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Title

Radiological outcomes of phalangeal neck fractures in paediatric population

Purpose

Phalangeal neck fractures occur mostly in the paediatric population and if there is displacement, surgical treatment is recommended. We investigate the radiological outcome of displaced phalangeal neck fractures treated conservatively.

Methods

A retrospective review was conducted of patients with phalangeal neck fractures aged 12 and below who were treated non-surgically from 2008-2015. Patients with open fractures, intra-articular involvement, delayed presentation (more than 1 week from time of injury) or insufficient data were excluded. 24 patients were included. The effect of initial displacement of fracture and fracture classification (Al Qattan) on the healed position of the fracture was investigated. Angulation and translation (measured as a percentage of fracture width) of the distal fracture fragment in both the coronal and sagittal plane were measured from radiographs taken at 2 intervals – within 7 days of the injury and at least 21 days after the injury.

Results

The average age was 10 (range 3-12) and majority was male (19 of 24). The number of patients with Type I, IIA, IIB, and IIC fractures was 4, 9, 6, and 5 respectively. Average length of radiological follow-up was 5.8 months.

The average initial fracture angulation in the coronal and sagittal planes was 7 (SD=9.0) and 19 degrees (SD= 16.1) respectively. The average initial fracture translation in the coronal and sagittal planes was 5% (SD=10) and 7% (SD=12) respectively.

Conclusion

Patients with phalangeal neck fractures treated non-surgically did not displace significantly as the fracture healed, and fracture classification did not significantly affect the amount of further displacement during healing. There was significant improvement in the sagittal angulation (average 6 degrees, $p=0.01$) and translation (average 6%, $p=0.01$). The above suggests that displaced (Type II) phalangeal neck fractures in children may be treated conservatively.