Rotational Malalignment After Elastic Nail Fixation for Fractures of The Lower Limb in Children.

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Abstract

Introduction: Elastic stable intramedullary nail is a very popular method used in fixation of displaced fractures of long bones in children. It has good outcome concerning axial alignment after fixation however, It doesn't show proper control of rotational alignment.

Patients and Methods: The study was held on 20 children who have unilateral fractures on femoral or tibial shafts; with age group between 6 and 14 years.13 of them were fracture shaft femur, while 7 of them were fracture shaft tibia with different fracture sites and patterns. All was treated surgically using elastic stable intramedullary nails. Patients were prospectively followed up for 2-3 months till union was evident by X-ray radiographs. Rotational assessment was done immediately after surgery using CT axial cuts. It was also assessed clinically after union and by CT radiographs.

Results: Five cases out of thirteen of fracture femur showed rotation after union more than 15 degrees (38.5%) which is considered as rotational malalignment, while Only one case out of Seven cases of fracture tibia showed rotation after union more than 15 degrees (14.3%). Mean angle of rotation of cases of fracture femur reported immediately after surgery is 7.62 degrees ± SD 5.65 which increased to 10.54 degrees± SD 5.75 after union. Mean angle of rotation of cases of fracture tibia reported immediately after surgery is 4.00 degrees ±SD 2.77 which increased to 7.14 degrees ±SD 4.98 after union.

Conclusion: Despite the good outcome reported by fracture fixation of the lower limb long bones using ESINs, Weak Control of rotational malalignment remains a drawback for this method of fixation that should be considered by surgeons.