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A Case Study of Closed Reduction And Internal Fixation Of Extra-Articular DistalTibial Metaphyseal Fracture with Intramedullary Interlocking Nail.

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Abstract:*Distal tibia-fibula is one of the most commonly fractured long bone of the body .The management of distal tibial fractures is complicated because of compromised soft tissue, precarious blood supply, higher risk of infection &delayed union or nonunion. Distal tibia fractures can be managed withopen reduction and internal fixation with plating or closed reduction and minimally invasive percutaneous plating orclosed reduction and intramedullary interlocking nailing .Open reduction and internal fixation with plating is a popular method but usually requires a relatively extensive soft-tissue dissection and hence often associated with delayed healing, infection, and hardware problems.Closed reduction and minimally invasive percutaneous plating has been reported with good results.However, this method has steep learning curve and it is cumbersome to achieve anatomical reduction of the fracture site.Closed reduction and Intramedullary Interlocking nailing currently is an effective approach to the treatment of extra-articular distal tibial metaphyseal fractures.It obviates the need for extensive surgical dissection, spares the extraosseous blood supply, and allows the device to function in a load-sharing manner.We present a case of extra-articular distal tibial metaphyseal fracture managed successfully with closed reduction and intramedullary interlocking nail with excellent alignment.*
Keywords :-*distal tibial fracture, intramedullary interlocking nail, percutaneous plating.*

I. Introduction

Extra-articular distal tibial metaphyseal fractures occur because of high energy road traffic accident.The management of these fractures is complicated because of its subcutaneous location with precarious blood supply and difficulty in achieving and maintaining reduction leading to infection,delayed union/non-union, mal-alignment and hardware problems[1,2,3].These fractures can be managed by open reduction and internal fixation with plating or closed reduction and minimally invasive percutaneous plating or closed reduction and intramedullary interlocking nailing[4,5,6].We report a case of extra-articular distal tibial metaphyseal fracture managed successfully with closed reduction and intramedullary interlocking nail with excellent alignment.

II. Case Study

A 30 year old female presented to orthopaedic casualty with history of road traffic accident.She complained of pain and swelling of right leg.She was unable to bear weight.After initial stabilization of patient,plain full length radiograph AP & Lateral views of right tibia obtained and a diagnosis of extra-articular distal tibial metaphyseal fracture made(Fig 1&2).Patient was posted for closed reduction and intramedullary interlocking nailing under fluoroscopic guidance.Patient supine on OT table.Prior to tibial nailing, a long K-wire was passed thru undisplaced fracture fibula under fluoroscopic guidance.Fixation of fibula first reduces risk of valgus deformity and is helpful in restoring length and alignment of tibia and correcting angular and rotational deformity.Now infrapatellar incision was taken as routinely for tibia.Entry point made through awl.Guide wire passed into proximal fragment till fracture site.Now under fluoroscopic guidance reduction achieved and guide wire negotiated into distal fragment in central location holding reduced fragments.Then reaming was done.Intramedullary interlocking nail 10*32 was passed along guide wire in central location with maintained reduction of distal fragment.Nail was deep seated in subchondral bone.Nail was locked with 2 distal screws (one mediolaterally and another anteroposteriorly) and 2 proximal screws(Fig 3 & 4).Patient was kept Non-Weight bearing for 6 weeks.Partial weight bearing started after 6 weeks and continued till 10 weeks(Fig 5).At 10 weeks fibular K-wire was removed and full weight bearing was encouraged.At 4 months fracture was completely united with excellent alignment(Fig-6).



Fig-1.Pre-op.X-ray AP view.**Fig-2.**Pre-op.XrayLateral view**Fig-3.**Immediate Post OpXray with Nail.



Fig-4-Immediate post-op Xraywith nail.**Fig-5-**At 2 month follow up.F**ig-6**-At 4 months follow up,Fully united.

III. Conclusion

Closed reduction and intramedullary interlocking nailing nailing has the advantage of minimal soft tissue complications, no hardware problems,early weight bearing and early fracture healing[7,8,9,10].Therefore we conclude that closed reduction and intramedullary interlocking nailing for treatment of extra-articular distal tibial metaphyseal fractures is the preferred operative treatment of choice.

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