

***Validity of Multiplanar Reformatted C.T Scanning
In Assessment of Jaw Bone
For dental implant
Pre-operatively***

Thesis

**Submitted to
The Faculty of Oral and Dental Medicine
Cairo University**

In partial fulfillment of the requirements for the degree of
PHD in Radiology

By
Lobna Mohamed Ismail Youssef

Assistant lecturer – Oral Radiology - Cairo University

Faculty Of Oral And Dental Medicine
Cairo University
2009

Supervisors

Dr. Zeinab Abd El-Salam Abd El-Latif

*Professor and Chairman Of Oral Radiology department
Faculty Of Oral And Dental Medicine
Cairo University*

Dr. Adel Zein El-Abedeen

*Professor Of Oral Radiology
Faculty Of Oral And Dental Medicine
Cairo University*

Dr. Naglaa AbdEl Razek

*Assistant Professor Of Radiology
Faculty of Medicine
Cairo University*

Faculty Of Oral And Dental Medicine

Cairo University

2009

اهمية الاشعة المقطعية المتعددة الواجه المستحدثة
فى تقييم عظام الفك
لغرس الاسنان

رسالة مقدمة لكلية طب الفم و الأسنان – جامعة القاهرة
لنيل درجة الدكتوراه

مقدمة من

لبنى محمد إسماعيل يوسف

مدرس مساعد

قسم الأشعة

كلية طب الفم و الأسنان

جامعة القاهرة

٢٠٠٩

المشرفون

أ.د/ زينب عبد السلام عبد اللطيف

أستاذ و رئيس قسم الأشعة

كلية طب الفم و الأسنان - جامعة القاهرة

أ.د/ عادل زين العابدين

أستاذ بقسم الأشعة

كلية طب الفم و الأسنان - جامعة القاهرة

أ.م/ نجلاء عبد الرازق

أستاذ مساعد بقسم الأشعة

كلية الطب - جامعة القاهرة

Acknowledgement

First of all, Thanks to God.

*No words can fulfil the feeling of gratitude and respect to **Dr. Zeinab Abd Elsalam, Professor and Chairman of Oral Radiology Department, Faculty of Oral and Dental Medicine, Cairo University** for her keen supervision, valuable advice and continuous guidance.*

I am really privileged and honoured to work under her kind supervision.

*I am deeply indebted to **Dr. Adel Zein AlAbedeem, Professor of oral Radiology, Faculty of Oral and Dental Medicine, Cairo University** for his generous supervision, continuous encouragement, support, effort and great help.*

*I would like also to express my gratitude and appreciation to **Dr. Naglaa Abd AlRazek, Assistant professor of Radiology, Faculty of Medicine, Cairo University**, for her patience and help.*

My gratitude and Thanks are extended to all staff members of Oral Radiology department.

*I can not find words to express my sincere appreciation, and deepest thanks to my **beloved husband, and my dear family** for the constant support, love, and encouragement through this work.*

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم

(سورة البقرة) آية: ٣٢

Abstract

Dental implants are the latest technology for replacing the roots of lost teeth. They support crowns, bridges, dentures; and offer stability and comfort. Adequate positioning of oral implant leads to satisfactory bio-mechanical, functional, esthetical and phonetical outcomes. So, the pre-surgical assessment of proposed implant sites requires exact and accurate data.

Twenty-five edentulous areas requiring implant insertion were selected in patients with different ages of both sexes.

All patients had routine past and present medical and dental history as well as extra-oral and intra-oral clinical examination.

Also, radiographic examination including, extra-oral panoramic radiographs, and a CT examination were performed:

The transversal images were obtained on a CT scanner using a standard protocol.

After acquisition of the images in the transverse plane, the images and data were stored on a CD in DICOM 3 format and subsequently transferred for post-processing to a workstation and multi-planar reconstructions were generated using the included standard dental software package (Dentascan CT software for dental implant planning).

The radiographs were evaluated and from the obtained information, a detailed, complete and comprehensive report was sent to the surgeon including:

- 1- Bone density measurements at potential implant site (bone quality)
- 2- Bone height and width measurements at the potential implant site (bone quantity) to determine the implant length and diameter.
- 3- Location of vital structures in relation to the potential implant site
- 4- Recommended implant size to be used
- 5- Recommended angulation of implant insertion.

- **Post operative assessment:**

At last, to evaluate the entire intervention, a post-operative control multi-planar reformatted C.T scanning of some cases was performed.

From the results, it was found that the measurements and pre-operative treatment planning using Dentascan are considered highly accurate.

Keywords

Dental implants

Dentascan

Dental CT

Bone classification

Treatment plan

Multipanar reformatted CT

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