

SUPRACONYLAR INTRAMEDULLARY NAIL
(GSH NAIL)

An Essay

Submitted for partial Fulfillment of master Degree

In Orthopaedic Surgery

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بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ.

حَقَّ اللَّهُ الْعَظِيمُ

(سورة البقرة الآية ٢٢)

ACKNOWLEDGMENT

This work has been accomplished in the Orthopaedic Department, Faculty of Medicine, Ain Shams University, under the supervision of:

Professor Dr. Rafeek Sadek, Assistant Prof. Dr. Haney Hefney, and Dr. Amr Khairy lecturer of Orthopaedic Surgery.

I would like to express my deepest gratitude and appreciation to Prof. Dr. Rafeek Sadek for his valuable support, and fatherly guidance throughout this work, as well as enriching our knowledge in the field of trauma.

Special thanks to Assistant Prof. Haney Hefney for his scholarly advise and kind assistance during the critical phase of this work.

I am also greatly indebted to Dr. Amr Khairy for his diligence and friendly cooperation since the very beginning of this work.

A final note of thanks goes to all the creative scientific minds who render greatest services to human kind through their innovating ideas which lead towards the creation of a healthier world.

Ibrahim Moustafa Elganzoury

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Introduction

INTRODUCTION

Treatment of supracondylar and intercondylar femoral fractures is controversial. Prior to the last quarter century, non surgical treatment, primarily skeletal traction followed by long leg cast, was the common recommendation.¹

This was due to the fact that internal fixation had resulted in an unacceptable incidence of non union, infection, inadequate fixation and prolonged confinement to bed.¹ Non operative treatment also had its share of problems, namely knee stiffness, malrotation, malalignment and shortening.^{1,2} Since the mid 1970s, newer devices for internal fixation, such as the AO supracondylar blade plate³ and the AO dynamic screw and side plate⁴ are being used. Results were excellent with simple fractures, but were less than optimal with comminuted high-energy fractures and those with osteoporotic bone.^{5,7}

These injuries remain a challenge to the orthopedic community. Anatomic reduction of the distal femoral articular surface and realignment of the distal fragments to the proximal shaft are crucial for a good postoperative result. Unfortunately, in some instances this may be technically difficult to achieve.

An internal fixation device that provides rigid stability while minimizing soft-tissue dissection should improve fracture care and final results.⁶

The Green/ Scligson/ Henry (GSH) supracondylar nail, (Smith & Nephew/ Richards/ Memphis, Tennessee), which provides intramedullary fixation of supracondylar and intercondylar femoral fractures, addresses many of the short comings of the plate and screw systems.⁸

The median parapatellar approach required for retrograde nail insertion into the distal femur provides direct visualization of the femoral condyles. This increases the likelihood for an anatomic reduction of the joint surface, while decreasing soft-tissue dissection. In addition, and by virtue of its intramedullary position, the GSH nail has a biomechanical advantage over the laterally placed conventional devices, the intramedullary position decreases the lever arm of the medio-lateral forces thus reducing varus/ valgus angulation.⁸

Other indications of the GSH nail include; pathological fractures, malunions, failed distal femoral osteosynthesis, distal fractures in osteoporotic patients.⁹ It can also be used in fractures proximal to a Total Knee Arthroplasty (TKA), provided the knee implant allows access to the intercondylar notch.¹⁰

Biomechanical Aspects

