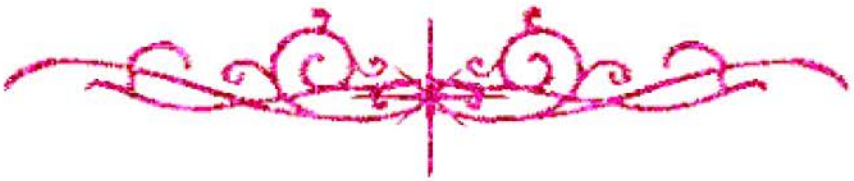
بسم الله الرحمن الرحيم

HOSSAM MAGHRABY

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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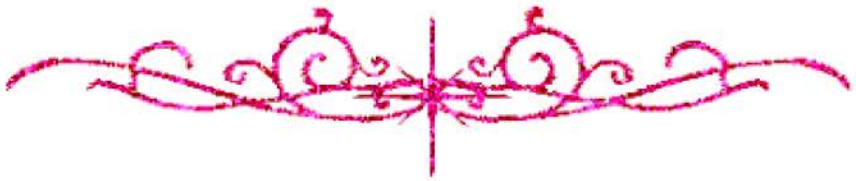
بعض الوثائق الأصلية تالفة



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بالرسالة صفحات

لم ترد بالأصل

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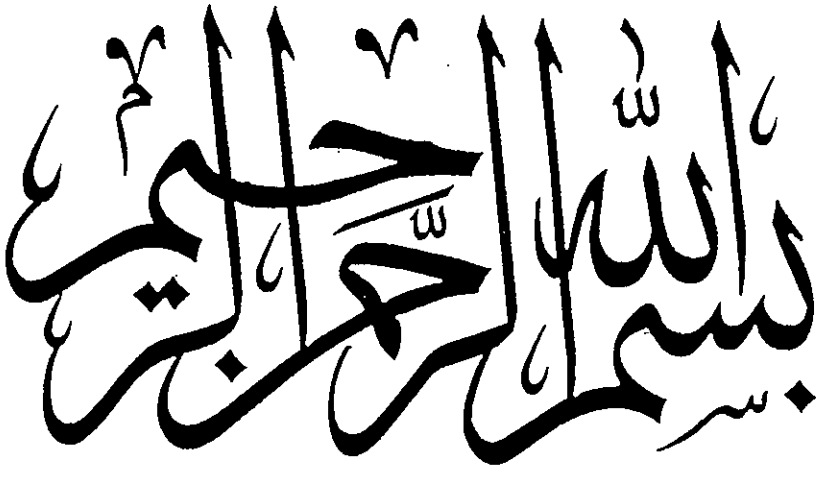
بسم الله الرحمن الرحيم

EVALUATION OF BI-CORTICAL BONE SCREWS FOR MAXILLOMANDIBULAR FIXATION IN TREATMENT OF MANDIBULAR FRACTURES

Thesis
Submitted to the Faculty of Dentistry,
Alexandria University
In Partial Fulfillment of the Requirements of

Master Degree

In

Oral Surgery

By

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ACKNOWLEDGEMENT

*" Prays be to **God**, The Master of the worlds, Most Gracious, Most Merciful..".*

*I would like to express my deep appreciation and gratitude to **Professor Dr. Hassan Abdel-Dayem,** Professor of Oral Surgery, Faculty of Dentistry, Alexandria University for his constant supervision, valuable advise, continuous teaching and guidance which made this achievement possible.*

*Also I would like to express my sincerest appreciation and deepest thank to **Prof. Dr. Sherif El.Ghamarawy**, Professor of Oral Surgery, Faculty of Dentistry, Alexandria University in supervising this work and for the whole-hearted effort.*

I also wish to express my great thanks and gratitude to all Oral Surgery Department members for their creative suggestions, and efforts that made this work a reality.

INTRODUCTION

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The aim of treatment of maxillofacial fractures is to reconstruct normal occlusion in dentate patient. Although rigid fixation has now become the method of choice for all maxillo-facial surgeons, maxillo-mandibular fixation (MMF) can still be necessary to achieve good occlusion and stability for osteosynthesis [1].

The treatment of facial fractures has traditionally involved re-establishment of a functional dental occlusion with various types of intermaxillary fixation as Ivy Loop and arch bars [2].

The use of maxillomandibular fixation (MMF) with or without open reduction and wire osteosynthesis has been the conventional approach for applying these principles in the treatment of most uncomplicated mandibular fractures [3].

Temporary maxillo-mandibular fixation is also used in orthognathic surgery to achieve and hold the correct occlusion for segment reduction and plating [4].

With the ever increasing number of persons infected with the human immuno deficiency (HIV) virus, oral and maxillo-facial surgeons needs to take precautions to avoid inadvertent skin puncture.

With the technique of using arch bars, generally 16 to 22 interdental wires are passed. Each wire has the potential for inadvertent finger puncture [5].

The introduction of intraoral bone plating systems has meant that the prolonged periods of MMF are no longer required in patients with fracture of the mandible and maxilla however there is often a need for temporary

intraoperatively to assist in the reduction of fractures with teeth in correct occlusion [6].

The treatment of maxillo-facial fractures in dentate persons usually requires control of the dental occlusion with the application of arch bars for interdental wiring in order to correct and stabilize the occlusion & can be unstable when few teeth available when periodontal disease or gross caries is present, if extensive porcelain restorations are to be avoided or if there is a pre-existent malocclusion [7].

A newly developed method of maxillomandibular fixation is the use of trans alveolar screws thought to be quicker and carries considerably less risk of needle-stick injury than placement of eyelets or arch bars [8].

The transalveolar titanium screw is 2mm in dismeter and has a capstan style head and is available in a thread length of 8 to 10mm [9].

The use of transalveolar fixation screws conveys advantages in term of ease and speed of insertion, safety and patient acceptability [10].

REVIEW OF LITERATURE

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Surgical anatomy of the Mandible:

- **Anatomical position:**

The mandible occupies a prominent and exposed position and it is therefore a common site for the receipt of intentional and unintentional violence. The mandible is the second most frequently fractured bone of the face (coming after the nasal bone) and the tenth most frequently fractured bare in the body [11].

An analysis of 500 cases of fractured patients treated at Rookdown House done by Rowe& Killey [12] revealed that 336 (76.4%) were of the mandible alone and 188 (37.6%) of cases involved the maxilla in associated bone, and 46 (9.9%) of cases involved both mandible and maxilla.

- **The shape and structure of the Mandible**:

The mandible is composed of the body which is a horseshoe shaped bone and two broad flattened ascending rami. The rami during infancy and before adulthood make an obtuse angle with the body, but after eruption of the permanent teeth this angle becomes more nearly a right angle. In edentulous mouth the angle tends to regress towards the earlier figure [13]. (Fig. 1)

In the adult, the mandible is composed of outer and inner compact cortical plates with thick medullary bone in between. The rami mainly consist of an outer and inner compact cortical plates separated by a thin layer of concellous bone, and in many cases this concellous bone layer is not very prominent. The junction between the thick body and the thin ramus constitutes a line of structural weakness where fracture could occur [12].