



POSNA

The Core Curriculum

Fractures of the humeral shaft

Objectives

1. Describe the incidence of humeral shaft fractures in children by age
2. Discuss etiology of humeral shaft fractures by age
3. Discuss acceptable angulation of humeral shaft fractures treated nonoperatively in children
4. Discuss indications for open reduction of humeral shaft fractures in children

Discussion

Humeral shaft fractures are not common, representing less than 10% of humerus fractures in children. They are more common under age 3 and over age 12. Birth fractures of the humerus are fairly common, with or without brachial plexus palsy, manifested by paralysis or pseudoparalysis of the limb. In children under 3 years of age, humeral fractures are often linked to child abuse, but Shaw found most were from another cause. Nonetheless, child abuse should be considered when taking a history of a fracture of the humerus in a young child.

Virtually all humeral shaft fractures in young children can be managed nonoperatively, usually with a sling and swathe. Angulation is not well controlled, especially anteriorly, but the remodeling potential of the humerus is so great that considerable angulation is acceptable. Children > 5 years old can remodel up to 70 degrees of anterior angulation; even children over 12 can tolerate 30-40 degrees. The clinical appearance of the arm is more important than the radiograph. Less varus angulation can be accepted, and less angulation is acceptable in distal shaft fractures, where deformity is more visible. Radial nerve palsies may accompany humeral shaft fracture, the outlook for spontaneous recovery is excellent.

Options for treatment of a humeral shaft fracture in older children include fracture bracing, coaptation splints, hanging arm casts, and a sling and swathe or stockinet Valpeau. At the present time, fracture bracing, coaptation splints, and Valpeau dressings are most widely used. Open reduction of a child's humeral shaft fracture is rarely indicated; some patients with multiple trauma may need humeral stability to begin weightbearing, and pathologic fractures may need additional stability. Distal humeral fractures may need percutaneous fixation to maintain reduction. External fixation may be helpful for some fractures if more rigid fixation is desired, but indications in the humerus are rare.

References

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