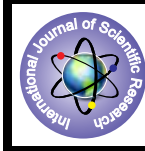


## Evaluation of Effectiveness and Efficacy of Hybrid External Fixator in Fracture of Proximal Tibia With Compromised Skin Condition



### Medical Science

**KEYWORDS :** hybrid fixator, olive wire, schanz pin, ilizarov ring

\* Dr S K Goyal

77\161 arawali marg mansarover jaipur Pin-302020

Dr Sidharth Sharma

Dr Narendra Joshi

### ABSTRACT

**Background:** the fracture of proximal tibia are now commonly seen lower limb injury due to increased motor vehicle accident. most of these fracture are communitied with compromised skin condition such as massive swelling, blister, abrasion, or bruises. there are limited surgical option to treat these type of fracture. here we evaluated the effectiveness and efficacy of hybrid external fixator to treat these type of fracture.

**MATERIAL AND METHOD:** total 25 pt were treated between April 2013 to may 2016. 15 pt were male and 10 pt were female age range from 20-55 yrs .all pt had injury b\c of motor vehicle accident. And operated between 5-7days of injury. For initial period all pt treated by elevation over BB splint or 2-3 pillow, ice fomentation or lower tibial pin traction.

**RESULTS:** the overall results of the study were good. 18 pt had very good result, 4 pt had good result and 3 had poor result.

**Complication:** the complication includes superficial pin tract infection, common peroneal nerve palsy, and wire loosening

**Conclusion :** the hybrid external fixator method is a very good method of fixation of fracture of proximal tibia with compromised skin condition such as massive swelling, blister, and abrasion or bruises .this method provide good fixation and allow active knee movement from early post op period.

**INTRODUCTION:** the fracture of proximal tibia is on increasing trends b\c increased use of motor vehicle in day to day life. Most of these fracture are communitied with compromised skin condition such as massive swelling, blister, abrasion, or bruises. And has a very limited scope of use of using internal fixation implant. the schatzter has classified these fracture in six type . the most of these fracture in our study were of type 5 or 6 .there are various method described in literature to treat these fracture which include lower tibial pin traction, traction over bohler brown splint or plaster cast method. but all of these method has their own limitation in term of knee range of motion or care of skin condition. in this study the hybrid external fixator method provide good fracture fixation and allow early active knee movement . And patient is mobile on 2<sup>nd</sup> or 3<sup>rd</sup> post of day.

### MATERIAL AND METHOD

The study included 25 patients treated between April 2013 to may 2016. 15 pt were male and 10 pt were female age range from 20-55 yrs .all pt had injury b\c of motor vehicle accident. and operated between 5-7days of injury. for initial period all pt treated by elevation over BB splint or 2-3 pillow, ice fomentation or lower tibial pin traction . All patient operated under spinal anesthesia after routine anesthetic check up and on fracture table under C-Arm control. first closed reduction done and checked under C -Arm in both AP and lateral view. Then two olive wires are passed. One from medial to lateral side and other from lateral to medial side of tibial condyle. sometimes, 6.5mm cancellous cannulated screw also used to get intercondylar compression. Then the olive wires are fixed on a 5/8 ilizarov ring. This include proximal assembly. Then two 3.5mm schanz pins are inserted in middle and lower third junction of the shaft of tibia. Now these schanz pin are connected to 5/8 ilizarov ring by the help of two tubular rods. Then these two tubular rods are interconnected to each other at the level of fracture site by the help of rod to rod clamp. Then final reduction is checked under C-ARM in both AP and lateral view. Then the whole assembly is tightened and pin tract dressing done.

### POST OPERATIVE MANAGEMENT

During early post op period the limb is elevated over 2-3 pillow and patient is advised to do active ankle and toe movements and static quadriceps exercise. From 2<sup>nd</sup> day

gentle knee movements are started and the patient is discharged from the hospital on 3<sup>rd</sup> or 4<sup>th</sup> day. patient is advised to walk non-weight bearing with the help of walker at home and do pin tract care. The fixator is removed at 10-12 weeks after the fracture is united.

### COMPLICATIONS

The complications include superficial pin tract infection in 3 patients which were healed by dressing and oral antibiotics, common peroneal nerve palsy in 1 patient which were also recovered spontaneously and wire loosening in 2 patients which needed wire change.

### RESULTS

18 patients out of 25 had very good results. Fracture united in 12 weeks and had good range of knee movements. 6 patients had some complications like superficial pin tract infection in 3, common peroneal nerve palsy in 1, and wire loosening in 2 patients. 4 patients had some degree of knee stiffness but none of the patients required secondary procedure for bone healing.



Photo 1: showing pre op X-ray of patient



Photo 2: showing post of X-Ray of patient



Photo 3: showing clinical photograph of patient with fixator in place