FRACTURE CAPITELLUM

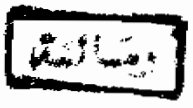
THESIS

SUBMITTED IN PARTIAL FULFILMENT FOR THE DEGREE OF

M.S.IN ORTHOPAEDIC SURGERY

BY

MUBARAK ABBAD AL-ABDULLA



SUPERVISED BY

PROF.DR.SAYED WAHB

&

DR.YOUSRI MOHAMED MOUSA

LECTURER OF ORTHOPAEDIC SURGERY

Faculty of Medicine

Ain Shams University

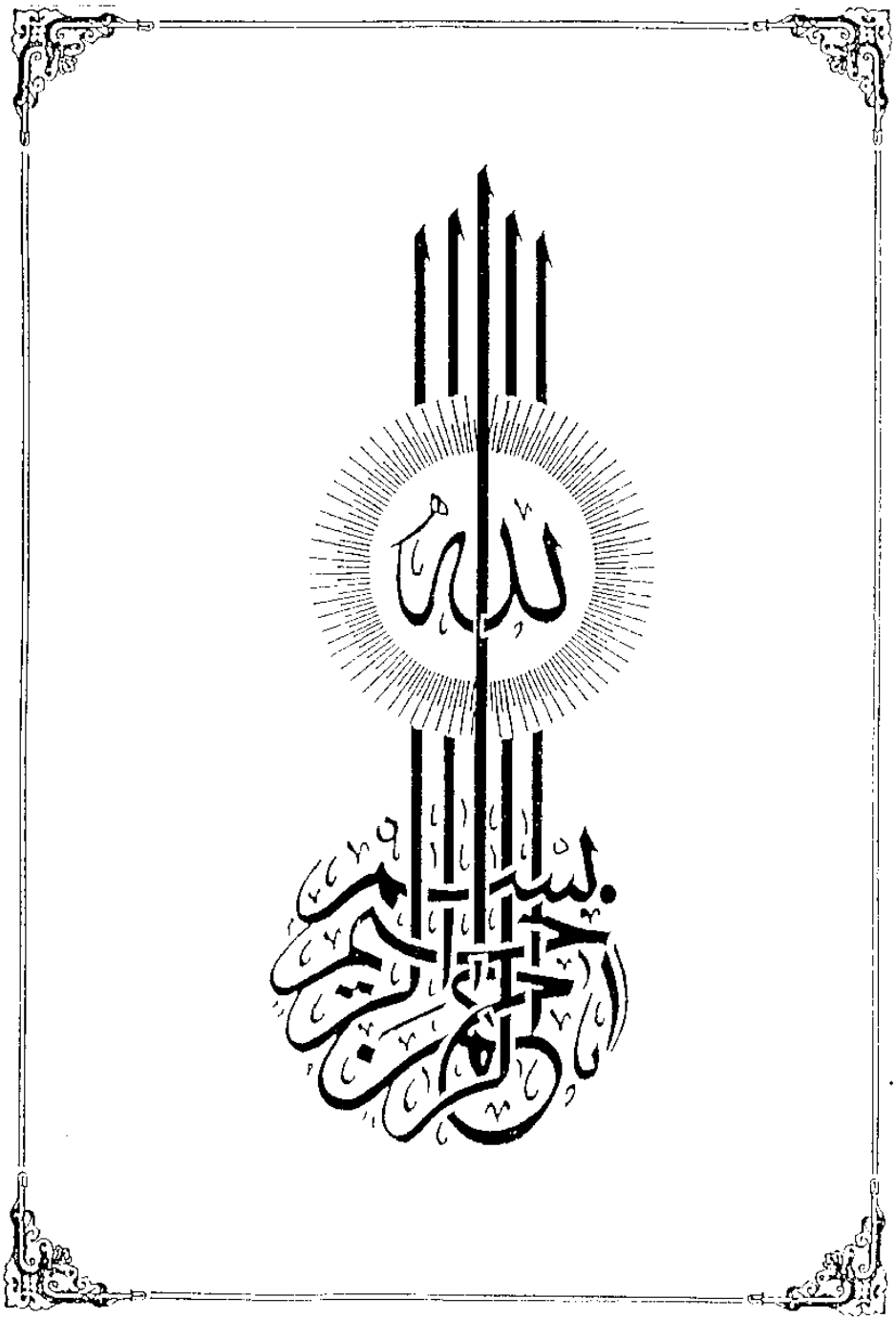
1 9 8 5

A C K N O W L E D G M E N T

It gives me a great pleasure to express my deep grtatitude to Professor Dr. Sayed Waahab and Dr. Yousri Mohamad Mousa , Lecturer of Orthopaedic Surgery., Faculty of Medicine,Ain Shams University, for their valuable guidance, Meticulous Advices, continuous encouragement and generous help during preparation of this work.

To all member of the Orthopaedic Section Faculty of Medicine, Ain Shams University, I should pay my gratitude, thanks and respects.

Mubarak A.Al-Abdulla



CONTENTS

Introduction

INTRODUCTION

Fractures around the elbow joint are commonly met with an orthopaedic practice Among them the fracture of the capitellum was interesting to us.

This injury might be over looked clinically and radiographically as the clinical condition, sometimes might simulate a simple contusion around the elbow and a radiograph might not show the fracture or its exact type accuretely.

Over looking this injury, or doing inadequate treatment would lead to several complications ending ultimately with seriously disabled elbow and upper limb.

Many studies were done before hand comparing the results after conservative and surgical treatment.

Getting funcitionally adequate painless stable range of motion in the elbow must be the aim of the surgons during treatment of such an elbow disorder.

Loss of the movement, presence of deformities or instability of the elbow joint would interfere with the performance of many acts necessary to lead satisfactory and gracious life.

ANATOMY

ANATOMY OF THE ELBOW

The articular portion:

It is divided by a faint groove into a lateral, convex surface, termed the capitulum, and a medial, pulleyshaped surface, termed the trochlea

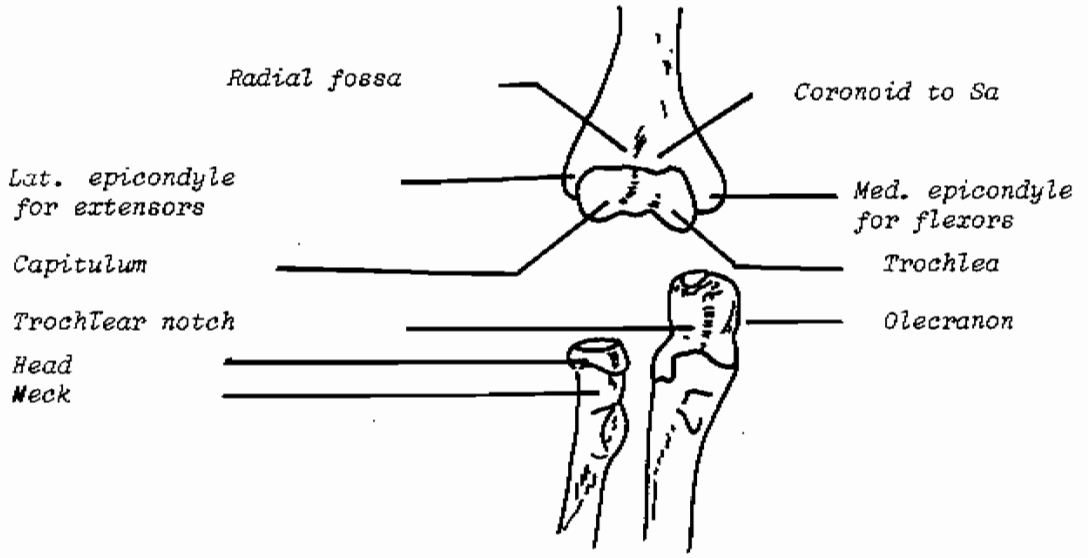
The Capitulum:

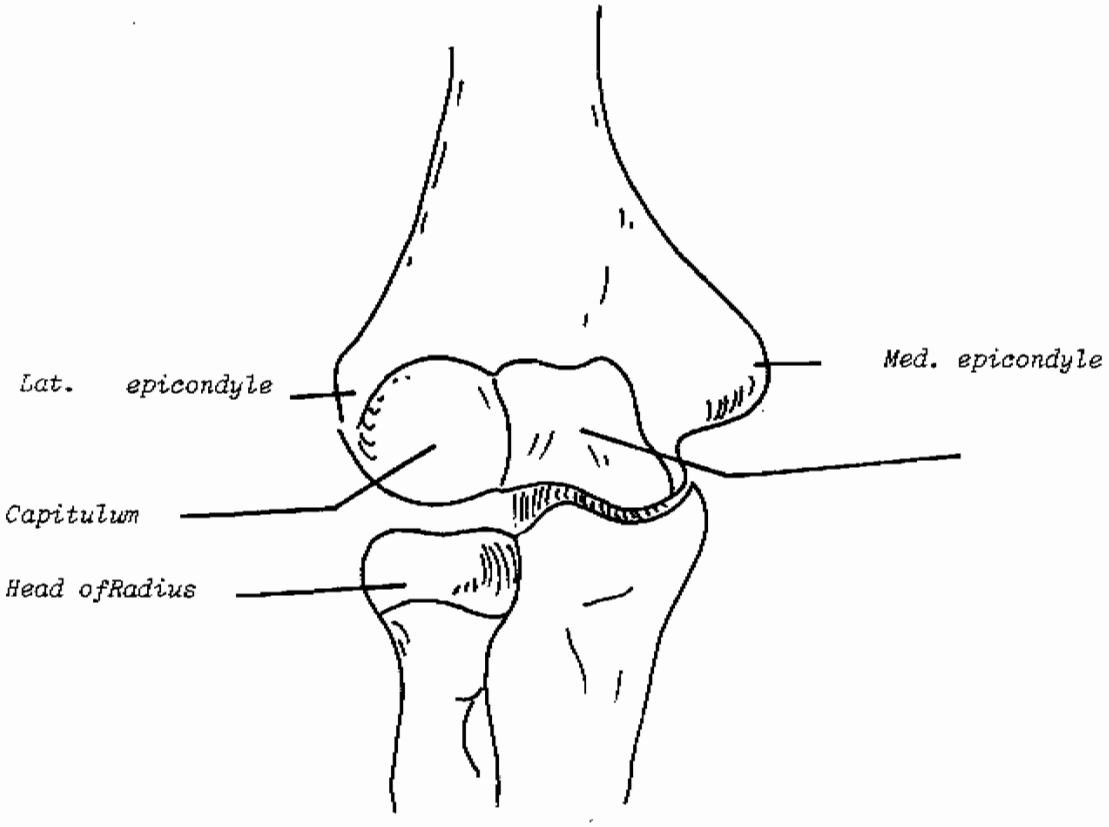
It is a rounded, convex projection, considerably less than half a sphere, which projects forwards and inferiorly from the lateral part of the lower end of the humerus, but does not extend onto its posterior surfacer. It is bounded by a ridge from the non articular bone. It articulates with the disc-like head of the radius, which lies in contact with its inferior surface in full extension of the elbow, but moves onto its anterior surface when the joint is flexed. (Fig. 1)

The trochlea:

It is a pulley-shaped surface, which covers the anterier, inforior and posterior surfaces of the lower end of the humerus. The trochlea articulates with the trochlear "Semilumar" notch of the ulna (Fig. 2)

(Fig 1,





The downward projection on the medial edge of the trochlea and the difference in prominence between it and the lateral ridge gives a tilt to the trochlea and this is the principal factor in determining the conying angle. (Fig. 3)

Head and Neck of Radius:

The head of the radius shares in the formation of two joints, the elbow joint proper and the superior radioulnar joint, (Key,1931).

In children the head of the radius is cartilagneous and soft and so it can resist injurie (Culter, 1926).

The head of the radius is disc shaped its thickness is about 3-5 mm(cartam, 195). It is not quite cylindrical in shape, but it is slightly oval, lying obliquely having a diameter ranging from 24 mm to 28 mm, (Kapandji, 1970).

The head and its articular circumference are all intra-articular. The medial side of the articular circumference articulates with the radial notch of the ulna and the rest of it articul with the smooth inner surface of the annular

—The lower end of the left humerus, viewed from below.

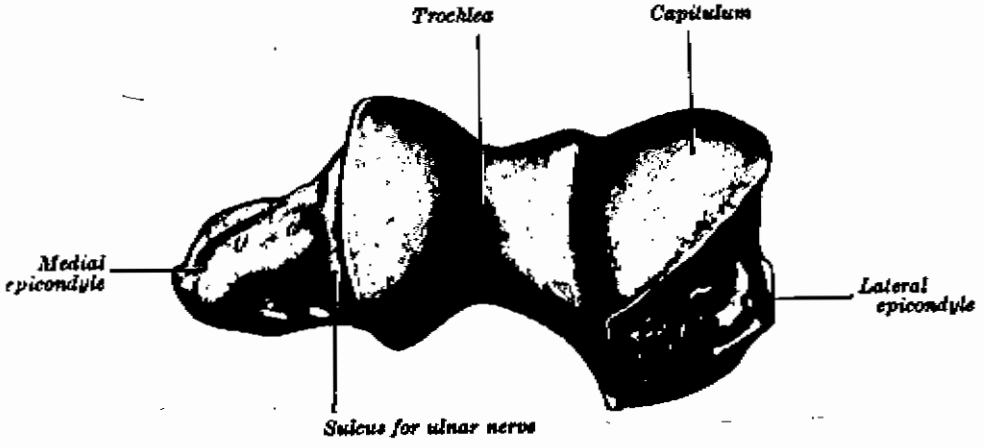


Fig. (3)

Ligament, (Last, 1966), The superior surface articulates with the half-sphere shaped capitulum. It is concave, cup shaped, surrounded by the superior border which is bevelled on the medial side. This superior surface glides on the capitulum, while the bevelled medial border moves against the capitulo[trochlear groove, (Kapandji, 1970).

The ossific centre appears at the age of 4 years, and by the age of 14 years the head becomes completely ossified and disc shaped.

In pronation and supination the head of radius rotates in the radial notch of the ulna and the annular ligament, while in flexion and extension of the elbow it moves against the capitulum. In extension the anterior half of the head comes in relation with the capitulum, while in full flexion the head of the radius enters the radial fossa on the lower end of the humerus, (Kapandji, 1970).

The olecranon has five surfaces, superior, posteior, medial, lateral and anterior surfaces.

Superior or "Upper"surface:

Is square. It extends forwards at right angle to form sharp undulating lip at the articular margin covered by a marginasl Synovial area.

Posterior Surface:

Has a broad triangular subcutanous area. The base of the triangle is at the proximal end and the sides are continued below the apex into the subcutaneous border of the shaft.

The medial surface of the olecaranon:

Cently convave is continued down to the flexore surface of the shaft.

The lateral surface of the olecranon:

Continues down to the extensor surface of the shaft.

The anterior surface of the olecranon:

forms part of the articular surface of the trochlear notch

The Cornoid Process:

Projects forwards like a broad beak from

the upper part of the front of the shaft, forms the lower part of the trochlear fossa.

The Non Articular Part:

It includes the medial and lateral epicondyl together with the olecranon, coronoid and radial fossae.

The Medial Epicondyle:

It forms a conspicuous , blunt projection on the medial side of the lower end of the humers.

The lateral epicondyle:

It occupies the lateral part of the non articular portion of the lower end of the humerus; but does not project laterally beyond the lateral border.

Fossae:

A deep hollow is situated on the posterior surface of the lower end of the humerus, immediatel above the trochlea. It is termed the elecranon fossa, on account of the fact that it lodges the tip of the olecranon of the ulna when the elbow is extended. The floor of the fossa is always thin and may be partially deficient