

Evaluation of rotational malalignment after elastic nail fixation for fractures of the lower limb in children

الملخص الانجليزي :

Elastic stable intramedullary nail (ESINs) 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 its proper control of rotational alignment is doubtful. The purpose of this study is to assess the rotational malalignment following ESINs fixation of pediatric femoral or tibial shaft fractures.

A prospective study was performed on 20 children with 13 femoral and 7 tibial shaft fractures who were treated with ESINs from 2017 to 2018. Two nails were inserted in a retrograde manner in fracture femur and in an antegrade manner in fracture tibia. Preoperative radiographs were analyzed to determine fracture pattern and location; Patients were followed clinically and radiographically until the union and routine removal of hardware. Rotational assessment was done immediately after surgery and after union using CT (computed tomography) images in comparison to the sound limb.

Mean patients' age was 8.5 years (range:6-14 years). Five cases out of the thirteen cases of fracture femur and one case out of the seven cases of fracture tibia showed rotation more than 15 degrees after union, which was considered as rotational malalignment. Mean angle of rotation of cases of fracture femur reported immediately after surgery was 7.62 degrees \pm SD 5.65 which increased to 10.54 degrees \pm SD5.75 after union. Mean angle of rotation of cases of fracture tibia reported immediately after surgery was 4.00 degrees \pm SD 2.77 which increased to 7.14 degrees \pm SD 4.98 after union.

In the current study, fracture shaft femur type A1, A2 and most of type A3 (62.5%) and fracture shaft tibia type A1, A2, and A3 had shown good stability without rotation whenever fixed with ESIN. Other surgical alternatives may be considered for fixation of another types (ie. B,C) of long bones fractures in children.