بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

Temporary Hemiepiphysiodesis In Treatment Of Blount Disease a Systematic Review Of Literature

Thesis

Submitted For Partial Fulfillment of Master Degree in Orthopedic Surgery

Submitted by

Mahmoud Ahmed Elshobaky

M.B.B.CH

Supervised by

Prof. Dr. Khaled Mohamed Emara

Professor of Orthopedic Surgery
Faculty of Medicine, Ain Shams University

Dr. Ahmed Rayan

Lecturer of Orthopedic surgery
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
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Mahmoud Elshobaky

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List of Abbreviations

Abb.	Full term
BMI	Body mass index
EBM	Evidence based medicine
KAFO	Knee ankle foot orthosis
LDF	lateral distal femur
LPT	lateral proximal tibia
MAA	Mechanical axis angle
MAD	Mechanical axis deviation
MD angle	Metaphyseal-diaphyseal angle
MPTA	medial proximal tibial angle
NM	Not mentioned
Pt	Patient
RCT	Randomized controlled trials
ROC	Rate of correction
TMDA	tibial metaphyseal-diaphyseal angle

INTRODUCTION

Blount disease is a developmental form of tibia vara. Primary treatment for early degree of Blount disease has changed in the last years from osteotomies to hemiepiphysiodesis. [1]

Blount disease, also known as tibia vara, is a disease primarily involving the postro medial proximal tibial physis resulting in sever genu varum deformity, and is frequently associated with obesity [1], [2]. In addition, there is often a sagittal (procurvatum) and rotational (internal tibial torsion) component, secondary to the affected posteromedial portion of the proximal tibial growth plate [2], [3].

Tibial osteotomy and hemi-epiphysiodesis, have been reported as methods of successful treatment. Proximal tibial osteotomy is a frequently employed technique but may have profound complications such as postoperative alignment problems (undercorrection or overcorrection), union problems (malunion, nonunion), nerve palsy, and compartment syndrome [4], [5].

Hemiepiphyseal stapling is technique first described by Blount in 1949 [6] and aimed to correct the deformity by providing a temporary hemi-epiphysiodesis [7]. hemiepiphysiodesis has gained acceptance as a minimally invasive technique to correct deformity over time[8].

AIM OF THE WORK

The aim of our study is to evaluate the temporary hemiepiphysiodesis in treatment of Blount disease.

The specific review objectives to be addressed are: Identification of the success rate of temporary hemiepiphysiodesis with various implants (8 plate, stables, cannulated screws) in treatment of Blount's disease.

Chapter 1

RELEVANT SURGICAL ANATOMY, BIOMECHNICS & PATHOMECHANICS

Normal development of tibio-femoral angle

Throughout childhood, the knee joint compensates for the rapid growth and varying stresses placed on it. At birth, a tibio-femoral angle of 15° varus is common. This angle is formed by the intersection of the long axis of the femur and the tibia (**Figure 1**). As a child grows, the varus angle decreases, reaching a neutral point at 14-22 months of age. From there, the knee becomes increasingly valgus, peaking at an angle of 10° at the age of 3-4 years before it stabilizes to an adult level of approximately 6° valgus at the age of 6 or 7 years (**Figure 2**). Since young children normally have some degree of physiological varus bowing, it can be difficult to differentiate normal tibia vara from early Blount's disease.[2,3]

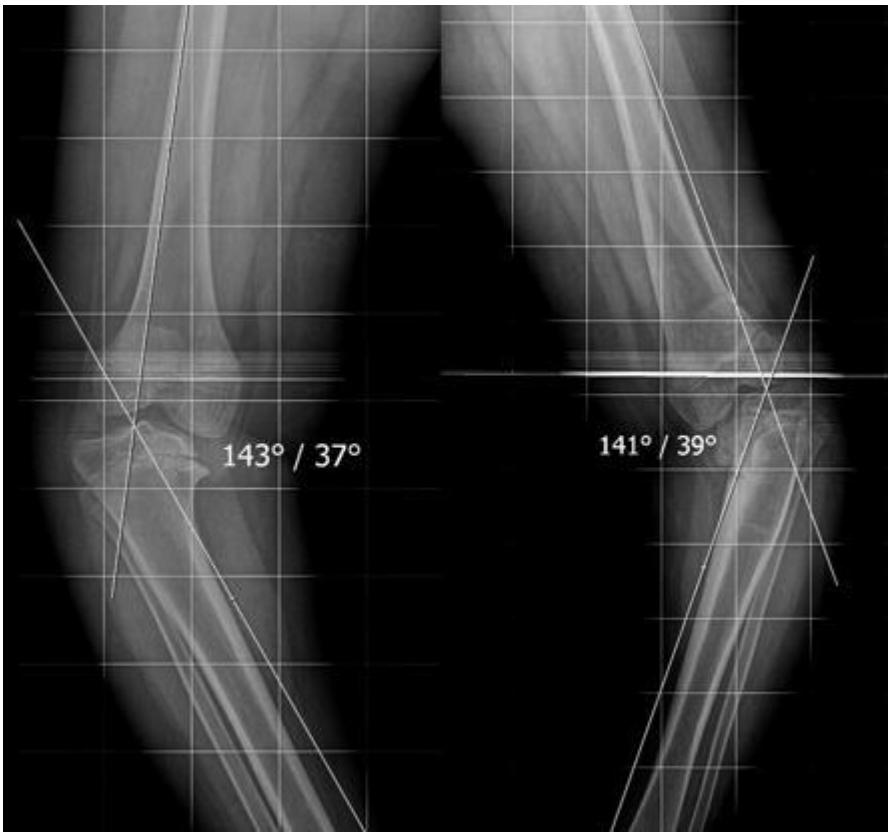

Figure (1): Radiograph demonstrating the method of measuring the tibio-femoral angle used in diagnosing Blount's disease.[3]

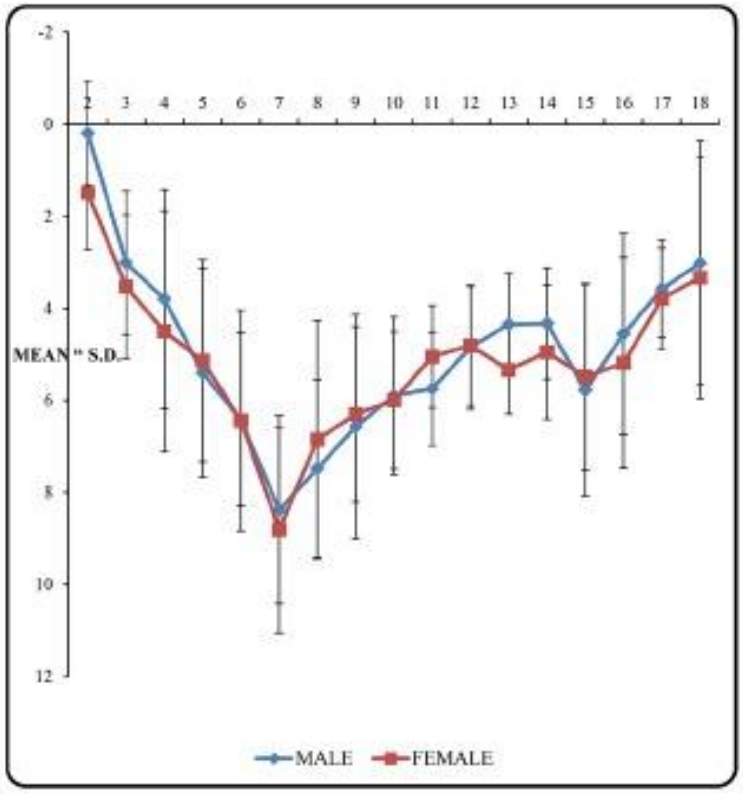

Figure (2): Mean TFA ± SD distribution among male and female children at different ages. Age in years.[7]

Pathoanatomy of Blount disease:

Blount's disease is a pathology in the form of disruption of ossification and chondrocyte function of the proximal tibial epiphysis causing outward tibial bowing in children. This outward tibial bowing is called tibia vara. One method of determining the presence and severity of tibia vara is to measure the angle formed between the long axis of the femur and tibia, the tibio-femoral angle (**Figure 1**), on a radiograph. Another angle shown to help distinguish between normal tibial bowing and Blount's disease is