

تقييم الاستداده المعيبة عقب تثبيت كسور الطرف السفلي في الأطفال بالمسامير النخاعية المرنة

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

Background: Elastic stable intramedullary nail (ESINs) is a very popular method used in fixation of displaced is a very popular method used in fixation of displaced

Introduction: Nowadays management of pediatric fractures has shifted more towards operative intervention because of the quicker recovery, shorter rehabilitation period, less immobilization and less psychological impact to the children. Elastic stable intramedullary nails (ESINs) use is increasing due to their advantages over other methods of fixation. The technique is safe, simple, and minimally invasive. It allows closed reduction and combines the stability and elasticity in one construct. Special concerns are paid towards the rotational alignment after surgical stabilization using ESINs 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

Patients and methods: 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.

Results: 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. These cases of rotation were detected mainly in patients with comminuted, distal shaft transverse fractures.

Conclusion: Despite the good outcome reported by fracture fixation of pediatric lower limb long bones using ESINs, weak control of rotational malalignment remains a drawback for this method of fixation especially in the challenging less stable fractures. Long-term follow up is recommended for these cases. More stable methods of fixation should also be considered.