



Supracondylar Fractures of the Humerus in Children

Plymouth Hospitals **NHS**
NHS Trust

Injury Guideline

Action:	T&O Consultants, Middle Grades and Juniors				
Info:	Orthopaedic Trauma Co-ordinators				
Related documents:	BOAST 11				
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1. A documented assessment of the limb, performed on presentation, must include the status of radial pulse, digital capillary refill time and the individual function of the radial, median (including anterior interosseous) and ulnar nerves.
2. These injuries require early surgical treatment, ideally on the day of admission. However, night time operating is not necessary unless there are indications for urgent surgery.
3. Indications for urgent surgical treatment include absent radial pulse, clinical signs of impaired perfusion of the hand and digits, and evidence of threatened skin viability. Surgical treatment is not recommended between the hours of 10pm and 8am if the radial pulse is absent as long as the hand is warm and pink and the skin not threatened.
4. Surgical stabilisation should be with bicortical wire fixation. Crossed wires are associated with a lower risk of loss of fracture reduction, whereas divergent lateral wires reduce the risk of injury to the ulnar nerve. There is no difference in the quality of stabilisation between crossed wires or divergent lateral wires, and the choice of either is based on surgeon preference.
5. If a medial wire is used, techniques to avoid ulnar nerve injury should be employed and recorded on the operation note.
6. Wires up to 2mm diameter wires should be used, the choice being made by the surgeon to best achieve stability. Wires should not be routinely buried.
7. Cubitus varus should be avoided by achieving a carrying angle (or Baumann angle) similar to the contralateral arm. This should be estimated under GA during surgery with the elbow extended after fixation.
8. The majority of nerve injuries associated with supracondylar fractures or its surgical management are transient neurapraxias and can be managed expectantly. If there is concern over iatrogenic injury then a thorough assessment with consultant input is required for consideration of nerve exploration. The threshold for exploration is lowered if associated with neurological signs and an absent radial pulse as the nerve and artery may both be trapped.
9. The majority of vascular impairments associated with supracondylar fractures resolve with fracture reduction. A perfused limb does not require brachial artery exploration whether or not the radial pulse is present.
10. In case of children presenting with an ischaemic limb, the case should be discussed with the on-call plastics team in the network prior to operative reduction.
11. If the limb remains ischaemic after open or closed fracture reduction then exploration of the brachial artery is required with a surgeon competent to perform a small vessel repair.
12. Documented post-operative monitoring of neurovascular status should occur until the treating surgeon is confident there is no risk of vascular compromise.
13. Suspicion of compartment syndrome or deterioration of perfusion should prompt immediate vascular re-assessment and intervention if required.
14. If the surgeon is satisfied with the reduction and fixation quality at the time of surgery, further post-operative imaging is not indicated.

15. Wire removal and mobilisation is typically recommended at 3 to 4 weeks.

16. Routine long-term follow up is not usually required.