Section I

INTRODUCTION and AIM OF THE WORK

INTRODUCTION

Fractures of the shaft of the tibia are a major cause of morbidity and mortality in patients with lower extremity injuries. Even with survival of the initial trauma, many patients suffer major physical impairment as a result of these fractures. Disability usually results from fractures shortening, fracture mal-alignment or prolonged immobilization of the extremity by casting in an attempt to maintain fracture length and alignment during the phases of healing **(Robert and Robert, 1991).**

Regardless of the treatment method chosen, most important consideration is an acceptable reduction [*Criteria for acceptable reduction include alignment, rotation, length and position*] **(Thomas et al, 1991).**

Significant advances have been made in this century in the management of fractures. Five distinct philosophies of treatment have evolved, these methods are:

1. Closed reduction with cast or brace immobilization.
2. External fixators (used mainly in open fractures).
3. Intra-medullary nailing techniques.
4. Conventional plate and screws.
5. Biological plate osteo-synthesis principle.

The continually evolving understanding of bone biology and analysis of clinical complications, have led to a modified approach in internal fixation using plates. Anatomical reduction of the fragments in comminuted dia-physeal and meta-physeal fractures itself is no longer a goal.

Important reduction aims are the correct length of the bone and axial and tortional alignment.

The preservation of the viability of the bone fragments is the key to unimpaired fractures healing.

The primary stability of an osteo-synthesis seems to be of minor importance for bone healing. More important is the rapid integration of unreduced but vital fragments into the fracture callus which buttreses the fracture area opposite the plate, reducing the risk for overload and fatigue failure of the implant **(Gorber et al, 1990).**

The aim of this thesis is to evaluate the results of biological plate of the tibial fractures in comparison to other methods of treatment.

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