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## **RESEARCH ARTICLE**

# A prospective study on intramedullary nailing for both tibia and fibula in distal both bone leg fractures.

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Manuscript Info

#### Abstract

Manuscript History:	Intramedulary (IM) interlocking nailing is considered the method of treatment for most of long hone fractures can of lower limbs but for the
Received: 14 April 2015 Final Accepted: 25 May 2015 Published Online: June 2015	fractures of lower 1/3rd fibula along with tibial fractures a lot many options are available with their pros and cons. Present study was conducted to measure the merits involved with the usage of rush nails for fixation of lower 1/3rd fibular fractures along with tibial fractures fixed with interlocking nailing. Materials and methods: In present study 25 nations were treated in
*Corresponding Author	our institution with above mentioned technique wef. November 2012 to May 2014 All the cases were treated in emergency with in 24 hours. Toe touch
Dr Rashid Anjum	2014. An the cases were treated in energency with in 24hours. The touch weight bearing, partial weight bearing and other rehabilitative measures were proceeded as per patient's pain profile and clinical and radiological union. Serial radiographs were taken at immediate post operative period and followed up further at 6, 12 and 24 weeks. Results: Out of 25 patients 18 were males and 7 were females with mean age of 36.2years(18-68yrs). Radiological and clinical union proceeded normally in all of them, Dynamization procedure was done in 16 patients by 12 weeks. Conclusion: Usage of rush nails for fixation lower fibula fractures is having added advantage of small skin incision hence less chances of local infection, dynamization was more effectively achieved, less chances of rotational instability in presence of distal locking of tibia, and more important in present era is reduction of cost of surgery over all. <i>Copy Right, IJAR, 2015,. All rights reserved</i>

## **INTRODUCTION**

Intramedullary interlocking nailing is the treatment of choice for closed fractures of the tibial shaft<sup>1,2</sup>. Extraarticular fractures of distal tibia can be managed either by a tibial locking plate or intramedullary nail and the decision depends mainly upon the type of fracture, comminution, compounding, an intramedullary nail is generally preffered over a plate wherever indicated(except severly comminuted,type 3b/3c intraarticular fractures).distal tibial locking plate is implant of choice for closed fractures of distal tibia with intraarticular extension or increasing comminution however, plate osteosynthesis for fractures of the distal tibia is often associated with delayed healing, infection, and hardware problems<sup>3</sup>. Fractures of distal tibia are almost always accompanied with a fibular fracture viz plate osteosynthesis, cannulated cancellous screw and Rush nail. However there is no clear cut consensus in literature on the fixation of fibular fracture. The "competitive" nature of fibular fixation in union of the tibial fracture has even been raised<sup>4</sup>. Present study was conducted to assess the merits involved with the usage of rush nails for the fixation of lower 1/4<sup>th</sup> fibular fractures along with intramedullary nailing for tibial fracture.

## **Materials and Methods**

From November 2012 to May 2014, 25 Patients 18 males and 07 females with a mean age of 36.2 years (Range 18-68 years) underwent intramedullary interlocking nailing for fractures of the distal third of the tibia and

rush nail for fractures of the distal third of the fibula (Figs. 1 and 2). Patients with compound type IIIB or more extensive fractures, fractures more than 2 weeks old were excluded<sup>5</sup>. All compound fractures were thoroughly debrided as per recommended guidelines.

For fixation of fibular fracture a small incision starting ~2 cm proximal and extending to the tip of lateral malleolus was given, after careful dissection of soft tissue tip of lateral malleolus was exposed and, using a 2.7mm drill bit portal was made into the medullary cavity of distal fragment of fibula. The fracture was reduced in a closed manner under fluoroscopic control and fixed with a rush nail. The size of rush nail varied upon medullary cavity and location of fracture. After fixation of fibular fracture interlocked intramedullary nailing was done in a step by step manner as per standard protocol, we used a patellar tendon splitting approach, entry portal was made under c arm guidance, both proximal and distal locking was done, in 3 cases an additionl screw in anteroposterior plane was also put as the fracture was quite distal. Wound closure was done layer by layer, we used vicyl 0 no for stitching patellar tendon and subcutaneous tissue and skin stapler/ethilon 2-0 for skin closure. Post-operatively no back slab or support was used, a compression bandage was done until 1st dressing change. Isometric excersises were started on day 2 post-operatively, toe touch weight bearing was started as pain permitted in immediate post operative period ,partial weight bearing started at 6-8 weeks allowing full weight bearing at 10-12 weeks after assessing the clinical and radiological signs of union.the patients were followed therafter at 6 week intervals for a period of one and a half year.

### Results

The mean follow-up duration was 18 months. The mean time to union was 16 weeks. All patients were available for the final follow-up. Sixteen patients underwent dynamisation at 12 weeks leading to union of fracture . Two patients had angular malalignment within acceptable limits, but none had rotational malalignment. No patient had shortening, hardware breakdown, or deep-seated infection, only 1 patient had superficial infection of lateral malleolar incision but it was managed well with oral antibiotics and dressing.

## Discussion

Intramedullary nailing enables closed stabilisation while preserving vascularity of the fracture site and integrity of the soft-tissue envelope. It is the treatment of choice for fractures of the tibial shaft but not the distal metaphyseal tibia. The intramedullary canal at this level prevents intimate contact between the nail and endosteum<sup>6</sup>. There are different modalities available for fixation of the concurrent fibular fracture, we used a rush nail for fibular fixation as there was minimal soft tissue damage as compared with a plate, small incision, less chances of infection and moreover reduced cost of implant. Fibular plating is thought to improve stability in these situations, but has been reported to have increased soft-tissue complications and to impair union of the fracture<sup>7</sup> and also in case of adequate locking of distal fragment there seems to be no need for rigid fixation of lateral column. Most vital factor we observed in a subset of patients of intramedullary nailing with fibular plating was that the fibula united early as compared with tibia and there by impairing tibial union. Moreover in the prescence of fibular plating dynamisation was not effectively achieved because of the rigidly fixed lateral column. With the use of rush nail the fibular fixation doesn't qualify to be a rigid and dynamisation was needed in a fewer patients only and was more effective as compared to the plating group. As a matter of fact the element of rotation is almost negligible in case of rush nail usage in fibula fixation, as a common complication with non locking intramedullary implants. Thus we conclude that in extraarticular fractures of distal tibia with concurrent distal fibular fractures it is advisable to fix the fibular fractures with an intramedullary rush nail rather than a plate for the reasons cited above along with intramedullary interlocking nail for tibia.

Conflict of intrest. Nil

Keywords. Fibular fracture, distal tibia, interlocking nail, dynamisation

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