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In modern era of high speed traffic and every
days increasing vehicular traffic congestion on roads,
there is increase in number of accidents which leads to
various types of simple and compound fractures. The
diagnosis of fractures demand a greater amount of ready
knowledge, self reliance and consummate skill. Management
of fracture requires more through knowledge of topographical
anatomy, a nicer sense of discrimination, a calmer judgement,
more enlarged experience or a greater share of vigilance
and attention.

Among the long bones, femur is one of the
commonest to undergo fracture during accident. There
may be simple or compound fracture of proximal, middle
and distal third of femoral shaft, with or without
commination. Fractures may be transverse, oblique or
spiral.

As the femur is surrounded by groups of muscle
so the close reduction of femur is very difficult. Before
introduction of internal fixation, femoral shaft fractures
were treated by traction until fracture united. The main
problem of this conservative treatment are joint stiffness
muscle wasting, osteoporosis, prolonged hospitalization, thromboembolic phenomenon and above all psychic disturbance.

As Murray has described, "To wish the fracture fragments into place, hold them there by moral suasion and send the patient on about his business while the fracture heals". Though the ideal fracture treatment is as described by Murray, but it is not possible practically. Various attempts were being made by different persons in last 50 years to reach nearest to this ideology.

Intramedullary nailing of femoral shaft fracture first introduced by Hey Groves in 1918 and later popularised by Kuntscher in 1940. Kuntscher did the closed intramedullary nailing in femoral shaft fracture during second world war to facilitate the transport of patient from one place to another place without any difficulty.

After 1939, the operative technique have been refined and the method is now widely used, however the results are not uniformly excellent. In recent years various other method of internal fixation like plate osteosynthesis (Margerl et al, 1979; Muller et al, 1979). Ender nailing (Pankowich et al, 1979), Sampson rod (Mc-Master et al, 1980) are in practice. So now there is wide range of treatment for fracture shaft femur for which
one has to select the treatment applicable to circumstances and specific institutional situations.

The patients of fracture shaft femur treated either by traction or by open reduction and internal fixation are not permitted to bear weight until there is union of fracture clinically as well as radiologically. This lead to prolonged bed-ridden, away from the job, leading to economic problems in addition to other problems like muscle wasting, joint stiffness, osteoporosis and prolonged hospitalization. To overcome this problem, in the recent years, there is concept of functional bracing came in practice.

Initially John Hunter (1791) when confronted with different fractures of proximal femur, instructed the patient "to walk upon crutches and to press as much as on broken thigh as the state of part would admit" the fracture went on to unite.

Delbet (1916) reported success in treating fracture with ischial weight bearing orthotic device. Their initial brace was made of vitrathene and plastazone. In recent years the pioneer work of Sarmiento (1967) has brought the concept of functional bracing in management of long bones fractures. In 1970, Mooney et al reported success with use of hinged plaster cast in treatment of
fracture of lower end femur. Lesin (1977), Cortwell (1978) and Maini et al (1985) and Bhalla used plastic thigh lacer instead of plaster cast brace.

The brace provides support for the fracture site and lessens the load of skeletal system by converting the thigh into semi-rigid hydraulic tube. On the other hand, walking in brace provides uniform intermittent compressive pressure which promotes osteogenesis. This is how it provides physiological stimulus to bone and soft tissue which hasten the healing process.

The recent interest in functional bracing is undoubtedly a reflection of economies of medical care. Now-a-days, the most expensive items in patient care is the cost of hospitalization. The focus of attention now is to reduce the amount of time spent in hospital without reducing standard of care. Undoubtedly time spent in hospital after fracture of femur is least if the fracture is internally fixed and is followed by functional bracing.

Functional brace made up of various material can be applied after conservative treatment, i.e. traction or after open reduction and intramedullary Kuntscher nailing. In conservative treatment initial traction of about 4-6 weeks is given then functional brace is applied while after operative fixation by Kuntscher nail, functional brace can be given after removal of stitches.
If the favourable feature of rigid fixation and functional brace are amalgamaged, a fruitful symbiosis will result so in our present study there is fixation of fracture shaft femur by Kuntscher intramedullary nailing with functional thigh lacer made up of low density polythene 3 mm sheet and moulded individually for each patient. After application of thigh lacer, the patients were encouraged to do active and passive motion exercise for hip, knee and ankles and were encouraged to walk gradually with help of crutches.

AIMS OF FUNCTIONAL THIGH LACER

1. Restoration of function of injured limb, at earliest.

2. Preservation of hip and knee joint movements with early recovery of thigh muscle power.

3. Moderate expenditure of time and money and brief hospitalization.

4. To achieve early ambulation and early union.