

## Novel Minimally Invasive Surgical Method in Paediatric Radial Neck Fractures

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### INTRODUCTION:

Fractures of the radial neck in children are a rare entity, representing only up to 10% of paediatric elbow fractures. The recommended treatment is based on the initial fracture angulation and translation. Methods of operative reduction of radial neck fractures include open reduction, and closed reduction via intramedullary reduction (Metaizeau technique) or via a percutaneous wire at the fracture site (Kapandji technique).

In this report, we review the use of the intramedullary reduction technique combined with the use of a percutaneous wire for the reduction and fixation of a paediatric radial neck fracture.

### REPORT:

This is a 10 year-old girl, presented to our centre with a left elbow pain after sustaining a direct trauma to her elbow during a fall. Plain radiographs on presentation noted a radial neck fracture with a fracture angulation of 60 degrees. A trial of closed manual reduction was performed, to acceptable reduction.

However, radiographs on subsequent follow-up demonstrated a displacement of the fracture, thus we decided to proceed for an operative fixation of her fracture. An intramedullary k-wire was inserted in a retrograde fashion from the distal radius and the radial head was manipulated using the Metaizeau technique. The fracture fragment was further manipulated and reduced with the assistance of a percutaneous k-wire inserted at the fracture site, and the fracture fragment was fixed with the intramedullary wire. The fracture reduction and stability was confirmed intraoperative with the use of an image intensifier.

Post operative plain radiographs showed a satisfactory reduction of 10 degrees of angulation. At 3 weeks post operation, the

intramedullary wire was removed and she was started on range-of-motion exercises, and at 5 weeks post operation, callus was noted on radiographs with no further fracture angulation (Figure 1).



**Figure 1:** Radiographs on Presentation (Left), Immediate Post-Fixation (middle) and at 5 Weeks Post-Fixation (Right)

### CONCLUSION:

Paediatric radial neck fractures are commonly treated operatively with percutaneous techniques even though anatomical reduction cannot be achieved, as the functional outcome is similar to that of an open reduction. Therefore, we recommend a combination of intramedullary and percutaneous techniques to achieve better reduction and therefore a better outcome.

### REFERENCES:

1. Metaizeau, J. P. (2004). Stable elastic intramedullary nailing for fractures of the femur in children. *The Journal of Bone & Joint Surgery British Volume*, 86(7), 954-957.