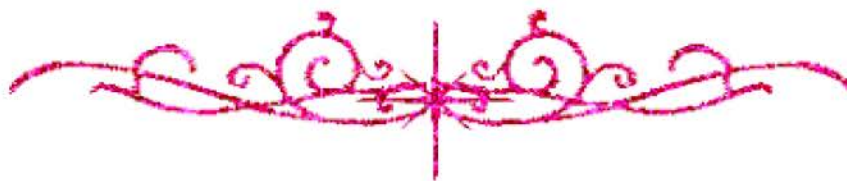


# بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ





# شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





# جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

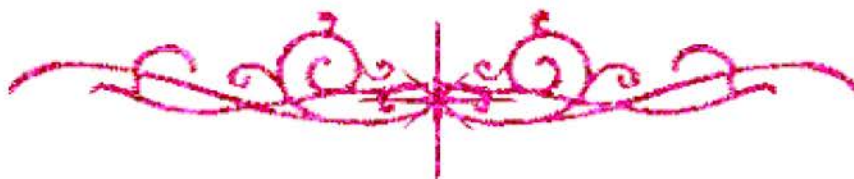
## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



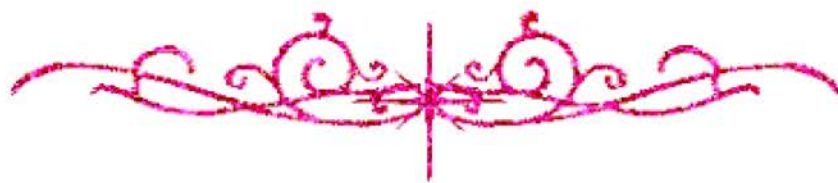
## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار





# بالرسالة صفحات لم ترد بالأصل







# بعض الوثائق الأصلية تالفة



B11010

**EVALUATION OF RESULTS OF MODIFIED  
MITCHELL OSTEOTOMY FOR  
TREATMENT OF HALLUX VALGUS  
DEFORMITY OF THE BIG TOE IN ADULTS**

**Thesis**

Submitted to the  
Faculty of Medicine  
University of Alexandria  
in Partial Fulfillment  
of the requirements for the Degree of

**Master of Orthopaedic Surgery**

*By*

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**Praise to "Allah", the Most Gracious and the Most  
Merciful  
Who Guides Us to the Right Way.**

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**To**  
**My Lovely Fiance**  
**&**  
**My Father and**  
**Mother**

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**Arabic Summary**

**Protocol**

# **INTRODUCTION**



## INTRODUCTION

Hallux valgus is the commonest deformity of the forefoot. It is a static partial dislocation or subluxation of the great toe to a lateral or valgus attitude. It involves all the osseous and soft tissue structures comprising and surrounding the first metatarsophalangeal joint. It is characterised by valgus; abduction, of the great toe and varus; adduction, of the first metatarsal. This deformity is by far the most commonly classified as “bunion”. It is the most disabling and most complex problem among the morbidities of the great toe joint.<sup>(1)</sup>

Cal Heuter, 1871 introduced the term hallux valgus when he described this deformity as abduction contracture in which the great toe turns away from the median plane of the body.<sup>(2)</sup>

Haiens et al. 1954 defined hallux valgus as a static partial dislocation or subluxation of the great toe to a lateral or valgus attitude involving the head of the first metatarsal, the base of the first proximal phalanx and the soft tissue structures surrounding the first metatarsophalangeal joint.<sup>(3)</sup>

A number of factors, both extrinsic and intrinsic, have been considered to be responsible for the development of hallux valgus. Deformities at first consisting solely of functional, or postural adaption may later develop into a structural deformity. The extrinsic factors implicated generally are associated with foot wear, e.g., high-heeled,

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pointed, tight or badly fitting shoes but trauma can also play a role. Intrinsic factors include congenital foot deformities and neuro-muscular and rheumatic diseases. These factors often favor the development of similar painful deformities of the foot.<sup>(4)</sup>

Many different surgical procedures have been described for hallux valgus, Kelikian, 1965 listed more than 130 operations for the surgical treatment of the condition in adolescents.<sup>(5)</sup>

## ANATOMY OF THE BIG TOE

The big toe has certain anatomic characteristics that are very different. It is more developed; it has only two phalanges; and it is articulated by the metatarsal head protected in the lower part by the glenoid system, which produces a visible print on touching the ground surface. This is why the planter print of the big toe shows signs of continuation from the metatarsal print. <sup>(6)</sup>

### **I. Osteology:**

#### 1. The first metatarsal:

The first metatarsal is the thickest of the metatarsal bones. The proximal articular surface is kidney shaped and articulates with the medial cuneiform. Its circumference is grooved for the tarsometatarsal ligament. Medially it gives insertion to the tendon of the tibialis anterior, while laterally its plantar angle presents a rough oval prominence for the insertion of the peroneus longus tendon. On the lateral side of the base there is a pressure facet caused by contact with the second metatarsal. The lateral surface of the shaft is flat and gives origin to the medial head of the first dorsal interosseous muscle. The head of the first metatarsal is large, convex and articulating with the concave proximal articular surface of the proximal phalanx. On the plantar aspect of the first metatarsal head there is a median elevation separating two grooved facets on which two sesamoid bones contain the tendon of the flexor hallucis brevis. The first metatarsal unlike the other four, has an epiphysis at the proximal end which unites about the age of 17-20 years. With the second metatarsal forms an angle of about 5



degrees, a divergence of 10 degrees or more between the two bones is considered outside normal limits and known as metatarsus primus varus.<sup>(7)</sup>

## 2. The phalanges:

There are two phalanges in the hallux, their shafts are compressed from side to side, convex dorsally and concave on the plantar surface. The proximal phalanx have a concave articular facet on its proximal end to articulate with the convex head of the first metatarsal. Distally, the head of the proximal phalanx have a trochlear articular facet for the base of the distal phalanx. The base of the proximal phalanx of the big toe receives on its medial side the insertion of the abductor hallucis and the medial tendon of the flexor hallucis brevis. On the dorsal aspect of the base of the proximal phalanx, the tendon of the extensor hallucis brevis is attached. The base of the distal phalanx of the big toe gives attachment on its plantar aspect to the tendon of the flexor hallucis longus and on its dorsal aspect to the extensor hallucis longus.<sup>(8)</sup>

## II. The Joints:

### 1. The first tarsometatarsal joint:

The first metatarsal articulates proximally with the medial cuneiform bone forming the first tarsometatarsal joint which is a synovial joint of plane variety and has separate capsule and synovium. The lateral four joints communicate with each other. The joint is stabilized like the other tarsometatarsal joint by dorsal, planter and interosseous cuneometatarsal ligaments. The dorsal ligament is the articular capsule between the medial cuneiform and first metatarsal. The plantar ligament is a strong longitudinal