



## **Bent and Incarcerated Vnail in A Distal 1/3<sup>rd</sup> Tibia and Fibula Fracture: A Rare Case Report**

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### **Introduction**

Intramedullary nailing is the gold standard technique for treatment of tibial shaft fractures. Bending of a nail secondary to high velocity trauma is a complication, encountered in healed or unhealed tibial shaft fractures. Removal of such a nail is always a challenge as the bent nail needs to be removed because it might take the shape of the nail; which is likely to become weaker and weaker as a result of the angulation and may break in future. Removal should be done as early as possible. We report this case of bent nail removal in a 47-year-old man, admitted in our hospital who sustained a fracture of the left distal 1/3<sup>rd</sup> tibia and fibula with V nail in situ due to a roadside accident.

A 47yr old male patient presented to us with pain and deformity in left leg after an alleged history of road traffic accident. Patient was a post operated case of left distal 1/3<sup>rd</sup> tibia and fibula fracture operated with closed reduction and internal fixation with v nail 10 years ago. patient had recovered completely post operative at that time and was given above knee cast for 3 months and then started weight bearing after 3 months as advised by his previous surgeon.

Physical examination revealed deformity at distal 1/3<sup>rd</sup> leg, skin condition were normal, no sign of distal neuro vascular deficit and there was no abnormal mobility at fracture site (FIG-1). Range of motion at knee could not be elicited due to pain and at ankle was pain full. patient was immediately immobilised in above knee slab.

After getting Fresh x-rays of left tibia full length in both ap and lateral planes which showed-distal 1/3<sup>rd</sup> tibia and fibula fracture with Vnail in situ with 35 degree posterior and 60 degree valgus angulations and extensively impacted within the bone(FIG-2).patient was posted for surgery once fit.

Attempt was made to remove the nail by standard technique, as described by Patterson and Ramser<sup>12</sup> for bent nail which failed. We did reduction of deformity (FIG-3) and tried v nail removal by standard method, by universal extractor but due to extensive impaction within the bone the extraction eye broke in situ (FIG-4) and therefore Anterior linear cortical osteotomy of entire tibia was done (Fig-5). During the osteotomy a plane was created between the bone and the vnail in the proximal fragment as there was impaction in the posterior lateral cortex for

which a controlled posterior osteotomy was created and nail was removed along with fixation of fracture with interlock tibial nail with interfragment screw and bone cement (FIG-6).

Post surgery pt was stabilized in a above knee slab and following suture removal ptb cast was given and range of motion of knee was started. patient was started on symptomatic treatment with antibiotics and NSAIDS .regular follow was done of the patient on 2week (fig 7) and 4week (fig8) in the form of x-rays to check callus formation and union and patient is nil weight bearing currently. Further follow up is awaited.



(FIG-4)



(Fig-5 Intra OP)



(FIG-1 Pre reduction)



(FIG-2 Pre OP Xray)



FIG-6'



(FIG-3Post reduction)



FIG-7



FIG-8

### Discussion

In growth of bone into the inside of a clover leaf nail, bent nails, excessive callus formation closing the medullary canal, and bone in growth through the locking screw holes are the biggest challenges a surgeon faces during its removal. In our case, the V- nail had been impacted throughout its length after bony union of the fracture, excessive bone growth around the nail head coupled with the tapering design of the nail apex lead to its impaction. After failure of removal of the nail due to breakage of the extraction eye by standard technique we recommend that to extract the nail, decision should be made to do a surgical osteotomy to approach the implant and refixation of fracture with interlocking nail. We feel that a preoperative analysis of such cases with a CT scan should be done for better surgical management. It is important to consider imaging the full extent of the implanted hardware because the hardware alters the mechanical properties of the bone and complications such as loosening may begin proximal or distal to the original fracture site. Failure of implants may have a variety of causes including mechanical failure or fracture of the metal components, fracture of the surrounding bone, infection, component wear, osteolysis, and particle disease which can be better analyzed on CT scan.

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