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The story of man’s development and evolution has been a story of movements, the range and the speed being increased with subsequent conquests over the limitation posed by nature and mishapening. In today’s age, when human beings are being transported at an unimaginable speed and to the far frontiers of cosmos, the orthopaedist confronted by manifold injuries to the bones in this rapid age, is in a dilemma of either compromising with immobilizing the patients for treatment of fractures in old fashioned way or to render the patient a full normal life without any restraints on his tendency to move, at the same time promoting a rapid healing and precision union of fractured bones. The treatment of long bone fractures has long been a problem, the debate for which is still going on.

In ancient India; Sushruta used to treat these fractures by immobilizing the limb in "Kapata Shayana", one of the fourteen types of bandage-"Bandha"; medicated bandage-"Kavalika" or by means of bark splints and tying limbs with bamboo strips. Today the spectrum of treatment ranges from simple, closed reduction and Plaster of Paris cast immobilization to A.O. and ASIF techniques of rigid internal fixation and highly mechanical and complex external fixators.

The time tested method of closed reduction and plaster immobilization is generally satisfactory in case of such simple fractures where the fracture is stable and a good reduction can be achieved. But in case of unstable, compound, comminuted or delayed union of fractures it is very difficult to maintain the fragments in position by plaster immobilization itself and the result is malunion, malposition, delayed union or a frank non-union. In case of prolonged immobilization, especially in elderly patients, it not only leads to inevitable problems of joint stiffness, muscle wasting, disuse-osteoporosis, thrombo-embolic phenomenon, renal calculi and psychiatric disturbances, but is also a blow on the economy of family by affecting the patient’s income who is bed ridden for a long time.

This has provided an strong impetus for research on fracture healing and methods of managing them. The need for anatomical reduction, rigid fixation by compression and good control over fragments with early mobilization of joints is becoming increasingly important with advancement in fracture management.

The marked increase in number of patients of Polytrauma and improved survival rates has taxed the orthopaedic surgeon to adopt his skills for badly damaged extremities. The fact, however, can leave the orthopaedic surgeon with polytrauma victim who will survive with severe disabilities in the extremities often despite aggressive treatment. The expenditious management of soft tissue injuries including vascular injuries and large soft tissue loss, has been augmented by the use of the new External Fixators. These extremities are then vascularly salvaged and patients frequently are very grateful to have avoided a primary amputation of the severely injured extremity.

The greatest problem arises in cases of compound fractures where traumatised soft tissue has lost much of its ability to hold the fractured fragments and support, and revascularisation of the bone ends. It is also very difficult to dress such wounds through windowed plaster cast without disturbing the
alignment of the fractured ends. Also, the frequent changing of plasters or a cut window further hampers the stabilization of fractures as well as wound healing. The method of closed treatment of compound fracture also has the disadvantages of increasing possibility of developing the stiffness of the joints because in such cases the patient has to remain immobilized in a plaster cast for a longer period.

Open reduction and internal fixation by intramedullary nailing or plating though achieves good apposition of fragments, has the disadvantage of promoting infection and hampering the blood supply of the bone both medullary as well as periosteal due to stripping of periostium or reaming of medullary canal. It may prove disastrous and fatal. There is definite risk of infection at the fracture site which may lead to delayed union or even non-union.

With all the above problem, the orthopaedic surgeon in various parts of the world gave a serious thought and research for management of compound fractures of the long bones, which was highly unsatisfactory with any of the above methods. Special stress was laid on those methods which could provide early weight-bearing so that the patient may be restored to his normal daily routine as early as possible. This leads to the birth of method of external fixation of fractures of long bones.

About one and half century back (1840-1853) Malgaigne, J.F; introduced the world's first external fixation device and since then, through Lambotte, the first to apply a simple unilateral frame in a systematic fashion, and Codevilla, a pioneer in devising double frame configuration, external fixation has come a long way to occupy the full time efforts of the Association Of The Study Of Problem Of Internal Fixation (A.O.).

External fixation after a century of doubt regarding the safety and proper indication, after gaining acceptance and the advent of sophisticated devices, is supposed to salvage any extremity if the technique is good.

With the increase in frequency of severely compound, comminuted and infected long bone fractures with significant soft tissue damage, the interest in utilizing rigid external fixation for such fractures was stimulated (Editorial: Injury 1978).

The more rigid fixation in case of compound fracture and simple comminuted fractures can be achieved by transfixing pins in the fragments and are incorporated in an external metal frame (Hoffman, 1954); in the plaster cast (Anderson et al. 1974) or by using Charnley's clamps. This provides a better hold and control on the fracture fragments, provides a better means of reduction, insures check on rotations and provides better fixation. This method with the simultaneous development in the allied sciences of metallurgy, engineering and biomechanics is gaining momentum today because of its advantages over other methods, viz minimal surgical risk, easy nursing care, more secure, rigid and adequate immobilization, immediate motion of proximal and distal joints; providing compression, neutralization or fixed distraction of the fracture fragments according to fracture configuration, direct surveillance of the limb and wound status, providing associated treatment such as dressing change, skin grafting muscle pedicle grafting, bone grafting sequestrectomy etc without disturbing alignment or fixation; limb suspension by rope to relieve oedema without pressure on the
posterior soft tissue, early mobilization facilitating reduction of edema, nutrition of articular cartilage and prevention capsular fibrosis, joint stiffness, muscle atrophy and disuse osteoporosis, fixation can possible under local anaesthesia if necessary, and maintaining None of length of limb

In recent years external skeletal fixators are used in a wide variety of situations such as fixation of fractures associated with soft tissue damage, soft tissue loss, neurovascular damage, burns, bone loss, comminution, compartment syndrome, multiple fractures, intra-articular fractures, pelvic fractures, fracture non-unions, stabilization of arthrodesis, osteotomy or massive bone resection, leg lengthening, and soft tissue stretching. Many different types of devices being utilized each with specific advantage and disadvantage regarding application, stabilization ability, adjustability, adoptability, weight, material of construction and cost.

A chronological review of the developments and techniques of external fixation and the type of emergency or morbidity necessitates a study in the evaluation of the role of external fixator in the fractures of long bones. With this in mind the aim of the present work is to evaluate the role of this method of immobilization in fractures of long bones by using A O tubular external fixator, regarding early restoration of function of the injured limb, preservation of joint movements with early mobilization and minimizing expenditure of time, money and period of hospitalisation.