بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

TRANSCUTANEOUS REDUCTION AND HOFFMANN EXTERNAL FIXATION OF DISPLACED FRACTURES OF THE PROXIMAL HUMERUS

Thesis

Submitted in Partial Fulfillment for the degree of (M.D.)
IN Orthopaedic Surgery

By

Mohamed Hassan Mohamed Shoeir
M.B.B.Ch. , M.Sc.

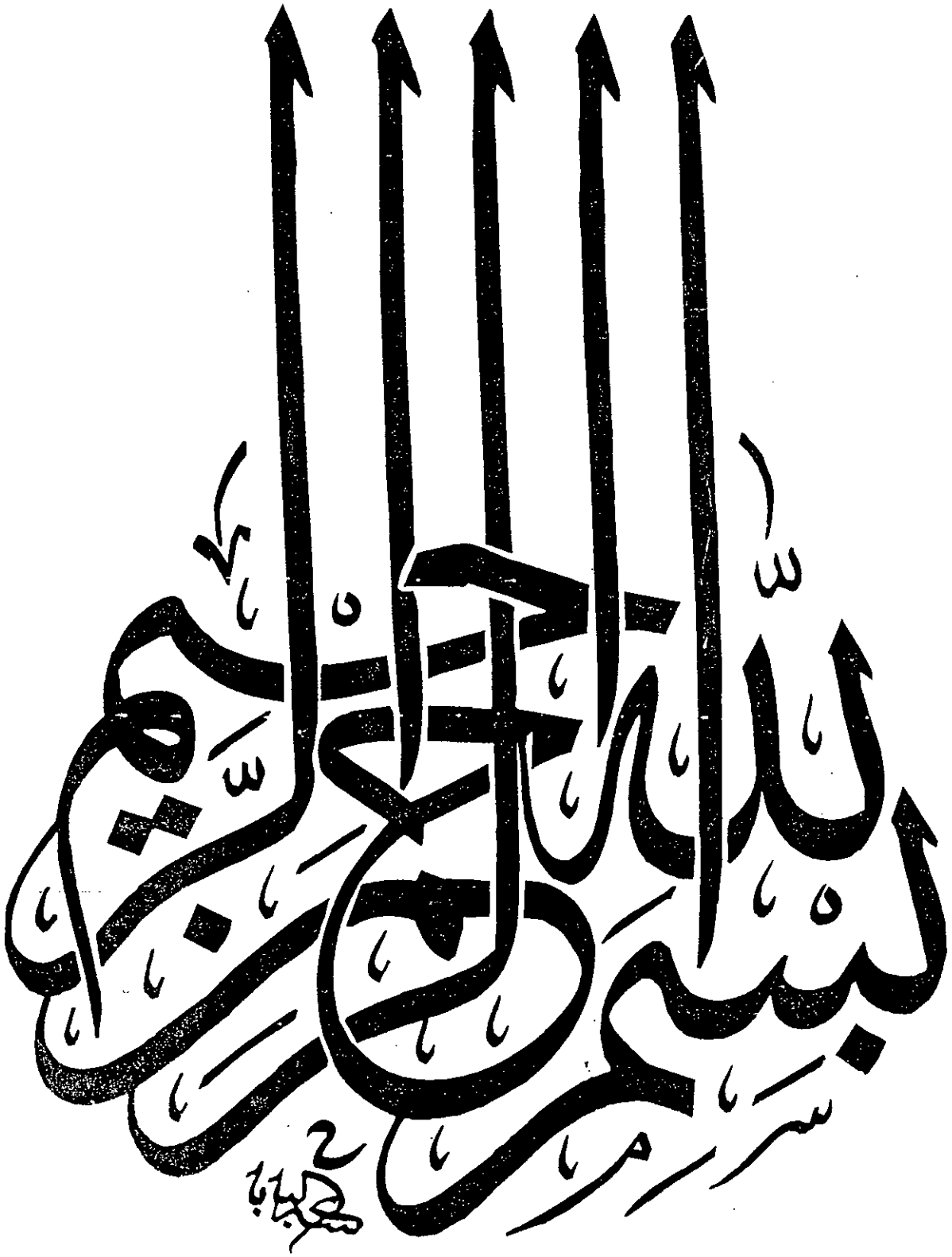
SUPERVISORS

Prof. Dr. Shereen Ahmed Khalil
Professor of Orthopaedic Surgery – Banha Faculty of Medicine

Prof. Dr. Emad El-Deen Esmat
Professor of Orthopaedic Surgery – Banha Faculty of Medicine

Prof. Dr. Mohamed Akef Saleh
Professor of Orthopaedic Surgery – Banha Faculty of Medicine

Banha Faculty of Medicine
Banha University
2005


بسم الله الرحمن الرحيم

Contents

Acknowledgment

I would like to express my deep respect to Professor Shereen Khalil Prof. Of Orthopaedic Surgery for his sincere help, valuable guidance and continuous supervision.

I am extremely grateful to Professor Emad El-Din Esmat Prof. Of Orthopaedic Surgery for his faithful supervision, guidance and continuous encouragement through out the accomplishment of this study.

My deepest thank for Professor Mohamed Aakef Prof. Of Orthopaedic Surgery for his meticulous advises and scientific help.

Without their generous assistance this work would have lost much of its value.

INTRODUCTION

INTRODUCTION

Proximal humeral fractures represent the most common humeral fractures (45%) in the study by ***Rose and colleagues 1982,*** in adults older than 40 years of age, the percentage of proximal humeral fractures increases to 76% . [***Rose , et al 1982***], and the amount of trauma responsible for the fracture was significantly less in the older age group. [***Horak & Nilson, 1975***]

Concerning the epidemiologic features of humeral fractures in Rochester, Minnesota. They have previously been reported to account for 4% to 5% of all fractures, but this figure may be low. **[*Neer et al., 1970 & Lind et al., 1989*].**

Steady and significant increase in the incidence of proximal humeral fractures was reported and explained by ***Lind, 1989*** who believed that the increased average lifespan was partially responsible. Based on the epidemiologic data available, it was concluded that most proximal humeral fractures are primarily related to osteoporosis and, like hip fractures, represent an important source of morbidity among the elderly population.

Also, a higher incidence of proximal humeral fractures was noted in women than in men, by a rate of approximately 2 to I. [***Rose , et al 1982***].

Horak and Nilsson, 1975 have also reported increased incidence with age and in females and the same frequency as fractures of the proximal end of the femur. The patients with proximal humeral fractures had an increased incidence of alcoholism and prior gastric resection. Furthermore, prevalence of other fractures was approximately doubled in patients who have had proximal humeral

fractures. ***Horak and Nilsson , 1975*** concluded that osteoporosis was a significant factor in these fractures.

Proximal humeral fractures range in severity from relatively benign avulsion to massive fracture dislocations. Most of the fractures are stable with no or only minor displacement of the fragments and are easy to treat with analgesics and immobilization for short period of time. [***Stimson, 1974***]

The management of displaced fractures of the proximal humerus is still under debate and the need to evaluate alternative methods has been emphasized [*Rose, 1982*].

There are many treatment options for management of displaced fractures of proximal humerus. Conservative management is indicated for reasons of patients health or surgical inexperience.

Closed reduction by manipulation is difficult to maintain because of the muscle action especially in displaced three or four part fractures. Repeated manipulation should be avoided because of the risk of neurovascular damage.

Temporary insertion of pins may be used to aid closed reduction, or they may be left in situ for 4-6 weeks to hold the reduction. Open reduction and internal fixation has been used for proximal humeral fractures, but more recently the use of percutaneous cannulated screws has been recommended because this technique minimizes the soft tissue disruption . Extensive soft tissue stripping may result from the use of buttress plates with potential devascularization of the fracture fragments. [***Herscovici, 2000***]

Prosthetic replacement is considered in four-part fracture dislocations or impression fractures involving more than 40% of the head and in head splitting fractures.

In our study, the percutaneous reduction and external fixation of displaced humeral fractures by Hoffmann external fixator have been used as an alternative to open reduction and internal fixation in two, three, and four- part fractures and in management of one case with head splitting fracture as an alternative to hemiarthroplasty.

HISTORICAL REVIEW

HISTORICAL REVIEW

Fractures Of The Proximal Humerus:

Fractures of the proximal humerus are challenging to diagnose and treat. Much information has been published in recent decades about these injuries, as new techniques of treatment have been developed and old ones rediscovered.

Hippocrates is credited with documenting the first fracture of the proximal humerus in 460 B.C. [***The genuine work of Hippocrates,1939***]

Treatment of most fractures by immobilization in a sling followed by range-of-motion exercises was adequate for non-displaced fractures; but the more complex fractures were not appreciated or understood, and the results of treatment were poor. Anatomical classification was developed in 1896,by **Kocher** in an attempt to improve diagnosis and treatment, but this simplified scheme was not thorough enough. In the early 20th century, methods of closed reduction, traction, casting, and abduction splints were developed to achieve and maintain accurate anatomical alignment of displaced fractures. Often, however, these closed techniques were not sufficient to allow an adequate anatomical reduction. [***Funsten and Kinser, 1936 & Watson-Jones, 1943***]

A significant contribution was made by **Codman In 1934** when he divided proximal humeral fractures into four basic parts. These parts were divided along the epiphyseal lines and consisted of the head, lesser tuberosity, greater tuberosity, and shaft. The subsequent four-part classification reported by **Neer in 1970** is based on this anatomical classification. [***Neer, 1970***]