INTRODUCTION

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An orthopaedic implant is considered to have failed when it has to be prematurely removed from the body. Failures may be mechanical or biological. Mechanical failures include over load breakage, fatigue breakage and corrosion. Biological failures result from infection, inflammation or other reaction of the body due to the presence of the implant (Cohen, 1962).

The unsuccessful performance of an implant can be related to certain potential factors such as :

A. Improper selection of materials.

B. Improper fabrication.

C. Improper installation of the implant.

D. Improper design of the implant.

E. Inept mobility of the patient.

F. Corrosive action of body fluids, etc.

(McCall, J.L., and Frenck, 1978)

With the development of uniform material standards and

especially through the work of the American Society for Testing Materials (ASTM), implants manufactured now must meet precise criteria for composition and fabrication. In current practice of fracture treatment, the implants used are made primarily of stainless steel, cobalt-Based alloys, or titanium alloys (Cruess, R.L., et., Al., 1975).

The History of internal fixation of fracture dates back to the last century. The first bone plate was used in 1886 by Hansmann, later many workers (Lambotte, M.A. 1909-Sherman 1912, Townsend R.1943), played a prominent role in the early development of bone plates.

Hey-groves inserted the first intramedullary nail in femur during world war I and in 1940, kuntscher, in germany, presented a major advancement in internal fixation with U-shaped medullary nail.

During the next year, he modified his device to elaborate the rigid medullary nail with clover-leaf cross section for use in the femur. In 1950.

The progress in the field of internal fixation of fractures was

achieved through improvement in two pathways.

a. The first is the introduction of metallurgy as a separate and important science dealing with different metal properties. In the field of orthopaedic surgery, Metallic implants of high quality are now available regarding strength, elasticity, corrosion resistance, are completelly inert in the body.

b. Second pathway is the improvement of the method of internal fixation of fractures to suit various situation and indication (Abdel Hafez et., al.,1983).

Few workers as Daniz, Belgium orthopaedic surgeon, observed that the healing process is influenced by the rigid fixation and axial compression.

With the concept that internaly fixed limb could move and bear weight early the various implants were put to a critical test to stand the stress during motion. Gradually, cases of failure of internal fixation started to appear, some of them are iatrogenic and others are due to failure of the metallic implant to fulfill the required goals.

However, this failure of the implant may be due to failure of

the metal itself (i.e. pure metallergic failure from interaction of corrosion and fatigue) or clinical failure, that results from either mechanical or functional defect in the process of the internal fixation.

The pre-operative, operative and postoperative measures should be followed by surgeon to avoid implant failure (Muller et., al., 1990).