SARMIENTO VIEWS IN THEORY AND PRACTICE

A thesis submitted in partial fulfilment for the requirements of the degree of M.D. Orthopaedics.

Submitted By

Dr. Sameh Ahmed El-Said Shalaby M.Ch. ORTH.

Under the supervision of:

Prof. Dr. El-Sayed M. Wahb

Assis. Prof. Dr. Ahmed El-Sobky

Orthopaedic Surgery Department,

Faculty Of Medicine,

Ain Shams University.

1981

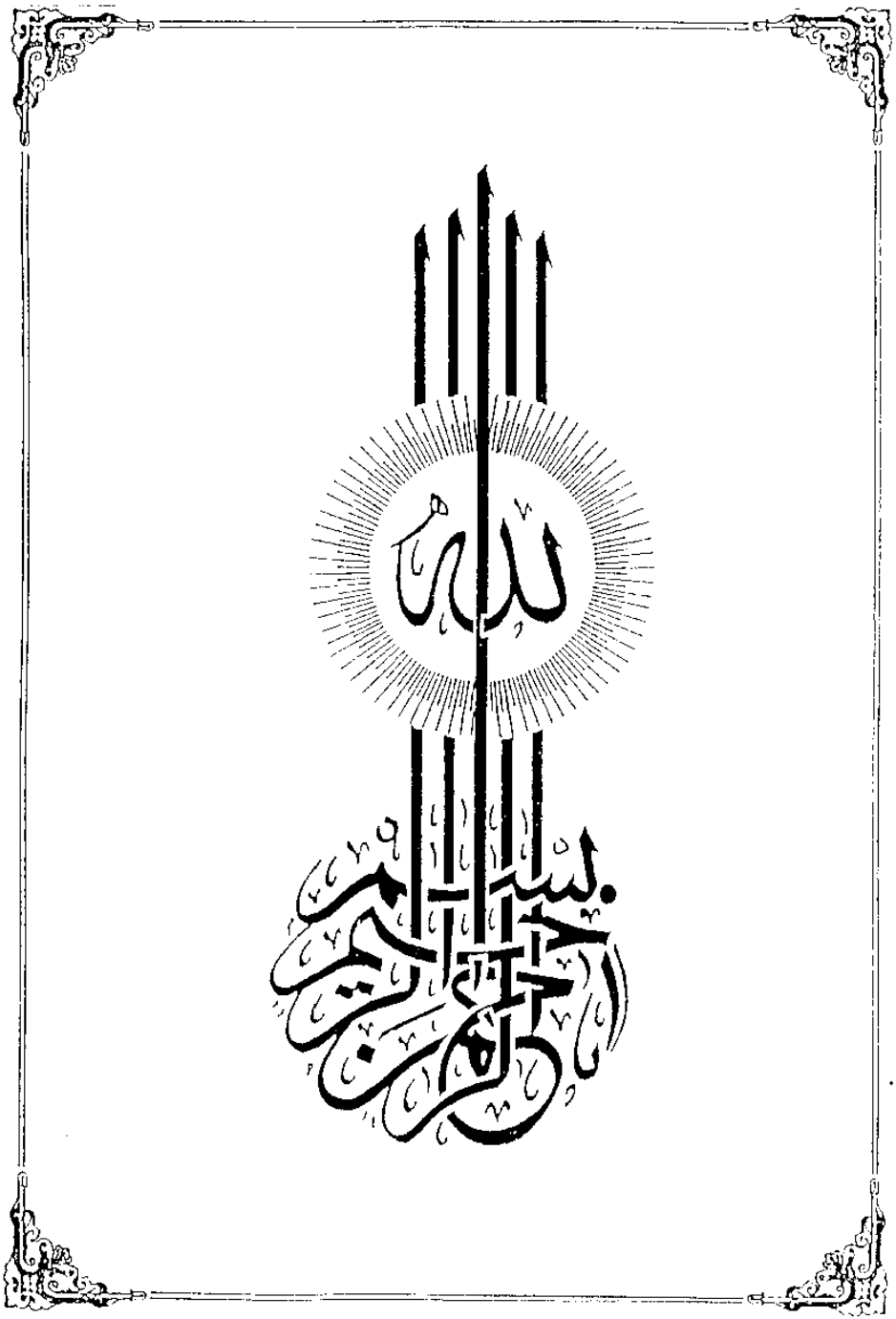
ACKNOWLEDGEMENTS

This work has been accomplished under the kind supervision of Prof. Dr. El-Sayed M. Wahb Professor of Orthopaedic Surgery and Assis. Prof. Dr. Ahmed El-Sobky Assistant Professor of Orthopaedic Surgery to whom I wish to express may sincere thanks and deepest gratitude for giving me the opportunity to perform this work and for their efficient supervision and valuable guidance.

I am deeply granteful to Prof. Dr. M. Hefny, the Head of Orthopaedic Surgery department in Ain Shams University, for his highly instructive ideas about this subject.

I am deeply grateful to Prof. Dr. H. El-Zaher and Prof. Dr. F. Borg for their great effort and valuable cooperation.

Many thanks to my colleages in the Orthopaedic Surgery department in King Abdul Aziz Hospital, Mecca, Saudi Arabia with a special thanks to the director of the hospital Dr. H. Kattan for their valuable cooperation.



INDEX

INTRODUCTION.

Though functional bracing of fractures has been recently introduced into the orthopaedic practice (Sarmiento 1970), the idea is not denovo.

The ancient arabic medicine is known far back in history and still practiced by some people in rural and isolated areas.

Fortunately many of these cases achieve resonable results especially in stable fractures of the long bones more commonly the tibia.

Simply the osteopath pulls the broken leg straight and support it by two longitudinal wooden slabs on either sides over a layer of padding.

Allaround compression is achieved by a broad wooden brace (Fig. 1 and 2) applied over the slabs around the fracture site, this brace is formed of multiple small strips of wood joined together by transverse wires or ropes. The wires are gradually

tightened daily by rolling the wire around terminal pulleys, this is usually done by the patient himself. By maintaining firm compression around the leg, good alignment of the fractured bones is also maintained (Fig. 3).

The idea is an excellent one. It is simulated to a great extent nowadays by the sophisticated Sarmiento's brace (Sarmiento 1970).

The most interesting of this all is the fact that most of those osteopath used to adhere to the idea that walking with this brace is encouraged but not forced. This fact took several decades to be adopted by the orthopaedic surgeons of today after Sarmiento et al revived the idea and putting it back into practice.

Although the ancient arabic medicine is looked by many as a primitive one, we could spot many genious positive ideas.

Its great similarity to the Sarmiento's uptodate braces has stimulated us to investigate and link the ancient tradition with the recent future.

OBJECTIVES OF THE WORK.

THE MAIN OBJECTIVES OF THIS WORK ARE TO:

1. Expand the knowledge and appreciate the importance of Sarmiento's views by offering a good summary of the literature about them.

2. Evaluate the advantages and disadvantages of the functional below the knee brace evolved by Sarmiento as a method for treatment of tibial shaft fractures.

3. Perform a prospective comparative study on two groups of patients with fractures of the tibial shaft, one of them will be treated by functional below the knee brace and the other by the conventional above knee plaster of paris.

4. Pursue studies to modify Sarmiento's technique to fit our patients.

REVIEW OF LITERATURE ON THE MANAGEMENT OF FRACTURE TIBIAL SHAFT.

PART (I)

The concept of employing early walking as a therapy for fractures of the leg bones is not new, it was revived about the end of the last century.

The pioneer work on the concept was that of Owen Thomas of Liverpool who about 1880 allowed patients with lower limb fractures, more especially of the femur, to walk with the help of his caliper, which today bears his name, before firm union of the fracture had taken place, Gurd (1940). The use of Thomas apparatus added the value of early weight bearing to the traction treatment in fractures of the lower limb.

Dollinger of Budapest (1893) was the first to use the unpadded cast to permit weight bearing even before the stage of minimal consolidation, Gurd (1940). His idea was to transmit weight from the bottom of the cast to the tibial tuberosity, thus by-passing the site of the fracture without bearing any weight by the foot or the leg below the site of the fracture. To acnieve this aim,

he placed a layer of padding beneath the foot and between it and the plaster covering the sole .

Championniere of Paris (1910) advocated early ambulation and weight bearing in plaster cast for fractured tibias (Mooney et al 1970).

During World War I, Sir Robert Jones, following Owen Thomas ideas, had suggested the use of a shorter caliper reaching only the tibial tuberosity as a convalescent appliance in the treatment of fractures of both bones of the leg and of the foot. Both authors aimed to allow weight bearing after minimal consolidation without transmitting bending or tension strains to the site of the new callus deposition.

Delbet of Paris, at 1915, had treated fractures of the leg and about the ankle joint after union had