distortion across the image, the presence of overlapping structures. Multidetector CT has transformed CT from a transaxial crosssectional technique into a true 3D imaging modality that allows for arbitrary cut planes as well as excellent 3D displays of the data volume. Multislice CT can be used to reduce scan time, reduce section collimation, or to increase scan length substantially. The purpose of this study is to compare between Multi-slice Computerized Tomography with Three Dimensional Reconstruction and Conventional Tomography in the assessment of Maxillofacial Fractures. In this study, CT showed higher percentage of detecting different fractures than panoramic modality except in body and para-symphiseal fractures where both modalities showed the same percentage. We concluded that CT images demonstrated many missed maxillo-facial fractures not seen on panoramic tomography. CT images changes the understanding of the nature of the fracture seen on panoramic tomography especially regarding displacement and comminution.

Key words

Maxillofacial fractures/ conventional tomography/ multislice CT/three dimensional reconstruction

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